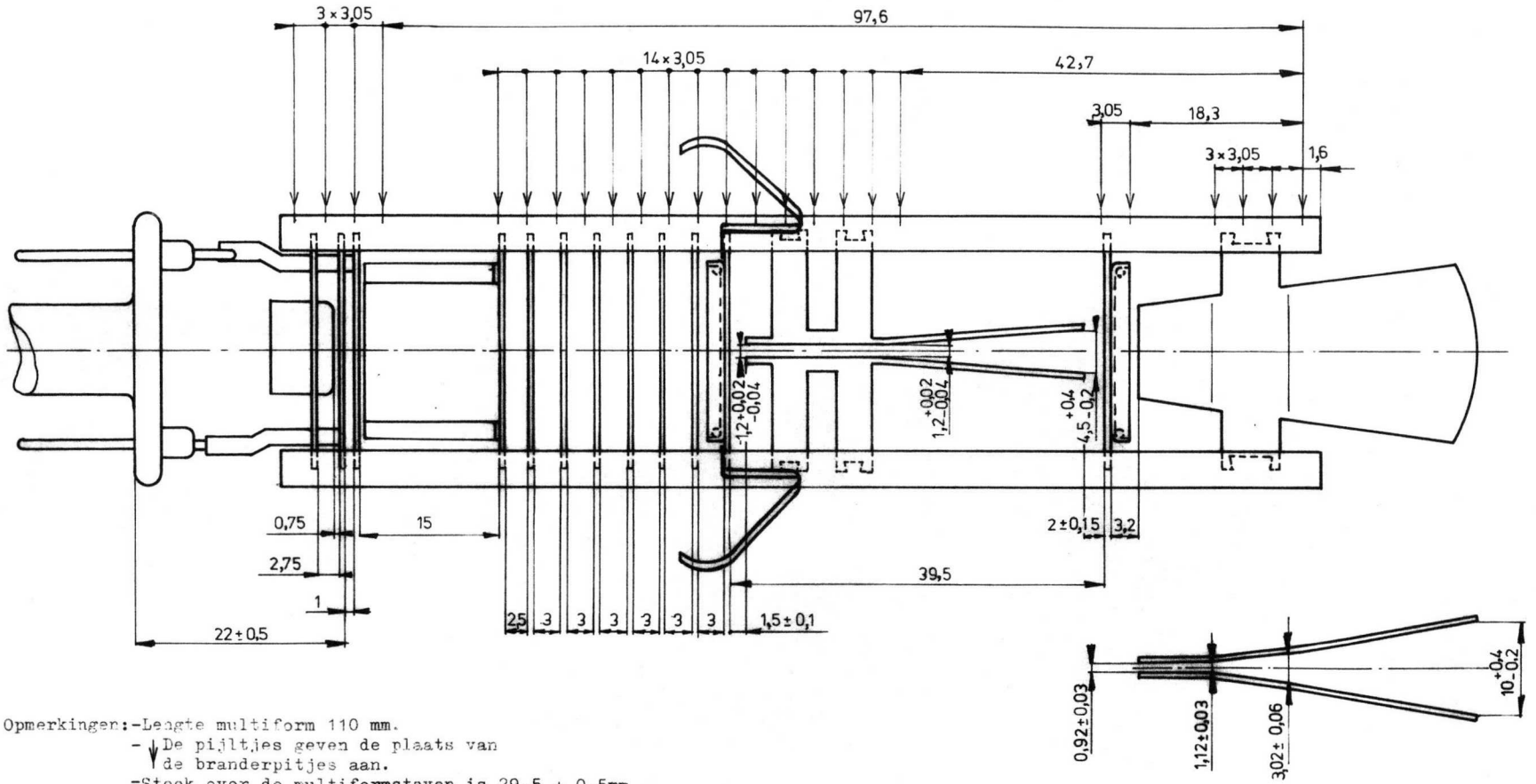


Opmerkingen:-Lengte multiform 110 mm.
- De pijltjes geven de plaats van de branderpitjes aan.
-Steek over de multiformstaven is 29.5 ± 0,5mm
Evenwijdigheid van;- G1-G2 : 0,03 mm
- Andere centreerplaten : 0,05 mm
- Y-platen: 0,02 over breedte van 4mm op midden van 1e segment.
- X-platen : 0,015 over breedte van
- 8mm op midden van 1e segment.

22233

QUANTITY	DESCRIPTION	CODE	STANDARD	REF
SCALE 2:1	PROJ EUROP	UNIT mm	GENERAL ROUGHNESS	TOLERANCES UNLESS OTHERWISE STATED ± 0,05 DIMENSION / ANGLE	UN D603

Ingedrukt kanon 14-372545

3322 137 62600

85-07-19

NAME Franssen | CHECK | SUPERS 8222 037 46271 | 1 | DAT 85-07-19

210 — 001 | 027 | A3

4322 240 00792

ELCOMA	QUALITY LABORA
	KHR-89/SB-786

Fons,
Hierbij retour.
7.3.'86 Jol.
12h.

INTEROFFICE

From : A.G. Sieben Quali

To : See copylist

Enclosed please find the following:

documents	12NC: 8222 037 +	name
Drawing + Q.D.S.	1996	centring plate g2
(incl. Insp.	1981	centring plate g5
certificate)	1991	centring plate g1
	1997	centring plate g4
	1998	centring plate g2-2
	1999	centring plate g2-1

The documents are dated 85.02.15.

Alle documents have been brought in line with the agreements, reached during the visit of Messrs. DÜrr/Schuster of Saxonia-Franke GmbH.
Moreover, a definition of "a lot" has been added to the inspection certificates.
The Purchasing Dept. is now requested to obtain the formal appointment for the quality assurance system for these products (centring plates).
Proposals for a similar system for the deflection plates deliveries can be expected within some weeks.

Regards,
A.G. Sieben

Copy to Messrs.: Koppelmans
Vinders (3x)
Geurts
Kicken
Zeppenfeld

ELCOMA	QUALITY LABORATORY PHILIPS HEERLEN		
	KHR-89/SB-786	1	1985.02.20

ONTVANGEN
Ontv. 20 FEB. 1985
A. G. SIEBEN

INTEROFFICE MEMO

From : A.G. Sieben Quality Lab. Instrument C.R.T.'s

To : See copylist

Enclosed please find the following:

documents	12NC: 8222 037 +	name
Drawing + Q.D.S.	1996	centring plate g2
(incl. Insp.	1981	centring plate g5
certificate)	1991	centring plate g1
	1997	centring plate g4
	1998	centring plate g2-2
	1999	centring plate g2-1

The documents are dated 85.02.15.

Alle documents have been brought in line with the agreements, reached during the visit of Messrs. Dürr/Schuster of Saxonia-Franke GmbH.
Moreover, a definition of "a lot" has been added to the inspection certificates.
The Purchasing Dept. is now requested to obtain the formal appointment for the quality assurance system for these products (centring plates).
Proposals for a similar system for the deflection plates deliveries can be expected within some weeks.

Regards,
A.G. Sieben

Copy to Messrs.: Koppelmans
Vinders (3x)
Geurts
Kicken
Zeppenfeld

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Degreased	1,0 %	S 4
2. Burr	1 0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife-edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2 Burr not permitted Special attention should be paid to the centre hole.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4
3 Squareness lug	6,5 %	S 4
4. Concentricity centre hole	-	

← Eis!

B. Equipment

For A1: Any; accuracy ± 5 micron
For A2: Special measuring apparatus
For A3: Jena
For A4: To be defined

C. Method and standards

See sheet 3 + 4

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3 + 4).

	Q.D.S CENTRING PLATE G2			8222 037 19960			
NAME OFFERMANS		SUPERS.	4	110 — 002	010		A4
KH	CHECK	DAT. 85-02-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1 % / S4 Visual
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : PITCH Centring holes

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. : n = 2 at start
n = 2 at end } of the batch

Parameter : CONCENTRICITY Centre hole ϕ 0,02

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G2)
Inspection certificate
gebr. o.a. in:

8222 037 19960

85-02-15

NAME Offermans | SUPERS | 04 | 110 — 003 | 010 | A3
KH | CHECK | DAT 85-02-15

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5/lug at start
n = 5/lug at end } of the batch

Parameter : SQUARENESS LUG < 0,2 (2X)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 400																								
[/um]																								
300																								
200																								
100																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05 after bending/ (cutting)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degrease																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

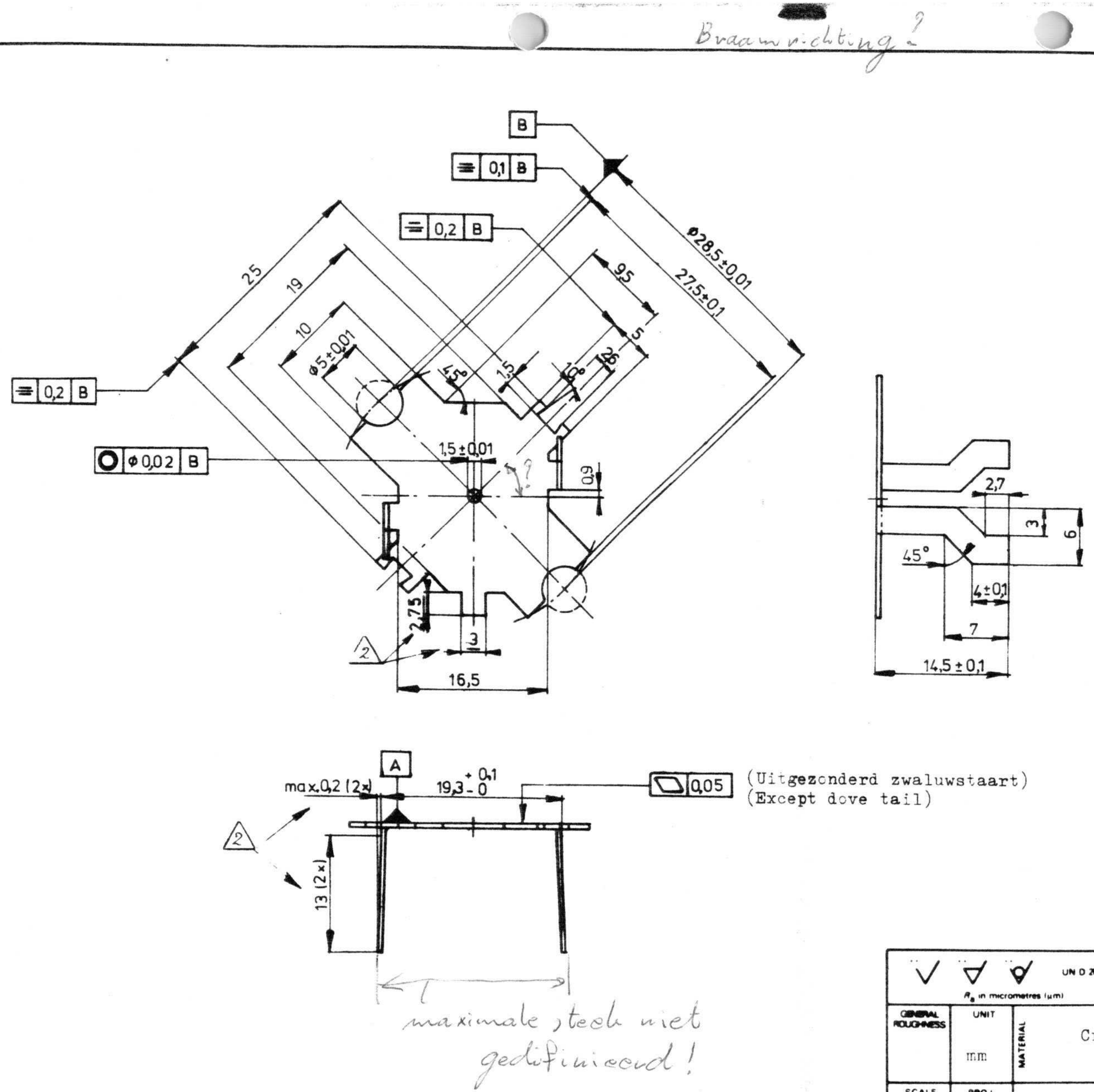
89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G2)
Inspection certificate
Gebr.o.a. in:

8222 037 19960

85-02-15

NAME	Offermans	SUPERS		4	110 — 004	010	A3
KH	CHECK	DAT	85-02-15	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS			



(Uitgezonderd zwaluwstaart)
(Except dove tail)

Opmerkingen: R max, 0,3 mm tenzij anders aangegeven.
(R max, 0,3 mm unless stated otherwise.)

GENERAL ROUGHNESS	R_a in micrometres (μm) UN D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION ±0,2, ANGLE ± 1°	UN D 603
UNIT: mm	MATERIAL	Cr Ni St 18/12 UZN-N 286 0,5 ± 0,02	ASSEMBLY NO / QUANT / PATTERN NO
SCALE: 2:1	PROJ EUROP / TREATMENT	Ontbraamd (Deburred) Ontvet (Degreasei)	ORDER NO / QUANT
CLASS NO		CENTREERPLAAT (G2) (CENTRING PLATE G2)	8222 037 1996
NAME: Franssen	CHECK	SUPERS / DAT	~~1 84-05-10~~ 2 85-01-24 A3

Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 02681

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Degreased	1,0 %	S 4
2 Burr	1,0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife - edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted Special attention should be paid to the centre hole.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4

B. Equipment

For A1: Any; accuracy ± 5 micron
For A2: Special measuring apparatus

C. Method and standards

See sheet 3

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied bij an inspection certificate (sheet 3).

	Q.D.S CENTRING PLATE G5		8222 037 19810		
NAME OFFERMANS	SUPERS.	3	110 — 002	010	A4
KH CHECK	DAT. 85-02-14	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR. : A.Q.L = 1 % / S4 visual
VAR. : n = 5 at start
n = 5 at end } of the batch.

Parameter : FLATNESS [/] 0,05

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR. : A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch.

Parameter : PITCH CENTRING HOLES

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

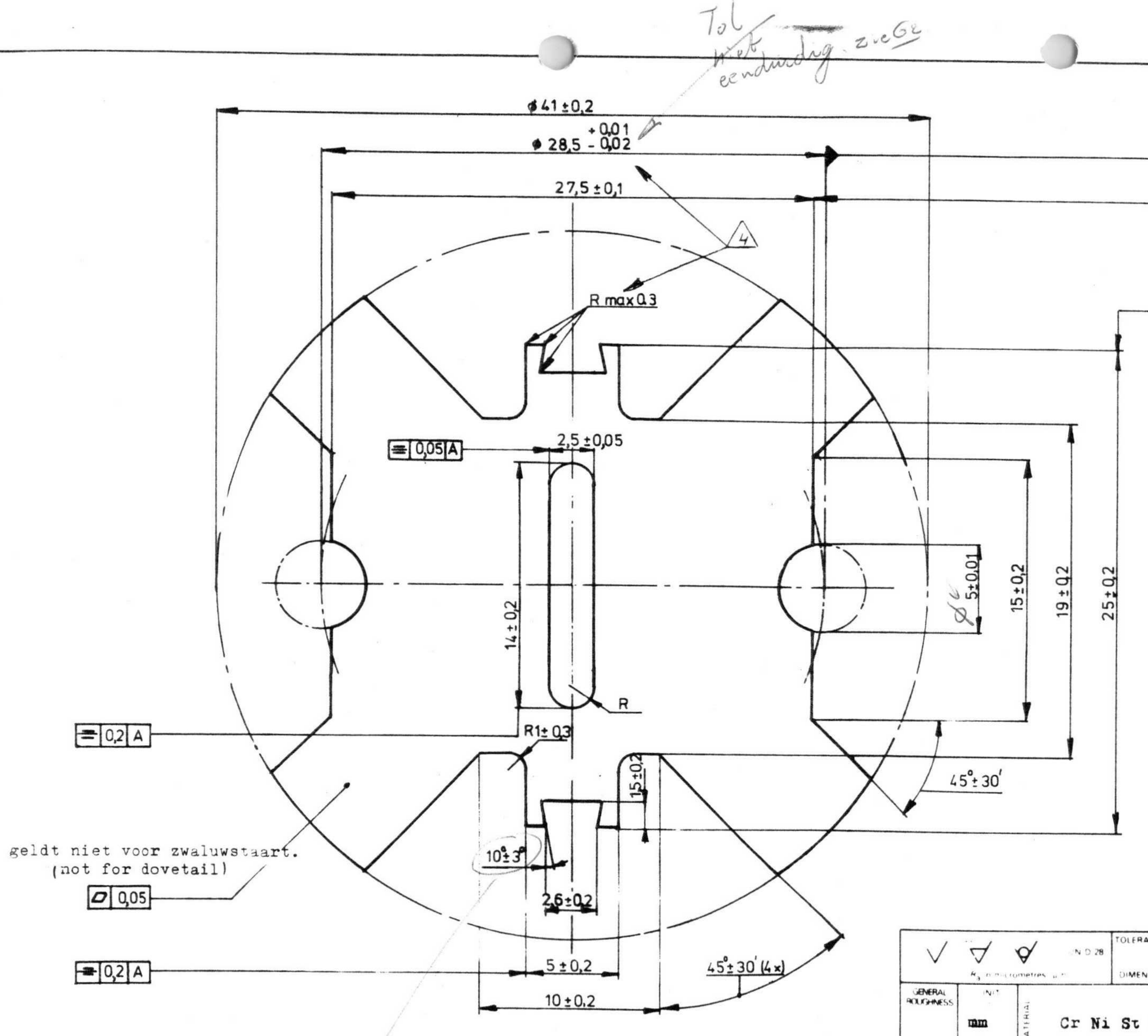
Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g, significant tools are interchanged or overhauled.

89222

	Q.D.S. (ONTWERP) CENTRING PLATE (G5) Inspection certificate Gebr. o.a. in :	8222 037 19810	85-02-14
NAME	SUPERS 85-02-14	3 110 — 003 010	A3
CHECK	DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	



R max.0,5 tenzij anders aangegeven.
R max.0,5 unless stated otherwise)

Kontroleren volgens QDS.blad 110-002
(Inspection according to QDS sheet 110-002)

GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr Ni St band 18/12 UZN-W 286 0,75±0,02
SCALE: 4:1	PROJECTION	TREATMENT: Ontbraamd (Degreased) Ontvet (Degreased)
CLASS NO.		**CENTREERPLAAT G5** (Centring plate G5)
NAME: FRANSSEN	CHECK	SUPERS / DAT

TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE — UN D 28, UN D 603

8222 037 1981

1 82-11-02
2 82-11-09
3 83-09-05
4 83-10-24

A3

4322 240 02681

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Degreased	1,0 %	S 4
2. Burr	1,0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife - edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted. Special attention should be paid to the centre hole.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4
3. Concentricity centre-hole	----	

eis.

B. Equipment

For A1: Any; accuracy ± 5 micron
For A2: Special measuring apparatus
For A3: Jena

?

C. Method and standards

See sheet 3

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied bij an inspection certificate (sheet 3).

	Q.D.S. CENTRING PLATE G1			8222 037 19910		
NAME OFFERMANS		SUPERS.	3	110 — 002	010	A4
KH	CHECK	DAT. 85-02-14	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1 % / S4 Visual
VAR. : n = 5 at start } of the batch
n = 5 at end

Parameter : FLATNESS [/] 0,05

Sample size n:																							
No. of defects																							
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																							
[/um]																							
60																							
40																							
20																							
0																							
Yr.Mo.Day																							

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start } of the batch
n = 5 at end

Parameter : PITCH CENTRING HOLES

Sample size n:																							
No. of defects																							
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 20																							
0																							
- 20																							
Yr.Mo.Day																							

Inspection : ATTR.: ----
VAR. : n = 2 at start } of the batch
n = 2 at end

Parameter : CONCENTRICITY Centre hole ϕ 0,02

Sample size n:																							
No. of defects																							
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
>40																							
[/um]																							
30																							
20																							
10																							
0																							
Yr.Mo.Day																							

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																							
Burr																							

Lotrelease Sign.:								
Yr.Mo.Day								
Remark								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

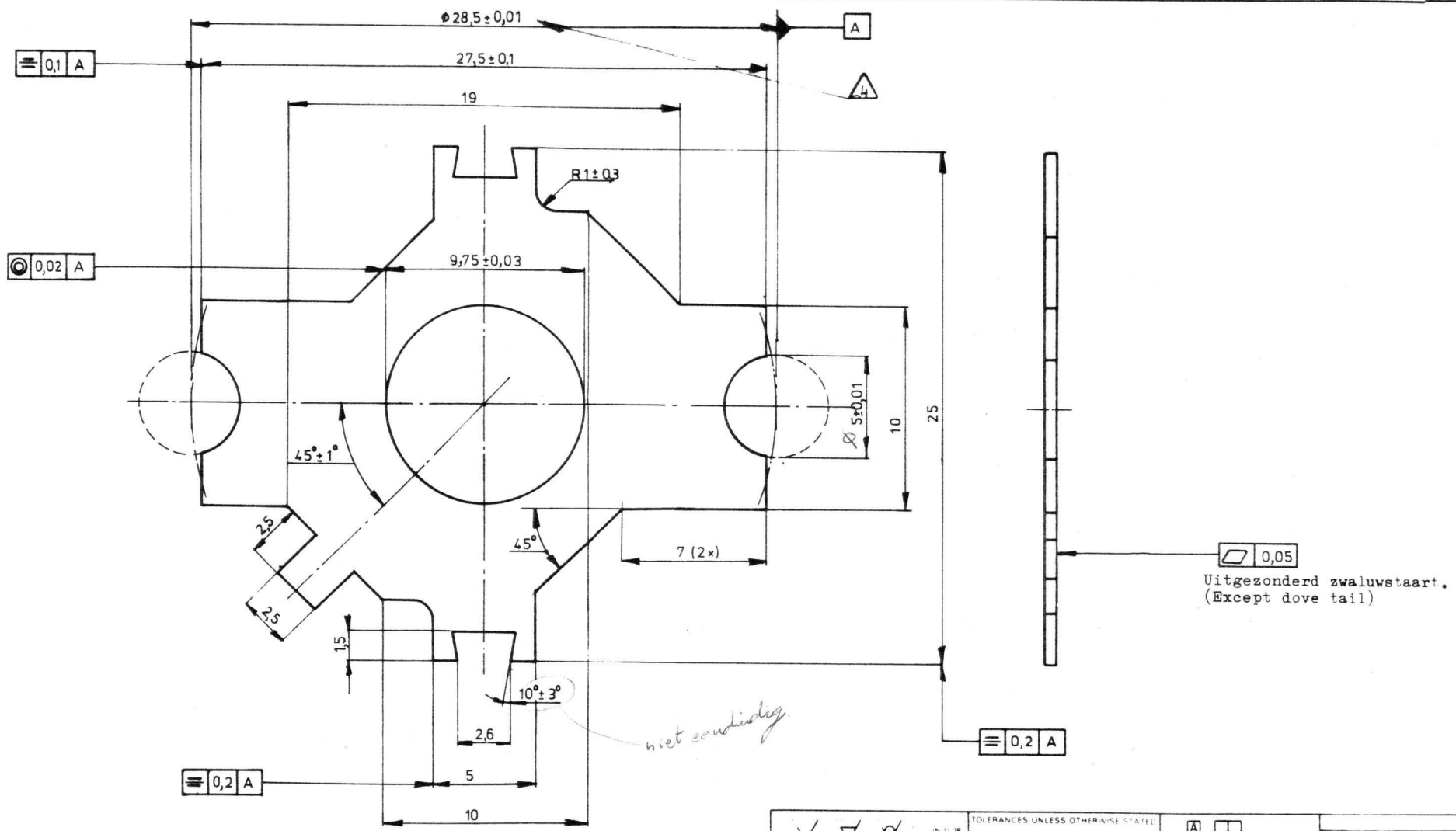
(ONTWERP)
Q.D.S.
CENTRING PLATE (G1)
Inspection certificate
Gebr, o. a. in:

8222 037 19910

85-02-15

A3

NAME offermans | SUPERS | 3 | 110 — 003 010
KH | CHECK | DAT 85-02-15



Opmerkingen: R.max. 0,3 tenzij anders aangegeven.
(Notes) (R max. 0,3 unless stated otherwise)

GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr Ni St18/12 UZN-N 286 0,5 ± 0,02	
SCALE: 5:1	PROJ. ERROR	TREATMENT: Ontbraamd (Deburred) Ontvet (Degreased)	
CLASS NO:		CENTREERPLAAT (G1) (Centring plate G1)	8222 037 1991
NAME: Franssen	CHECK	SUPERS	DAT

TOLERANCES UNLESS OTHERWISE STATED: DIMENSION ± 0,2 | ANGLE

ASSEMBLY NO. | QUANT. | PARTS NO. | ORDER NO. | QUANT.

~~1 83-09-05~~
~~2 84-01-06~~
~~3 84-06-18~~
4 85-02-13

A3

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Degreased	1,0 %	S 4
2. Burr	1,0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife - edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted Special attention should be paid to the centre-hole.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4
3. Concentricity centre-hole	-	

B. Equipment

For A1: Any; accuracy ± 5 micron
For A2: Special measuring apparatus
For A3: Jena

C. Method and standards

See sheet 3

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3)

	Q.D.S. CENTRING PLATE G4		8222 037 19970		
NAME OFFERMANS	SUPERS.	3	110 — 002	010	A4
KH CHECK	DAT. 85-02-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1 % / S4 Visual
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : PITCH Centring holes

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. : n = 2 at start
n = 2 at end } of the batch

Parameter : CONCENTRICITY Centre hole ϕ 0,02

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

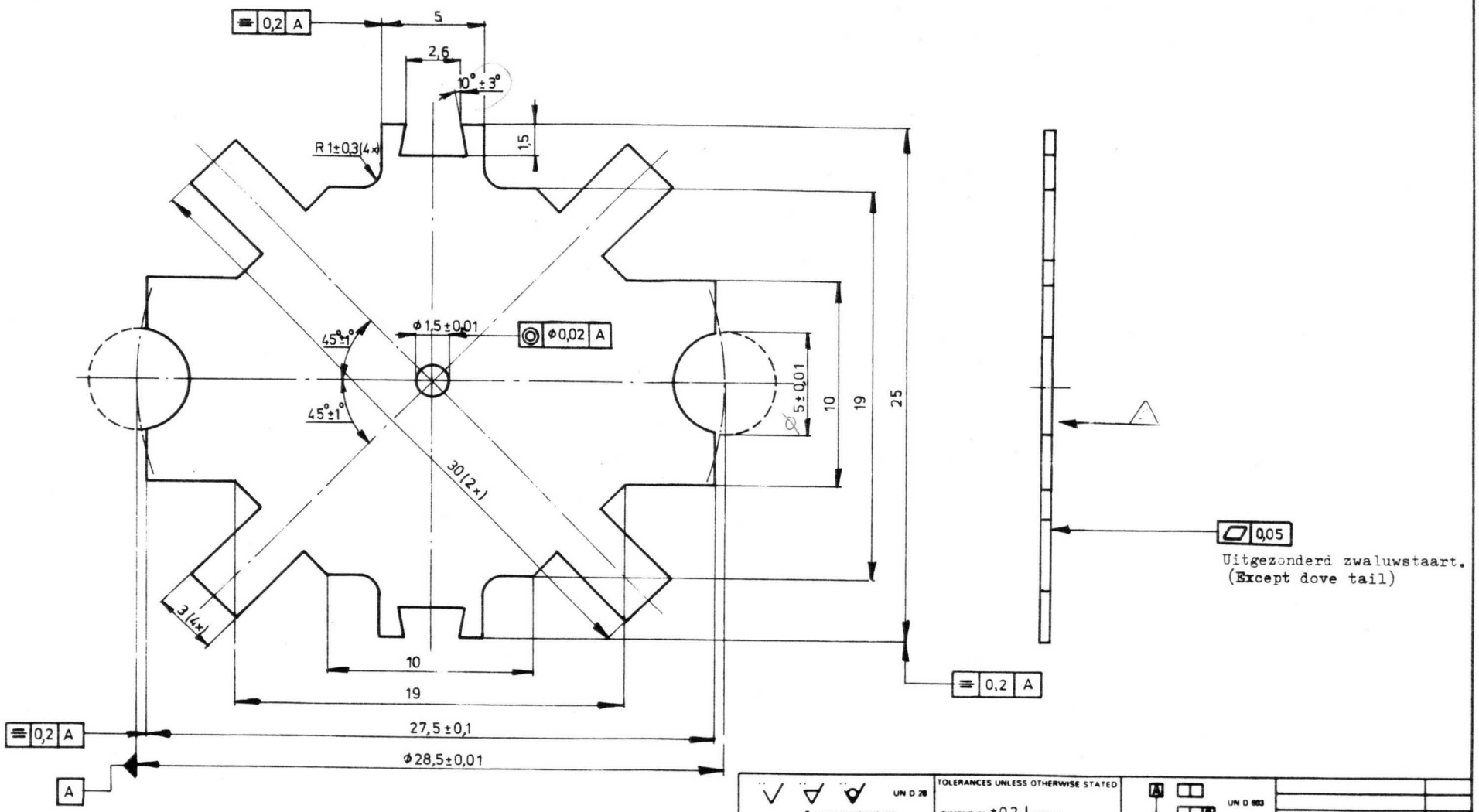
89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G4)
Inspection certificate
gebr. o.a. in:

8222 037 19970

85-02-15

NAME Offermans | SUPERS | 3 | 110 — 003 | 010 | A3
KH | CHECK | DAT 85-02-15



Opmerkingen: R max. 0,3 mm tenzij anders aangegeven.
(Notes) (R max. 0,3 mm unless stated otherwise.)

$\sqrt{}$ $\sqrt{}$ $\sqrt{}$ UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED DIMENSION ±0,2 ANGLE	UN D 883	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr Ni St 18/12 UZN-N 286 0,5 ± 0,02	PATTERN NO
SCALE 5:1	PROJ EUROP	TREATMENT: Ontbraamd (Deburred) Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	CENTREERPLAAT(G4) (Centring plate G4)	8222 037 1997	1 84-05-10 2 84-06-18
NAME Franssen	SUPERS		A3
CHECK	DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

4322 240 02681

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL.
1. Degreased	1,0 %	S 4
2 Burr	1,0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife-edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted Special attention should be paid to the centre hole.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4
3. Squareness lug	6,5 %	S 4
4. Concentricity centre hole	-	
5. Cutting-off dimension	6,5 %	S 4

eis.!

B. Equipment

For A1: Any; accuracy ± 5 micron.
For A2: Special measuring apparatus
For A3: To be defined
For A4: Jena
For A5: To be defined

?

C. Method and standards

See sheet 3 + 4

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3 + 4).

	Q.D.S CENTRING PLATE G2.2		8222 037 19980		
NAME OFFERMANS	SUPERS.	4	110 — 002	010	A4
KH CHECK	DAT. 85-02-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1% / S4 Visual
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : PITCH CENTRING HOLES

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. : n = 2 at start
n = 2 at end } of the batch

Parameter : CONCENTRICITY centre hole ϕ 0,02

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G2.2)
Inspection certificate
Gebr. o. a. in:

8222 037 19980

85-02-15

A3

NAME Offermans
KH CHECK
SUPERS
DAT 85-02-15

INSPECTION CERTIFICATE

LOT:									
LOTSIZE:									

Inspection : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5/lug at start
n = 5/lug at end } of the batch

Parameter : SQUARNESS LUG < 0,2

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 400																								
[/um]																								
300																								
200																								
100																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : CUTTING-OFF DIMENSION 16,7 ± 0,1

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
16,9																								
[mm]																								
16,8																								
16,7																								
16,6																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05 after bending/ (cutting)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G2.2)
Inspection certificate
Gebr. o. a. in:

8222 037 19980

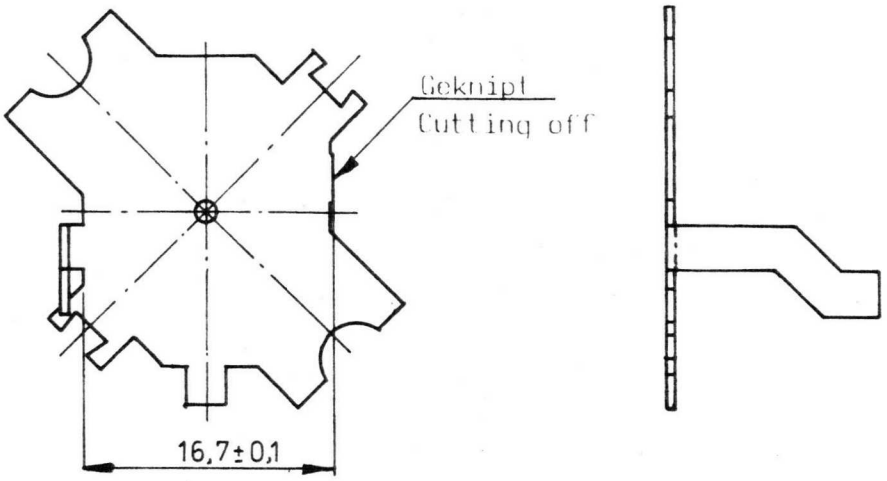
85-02-15

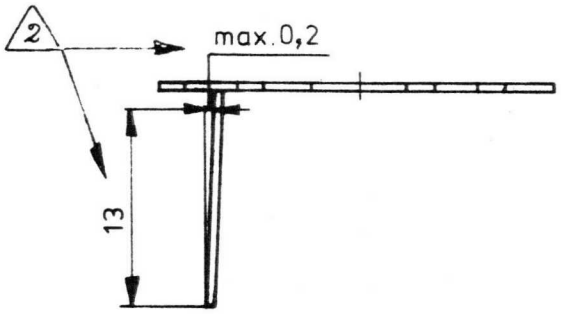
A3

NAME Offermans | SUPERS | 4 | 110 — 004 010

KH | CHECK | DAT 85-02-15

Braamrichting?





R_a in micrometres (µm) UN D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Centreerplaat G2 8222 037 19960 (Centring plate G2)	PATTERN NO
SCALE: 2:1	PROJ: EUROP	TREATMENT: Ontbraamd (Deburred) Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	CENTREERPLAAT G2.2 (CENTRING PLATE G2.2)	8222 037 1998	1 84-05-10 (~~84-05-10~~) 2 85_01_24
NAME Franssen	SUPERS	—	A4
CHECK	DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

4322 240 02641

1. VISUAL

A. Inspection points.

	A.Q.L.	LEVEL.
1. Degreased	1,0 %	S 4
2. Burr	1,0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife- edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted. Special attention should be paid to the centre hole.

2. DIMENSIONAL

A. Inspection points.

	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4
3. Squareness lug	6,5 %	S 4
4. Concentricity centre hole	-	
5. Cutting-off dimension	6,5 %	S 4

B. Equipment

For A1: Any; accuracy ± 5 micron.
For A2: Special measuring apparatus
For A3: To be defined
For A4: Jena
For A5: To be defined

C. Method and standards

See sheet 3 + 4

GENERAL

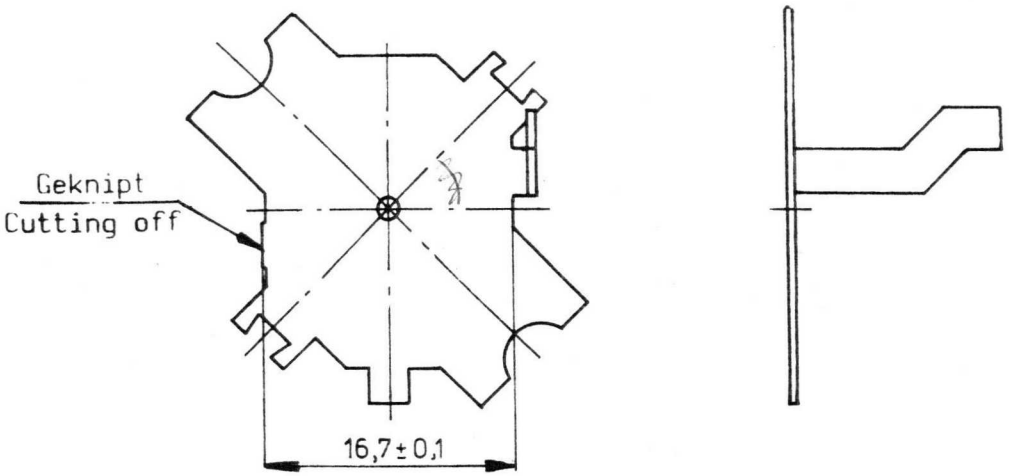
The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3 + 4).

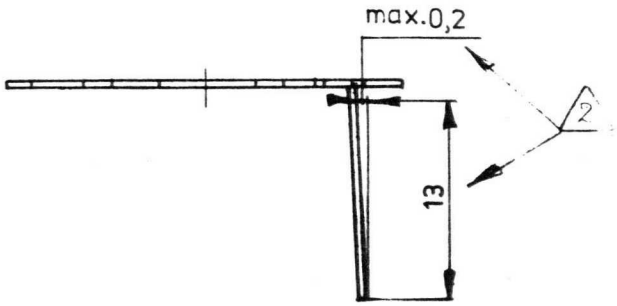
	Q.D.S. CENTRING PLATE G2.1		8222 037 19990		
NAME SEEFERMANS	SUPERS.	4	110 — 002	010	A4
KH CHECK	DAT. 85-02-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PHILIPS

M.I.S.D.
Electronic components and materials Division

Draairichting!





UN D 28 — R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 803	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Centreerplaat G2 (Centring plate G2) 8222 037 19960	PATTERN NO
SCALE: 2:1	PROJ EUROP	TREATMENT: Ontbraamd (Deburred); Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	CENTREERPLAAT G2.1 (CENTRING PLATE G2.1)	8222 037 [illegible]999	1 ~~86-05-10~~ 2 85_01_17
NAME Franssen	SUPERS	—	A4
CHECK	DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

4322 240 02641

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1% / S4 Visual
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : PITCH CENTRING HOLES

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. : n = 2 at start
n = 2 at end } of the batch

Parameter : CONCENTRICITY centre hole ϕ 0,02

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5/1ug at start
n = 5/1ug at end } of the batch

Parameter : SQUARNESS LUG < 0,2

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 400																								
[/um]																								
300																								
200																								
100																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : CUTTING-OFF DIMENSION 16,7 ± 0,1

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
16,9																								
[mm]																								
16,8																								
16,7																								
16,6																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05 after bending/(cutting)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G2.1)
Inspection certificate
Gebr. o. a. in:

8222 037 19990

85-02-15

NAME Offermans | SUPERS | 4 | 110 — 004 010 | A3
KH | CHECK | DAT 85-02-15 | Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

E L C O M A	QUALITY LABORATORY PHILIPS HEERLEN		
	KHR-89/SB-801	1	1985.04.09

INTEROFFICE MEMO

From : A.G. Sieben — Qual. lab. Instr. CRT's

To : See copylist

Enclosed please find the following

documents	12 NC: 8222 037 +	name
Drawing	1994	Y-plate
QDS	1993	X-plate
incl.	1987	Y-plate
Insp. cert.	1986	X-plate

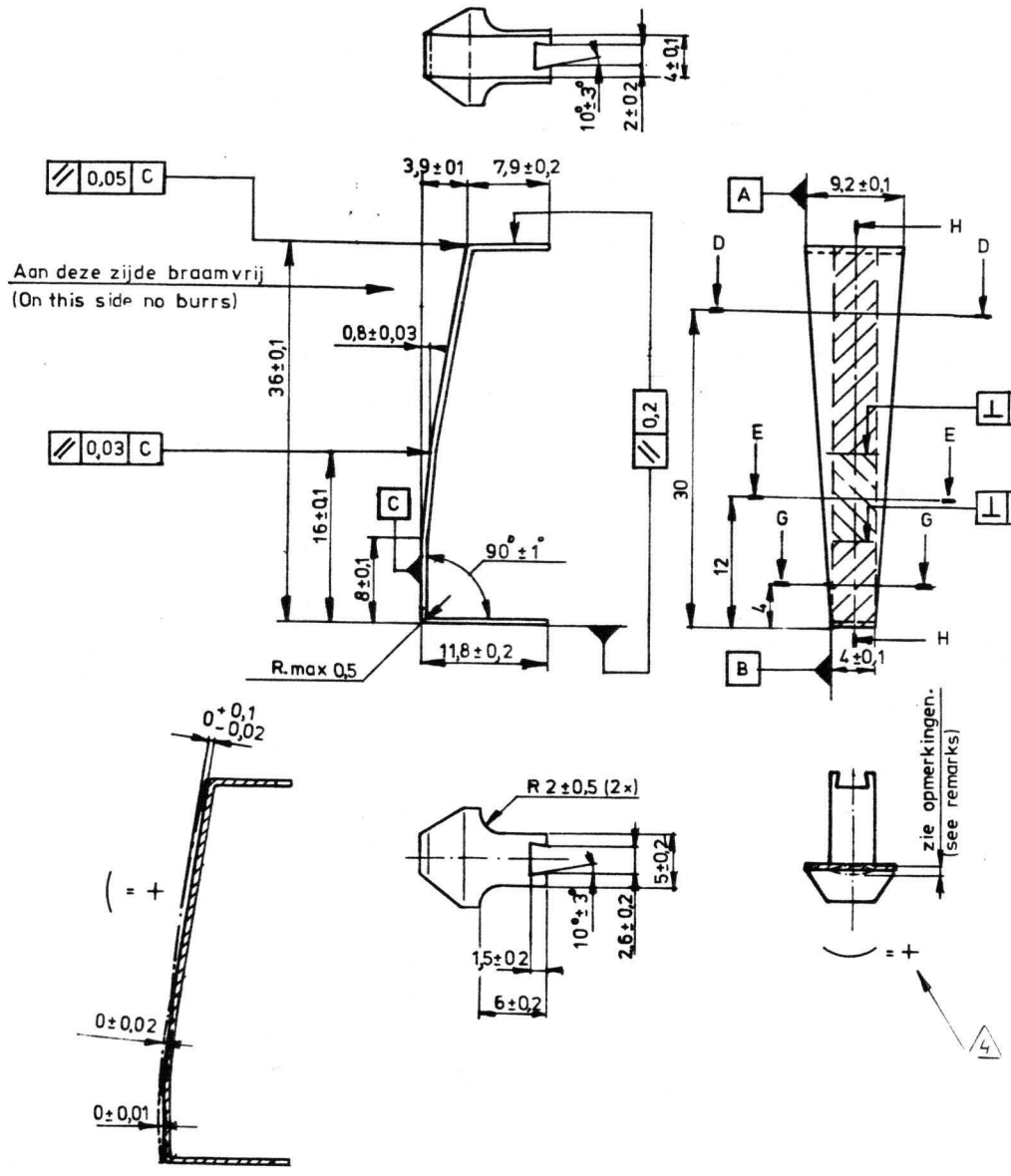
The documents are dated 85.03.06 (QDS) + 84.04.01/02 (drawings).

These documents contain the proposals for the quality assurance system for these products.
The purchasing dept. is now requested to obtain formal approval from the supplier (Messrs. Dürr/Schuster of Saxonia Franke GmbH).

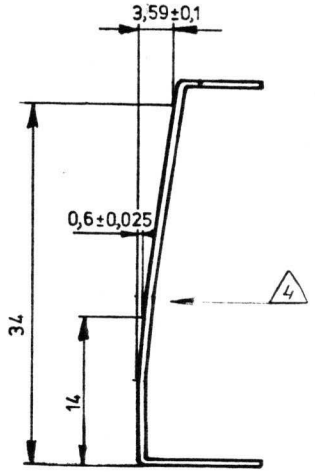
Regards,
A.G. Sieben

Copy to Messrs.: Koppelmans
Geurts
Bonten (3x)
Kicken
Zeppenfeld

ONTVANGEN
Ontv. 12 APR. 1985
A. G. SIEBEN



DOORSNEDE H- H
(Cross section H-H)



Specificatie van pijlhoogte.
(Specification of rise of arc.)

Opmerkingen. Doorsnede D - D 0±0,01 mm over gearceerd gebied.
(Remarks) (Cross-section D - D 0±0,01 mm over hatched area.)

Doorsnede E - E 0±0,01 mm over gearceerd gebied.
(Cross-section E - E 0±0,01 mm over hatched area.)

Doorsnede G - G 0± 0,01 mm over gearceerd gebied.
(Cross-section G - G 0±0,01 mm over hatched area.)

Kontroleren vlg. QDS blad 110-002 en 110-003.
(Inspection according to QDS sheet 110-002 and 110-003.)

R.max. 0,3 mm tenzij anders aangegeven.
(R.max. 0,3 mm unless stated otherwise.

UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr Ni St 18/12 UZN - N 286 0,5 ± 0,02	PATTERN NO
SCALE: 2:1	PROJ EUROP	TREATMENT: Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	Y- PLAAT (Y- PLATE)	8222 037 1994	1 16-12-83; 2 05-11-84; 3 22-02-85; 4 01-04-85
NAME Franssen	SUPERS		A3
CHECK	DAT	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr.	1,0 %	S 4
2. Surface condition.	1,0 %	S 4
3. Flatness-(cross-directions: GG+DD)	1,0 %	S 4/dir.
-(longitudinal dir GG+DD)	1,0 %	S 4/dir.
4. Overall height	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife-edge rule
4. For A4: Gauge; maximum dimension 36,13 mm.

C. Methods and Standards

1. For A1: Burr not permitted (see note on drawing).
   Burr around dovetails permitted.
2. For A2: Free from scratches and dents.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness Longitudinal direction (1x)	-	-
2. Rise of arc. (2x)	1,0 %	S 4/rise
3. Squareness breakline (1x)	1,0 %	S 4 ?

B. Equipment.

For A1 : Any accuracy ± 10/um
For A2 : Special measuring apparatus nr. 9/12346
For A3 : Any accuracy ± 10/um

C. Methods and standards.

For A1 : Longitudinal direction: over the centre line.

General.

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3 + 4).

	Q.D.S. Y - PLATE		8222 037 19940		
NAME OFFERMANS	SUPERS.	2	110 — 002	010	A4
KH CHECK	DAT. 85-03-05	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 5 at start } of the batch
n = 5 at end

Parameter : Flatness plane HH (⊥ DD)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 80																								
+ 40																								
0																								
- 40																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 %/S2 S4
VAR. : n = 5 at start } of the batch
n = 5 at end

Parameter : Squareness breakline (< 0,05)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Flatness GG																								
Flatness DD																								
Flatness HH(GG)																								

Lotrelease Sign.:								
Yr.Mo.Day								
Remark								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222	ONTWERP Q.D.S. Y - PLATE Inspection certificate ~~Gebr. o. a. in:~~	8222 037 19940	~~85-03-05~~ ~~**-**-**~~ ~~**-**-**~~ ~~**-**-**~~ ~~**-**-**~~
NAME ~~OFFERMANSx~~	SUPERS	~~04~~ ~~110~~ — ~~003~~ ~~010~~	A3
KH CHECK	DAT 85-03-05		

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:									
LOTSIZE:									

Inspection : ATTR.: A.Q.L. = 1 %/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Rise of arc at 14 mm 0,600 ± 0,025

Sample size n:																								
No. of defects																								
START/END [mm]	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
0,625																								
0,600																								
0,575																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Rise of arc at 34 mm 3,59 ± 0,1

Sample size n:																								
No. of defects																								
START/END [mm.]	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
3,69																								
3,59																								
3,49																								
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Surface cond																								
Overall height																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

ONTWERP
Q.D.S. Y - PLATE

Inspection certificate
Gebr. o. a. in:

8222 037 19940

85-03-05
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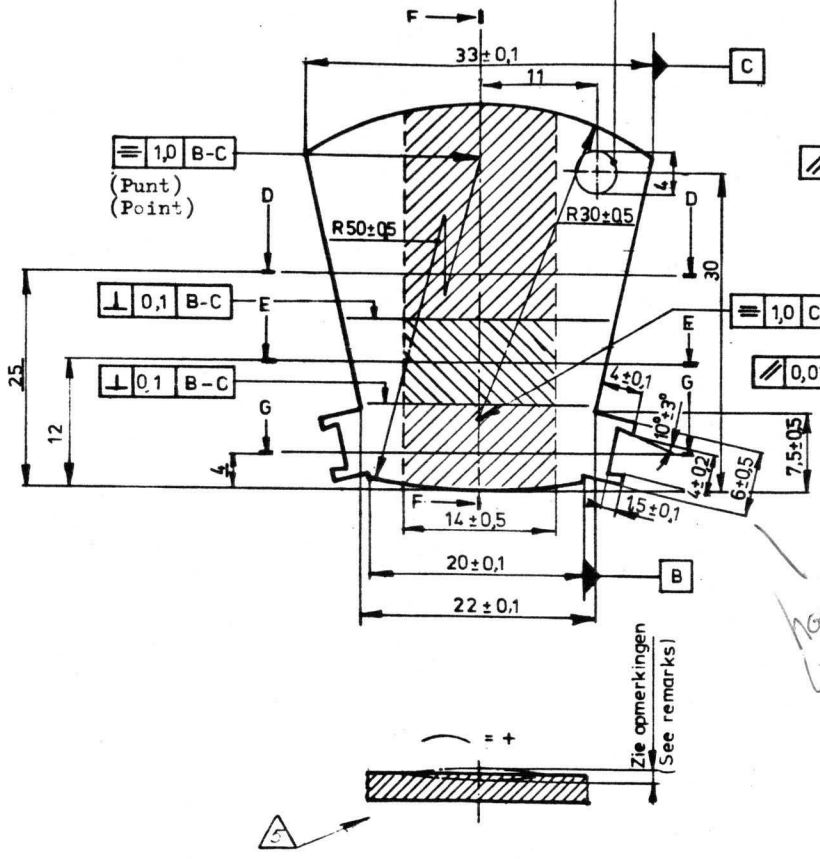
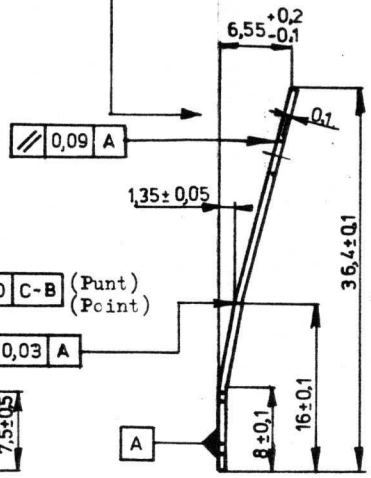
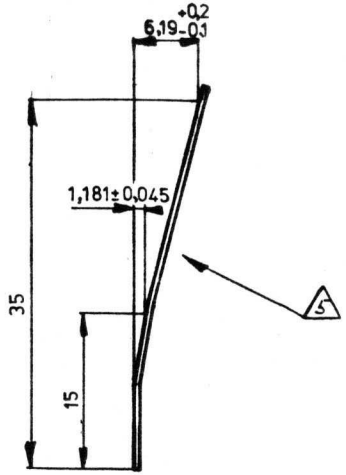
NAME	OFFERMANSx	SUPERS		04	110 — 004	010	A3
KH	CHECK	DAT	85-03-05	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS			

Herkenningsteken voor braamzijde bij buigen.
Sign of recognition for burr side by bending

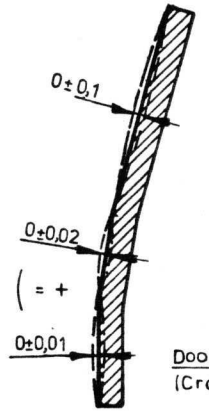


Aan deze zijde braamvrij
(On this side no burrs)





Specificatie van pijlhoogte
(Specification of rise of arc)



Doorsnede F-F
(Cross section F-F)

Opmerkingen:
(Remarks)

Kontroleren vlg. QDS blad 110-002 en 110-003
(Inspection according to QDS sheet 110-002 and 110-003.)

R max. 0,3 mm tenzij anders aangegeven.
(R max. 0,3 mm unless stated otherwise)

Doorsnede D - D 0±0,02 mm over gearceerd gebied.
(Cross-section D - D 0±0,02 mm over hatched area)

Doorsnede E - E 0±0,015 mm over gearceerd gebied.
(Cross-section E - E 0±0,015 mm over hatched area)

Doorsnede G - G 0±0,01 mm over gearceerd gebied.
(Cross-section G - G 0±0,01 mm over hatched area)

R_a in micrometres (µm) UN D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION, ANGLE	UN D 603		ASSEMBLY NO	QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: CrN: 18/12 UZN-N 286; 0,75 ± 0,02		PATTERN NO	
SCALE: 2:1	PROJ EUROP	TREATMENT: Ontvet (Degreased)		ORDER NO	QUANT
CLASS NO		X - PLAAT (X - PLATE)	8222 037 1993		
NAME: Franssen	SUPERS				
CHECK	DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS			A3

1 16-12-83
2 09-08-84
3 17-01-85
4 22-02-85
5 02-04-85

4322 240 02681

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr.	1,0 %	S 4
2. Surface condition	1,0 %	S 4
3. Flatness (cross-direction: 2x)	1,0 %	S 4/dir

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife edge rule.

C. Methods and Standards

1. For A1: Burr not permitted (see note on drawing).
   Burr around dovetails are permitted.
2. For A2: Free from scratches and dents.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness. Cross-direction (2x)	-	-
2. Parallelism. (1x)	1,0 %	S 4
3. Rise of arc. (2x)	1,0 %	S 4/rise
4. Squarness breakline (1x)	1,0 %	S 2

B. Equipment.

For A1-A2 : Perto-meter or equivalent.
For A3 : Special measuring apparatus nr. 9/12346.
For A4 : Any, accuracy ± 10 /um.

C. Method and standards.

For A1 : Cross direction: on the indicated places in the hatched area.
For A2 : Measuring in the cross direction at 1 mm under the upper breakline.

General.

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3 + 4).

Q.D.S. X-PLATE			8222 037 19930			
NAME OFFERMANS	SUPERS.	1	110 — 002	010		A4
KH CHECK	DAT. 85-03-06	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:
LOTSIZE:

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch.

Parameter : Flatness plane GG (crossdir: < 0,01)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 10																								
0																								
- 10																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch.

Parameter : Flatness plane EE (crossdir. < 0,015

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 15																								
0																								
- 15																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Parallelism (< 0,03)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
> 40																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

ONTWERP
X - PLAAT
X - PLATE
Inspection certificate
Gebr. o. a. in:

8222 037 19930

85-03-06
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NAME OFFERMANS | SUPERS | 04 | 110 — 003 — 010 | A3
KH | CHECK | DAT 85-03-06

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Rise of arc: on 15 mm: 1,181 ± 0,045 mm

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[mm]																								
1,226																								
1,181																								
1,136																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Rise of arc on 35 mm: 6,19 $^{+\ 0,2}_{-\ 0,1}$ mm

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[mm]																								
6,39																								
6,19																								
6,09																								
Yr.Mo.Day																								

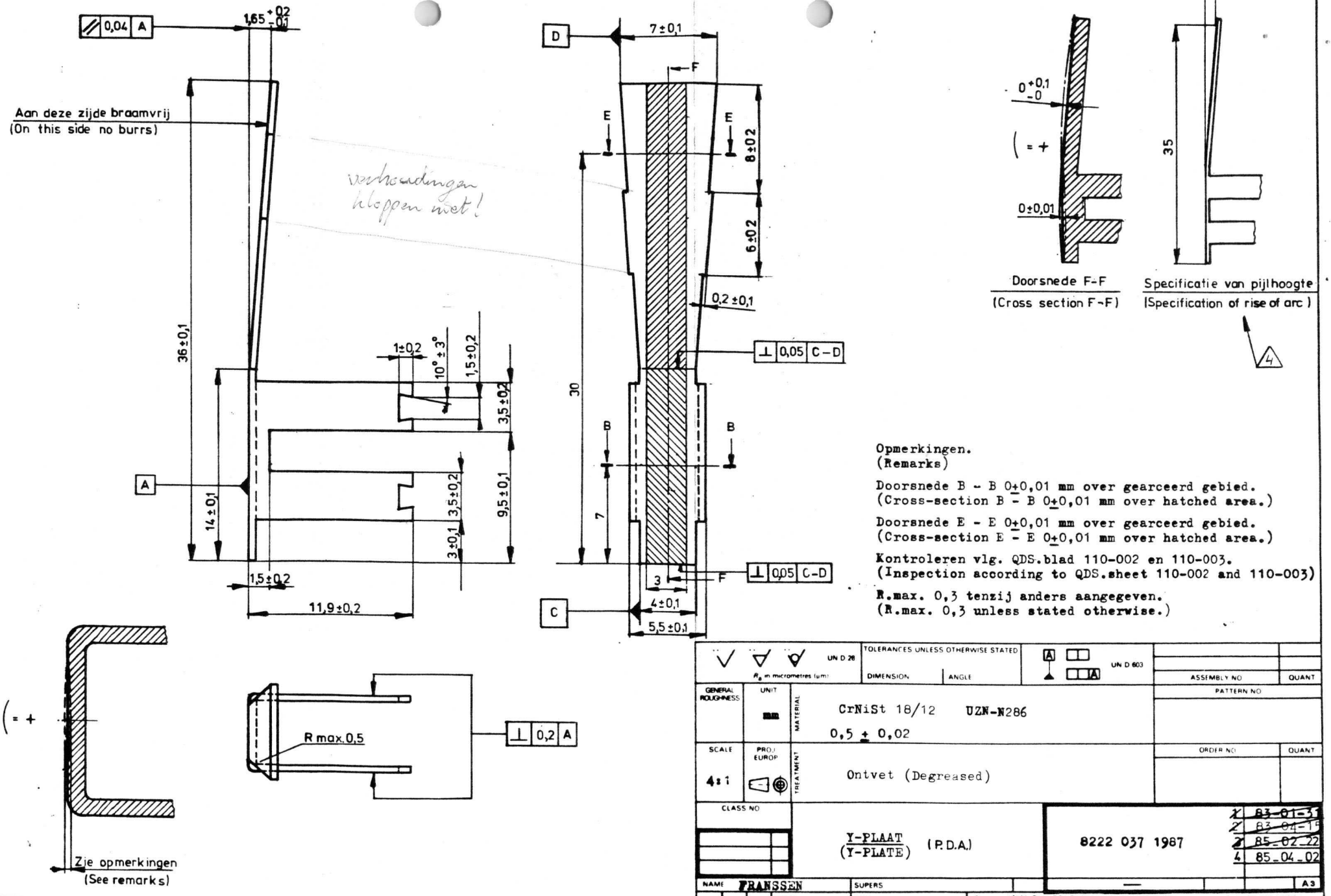
Inspection : ATTR.: A.Q.L. = 1%/S2
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Squarness breakline: plane GG: < 0,1

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
> 200																								
150																								
100																								
50																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Surface cond.																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.



Opmerkingen.
(Remarks)

Doorsnede B - B 0±0,01 mm over gearceerd gebied.
(Cross-section B - B 0±0,01 mm over hatched area.)

Doorsnede E - E 0±0,01 mm over gearceerd gebied.
(Cross-section E - E 0±0,01 mm over hatched area.)

Kontroleren vlg. QDS.blad 110-002 en 110-003.
(Inspection according to QDS.sheet 110-002 and 110-003)

R.max. 0,3 tenzij anders aangegeven.
(R.max. 0,3 unless stated otherwise.)

UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION, ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: CrNiSt 18/12 UZN-N286 0,5 ± 0,02	PATTERN NO
SCALE: 4:1	PROJ: EUROP	TREATMENT: Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	Y-PLAAT (Y-PLATE) (P.D.A.)	8222 037 1987	1 B3-01-31; 2 B3-04-15; 3 85-02-22; 4 85-04-02
NAME FRANSSEN; CHECK	SUPERS; DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	A3

4322 240 02681

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : Flatness longitudinal plane (< 0,1)

Sample size n:																							
No. of defects																							
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 100																							
+ 50																							
0																							
Yr.Mo.Day																							

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Rise of arc on 35 mm ($1{,}58 \pm \frac{0{,}2}{0{,}1}$)

Sample size n:																							
No. of defects																							
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[mm]																							
1,78																							
1,68																							
1,58																							
1,48																							
Yr.Mo.Day																							

Inspection : ATTR.: A.Q.L. = 1%/S2
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Squareness breakline (< 0,05)

Sample size n:																							
No. of defects																							
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
60																							
40																							
20																							
0																							
Yr.Mo.Day																							

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Surface cond.																								
Flatness planeBB																								
Flatness planeEE																								
Flatn.FF(+-10)																								
Squareness lugs																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

ONTWERP
Y - PLAAT
Y - PLATE
Inspection certificate
Gebr. o. a. in:

8222 037 19870

85-03-06
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A3

NAME	OFFERMANS	SUPERS		03	110 — 003	010
KH	CHECK	DAT	85-03-06	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS		

PHILIPS

M.I.S.D.
Electronic components and materials Division

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr.	1,0 %	S 4
2. Surface condition.	1,0 %	S 4
3. Flatness - (cross-directons 2x)	1,0 %	S 4/dir
- (longitudinal directions 2x)	1,0 %	S 4/dir
4. Squareness press-in lugs	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife-edge rule.
4. For A4: Gauge; max. dimension 6 mm

C. Methods and Standards

1. For A1: Burr not permitted (see note on drawing).
   Burr around dovetails permitted.
2. For A2: Free from scratches and dents.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness. Longitudinal direction 1x	-	-
2. Rise of arc. (1x)	1,0 %	S 4
3. Squareness breakline (1x)	1,0 %	S 2

B. Equipment.

For A1 : Any, accuracy $\pm$ 10 /um
For A2 : Special measuring apparatus nr. 9/12346
For A3 : Any, accuracy $\pm$ 10 /um

C. Methods and standards.

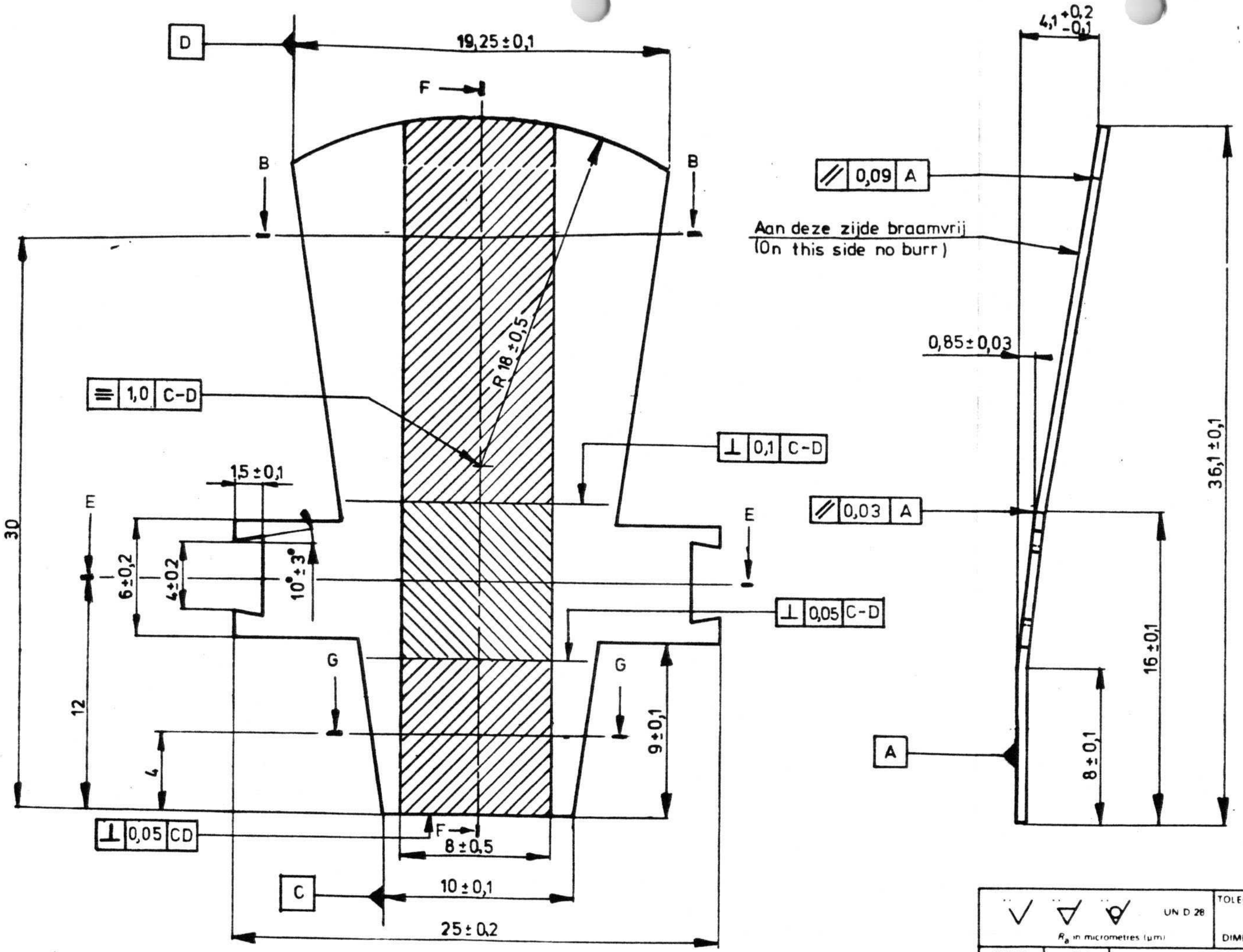
For A1 : Longitudinal direction: over the centre line.

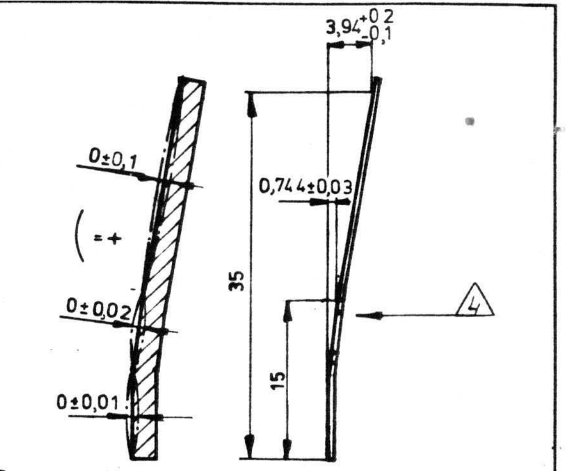
GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

	Q.D.S Y - PLATE (PDA)		8222 037 19870			
NAME OFFERMANS	SUPERS.	1	110 — 002	010		A4
KH CHECK	DAT. 85-03-06	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

F.V. Elcoma





Doorsnede F-F
(Cross-section F_F)

Specificatie van pijlhoogte.
(Specification of rise of arc.)

Opmerkingen.
(Remarks.)

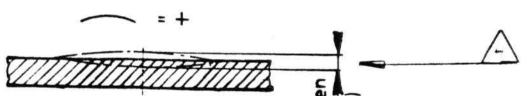
Doorsnede B - B 0±0,02 mm over gearceerd gebied.
(Cross-section B - B 0±0,02 mm over hatched area.)

Doorsnede E - E 0±0,01 mm over gearceerd gebied.
(Cross-section E - E 0±0,01 mm over hatched area.)

Doorsnede G - G 0±0,005 mm over gearceerd gebied.
(Cross-section G - G 0±0,005 mm over hatched area.)

Kontroleren vlg. QDS.blad 110-002 en 110-003
(Inspection according to QDS.sheet 110-002 and 003

R max. 0,3 tenzij anders aangegeven.
(R max. 0,3 unless stated otherwise.)



Niet op schaal
(Not drawn to scale)

Zie opmerkingen
(See remarks)

GENERAL ROUGHNESS (R_a in micrometres (µm)) UN D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO / QUANT
UNIT: mm	MATERIAL: CrNiSt 18/12 UZN-N286; 0,5 ± 0,02		PATTERN NO
SCALE: 4:1	PROJ EUROP; TREATMENT: Ontvet (Degreased)		ORDER NO / QUANT
CLASS NO	X-PLAAT (X-PLATE) (P.D.A.)	8222 037 1980	1 83-01-31; 2 83-04-19; 3 85-02-22; 4 85-04-01
NAME: FRANSSEN; CHECK	SUPERS; DAT	3	110 — 001 A3

Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 02681

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr.	1,0 %	S 4
2. Surface condition	1.0 %	S 4
3. Flatness (cross-direction: 3x)	1,0 %	S 4/dir

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife edge rule.

C. Methods and Standards

1. For A1: Burr not permitted (see note on drawing).
   Burr around dovetails are permitted.
2. For A2: Free from scratches and dents.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1 Flatness. Cross-direction 3x	-	-
2. Parallelism. (2x)	1,0 %	S 4/test
3. Rise of arc. (2x)	1,0 %	S 4/rise
4. Squarness breakline (1x)	1,0 %	S 2

B. Equipment.

For A1-A2 : Perto-meter or equivalent.
For A3 : Special measuring apparatus nr. 9/12346.
For A4 : Any, accuracy ± 10 /um.

C. Method and standards.

For A1 : Cross direction: on the indicated places in the hatched area.
For A2 : Measuring in the cross direction at:
a) 1 mm under the upper breakline.
b) Across the ends of the radius.

General.

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheets 3,4 and 5).

	Q.D.S. X-PLATE (PDA)			8222 037 19860		
NAME OFFERMANS	SUPERS.	5	110 — 002	010		A4
KH CHECK	DAT. 85-03-06	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Flatness plane GG (crossdir.: < 0,005)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 5																								
0																								
- 5																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Flatness plane EE (crossdir: < 0,01)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 10																								
0																								
- 10																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Flatness plane BB (crossdir. < 0,02)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

ONTWERP
X - PLAAT (PDA)
X - PLATE (PDA)
Inspection certificate
Gebr. o. a. in:

8222 037 19860

85-03-06
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NAME OFFERMANS | SUPERS | 05 | 110 — 003 | 010 | A3
KH | CHECK | DAT 85-03-06

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Parallelism. (< 0,03)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] > 40																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Parallelism (< 0,09)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] > 120																								
90																								
60																								
30																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1%/S2
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Squareness breakline (< 0,05)

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

ONTWERP
X - PLAAT (PDA)
X - PLATE (PDA)
Inspection certificate
Gebr. o. a. in:

8222 037 19860

85-03-06
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NAME OFFERMANS | SUPERS | 05 | 110 | 004 | 010 | A3
KH | CHECK | DAT 85-03-06

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : rise of arc on 35 mm: 3,94 $\pm$ 0,2 / 0,1

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 4,14																								
4,04																								
3,94 =																								
3,84																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 %/S4
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Rise of arc on 15 mm: 0,744 $\pm$ 0,03

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 0,747																								
0,744 =																								
0,741																								
Yr.Mo.Day																								

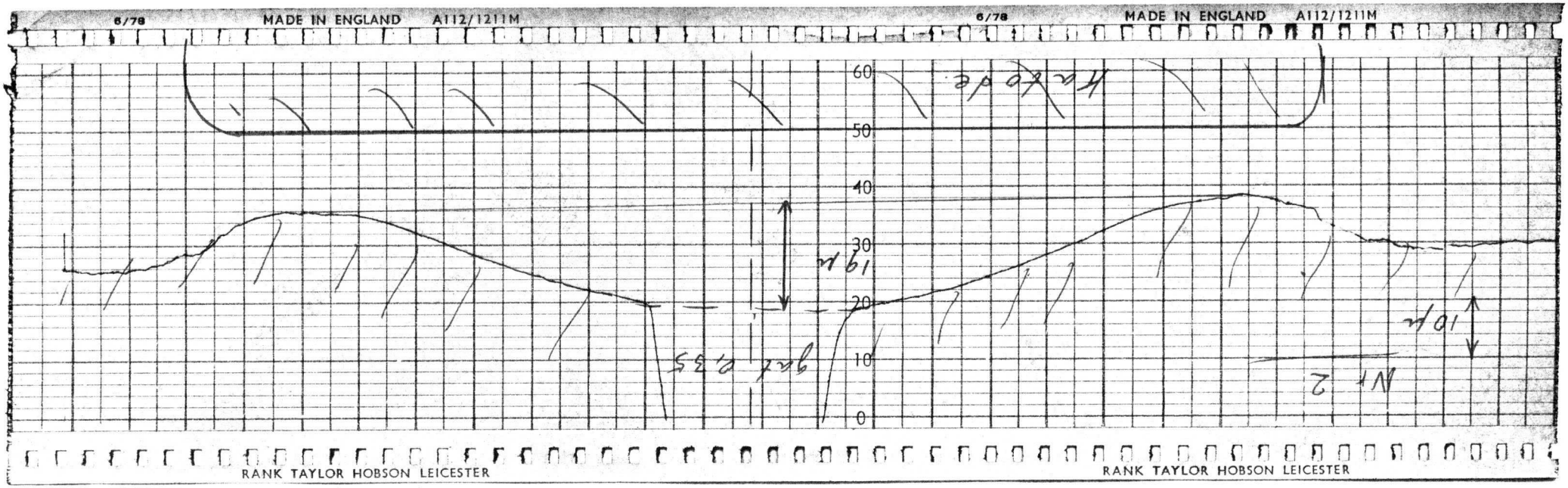
Inspection : ATTR.:
VAR. :

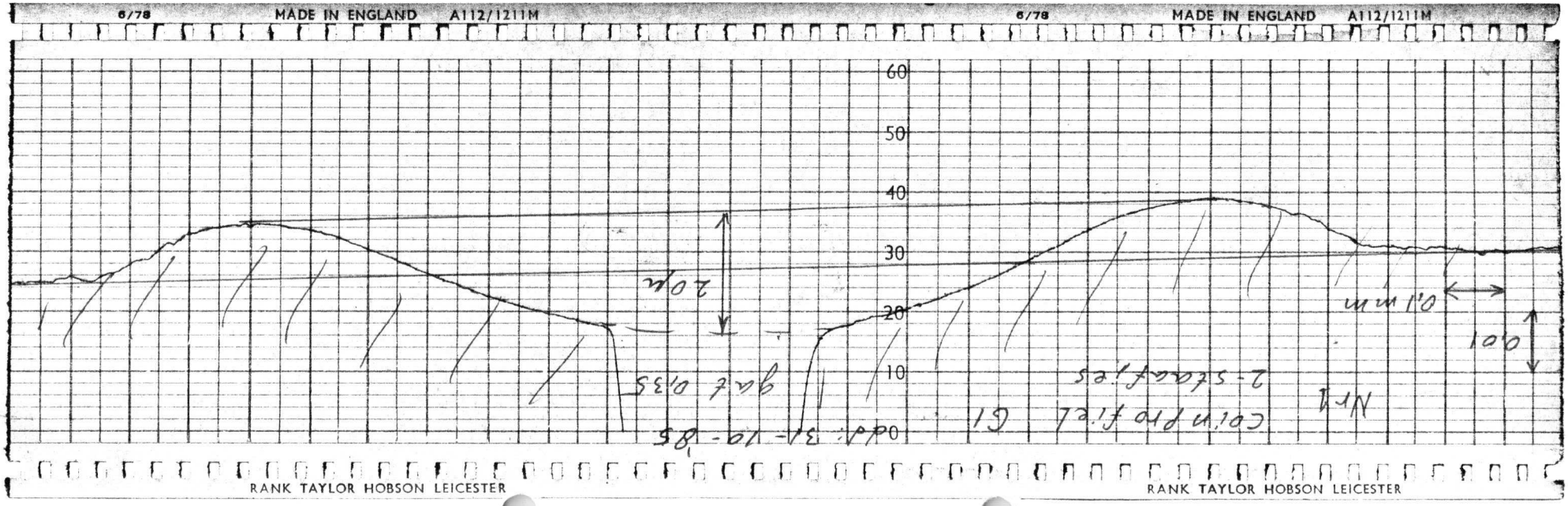
Parameter :

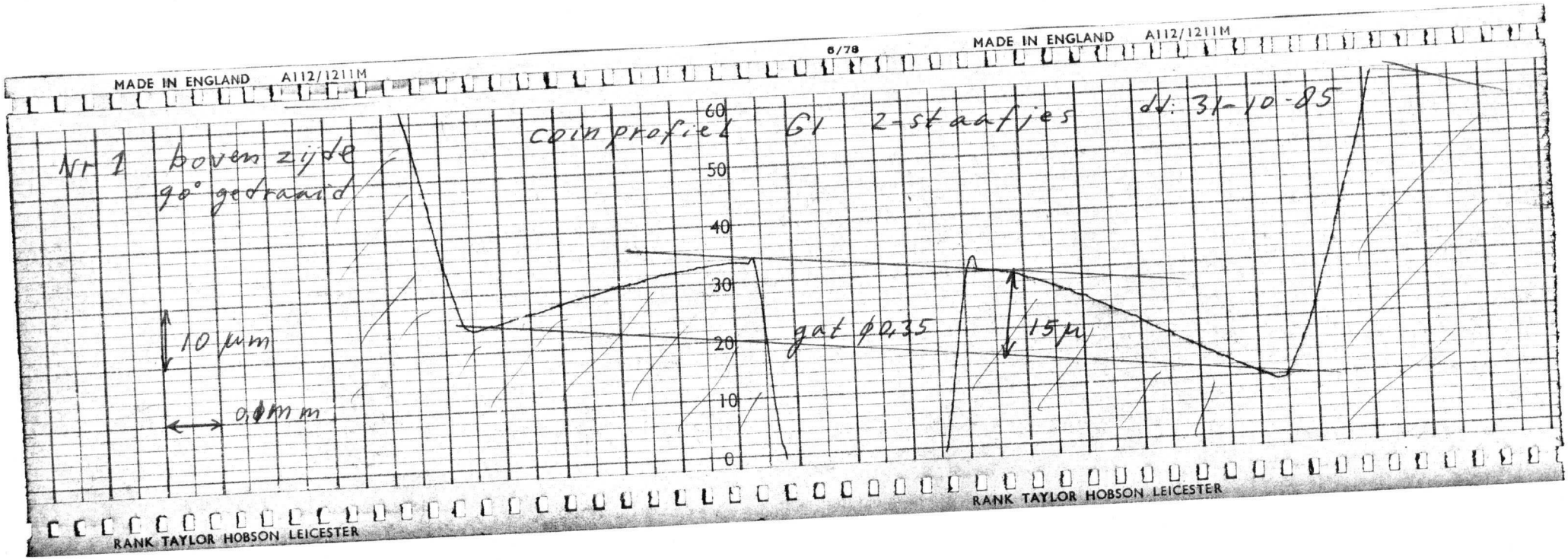
Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

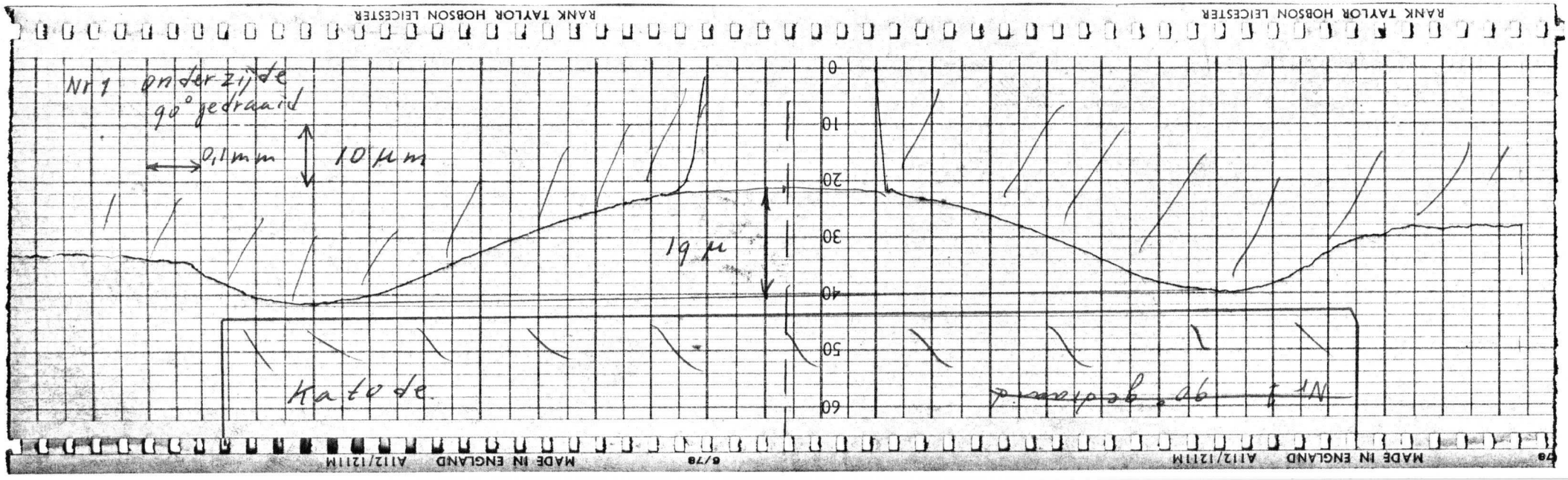
d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Surface cond																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.


6/78
MADE IN ENGLAND
A112/1211M
RANK TAYLOR HOBSON LEICESTER
60
50
40
30
20
10
0


6/78
MADE IN ENGLAND
A112/1211M
RANK TAYLOR HOBSON LEICESTER
60
50
40
30
20
10
0


MADE IN ENGLAND A112/1211M
6/78
MADE IN ENGLAND A112/1211M
Nr 1 bovenzijde
90° gedraaid
coinprofiel GI 2-staafjes
dd: 31-10-85
10 µm
0,1mm
gat ø0,35
15µ
60
50
40
30
20
10
0
RANK TAYLOR HOBSON LEICESTER
RANK TAYLOR HOBSON LEICESTER


RANK TAYLOR HOBSON LEICESTER
RANK TAYLOR HOBSON LEICESTER
Nr 1 onderzijde
90° gedraaid
0,1mm
10 µm
19 µ
0
10
20
30
40
50
60
kathode
MADE IN ENGLAND A112/1211M
6/78
MADE IN ENGLAND A112/1211M

Van : H.P.M. Koppelmans

Aan : Hr. Urlings

Betreft : Bespreking sam. rooster 1 8222 037 0239

Aanwezig : H.H. Bus - Eikhout - Urlings KSF Sittard
Geurts - Koppelmans Oscillograafbuizen Heerlen

Kopie : H.H. Dragstra - Rombouts - Kroeders - Puls (Sittard)
Kroon - Bonten - Kicken - Warnier - Sieben -
Zeppenfeld (Heerlen)

Heerlen, 85.10.14

---

1) Het produkt; inleiding

Het produkt wordt als stuurrooster toegepast in binnenkort vrij te geven nieuwe typen oscillograafbuizen. Het nieuwe hiervan is o.m. dat het kanon bijeengehouden wordt door 2 glasstaafjes i.p.v. het gebruikelijke aantal van 4. Ook de centrering van de diverse roosters van het nieuwe ontwerp wijkt af van de konventionele zgn. 4-staafjes kanonnen, waarbij gebruik gemaakt wordt van 2 centreergaten naast het middengat, zie bijlage 1.
Het nieuwe stuurrooster, zie bijlage 2, is een samenstelling van 3 tussenprodukten, te weten
- een rooster 1 bus (bijlage 3)
- een ring (bijlage 4)
- een centreerplaat (bijlage 5).

De centrering geschiedt d.m.v. de halve ronde uitsparingen in de centreerplaat.

2. Leverancier

De afdeling Klein Serie Fabrikage (KSF) is door de organisatie in Sittard definitief als leverancier aangewezen van het sam. rooster 1. Dhr. Urlings is voor dit produkt voor Heerlen aanspreekbaar.
De bus en ring worden door KSF Sittard gemaakt terwijl de centreerplaat een produkt van Saxonia Francken te Göppingen in Duitsland is. De samenstelling wordt door KSF gemaakt. In bijlage 6 is de logistieke flow in beeld gebracht.

3. Bestellingen

Orders van Heerlen worden door Dhr. Kroon van de afdeling M.M. uitgegeven en dienen gericht te worden aan Dhr. Puls van de afdeling M.M.

4. Behoefte / Kapaciteit

De Heerlense behoefte zal in 1986 geleidelijk aan naar het jaarniveau van ca. 100.000 st. oplopen. Dit niveau zal naar verwachting in maart 1986 gerealiseerd worden.

De kapaciteit bedraagt op dit moment reeds 800 produkten per dienst. Dit houdt in dat voldoende kapaciteit bij KSF aanwezig is. De afdeling KSF zegt garant te staan voor de behoefte van Heerlen.

5. Gereedschap

5.1 Rooster 1 gereedschap

Het gereedschap is aanwezig in definitieve vorm.

5.2 Ring gereedschap

Het gereedschap is aanwezig in definitieve vorm.

5.3 Samenstellingsgereedschap

a. Samenstellingsmal

De mal is aanwezig, echter niet in definitieve vorm.
Een uitwerpmechanisme om beschadiging van het middengat te voorkomen wordt aangebracht vóór week 544. Aktie : Hr. Urlings
Een posititioneringsmechanisme t.b.v. een sneller proces en dus goedkoper produkt moet nog aangebracht worden.
Levertijd en kosten worden opgegeven. Aktie : Hr. Urlings

b. Laserlasapparatuur

De laser zal deze maand operationeel zijn binnen de afdeling KSF.

5.4 Kontrolemal

Een meetmal t.b.v. kontrole van de samenstelling op essentiële maten is door Heerlen nog niet geleverd.
Levertijd week 543. Aktie : Hr. Geurts
Opm.: Produktmetingen zijn ondanks dit mogelijk.

6. Kwaliteitswaarborg

6.1 Centreerplaat

Leveringen van centreerplaten door M.M. Heerlen zijn voorzien van een Prüfzeugnis. Dit Prüfzeugnis, wat meegeleverd wordt door Saxonia Francken dient als kwaliteitswaarborg. Aangenomen mag worden dat QSD Heerlen de eerste tijd een vinger-aan-de-pols kontrole zal uitvoeren vanwege de onbekendheid met Saxonia. Een ingangskontrole door KSF is hierdoor overbodig. Ter volledigheid is het QSD van dit produkt toegevoegd, bijlage 7.

6.2 Sam rooster 1

Het QSD is afgeleid uit een bestaand QSD v.w.b. de rooster 1 bus en gekompleteerd met zaken die het samenstellen betreffen, bijlage 8.
De afdeling KSF zal meetbladen meeleveren afgestemd op dit QSD. Voorbeelden hiervan zijn in bijlage 9 gegeven.

7. Maatvoering

De maatvoering zoals nu op tekening staat wordt door KSF op één maat na geaksepteerd. Het betreft hier de evenwijdigheidseis van 0.2 mm. Uit metingen aan produkten is gebleken dat deze maat kritisch is. Mocht, na ingebruikneming van de kontrolemal, zie 5.4, nog steeds deze maat kritisch blijken dan zal een aanpassing naar bijv. 0.25 mm noodzakelijk zijn. De verwachting is echter dat dit niet nodig zal zijn. M.a.w., KSF tekent m.b.t. deze maat onder voorbehoud. Definitieve afstemming volgt zo spoedig mogelijk.

Aktie : HH. Geurts/ Urlings

8. Prijs

De kostprijs is nog niet definitief vastgesteld. Deze zal in week 543 meegedeeld worden.

Aktie : Hr. Urlings

Ik verzoek U bij deze de extra bijgevoegde tekeningen en QSD te ondertekenen en daarmee garant te staan voor het gewenste produkt, zowel t.a.v. de kwaliteit als t.a.v. de Heerlense behoefte.

Aktie : Hr. Urlings

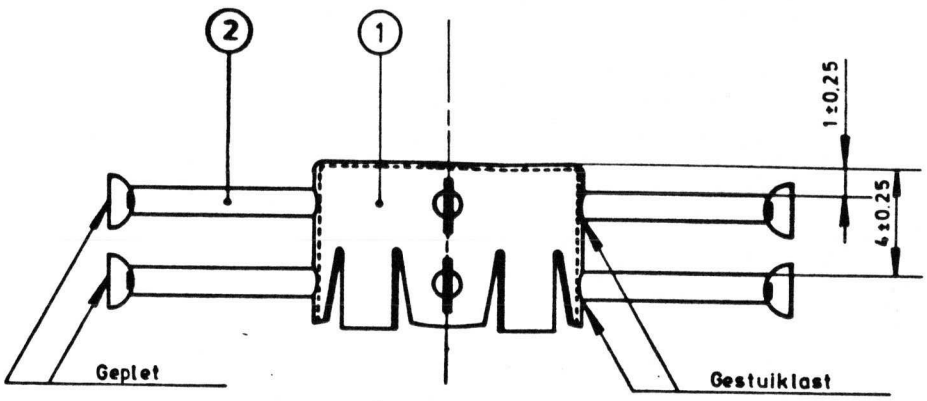
Met vriendelijke groeten,

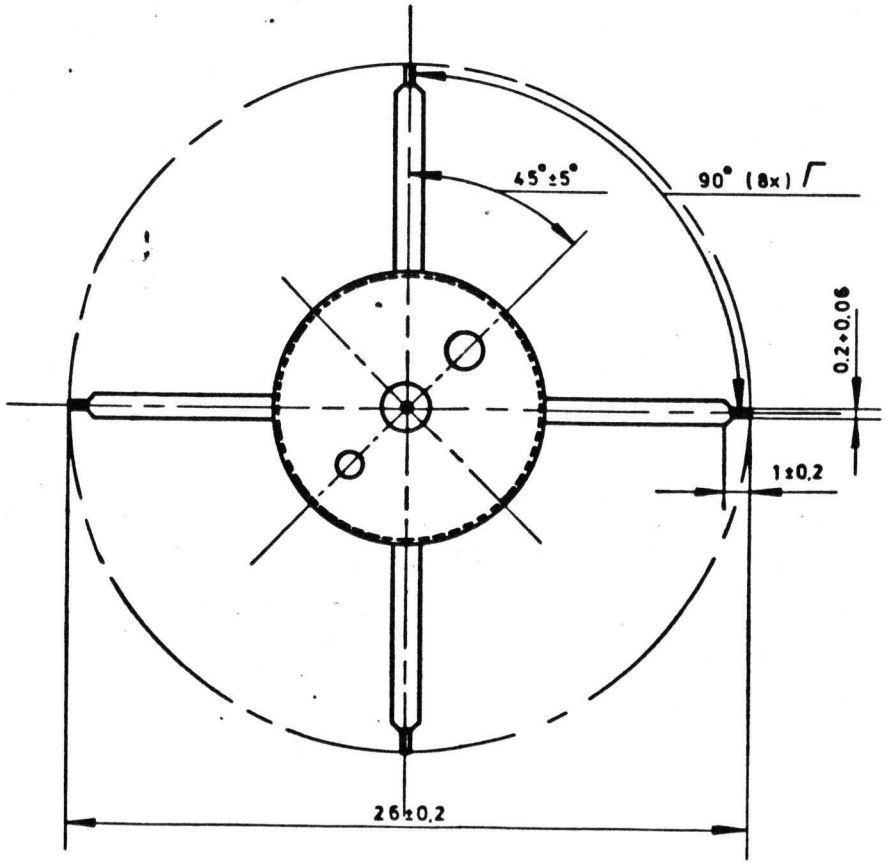
H.P.M. Koppelmans

PHILIPS

M.I.S.D. Electronic components and materials Division

Tenzij anders aangegeven gelden de op de onderdeeltekeningen vermelde maten en eisen.





	OPERATION			MACHINES AND TOOLS	
	Alle con[illegible]oles vlg.		RV-3-5-52/17	Voor app. zie	RV-3-5-52/17
	Posten [illegible]an post 1			Stuiklasapparaat	
	lassen			Lasmal	
	Posten 2 platten en op			Plet-snijapparaat	
	maat snijden			Bus	
	Reinigen in per			Perreinigingsinst.	
	Verpakken (mag.+ vers.)				
	Chemisch matbeitsen		RV-3-5-70/403		
	Reduceren op 1040°C				
	bandsnelh. 63 cm./min.				

⌜ Pennen moeten passen in sleuven van 1,5 mm.

QUANTITY	UNIT	DESCRIPTION	STANDARD / QDS	CODE	POS

22673

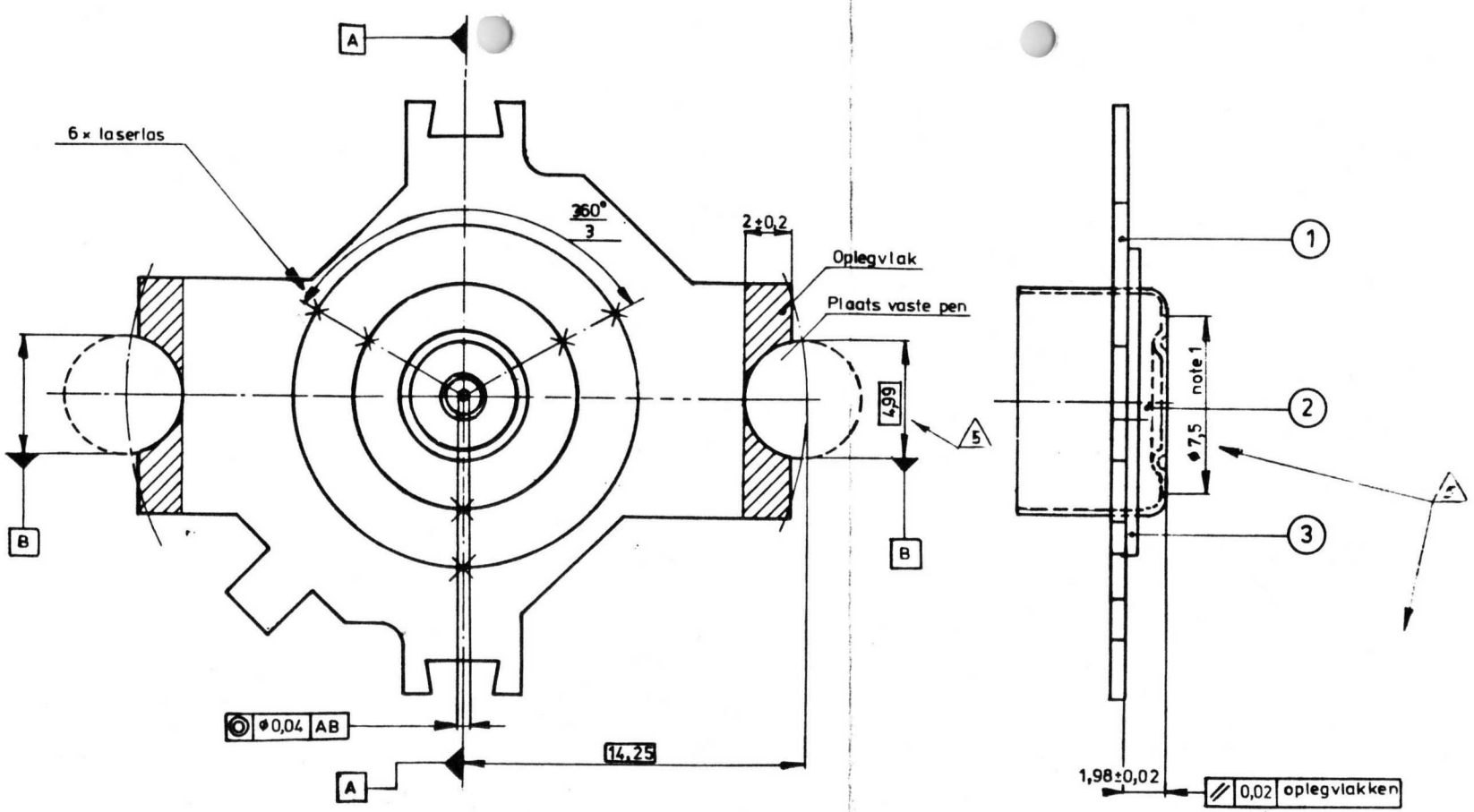
PROJ. METH. | SCALE: | UNIT: mm. | SEE ALSO UT - D 1041 | REMARKS:

SAM. ROOSTER 1.NIET GEBEITST
(Grid 1 assy not pickled)

3322 143 9022 | 1

NAME Maessen | SUPERS VERV. 8222 037 02201 | 1 BL | BL 110-1

PROPERTY OF ... N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN-NEDERLAND | CHECK CONTR. | DAT 77-03-29 | FORM A3

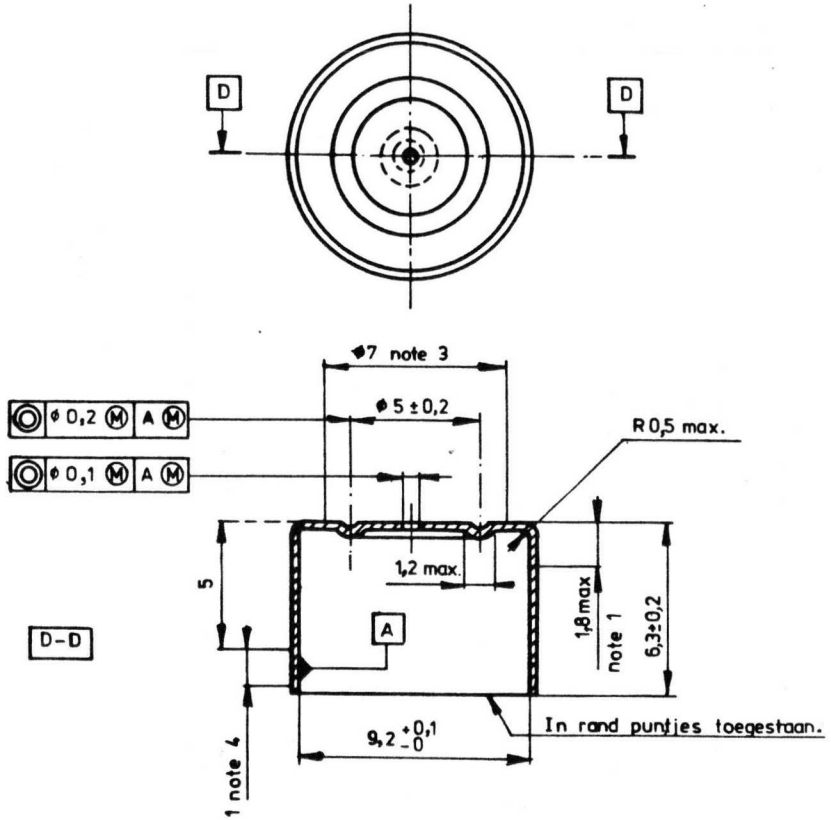


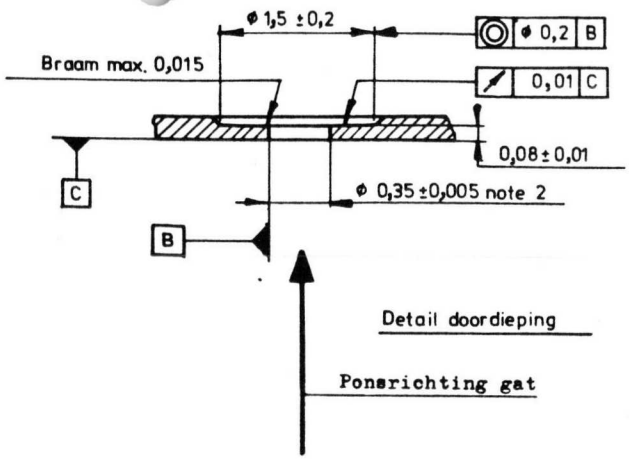
Note 1: Op deze diameter de hoogte en evenwijdigheid meten.

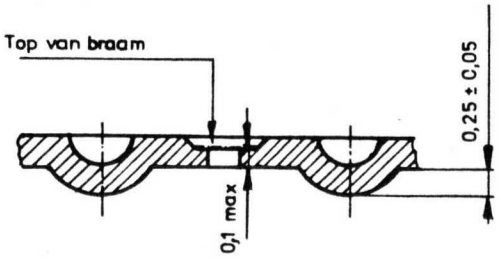
21319				
R_a in micrometres (µm)	UNI D 28	TOLERANCES UNLESS OTHERWISE STATED DIMENSION ANGLE	UNI D 600	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Pos 1 Centreerplaat 8222 037 19910; Pos 2 Rooster 1 8222 037 02420; Pos 3 Ring 8222 037 13260		PATTERN NO
SCALE 5:1	PROJ EUROP	TREATMENT		ORDER NO / QUANT
CLASS NO		SAM. ROOSTER 1	8222 037 0239	1 B3-09-05; 2 B4-01-06; 3 B4-09-12; 4 B5-02-05; 5 B5-04-03
NAME Franssen	SUPERS			A3
CHECK	DAT	Property of N V PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS		

Bijlage 2.

4322 240 02681







Note 1 : Over deze afstand inw. dia. : 9,2 ± 0,1

Note 2 : Met kaliberpen Ø 0,343 mm minimale gatdia. kontroleren. Deze pen moet met een lichte druk in ponsrichting in het gat gebracht kunnen worden.

Note 3 : In dit gebied bolheid 0,03 max. Holheid niet toegestaan. Dia. meetstift Ø 3 mm 7322 990 40571

Note 4 : Over dit gebied inwendige diameter $9{,}2^{+0{,}08}_{0}$

0 2 1 3 3 8			
UN D 28	TOLERANCES UNLESS OTHERWISE STATED	UN D 003	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Fernico band dieptr.kwal. 0,15 ± 0,01 NLN-N 1030	PATTERN NO
SCALE: 5:1	PROJ EUROP	TREATMENT	ORDER NO / QUANT
CLASS NO	ROOSTER 1	8222 037 0242	1 84-06-12 2 85-02-25 3 85-10-20
NAME: Franssen	SUPERS	CHECK	DAT

Property of N V PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

A3

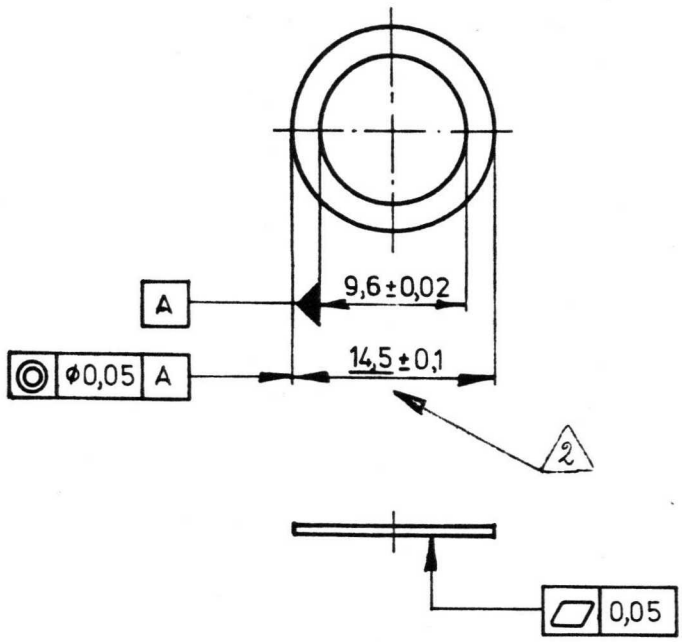
4322 240 02681

Bijlage 3

Bijlage 4

PHILIPS

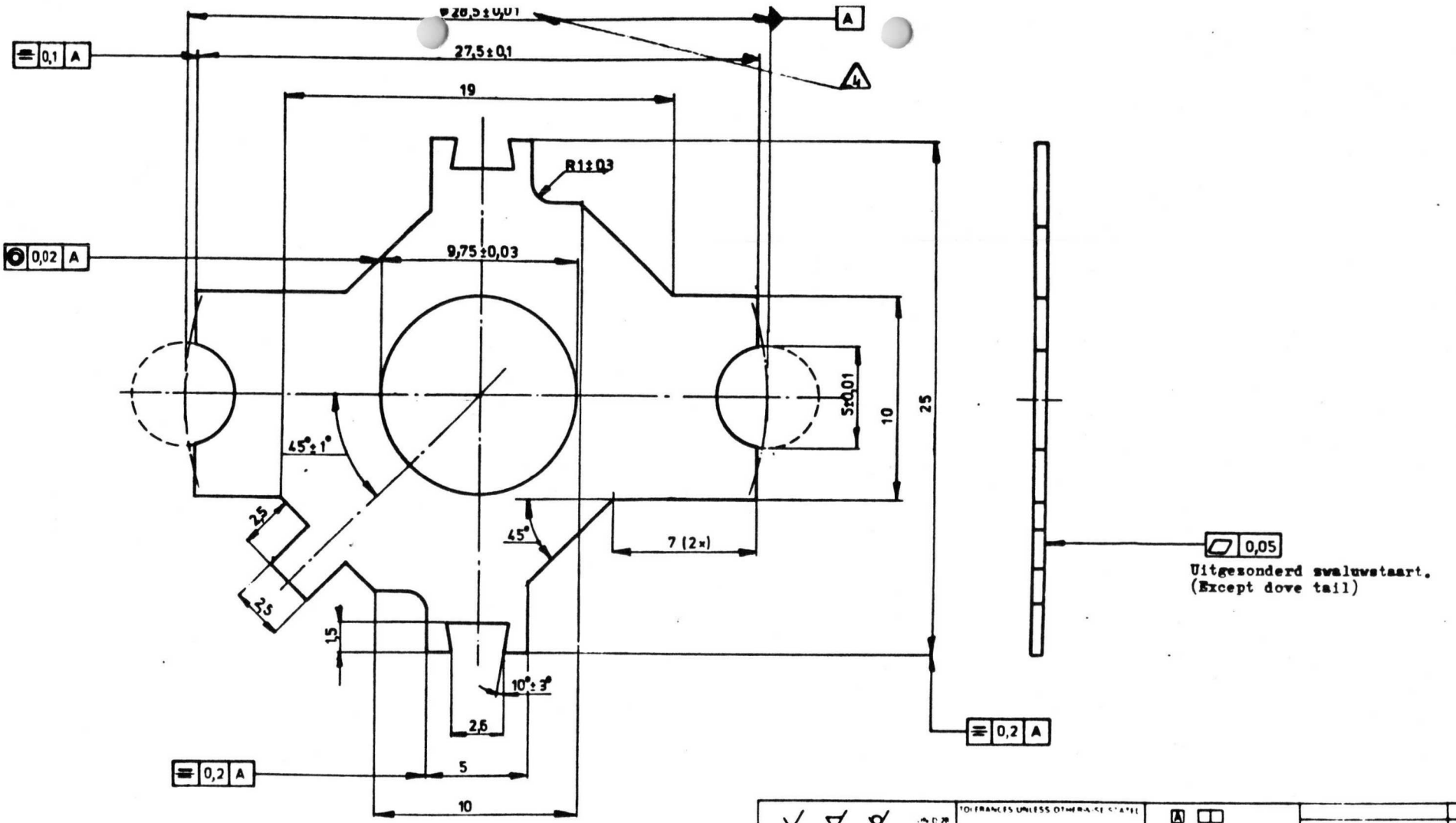
M.I.S.D.
Electronic components and materials Division



Braamhoogte; max. 0,02

UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED DIMENSION / ANGLE	UN D 603	ASSEMBLY NO	QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr_2Ni N286 0,5 dik	PATTERN NO	
SCALE: 2:1	PROJ EUROP	TREATMENT: Ontvet	ORDER NO	QUANT
CLASS NO	RING (voor sam. G1)	8222 037 1326	1 84-09-12 2 85_02_25	
NAME Franssen	SUPERS		—	A4
CHECK	DAT	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS		

4322 240 02641



Opmerkingen; R.max. 0,3 tenzij anders aangegeven.
(Notes) (R max. 0,3 unless stated otherwise)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION ± 0,2

	mm	Cr Ni St18/12 UZN-N 286 0,5 ± 0,02
5:1		Ontbraamd (Deburred) Ontvet (Degreased)

CENTREERPLAAT (G1)
(Centring plate G1)

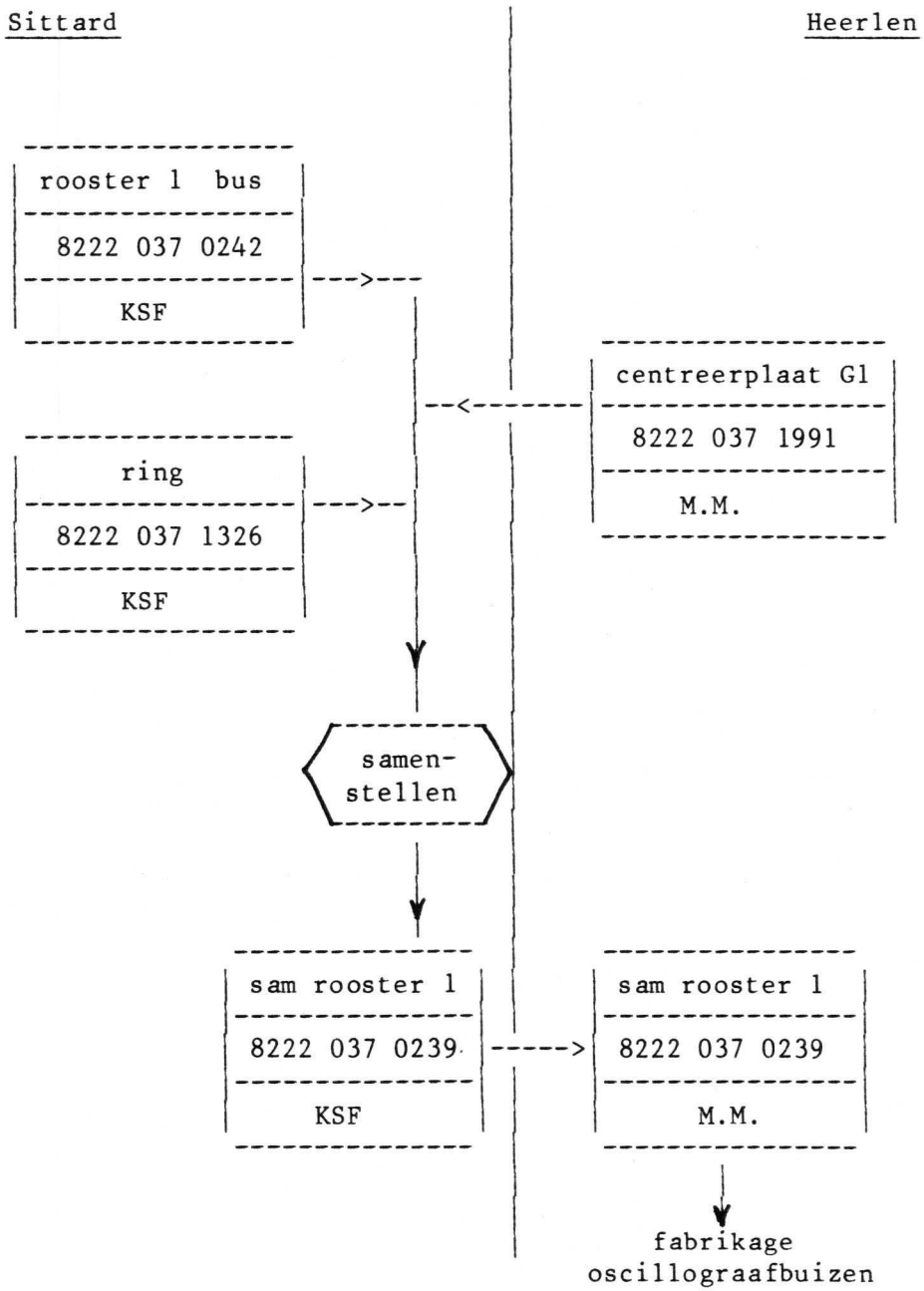
8222 037 1991

1	83-09-05
2	84-01-06
3	84-06-18
4	85-02-13

NAME Franssen
DATE
SUPERS
A3

4322 240 02681

Bijlage 6


Sittard
Heerlen
rooster 1 bus
8222 037 0242
KSF
ring
8222 037 1326
KSF
centreerplaat G1
8222 037 1991
M.M.
samen-
stellen
sam rooster 1
8222 037 0239
KSF
sam rooster 1
8222 037 0239
M.M.
fabrikage
oscillograafbuizen

1. VISUELL

A. Prüfpunkte	AQL	NIVEAU
1. Entfettet	1,0 %	S4
2. Grat	1,0 %	S4
3. Flachheit	1,0 %	S4

B. Apparatur

1. Für A1 : unbewaffnetes Auge
2. Für A2 : unbewaffnetes Auge
3. Für A3 : Haarlineal

C. Methoden und Normen

1. Für A1 : Teile dürfen sich nicht fettig anfühlen.
2. Für A2 : Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte	AQL	NIVEAU
1. Flachheit	-	
2. Abstand zwischen Zentrierlöchern	1,0 %	S4
3. Mittelloch-Konzentrizität	-	

B. Apparatur

Für A1 : beliebig; Genauigkeit ±5 µm
Für A2 : Sondermessgerät
Für A3 : Jena

C. Methode und Normen

Siehe Blatt 3.

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

ES

	QUALITAETSBESCHREIBUNG (QUALITY DESCRIPTION SHEET) ZENTRIERPLATTE G1		8222 037 19910		
NAME Offermans/LR	SUPERS	3	110 — 002	018	A4
KH CHECK	DAT 85-02-14	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS			

PRÜFZEUGNIS

Bylage 7, blad 2

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																							
[/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 20																							
0																							
- 20																							
Jr.Mo.Tag																							

Inspektion : ATTR.: ——
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																							
[/um]																							
30																							
20																							
10																							
0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

89222

	Q.D.S. ZENTRIERPLATTE (G1) Prüfzeugnis	8222 037 19910	85-02-14
DRAWN	SUPERS	85-02-14	A3
CHECK	DAT		

1. VISUEEL

A. TE BESCHOUWEN PUNTEN

		A.Q.L.	LEVEL
1.	Losse las.	0,4 %	II
2.	Beschadigd of vervormd roostergat.	0,4 %	II
3.	Vlekken.	1,0 %	II
4.	Krassen op binnenzijde roostervlak binnen de gril.	1,0 %	II
5.	Scheuren in roostervlak.	1,0 %	II
6.	Verhoging op buitenzijde roostervlak.	1,0 %	II
7.	Krassen op roostervlak aan binnenzijde buiten de ril en gehele buitenzijde.	1,5 %	II

B. APPARATUUR

Voor A1-A2 : Ongewapend oog.
Voor A2 t/m A7 : Geen.

C. METODEN EN STANDAARDS

Voor A1 : Losse las niet toegestaan.
6 lassen aanwezig (opgetrokken gat)
Voor A2 : Beschadiging.
Voor A3 : Vlekken, die bij reduceren op 1040°C verdwijnen, zijn toegestaan.
Voor A4 : Zie RV-2-3-52/126.
Voor A7 : Zie RV-2-3-52/126.

2. AFMETINGEN

A. TE BESCHOUWEN PUNTEN

		A.Q.L.	LEVEL
1.	Evenwijdigheid.	0,4 %	II
2.	Hoogte.	0,4 %	II
3.	Concentriciteit middengat.	0,4 %	II
4.	Inwendige diameter	1,0 %	II
5.	Gat diameter	1,0 %	II
6.	Dikte van de coin.	1,0 %	II
7.	Slingering van de coin.	1,0 %	II
8.	Braam aan gat + opgetrokken gat	1,0 %	II
9.	Hol/bolheid roostervlak.	1,0 %	II
10.	Conc. gat t.o.v. inw. diameter.	1,0 %	II
11.	Conc. gat t.o.v. gecoind gedeelte.	1,0 %	II
12.	Totale hoogte rooster.	1,0 %	II

SAM. ROOSTER 1
(UITSLAG)

8222 037 02390

NAME	OFFERMANS	SUPERS.	3	110—	002	027		A4
KH	CHECK	DAT. 85	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS					

B. APPARATUUR

Voor A1-A2	: Speciaal opspanblok en meetklok.
Voor A3	: Speciaal opspanblok en meetmikroscoop.
Voor A4	: Speciale meetopstelling.
Voor A5	: Kaliberpennen.
Voor A6	: B.v. meetklok 0,355 en 0,343.
Voor A7	: Kaliber + meetklok.
Voor A8	: Meetapparaat 7322 990 90120.
Voor A9	: Kaliber 7322 990 90120.
Voor A10	: Kaliber.
Voor A11	: Dubbelbeeld mikroscoop.
Voor A12	: B.v. meetklok.

C. METODEN EN STANDAARDS

Voor A1-A2	: Meten op cirkel van ϕ 7,5.
Voor A3	: Concentriciteit meten t.o.v. halve centreergaten
Voor A6	: Meten op ϕ 0,8 mm.

ALGEMEEN

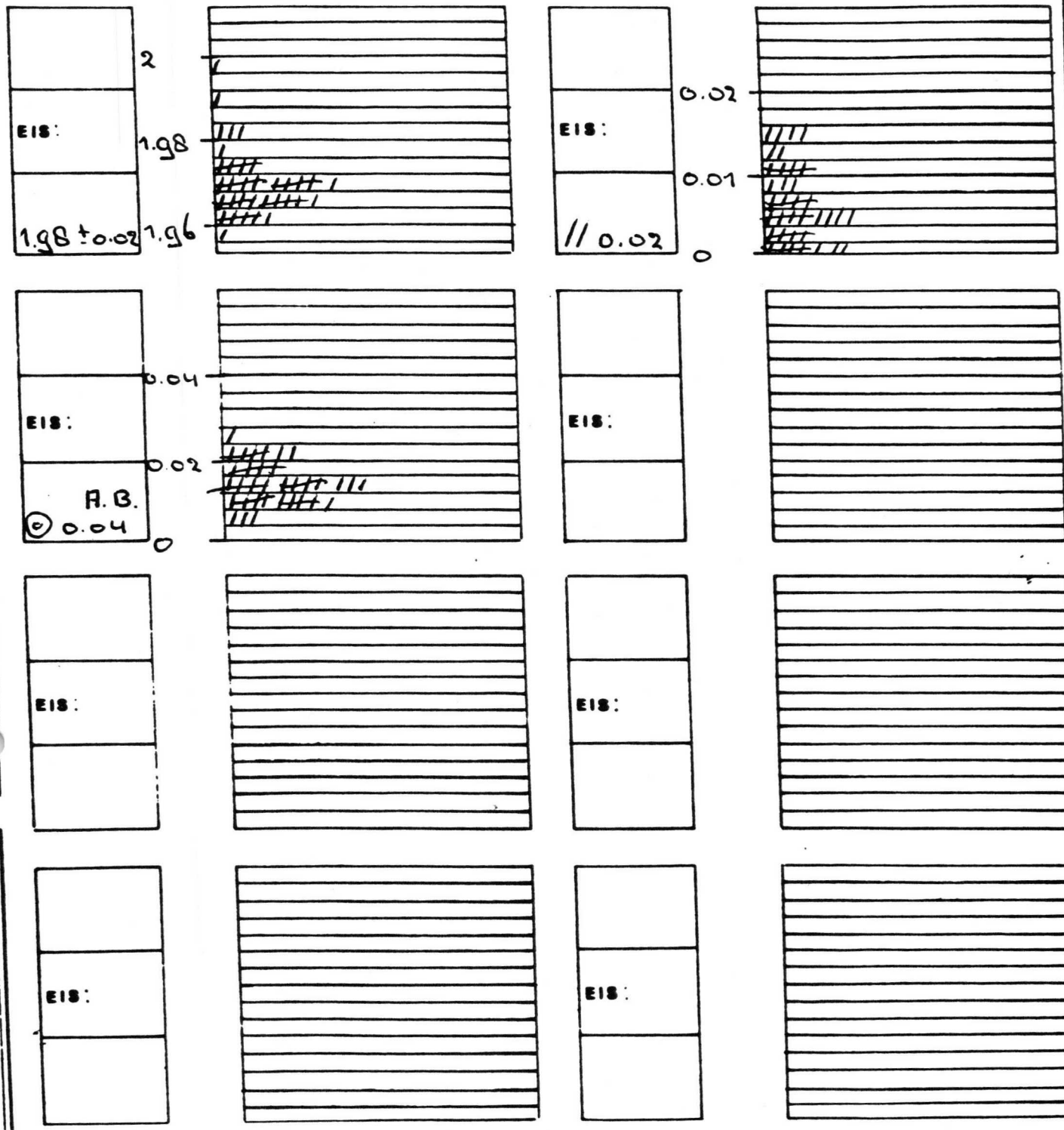
Meetresultaten worden separaat opgestuurd naar het hoofd van Q.S.D. te Heerlen.

	SAM. ROOSTER 1 (UITSLAG)		8222 037 02390			
NAME OFFERMANS	SUPERS.	3	110— 003	027		A4
KH CHECK	DAT. 85		N.V. PHILIPS GLOEILAMPENFABRIEKEN			

Bijlage 9, blad 1

PROF. BUIZEN K.S.F. EINDKONTROLE. PHILIPS SITTARD

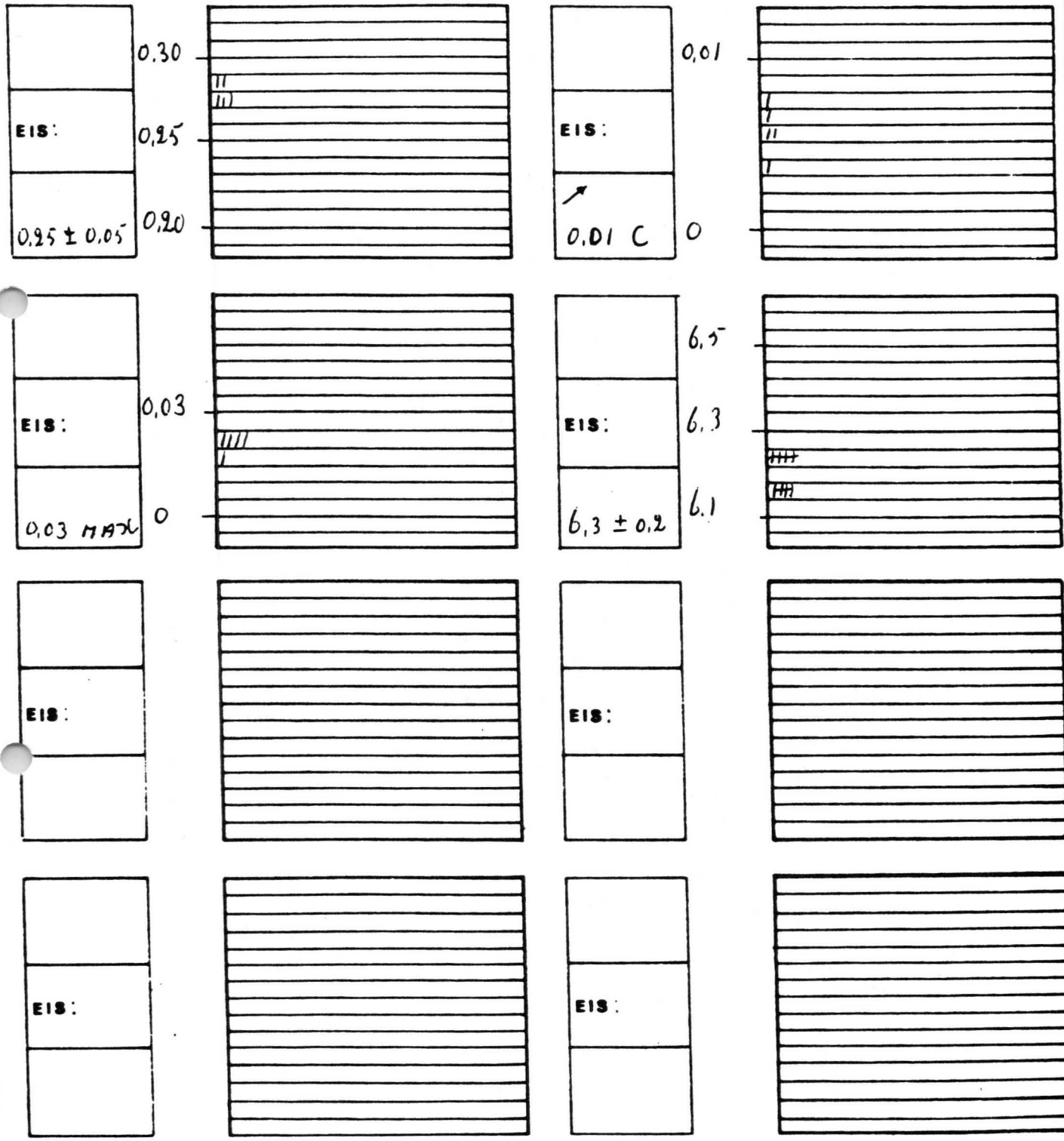
Partijnummer	L534502	**benaming**	Sam.Rooster I
geleverd aantal	3800 st	**kodenummer**	8222 - 037 - 02395
type	Oscillograafbuizen	**datum**	21 - 8 - 85
afnemer	Heerlen	**Paraaf**	J.Opgenort



Voor rest van de maten zie bijlage halffabrikaten.

Opdrachtbon 00379

PROF. BUIZEN K.S.F. EINDKONTROLE. PHILIPS SITTARD



Bylage 9; Blad 3

PROF. BUIZEN	K.S.F. EINDKONTROLE.	PHILIPS SITTARD

DATUM. 20-5-'85

GEMETEN..... P. Schenewille

MEETRAPPORT

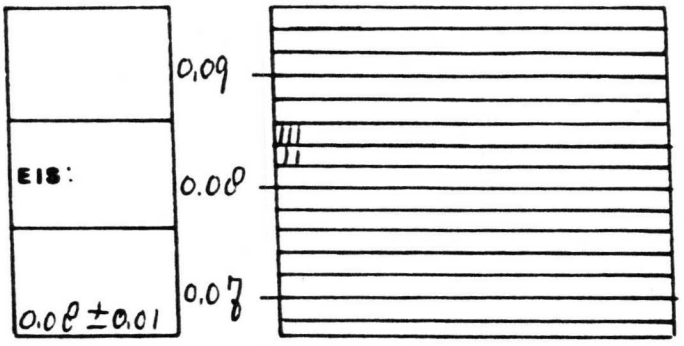
BENAMING PRODUKT.....Rooster 1.....

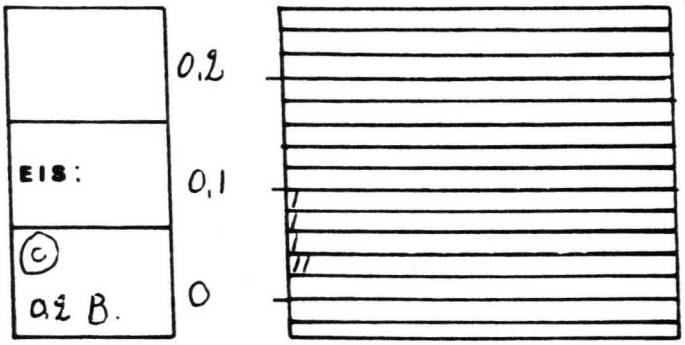
CODENUMMER 8222 037 0242

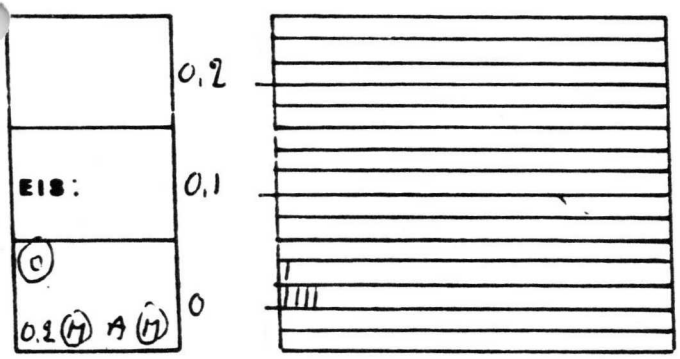
Maat vlg. tek.	GEMETEN MAAT inwendige diameter.									
	1	2	3	4	5	6	7	8	9	10
op 1.0 mm.	9.25	9.255	9.26	9.255	9.255	9.255	9.265	9.24	9.23	9.25
	9.27	9.265	9.27	9.265	9.265	9.27	9.27	9.27	9.26	9.26
op 5 mm.	9.235	9.20	9.21	9.215	9.215	9.235	9.205	9.20	9.21	9.24
	9.245	9.27	9.265	9.24	9.25	9.24	9.26	9.255	9.255	9.24
op 6 mm.	9.20	9.24	9.255	9.25	9.25	9.20	9.25	9.225	9.265	9.29
	9.20	9.31	9.27	9.20	9.265	9.265	9.335	9.30	9.33	9.29
	Geneten in 2 richtingen.									

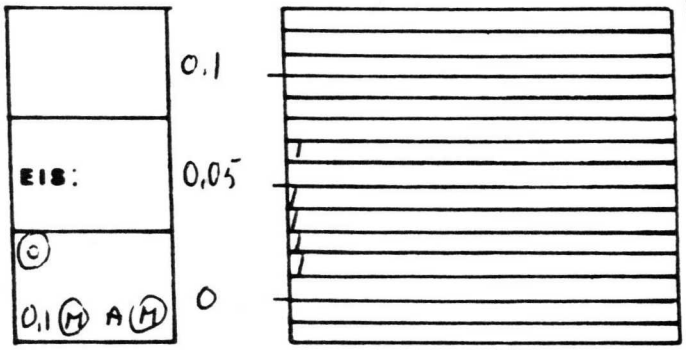
PROF. BUIZEN K.S.F. EINDKONTROLE. PHILIPS SITTARD

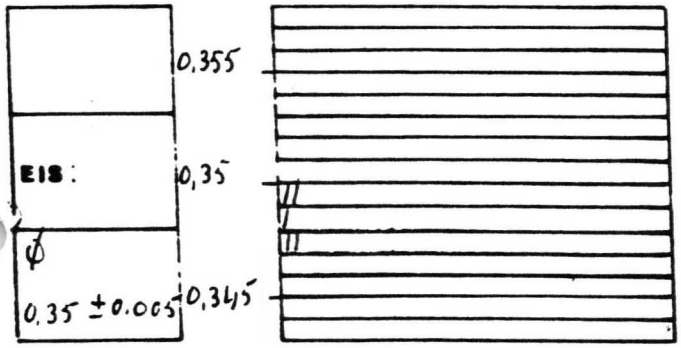
Partijnummer	L521202	**benaming**	Rooster 1
geleverd aantal	26000	**kodenummer**	8222 - 037 - 02422
type		**datum**	21 - 5 - 85
afnemer		**Paraaf**	P. Schonewille [redacted]

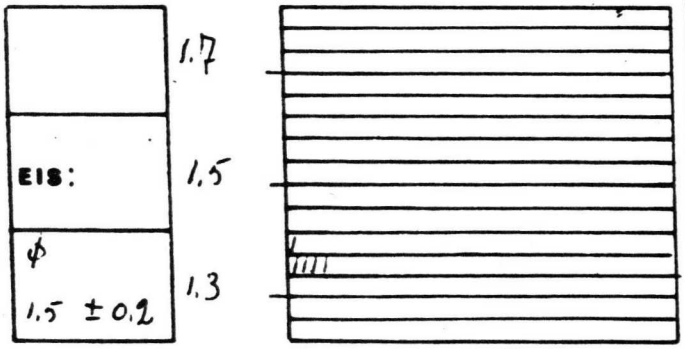


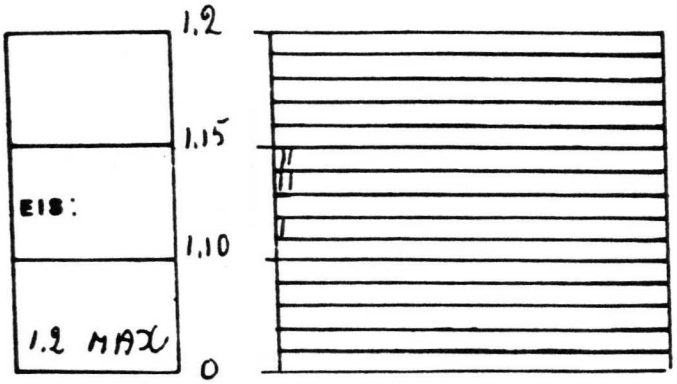


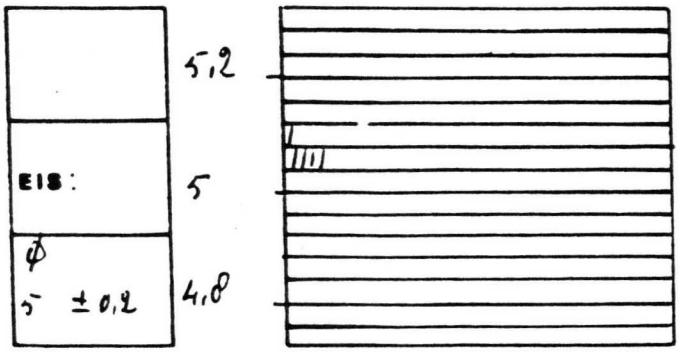












Braam 0,05 max Gemeten tot 0,008
Radius 0,5 max Gemeten 0,30
Materiaaldikte 0,15

PHILIPS

KHR-89/SB-904

SAXONIA GmbH
f.a.o. Mr. Schuster
Jahnstrasse 76
7320 Göppingen
BRD

Heerlen, 17.12.'85

Dear Mr. Schuster,

Enclosed please find 2 sets Inspection-certificates, which have been adapted according to your remarks, made during your last visit to Heerlen.

We wish you, your colleagues and families a Merry Christmas and a Happy New Year.

Yours sincerely,

Sieben A.G.

Copy to Messrs: Vinders *
Koppelmans *
Geurts

* Incl. 1 set of app.

PRÜFZEUGNIS

LOS:									
LOSGROSSE:									

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN $28,5^{+}$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																								
0																								
- 15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: -----
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40 [/um]																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeuge gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

89222

Q.D.S.
ZENTRIERPLATTE (G2.2)
Prüfzeugnis

3322 109 60400

85-12-10

NAME Offermans | SUPERS 8222 037 19982 | 4 | 110 — 003 | 018 | A3
KH | CHECK | DAT 85-12-10

4322 240 00782

PRÜFZEUGNIS

LOS:									
LOSGROSSE:									

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																							
[/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28,5 $\pm$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 15																							
0 =																							
- 15																							
Jr.Mo.Tag																							

Inspektion : ATTR.: -----
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																							
[/um]																							
30																							
20 =																							
10																							
0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

M I S D
Electronic components and materials Division

PHILIPS

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um] 60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR. : A.Q.L. = 1 % / S4
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : ABSTAND ZENTRIERLÖCHERN $28{,}5^{+0{,}015}_{-0{,}025}$ (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																								
0																								
- 25																								
Jr.Mo.Tag																								

Inspektion : ATTR.:
VAR. :

Parameter :

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeittet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

$\sqrt{20^2 + 10^2} = 25$

89222

Q.D.S.
ZENTRIERPLATTE (G5)
Prüfzeugnis

3322 109 61600

85-12-10

NAME Offermans KH
CHECK
SUPERS 8222 037 19814 3
DAT 85-12-10
110 — 003 018 A3

4322 240 00782

PRÜFZEUGNIS

LOS:								
LOSGROSSE								

Inspektion : ATTR.: A.Q.L. = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28,5 $\pm$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																								
0																								
- 15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: ------
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.B. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

89222

Q.D.S.
ZENTRIERPLATTE (G2)
Prüfzeugnis

3322 109 62400

85-12-10

NAME Offermans | SUPERS 8222 037 19962 | 04 | 110 — 003 | 018 | A2
CH | CHECK | DAT 85-12-10

4322 240 00782

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																							
[/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28,5 $\pm$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 15																							
0 =																							
- 15																							
Jr.Mo.Tag																							

Inspektion : ATTR.: ----
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																							
[/um]																							
30																							
20 =																							
10																							
0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1): $\sqrt{10^2 + 10^2} = 15$

89222

	Q.D.S. ZENTRIERPLATTE (G1) Prüfzeugnis	3322 109 62600	85-12-10
NAME Offelmans	SUPERS 8222 037 19914	3 110 — 003 018	A3
KH CHECK	DAT 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

4322 240 00782

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um] 60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR. : A.Q.L. = 1 % / S4
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : ABSTAND ZENTRIERLÖCHERN 28,5 $\pm$ 0.015 (Siehe Bemerkung 1)

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15 =																								
0 =																								
- 15 =																								
Jr.Mo.Tag																								

Inspektion : ATTR.: -------
VAR. : n = 2 am Start } vom Los
n = 2 am Ende

Parameter : KONZENTRIZITÄT MITTELLOCH ϕ 0,02

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40 [/um] 30 -																								
20 =																								
10 -																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

89222

Q.D.S.
ZENTRIERPLATTE (G4)
Prüfzeugnis

3322 109 63000

85-12-10

NAME Offermans | SUPERS 8222 037 19972 | 3 | 110 — 003 | 018 | A3
KH | CHECK | DAT 85-12-10

4322 240 00782

MISD
Electronic components and materials Division

PHILIPS

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start, n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR. : A.Q.L. = 1 % / S4
VAR. : n = 5 am Start, n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28,5 $\pm$ 0.015 (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 15																								
0																								
- 15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: -------
VAR. : n = 2 am Start, n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten / n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe / Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

| 89222 |

Q.D.S.
ZENTRIERPLATTE (G2.3)
Prüfzeugnis

3322 109 65600

85-12-10

NAME Offermans KH | CHECK | SUPERS 8222 037 20200 | DAT 85-12-10 | 3 | 110 — 003 | 018 | A3

4322 240 00782

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los.

Parameter : BOGENHÖHE AM 15 mm: 1,181 ± 0,045 mm

Stichgrosse n:																								
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 1,23 =																								
1,181 =																								
1,14 =																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los.

Parameter : BOGENHÖHE AM 34 mm: 5,94 $^{+0,2}_{-0,1}$ mm

Stichgrosse n:																								
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 6,14 =																								
5,94 =																								
5,84 =																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S2
VAR. : n = 5 am Start
n = 5 am Ende } vom Los.

Parameter : RECHTWINKLIGKEIT DER BRUCHLINIE; FLÄCHE GG: < 0,1

Stichgrosse n:																								
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
120																								
80																								
40																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Grat																								
Oberfläche																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeuge gewechselt oder nachgearbeitet werden.

89222

Q.D.S. X-PLATTE

Prüfzeugnis

8222 037 19930

85-12-10

NAME OFFERMANS | SUPERS | 04 | 110 — 004 | 010 | A3

KH | CHECK | DAT 85-12-10

4322 240 00782

PRÜFZEUGNIS

LOS:									
LOSGROSSE									

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : BOGENHÖHE AM 14 MM 0,600 ± 0,025

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 0,624																								
0,606																								
0,600																								
0,594																								
0,588																								
Jr.Mo.Tag																								

Inspection : ATTR.: A.Q.L. = 1 %/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : BOGENHÖHE AM 34 MM. 3,59 ± 0,1

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 3,69																								
3,64																								
3,59																								
3,54																								
3,49																								
Jr.Mo.Tag																								

Inspektion : ATTR.:
VAR. :

Parameter :

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Grat																								
Oberfläche																								
Gesamthöhe																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR : A.Q.L. = 1 % / S4
VAR : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN $28{,}5 \pm \frac{0{,}015}{0{,}025}$ (Siehe Bemerkung 1 und 2)

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
+ 15																								
[/um]																								
0																								
- 25																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND FAHNEN

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
39,2																								
39,15																								
39,1																								
39,05																								
39																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1): $\sqrt{20^2 + 10^2} = 25$

Bemerkung 2): $\sqrt{10^2 + 10^2} = 15$

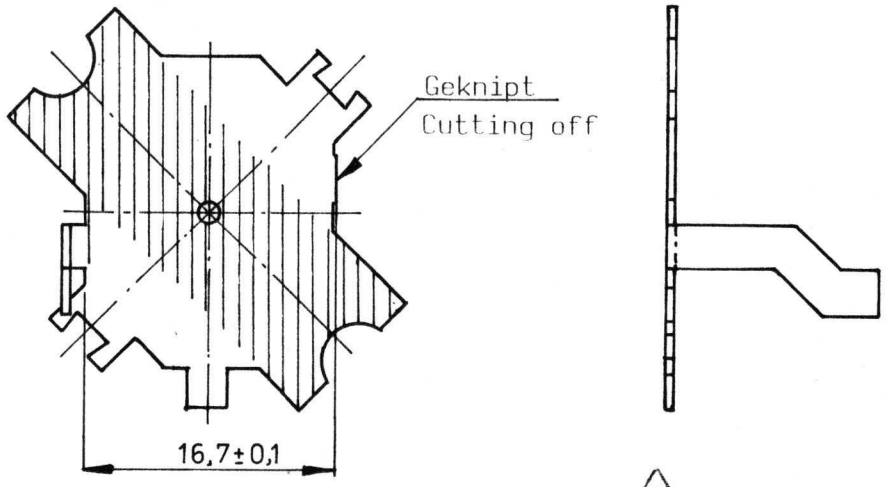
KWALITEITSKONTRAKT

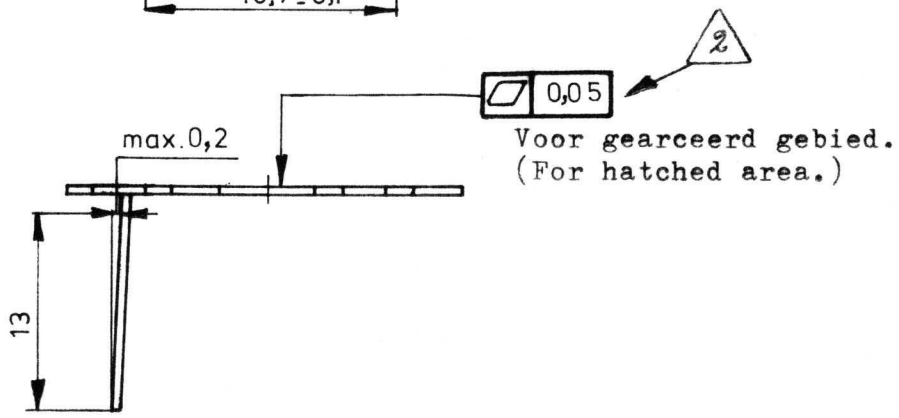
DEVELOPMENT CODENR.	NEW CODENR.	NAME	DATES DRAWING	Q.D.S	APPROVED
8222 037 19982	3322 109 60402	CENTREERPLAAT G2.2	85-11-12	85-12-10	
8222 037 19992	3322 109 60602	CENTREERPLAAT G2.1	85-11-12	85-12-10	
8222 037 19814	3322 109 61601	CENTREERPLAAT G5	85-11-12	85-12-10	
8222 037 19874	3322 109 61801	Y-PLAAT	85-09-17	85-12-10	
8222 037 19864	3322 109 62002	X-PLAAT	85-11-12	85-12-10	
8222 037 19962	3322 109 62401	CENTREERPLAAT G2	85-11-12	85-12-10	
8222 037 19914	3322 109 62601	CENTREERPLAAT G1	85-11-12	85-12-10	
8222 037 19972	3322 109 63002	CENTREERPLAAT G4	85-11-12	85-12-10	
8222 037 19936		X-PLAAT	85-10-28	85-12-10	
8222 037 19945		Y-PLAAT	85-10-09	85-12-10	
8222 037 20013		CENTREERPLAAT G5	85-10-28	85-12-10	
8222 037 20200	3322 109 65601	CENTREERPLAAT G2.3	85-11-26	85-12-10	

DATE :
NAME :
SIGNATURE :

PHILIPS

Electronic components and materials Division





Voor gearceerd gebied.
(For hatched area.)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10
110-004 van 85-12-10

Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10
110-004 from 85-12-10

8 9 2 2 2

UN-D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED — DIMENSION | ANGLE

UN-D 603

ASSEMBLY NO | QUANT

GENERAL ROUGHNESS | UNIT: mm

MATERIAL: Centreerplaat G2 3322 109 62400
(Centring plate G2)

PATTERN NO

SCALE: 2:1 | PROJ EUROP

TREATMENT: Ontbraamd (Deburred)
Ontvet (Degreased)

ORDER NO | QUANT

CLASS NO

CENTREERPLAAT G2.2
(CENTRING PLATE G2.2)

3322 109 6040

~~85-09-17~~
2 85-Nov-12

NAME Franssen | SUPERS 8222 037 19982 | 2 | 110 — 001 | 069 | A4

KH | CHECK | DAT ~~85-09-17~~

4322 240 02641

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2 Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Rechteckigkeit von Fahne	6,5 %	S 4
4. Mittelloch-Konzentrizität	-	
5. Abtrennmass	6,5 %	S 4

B. Apparatur.

Für A1 : beliebig; Genauigkeit $\pm$ 5/um
Für A2 : Sondermessgerät
Für A3 : festzulegen
Für A4 : Jena
Für A5 : festzulegen

C. Methoden und Normen.

Siehe die Blätter 3 und 4

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blätter 3 und 4) begleitet sein.

Q.D.S. ZENTRIERPLATTE G2.2		3322 109 60400			85-12-10
NAME OFFERMANS	SUPERS. 8222 037 19982	1	110 — 002	018	A4
KH / CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN $28 \pm 0{,}015$ (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 15																							
0 =	-=-	-=-	-=-=-	-=-	-=-	-=-=-	-=-	-=-	-=-=-	-=-	-=-	-=-=-	-=-	-=-	-=-=-	-=-	-=-	-=-=-	-=-	-=-	-=-=-	-=-	-=-	-=-=-
- 15																							
Jr.Mo.Tag																							

Inspektion : ATTR.: -----
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40 [/um]																							
30																							
20 =	===	===	=====	===	===	=====	===	===	=====	===	===	=====	===	===	=====	===	===	=====	===	===	=====	===	===	=====
10																							
0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeuge gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

89222

Q.D.S.
ZENTRIERPLATTE (G2.2)
Prüfzeugnis

3322 109 60400

85-12-10

NAME Offermans | SUPERS 8222 037 19982 | 4 | 110 — 003 | 018 | A3
KH | CHECK | DAT 85-12-10 | Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 00782

PRÜFZEUGNIS

LOS: / LOSGROSSE:									

Inspektion : ATTR.: A.Q.L = 6,5 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : RECHTECKIGKEIT VON FAHNE < 0,2

Stichgrosse n: / No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 400 [/um]																								
300																								
200																								
100																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABTRENNMASS 16,7 + 0,1

Stichgrosse n: / No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
16,9 [mm]																								
16,8																								
16,7																								
16,6																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05 NACH BIEGEN

Stichgrosse n: / No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

d = Defekten / n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.B. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

89222

Q.D.S.
ZENTRIERPLATTE (G2.2)
Prüfzeugnis

3322 109 60400

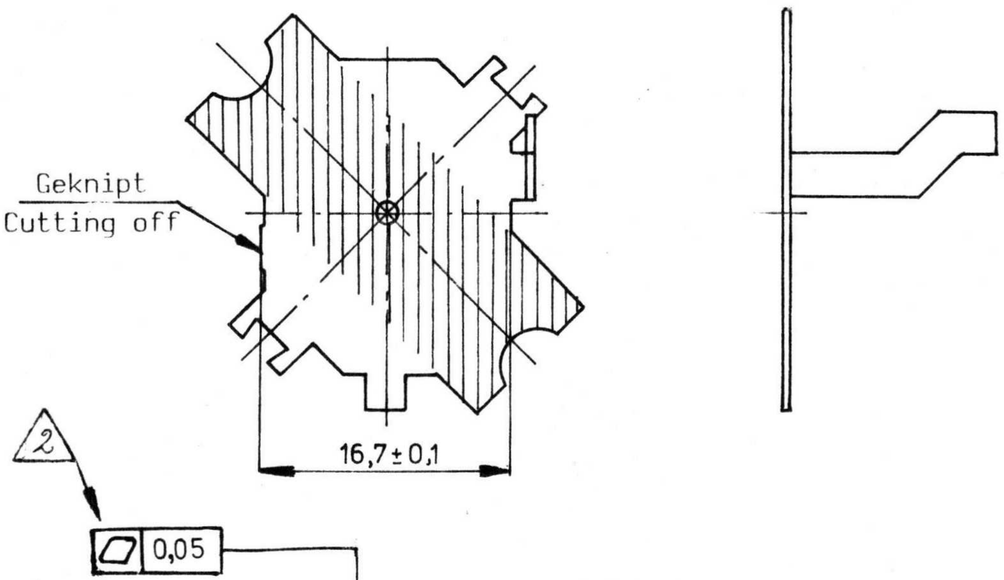
85-12-10

NAME Offermans | SUPERS 8222 037 19982 | 4 | 110 — 004 | 018 | A3
KH | CHECK | DAT 85-12-10

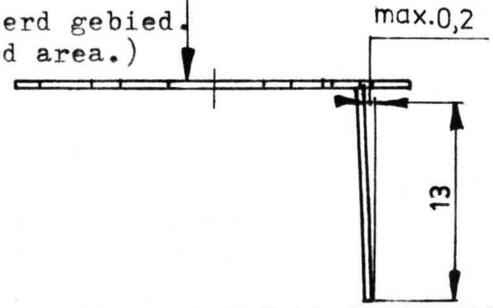
4322 240 00782

PHILIPS

Electronic components and materials Division



Voor gearceerd gebied.
(For hatched area.)



Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10
110-004 van 85-12-10

Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10
110-004 from 85-12-10

89222

R_a in micrometres (µm)	UN-D 28
TOLERANCES UNLESS OTHERWISE STATED	DIMENSION / ANGLE
UN-D 603	ASSEMBLY NO / QUANT. / PATTERN NO
GENERAL ROUGHNESS	
UNIT	mm
MATERIAL	Centreerplaat G2 3322 109 62400 (Centring plate G2)
SCALE	2:1
PROJ EUROP	
TREATMENT	Ontbraamd (Deburred); Ontvet (Degreased)
ORDER NO / QUANT.	
CLASS NO	
Title	CENTREERPLAAT G2.1 (CENTRING PLATE G2.1)
Number	3322 109 6060
Revisions	1 85-09-17; 2 85-11-12
NAME	Franssen
KH / CHECK	
SUPERS	8222 037 19992
	2
	110—001
	069
	A4
DAT	85-09-17

Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 02641

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2. Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Rechteckigkeit von Fahne	6,5 %	S 4
4. Mittelloch-Konzentrizität	-	
5. Abtrennmass	6,5 %	S 4

B. Apparatur.

Für A1 : beliebig; Genauigkeit $\pm$ 5 /um
Für A2 : Sondermessgerät
Für A3 : festzulegen
Für A4 : Jena
Für A5 : festzulegen

C. Methoden und Normen.

Siehe die Blätter 3 und 4

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blätter 3 und 4) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G2.1	3322 109 60600			85-12-10
NAME OFFERMANS	SUPERS. 8222 037 19992	1	110 — 002	018	A4
KH / CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS			

PRÜFZEUGNIS

LOS:									
LOSGROSSE:									

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start, n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start, n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28 ± 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																								
0																								
- 15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: -----
VAR. : n = 2 am Start, n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ϕ 0,02

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40 [/um]																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 6,5 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : RECHTECKIGKEIT VON FAHNE < 0,2

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 400																								
[/um]																								
300																								
200																								
100																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABTRENNMASS 16,7 ± 0,1

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
16,9																								
[mm]																								
16,8																								
16,7																								
16,6																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05 NACH BIEGEN

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

89222

Q.D.S.
ZENTRIERPLATTE (G2.1)
Prüfzeugnis

3322 109 60600

85-12-10

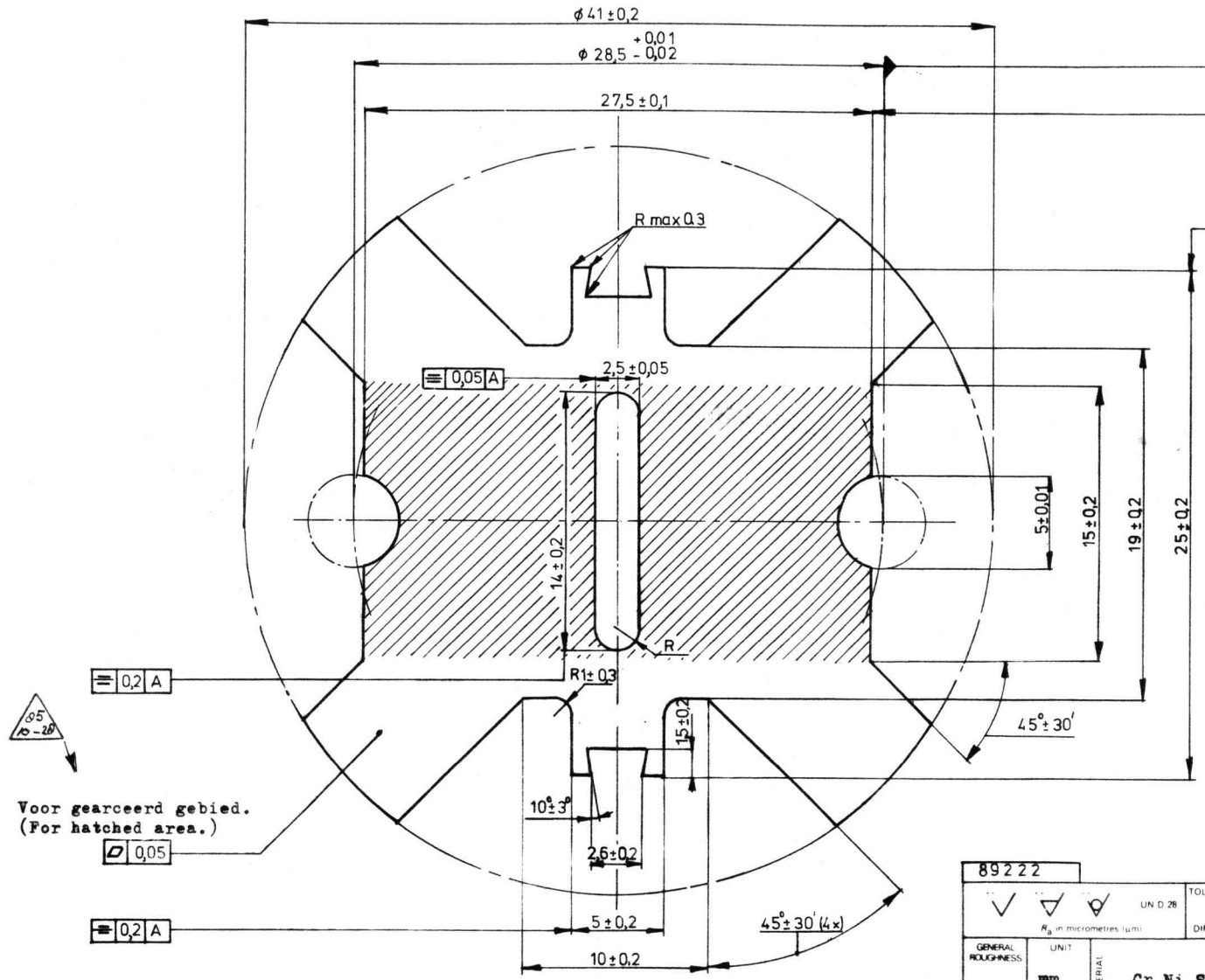
NAME Ottermans
CHECK
DAT 85-12-10

SUPERS 8222 037 19992 | 4 | 110 — 004 | 018 | A3

4322 240 00782

PHILIPS

M.I.S.D.
Electronic components and materials Division



R max. 0,5 tenzij anders aangegeven.
(R max. 0,5 unless stated otherwise)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10

Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10

89222

UN D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION | ANGLE

UN D 603

ASSEMBLY NO | QUANT

PATTERN NO

GENERAL ROUGHNESS | UNIT: mm | MATERIAL: Cr Ni St band 18/12 UZN-N 286 0,75±0,02

SCALE: 4:1 | PROJ EUROP | TREATMENT: Ontbraamd (Degreased) Ontvet (Degreased)

ORDER NO | QUANT

CLASS NO

CENTREERPLAAT G5
(Centring plate G5)

3322 109 6160

85-09-17
85-11-12

NAME: FRANSSEN | SUPERS: 8222 037 19814 | 3 | 110-001 | 027 | A3

CHECK | DAT: 85-09-17

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Entfettet	1,0 %	S 4
2. Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4

B. Apparatur.

Für A1 : beliebig, Genauigkeit $\pm$ 5 µm
Für A2 : Sondermessgerät

C. Methoden und Normen.

Siehe Blatt 3.

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G5		3322 109 61600			85-12-10	
NAME OFFERMANS	SUPERS. 8222 037 19814	1	110 — 002	018		A4	
KH / CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS					

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR. : A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN $28 \pm \frac{0{,}015}{0{,}025}$ (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																							
0																							
- 25																							
Jr.Mo.Tag																							

Inspektion : ATTR.:
VAR. :

Parameter :

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeittet werden.

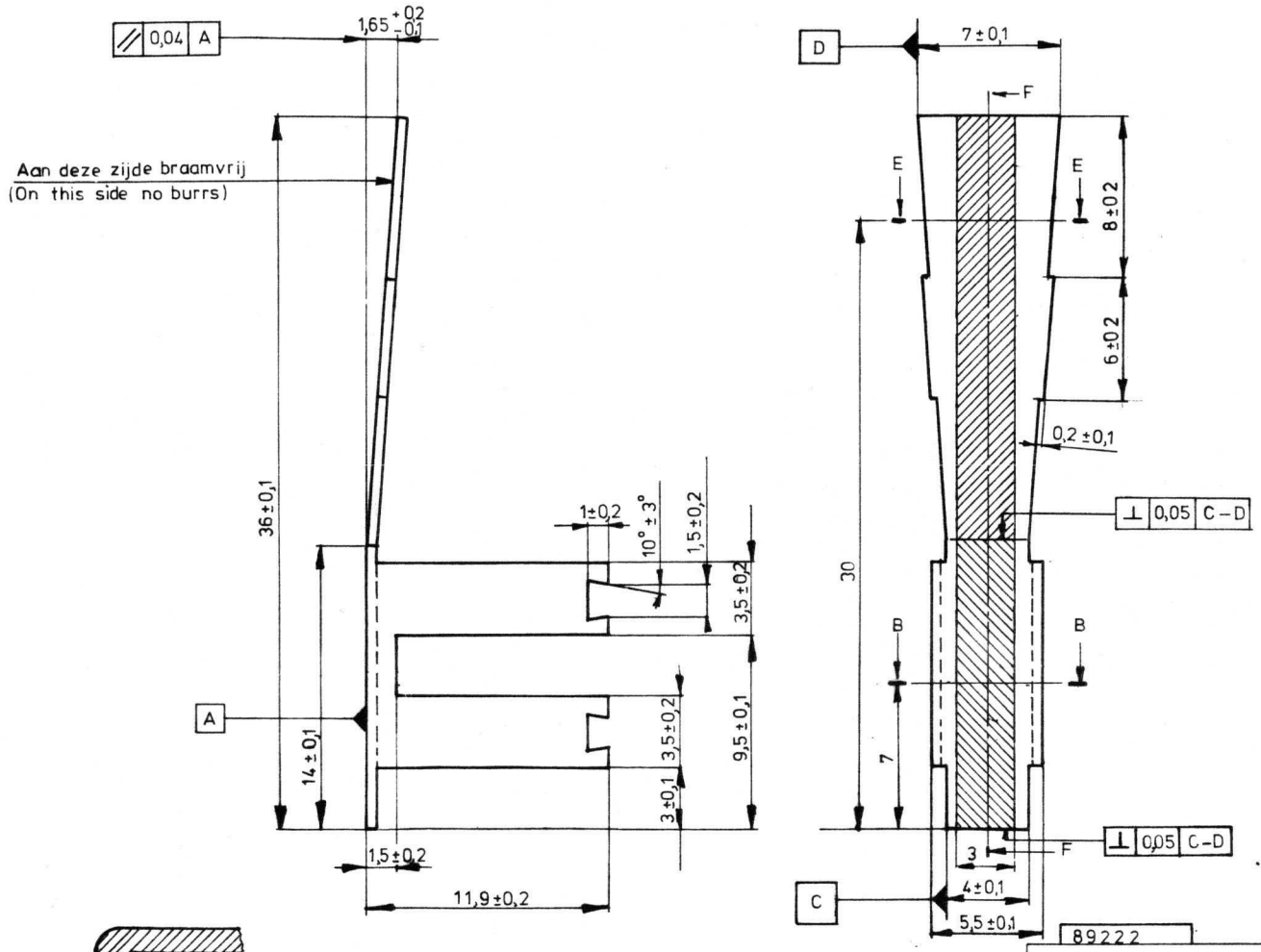
1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

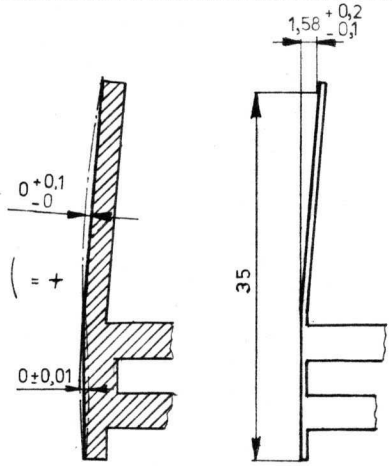
$\sqrt{20^2 + 10^2} = 25$

89222

	Q.D.S. ZENTRIERPLATTE (G5) Prüfzeugnis	3322 109 61600	85-12-10
NAME Offermans KH CHECK	SUPERS 8222 037 19814 3 DAT 85-12-10	110 — 003 018	A3

4322 240 00782





Doorsnede F-F
(Cross section F-F)

Specificatie van pijlhoogte
(Specification of rise of arc)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10

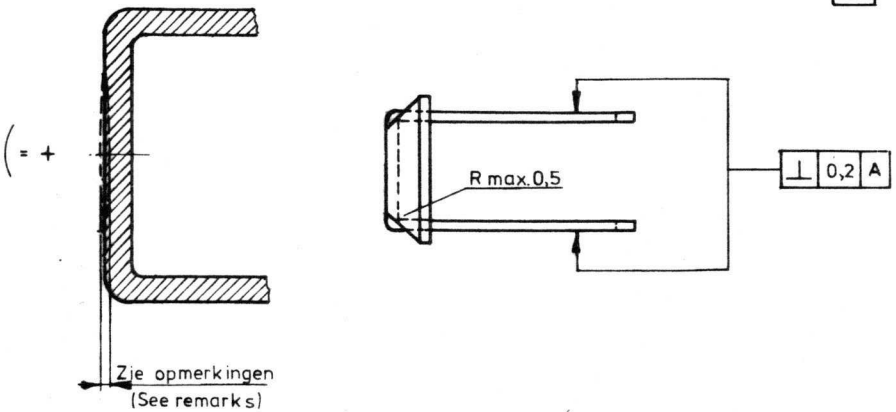
Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10

Opmerkingen.
(Remarks)

Doorsnede B - B 0±0,01 mm over gearceerd gebied.
(Cross-section B - B 0±0,01 mm over hatched area.)

Doorsnede E - E 0±0,01 mm over gearceerd gebied.
(Cross-section E - E 0±0,01 mm over hatched area.)

R.max. 0,3 tenzij anders aangegeven.
(R.max. 0,3 unless stated otherwise.)



89222

UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: CrNiSt 18/12 UZN-N286 0,5 ± 0,02	PATTERN NO
SCALE: 4:1	PROJ EUROP	TREATMENT: Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	Y-PLAAT (Y-PLATE) (P.D.A.)	3322 109 6180	85-09-17
NAME: Offermans KH / CHECK	SUPERS 8222 037 19874 3 DAT 85-09-17	110 — 001 069	A3

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Grat	1,0 %	S 4
2. Oberflächenbeschaffenheit	1,0 %	S 4
3. Flachheit- (Querrichtung: 2x)	1,0 %	S 4/test
- (Längsrichtung: 2x)	1,0 %	S 4/test
4. Rechtwinkligkeit der Einpressfahnen	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal
4. Für A4: Lehre; Höchstmass 6 mm.

C. Methoden und Normen.

1. Für A1: Grat nicht zulässig (siehe Bemerkung in der Zeichnung).
   Grat in der Nähe von Schwalbenschwänzen ist zulässig.
2. Für A2: Frei von Kratzern und Beulen.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit (Längsrichtung : 1x)	-	-
2. Bogenhöhe (1x)	1,0 %	S 4
3. Rechtwinkligkeit der Bruchlinie (1x)	1,0 %	S 2

B. Apparatur.

Für A1 : beliebig, Genauigkeit : $\pm$ 10 /um
Für A2 : Sondermessgerät Nr. 9/12346
Für A3 : beliebig, Genauigkeit : $\pm$ 10 /um

C. Methoden und Normen.

Für A1 : Längsrichtung : über die Mittellinie

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

	Q.D.S. Y - PLATTE (PDA)		3322 109 61800		85-12-10
NAME OFFERMANS	SUPERS. 8222 037 19874	1	110 — 002	018	A4
KH CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS								
LOSGROSSE								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : FLACHHEIT LÄNGSRICHTUNG (<0,1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
120																							
80																							
40																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start } vom Los
n = 10 am Ende

Parameter : BOGENHÖHE AM 35 mm: $(1{,}58 \pm 0{,}2/0{,}1)$

Stichgrosse n:																							
No.von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 1.78																							
1.68																							
1.58																							
1.48																							
Jr.Mo.Tag																							

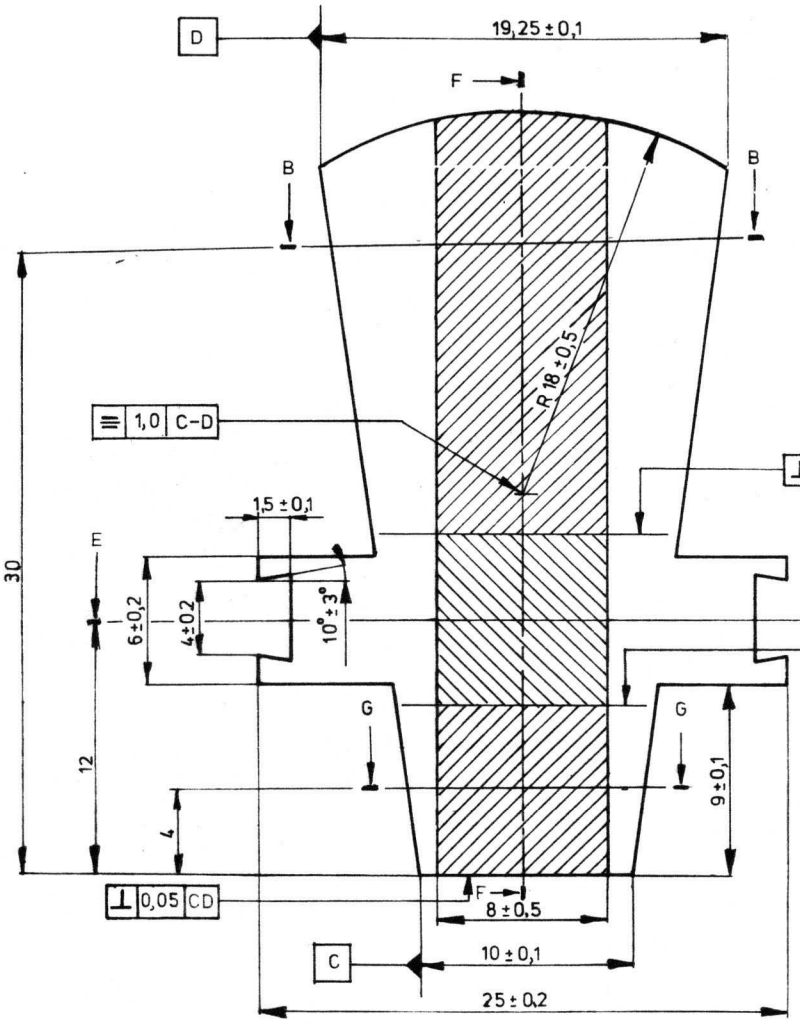
Inspektion : ATTR.: A.Q.L. = 1%/S2
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

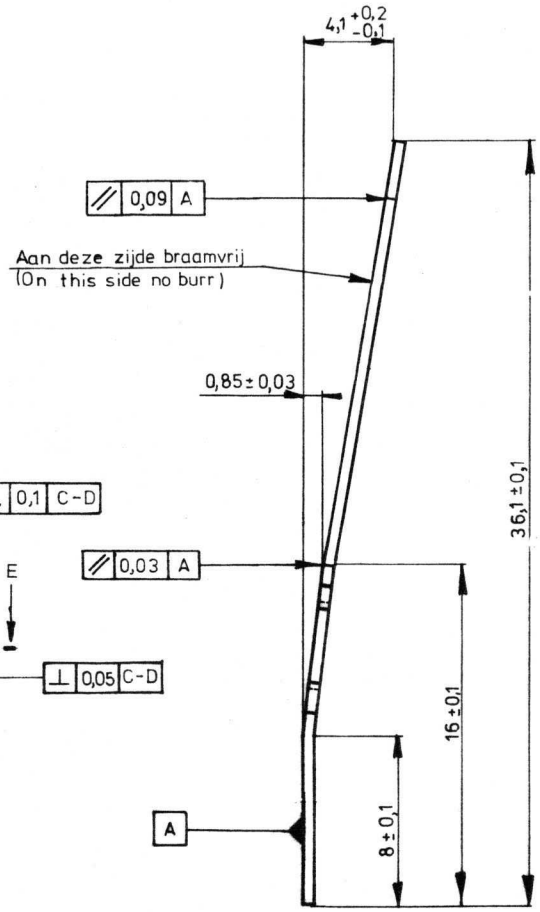
Parameter : RECHTWINKLIGKEIT DER BRUCHLINIE (<0,05)

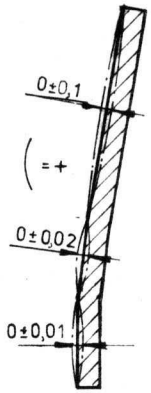
Stichgrosse n:																							
No.von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Grat																								
Oberfläche																								
Flachheit BB																								
Flachheit EE																								
FlachheitFF(+-10																								
Rechtw. Fahnen																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

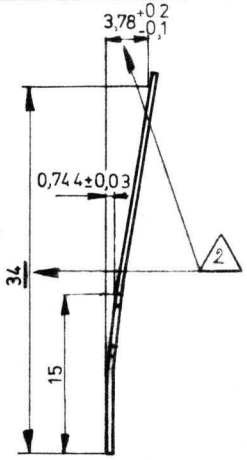
Ein los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.







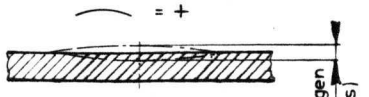
Doorsnede F-F
(Cross-section F_F)



Specificatie van pijlhoogte.
(Specification of rise of arc.)

Opmerkingen:
(Remarks)
Doorsnede B-B 0± 0,02 mm over gearceerd gebied
(Cross-section B-B 0± 0,02 mm over hatched area)
Doorsnede E-E 0± 0,01 mm over gearceerd gebied
(Cross-section E-E 0± 0,01 mm over hatched area)
Doorsnede G-G 0± 0,005 mm over gearceerd gebied
(Cross-section G-G 0± 0,005 mm over hatched area)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10
110-004 van 85-12-10
110-005 van 85-12-10
Inspection according to Q.D.S sheet
110-002 from 85-12-10
110-003 from 85-12-10
110-004 from 85-12-10
110-005 from 85-12-10



Niet op schaal
(Not drawn to scale)

Zie opmerkingen
(See remarks)

R.max 0,3 tenzij anders aangegeven
(R.max 0,3 unless stated otherwise)

89222

UN D 28 — R_a in micrometres (µm)
TOLERANCES UNLESS OTHERWISE STATED — DIMENSION | ANGLE
UN D 603
ASSEMBLY NO | QUANT

GENERAL ROUGHNESS | UNIT: mm | MATERIAL: CrNiSt 18/12 UZN-N286 0,5 ± 0,02 | PATTERN NO

SCALE: 4:1 | PROJ: EUROP | TREATMENT: Ontvet (Degreased) | ORDER NO | QUANT

CLASS NO

X-PLAAT (X-PLATE) (P.D.A.)

3322 109 6200

85-09-17
2 85-11-12

NAME FRANSSEN | SUPERS 8222 037 19864 | 3 | 110 — 001 | 069 | A3
KB | CHECK | DAT 85-09-17 | Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Grat	1,0 %	S 4
2. Oberflächenbeschaffenheit	1,0 %	S 4
3. Flachheit (Querrichtung : 3x)	1,0 %	S 4/test

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Grat nicht zulässig (siehe Bemerkung in der Zeichnung).
   Grat in der Nähe von Schwalbenschwänzen ist zulässig.
2. Für A2: Frei von Kratzern und Beulen.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit (Querrichtung : 3x)	-	-
2. Parallelität (2x)	1,0 %	S 4/test
3. Bogenhöhe	1,0 %	S 4/test
4. Rechtwinkligkeit der Bruchlinie (1x)	1,0 %	S 2

B. Apparatur.

Für A1 : Pertometer oder ähnliches
Für A2 und A3 : Sondermessgerät Nr. 9/12346
Für A4 : beliebig, Genauigkeit : ± 10 /um

C. Methoden und Normen.

Für A1 : Querrichtung : an den gekennzeichneten Stellen im schraffierten Gebiet
Für A2 : Messen in der Querrichtung über eine Breite von 13 mm

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blätter 3 und 4) begleitet sein.

	Q.D.S. X-PLATTE	3322 109 62000			85-12-10
NAME OFFERMANS	SUPERS. 8222 037 19864	1	110 — 002	018	A4
KH CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS									
LOSGROSSE									

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. n = 10 am Start
n = 10 am Ende } vom Los

Parameter : FLACHHEIT FLÄCHE GG (Querrichtung: < 0,005)

Stichgrosse n:																							
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 5																							
0																							
- 5																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : FLACHHEIT FLÄCHE EE (Querrichtung: < 0,01)

Stichgrosse n:																							
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 10																							
0																							
- 10																							
Jr.Mo.Tag																							

Inspektion : ATTR : A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : FLACHHEIT FLÄCHE BB (Querrichtung: < 0,02)

Stichgrosse n:																							
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 20																							
0																							
- 20																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

89222

	Q.D.S. X-PLATTE (PDA)	3322 109 62000	85-12-10
	Prüfzeugnis		
NAME OFFERMANS	SUPERS 8222 037 19864 05	110 — 003 010	A3
KH CHECK	DAT 85-12-10	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

PRÜFZEUGNIS

LOS								
LOSGROSSE								

Inspektion : ATTR.: A.Q L. = 1%/S4
VAR. : n = 10 am Start } vom Los
n = 10 am Ende

Parameter : PARALLELLITÄT (<0,025)

Stichgrosse n:																								
No. von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] > 40																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start } vom Los
n = 10 am Ende

Parameter : PARALLELLITÄT (< 0,06)

Stichgrosse n:																								
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] > 120																								
90																								
60																								
30																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L = 1%/S2
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : RECHTWINKLIGKEIT DER BRUCHLINIE (< 0,05)

Stichgrosse n:																								
No.von Defekten START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

89222

Q.D.S. X-PLATTE (PDA)

Prüfzeugnis

3322 109 62000

85-12-10

NAME OFFERMANS | SUPERS 8222 037 19864 | 05 | 110 — 004 | 010 | A3

KH | CHECK | DAT 85-12-10

4322 240 00782

PRÜFZEUGNIS

LOS
LOSGROSSE

Inspektion : ATTR.: A.Q.L = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : BOGENHÖHE AM 34 mm: $3{,}78 \pm \frac{0{,}2}{0{,}1}$

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 3,98																								
3,88																								
3,78																								
3,68																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : BOGENHÖHE AM 15 mm: $0{,}744 \pm 0{,}03$

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
0,747																								
0,744																								
0,741																								
Jr.Mo.Tag																								

Inspektion : ATTR.:
VAR. :

Parameter :

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Grat																								
Oberfläche																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

89222

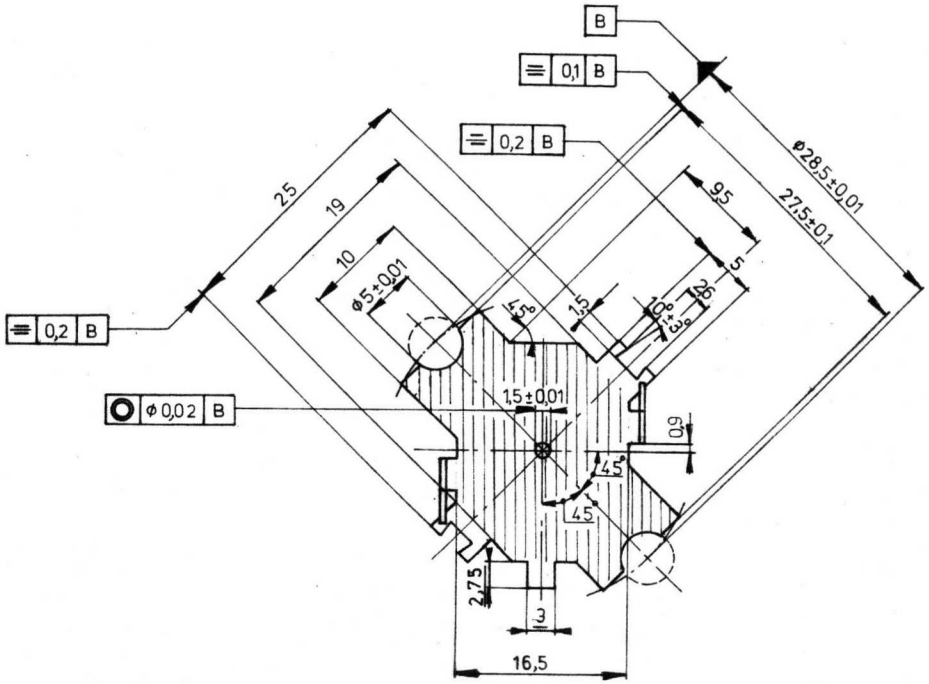
Q.D.S. X-PLATTE (PDA)

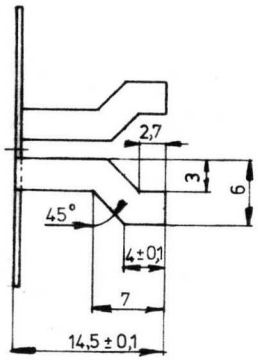
Prüfzeugnis

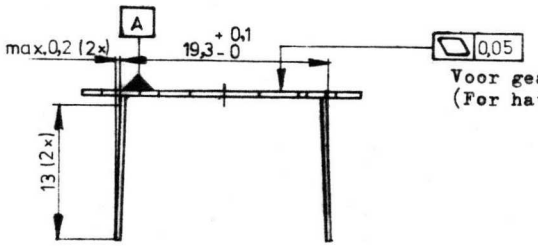
3322 109 62000

NAME OFFERMANS | SUPERS 8222 037 19864 | 05 | 110 — 005 | 010 | A3
KH | CHECK | DAT 85-12-10 | Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 00782







Voor gearceerd gebied.
(For hatched area.)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10
110-004 van 85-12-10

Inspection according to Q.D.S sheet
110-002 from 85-12-10
110-003 from 85-12-10
110-004 from 85-12-10

Opmerkingen;-R max, 0,3 mm tenzij anders aangegeven.
(R max. 0,3 mm unless stated otherwise.)

89222

UN D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION ±0,2 ANGLE ± 1°
UN D 603

ASSEMBLY NO | QUANT
PATTERN NO

GENERAL ROUGHNESS | UNIT: mm

MATERIAL: Cr Ni St 18/12 **UZH-N 286**
0,5 ± 0,02

SCALE: 2:1 | PROJ EUROP

TREATMENT: **Ontbraamd (Deburred)**
Ontvet (Degreased)

ORDER NO | QUANT

CLASS NO

CENTREERPLAAT(G2)
(CENTRING PLATE G2)

3322 109 6240

85-09-17
85-11-12

NAME Franssen | SUPERS 8222 037 19962 | 4 | 110 — 001 | 069 | A3
CHECK | DAT 85-09-17

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2. Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Rechteckigkeit von Fahne	6,5 %	S 4
4. Mittelloch-Konzentrizität	-	

B. Apparatur.

Für A1 : beliebig; Genauigkeit $\pm$ 5 /um
Für A2 : Sondermessgerät
Für A3 : festzulegen
Für A4 : Jena

C. Methoden und Normen.

Siehe die Blätter 3 und 4

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blätter 3 und 4) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G2		3322 109 62400		85-12-10
NAME OFFERMANS	SUPERS. 8222 037 19962	1	110 — 002	018	A4
KH CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS: / LOSGROSSE									

Inspektion : ATTR.: A.Q L. = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n: / No. von Defekten / START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28 $\pm$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n: / No. von Defekten / START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																								
0																								
- 15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: ------
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ϕ 0,02

Stichgrosse n: / No. von Defekten / START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten / n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

PRÜFZEUGNIS

LOS:								
LOSGROSSE								

Inspektion ATTR.: A.Q.L. = 6,5 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : RECHTECKIGKEIT VON FAHNE < 0,2 (2X)

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 400 [/um]																								
300																								
200																								
100																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.:
VAR. :

Parameter :

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																								

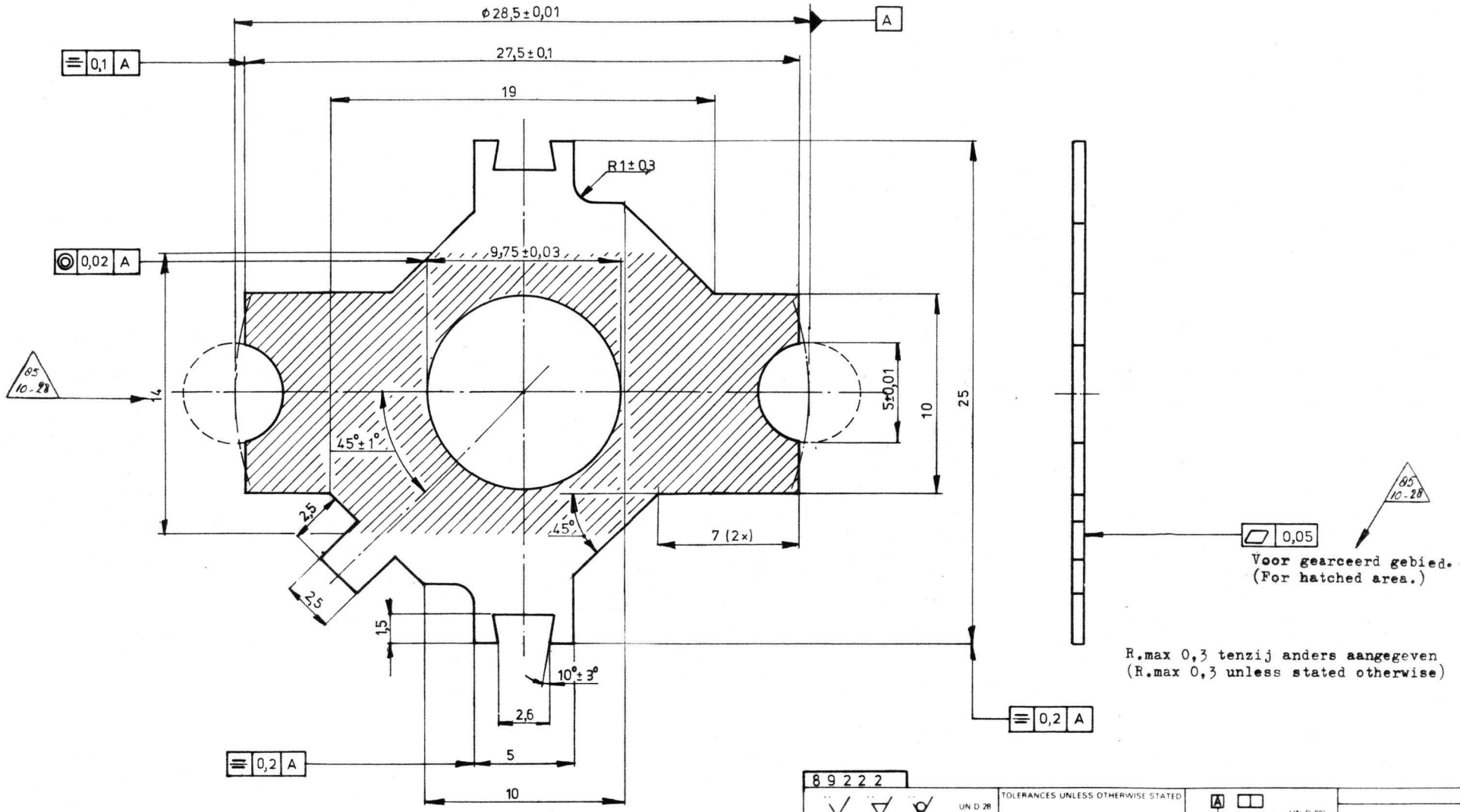
Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05 NACH BIEGEN

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.



Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10

Inspection according to Q.D.S sheet
110-002 from 85-12-10
110-003 from 85-12-10

89222

UN D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION ± 0,2 | ANGLE

UN D 603

ASSEMBLY NO | QUANT

GENERAL ROUGHNESS | UNIT: mm

MATERIAL: Cr Ni St18/12 UZN-N 286
0,5 ± 0,02

PATTERN NO

SCALE: 5:1 | PROJ EUROP

TREATMENT: Ontbraamd (Deburred)
Ontvet (Degreased)

ORDER NO | QUANT

CLASS NO

CENTREERPLAAT (G1)
(Centring plate G1)

3322 109 6260

85-09-17
85-11-12

NAME Franssen | SUPERS 8222 037 19914 | 3 | 110 — 003 | 069 | A3
CHECK | DAT 85-09-17

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2. Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Mittelloch-Konzentrizität	-	

B. Apparatur.

Für A1 : beliebig; Genauigkeit $\pm$ 5 /um
Für A2 : Sondermessgerät
Für A3 : Jena

C. Methoden und Normen.

Siehe Blatt 3

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G1	3322 109 62600			85-12-10
NAME OFFERMANS	SUPERS. 8222 037 19914	1	110 — 002	018	A4
KH CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR. A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																							
[/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28 $\pm$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																							
+ 15																							
0																							
- 15																							
Jr.Mo.Tag																							

Inspektion : ATTR.: ----
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

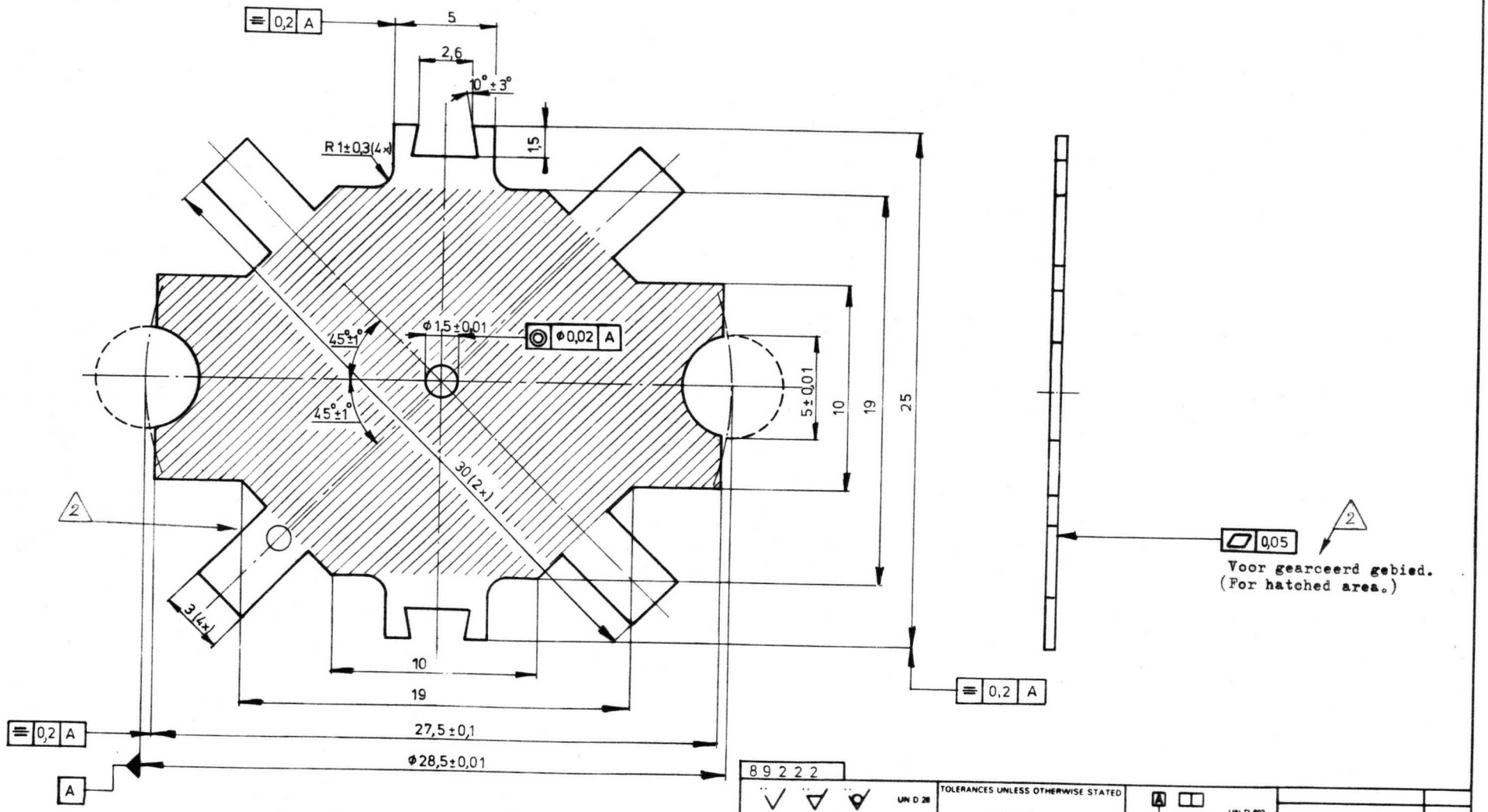
Parameter : KONZENTRIZITÄT MITTELLOCH

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																							
[/um]																							
30																							
20																							
10																							
0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1): $\sqrt{10^2 + 10^2} = 15$



Opmerkingen;-R max. 0,3 mm tenzij anders aangegeven.
(Notes) (R max. 0,3 mm unless stated otherwise.)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10

Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10

89222

UN D 28 R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION ± 0,2 | ANGLE

UN D 603

GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr Ni St 18/12 UZN-N 286 0,5 ± 0,02	ASSEMBLY NO / QUANT
SCALE 5:1	PROJ. EUROP	TREATMENT: Ontbraamd (Deburred) Ontvet (Degreased)	PATTERN NO / ORDER NO / QUANT
CLASS NO		CENTREERPLAAT(G4) (Centring plate G4)	3322 109 6300

NAME Franssen | SUPERS 8222 037 19972 | 110 — 001 | 069 | A3
CHECK | DAT 85-09-17

2 85-11-12

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2. Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Mittelloch-Konzentrizität	-	

B. Apparatur.

Für A1 : beliebig, Genauigkeit $\pm$ 5 /um
Für A2 : Sondermessgerät
Für A3 : Jena

C. Methoden und Normen.

Siehe Blatt 3.

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G4		3322 109 63000			85-12-10	
NAME OFFERMANS		SUPERS 8222 037 19972	1	110 — 002	018		A4
KH	CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80 [/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR. : A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN 28 ± 0.015 (Siehe Bemerkung 1)

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15 =																								
0 =																								
- 15 =																								
Jr.Mo.Tag																								

Inspektion : ATTR.: -------
VAR. : n = 2 am Start
n = 2 am Ende } vom Los

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40 [/um] -																								
30 -																								
20 =																								
10 -																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

89222

Q.D.S.
ZENTRIERPLATTE (G4)

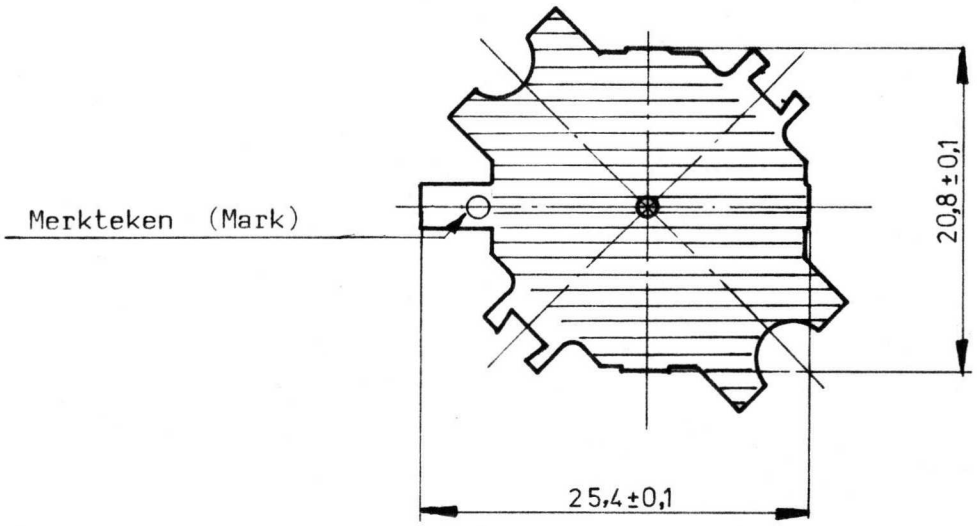
Prüfzeugnis

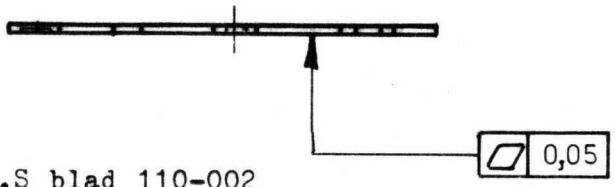
3322 109 63000

85-12-10

NAME Offermans | SUPERS 8222 037 19972 | 3 | 110 — 003 | 018 | A3

KH | CHECK | DAT 85-12-10





Voor gearceerd gebied.
(For hatched area.)

Kontroleren volgens Q.D.S blad 110-002
van 85-12-10
110-003
van 85-12-10

Inspection according to Q.D.S sheet
110-002 from 85-12-10
110-003 from 85-12-10

89222

UN D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION -- ANGLE --

UN D 603

ASSEMBLY NO | QUANT

GENERAL ROUGHNESS: --
UNIT: mm
MATERIAL: Centreerplaat G4 3322 109 6300
(Centring plate G4 3322 109 6300)

PATTERN NO

SCALE: 2:1
PROJ EUROP
TREATMENT: Ontbraamd (Deburred)
Ontvet (Degreased)

ORDER NO | QUANT

CLASS NO

CENTREERPLAAT G2.3
(Centring plate G2.3)

3322 109 6560

85-11-26

NAME Franssen
CHECK
SUPERS 8222 037 20201
DAT 85-11-26

A4

4322 240 02641

1. VISUELL

A. Prüfpunkte.

	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2 Grat	1 0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.

	A.Q.L.	NIVEAU
1 Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Mittelloch-Konzentrizität	-	

B. Apparatur.

Für A1 : beliebig, Genauigkeit $\pm$ 5/um
Für A2 : Sondermessgerät
Für A3 : Jena

C. Methoden und Normen.

Siehe Blatt 3.

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G2.3	3322 109 65600			85-12-10
NAME OFFERMANS	SUPERS. 8222 037 20200	1	110 — 002	018	A4
KH CHECK	DAT. 85-12-10	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start } vom Los
n = 5 am Ende

Parameter : ABSTAND ZENTRIERLÖCHERN 28 $\pm$ 0,015 (Siehe Bemerkung 1)

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+15																								
0																								
-15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: -------
VAR. : n = 2 am Start } vom Los
n = 2 am Ende

Parameter : KONZENTRIZITÄT MITTELLOCH ⌀ 0,02

Stichgrosse n:																								
No. von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-Definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

Bemerkung 1) $\sqrt{10^2 + 10^2} = 15$

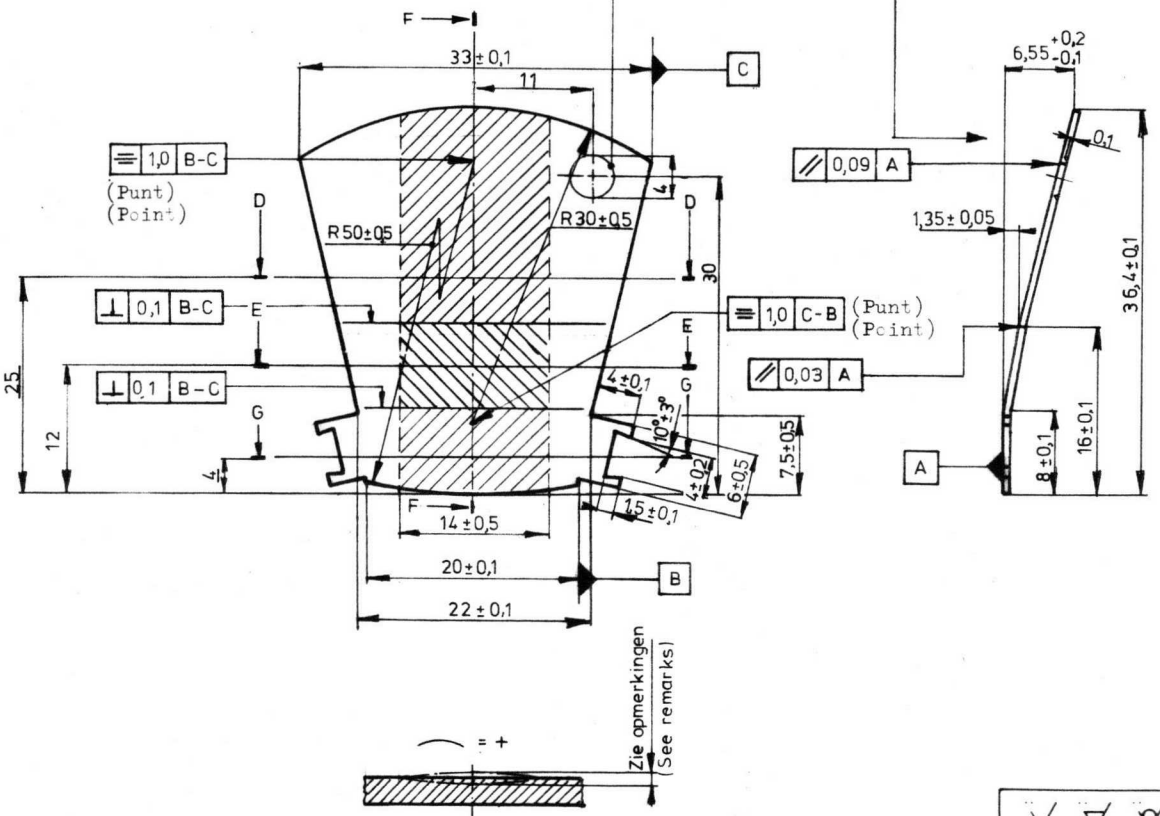
89222

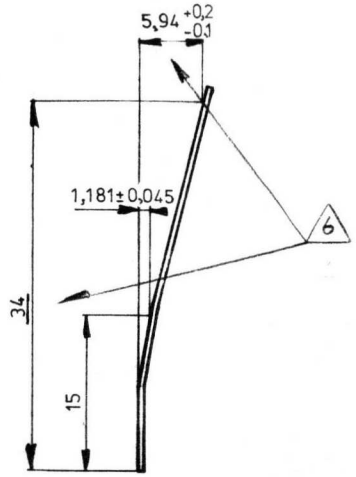
	Q.D.S. ZENTRIERPLATTE (G2.3) Prüfzeugnis	3322 109 65600	85-12-10
NAME Offermans	SUPERS 8222 037 20200 3	110 — 003 018	A3
KH CHECK	DAT 85-12-10	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

4322 240 00782

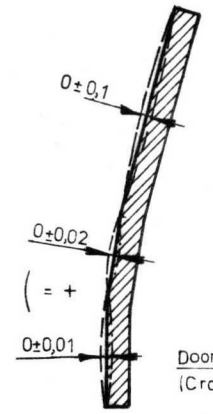
Herkenningsteken voor braamzijde bij buigen.
Sign of recognition for burr side by bending

Aan deze zijde braamvrij
(On this side no burrs)





Specificatie van pijlhoogte
(Specification of rise of arc)



Doorsnede F-F
(Cross section F-F)

Opmerkingen:
(Remarks)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10
110-004 van 85-12-10

Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10
110-004 from 85-12-10

R max. 0,3 mm tenzij anders aangegeven.
(R max. 0,3 mm unless stated otherwise)

Doorsnede D - D 0±0,02 mm over gearceerd gebied.
(Cross-section D - D 0±0,02 mm over hatched area)

Doorsnede E - E 0±0,015 mm over gearceerd gebied.
(Cross-section E - E 0±0,015 mm over hatched area)

Doorsnede G - G 0±0,01 mm over gearceerd gebied.
(Cross-section G - G 0±0,01 mm over hatched area)

R_a in micrometres (µm) UN D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION, ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: CrNi 18/12 UZN-N 286; 0,75 ± 0,02	PATTERN NO
SCALE: 2:1	PROJ EUROP	TREATMENT: Ontvet (Degreased)	ORDER NO / QUANT
CLASS NO	X - PLAAT (X - PLATE)	8222 037 1993	6 28-10-85; 3 ~~17-01-85~~; 4 ~~22-02-85~~; 5 02-04-85
NAME Franssen; CHECK	SUPERS; DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	A3

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Grat	1,0 %	S 4
2. Oberflächenbeschaffenheit	1,0 %	S 4
3. Flachheit (Querrichtung : 2x)	1,0 %	S 4/test

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Grat nicht zulässig (siehe Bemerkung in der Zeichnung).
   Grat in der Nähe von Schwalbenschwänzen ist zulässig.
2. Für A2: Frei von Kratzern und Beulen.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit (Querrichtung : 2x)	-	-
2. Parallelität (1x)	1,0 %	S 4/test
3. Bogenhöhe (2x)	1,0 %	S 4/test
4. Rechtwinkligkeit der Bruchlinie (1x)	1,0 %	S 2

B. Apparatur.

Für A1 : Pertometer oder ähnliches
Für A2 und A3 : Sondermessgerät Nr. 9/12346
Für A4 : beliebig, Genauigkeit : ± 10 /um

C. Methoden und Normen.

Für A1 : Querrichtung : an den gekennzeichneten Stellen im schraffierten Gebiet
Für A2 : Messen in der Querrichtung über eine Breite von 22 mm

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blätter 3 und 4) begleitet sein.

	Q.D.S. X-PLATTE		8222 037 19930			85-11-05	
NAME OFFERMANS	SUPERS.	1	110 — 002	018		A4	
KH CHECK	DAT. 85-11-05	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS					

PRÜFZEUGNIS

LOS								
LOSGROSSE								

Inspektion : ATTR : A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los.

Parameter : FLACHHEIT FLÄCHE GG (Querrichtung : < 0,01)

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 10																								
0																								
- 10																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los.

Parameter : FLACHHEIT FLÄCHE EE (Querrichtung : < 0,015)

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] + 15																								
0																								
- 15																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los.

Parameter : PARALLELITÄT (<0,025)

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] > 40																								
30																								
20																								
10																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

M.I.S.D.
Electronic components and materials Division

PHILIPS

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 10 am Start } vom Los.
n = 10 am Ende

Parameter : BOGENHÖHE AM 15 mm: 1,181 ± 0,045 mm

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
1,226 =																								
1,181 =																								
1,136 =																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 5 am Start } vom Los.
n = 5 am Ende

Parameter : BOGENHÖHE AM 34 mm: 5,94 $^{+0,2}_{-0,1}$ mm

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um] 6,14 =																								
5,94 =																								
5,84 =																								
Jr.Mo.Tag																								

Inspektion : ATTR.: A.Q.L. = 1%/S2
VAR. : n = 5 am Start } vom Los.
n = 5 am Ende

Parameter : RECHTWINKLIGKEIT DER BRUCHLINIE; FLÄCHE GG: < 0,1

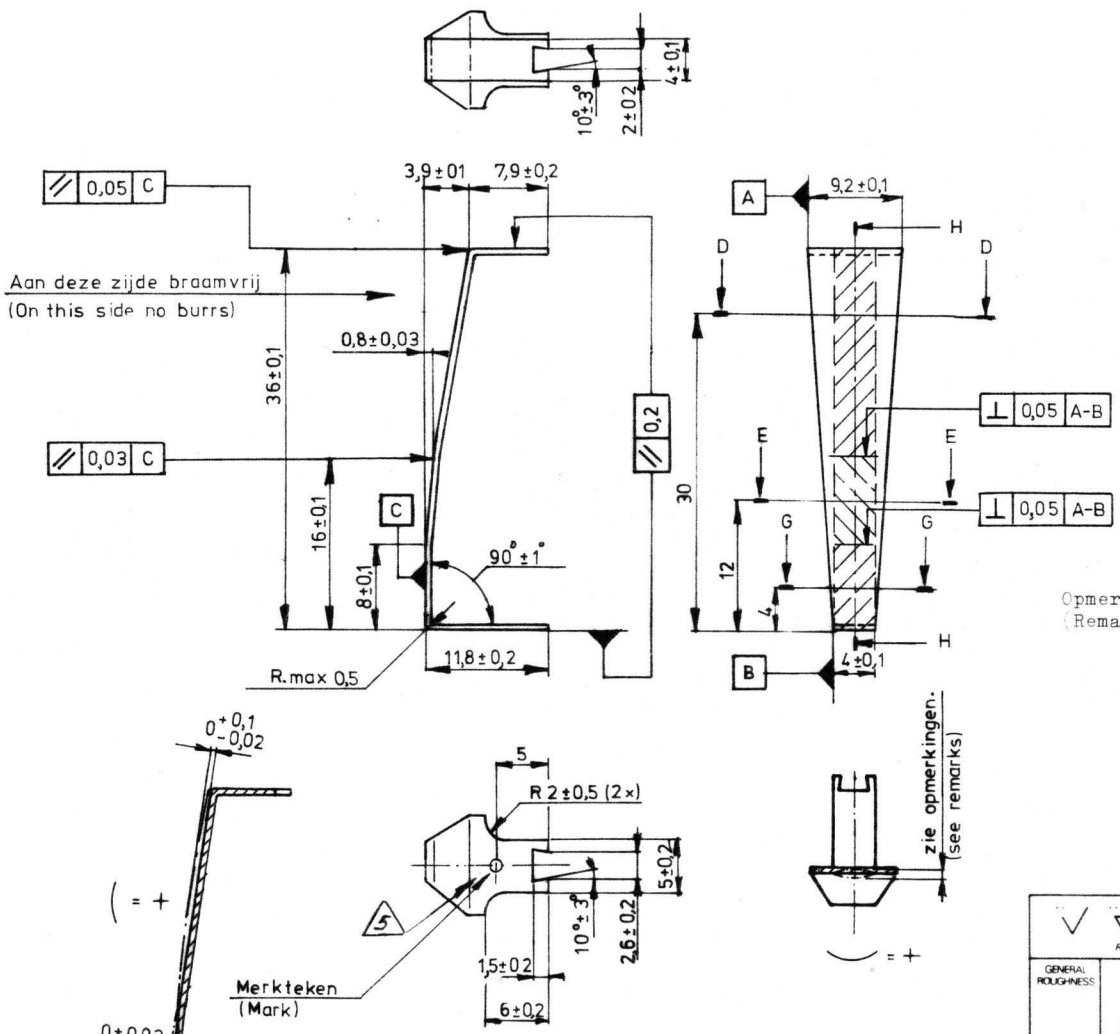
Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
120																								
80																								
40																								
0																								
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Grat																								
Oberfläche																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeuge gewechselt oder nachgearbeitet werden.

89222	Q.D.S. X-PLATTE Prüfzeugnis	8222 037 19930
NAME OFFERMANS	SUPERS	85-12-10
KH CHECK	DAT 85 12 10	04 110 — 004 010 A3

4322 240 00782



DOORSNEDE H- H
(Cross section H-H)

Specificatie van pijlhoogte.
(Specification of rise of arc.)

Opmerkingen. Doorsnede D - D 0±0,01 mm over gearceerd gebied.
(Remarks) (Cross-section D - D 0±0,01 mm over hatched area.)

Doorsnede E - E 0±0,01 mm over gearceerd gebied.
(Cross-section E - E 0±0,01 mm over hatched area.)

Doorsnede G - G 0± 0,01 mm over gearceerd gebied.
(Cross-section G - G 0±0,01 mm over hatched area.)

Kontroleren vlg. QDS blad 110-002 en 110-003.
(Inspection according to QDS sheet 110-002 and 110-003.)

R.max. 0,3 mm tenzij anders aangegeven.
(R.max. 0,3 mm unless stated otherwise.

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10
110-004 van 85-12-10

Inspection according to Q.D.S sheet
110-002 from 85-12-10
110-003 from 85-12-10
110-004 from 85-12-10

UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS / UNIT: mm	MATERIAL: Cr Ni St 18/12 UZN – N 286 0,5 ± 0,02		PATTERN NO
SCALE: 2:1 / PROJ EUROP	TREATMENT: Ontvet (Degreased)		ORDER NO / QUANT
CLASS NO	Y- PLAAT (Y- PLATE)	8222 037 1994	1 16-12-83; 2 05-11-84; 3 22-02-85; 4 01-04-85; 5 09-10-85
NAME: Franssen / CHECK	SUPERS / DAT	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	A3

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Grat	1,0 %	S 4
2. Oberflächenbeschaffenheit	1,0 %	S 4
3. Flachheit- (Querrichtung: GG+DD)	1,0 %	S 4/test
- (Längsrichtung: GG+DD)	1,0 %	S 4/test
4. Gesamthöhe	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal
4. Für A4: Lehre; Höchstmass 36,13 mm.

C. Methoden und Normen.

1. Für A1: Grat nicht zulässig (siehe Bemerkung in der Zeichnung}.
   Grat in der Nähe von Schwalbenschwänzen ist zulässig.
2. Für A2: Frei von Kratzern und Beulen.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	LEVEL
1. Flachheit (Längsrichtung : 1x)	-	-
2. Bogenhöhe (2x)	1,0 %	S 4/test
3. Rechtwinkligkeit der Bruchlinie (1x)	1,0 %	S 2

B. Apparatur.

Für A1 : beliebig, Genauigkeit : $\pm$ 10 /um
Für A2 : Sondermessgerät Nr. 9/12346
Für A3 : beliebig, Genauigkeit : $\pm$ 10 /um

C. Methoden und Normen.

Für A1 : Längsrichtung : über die Mittellinie

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blätter 3 + 4) begleitet sein.

	Q.D.S. Y - PLATTE (PDA)	8222 037 19940		05-11-05	
NAME OFFERMANS	SUPERS.	1	110 — 002	010	A4
KH / CHECK	DAT. 85-11-05	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

PRÜFZEUGNIS

LOS:								
LOSGROSSE								

InspeKtion : ATTR.: A.Q.L. = 1%/S4
VAR. n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT FLÄCHE HH (⊥ DD)

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 80																								
+ 40																								
0 =																								
- 40																								
Jr.Mo.Tag																								

Inspection : ATTR.: A.Q.L. = 1 %/S2
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : RECHTWINKLIGKEIT DER BRUCHLINIE (< 0,05)

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
60 -																								
40 -																								
20 -																								
0																								
Jr.Mo.Tag																								

Inspektion : ATTR.:
VAR. :

Parameter :

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																								

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Flachheit GG																								
Flachheit DD																								
Flachheit HH(GG)																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

4322 240 00782

PRÜFZEUGNIS

LOS:								
LOSGROSSE								

InspeKtion : ATTR.: A.Q.L. = 1%/S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : BOGENHÖHE AM 14 MM 0,600 ± 0,025

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
0.625																								
0.600																								
0.575																								
Jr.Mo.Tag																								

Inspection : ATTR.: A.Q.L. = 1 %/S4
VAR. : n = 10 am Start
n = 10 am Ende } vom Los

Parameter : BOGENHÖHE AM 34 MM. 3,59 ± 0,1

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
3.69																								
3.59																								
3.49																								
Jr.Mo.Tag																								

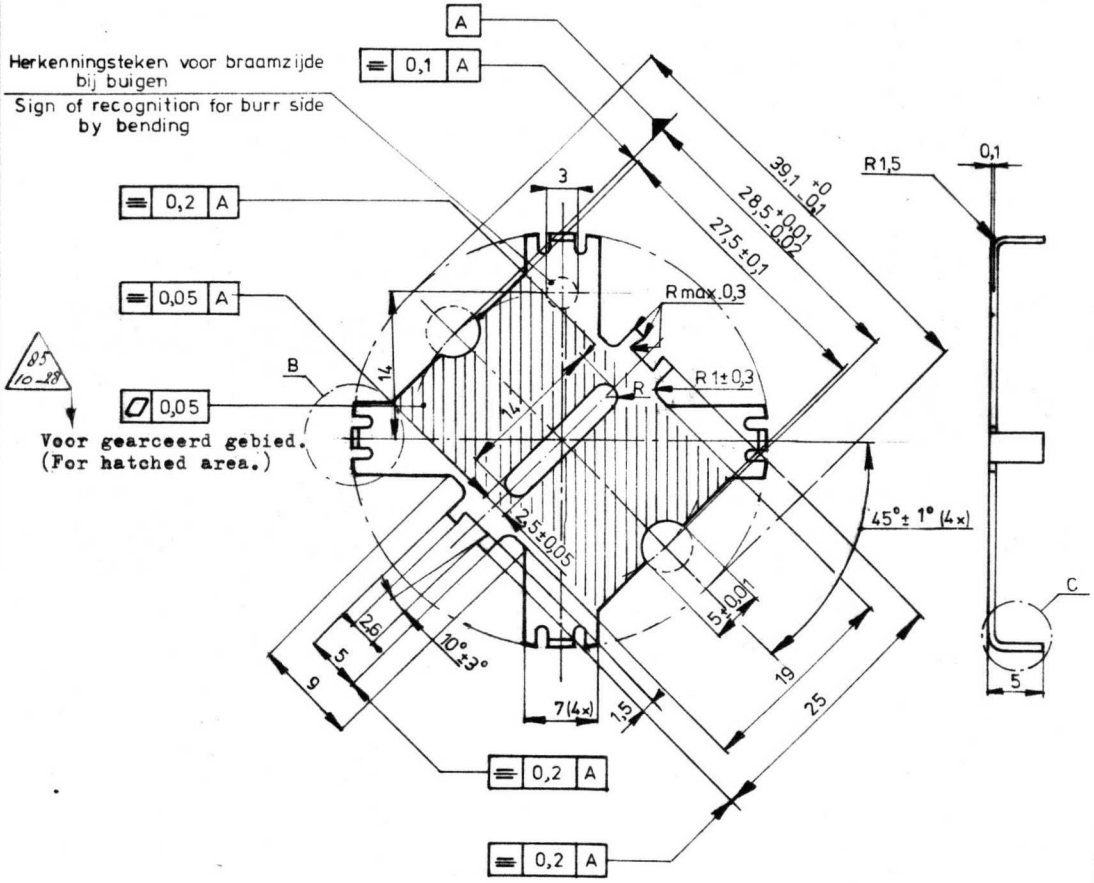
Inspektion : ATTR.:
VAR. :

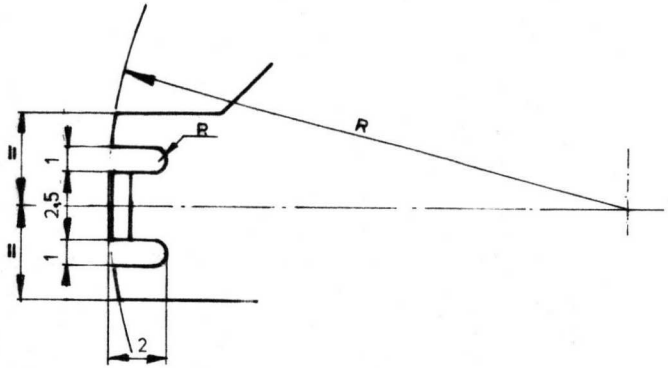
Parameter :

Stichgrosse n:																								
No.von Defekten																								
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Jr.Mo.Tag																								

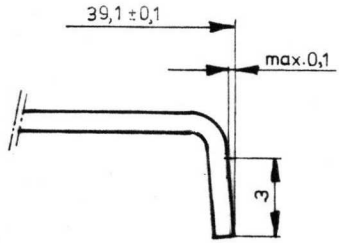
d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Grat																								
Oberfläche																								
Gesamthöhe																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.





DETAIL – B
(Schaal 5:1)



DETAIL – C
(Schaal 5:1)

R max. 0,5 tenzij anders aangegeven.
(R max. 0,5 unless stated otherwise.)

Kontroleren volgens Q.D.S blad 110-002 van 85-12-10
110-003 van 85-12-10

Inspection according to Q.D.S sheet 110-002 from 85-12-10
110-003 from 85-12-10

89222

R_a in micrometres (µm) UN D 28

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION ± 0,2 | ANGLE

UN D 603

ASSEMBLY NO | QUANT

PATTERN NO

GENERAL ROUGHNESS | UNIT: MM | MATERIAL: CrNiSt band 18/12 UZN-N286 0,75 ±0,02

SCALE: 2:1 | PROJ. EUROP | TREATMENT: Ontvet (Degreased) Ontbraamd (Deburred)

ORDER NO | QUANT

CLASS NO

CENTREERPLAAT G5
(Centring plate G5)

8222 037 2001

1	~~84-09-09~~
2	~~84-10-31~~
3	~~85-01-17~~
	85 10-28

NAME Franssen | SUPERS | CHECK | DAT

A3

4322 240 02681

1. VISUELL

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Enfettet	1,0 %	S 4
2. Grat	1,0 %	S 4
3. Flachheit	1,0 %	S 4

B. Apparatur.

1. Für A1: unbewaffnetes Auge
2. Für A2: unbewaffnetes Auge
3. Für A3: Haarlineal.

C. Methoden und Normen.

1. Für A1: Teile dürfen sich nicht fettig anfühlen.
2. Für A2: Grat nicht zulässig. Besondere Aufmerksamkeit sollte dem Mittelloch geschenkt werden.

2. ABMESSUNGEN

A. Prüfpunkte.	A.Q.L.	NIVEAU
1. Flachheit	-	-
2. Abstand zwischen Zentrierlöchern	1,0 %	S 4
3. Abstand zwischen Fahnen	1,0 %	S 4

B. Apparatur.

Für A1 : beliebig; Genauigkeit $\pm$ 5/um
Für A2 : Sondermessgerät
Für A3 : Rachenlehre

C. Methoden und Normen.

Siehe Blatt 3

ALLGEMEINES

Die Verpackung muss so sein, dass nach normalem Transport die Qualität der Bauteile immer noch den Anforderungen genügt.
Jedes Los muss von einem Prüfzeugnis (Blatt 3) begleitet sein.

	Q.D.S. ZENTRIERPLATTE G5		8222 037 20010			85-11-05	
NAME OFFERMANS		SUPERS.	1	110 — 002	018		A4
KH	CHECK	DAT. 85-11-05	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

PRÜFZEUGNIS

LOS:								
LOSGROSSE:								

Inspektion : ATTR.: A.Q.L = 1 % / S4 visuell
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : FLACHHEIT [/] 0,05

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																							
[/um]																							
60																							
40																							
20																							
0																							
Jr.Mo.Tag																							

Inspektion : ATTR : A.Q.L. = 1 % / S4
VAR : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND ZENTRIERLÖCHERN $28 \pm \overset{0,015}{0,025}$ (Siehe Bemerkung 1 und 2)

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
+ 15 =																							
[/um]																							
0 =																							
- 25																							
Jr.Mo.Tag																							

Inspektion : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 am Start
n = 5 am Ende } vom Los

Parameter : ABSTAND FAHNEN

Stichgrosse n:																							
No. von Defekten																							
START/ENDE	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
39.2																							
39.1 -																							
39.0																							
Jr.Mo.Tag																							

d = Defekten n = Stichgrosse	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Entfettet																								
Grat																								
Los Freigabe Unterschrift:																								
Jr.Mo.Tag																								
Bemerkungen																								

Ein Los kommt von einer homogenen Produktionsserie.
Los-definition ändert sich wenn z.b. wichtige Werkzeugen gewechselt oder nachgearbeitet werden.

1) Bemerkung 1): $\sqrt{20^2 + 10^2} = 25$

Bemerkung 2): $\sqrt{10^2 + 10^2} = 15$

2 Staaffs

ONTVANGEN
Ontv. 15 JULI 1985
A. G. SIEBEN

KHR-20/85-07-013/HK/AK

Van : H.P.M. Koppelmans — Ontw. Osc. buizen Heerlen

Aan : Hr. Schampers — B.M. Display Systems RAD-p

Kopie : H.H. Bonten - Geurts - Kicken - Sieben - Zeppenfeld

Betreft : Kwaliteitsafspraken onderdelen 2-staven kanon

Heerlen, 9 juli 1985

Bijgesloten vindt U het meest recente tekeningen pakket met bijbehorende QDS'sen en inspektie certificaten. Het betreft hier de produkten:

12 NC	Omschrijving	
8222 037 1982	centreerplaat g3	3322 log 62800
8222 037 2003	sam centreerplaat g5	137 62200
8222 037 2004	sam centreerplaat g5	137 63000
8222 037 2005	sam centreerplaat g4	137 62400
8222 037 2007	sam centreerplaat g3	nog omkoderen
8222 037 1327	centreerveer	log 61000

Tevens is bijgesloten een schets met foto van het steek-meetapparaat zoals door Heerlen wordt toegepast.

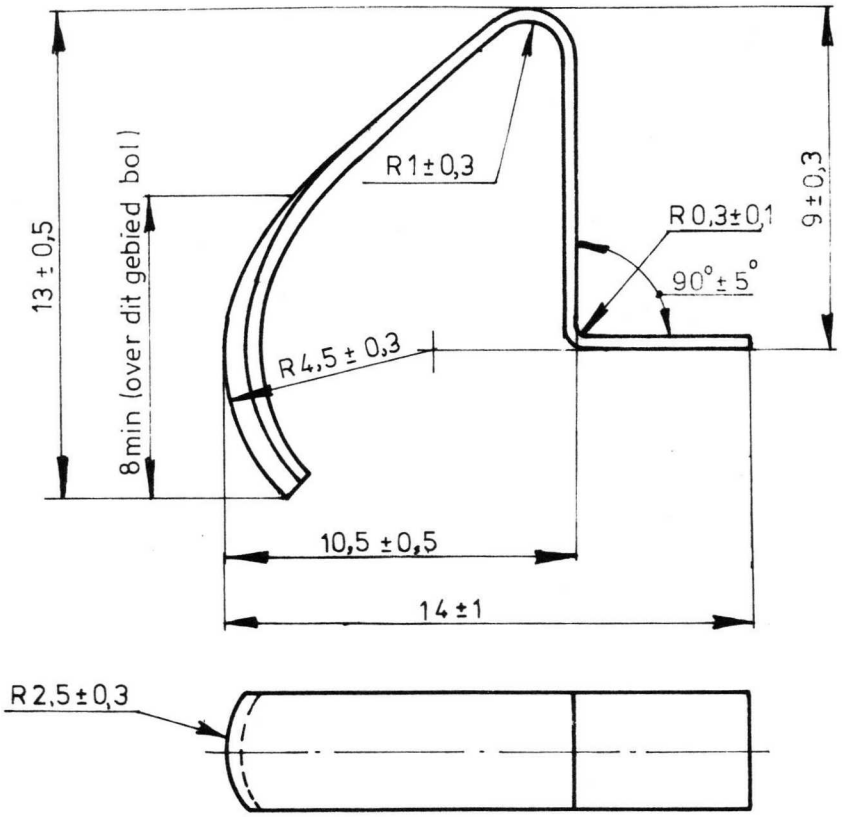
Graag uw kommentaar inzake dit voorstel.

Met vriendelijke groeten,

H.P.M. Koppelmans

PHILIPS

M.I.S.D.
Electronic components and materials Division



22673			
UN D 28 R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED DIMENSION ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS / UNIT: mm	MATERIAL: CrNiSt 18/12 UZN-N 286/03 0,3±0,015 x 3 mm		PATTERN NO
SCALE: 5:1 / PROJ EUROP	TREATMENT		ORDER NO / QUANT
CLASS NO	CENTREERVEER	3322 109 6100	85-09-17
NAME Franssen / CHECK KH	SUPERS 8222 037 13272 / DAT 85-09-17	3 / UD — 001 / 027	A4

Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 02641

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Degreased	1,0 %	S 4
2. Burr	1,0 %	S 4
3. Radius in short- axis direction	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Unaided eye.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted.

2. DIMENSIONAL

A. Inspection points.		A.Q.L.	LEVEL
1. Length	(14 mm)	-	
2. Length	(10,5 mm)	-	
3. Thickness material		-	

B. Equipment

For A1- A2 : Caliper gauge
For A3 : Micrometer

C. Method and standards

See sheet 3

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

89222

Q.D.S. CENTREERVEER

8222 037 13270

NAME	SUPERS.			A4
OFFERMANS	3	110 — 002	010	
KH CHECK	DAT. 85-05-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS		

4322 240 03241

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.:
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Length 14

Sample size n:																									
No. of defects																									
START/END	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL
[mm]																									
1																									
0																									
-1																									
<-1																									
Yr.Mo.Day																									

Inspection : ATTR.:
VAR. : n = 10 at start
n = 10 at end } of the batch

Parameter : Length 10,5

Sample size n:																									
No. of defects																									
START/END	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL
[mm]																									
+ 0,5																									
0,0																									
- 0,5																									
Yr.Mo.Day																									

Inspection : ATTR.: ------
VAR. : n = 2 at start
n = 2 at end } of the batch

Parameter : Thickness

Sample size n:																									
No. of defects																									
START/END	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL	S		E	HRL
> 30																									
[/um]																									
15																									
0																									
- 15																									
<-15																									
Yr.Mo.Day																									

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Radius																								
Lotrelease sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

(ONTWERP)
Q.D.S.
CENTREERVEER
Inspection certificate
gebr. o.a. in:

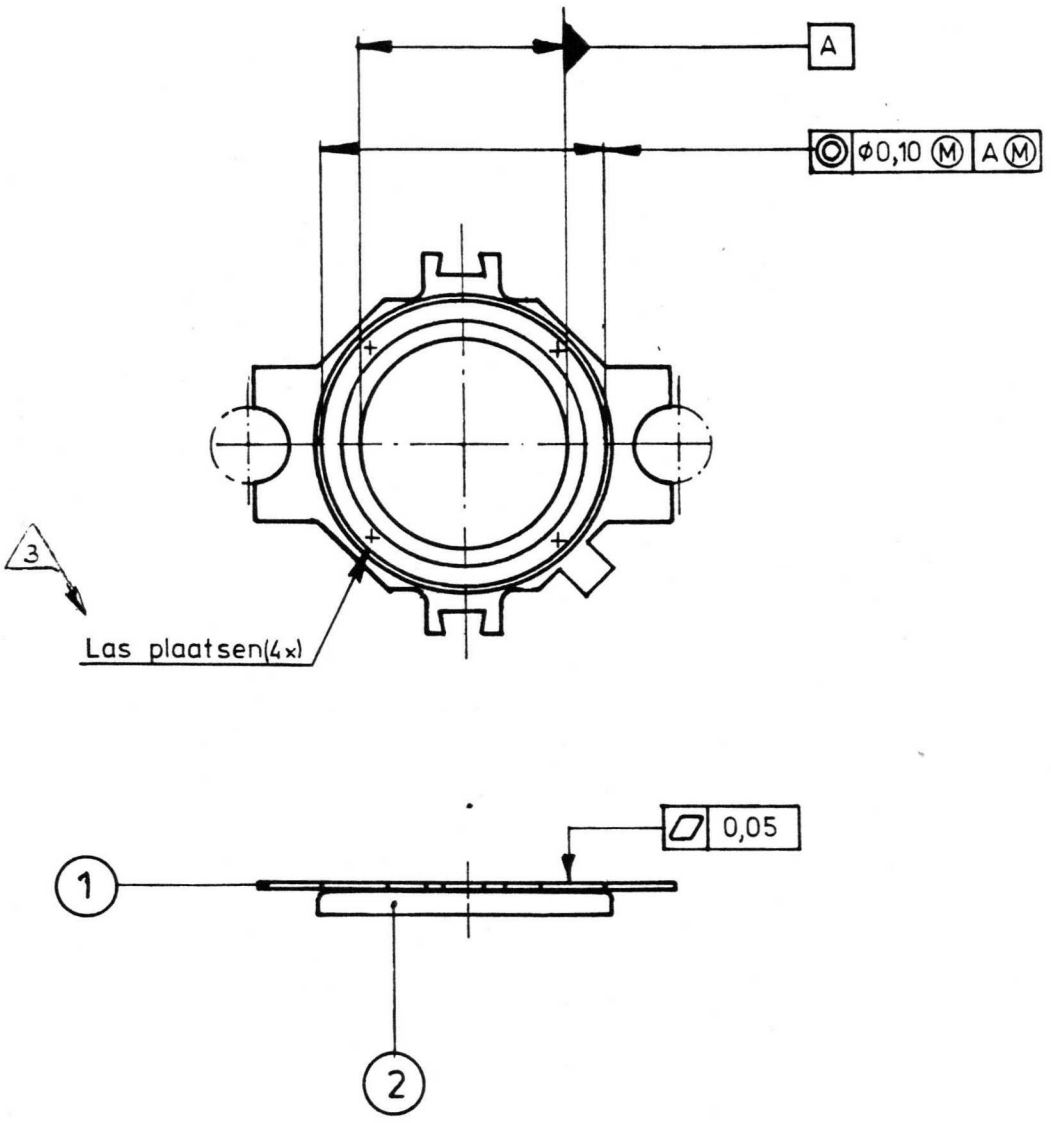
8222 037 13270

85-05-15
85-06-05
85-07-03
85-07-10

NAME Oirlemans SUPERS 03 110 — 003 010 A3
KH CHECK DAT 85-05-15

PHILIPS

M.I.S.D.
Electronic components and materials Division



Kontroleren vlg. QDS 110-002 en 110-003

22673

R_a in micrometres (µm) UN D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603		ASSEMBLY NO	QUANT
GENERAL ROUGHNESS: /	UNIT: mm	MATERIAL: Pos 1 Centreerplaat G3 8222 037 19820; Pos 2 Magneetringhouder 3322 109 03800		PATTERN NO	
SCALE: 2:1	PROJ EUROP	TREATMENT		ORDER NO	QUANT
CLASS NO		SAM.CENTREERPLAAT G3	8222 037 2007	1 84-11-12; 2 85-02-25; 3 85_06_03	
NAME FRANSSEN	SUPERS	3	110—001		A4
CHECK	DAT	Property of N V PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS			

4322 240 02641

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr	1,0 %	S 4
2. Flatness	1,0 %	S 4
3. Concentricity	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Knife-edge rule.
3. For A3: Gange.

C. Methods and Standards

1. For A1: Burr not permitted.
2. For A2: Dove-tails are not included.

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

89222

	Q.D.S. CENTRING PLATE G3		8222 037 20070			
NAME OFFERMANS	SUPERS	3	110 — 002	010		A4
KH CHECK	DAT. 85-05-20	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

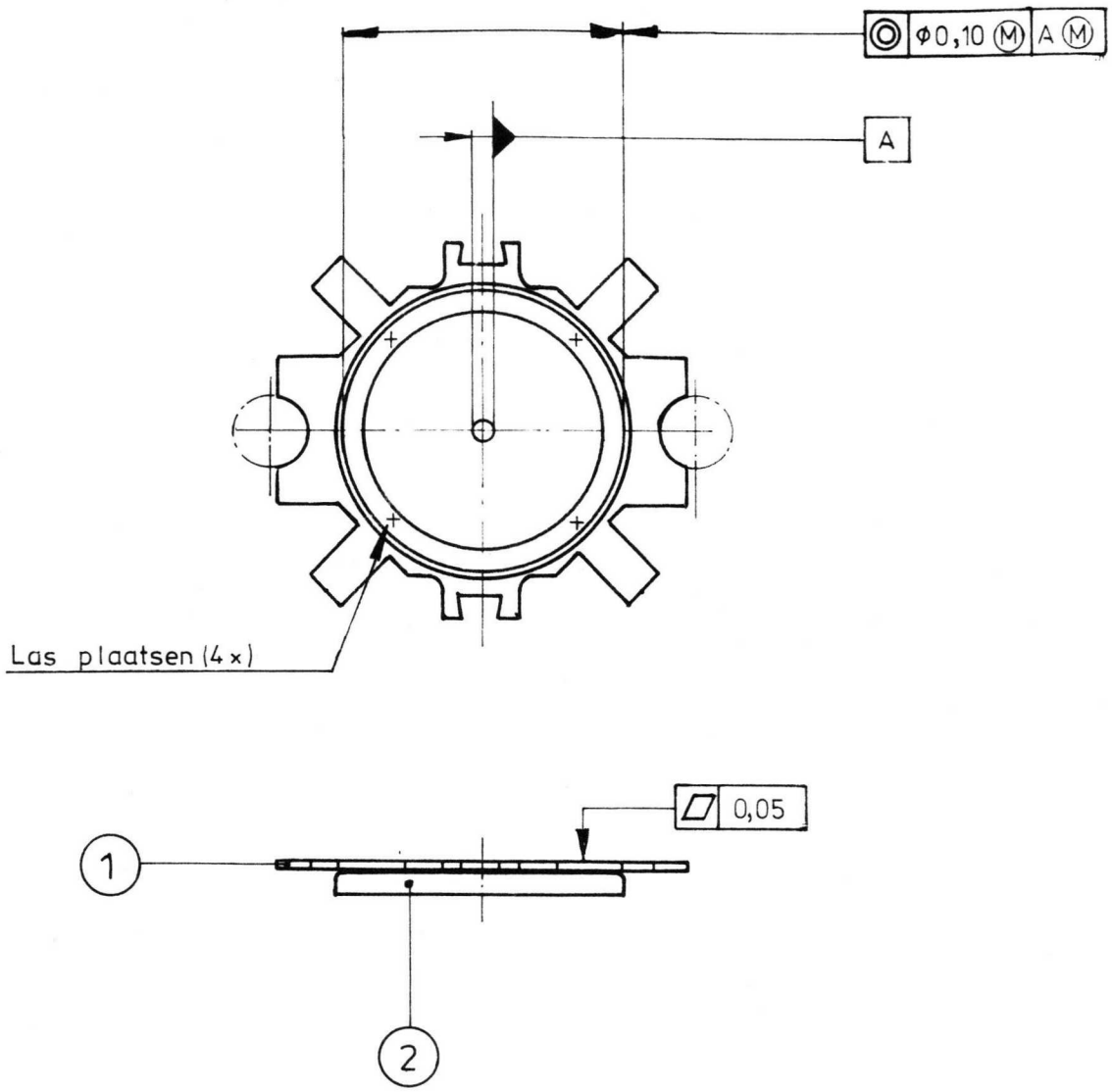
Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Flatness																								
Concentricity																								

Lotrelease Sign.:								
Yr.Mo.Day								
Remark								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

~~89222~~	(ONTWERP) Q.D.S. CENTRING PLATE (G3) Inspection certificate gebr. o.a. in:	8222 037 20070	85-05-15 85-06-05
NAME Offermans	SUPERS		A3
KH CHECK	DAT 85-05-20	03 110 003 010	



22673

UN D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION — ANGLE —

UN D 603

ASSEMBLY NO | QUANT

GENERAL ROUGHNESS: —
UNIT: mm
MATERIAL: Pos 1 Centreerplaat G4 3322 109 63000
Pos 2 Magneetringhouder 3322 109 03800

PATTERN NO

SCALE: 2:1
PROJ EUROP
TREATMENT

ORDER NO | QUANT

CLASS NO

SAM. CENTREERPLAAT G4

3322 137 6240

1 85-09-17

NAME FRANSSEN
CHECK KH
SUPERS 8[illegible]
DAT 85-09-17
3
110 — 001
027
A4

4322 240 02641

PHILIPS

M.I.S.D.
Electronic components and materials Division

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr	1,0 %	S 4
2. Flatness	1,0 %	S 4
3. Concentricity	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Knife-edge rule.
3. For A3: Gauge.

C. Methods and Standards

1. For A1: Burr not permitted.
2. For A2: Dove-tails are not included.

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

89222

	Q.D.S. CENTRING PLATE G4		8222 037 20050		
NAME Offermans	SUPERS.	3	110 — 002	010	A4
KH CHECK	DAT. 85-05-20	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Flatness																								
Concentricity																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

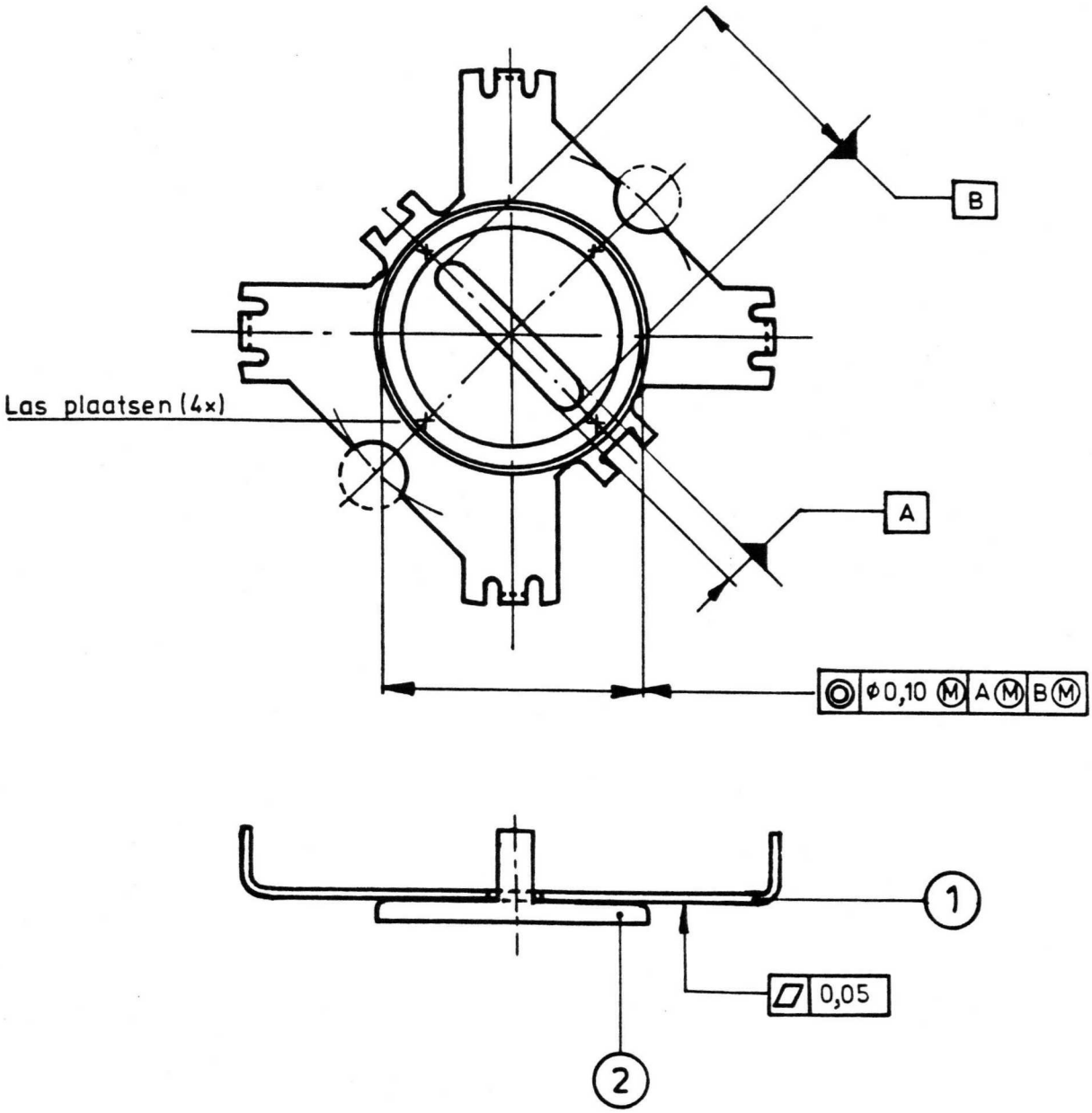
(ONTWERP)
Q.D.S.
CENTRING PLATE (G4)
Inspection certificate
gebr. o.a. in:

8222 037 20050

85-05-20
85-06-05

A3

NAME Offermans | SUPERS | 03 | 110 — 003 | 010
KH | CHECK | DAT 85-05-20



Kontroleren vlg. QDS 110-002 en110-003

22673

UN D 28 — R_a in micrometres (µm)

TOLERANCES UNLESS OTHERWISE STATED
DIMENSION / ANGLE /

UN D 603

ASSEMBLY NO | QUANT

GENERAL ROUGHNESS: /
UNIT: mm
MATERIAL: Pos 1 Centreerplaat G5 8222 037 20010
Pos 2 Magneetringhouder 3322 109 03800

PATTERN NO

SCALE: 2:1
PROJ EUROP
TREATMENT

ORDER NO | QUANT

CLASS NO

SAM.CENTREERPLAAT G5

8222 037 2004

1 85-02-25

NAME I.RAASSEN | SUPERS | 3 | 110— 001 | A4

CHECK | DAT

Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS

4322 240 02641

PHILIPS

M.I.S.D.
Electronic components and materials Division

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr	1,0 %	S 4
2. Flatness	1,0 %	S 4
3. Concentricity	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Knife-edge rule.
3. For A3: Gauge.

C. Methods and Standards

1. For A1: Burr not permitted.
2. For A2: Dove-tails are not included.

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

89222

	Q.D.S. CENTRING PLATE G5		8222 037 20040		
NAME Offermans	SUPERS.	3	110 — 002	010	A4
KH CHECK	DAT. 85-05-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Flatness																								
Concentricity																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222

(ONTWERP)
Q.D.S.
CENTRING PLATE (G5)
Inspection certificate
gebr. o.a. in:

8222 037 20040

85-05-15
85-06-05

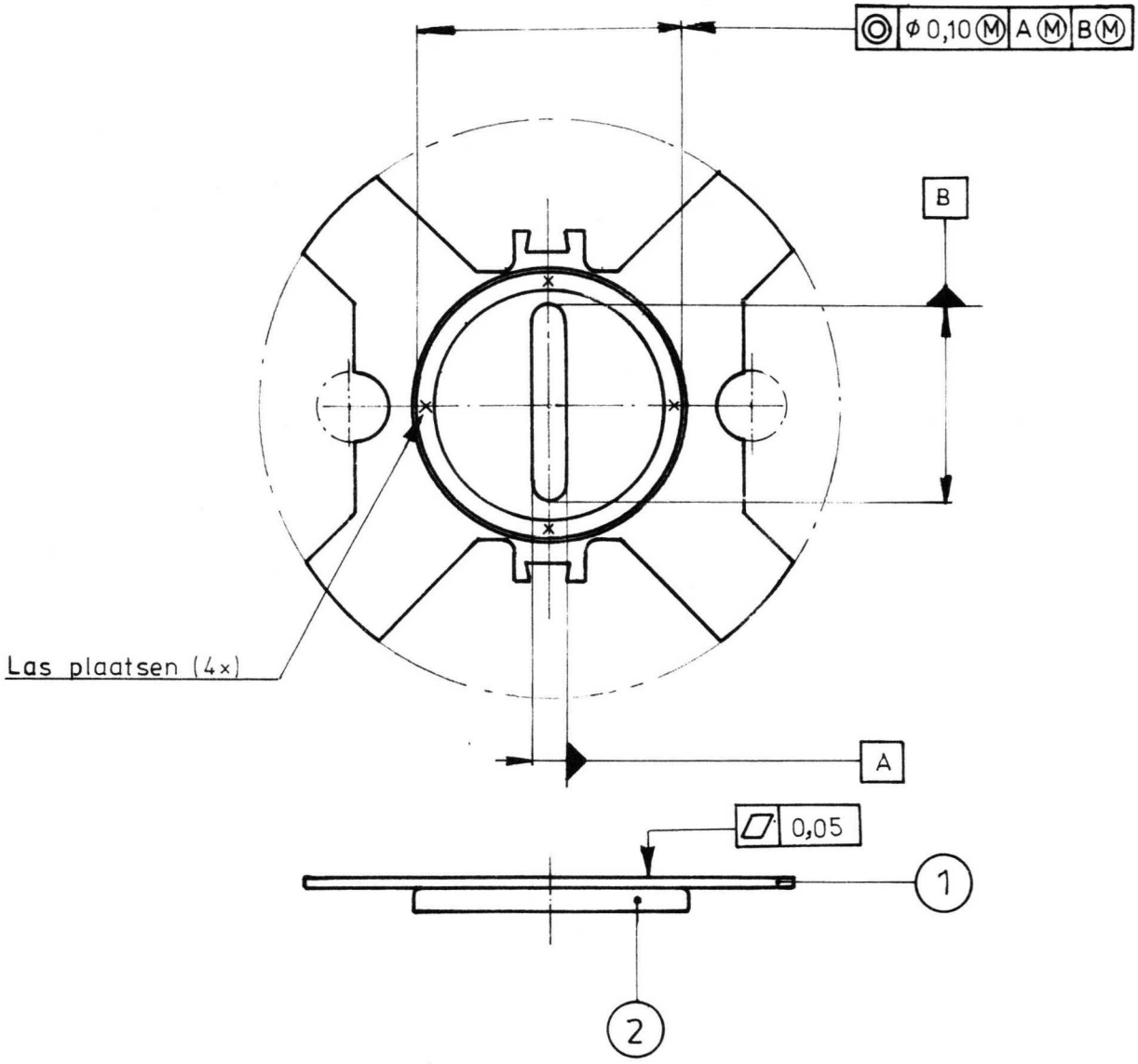
A3

NAME Offermans
CHECK KH
SUPERS
DAT 85-05-15

03 100 003 010

PHILIPS

M.I.S.D.
Electronic components and materials Division



22673

UN D 28 — R_a in micrometres (µm)	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO / QUANT
GENERAL ROUGHNESS: /	UNIT: mm	MATERIAL: Pos 1 Centreerplaat G5 3322 109 6160; Pos 2 Magneetringhouder 3322 109 03800	PATTERN NO
SCALE: 2:1	PROJ EUROP	TREATMENT	ORDER NO / QUANT
CLASS NO	SAM.CENTREERPLAAT G5	3322 137 6220	1 85-09-17
NAME FRANSSEN	SUPERS 8222 037 20032	3	110 — 001 027 A4
KH CHECK	DAT 85-09-17	Property of N V PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS	

4322 240 02641

PHILIPS

M.I.S.D.
Electronic components and materials Division

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Burr	1,0 %	S 4
2. Flatness	1,0 %	S 4
3. Concentricity	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Knife-edge rule.
3. For A3: Gauge

C. Methods and Standards

1. For A1: Burr not permitted.
2. For A2: Dove-tails are not included

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

89222

	Q.D.S. CENTRING PLATE G5	8222 037 20030			
NAME Offermans	SUPERS	3	110 — 002	010	A4
KH CHECK	DAT. 85-05-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS			

M.I.S.D.
Electronic components and materials Division

PHILIPS

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.:
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Burr																								
Flatness																								
Concentricity																								

Lotrelease Sign.:								
Yr.Mo.Day								
Remark								

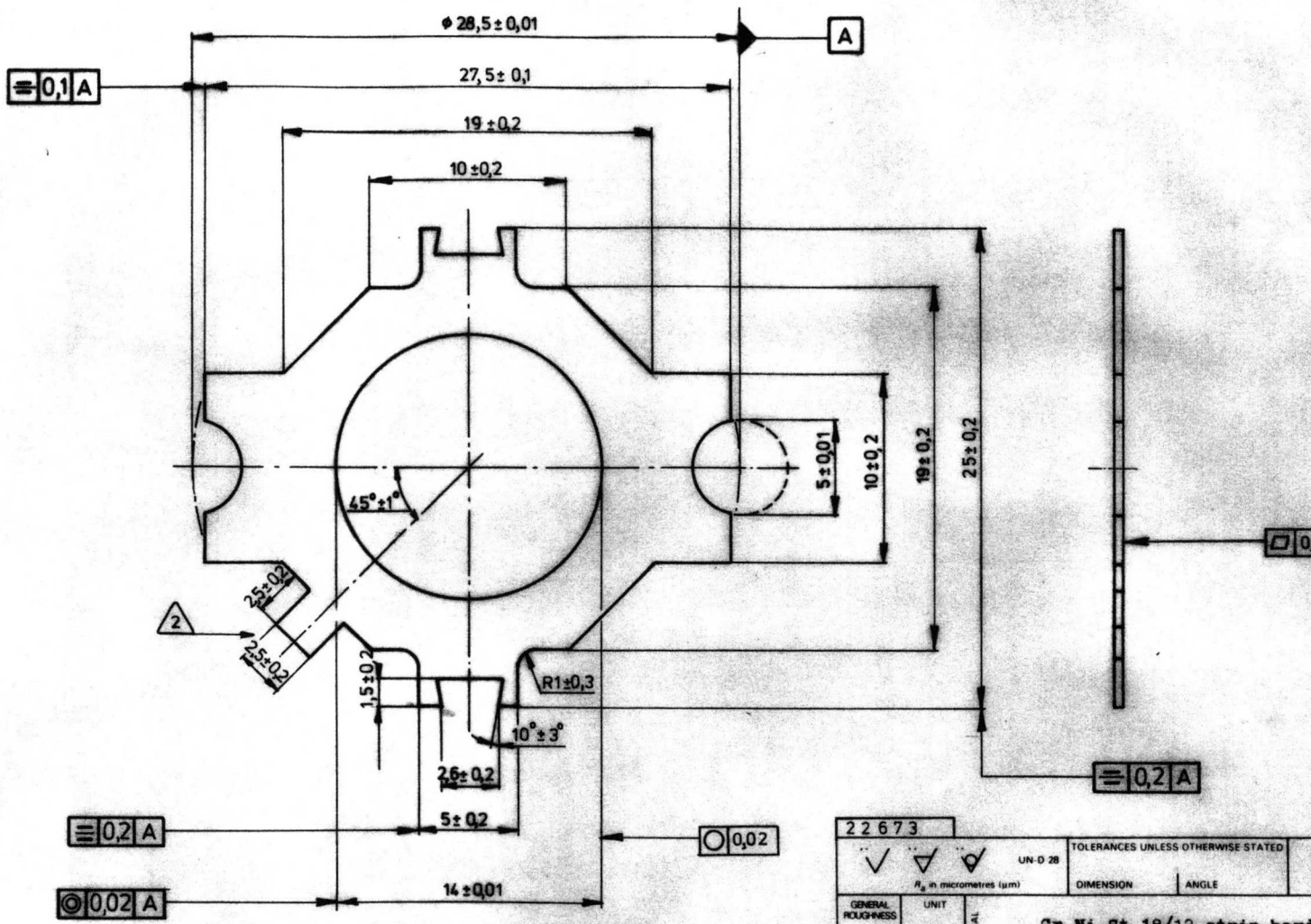
One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

~~89222~~	(ONTWERP) Q.D.S. CENTRING PLATE (G5) Inspection certificate gebr. o.a. in:	8222 037 20030	85-05-15 85-06-05
NAME Offermans KH	SUPERS	—	A3
CHECK	DAT. 85-05-15	03 170 003 010	

PHILIPS

M.I.S.D.
Electronic components and materials Division

F.V. Eicoma



22673				
R_a in micrometres (µm) UN-D 28	TOLERANCES UNLESS OTHERWISE STATED: DIMENSION / ANGLE	UN D 603	ASSEMBLY NO	QUANT
GENERAL ROUGHNESS	UNIT: mm	MATERIAL: Cr Ni St 18/12 strip hard UZN-N 286/02 (0,5±0,02 x 32 Opzet 23)(0122 027 02129)	PATTERN NO	
SCALE: 4:1	PROJ. EUROP	TREATMENT: Ontvetten	ORDER NO	QUANT
CLASS NO		CENTREERPLAAT	3322 109 6280	87-09-17
NAME FRANSSEN	SUPERS 8222 037 19822	3	110—001	A3
CHECK	DAT 87-09-17	Property of N.V. PHILIPS' GLOEILAMPENFABRIEKEN EINDHOVEN THE NETHERLANDS		

4322 240 02681

1. VISUAL

A. Inspection points.	A.Q.L.	LEVEL
1. Degreased	1,0 %	S 4
2. Burr	1,0 %	S 4
3. Flatness	1,0 %	S 4

B. Equipment.

1. For A1: Unaided eye.
2. For A2: Unaided eye.
3. For A3: Knife-edge rule.

C. Methods and Standards

1. For A1: Parts may not feel greasy.
2. For A2: Burr not permitted. Special attention should be paid to the centre hole.
3. For A3: Dove-tails are not included.

2. DIMENSIONAL

A. Inspection points.	A.Q.L.	LEVEL
1. Flatness	-	
2. Pitch centring holes	1,0 %	S 4
3. Concentricity centre hole	-	
4. Roundness	-	

B. Equipment

For A1 : Any; accuracy ± 5 micron
For A2 : Special measuring apparatus
For A3 and A4 : Any; accuracy ± 2 micron.

C. Method and standards

See sheet 3 and 4

GENERAL

The packing shall be such that after normal transport the quality of the components still meets the requirements.
Each lot shall be accompagnied by an inspection certificate (sheet 3).

89222

	Q.D.S. CENTRING PLATE G3		8222 037 19820			
NAME OFFERMANS	SUPERS.	4	110 — 002	010		A4
KH CHECK	DAT. 85-05-15	Property of N.V. PHILIPS GLOEILAMPENFABRIEKEN EINDHOVEN - THE NETHERLANDS				

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: A.Q.L. = 1 % / S4 Visual
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : FLATNESS [/] 0,05

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 80																								
[/um]																								
60																								
40																								
20																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: A.Q.L. = 1 % / S4
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : PITCH Centring holes

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
[/um]																								
+ 20																								
0																								
- 20																								
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. : n = 2 at start
n = 2 at end } of the batch

Parameter : CONCENTRICITY Centre hole ϕ 0,02

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

89222	(ONTWERP)	85-05-15
	Q.D.S.	85-06-05
	CENTRING PLATE (G3)	8222 037 19820
	Inspection certificate	
NAME Offermans	SUPERS	A3

INSPECTION CERTIFICATE

LOT:								
LOTSIZE:								

Inspection : ATTR.: ---------
VAR. : n = 5 at start
n = 5 at end } of the batch

Parameter : Roundness 0,02

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
> 40																								
[/um]																								
30																								
20																								
10																								
0																								
Yr.Mo.Day																								

Inspection : ATTR.: ---------
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

Inspection : ATTR.: ------
VAR. :

Parameter :

Sample size n:																								
No. of defects																								
START/END	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL	S	E	HRL
Yr.Mo.Day																								

d = defects n = sample	n	d		n	d		n	d		n	d		n	d		n	d		n	d		n	d	
Degreased																								
Burr																								
Lotrelease Sign.:																								
Yr.Mo.Day																								
Remark																								

One lot comes from a homogeneous production series.
Lot-definition changes when e.g., significant tools are interchanged or overhauled.

KHR-89/Th-032

Levensduuroverzicht D14-372/38. PHILIPS

Inleiding: In dit rapport zijn verwerkt,

LDnr./Inst.	Type	Proef
1350/-N+	D14-372..	gl 0.15 mm ferrico
1360/ N	D14-372../370	C6 - Poederkeuring GHE4
1361/ N	D14-372..	C6 - " GHE5
1362/-N+	D14-372..	N.P.
1387/-N+	D14-382..	C6 - citroenzuur + 1 getter
1388/-N+	D14-381..	1 getter
1389/-N+	D14-372..	citroenzuur
1391/ N	D14-372..	" 2 getters
1393/ N	D14-372..	Hitasol
1394/ N	D14-372..	Aluminium
1395/ N	D14-372..	Hitasol
1396/ N	D14-372..	Aluminium.

Meetresultaten

LDnr/uren	ΔVco (max) V	ΔIbx30 (max) %	ΔIbx50 (max) %	Afn. Ik (max.) %	PWS (min-max) cm/ms.
1350/4000	-9 (+)	-19 (+)	-	20 (+)	<0.5 - 1.6
1360/2000	-2	+7	-	20	1.4 - 1.8
1361/2000	-2	+3	-	17	1.3 - 1.6
1362/2000	-3 (+)	-28 (N)	-46 (+)	21 (N)	<0.5 - 1.6
1387/1000	-5 (+)	-71 (+)	-91 (+)	28 (N)	
1388/1000	-1 (+)	-9 (N)	-63 (N)	51 (N)	<0.5 - 2.2
1389/1000	-11 (-)	-41 (-)	-57 (-)	20 (+)	
1391/160	-3	-10	+12	17	
1393/160	0	-8	-14	14	
1394/160	0	-5	-14	17	
1395/160	0	-7	-8	16	
1396/160	0	-6	-6	17	

(De individuele meetresultaten liggen ter inzage bij meetcentrum).

PHILIPS

Opmerkingen:

- Vanaf pr. nr. 1887 vertonen de buizen vooral bij 3 hr een onstabiel emissiegedrag. (veel bijregelen tijdens eerste branduren)
- bij citroenzuurproeven 2 ex. met te grote karakteristiek en emissievariaties.

15-12-'85

W. Thiessen

kopie: HH. Koppelmans
Geurts
Filben
Schols
Vleeschouwers
Wanner
Zeppenfeld.

① A.g.o vuil gaas

(D14-370SH/93)

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** 115 D14 SH/93

	Instelling brandraam Nr: 20						**Meten en branden voorschrift d.d.** 28-6-'83	**Gewenste levensduur:**
Proefnummer: 1350	Buisnr:	Pos:	Vf:	V.kanon :	2,2	kV	Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktie:
Aantal: 3	5050956	1	6,3 V	Vg4 :	/	V	1 getter, met spoel	uit proefserie nr. 3
Datum: 13-2-'85				V nav/K :	16,5	kV		g1 sterker is 0,15 mm dik
Inzender: Geurts	5050963	9	6,3 V	-I nav:	10	µA	1 getter, vuil gaas, geen spoel	materiaal fernico
				Raster :	55 x 60	mm.		kanon 5 p 684 2 staafjes kanon
	5050957	2	7,0 V	V+k/f- :	+125	V	2 getters, met spoel	1,5 W katode
				V-k/f+ :	/	V		

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V Vd / ... µA Inav	Afn.Ik	IbX2 bij 30 V Vd	ΔIbX2	Ibx(-300/-700V) bij 10 uA Inav.	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA/Inav)	Body-colour	Luminantie (5 µA/Inav)	ΔLuminantie	Gas -Ig3	Δ VCO t.o.v. 0 hr	geest-beeld	I-bol-gaas	LMT 305F 10⁻⁶ x0,941	foto-graf. schrijf-snelh.	Ibolum Φ gunstige spot	IS/Ibx2 Vd 350V
		Eis	0 hr	51/90	not.	≤ 25	≥ 19	not.	not.	geen	not.	not.	not.	not.	≤ 6		not	not		2,-	not	not
			1000 hr				≥ ...									≤ 3				kV		
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V		µA		cm/µs		
5050956	15-2-85	0		84	109	23	26,0		13,8	geen	goed	geen	776,3		<1		geen	-6,6	0,825	2,6	15,3	0,75
	22-2-85	160		84	116	17	26,3	+1		"	iets	iets	752,8	-3,0	<1	0		-7,2	0,800			
	8-3-85	500		84	107	18	26,3	+1		"	"	matig	729,3	-6,1	<1	0	"	-7,6	0,775			
	29-3-85	1000		84	100	19	25,0	-4		"	"	"	725,5	-6,5	<1	0	1x ①	-7,7	0,771	1,25	niet gemeten	
	13-5-85	2000		83	102	20	25,3	-3		"	"	"	725,5	-6,5	<1	-1	geen	-8,4	0,771	<0,5	niet gemeten	
	15-8-85	4000		82	98	19	23,4	-9		"	matig	flink	682,2	-12,1	<1	-2	"	-8,7	0,725	1,63	"	"
5050963		0		75	124	17	24,6		15,1	geen	goed	geen	814,9		<1		1x ①	-7,4	0,866	2,5	15,2	0,67
		160		75	119	15	23,5	-4			iets		790,4	-3,0	<1	0	geen	-8,8	0,840			
		500		75	118	15	22,9	-7		"	"	matig	762,2	-6,5	<1	0	1x ①	-9,6	0,810			
		1000		74	118	17	22,9	-7		"		"	754,7	-7,4	<1	-1	geen	-9,7	0,802	<0,5	niet gemeten	
		2000		73	118	17	23,1	-6		"	matig		743,4	-8,8	<1	-2		-10,5	0,790	<0,5	niet gemeten	
		4000		71	128	14	21,8	-11		"	"	flink	713,3	-12,5	<1	-4	"	-11,4	0,758	4,0	"	"
5050957		0		84	106	22	22,9		14,8	geen	goed	geen	682,2		<1		geen	-8,3	0,725	1,2	13,9	0,71
		160		83	108	19	23,2	+1			iets	iets	635,2	-6,9	<1	-1		-9,3	0,675			
		500		82	105	20	23,2	+1		"	"	matig	597,5	-12,4	<1	-2	"	-9,9	0,635			
		1000		80	108	20	22,6	-1		"		"	622,0	-8,8	<1	-4	"	-10,2	0,661	<0,5	niet gemeten	
		2000		79	99	22	20,3	-11		"	matig	"	608,5	-10,8	<1	-5	"	-10,9	0,644	<0,5	niet gemeten	
		4000		75	103	20	18,5	-19		"	"	flink	581,5	-14,8	<1	-9	"	-11,8	0,618	<0,5	"	"

KWALITEITSLABORATORIUM ELCOMA HEERLEN — LEVENSDUUR OSCILLOGRAAFBUIZEN

→ vanaf 500 uur

① 115D14GHE4/93 → 2EL

TYPE: ② D14-370GHE4/93 → 1EL

Proefnummer:	1360
Aantal:	2+1
Datum:	27-3-85
Inzender:	Minkens

Instelling brandraam Nr: 19/11

Buisnr:	Pos:	Vf:			
① 5101492	1 / 5	6,3V	V-kanon	: 2,2	kV
			Vg4	: /	V
			V nav	: 16,5	kV
① 5101481	2 / 4	6,3V	Ib-/I nav:	10	µA
			Raster	: 55 x 60	mm.
② 5080032	3 / 8	6,3V	V+k/f-	: +125	V
			V-k/f+	: /	V

Meten en branden voorschrift d.d. 28-6-83

Speciale metingen of wensen:

115D14 → bonnr 57233

D14-370 → bonnr 57951

③ = V-art +10V

④ = V-art +10V

⑤ = kat iets zwart

Gewenste levensduur:

Afwijkingen t.o.v. normale produktie:

1,5 W katode

C 6

L 4ugl = GHE4/93

poederkeuring

Opmerkingen: Vd = 50V

buisnr:	meet-datum:	brand-uren:	-Vg1	Ik bij 30 V. Vd/ ... µA Inav	Afn.Ik	Ib x 2 bij 30 V. Vd	ΔIb x 2/Inav	Ib x(-300/-700V) bij 10 uA Inav.	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA /Inav)	Body-colour	Luminantie (5 µA /Inav)	Δ Luminantie	Gas -Ig3	ΔVco Eov 2h	gespt beeld	I bol-gaas	LMT 3035 10-6 x9941	foto-grafische ...	IS/φ gepulst spot	IS/Ibx2
	Eis 0 hr / 1000 hr		54/96	not.	≤ 25	≥ 19 / ≥ 1	not.	not.	geen	not.	not.	A.Q.T.	not.	≤ 6	≤ 3		not		2,- / 1,6		
	Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V	not	not	not	ampere	not	not
A3 ① 5101492	4-4-85	0	72 ③	116	18	28,5		13,3	geen	goed	geen	739,6		<1		geen	-5,0	0,786	1,76	niet gemeten	
	11-4-85	160	72 ③	119	15	28,4	0		"	iets	iets	746,2	+0,9	<1	0	"	-5,8	0,793	1,88	"	"
	26-4-85	500	72 ③	122	15	28,6	0		"	"	matig	727,4	-1,6	<1	0	"	-6,3	0,773			
	12-6-85	1000	71	115	17	28,2	-1		"	matig		693,5	-6,2	<1	-1	"	-6,0	0,737	1,75	niet gemeten	
	15-8-85	2000	70	130	15	29,3	+3		"	"	flink	674,7	-8,8	<1	-2	"	-6,5	0,717	1,75	"	"
A6 ① 5101481		0	72 ④	110	28 ⑤	23,3		14,1	geen	goed	geen	751,9		<1		geen	-7,2	0,799	1,25	niet gemeten	
		160	72 ④	116	21 ⑤	23,7	+2		"	iets	iets	734,9	-2,3	<1	0	"	-8,5	0,781	1,50	"	"
		500	72 ④	114	19	23,6	+1		"		matig	731,2	-2,8	<1	0	"	-9,0	0,777			
		1000	71 ④	113	20	24,3	+4		"	matig		705,8	-6,1	<1	-1	"	-8,2	0,750	1,5	niet gemeten	
		2000	70	125	20	24,9	+7		"	"	flink	670,0	-10,9	<1	-2	"	-9,9	0,712	1,38	"	"
A1 ② 5080032		0	101	77	30 ⑤	24,0		13,5	geen	goed	geen	765,0		<1		geen	-5,5	0,813	1,88	niet gemeten	
		100	100	95	22	28,8	+20		"	iets	iets	755,6	-1,2	<1	-1	"	-6,3	0,803	1,63	"	"
		500	100	95	21	29,9	+25		"		matig	736,8	-3,7	<1	-1	"	-6,5	0,783			
		1000	99	90	23	28,4	+18		"	matig		723,6	-5,4	<1	-2	"	-5,9	0,769	1,75	niet gemeten	
		2000	98	97	22	30,7	+28		"	"	flink	699,2	-8,6	<1	-3	"	-6,5	0,748	1,75	"	"

① 115D14 SHE 4/93 → 2E5
② D14-370 SHE 4/93 → 1E

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:**

500 mm

Proefnummer: 1360
Aantal: 2+1
Datum: 27-3-85
Inzender: Wenkens

Instelling brandraam Nr: 19/11

Buisnr:	Pos:	Vf:		
① 5101492	15	6,3 V	V-kanon:	2,2 kV
			Vg4:	— V
			Vnav/K:	16,5 kV
① 5101431	27	6,3 V	Ik-/I nav:	10 µA
			Raster:	55 x 60 mm.
② 5080032	38	6,3 V	V+k/f-:	+125 V
			V-k/f+:	— V

Meten en branden voorschrift d.d. 28-6-'83
Speciale metingen of wensen: zie andere blad

Gewenste levensduur:
Afwijkingen t.o.v. normale produktie: zie andere blad

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 50 V. Vd/ 4... µA Inav	Afn. Ik	Ib x2 /Inav bij 50 V. Vd	ΔIb ...../Inav	Ib x(-300/-700V) bij 10 uA Inav.	Gaskruis (......µA Ik)	Schermkwaliteit (...µAIb /Inav)	Body-colour	Luminantie (...µAIb..../Inav)	ΔLuminantie	Gas -Ig3				Opmerkingen:
		Eis	0 hr	....	not.	≤ 25	≥ ...	not.	not.	geen	not.	not.	≥ ...	not.	≤ ...				
			1000 hr				≥ ...												
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA				
A3 ① 5101492		0			—		—												
	11-4-85	160			550		72,6												
	26-4-85	500			540		67,0												
	12-6-85	1000			530		63,0												
	15-8-85	2000			545		63,4												
A6 ① 5101431		0			—		—												
		- 160			540		62,0												
		500			530		58,1												
		1000			525		53,9												
		2000			530		48,4												
A1 ② 5080032		0			—		—												
		100			400		68,6												
		500			380		63,1												
		1000			365		59,3												
		2000			360		59,5												

↗ vanaf 500 uur

KWALITEITSLABORATORIUM ELCOMA HEERLEN — LEVENSDUUR OSCILLOGRAAFBUIZEN

TYPE: 115D 14 SH ES/93

Proefnummer: 1361	**Instelling brandraam Nr:** 19/11	**Meten en branden voorschrift d.d.** 28-6-'83
Aantal: 3	Buisnr: 5101467 Pos: 9/13 Vf: 6.3 V	Speciale metingen of wensen: Bonus 57233
Datum: 27-3-'85	Buisnr: 5101466 Pos: 10/15 Vf: 6.3 V	① = V-art² +5V
Inzender: Minkens	Buisnr: 5100931 Pos: 11/16 Vf: 6.3 V	② = V-art +10V
	V.kanon: 22 kV; Vg4: — V; V nav/K: 16.5 kV; I nav: 10 µA	③ = V-art +6V
	Raster: 55 x 60 mm.; V+k/f-: +125 V; V-k/f+: — V	④ = kat uit zwart

Gewenste levensduur:

Afwijkingen t.o.v. normale produktie:
1,5W katode
C6
L419B = SHES/93
goedenkeuring

Opmerkingen: Vd = 50V

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V. Vd/ ... µA Inav	Afn. Ik	Ib x 2 bij 30 V. Vd	ΔIb x 2/Inav	Ib x(-300/-700V) bij 10 uA Inav	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA/Inav)	Body-colour	Luminantie (5 µA ... Inav)	Δ Luminantie	Gas -Ig3	Δ VCO 60V ohm	geest-beeld	I bl-gaas	LMT 3054 10-6 x0,941	foto-graf. schaduw	I3/I6	I3/Ik2
		Eis	0 hr	51/96	not.	≤ 25	≥ 19.	not.	not.	geen	not.	not.	not.	not.	≤ .6.			not		2,-1,6		
			1000 hr				≥ .									≤ 3						
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V	not	not	not	inform.	not	not
B1 5101467	4-4-85	0		73 ①	118	21 ④	23,5		14,2	geen	goed	geen	781,0		∠1		geen	-6,5	0,830	2,05	niet gemeten	
	11-4-85	160		73 ①	124	16	24,3	+3		"	iets	iets	795,1	+1,8	∠1	0	"	-7,4	0,845	1,0	"	"
	26-4-85	500		73 ①	126	17	25,1	+7		"		matig	785,7	+0,6	∠1	0	"	-8,1	0,835			
	12-6-85	1000		72	126	16	24,6	+5		"	matig	"	764,1	-2,2	∠1	-1	"	-7,4	0,812	1,5	niet gemeten	
	15-8-85	2000		72	122	17	23,5	0		"	"	"	724,6	-7,2	∠1	-1	"	-8,7	0,790	1,5	"	"
B3 5101466		0		71 ②	125	18 ④	22,8		13,3	geen	goed	geen	772,6		∠1		1x tijd. ruisgas	-6,8	0,821	1,38	niet gemeten	
		160		70 ②	140	15	23,7	+4		"	iets	iets	781,0	+1,1	∠1	-1	geen	-7,3	0,830	1,75	"	"
		500		71 ②	120	16	22,5	-1		"		matig	757,5	-2,0	∠1	0	"	-7,5	0,805			
		1000		70 ⑤	128	15	22,8	0		"	matig	"	748,1	-3,2	∠1	-1	"	-8,1	0,795	1,88	niet gemeten	
		2000		69	133	16	23,4	+3		"	"	"	707,6	-8,4	∠1	-2	"	-7,7	0,752	1,26	"	"
B4 5100931		0		72 ③	125	18 ④	25,4		13,3	geen	goed	geen	764,1		∠1		geen	-5,6	0,812	1,63	niet gemeten	
		160		72 ③	121	15	24,9	-2		"	iets	iets	754,7	-1,2	∠1	0	"	-6,2	0,802	1,50	"	"
		500		72 ③	124	17 ④	25,3	0		"		matig	745,3	-2,5	∠1	0	"	-6,4	0,792			
		1000		71 ③	118	18	25,1	-1		"	matig	"	734,0	-3,9	∠1	-1	"	-6,9	0,780	1,63	niet gemeten	
		2000		71	114	18	25,6	+1		"	"	"	694,6	-9,5	∠1	-1	"	-6,4	0,735	1,63	"	"

vanaf 500 uur

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** 115D14 5H E5/93

	Instelling brandraam Nr: 19/11				Meten en branden voorschrift d.d. 28-6-'83	Gewenste levensduur:
	Buisnr:	Pos: 6	Vf:	V-kanon : 22 kV	Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktie:
Proefnummer: 1361	5101467	9 13	6,3V	Vg4 : — V	zie andere blad	zie andere blad
Aantal: 3				V nav. Ik: 1,65 kV		
Datum: 27-3-'85	5101466	10 15	6,3V	Ib-I nav: 10 µA		
Inzender: Winkens				Raster : 55 x 60 mm.		
	5100931	11 16	6,3V	V+k/f- : +125 V		
				V-k/f+ : — V		

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 520 V. Vd/ ...µA Inav.	Afn.Ik	Ib x ... bij 520 V. Vd	ΔIb ...../Inav.	Ib x(-300/-700V) bij 10 uA Inav.	Gaskruis (.......µA Ik)	Schermkwaliteit (....µA Ib..../Inav)	Body-colour	Luminantie (....µA Ib..../I nav)	Δ Luminantie	Gas -Ig3			Opmerkingen:
		Eis	0 hr	....	not.	≤ 25	≥ ...	not.	not.	geen	not.	not.	≥ ...	not.	≤ ...			
			1000 hr				≥ ...											
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA			
B1 5101467		0			—		—											
	11-4-85	160			540		58,6											
	26-4-85	500			530		55,3											
	12-6-85	1000			520		54,5											
	15-8-85	2000			520		52,1											
B3 5101466		0			—		—											
		-160			610		62,2											
		500			540		57,2											
		1000			550		56,2											
		2000			540		53,2											
B4 5100931		0			—		—											
		160			550		71,9											
		500			535		69,5											
		1000			530		65,4											
		2000			510		59,5											

KWALITEITSLABORATORIUM ELCOMA HEERLEN	**LEVENSDUUR OSCILLOGRAAFBUIZEN**	**TYPE:** 115D14 SH/93

	Instelling brandraam Nr: 20				Meten en branden voorschrift d.d. 28-6-'83	Gewenste levensduur:
	Buisnr:	Pos:	Vf:		Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktje:
Proefnummer: 1362 (A1)	5101473	3	5,7V	V.kanon : 2,2 kV	① niet gemeten : geen puls'	1,5 Watt batgde
Aantal: 6	5101489	11	5,7V	Vg4 : / V	② A.gk veel gaas	voor opmerkingen zie
Datum: 23-4-'85	5100934	4	6,3V	Vnav/lk: 16,5 kV		bijlage
Inzender: Cobben	5130312	12	6,3V	Ik-/I nav: 10 µA		
	5130304	5	7,0V	Raster : 55 x 60 mm.		zie ook nog kaart 1362(A2)
	5130368	13	7,0V	V+k/f- : +125 V		
				V-k/f+ : / V		

Opmerkingen: V4 = 50V

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V. Vd	Afn. Ik	Ib X2 bij 30 V. Vd	Δ Ib X2	Ib x(-300/-700V) bij 10 µA Inav	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA ...../I nav)	Body-colour	Luminantie (5 µA ...../I nav)	Δ Luminantie	Gas -Ig3	Δ Vco t.o.v. oba	gast-beeld	Δ bol-gaas	LTT 305F 10^-6	foto-gevoelig-heid	FS gaat	FS fokr
		Eis	0 hr	51/96	not.	≤ 25	≥ 19.	not.	not.	geen	not.	not.	NOT.	not.	≤ 6.			not		2,-		
			1000 hr				≥ 1.									≤ 3				1,6		
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V	not	not	not	amfose	not	not
5101473	7-5-85	0		68	125	21	23,0		13,5	geen	goed	geen	798,0		< 1		geen	-9,4	0,848	1,2	① niet gemeten	
	14-5-85	160		68	139	16	23,9	+4		"	lichte	lichte	762,2	-4,5	< 1	0	"	-9,7	0,810			
	28-5-85	500		68	135	16	23,6	+3		"	"	matig	762,2	-4,5	< 1	0	"	-9,0	0,810			
	19-6-85	1000		67	138	17	23,2	+1		"			755,6	-5,3	< 1	-1	"	-10,8	0,803	1,5	niet gemeten	
	15-8-85	2000		67	136	16	23,7	+3		"	matig	flink	734,9	-7,9	< 1	-1	"	-19,8	0,781	< 0,5	"	"
5101489		0		70	130	18	26,0		13,4	geen	goed	geen	782,9		< 1		geen	-7,7	0,832	1,63	① niet gemeten	
		160		71	125	14	25,1	-3		"	lichte	lichte	766,9	-2,0	< 1	+1		-8,1	0,815			
		500		71	126	14	24,7	-8		"	"	matig	743,4	-5,0	< 1	+1	"	-7,8	0,790			
		1000		70	124	16	24,6	-5		"			752,8	-3,8	< 1	0	"	-8,3	0,800	1,38	niet gemeten	
		2000		70	126	16	25,3	-3		"	matig	flink	733,0	-6,4	< 1	0	"	-9,2	0,779	1,38	"	"
5100934		0		74	113	20	21,5		13,3	geen	goed	geen	792,3		< 1		geen	-7,4	0,842	1,5	① niet gemeten	
		160		74	122	16	25,4	+18		"	lichte	lichte	752,8	-5,0	< 1	0	"	-6,9	0,800			
		500		74	117	17	25,8	+20		"	"	matig	748,1	-5,6	< 1	0	"	-6,8	0,795			
		1000		73	113	20	24,4	+13		"			752,8	-5,0	< 1	-1	"	-8,0	0,802	[illegible]	niet gemeten	
		2000		72	120	18	25,2	+17		"	matig	flink	736,8	-7,0	< 1	-2	"	-9,3	0,783	1,63	"	"
5130312		0		69	124	17	38,5		22,0	geen	goed	geen	751,9		< 1		geen	-4,6	0,799	1,1	① niet gemeten	
		160		69	125	18	36,0	-6		"	lichte	lichte	826,2	+9,9	< 1	0	1x ②	-4,7	0,848			
		500		68	126	21	34,6	-10		"	"	matig	798,-	+6,1	< 1	-1	geen	-5,8	0,848			
		1000		67	123	20	30,2	-22		"			719,0	-4,3	< 1	-2	"	-6,2	0,765	1,25	niet gemeten	
		2000		64	119	21	27,9	-28		"	matig	flink	715,2	-4,9	< 1	-2	"	-9,2	0,760	1,25	"	"
5130304		0		72	128	15	27,7		13,4	geen	goed	geen	779,1		< 1		geen	-6,2	0,828	1,63	① niet gemeten	
		160		72	121	20	28,1	+1			lichte	lichte	749,0	-3,9	< 1	0	"	-6,6	0,796			
		500		72	114	20	27,5	-1				matig	745,3	-4,3	< 1	0	"	-6,6	0,792			
		1000		70	125	21	27,3	-1		"			743,4	-4,6	< 1	-2	"	-7,6	0,790	1,7	niet gemeten	
		2000		69	120	21	25,8	-7		"	matig	flink	720,8	-7,5	< 1	-3	"	-8,0	0,766	1,63	"	"
5130368		0		69	141	15	21,6		13,5	geen	goed	geen	783,9		< 1		geen	-7,2	0,833	[illegible]	① niet gemeten	
		160		69	128	17	21,1	-2			lichte	lichte	746,2	-4,8	< 1	0	"	-7,6	0,793			
		500		69	130	18	21,9	+1		"	"	matig	734,9	-6,3	< 1	0	"	-8,2	0,781			
		1000		67	130	17	21,4	-1		"			744,3	-5,1	< 1	-2	"	-8,2	0,791	< 0,5	niet gemeten	
		2000		66	129	18	21,2	-2		"	matig	flink	725,5	-4,5	< 1	-3	"	-8,1	0,771	< 0,5	"	"

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** 115 D14 SH/93

	Instelling brandraam Nr: 20				Meten en branden voorschrift d.d. 25-6-83	Gewenste levensduur:
Proefnummer: 1362 (B2)	Buisnr:	Pos:	Vf:	V.kanon: 2,2 kV	Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktie:
Aantal: 6	5101473	3	5,7V	Vg4: / V		
Datum: 23-4-85	5101489	11	5,7V	Vnav.: 16,5 kV		
Inzender: Cobben	5100934	4	6,3V	-Ia nav: 10 µA		
	5130312	12	6,3V	Raster: 55 x 60 mm.		
	5130304	5	7,0V	V+k/f-: +125 V		zie ook nog kaart 1362 (B1)
	5130368	13	7,0V	V-k/f+: / V		

buisnr:	meet-datum:	brand-uren:	-Vg1	Ik bij 50 V Vd/ µA Inav	Afn.Ik	Ib x2/Inav bij 50 V Vd	ΔIb x2/Inav	Ib x(-300/-700V) bij 10 uA Inav	Gaskruis (......µA Ik)	Schermkwaliteit (....µA Ib..../Inav)	Body-colour	Luminantie (....µA Ib..../Inav)	Δ Luminantie	Gas -Ig3	Opmerkingen:
	Eis	0 hr	....	not.	≤ 25	≥ ...	not.	not.	geen	not.	not.	≥ ...	not.	≤ ...	
		1000 hr				≥ ...									
		Eenheid	V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	
5101473	7-5-85	0		570		66,0									
	14-5-85	160		620		74,1	+12								
	28-5-85	500		595		69,7	+6								
	19-6-85	1000		620		68,1	+3								
	15-8-85	2000		590		60,5	-8								
5101489		0		610		76,0									
		160		580		74,3	-2								
		500		575		70,1	-8								
		1000	/	575		60,5	-20								
		2000		590		57,3	-25								
5100934		0		550		66,0									
		160		570		71,7	+9								
		500		545		60,0	-9								
		1000		525		56,0	-12								
		2000		520		52,1	-21								
5130312		0		570		80,5									
		160		560		79,4	-1								
		500		545		64,1	-20								
		1000		530		45,5	-43								
		2000		530		46,0	-43								
5130304		0		570		78,5									
		160		540		56,6	-28								
		500		490		49,0	-38								
		1000		485		49,8	-48								
		2000		480		42,5	-46								
5130368		0		630		52,4									
		160		560		53,3	+1								
		500		540		48,6	-8								
		1000		535		40,0	-17								
		2000		515		43,0	-18								

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** D14-382 GH/123

	Instelling brandraam Nr: 19				
Proefnummer: 1387	Buisnr:	Pos:	Vf:	V.kanon: 2,2	kV
Aantal: 3	5380261	1	5,7V	Vg4: —	V
Datum: 9-10-'85				V nav./Ik: 16,5	kV
Inzender: Cobben	5380306	9	6,3V	Ik/I nav: 10	µA
				Raster: — x —	mm
	5380316	2	7,0V	V+k/f-: +125	V
				V-k/f+: —	V

Meten en branden voorschrift d.d. 14-5-'85

Speciale metingen of wensen:

(2 witte mult.-strookjes)

→ volledig meetvermogen

Gewenste levensduur:

Afwijkingen t.o.v. normale produktie:

G6: 1,5W
citroenzuur +1 getter

① = kort iets zwart
② = " " " + geen beeld
③ = " " + " "

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V Vd / I nav	Afn. Ik	IbX2/I nav bij 30 V Vd	ΔIbX2/I nav Vd=30V	Ibx(-300/-700V) bij 10 µA Inav	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA/I nav)	Body-colour	Luminantie (5 µA/I nav)	ΔLuminantie	Gas -Ig3	Δ Vco t.a.v. ohm	geen beeld	I lek gaas 4x4 30 µA	LMT 30 ft 10-6 x0,941	Ik bij 50V Vd	Ibx bij 50V Vd	Δ Ibx Vd=50V
		Eis	0 hr	51/96	not.	≤ 25	≥ 19	not.	not.	geen	not.	not.	NOT.	not.	≤ 6		not	not		not	≥ 75	not
			1000 hr				≥ . .									≤3						
		Eenheid		V	µA	%	µA	%	µA	. . . .	. . . .	. . . .	cd/m2	%	nA	V		µA		µA	µA	%
5380261	14-10-85	0		79	108	13	22,2		14,9	geen	goed	geen	823,4		<1		geen	+7,1	0,875	540	56,4	
	18-10-85	100		79 ①	111	13	19,9	-10		"	"	"	790,4	-4,0	<1	0	"	+8,4	0,840	510	41,6	-26
	24-10-85	160		79 ①	113	14	20,7	-7		"	"	"	788,6	-4,2	<1	0	"	+8,3	0,838	510	45,3	-20
	4-11-85	500		80 ①	107	15	20,3	-9		"	"	"	773,5	-6,1	<1	+1	"	+8,3	0,822	510	48,9	-13
	25-11-85	1000		80 ①	115	14	21,7	-2		"	"	"	769,7	-6,5	<1	+1	"	+8,3	0,818	510	51,3	-9
5380306		0		84	110	14	25,1		14,7	geen	goed	geen	792,3		4,7		geen	+5,9	0,842	490	60,8	
		100		83 ①	106	20	22,4	-11		"	"	"	756,6	-4,5	<1	-1	"	+8,1	0,804	460	48,0	-21
		160		83 ①	106	22	23,6	-6		"	"	"	761,3	-3,9	<1	-1	"	+7,2	0,809	440	53,9	-11
		500		83 ①	105	28	25,0	0		"	"	"	749,0	-5,5	<1	-1	"	+7,3	0,796	430	60,3	-1
		1000		83 ①	101	28	26,0	+4		"	"	"	768,8	-3,0	<1	-1	"	+6,8	0,817	410	61,7	+1
5380316		0		73 ②	129	14	21,9		14,4	geen	goed	geen	764,9		1,1		geen	+6,9	0,816	585	40,1	
		100		70 ③	102	21	8,6	-61		"	"	"	754,9	-2,1	<1	-3	"	N.T.M.	0,799	550	1,4	-96
		160		70 ③	100	23	7,2	-67		"	"	"	750,0	-2,6	<1	-3	"	N.T.M.	0,792	525	1,9	-96
		500		69 ③	114	24	6,7	-69		"	"	"	718,0	-6,5	<1	-4	"	N.T.M.	0,763	540	2,7	-94
		1000		68 ③	108	25	6,4	-71		"	"	"	717,0	-6,6	<1	-5	"	N.T.M.	0,762	485	4,5	-91

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** D 14-381 GH/K1

Proefnummer: 1388	**Instelling brandraam Nr:** 19	**Meten en branden voorschrift d.d.** 14-5-'85	**Gewenste levensduur:**
Aantal: 6	V.kanon: 2,2 kV	Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktie:
Datum: 15-10-'85	Vg4: — V	(2 gr. mult. staafjes)	0,65 W; → 1 getter
Inzender: Bleerckouwers	Vnav/K: 16,5 kV		
	Ik/Inav: 10 µA		
	Raster: ~~• ×~~ mm →	volledig weerkaart	
	V+k/f-: +125 V		puls 100 ms
	V-k/f+: — V	⊙ = slip	rep. ± 15 ms

Buisnr:	Pos:	Vf:
5290267	3	5,7 V
5260623	11	5,7 V
5260639	4	6,3 V
5260626	12	6,3 V
5291508	5	7,0 V
5290159	13	7,0 V

Opmerkingen: Vd = 50 V

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V Vd / ~~µA Inav~~	Afn. Ik	IbX2/~~Inav~~ bij 30 V Vd	ΔIb X2/~~Inav~~	Ib x(-300/-700V) bij 10 uA Inav.	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA/Inav)	Body-colour	Luminantie (5 µA/Inav)	ΔLuminantie	Gas -Ig3	ΔVco tau ohn	geesbeeld	I bal gaas 4x4 ...	Lrr 305F 10-6 x0,941	...	I3 ...	I3 ...
Eis		0 hr		51/96	not.	≤ 25	≥ 19.	not.	not.	geen	not.	not.	NOT.	not.	≤ 6		not	not		2-4,6	not	not
		1000 hr					≥ . .									≤3						
Eenheid				V	µA	%	µA	%	µA	. . . .	. . . .	. . . .	cd/m2	%	nA	V		not		ampere		
5290267 (mult x)	17-10-85	0		73	112	19	23,3		14,2	geen	goed	geen	797,3		2		geen	+6,6	0,826	2,0	25	0,72
	24-10-85	100		74	114	17	22,3	-4		"	"	"	809,3	+4,1	<1	+1	"	+8,8	0,860	—	—	—
	24-10-85	160		74	124	16	23,5	+1		"	"	"	804,6	+3,5	<1	+1	"	+9,2	0,855	—	—	—
	7-11-85	500		75	110	18	22,8	-2		"	"	"	814,0	+4,7	<1	+2	"	+9,2	0,865	1,5	28,8	0,66
	28-11-85	1000		75	110	18	23,1	-1		"	"	"	807,4	+3,9	<1	+2	"	+9,2	0,858	1,8	25,7	0,66
5260623 (hap)		0		63	146	16	19,9		16,9	geen	goed	geen	796,1		<1		geen	+9,7	0,846	2,0	29,5	0,62
		100		64	138	15	18,4	-8		"	"	"	837,5	+5,2	<1	+1	"	+11,2	0,890	—	—	—
		160		64	140	14	18,6	-7		"	"	"	831,8	+4,5	<1	+1	"	+11,0	0,884	—	—	—
		500		64	140	14	18,4	-8		"	"	"	865,7	+8,7	<1	+1	"	+10,9	0,920	1,4	19,3	0,59
		1000		65	134	14	18,5	-8		"	"	"	854,4	+7,3	<1	+2	"	+11,1	0,908	1,2	19,1	0,57
5260639 (sl. mult, gaas)		0		65	137	15	20,4		13,5	geen	goed	geen	699,2		<1		geen	+5,7	0,743	2,1	33,3	0,75
		100		65	135	16	19,6	-4		"	"	"	764,1	+9,3	<1	0	"	+6,8	0,812	—	—	—
		160		65	127	16	20,0	-2		"	"	"	773,5	+10,6	<1	0	"	+6,3	0,822	—	—	—
		500	⊙	65	70	43	17,3 ↓	-15		"	"	"	789,5	+12,9	<1	0	"	+6,1	0,839	1,2	2,5	0,79
		1000	⊙	65	49	57	18,5 ↓	-9		"	"	"	770,7	+10,2	<1	0	"	+8,5	0,819	<0,5	15	0,70
5260626 (mult. dia.)		0		63	140	13	19,6		15,4	geen	goed	geen	748,1		4,6		geen	+8,0	0,795	2,1	32	0,68
		100		63	144	15	18,8	+7		"	"	"	814,0	+8,8	<1	0	"	+10,0	0,865	—	—	—
		160		63	140	14	19,6	+11		"	"	"	824,3	+10,2	<1	0	"	+9,9	0,876	—	—	—
		500		63	138	17	20,8	+18		"	"	"	842,2	+12,6	<1	0	"	+10,2	0,895	1,7	20	0,62
		1000		64	125	18	20,4	+16		"	"	"	836,5	+11,8	<1	+1	"	+10,3	0,889	<0,5	21,3	0,62
5291508 (dunkgaas)		0		68	125	18	22,2		14,2	geen	goed	geen	750,0		1,4		geen	+6,0	0,797	2,3	24,3	0,69
		100		68	113	24	21,3	-4		"	"	"	785,7	+4,8	<1	0	"	+6,3	0,835	—	—	—
		160		67	125	23	21,4	-2		"	"	"	782,9	+4,4	<1	-1	"	+7,2	0,832	—	—	—
		500		67	114	23	23,3	+5		"	"	"	799,9	+6,7	<1	-1	"	+7,3	0,850	0,8	18,9	0,69
		1000		67	113	24	22,8	+3		"	"	"	802,7	+7,0	<1	-1	"	+7,6	0,853	4,3	11,9	0,69
5290159 (uitgaas)		0		65	140	15	23,0		13,5	geen	goed	geen	717,0		2,4		geen	+5,2	0,762	2,5	30,8	0,73
		100		65	136	17	23,3	+1		"	"	"	765,0	+6,7	<1	0	"	+5,5	0,813	—	—	—
		160		65	132	17	22,9	0		"	"	"	753,7	+5,1	<1	0	"	+5,9	0,801	—	—	—
		500		65	124	18	23,4	+2		"	"	"	788,6	+10,0	<1	0	"	+5,7	0,838	2,0	20,5	0,73
		1000		65	119	19	23,3	+1		"	"	"	780,1	+8,8	<1	0	"	+6,1	0,829	2,2	24,7	0,72

KWALITEITSLABORATORIUM ELCOMA HEERLEN	LEVENSDUUR OSCILLOGRAAFBUIZEN	TYPE: D14-381SH/K1

	Buisnr:	Pos:	Vf:			Meten en branden voorschrift d.d. 14-5-85	Gewenste levensduur:
Instelling brandraam Nr: 19						Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktie:
Proefnummer: 1388	5290267	3	5,7V	V kanon :	2,2 kV	(2 gr. mult. straafjes)	0,65W ; ⇒ 1 getter
Aantal: 6	5260623	11	5,7V	Vg4 :	— V		
Datum: 15-10-85	5260639	4	6,3V	V nav./K:	16,5 kV		
Inzender: [illegible]	5260626	12	6,3V	Ik/I nav:	10 µA		
	5291568	5	7,0V	Raster :	— mm	⇒ volledig weerstand	
	5290158	13	7,0V	V+k/f- :	+125 V		
				V-k/f+ :	— V		

buisnr:	meet-datum:	brand-uren:	-Vg1	Ik bij 50 V Vd / ~~Ik Inav~~	~~Afn.Ik~~	Ib x ~~Inav~~ bij 50 V Vd	ΔIb x ~~Inav~~ (Vd 50V)	Ib x(-300/-700V) bij 10 µA Inav.	Gaskruis (… µA Ik)	Schermkwaliteit (… µA Ib …/Inav)	Body-colour	Luminantie (… µA Ib …/Inav)	Δ Luminantie	Gas -Ig3	Opmerkingen:
	Eis 0 hr		….	not.	~~≥ 25~~	≥ 45	not.	not.	geen	not.	not.	≥ …	not.	≤ …	
	Eis 1000 hr					≥ …									
	Eenheid		V	µA	~~%~~	µA	%	µA	….	….	….	cd/m2	%	nA	
5290267	15-10-85	0		530	↓	58,0									
	21-10-85	100		540	↓	58,4	+1								
	24-10-85	160		550	↓	59,2	+2								
	7-11-85	500		515	↓	54,6	-6								
	28-11-85	1000		515	↓	55,5	-4								
5260623		0		670		43,3									
		100		645		40,9	-6								
		160		670		43,8	+1								
		500		650		40,6	-6								
		1000		620		41,2	-5								
5260639		0		610		48,3									
		100		620		49,4	+2								
		160		590	↑	50,5	+5								
		500		370	↑	11,6	-76	dip							
		1000		310	↓	18,1	-63	dip							
5260626		0		655		43,6									
		100		640		41,9	-4								
		160		640	↓	43,2	-1								
		500		600		43,5	0								
		1000		560	↓	42,2	-3								
5291568		0		580	↓	49,8									
		100		540	↑	49,5	-1								
		160		570	↑	48,7	-2								
		500		535	↑	46,5	-7								
		1000		500	↑	46,0	-8								
5290158		0		645		55,3									
		100		620		54,6	-1								
		160		620		52,5	-5								
		500		575		52,7	-5								
		1000		500	↓	49,4	-11								

KWALITEITSLABORATORIUM ELCOMA HEERLEN **LEVENSDUUR OSCILLOGRAAFBUIZEN** **TYPE: D14-372GH/123**

Proefnummer: 1389	Instelling brandraam Nr: 20				Meten en branden voorschrift d.d. 14-5-85	Gewenste levensduur:
	Buisnr:	Pos:	Vf:	V-kanon : 2,2 kV	Speciale metingen of wensen:	Afwijkingen t.o.v. normale produktie:
Aantal: 4	5380139	1	5,7V	Vg4 : — V	(2 witte muld.-stoofjes	* = 1 getter niet verstoven +
Datum: 17-10-85	5380145	9	6,3V	V nav/[illegible] : 16,5 kV	(lamp 51808)	blek.
Inzender: Cobben	* 5372230	2	6,3V	Ib-/I nav: 10 μA		citroenzuur
	5372284	10	7,0V	Raster : ~~x mm~~	→ volledig overstuurd	4,5 kV ; gereneckt
				V+k/f- : +125 V		
				V-k/f+ : V		

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V Vd / + μA Inav	Afn.Ik	IbX2 bij 20 V Vd	ΔIbX2 Vd=30V	Ib x(-300/-700V) bij 10 μA Inav	Gaskruis (100 μA Ik)	Schermkwaliteit (2 μA/Inav)	Body-colour	Luminantie (5 μA/Inav)	ΔLuminantie	Gas -Ig3	Δ Vco t.o.v. ohm	geest beeld	Ibe gaas 4x4 30 mA faas	Opmerkingen: Lot 3035F 10⁻⁶ x0,941	Ik bij 50 V Vd	Ibrnh 50 V Vd	ΔIbr (Vd=50V)
		Eis	0 hr	51/96	not.	≤ 25	≥ 19.	not.	not.	geen	not.	not.	not.	not.	≤ 6		not	not		not	≥ 460	not
			1000 hr				≥ . . .									53						
		Eenheid		V	μA	%	μA	%	μA	. . . .	. . . .	. . . .	cd/m2	%	nA	V		μA		μA	μA	%
5380139	8-10-85	0		78	114	16	24,1		14,0	geen	goed	geen	808,3		<1		geen	+4,3	0,859	510	60,2	
	21-10-85	100		66	129	14	13,8	-43		"	"	"	810,2	+0,2	<1	-12	"	N.I.M	0,861	515	20,0	-67
	25-10-85	160		66	132	15	14,6	-39		"	"	"	813,0	+0,6	<1	-12	"	N.I.M	0,864	510	24,3	-65
	8-11-85	500		66	131	14	14,7	-39		"	"	"	783,9	-3,0	<1	-12	"	N.I.M	0,833	520	21,9	-64
	29-11-85	1000		67	134	13	14,1	-41		"	"	"	792,3	-2,0	<1	-11	"	+5,2	0,842	570	25,7	-57
5380145		0		82	104	21	22,6		13,7	geen	goed	geen	774,4		<1		geen	+5,5	0,823	470	52,0	
		100		82	105	21	23,7	+5		"	"	"	762,2	-1,6	<1	0	"	+5,9	0,810	465	62,9	+21
		160		82	110	19	24,2	+7		"	"	"	758,4	-2,1	<1	0	"	+6,7	0,806	490	65,5	+26
		500		81	108	22	24,1	+7		"	"	"	765,0	-1,2	<1	-1	"	+6,2	0,813	470	52,9	+2
		1000		83	104	19	23,6	+4		"	"	"	769,7	-0,6	<1	+1	"	+6,2	0,818	445	51,9	0
* 5372230		0		81	112	17	29,9		14,7	geen	goed	geen	781,0		<1		geen	+5,7	0,830	490	75,7	
		100		81	114	17	29,3	-1		"	"	"	762,9	-1,7	<1	0	"	+6,2	0,816	500	72,8	-4
		160		81	115	17	28,2	+2		"	"	"	784,8	+0,5	<1	0	"	+6,4	0,834	510	73,6	-3
		500		81	106	19	29,4	-1		"	"	"	760,3	-2,7	<1	0	"	+6,5	0,808	450	63,6	-16
		1000		81	109	19	26,8	-3		"	"	"	768,8	-1,6	<1	0	"	+6,7	0,817	460	64,6	-15
5372284		⊙ 0		72	127	22	23,3		13,8	geen	goed	geen	790,4		<1		geen	+4,6	0,840	525	54,4	
		100		72	116	22	23,7	+2		"	"	"	788,6	-0,2	<1	0	"	+5,0	0,838	515	60,6	+11
		160		72	118	19	23,9	+3		"	"	"	797,0	+0,8	<1	0	"	+5,2	0,847	530	58,2	+7
		500		71	110	19	24,1	+3		"	"	"	770,7	-2,5	<1	-1	"	+5,2	0,819	465	51,3	-6
		1000		71	112	20	23,2	0		"	"	"	774,4	-2,0	<1	-1	"	+6,0	0,823	475	49,7	-9

⊙ = Ig1 lek : +20 μA → bij analyse : g² schakelaar niet → lekstroom weg

KWALITEITSLABORATORIUM ELCOMA HEERLEN | **LEVENSDUUR OSCILLOGRAAFBUIZEN** | **TYPE:** D14-372 GH/123

Proefnummer: 1391
Aantal: 6
Datum: 6-11-'85
Inzender: Cobben

Instelling brandraam Nr: 20

Buisnr:	Pos:	Vf:		
5380137	3	6,3 V	V-kanon: 2,2	kV
143	11	6,3 V	Vg4: —	V
148	4	6,3 V	V nav/k: 16,5	kV
153	12	6,3 V	Ik/I nav: 10	µA
246	5	6,3 V	Raster: —	mm.
248	13	6,3 V	V+k/f-: +125	V
			V-k/f+: —	V

Meten en branden voorschrift d.d. 15-10-'83

Speciale metingen of wensen:
Bonnr 51808; volgnr: 470.
Zwolledig overtmrol

Gewenste levensduur: 1 WEEK

Afwijkingen t.o.v. normale produktie:
4,5 WATT
citroenzuur Vergaunners (2 getters)

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V Vd/ µA Inav	Afn.Ik	Ib x2/Inav bij 30 V Vd	ΔIb x2/Inav (Vd=30V)	Ib x(-300/-700V) bij 10 uA Inav.	Gaskruis (Ik=.. µA Ik)	Schermkwaliteit (2 µA/Inav)	Body-colour	Luminantie (5 µA/Inav)	Δ Luminantie	Gas -Ig3	Δ Vco t.o.v. 0 hr	geest-beeld	I bel-gaas 4x4 30mA fouw	Opmerkingen: LMT 305F 10-6 x0,941	Ik bij 50V Vd	Ik x2 30V Vd	ΔIk x2 (Vd=30V)
		Eis	0 hr	51/96	not.	≤ 25	≥ 19.	not.	not.	geen	not.	not.	NOT.	not.	≤ .6.	—	not	not		not	≥ 45	not
			1000 hr				≥ ...									≤3						
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V	—	not		not	not	%
5380137	14-11-85	0		71	119	16	22,6		13,9	geen	goed	geen	837,5		<1		geen	+4,6	0,890	560	49,7↑	
	18-11-85	160		71	116	15	22,7	0		"	"	"	806,4	-3,7	<1	0	"	+4,8	0,859	550	55,9	+12
		500																				
		1000																				
		2000																				
5380143		0		70	130	15	24,2↓		13,9	geen	goed	geen	815,8		<1		geen	+6,5	0,864	570	56,5↓	
		160		70	132	16	23,7	-2		"	"	"	785,7	-3,7	<1	0	"	+6,9	0,835	580	62,4↑	+11
5380148		0		71	119	25	26,7↓		14,1	geen	goed	geen	851,6		<1		geen	+6,0	0,905	545	58,0↑	
		- 160		71	118	17	27,6	+3		"	"	"	818,4	-3,9	<1	0	"	+7,0	0,870	530	60,3↓	+4
		500																				
		1000																				
		2000																				
5380153		0		80	112	17	23,3↓		14,2	geen	goed	geen	829,0		<1		geen	+5,4	0,881	490	53,5↑	
		160		80	112	16	23,5	+1		"	"	"	813,0	-1,9	<1	0	"	+5,6	0,864	500	55,2↑	+3
5380246		0		76	118	18	25,2		14,5	geen	goed	geen	801,7		<1		geen	+5,8	0,852	556	57,6↑	
		160		76	119	16	24,6	-2		"	"	"	786,7	-1,9	<1	0	"	+6,2	0,836	550	58,1	+1
		500																				
		1000																				
		2000																				
5380248		0		72	130	18	27,2↓		13,4	geen	goed	geen	832,8		1,2		geen	+5,6	0,885	570	49,2↑	
		160		69	130	13	21,9	-10		"	"	"	798,9	-4,1	<1	-3	"	+6,6	0,849	630	51,4	+4

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** D14-372 GH/123

Proefnummer:	1393
Aantal:	6
Datum:	22-11-'85
Inzender:	[illegible]

Instelling brandraam Nr: 20

Buisnr:	Pos:	Vf:			
5461622	3	6,3 V	V.kanon:	2,2	kV
632	11	6,3 V	Vg4:	/	V
136	4	6,3 V	V nav/K:	16,5	kV
647	12	6,3 V	I nav:	10	µA
646	5	6,3 V	Raster:	—	mm
142	13	6,3 V	V+k/f-:	+125	V
			V-k/f+:	/	V

Meten en branden voorschrift d.d. 15-10-'83

Speciale metingen of wensen:

lenng: 52791; volgens .472

→ volledig verstuurd

Gewenste levensduur: 1 WEEK

Afwijkingen t.o.v. normale produktie:

1,5 W → HITASOL

(4 boven nav. contact; 2 witte muld. staafjes)

① A.g.v. veel gas.

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V. Vd / ... µA Inav	Afn.Ik	Ibx2 / ... bij 3,0 V. Vd	ΔIbx2 ... (Vd-30V)	Ib x(-300/-700V) bij 10 uA Inav.	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA / Inav)	Body-colour	Luminantie (5 µA / Inav)	Δ Luminantie	Gas -Ig3	0 vco Lov ohn	geest beeld	I bel-gas	LMT 305F 10⁻⁶ x0,941	I-k-lijn 50 V Vd	I-k-lijn 50 V Vd	[illegible]
		Eis	0 hr	51/96	not.	≤ 25	≥ 19.	not.	not.	geen	not.	not.	NOT.	not.	≤ 6.		NOT.	NOT		NOT	≥ 45	NOT
			1000 hr				≥ ...									≤3						
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V		µA		µA	µA	%
5461622	26-11-85	0		83	114	12	26,3		15,0	geen	goed	geen	785,7		<1		geen	+6,2	0,835	500	77,8	
	4-12-85	160		84	109	14	25,1	-5		"	"	"	776,3	-1,2	<1	+1	"	+6,5	0,825	460	66,8	-14
		500																				
		1000																				
		2000																				
5461632		0		74	129	11	21,2		15,4	geen	goed	geen	803,6		<1		geen	+6,6	0,854	585	53,2	
		160		74	127	12	21,0	-1		"	"	"	788,6	-1,9	<1	0	"	+7,4	0,838	560	50,6	-5
5461136		0		81	117	14	23,3		15,0	geen	goed	geen	772,6		<1		geen	+7,6	0,821	510	62,4	
		160		82	107	12	22,2	-5		"	"	"	758,4	-1,8	<1	+1	3x ①	+8,1	0,806	480	54,8	-12
		500																				
		1000																				
		2000																				
5461647 (Vult dia)		0		73	116	14	28,5		15,3	geen	goed	geen	794,2		<1		geen	+6,2	0,844	550	72,3	
		160		73	119	14	27,4	-4		"	"	"	778,2	-2,0	<1	0	"	+6,6	0,827	550	67,2	-7
5461646		0		82	116	15	22,0		15,1	geen	goed	geen	801,7		<1		geen	+7,4	0,852	510	51,8	
		160		83	108	13	20,2	-8		"	"	"	772,6	-3,6	<1	+1	"	+7,8	0,821	470	47,7	-8
		500																				
		1000																				
		2000																				
5461142		0		79	116	14	22,0		14,7	geen	goed	geen	814,9		<1		geen	+7,9	0,866	510	51,7	
		160		80	110	13	21,0	-5		"	"	"	790,4	-3,0	<1	+1	"	+8,5	0,840	490	49,1	-5

KWALITEITSLABORATORIUM ELCOMA HEERLEN — **LEVENSDUUR OSCILLOGRAAFBUIZEN** — **TYPE:** D14-372SH/123

Proefnummer: 1394
Aantal: 6
Datum: 22-11-'85
Inzender: [illegible]

Instelling brandraam Nr: 20

Buisnr:	Pos:	Vf:
5451050	6	6,3 V
5450654	14	6,3 V
5451063	7	6,3 V
5450592	15	6,3 V
5451067	8	6,3 V
5451069	16	6,3 V

V.kanon :	2,2	kV
Vg4 :	/	V
Vnav./K :	16,5	kV
Ik/I nav:	10	µA
Raster :	—	mm.
V+k/f- :	+125	V
V-k/f+ :	/	V

Meten en branden voorschrift d.d. 15-10-'83

Speciale metingen of wensen:
Bronz: 52379; volgens 472
→ volledig meerekenen(?)

Gewenste levensduur: 1 WEEK

Afwijkingen t.o.v. normale produktie:
1,5 W → ALUMINIUM
1/4 boven nav. contact;
2 witte multi. stapjes)
① A.g. v. vuil geen(?)
② strooistralen(?)
③ kat. uit zwart(?)

buisnr:	meet-datum:	brand-uren:		-Vg1	Ik bij 30 V. Vd / µA Inav	Afn. Ik	Ibx~/Inav bij 30 V. Vd	ΔIbx~/Inav (Vd=30V)	Ibx(-300/-700V) bij 10 uA Inav	Gaskruis (100 µA Ik)	Schermkwaliteit (2 µA /Inav)	Body-colour	Luminantie (5 µA /Inav)	ΔLuminantie	Gas -Ig3	ΔVco t.o.v. oha	geen bold(?)	Ibl. geen(?)	LAT 3055 106 x0,941	Ik bij 500 V(?)	Ibx bij 500 V(?)	Δ (Vd=50V)(?)
		Eis	0 hr	51/96	not.	≤ 25	≥ 19	not.	not.	geen	not.	not.	NOT.	not.	≤ 6		NOT	NOT		NOT	≥ 45	NOT
			1000 hr				≥									≤ 3						
		Eenheid		V	µA	%	µA	%	µA	....	....	....	cd/m2	%	nA	V		µA		µA	µA	%
5451050	26/11-85	0		73	124	14	25,7		16,3	geen	goed	geen	845,0		<1		geen	+4,7	0,898	560	61,8 ↓	
	4/12-85	160		73	127	15	24,3	-5		"	"	"	782,0	-7,5	<1	0	1X ①	+9,0	0,831	560	58,4	-6
		500																				
		1000																				
		2000																				
5450654		0		82	108	18	24,2		14,9	geen	goed	geen	823,4		<1		geen	+6,9	0,875	490	60,5	
		160	②	82	110	16	24,4	+1		"	"	"	774,3	-5,7	<1	0	1X ①	+7,1	0,825	495	62,1	+3
5451063		0		79	117	17 ③	24,5 ↓		15,6	geen	goed	geen	856,3		<1		geen	+7,7	0,910	520	50,8 ↓	
		160		80	110	17	26,8	+9		"	"	"	803,6	-6,2	<1	+1	"	+7,2	0,854	490	67,6	+33
		500																				
		1000																				
		2000																				
5450592		0		74	117	16	23,9		15,7	geen	goed	geen	831,8		<1		geen	+8,3	0,884	550	62,0 ↓	
		160		74	123	14	23,4	-2		"	"	"	796,1	-4,3	<1	0	"	+9,7	0,840	535	57,1	-8
5451067		0		81	109	16	23,8		16,2	geen	goed	geen	832,8		<1		geen	+7,6	0,885	495	59,0 ↑	
		160		81	114	16	24,1	+1		"	"	"	806,4	-3,2	<1	0	"	+8,6	0,857	500	56,0	-5
		500																				
		1000																				
		2000																				
5451069		0		80	115	16	27,2		15,9	geen	goed	geen	844,1		<1		geen	+6,3	0,892	515	77,7	
		160		81	108	17	26,7	-2		"	"	"	778,2	-7,8	<1	+1	"	+6,5	0,827	480	66,8	-14

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: 6+6 . .
Ref: . . . . . .

Date: 6-12-'85 → 0 hr
Factory: HEERLEN
13-12-85 → 100 hr

Type: D14-372GH/123
Code: HKTO/4SL1

measurement												
test conditions	⊙ steunisolator → gereep											
										Ibx2 Lj 10mA IMAV (0uur)		
	0 uur	160 uur	0 uur	160 uur	0 uur	160 uur	0 uur	160 uur			Δ	Δ
	VCO		Ibx2 30V		Ibx2 50V		AFN Ik.				Ibx2 Vd=30V	Ibx2 Vd=50V
tube number												
5471788	71	72	23,5↓	23,5↓	62,8↑	61,1↓	15	15		14,8	0	-3
5471466	71	72	22,2↓	21,4	53,4↓	52,3	12	12		14,5	-4	-2
5471786	72	73	24,3	22,8	62,1	59,7↑	16	15		15,1	-6	-4
5471511	77	77	18,5	18,8	44,4↓	46,3↓	18	15		14,7	+2	+4
5480083	86	86	25,4	23,5	71,8↓	66,4↓	16	16		14,6	-4	-8
5471440	87	88	20,3	19,4	53,7↓	49,9	16	16		14,8	-4	-7
5440293	71	72	22,5	21,7	56,3↓	55,2↑	19	15		14,2	-4	-2
5440277	68	69	24,8	23,2	66,7	63,0↓	15	13		15,0	-6	-6
5440304	68	69	22,8	21,9	51,7↑	52,3	15	13		14,6	-4	+1
5441234	69	69	20,0	20,4	52,9	50,4	16	14		14,0	+2	-5
5440358	79	80	23,3	22,8	59,5↓	60,4	18	17		14,3	-2	+2
5440331	63	64	23,0	22,7	57,1↓	57,5	14	12		14,5	-1	+1
average												
nom.												
100% min.												
Me min.												
Me max.												
100% max.												
unit	V	V	mA	mA	mA	mA	%	%		mA	%	%
conclusion:												
remark:												

Left margin: 1,5W → Expon 1395 — HITASOL (tubes 5471788 – 5471440); 1,5W ALUMINIUM (tubes 5440293 – 5440331) ← Expon 1396

- brandstaan nr: 20 } nrs 1-9-2-10-3-11 (1395)
  nrs 4-12-5-13-6-14 (1396)

bv naam instelling
Vf 6,3V
Vf kan: 2,2kV
V-aalk: 16,3 kV
I-aao: 10 µA
VKfl: +125V
R : volledig overdund.

Kontrole:
37N44 D14-372GH/123 N 10
37N48 D14-372GH/123 N 10

Onderzoek naar verschillen
tussen de subfiles.
[t-TOETS tav gemiddelden bij een
betrouwbaarheid van 95%(eenz.)]

Significant verschillende
gemiddelden zijn aangegeven mbv
>> tussen de kolommen

Onderzocht werd de DATA-file:

** D14-372GH/123 V.M. **

Subfiles→	Mal 1		Mal 2
Var.:	n Gem.:		Gem.: n
V-Ast	11 23.34	==	20.72 9
V-WSx	11 0.10	==	0.07 9
V-WSy	11 0.07	==	0.02 9
V-Hdl	11 -0.55	>>	-11.71 9
V-RVx1	11 0.56	==	0.47 9
V-RVx2	11 0.59	==	0.67 9
V-RVy	11 0.53	==	0.49 9
V-ExcX	11 -0.30		-0.25 9
V-ExcY	11 0.27		0.09 9
V-DDx1	11 1.04	==	1.00 9
V-DDx2	11 1.00	==	0.98 9
V-RHx1	11 91.55	==	96.33 9
V-RHx2	11 88.82	==	87.67 9
V-My	11 4.31	==	4.35 9
V-Mx	11 8.31	<<	8.41 9

Subfiles→	Mal 1	Mal 2	
Var:	vhg Sdev	Sdev	So
V-Ast	18 3.88	3.99	3.9
V-WSx	18 0.17	0.11	0.1
V-WSy	18 0.16	0.04	0.1
V-Hdl	18 14.17	13.11	13.7
V-RVx1	18 0.34	0.20	0.3
V-RVx2	18 0.28	0.37	0.3
V-RVy	18 0.24	0.24	0.2
V-ExcX	18 1.98	2.29	2.1
V-ExcY	18 1.33	1.45	1.4
V-DDx1	18 0.15	0.15	0.2
V-DDx2	18 0.16	0.14	0.2
V-RHx1	18 12.24	7.40	10.4
V-RHx2	18 9.85	9.10	9.5
V-My	18 0.07	0.06	0.1
V-Mx	18 0.08	0.05	0.1

Onderzoek naar verschillen
tussen de subfiles.
[t-TOETS tav gemiddelden bij een
betrouwbaarheid van 95%(eenz.)]

Significant verschillende
gemiddelden zijn aangegeven mbv
>> tussen de kolommen

Onderzocht werd de DATA-file:

** D14-372GH/123 N.M. **

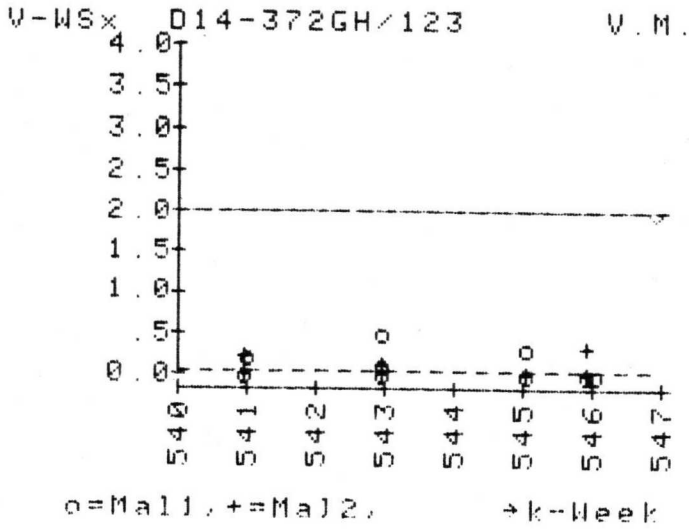
Subfiles→	Mal 1		Mal 2
Var.:	n Gem.:		Gem.: n
N-Ast	11 -1.56		-1.00 9
N-WSx	11 0.07		0.08 9
N-WSy	11 0.12		0.03 9
N-Hdl	11 -0.14		1.60 9
N-RVx1	11 0.51		0.42 9
N-RVx2	11 0.47		0.41 9
N-RVy	11 0.50		0.53 9
N-ExcX	11 -0.57		-0.57 9
N-ExcY	11 0.08		0.33 9
N-DDx1	11 1.15		1.06 9
N-DDx2	11 1.11		1.07 9
N-RHx1	11 92.27		88.56 9
N-RHx2	11 94.73		92.56 9
N-My	11 4.00		4.03 9
N-Mx	11 8.30	<<	8.41 9
N-Igas	11 0.10		0.10 9
N-Vco	11 75.85		73.50 9
N-Vg3	11 532.09	==	533.89 9
N-Ibx	11 49.30	==	46.54 9

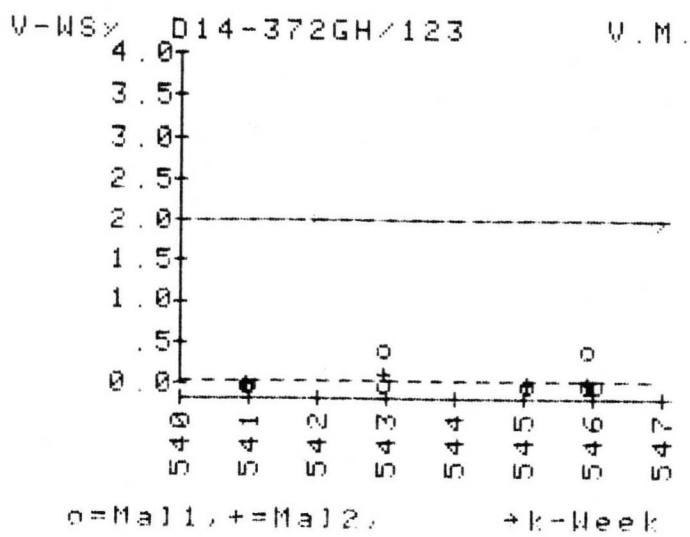
Subfiles→	Mal 1	Mal 2	
Var:	vhg Sdev	Sdev	So
N-Ast	18 3.20	3.17	3.2
N-WSx	18 0.08	0.14	0.1
N-WSy	18 0.23	0.05	0.2
N-Hdl	18 5.21	6.29	5.7
N-RVx1	18 0.20	0.18	0.2
N-RVx2	18 0.18	0.23	0.2
N-RVy	18 0.22	0.19	0.2
N-ExcX	18 0.22	0.38	0.3
N-ExcY	18 0.21	0.25	0.2
N-DDx1	18 0.18	0.14	0.2
N-DDx2	18 0.23	0.17	0.2
N-RHx1	18 5.59	4.59	5.2
N-RHx2	18 6.10	4.28	5.4
N-My	18 0.04	0.03	0.0
N-Mx	18 0.09	0.06	0.1
N-Igas	18 0.00	0.00	0.0
N-Vco	18 4.95	5.75	5.3
N-Vg3	18 4.11	2.67	3.5
N-Ibx	18 16.58	20.75	18.6

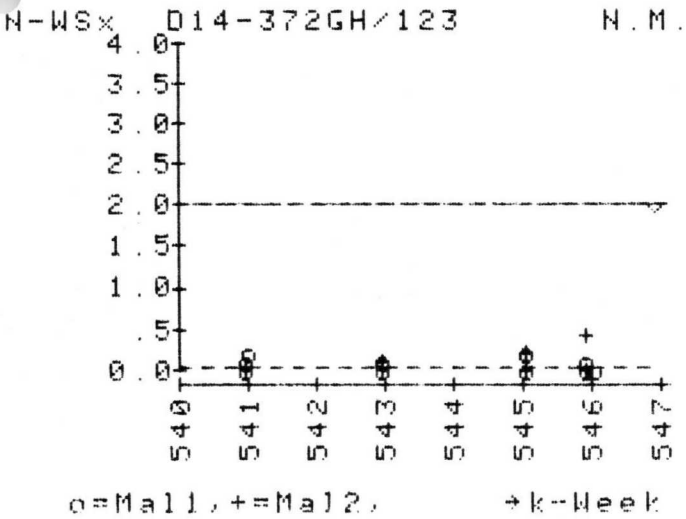
Tom. - Ibx gem. laag door uitval
in laatste 2 wkn.
- vanaf wk. 45 gemeten met
nieuwe spoel.

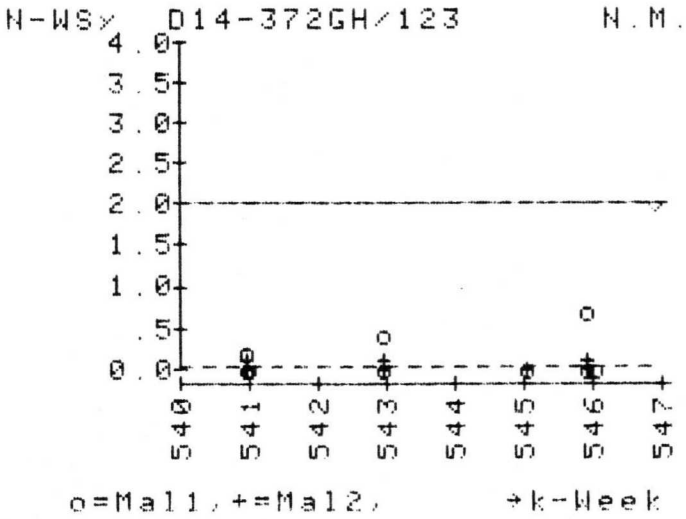
Kopie: HH. Koppelmans
Sieben
Vleeschouwers

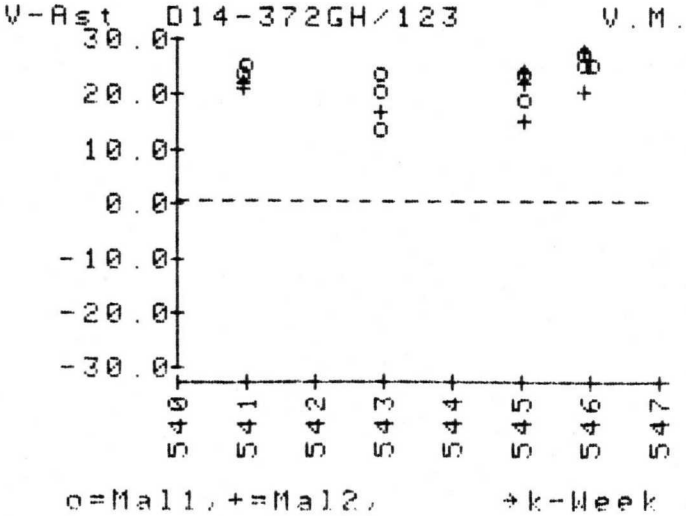
9-12-'85
W. Thiessen

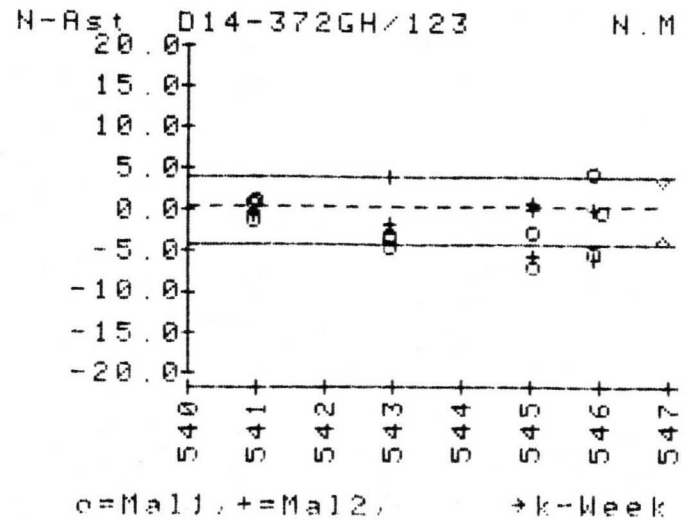

V-WSx D14-372GH/123 V.M.
o=Mal1,+=Mal2, →k-Week

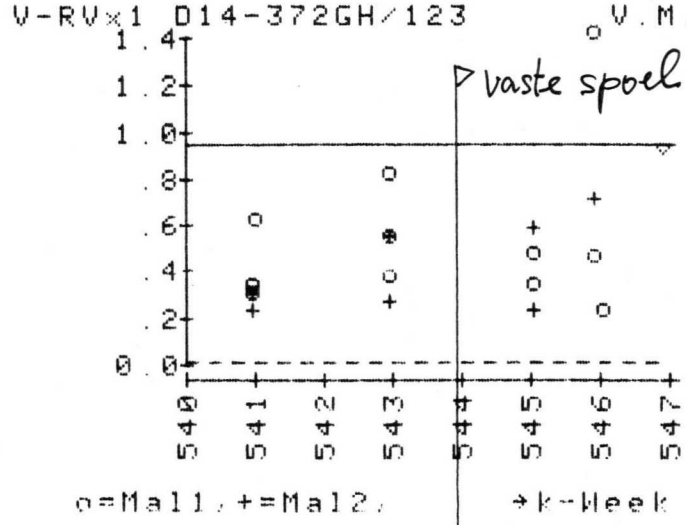

V-WSy D14-372GH/123 V.M.
o=Mal1,+=Mal2, →k-Week

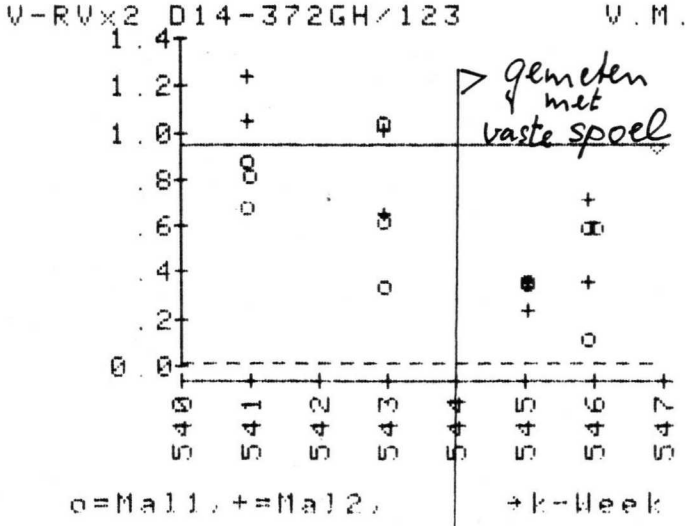

N-WSx D14-372GH/123 N.M.
o=Mal1,+=Mal2, →k-Week

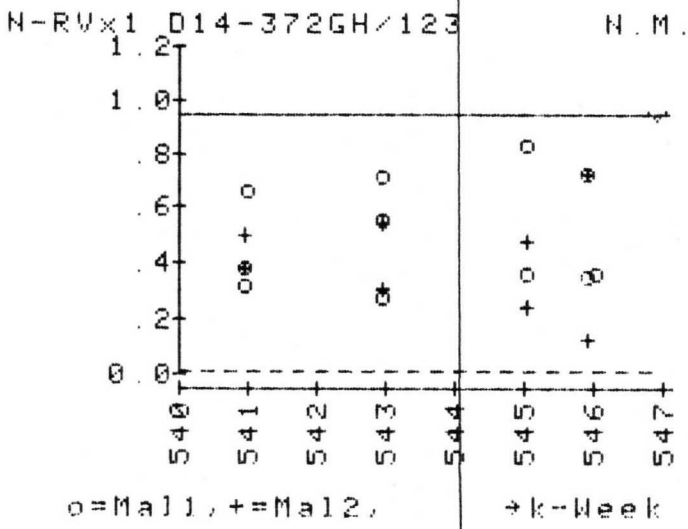

N-WSy D14-372GH/123 N.M.
o=Mal1,+=Mal2, →k-Week

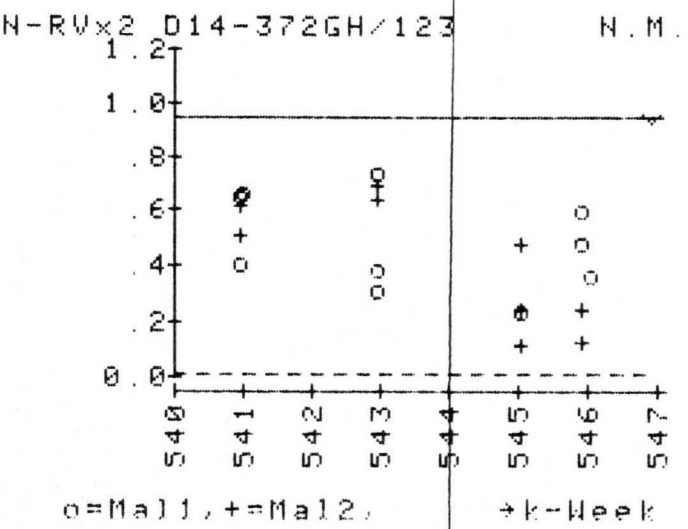

V-Ast D14-372GH/123 V.M.
o=Mal1,+=Mal2, →k-Week

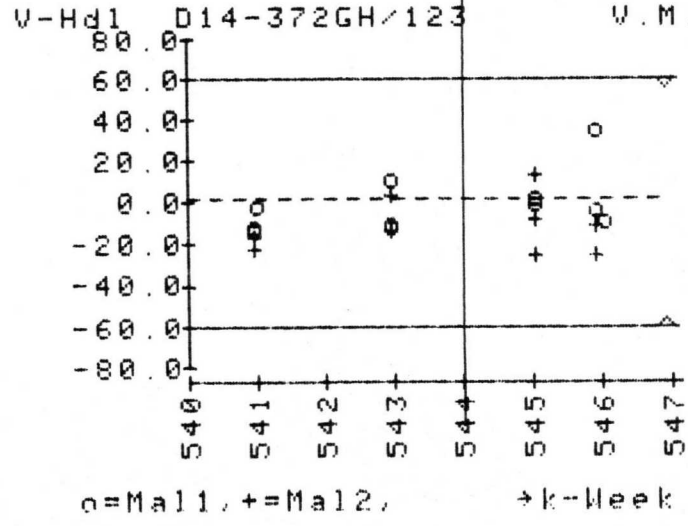

N-Ast D14-372GH/123 N.M.
o=Mal1,+=Mal2, →k-Week

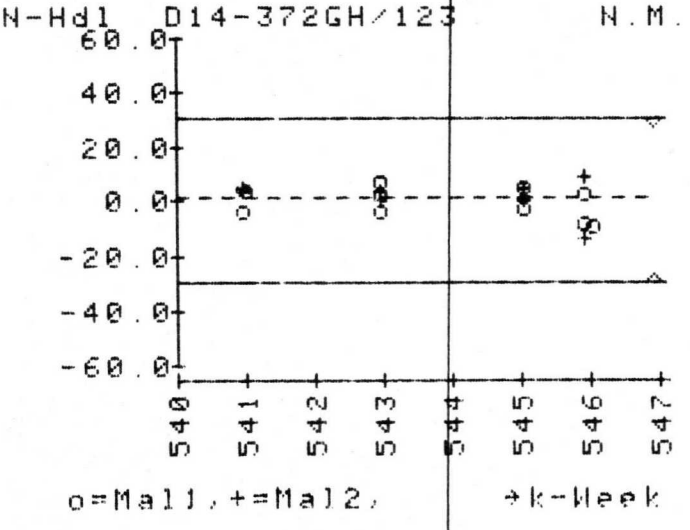

V-RVx1 D14-372GH/123
V.M.
vaste spoel
o=Mal1, +=Mal2,
→k-Week

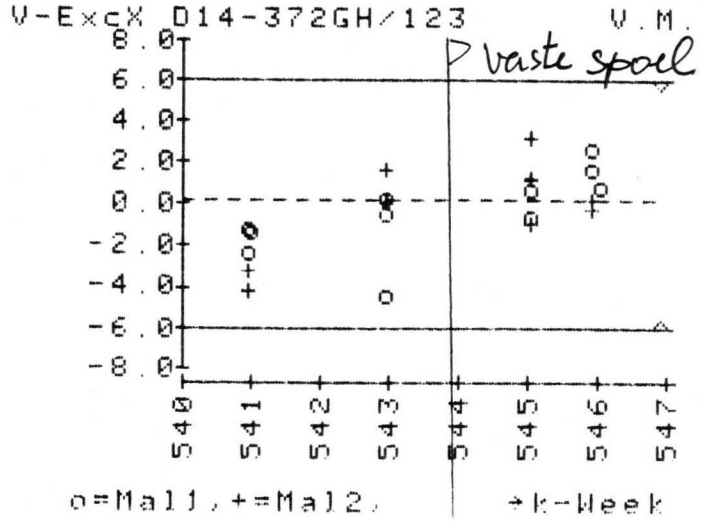

V-RVx2 D14-372GH/123
V.M.
gemeten met vaste spoel
o=Mal1, +=Mal2,
→k-Week

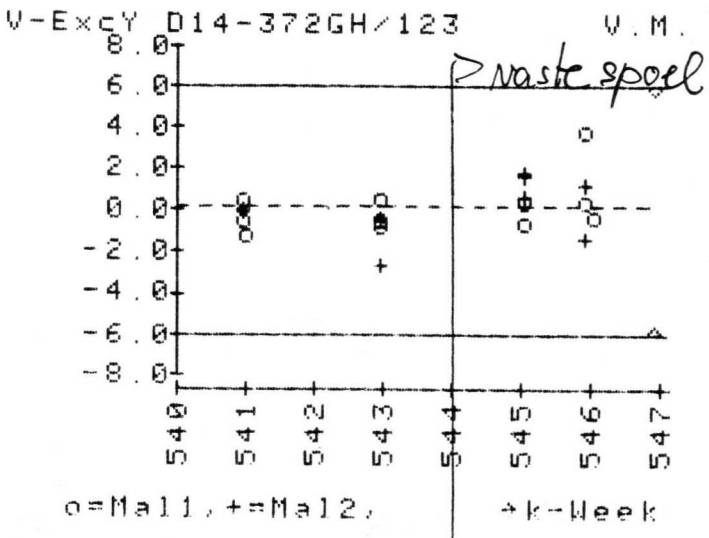

N-RVx1 D14-372GH/123
N.M.
o=Mal1, +=Mal2,
→k-Week

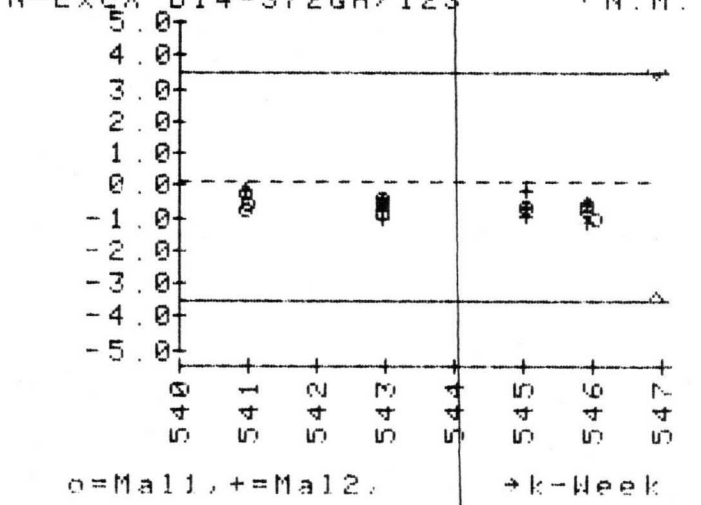

N-RVx2 D14-372GH/123
N.M.
o=Mal1, +=Mal2,
→k-Week

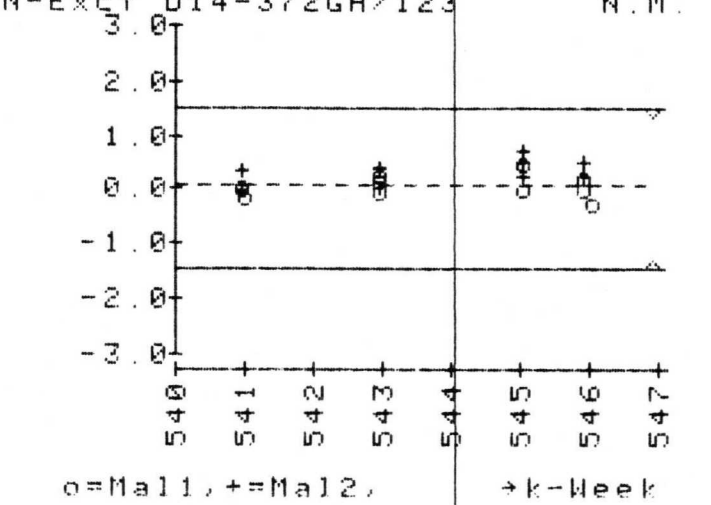

V-Hd1 D14-372GH/123
V.M.
o=Mal1, +=Mal2,
→k-Week

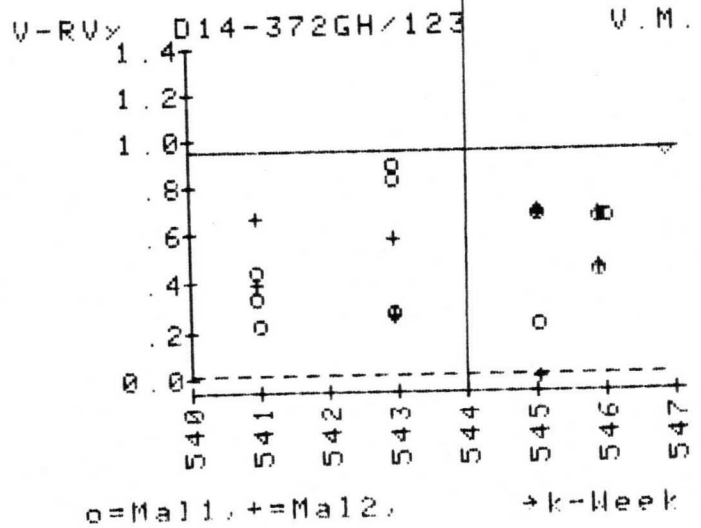

N-Hd1 D14-372GH/123
N.M.
o=Mal1, +=Mal2,
→k-Week

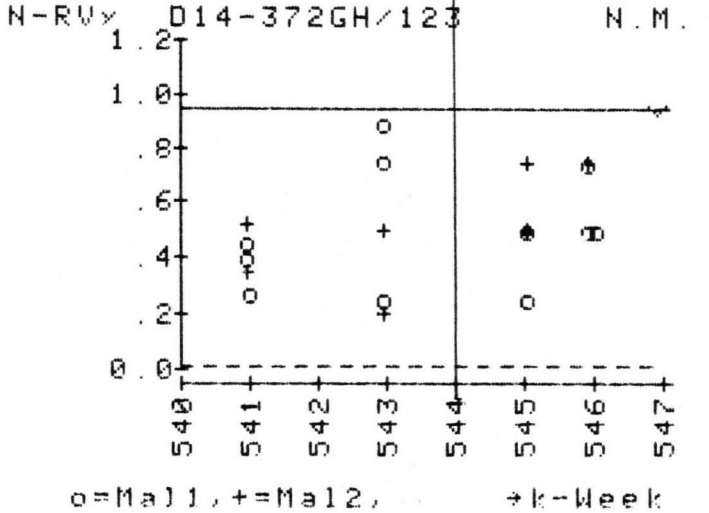

V-ExcX D14-372GH/123
V.M.
vaste spoel
o=Mal1, +=Mal2,
→k-Week


V-ExcY D14-372GH/123
V.M.
vaste spoel
o=Mal1, +=Mal2,
→k-Week

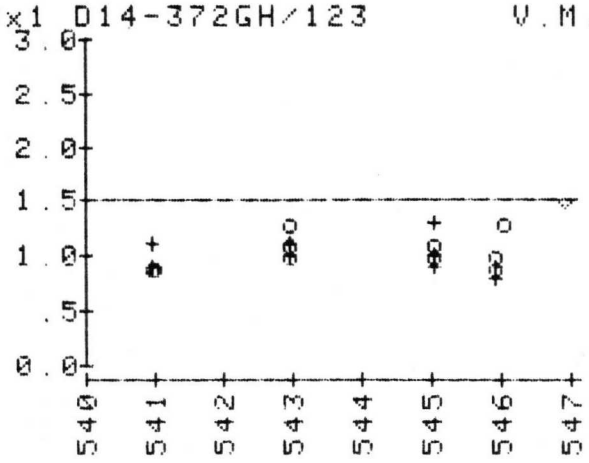

N-ExcX D14-372GH/123
N.M.
o=Mal1, +=Mal2,
→k-Week


N-ExcY D14-372GH/123
N.M.
o=Mal1, +=Mal2,
→k-Week


V-RVx D14-372GH/123
V.M.
o=Mal1, +=Mal2,
→k-Week

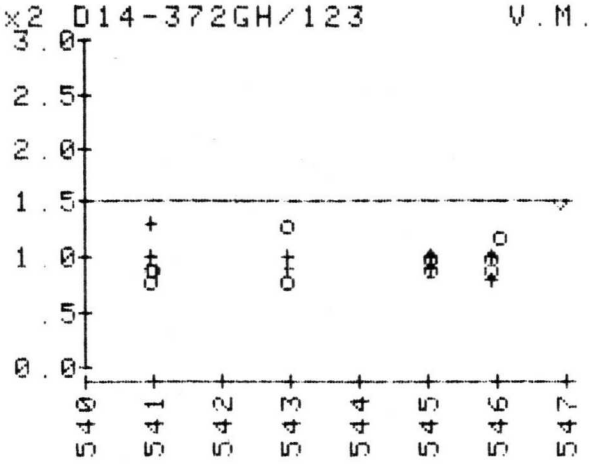

N-RVx D14-372GH/123
N.M.
o=Mal1, +=Mal2,
→k-Week

V-DDx1 D14-372GH/123 V.M.



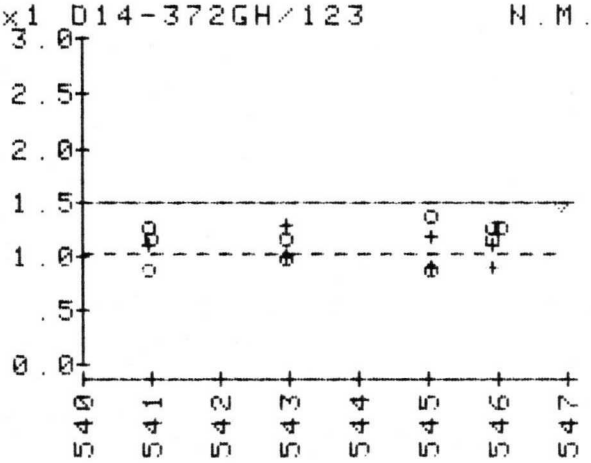
o=Mal1, +=Mal2, →k-Week

V-DDx2 D14-372GH/123 V.M.



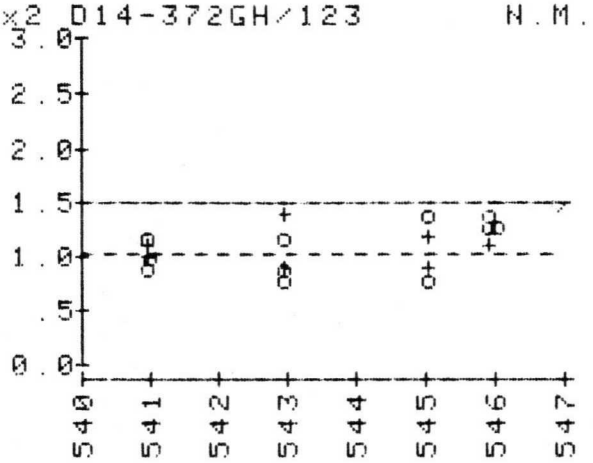
o=Mal1, +=Mal2, →k-Week

N-DDx1 D14-372GH/123 N.M.



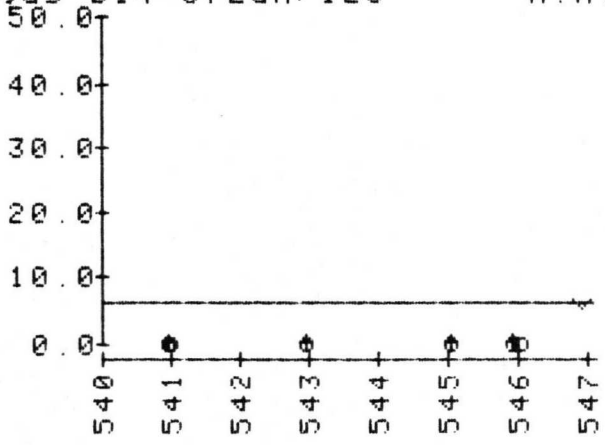
o=Mal1, +=Mal2, →k-Week

N-DDx2 D14-372GH/123 N.M.



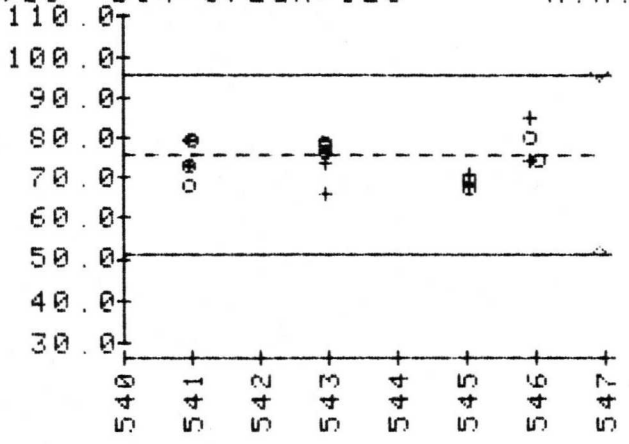
o=Mal1, +=Mal2, →k-Week

N-Igas D14-372GH/123 N.M.

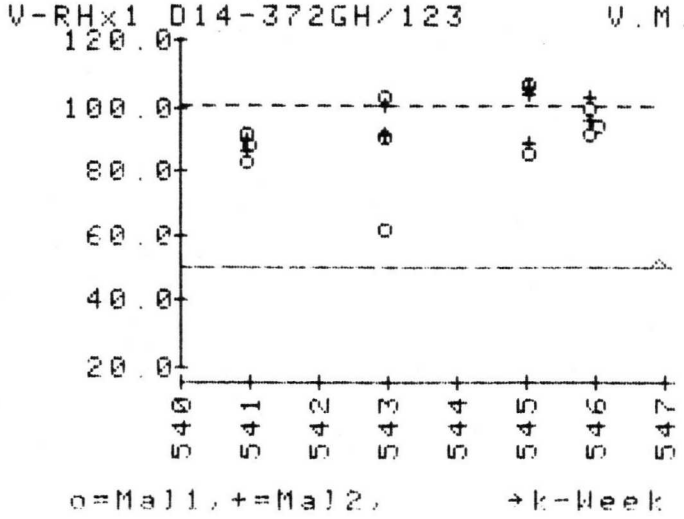


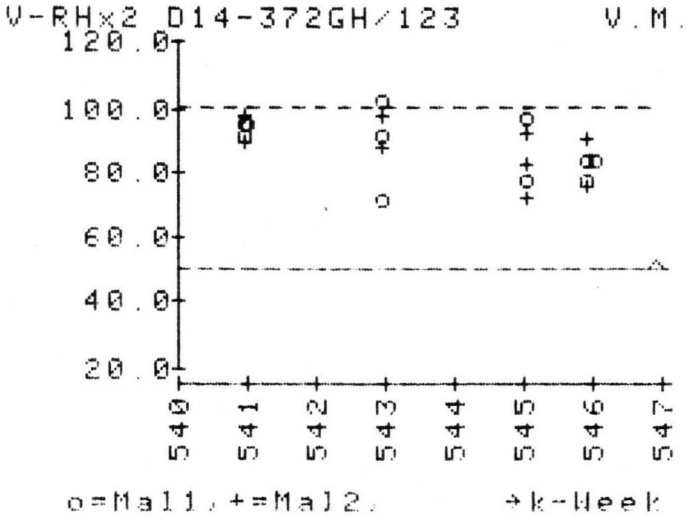
o=Mal1, +=Mal2, →k-Week

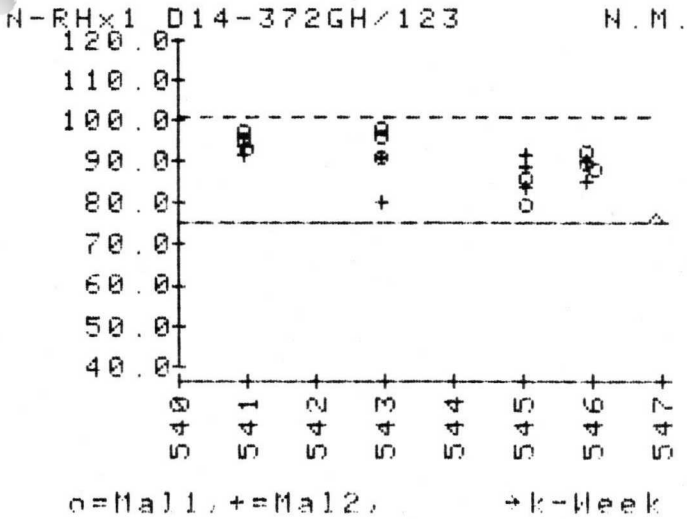
N-Vco D14-372GH/123 N.M.

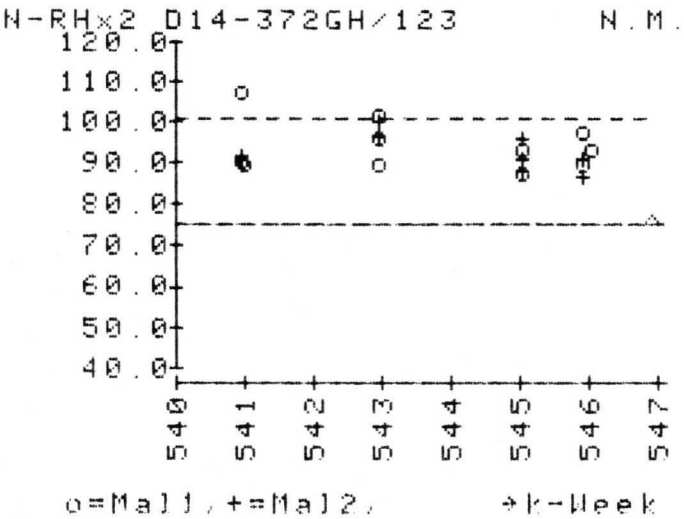


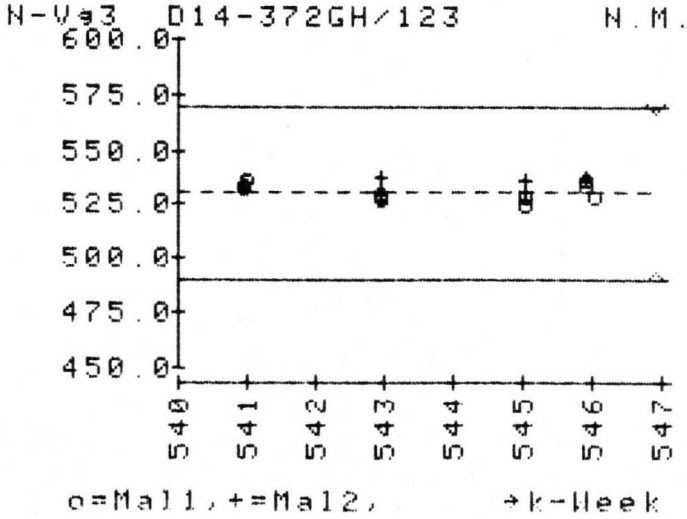
o=Mal1, +=Mal2, →k-Week

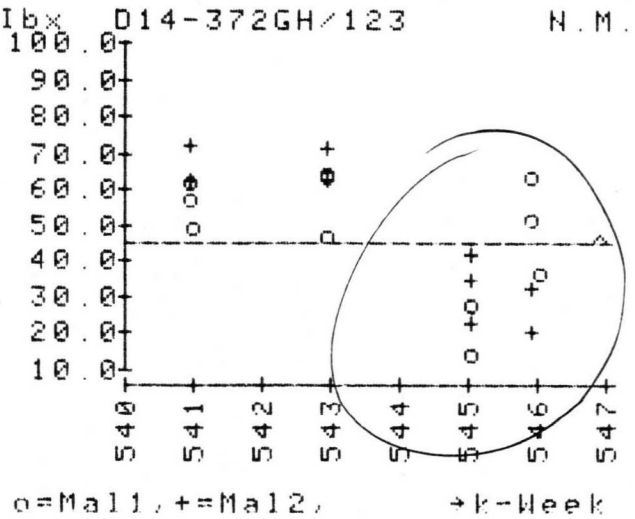

V-RHx1 D14-372GH/123 V.M.
120.0
100.0
80.0
60.0
40.0
20.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week

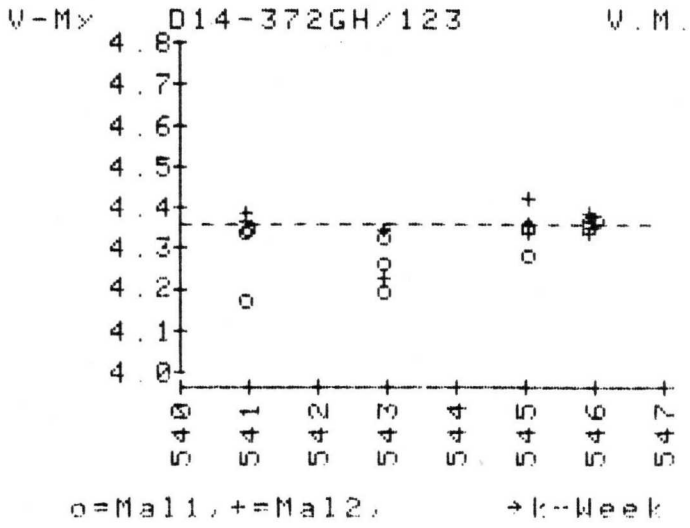

V-RHx2 D14-372GH/123 V.M.
120.0
100.0
80.0
60.0
40.0
20.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week

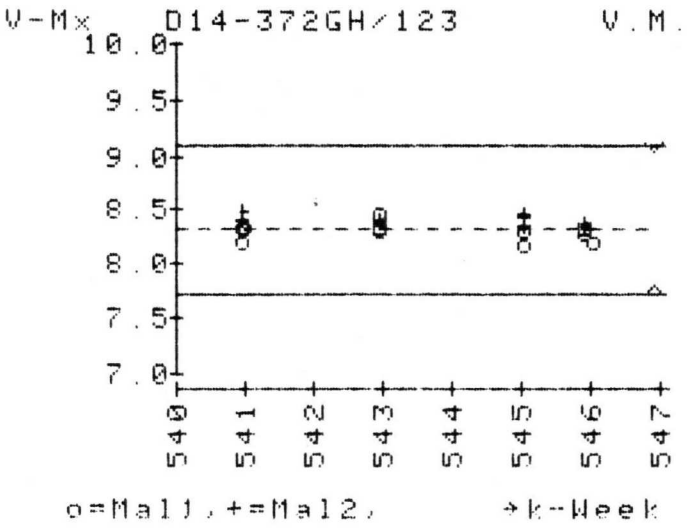

N-RHx1 D14-372GH/123 N.M.
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week

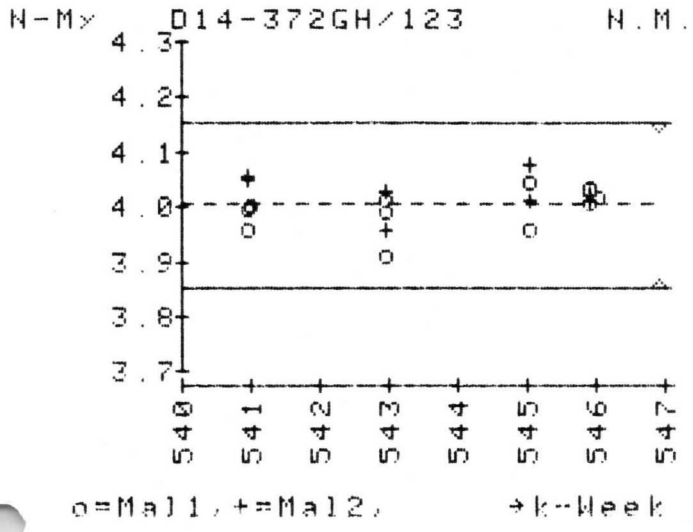

N-RHx2 D14-372GH/123 N.M.
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week

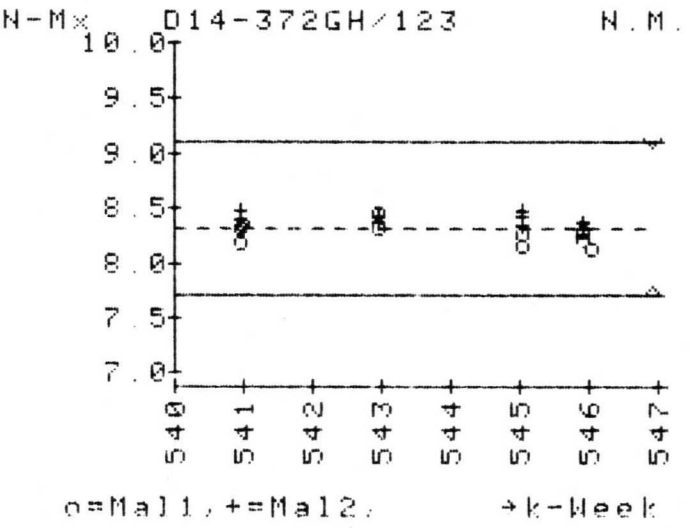

N-Ve3 D14-372GH/123 N.M.
600.0
575.0
550.0
525.0
500.0
475.0
450.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week


N-Ibx D14-372GH/123 N.M.
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week


V-Mx D14-372GH/123 V.M.
4.8
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week


V-Mx D14-372GH/123 V.M.
10.0
9.5
9.0
8.5
8.0
7.5
7.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week


N-Mx D14-372GH/123 N.M.
4.3
4.2
4.1
4.0
3.9
3.8
3.7
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week


N-Mx D14-372GH/123 N.M.
10.0
9.5
9.0
8.5
8.0
7.5
7.0
540 541 542 543 544 545 546 547
o=Mal1,+=Mal2, →k-Week

D14-370 : TONVERTEKENING
2 VERSUS 4 STAAFJES

1. INLEIDING

Op basis van de proceskontrole-metingen (na magn.) werd het "ton/kussen"-gedrag van beide versies gekwantificeerd.

n = 10 buizen/versie (zie ook bijl. 1)

2. RESULTAAT (samengevat in bijl. 2)

a) 4-staafjes : bijl. 3 + 5

Er is een sterk significant verschil in tonvertekening tussen links (0,1) en rechts (0,33 mm).
In Y-richting is dit veel minder duidelijk.

b) 2-staafjes : bijl. 4 + 5

Hier speelt hetzelfde gedrag, n.l.:
X-ri li 0,22 mm
Y-ri re 0,39 mm
(Y-ri: geen verschil)

c) 2 versus 4 staafjes

Uit a en b volgt: Identiek systematisch verschil in X-richting binnen beide constructies.
De gemiddelde ton/kussenwaarden zijn: (tussen de constructies)

ton	4 st.	2 st.
X-ri	0,21	0,30 mm*
Y-ri	0,1	0,09 mm

(* = significant)

3. WENSPLAATJE

Symmetrisch rondom: een zeer lichte tonvertekening.
Dit werkt nl. iets anticiperend op het kusseneffekt welke voortvloeit uit gebruikelijke $V\bar{x} > V\bar{y}$ in de praktijk.

4. CHECKLIST BIJ EEN AANPAK

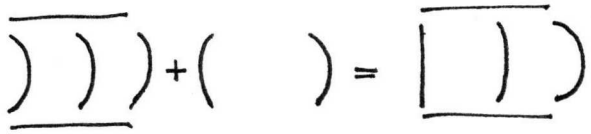
Deze is zeker niet volledig: zie daarom ook KHR-20/84-05-029 ! van Dhr. Koppelmans.

4.1 Invloed op ton/kussen rondom :

- boldrukhoogte (lager ---> meer ton)
- elektrisch bedrijven (positief Vg5 t.o.v. $V\bar{x}$ maakt ton, regelkarakteristiek ~ Δ Vg5 = 10 V <---> Δ t/k = 0,1 mm)
- hol/bolheid X-platen

4.2 Invloeden op asymmetrie van t/k :

a) Niet parallel zijn van Y-platen maakt een kromme Y-lijn in het schermmidden,: Y-platen niet parallel + t/k = asym. t/k



b) Asymmetrie van gaaskooi t.o.v. X-platen.

c) Asymmetrie van bolgaas in ballon.

Deze fout is herkenbaar doordat hier ook de z.g. trap Y bij optreedt (gebeurt bij a niet).

Bestudering van de RV plotjes kan dus helpen bij het vinden van meest waarschijnlijke oorzaken resp. hoogste bijdrages aan asymmetrisch t/k-gedrag.

A.G. Sieben

ELCOMA	KWALITEITSLAB. OSC. BZN. PHILIPS HEERLEN		
	KHR-89/SB-833	3	1985.06.28

Kopie: H.H. Zeppenfeld
Koppelmans
Aerssens
Geurts
Vleeschouwers
Cobben
Thiessen

bijl: (1)

Projektnaam: TON/KUS.2-STAAFJES

Data file naam: DATA
Aantal waarn.: 10 Aantal variabelen: 12
Nrs. en Namen van de variabelen :

# 1=	4Xli	# 5=	2Xli	# 9=	4Xt/k
# 2=	4Xre	# 6=	2Xre	#10=	4Yt/k
# 3=	4Ybo	# 7=	2Ybo	#11=	2Xt/k
# 4=	4Yon	# 8=	2Yon	#12=	2Yt/k

Geen SUBFILES!

Metingen aan

4-STAAFJES	2 STAAFJES
515 0197	576 1723
0159	1714
0179	0919
0302	0416
0177	0427
511 0476	507 0422
0409	0452
0519	0426
0400	0466
0465	0430.

Var namen : 4 = 4 STAAFJES
2 = 2 "
X = X-richting

li = links re = rechts
on = onder bo = boven

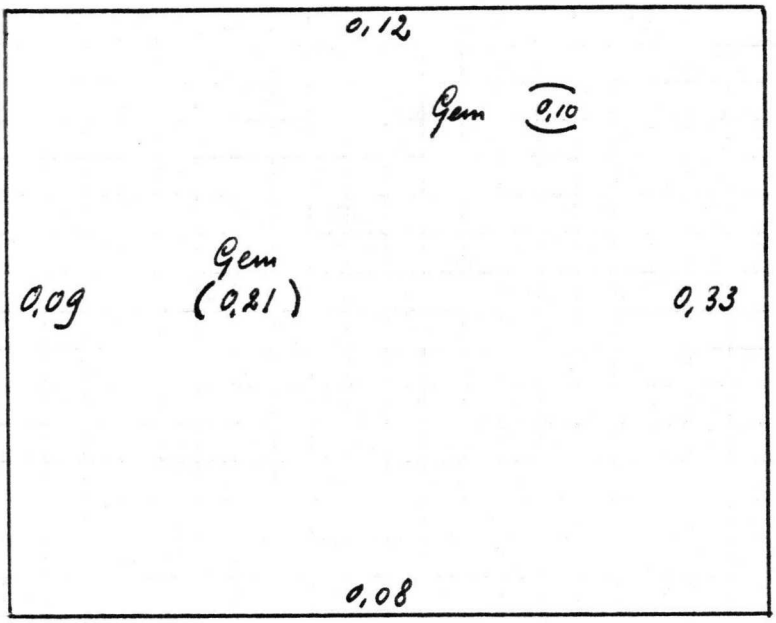
t/k = gem: $\frac{li+re}{2}$ resp $\frac{on+bo}{2}$

D14-370: Toonverteken ing

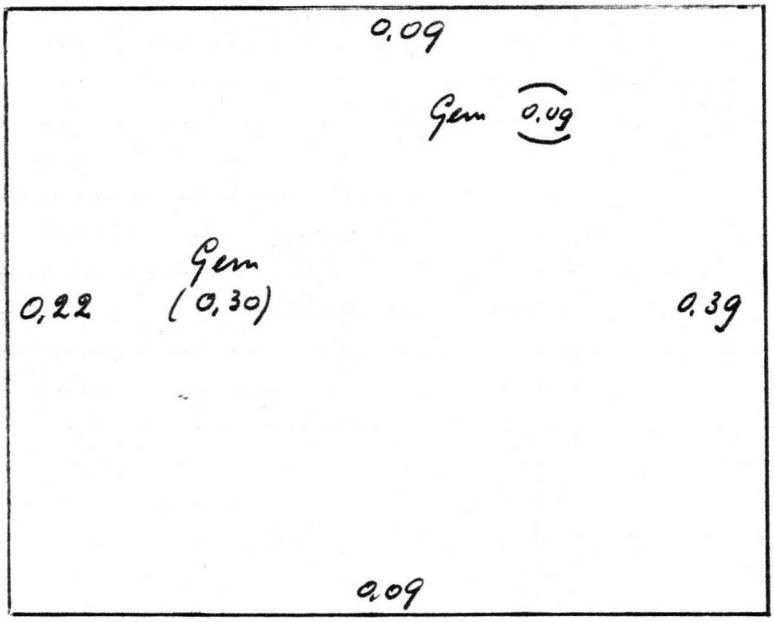
PHILIPS

bijl. 2

4-staafjes



2- STAAFJES



4 ST- X * * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

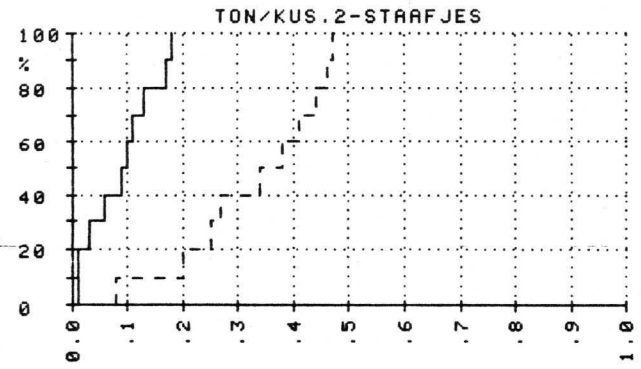
(3)

Subfile	geen	geen		
Var.:	4Xli	4Xre		Toets m.b.t. VARIANTIES
Xgem=	.09	.33		Fisher's F= 4.34
Sdev=	.06	.13		So= .1
n =	10	10		vhg(teller)= 9
Max.=	.18	.47		vhg(noemer)= 9
Min.=	.01	.08		
				Toets m.b.t. GEMIDDELDEN
Range=	.17	.39		Ho: mu1-mu2= 0
Xgem+3s=	.27	.71		Ongelyke var.: t=-5.38 met vhg= 14
Xgem-3s=	-.1	-.05		Gelyke var.: t=-5.38 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.76 (vhg= 14) ,resp t> 1.734 (vhg= 18)

4-ST

X-ri



→ mm. ton

lyn=4Xli (n= 10) ---=4Xre (n= 10)

---

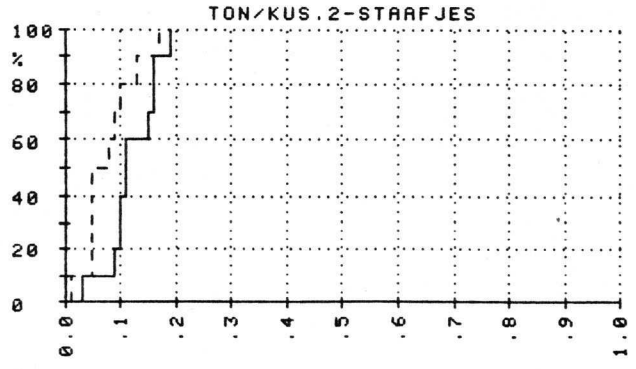
4 ST- y * * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

Subfile	geen	geen		
Var.:	4Ybo	4Yon		Toets m.b.t. VARIANTIES
Xgem=	.12	.08		Fisher's F= 1.03
Sdev=	.05	.05		So= .05
n =	10	10		vhg(teller)= 9
Max.=	.19	.17		vhg(noemer)= 9
Min.=	.03	.01		
				Toets m.b.t. GEMIDDELDEN
Range=	.16	.16		Ho: mu1-mu2= 0
Xgem+3s=	.26	.22		Ongelyke var.: t= 2.03 met vhg= 20
Xgem-3s=	-.02	-.06		Gelyke var.: t= 2.03 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.725 (vhg= 20) ,resp t> 1.734 (vhg= 18)

4 ST.

Y-ri



→ mm ton.

lyn=4Ybo (n= 10) ---=4Yon (n= 10)

2 ST- X * * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

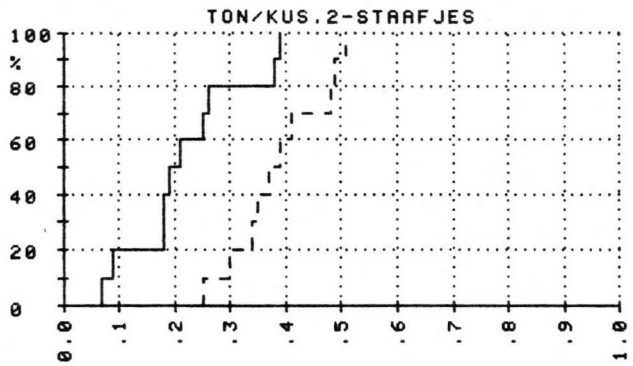
Subfile	geen	geen		Toets m.b.t. VARIANTIES
Var.:	2X1i	2Xre		
Xgem=	.22	.39		Fisher's F= 1.55
Sdev=	.11	.09		So= .1
n =	10	10		vhg(teller)= 9
Max.=	.39	.51		vhg(noemer)= 9
Min.=	.07	.25		
Range=	.32	.26		Toets m.b.t. GEMIDDELDEN
				Ho: mu1-mu2= 0
Xgem+3s=	.54	.64		Ongelyke var.: t=-3.94 met vhg= 19
Xgem-3s=	-.1	.13		Gelyke var.: t=-3.94 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.729 (vhg= 19) ,resp t> 1.734 (vhg= 18)

(4)

2-ST.

X-ri



→ mm ton

lyn=2X1i (n= 10) ---=2Xre (n= 10)

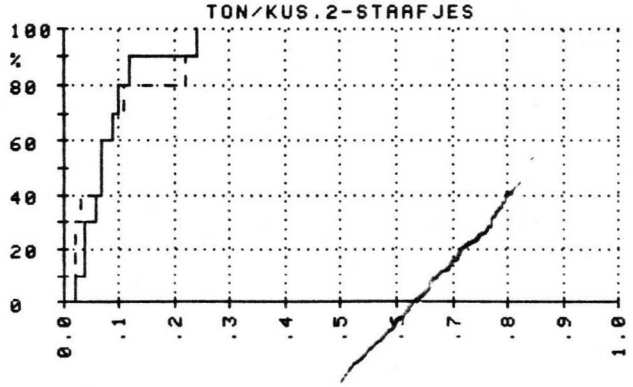
2-ST Y * * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

Subfile	geen	geen		Toets m.b.t. VARIANTIES
Var.:	2Ybo	2Yon		
Xgem=	.09	.09		Fisher's F= 1.69
Sdev=	.06	.08		So= .07
n =	10	10		vhg(teller)= 9
Max.=	.24	.24		vhg(noemer)= 9
Min.=	.02	.02		
Range=	.22	.22		Toets m.b.t. GEMIDDELDEN
				Ho: mu1-mu2= 0
Xgem+3s=	.27	.33		Ongelyke var.: t=-.12 met vhg= 19
Xgem-3s=	-.1	-.15		Gelyke var.: t=-.12 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.729 (vhg= 19) ,resp t> 1.734 (vhg= 18)

2 ST

y-ri



→ mm ton.

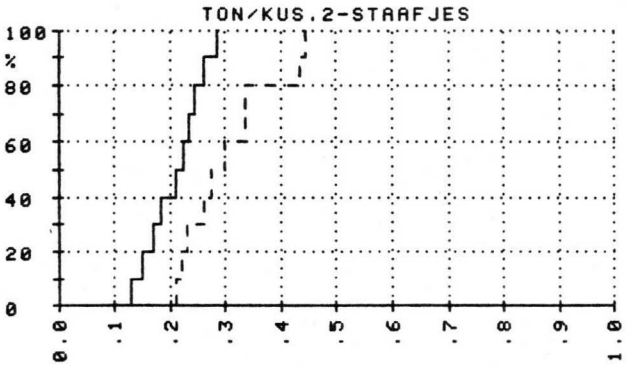
lyn=2Ybo (n= 10) ---=2Yon (n= 10)

4↔2 X

* * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

Subfile	geen	geen	Toets m.b.t. VARIANTIES
Var.:	4Xt/k	2Xt/k	
Xgem=	.21	.3	Fisher's F= 2.82
Sdev=	.05	.08	So= .07
n =	10	10	vhg(teller)= 9
Max.=	.29	.45	vhg(noemer)= 9
Min.=	.13	.21	
Range=	.16	.24	Toets m.b.t. GEMIDDELDEN Ho: mu1-mu2= 0
Xgem+3s=	.36	.56	Ongelyke var.: t=-3.08 met vhg= 16
Xgem-3s=	.06	.05	Gelyke var.: t=-3.08 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.746 (vhg= 16) ,resp t> 1.734 (vhg= 18)



lyn=4Xt/k (n= 10) ---=2Xt/k (n= 10)

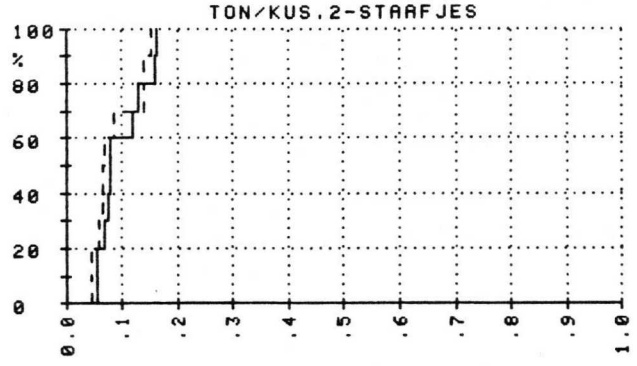
---

4 ↔ 2 Y

* * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

Subfile	geen	geen	Toets m.b.t. VARIANTIES
Var.:	4Yt/k	2Yt/k	
Xgem=	.1	.09	Fisher's F= 1.02
Sdev=	.04	.04	So= .04
n =	10	10	vhg(teller)= 9
Max.=	.17	.16	vhg(noemer)= 9
Min.=	.06	.05	
Range=	.11	.11	Toets m.b.t. GEMIDDELDEN Ho: mu1-mu2= 0
Xgem+3s=	.22	.21	Ongelyke var.: t= .64 met vhg= 20
Xgem-3s=	-.03	-.04	Gelyke var.: t= .64 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.725 (vhg= 20) ,resp t> 1.734 (vhg= 18)



lyn=4Yt/k (n= 10) ---=2Yt/k (n= 10)

D14-370 GH/123 - BARRELDISTORTION

1. INTRODUCTION

In June 26, 1985, a complaint has been received from HAMEG about excessive barreldistortion of ~ 1 mm in all 4 directions.
Is was also mentioned that the adjustability of the geometry was bad or even not possible.
This complaint was related to the evaluation of the first samples of the 2-rod gun.
One sample-tube (gunnr. 520 1285) was handcarried to Heerlen by Mr. Dürner.

2. INVESTIGATION

2 items have been investigated, viz.:

a) The adjustability of the tubes under the "Hameg" application conditions.

b) Typical differences between the 4- and 2-rod constructions (Philips conditions 2,2/16,5 kV).

ad a) Adjustability of geometry

Conditions:
- Vk = 1.800 V
- Vg2 = 0
- $V\bar{x}$ = + 35 V
- $V\bar{y}$ = + 25 V
- V_{EHT} = 12,2 kV
- Vg5 in 5 steps: - 50, - 25, 0, 25, 50 V.

Measured:
- Geometry (see plots in app. 1-2-3).
- Vg4 (astigm.).

From the geometry-plots, the average barreldistortion-component has been related to the correction-voltage Vg5.

The results are shown in app. 4-5.

From this relation, the best average condition seems to be:

$$Vg5 \sim 0\ V\ (= -\ 35\ V\ w.r.t.\ V\bar{x})$$

This corresponds with an average value of Vg4 ~ + 35 V (= 0 V w.r.t. $V\bar{x}$).

If no correction would be applied, barreldistortion under the HAMEG conditions is ~ 0,4 mm.

ad b) Differences between the 4 and 2-rod gun

The distribution of the average barreldistortion of 10 tubes of each construction is given in app. 6.

X-dir.	Average	$S_{dev.}$
4 rod	0,21 mm	0,05 mm
2 rod	0,30 mm	0,08 mm

3. CONCLUSION

- The 2-rod gun shows a slightly more barreldistortion (0,3 versus 0,2 mm) in X-direction when compared with the 4-rod gun-construction.
- The adjustability of the barreldistortion in the HAMEG application can be characterized best with:
  distortion: Δ = 0,1 mm/Δ Vg5 = 10 V
  The average starting position for a nominal tube is:
  Vg5 = 0 V
  Vg4 = + 35 V
  } at $V\bar{x}$ = + 35 V and Vy = + 25 V
  Thus, the ranges should be at least:
  Vg5 = 0 V $\pm$ 50 V
  Vg4 = + 35 V $\pm$ 35 V
  } at $V\bar{x}$ = + 35 V and Vy = + 25 V

A.G. Sieben

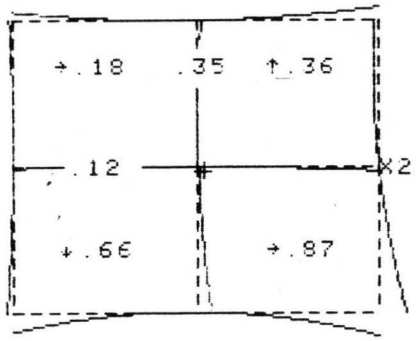
E L C O M A	QUALITY LAB. PHILIPS HEERLEN		
	KHR-89/SB-832	3	1985.06.28

Copy to messrs.: Rabe (2x)
Zeppenfeld
Koppelmans
Modderman
Dürner
Kobelentz
Vleeschouwers
Geurts
Thiessen (RfP)
Aerssens

Vrijgave Buis

Type : 115D14GH/123
K.nr.: 5201306 N.M.

Vgs: -50 V
Vast: +66 V



Mx,y:X=6.69 Y=3.04 V/cm
Exc.:X=1.33 Y=-1.14 mm
Hdl=90.22 !MaxRV=.87 4mm
(Schaal:1 div =10 mm)

ANALYSE RASTERVERVORMING (mm)

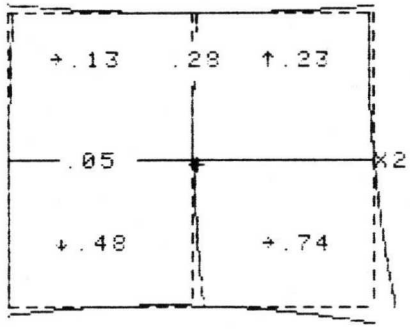
X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .05 /	
Tgv H.d.l.		\ -.31 \	
Tgv)(mid		(.22 (	
Ton/Kussen	) -.35		.10 (
Trapezium	/ .35		-.61 \
Gemeten:	.18	.35	.87

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .07 /	
Tgv)(mid		) -.09)	
Ton/Kussen	) -.52		.39 (
Trapezium	/ .03		-.20 \
Gemeten:	.66	.12	.36

Maximale rastervert. = .87 mm

Type : 115D14GH/123
K.nr.: 5201306 N.M.

Vgs: -25 V
VAsb = +44,6V



Mx,y:X=6.8 Y=3.11 V/cm
Exc.:X=.95 Y=-1.23 mm
Hdl=90.16 !MaxRV=.74 3mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .04 /	
Tgv H.d.l.		\ -.22 \	
Tgv)(mid		(.19 (	
Ton/Kussen	) -.12		.03 (
Trapezium	/ .32		-.55 \
Gemeten:	.13	.28	.74

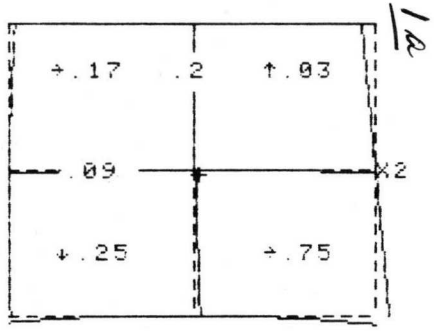
Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .05 /	
Tgv)(mid		) -.02)	
Ton/Kussen	) -.35		.23 (
Trapezium	/ .18		-.02 \
Gemeten:	.48	.05	.23

Maximale rastervert. = .74 mm

Type : 115D14GH/123
K.nr.: 5201306 N.M.

1a

15 = V
ast: 2 V



Mx,y:X=6.9 Y=3.19 V/cm
Exc.:X=.8 Y=-1.28 mm
Hdl=90.14 !MaxRV=.75 8mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .01 /	
Tgv H.d.l.		\ -.20 \	
Tgv)(mid		(.04 (	
Ton/Kussen	(.07		-.04)
Trapezium	/ .33		-.56 \
Gemeten:	.17	.20	.75

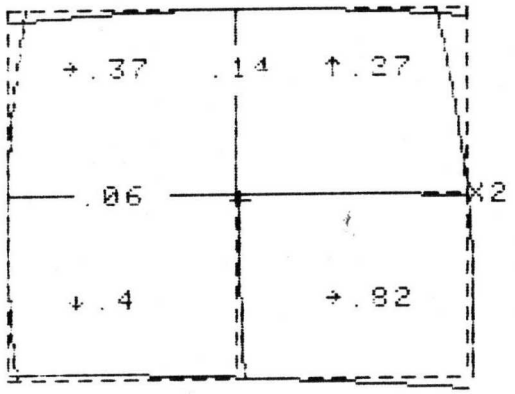
Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .01 /	
Tgv)(mid		) -.09)	
Ton/Kussen	) -.13		.11 (
Trapezium	/ .06		.03 /
Gemeten:	.25	.09	.03

Maximale rastervert. = .75 mm

Type : 115D14GH/123
K.nr.: 5201306 N.M.

Vgs:
+25V

Vast:
+14V



Mx.y:X=6.98 Y=3.28 V/cm
Exc.:X=.52 Y=-1.38 mm
Hdl=90.14 !MaxRV=.82 8mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		.05	
Tgv H.d.l.		-.19	
Tgv)(mid		.07	
Ton/Kussen	.21		-.37
Trapezium	.33		-.67
Gemeten:	.37	.14	.82

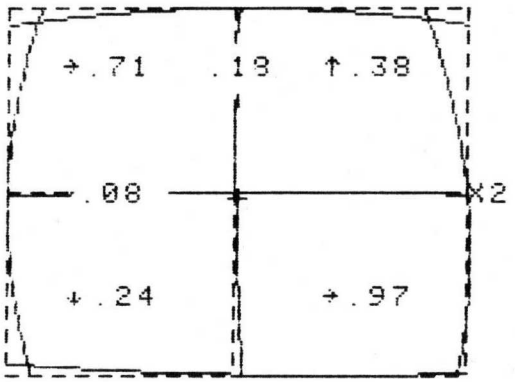
Y-richting	Onder	Midden	Boven
Tgv Rotat.		.06	
Tgv)(mid		-.03	
Ton/Kussen	-.04		-.20
Trapezium	.34		-.15
Gemeten:	.40	.06	.27

Maximale rastervert. = .82 mm

Type : 115D14GH/123
K.nr.: 5201306 N.M.

Vgs:
+5DV

Vast:
+4,4V.



Mx.y:X=7.08 Y=3.38 V/cm
Exc.:X=.42 Y=-1.54 mm
Hdl=90.07 !MaxRV=.97 4mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		-.02	
Tgv H.d.l.		-.09	
Tgv)(mid		.12	
Ton/Kussen	.50		-.70
Trapezium	.28		-.68
Gemeten:	.71	.18	.97

Y-richting	Onder	Midden	Boven
Tgv Rotat.		-.02	
Tgv)(mid		-.07	
Ton/Kussen	.20		-.30
Trapezium	.23		-.01
Gemeten:	.24	.08	.38

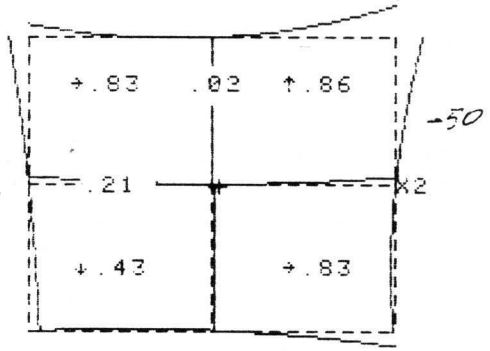
Maximale rastervert. = .97 mm

8b

Vrijgave buis

Type : 115D14GH/123
K.nr.: 5201077 N.M.

Vgs = -50V
Vast = +68,4V



Mx,y: X=6.76 Y=3.03 V/cm
Exc.: X=1.3 Y=-.69 mm
Hdl=90.02 MaxRV=.86 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

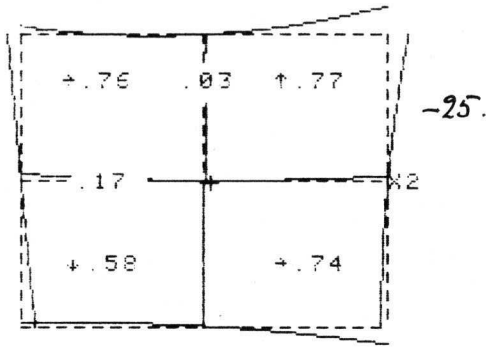
X-richting	Links	Midden	Rechts
Tav Rotat.		/ .01 /	
Tav H.d.l.		\ -.03 \	
Tav)(mid		(.01 (	
Ton/Kussen	) -.13		.34 (
Trapezium	\ -.81		.85 /
Gemeten:	.83	.02	.83

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .01 /	
Tav)(mid		(.21 (	
Ton/Kussen	) -.44		.40 (
Trapezium	/ .39		-.50 \
Gemeten:	.43	.21	.86

Maximale rastervert. = .86 mm

Type : 115D14GH/123
K.nr.: 5201077 N.M.

Vgs = -25V
Vast = 45,7V



Mx,y: X=6.85 Y=3.1 V/cm
Exc.: X=1.27 Y=-.91 mm
Hdl=90.01 MaxRV=.77 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

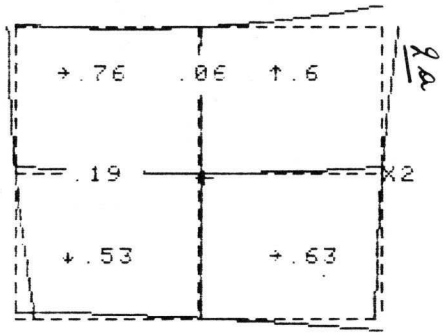
X-richting	Links	Midden	Rechts
Tav Rotat.		/ .04 /	
Tav H.d.l.		\ -.01 \	
Tav)(mid		(.01 (	
Ton/Kussen	(.00		.18 (
Trapezium	\ -.79		.72 /
Gemeten:	.76	.03	.74

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .05 /	
Tav)(mid		(.15 (	
Ton/Kussen	) -.34		.35 (
Trapezium	/ .53		-.60 \
Gemeten:	.58	.17	.77

Maximale rastervert. = .77 mm

Type : 115D14GH/123
K.nr.: 5201077 N.M.

Vgs = 0V
Vast = +34,1V



Mx,y: X=6.95 Y=3.19 V/cm
Exc.: X=1.16 Y=-1.31 mm
Hdl=90.01 MaxRV=.76 1mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		/ .01 /	
Tav H.d.l.		\ -.01 \	
Tav)(mid		(.06 (	
Ton/Kussen	(.11		.08 (
Trapezium	\ -.76		.63 /
Gemeten:	.76	.06	.63

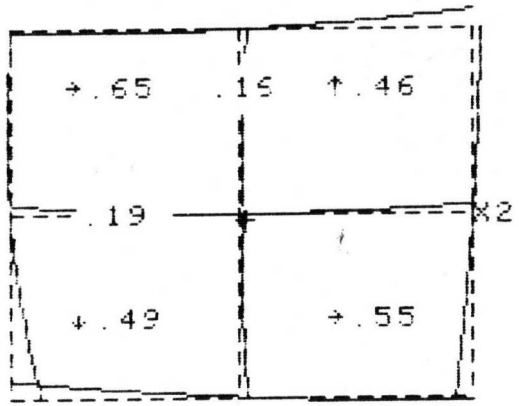
Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .02 /	
Tav)(mid		(.18 (	
Ton/Kussen	) -.26		.16 (
Trapezium	/ .52		-.52 \
Gemeten:	.53	.19	.60

Maximale rastervert. = .76 mm

Type : 115D14GH/123
K.nr.: 5201077 N.M.

Vgs
=+25V

Vast:
+15,5V



Mx,y:X=7.04 Y=3.28 V/cm
Exc.:X=1.13 Y=-1.7 mm
Hdl=90.01 !MaxRV=.65 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.01 \	
Tgv)(mid		(.16 (	
Ton/Kussen	(.19		-.25)
Trapezium	\ -.60		.57 /
Gemeten:	.65	.16	.55

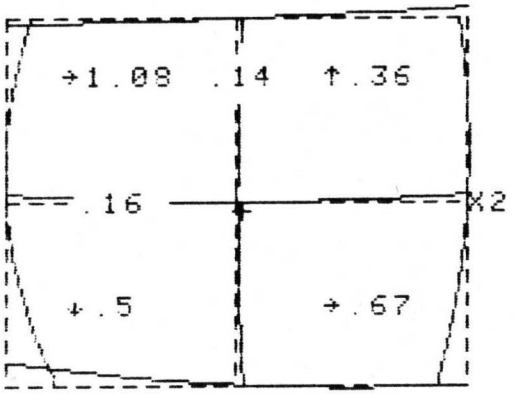
Y-richting	Onder	Midden	Boven
Tgv Rotat.		0.00	
Tgv)(mid		(.19 (	
Ton/Kussen	) -.07		.01 (
Trapezium	/ .49		-.46 \
Gemeten:	.49	.19	.46

Maximale rastervert. = .65 mm

Type : 115D14GH/123
K.nr.: 5201077 N.M.

Vgs:
+50V

Vast:
+1,3V



Mx,y:X=7.14 Y=3.38 V/cm
Exc.:X=1.05 Y=-1.92 mm
Hdl=90.02 !MaxRV=1.082mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.03 \	
Tgv)(mid		(.13 (	
Ton/Kussen	(.68		-.56)
Trapezium	\ -.53		.51 /
Gemeten:	1.08	.14	.67

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .01 /	
Tgv)(mid		(.16 (	
Ton/Kussen	(.09		-.10)
Trapezium	/ .50		-.36 \
Gemeten:	.50	.16	.36

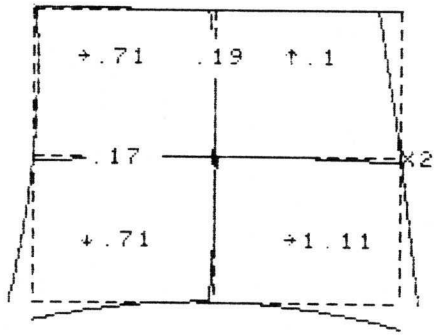
Maximale rastervert. = 1.08 mm
UITVAL RASTERVERTEKENING !!!

18

Buis van klant.

Type : 115D14GH/123
K.nr.: 5201285 N.M.

Vgs -50V
Vast. +70,7



Mx.,y:X=6.74 Y=3.09 V/cm
Exc.:X=-.72 Y=-.21 mm
Hdl=90.01 !MaxRV=1.11 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

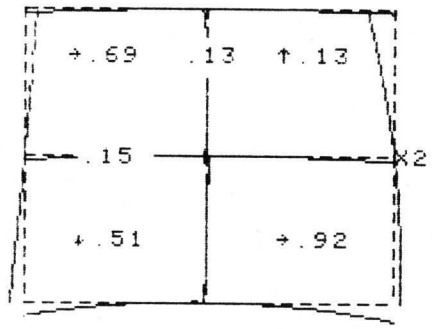
X-richting	Links	Midden	Rechts
Tgv Rotat.		-.01	
Tgv H.d.l.		-.02	
Tgv)(mid		-.18	
Ton/Kussen	-.10		.11
Trapezium	.74		-1.08
Gemeten:	.71	.19	1.11

Y-richting	Onder	Midden	Boven
Tgv Rotat.		-.01	
Tgv)(mid		-.16	
Ton/Kussen	-.45		.21
Trapezium	.21		.11
Gemeten:	.71	.17	.10

Maximale rastervert. = 1.11 mm
UITVAL RASTERVERTEKENING !!!

Type : 115D14GH/123
K.nr.: 5201285 N.M.

Vgs -25V
Vast +53V



Mx.,y:X=6.84 Y=3.17 V/cm
Exc.:X=-.77 Y=.01 mm
Hdl=90.03 !MaxRV=.92 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		.01	
Tgv H.d.l.		-.04	
Tgv)(mid		-.11	
Ton/Kussen	.07		-.18
Trapezium	.73		-.88
Gemeten:	.69	.13	.92

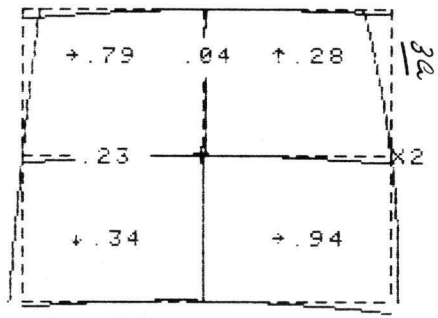
Y-richting	Onder	Midden	Boven
Tgv Rotat.		.01	
Tgv)(mid		-.15	
Ton/Kussen	-.30		.03
Trapezium	.12		-.04
Gemeten:	.51	.15	.13

Maximale rastervert. = .92 mm

34

Type : 115D14GH/123
K.nr.: 5201285 N.M.

Vgs: 0V
Vast: +39,3V



Mx.,y:X=6.94 Y=3.26 V/cm
Exc.:X=-.84 Y=.29 mm
Hdl=89.97 !MaxRV=.94 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

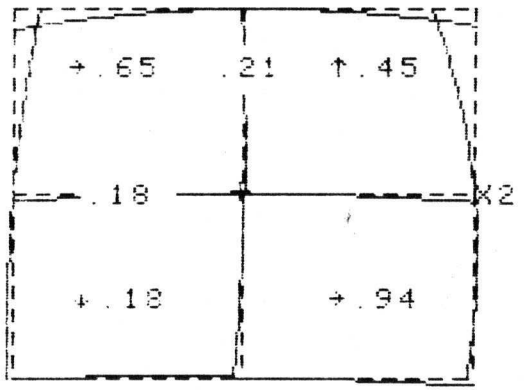
X-richting	Links	Midden	Rechts
Tgv H.d.l.		.04	
Tgv)(mid		-.02	
Ton/Kussen	.07		-.26
Trapezium	.75		-.98
Gemeten:	.79	.04	.94

Y-richting	Onder	Midden	Boven
Tgv Rotat.		.00	
Tgv)(mid		-.23	
Ton/Kussen	-.03		.02
Trapezium	.15		-.13
Gemeten:	.34	.23	.28

Maximale rastervert. = .94 mm

Type : 115D14GH/123
K.nr.: 5201295 N.M.

Vgs: +25V
Vast: +28,3



Mx,y:X=7.04 Y=3.36 V/cm
Exc.:X=-.78 Y=.42 mm
Hdl=89.92 !MaxRV=.94 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

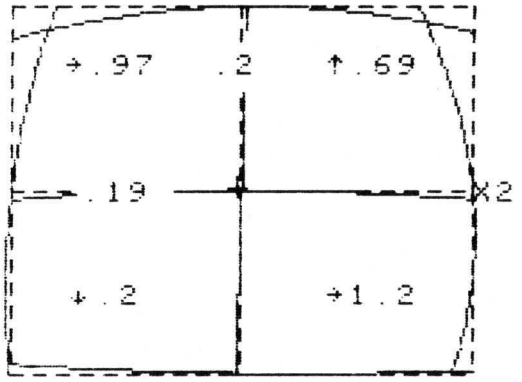
X-richting	Links	Midden	Rechts
Tav Rotat.		/ .01 /	
Tav H.d.l.		/ .12 /	
Tav)(mid		) -.15)	
Ton/Kussen	(.36		-.40)
Trapezium	/ .53		-.91 \
Gemeten:	.65	.21	.94

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .01 /	
Tav)(mid		) -.17)	
Ton/Kussen	(.07		-.23)
Trapezium	/ .14		-.10 \
Gemeten:	.18	.18	.45

Maximale rastervert. = .94 mm

Type : 115D14GH/123
K.nr.: 5201295 N.M.

Vgs: +50V
Vast +3,6V



Mx,y:X=7.15 Y=3.46 V/cm
Exc.:X=-.82 Y=.7 mm
Hdl=89.85 !MaxRV=1.2 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		/ .20 /	
Tav)(mid		) -.02)	
Ton/Kussen	(.48		-.80)
Trapezium	/ .77		-.95 \
Gemeten:	.97	.20	1.20

Y-richting	Onder	Midden	Boven
Tav Rotat.		\ -.01 \	
Tav)(mid		) -.18)	
Ton/Kussen	(.31		-.44)
Trapezium	/ .15		-.14 \
Gemeten:	.20	.19	.69

Maximale rastervert. = 1.2 mm
UITVAL RASTERVERTEKENING !!!

36

)(= − ( ) = + Only pincushion or barrel distortion (averaged left+right → x, top+down → y)

PHILIPS

Adjustment of geometry correction V_{g5}

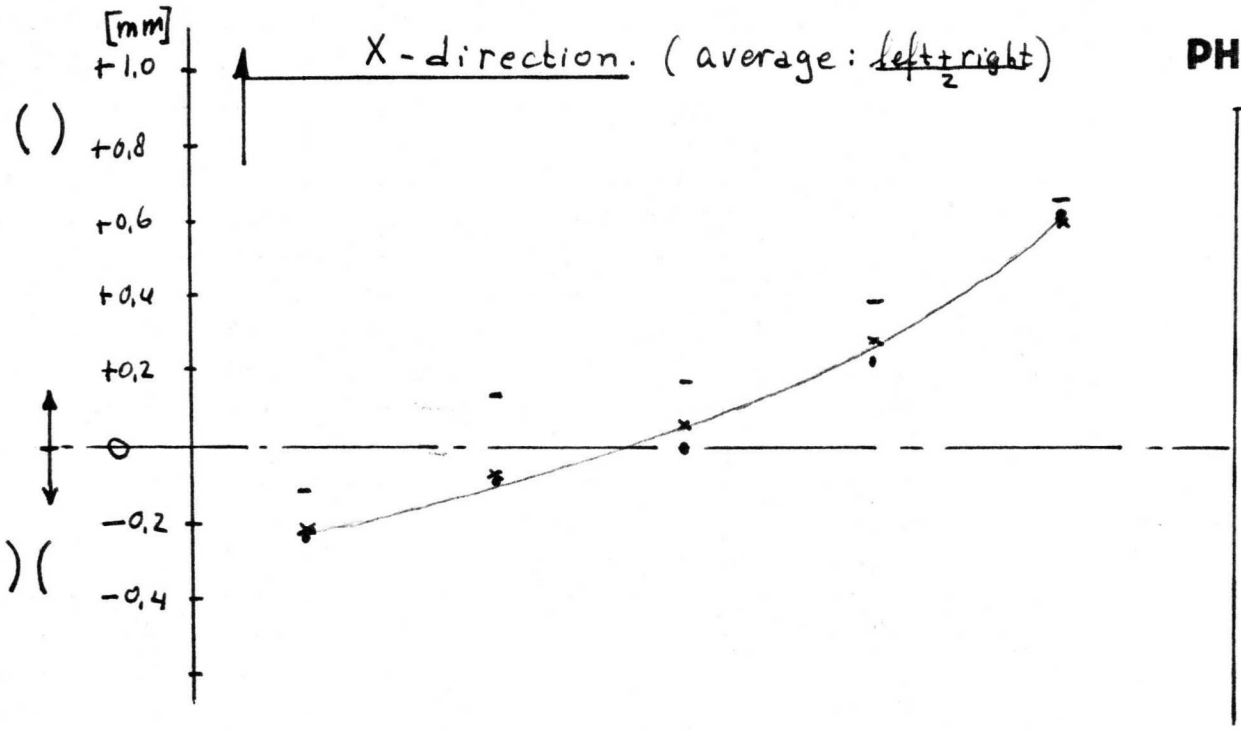
	V_{g5} →	−50	−25	0	+25	+50	
distortion	5201077						
	X-ri	−0,24	−0,09	0	+0,22	+0,62	mm
	y-ri	−0,42	−0,35	−0,2	−0,04	+0,10	mm
	5201306						
	X-ri	−0,23	−0,08	+0,06	+0,29	+0,60	mm
	y-ri	−0,46	−0,29	−0,12	+0,08	+0,25	mm
	5201285						
	X-ri						
	y-ri	−0,11	+0,13	+0,17	+0,38	+0,64	mm
		−0,33	−0,17	−0,03	+0,15	+0,38	mm

Vast (V_{g4})					
5201077	+68	+46	+34	+16	+1	V
5201306	+66	+45	+32	+14	+4	V
5201285	+71	+53	+39	+28	+4	V

Only pincushion)(or barreldistortion ().

PHILIPS

X-direction. (average: $\frac{\text{left}+\text{right}}{2}$)

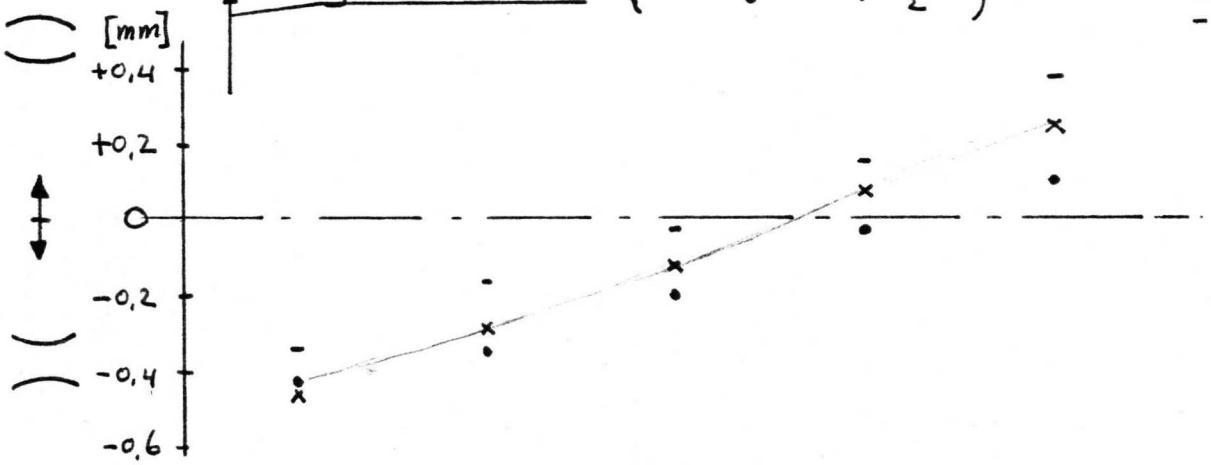


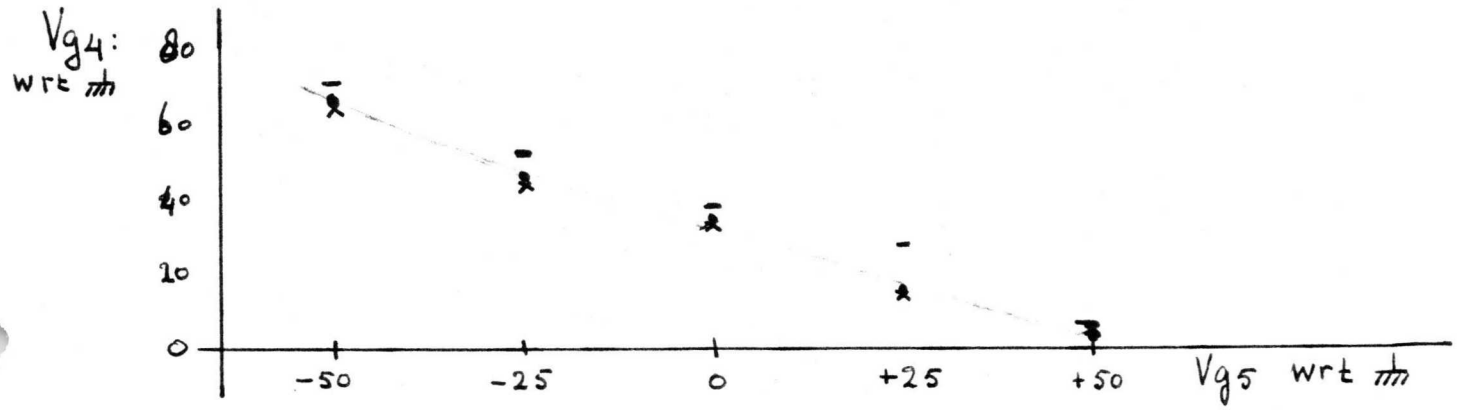
$-V_K = 1800V$
$V_{g2} =$ ⏚
$V_{\bar{x}} = +35V$
$V_{\bar{y}} = +25V$
$V_{g5} =$ +50 +25 0 -25 -50
$V_{g4} =$ adj
$V_{EHT} = 12.2kV$
All w.r.t. ⏚

V_{g5} →	-50	-25	0	+25	+50	w.r.t. ⏚
V_{g5} →	-85	-60	-35	-10	+15	w.r.t $V_{\bar{x}} = +35V$

Y-direction (average $\frac{\text{top}+\text{down}}{2}$)

●= 5201077
×= 5201306
– = 5201285 * Complaint tube





4↔2 X

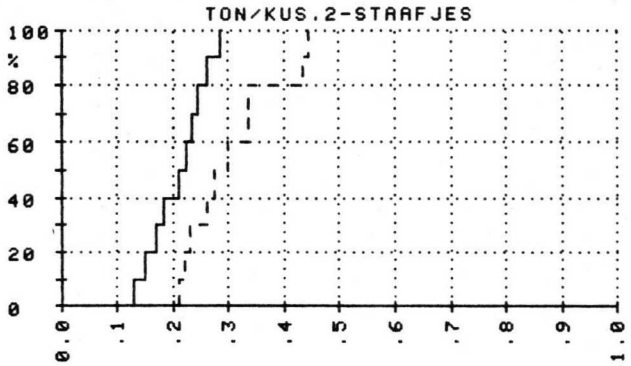
* * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

Subfile Var.:	geen 4Xt/k	geen 2Xt/k	Toets m.b.t. VARIANTIES
Xgem=	.21	.3	Fisher's F= 2.82
Sdev=	.05	.08	So= .07
n =	10	10	vhg(teller)= 9
Max.=	.29	.45	vhg(noemer)= 9
Min.=	.13	.21	
Range=	.16	.24	Toets m.b.t. GEMIDDELDEN Ho: mu1-mu2= 0
Xgem+3s=	.36	.56	Ongelyke var.: t=-3.08 met vhg= 16
Xgem-3s=	.06	.05	Gelyke var.: t=-3.08 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.746 (vhg= 16) ,resp t> 1.734 (vhg= 18)

6

X-direction.



lyn=4Xt/k (n= 10) ---=2Xt/k (n= 10)

Test cond.
2.2/16.5 kV
$V_{\bar{x},\bar{y},q_4,q_5} = 0V$.

line = 4 rod --- = 2 rod.

---

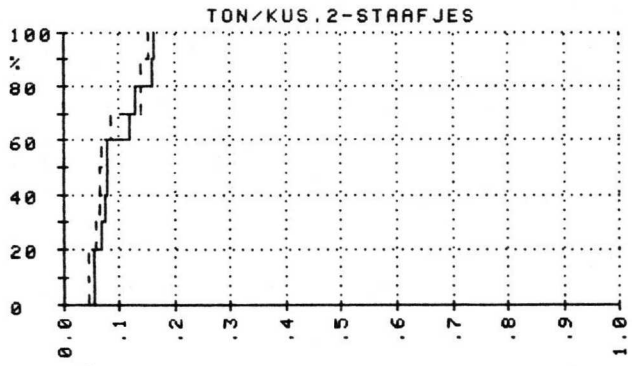
4 ↔ 2 Y

* * Toetsing m.b.t. VARIANTIES/GEMIDDELDEN * *
Projekt:TON/KUS.2-STAAFJES

Subfile Var.:	geen 4Yt/k	geen 2Yt/k	Toets m.b.t. VARIANTIES
Xgem=	.1	.09	Fisher's F= 1.02
Sdev=	.04	.04	So= .04
n =	10	10	vhg(teller)= 9
Max.=	.17	.16	vhg(noemer)= 9
Min.=	.06	.05	
Range=	.11	.11	Toets m.b.t. GEMIDDELDEN Ho: mu1-mu2= 0
Xgem+3s=	.22	.21	Ongelyke var.: t= .64 met vhg= 20
Xgem-3s=	-.03	-.04	Gelyke var.: t= .64 met vhg= 18

t-TOETS(95%): Sign. indien t> 1.725 (vhg= 20) ,resp t> 1.734 (vhg= 18)

Y-direction



line = 4 rod --- 2 rods

lyn=4Yt/k (n= 10) ---=2Yt/k (n= 10)

OPDRACHTENFORMULIER

VOLGNR.: 395

MEETCENTRUM OSCILLOGRAAFBUIZEN

NAAM INZENDER : Hr. Geurts. TEL:

DATUM INZENDING : 1-3-'85 LEVERTIJD:

AFDELINGSNR. : 22243 Budget/Bonn. :

TYPE : 115D14 GH/93 ..../.... AANTAL : 20.

GEGEVENS :

$V_{k/+}$ = 2.2 ..... KV $V_{s/k}$ = 16.5 ..... KV

GEMETEN DOOR :

DATUM GEMETEN :

DATUM AFGEWERKT : PARAAF:

RETOUR NAAR :

☒ NORMALE PRODUKTIE :

☐ AFWIJKINGEN T.O.V. NP :

OMSCHRIJVING OPDRACHT Eerste serie 2 staafjes. F-metingen.
n = 10. Capaciteiten.

Zie ook rapp.
KHR-89/SB 808

Data file = "115-1"
"115-2"

handje = meetcentr. data.

GEGEVENSVERWERKING: TABELLEN/GRAFIEKEN

CHECKLIST

SOORT FOSFOR/SCHERMKWALITEIT

SOORT KATODE: 0.6 W/0.65 W/1.5 W/2 W

MECH. TESTEN: DRUKTEST/TRILTEST 50 HZ/TRILTEST IEC/
SCHOKTEST/VALTEST

KLIM. TESTEN: WARMTE-TEST/KOUDE TEST/TROPENTEST/
LIGTEST/LEVENSDUUR

RÖNTGENSTRALING
schrijfsnelheid
GLOEISPANNING

F/L/II - PARAMETERS

ISOLATIES/LEKSTROMEN/GASMETING/GASKRUIS/

LIJNBREEDTE/DEFLEKTIE-DEFOCUS/LINEARITEIT/

RASTERVERVORMING/HOEK DER LIJNEN/HOEK X-LIJN

T.O.V. SCHERM/EXCENTRICITEIT

IBX/VCO/VAST (LAGE + HOGE LUM.)MX/MY/LUMINANTIE/

DODE LAAG/KLEURPUNT/DECAY/KATODE-KWALITEIT/

AFNAME IK/IK/3 D-CORR. (Vg6)

AFSCHADUWEN

Kopie H.H.

115 - D14

F-meting

Bruksnr.	a/km. Sp.	IBx 1 (30 vm)	IBx 2 (50 m ad)	Resultat.
506 1241	73.1	29	69	diff. x / ~~[illegible]~~
5061293	72,5	28	71	ok
5061280	71,9	29	71	ok
5061149	75,6	30	71	ok
5061227	73,6	24	57	ok frsp/vent grens
506119..	71.9	29	71	ok
5061283	73.2	29	71	ok
5061268	74.1	30	75	Varl x
5061290	73.5	30	78	ok
5061278(06)	70.8	25	65	ok
5061287	71.7	27	66	frsp/vent
5061225	70.4	21	50	ok
5061156	74.3	24	50	Skutnig meking / diff. x 1129
506 1187	75.3	28	75	frsp/vent.
5061174	71.2	25	60	ok
5061237	71.9	28	68	~~Sku~~ Ok
5061239	69.1	23	59	ok
5061202	73.5	26	62	ok
5061282	73.8	29	66	ok
5061189	70.2	22	58	ok

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: . 20st. Date: . 1-3-'85 Type: 115 D 14 GH/93

Ref: . . . Factory: . HRL . Code: . . .

n = 15 st. ok Fabr.
5 st uit val. Fabr.

measurement	V_{c0}	V_{g3}	V_{astm}	I_{bx}	I_{bx}	g_m Jk.	ws x	ws y	geest beeld	Lum.		
test conditions												
									I bol-gaas			
V_d =				30	50							
tube number												
5061225	74,0	530	4,0	22,7	61,2	14,0			-8,1	790		
5061280	73,0	530	4,0	27,0	81,5	15,0			-6,6	751		
5061230	70,0	540	5,0	27,3	67,6	15,0			-6,2	795		
5061237	74,0	540	3,5	30,7	67,1	24,0			-5,9	774		
5061174	73,0	530	4,0	25,6	71,2	16,0			-6,6	901		
5061159	73,0	530	2,0	22,1	74,0	17,0			-7,5	786		
5061282	74,0	530	0,0	22,3	32,3	22,0			-6,2	760		
5061202	76,0	525	2,0	19,2	32,0	20,0			-5,4	750		
5061149	76,0	525	5,5	33,7	83,7	16,0			-5,8	795		
5061280	73,0	525	3,5	31,5	75,4	16,0			-5,4	778		
5061293	74,5	525	2,5	29,6	74,5	14,0			-5,7	807		
5061283	76,0	520	5,5	27,8	80,9	16,0			-5,3	802		
5061190	74,0	530	0,5	30,3	80,8	14,0			-6,8	809		
5061227	75,0	520	1,0	25,1	69,4	15,0			-7,1	804		
5061290	75,0	530	2,0	32,4	84,6	18,0			-5,4	774		
5061156	76,0	530	3,0	22,3	33,2	16,0			-6,3	771		
5061287	74,0	540	5,0	28,6	79,8	14,0			-5,8	863		
5061107	74,0	530	2,0	35,4	90,6	17,0			-5,4	803		
5061241	74,0	525	3,5	33,8	89,4	16,0			-6,6	786		
5061268	76,0	530	3,0	34,7	97,7	16,0			-5,8	785		
average												
nom.												
100% min.												
Me min.												
Me max.												
100% max.												
unit	V	V	V	µA	µA	%	mm	mm	µA	cd/m²		
conclusion:												
remark:												

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: . . . . Date: . . . . . Type: 115 D14 GH/93

Ref: . . . . . Factory: . . . . Code: . . .

measurement	RH_{y_1}	RH_{y_2}	<X-lijn t.o.v. X-as										
test conditions						opmerkingen.							
tube number													
5061225	95	110	+1,0			RV - uitvnl. X-richting							
5061280 6	95	106	+1,5										
5061230	98	104	+3,0										
5061237	100	100	+1,5										
5061174	114	75	+2,0										
5061189	106	99	+1,0										
5061282	93	104	<+0,5			dip.							
5061202	112	84	+0,5			slechte spot kwal. · dubbele spot + dip.							
5061149	95	107	+1,5										
5061280	97	101	+1,5			slechte spot vd>1: dubbele spot.							
5061293	112	95	+2,0										
5061283	112	90	+2,0			RV - uitvnl. X-richting							
5061190	100	98	+1,0										
5061227.	91	105	-1,0			RV - uitvnl. X-Richting.							
5061295	110	87	+2,0										
5061268	104	100	+1,5			Vnl X- plaat							
5061156	115	83	<+0,5			MX = 7,54 V/cm + dip. + afschaduwe X2							
5061287	102	99	+0,5			RV X-richting.							
5061187	100	110	+1,5			RV = X-Richting.							
5061241	99	104	+2,5			MX = 7,6 V/cm.							
average													
nom.													
100% min.													
Me min.													
Me max.													
100% max.													
unit	%	%	°										
conclusion: remark:	opm. Algemeen: Bij inschakelen oplading, in de vorm van glasoplading. Bij verhogen vd. weg:												

PHILIPS

115D14GH/93 N.M.

Info uit DATA-bankjes: 115-1
115-2

k-Week	I-Mal	N-Ast	N-WSx	N-WSy
(Subfile=115-1)				
506119	2 1.0	8.5	0.0	0.0
506123	1.0	5.0	0.0	0.0
5061149	2 1.0	5.5	.5	.2
5061174	2 1.0	4.0	0.0	0.0
5061189	1.0	2.0	.5	0.0
5061202	1.0	2.0	0.0	.2
5061225	1.0	4.0	1.0	0.0
5061227	1.0	1.0	.4	0.0
5061237	1.0	3.5	0.0	0.0
5061278	2 1.0	4.0	.7	0.0
5061280	2 1.0	3.5	.5	.5
5061282	2 1.0	8.0	0.0	.3
5061283	1.0	5.5	0.0	0.0
5061290	1.0	2.0	0.0	0.0
5061293	2 1.0	2.5	.7	.5
(Subfile=115-2)				
5061156	1.0	3.0	0.0	0.0
5061187	1.0	2.0	0.0	0.0
5061241	2 1.0	3.5	0.0	0.0
5061268	1.0	3.0	0.0	0.0
5061287	1.0	5.0	0.0	0.0

k-Week	N-Hdl	N-RVx1	N-RVx2	N-RVy
(Subfile=115-1)				
506119	3.9	.3	.4	.3
506123	12.3	.9	.5	.3
5061149	-7.7	.3	.7	.3
5061174	-1.6	.2	.4	.2
5061189	3.4	.3	.4	.0
5061202	12.1	.6	.5	.1
5061225	14.6	1.1	.5	.2
5061227	4.7	.9	1.1	.6
5061237	-.7	.4	.5	.2
5061278	9.3	.5	.0	.1
5061280	1.5	.3	.8	.3
5061282	11.6	.3	.2	.8
5061283	11.7	1.1	.5	.3
5061290				
5061293	-.1	.5	.8	.7
(Subfile=115-2)				
5061156	4.7	.5	.5	.4
5061187	5.5	1.0	1.2	.4
5061241	-5.4	.2	.8	.6
5061268	8.7	.5	.5	.4
5061287	2.0	1.2	1.1	.3

PHILIPS

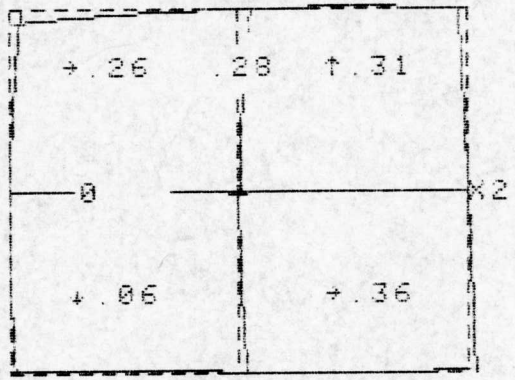
k-Week	N-ExcX	N-ExcY	N-DDx1	N-DDx2
(Subfile=115-1)				
506119	-.4	-.6	1.3	1.4
506123	-.4	.4	1.5	1.6
5061149	.2	.6	1.5	1.3
5061174	-.2	-.3	1.3	1.3
5061189	-.1	.8	1.1	1.4
5061202	-.5	.2	1.3	1.3
5061225	.4	.1	1.1	1.3
5061227	.0	.3	1.0	1.0
5061237	.0	.3	1.1	1.1
5061278	-.3	1.0	1.1	1.3
5061280	.2	.8	1.3	1.0
5061282	-.0	.2	1.5	1.5
5061283	-.6	1.2	1.3	1.7
5061290			1.6	1.0
5061293	.4	.9	1.4	1.4
(Subfile=115-2)				
5061156	.1	.4	1.3	1.3
5061187	-.1	.3	1.5	1.5
5061241	-.1	-.5	1.3	1.1
5061268	-.2	.1	1.1	1.1
5061287	.2	.3	1.1	1.1

k-Week	N-RHx1	N-RHx2	N-My	N-Mx
(Subfile=115-1)				
506119	93.0	93.0	4.0	7.9
506123	82.0	89.0	4.0	8.4
5061149	100.0	100.0	3.9	8.1
5061174	94.0	100.0	3.9	7.9
5061189	88.0	82.0	4.0	8.1
5061202	103.0	90.0	3.9	8.1
5061225	92.0	86.0	4.0	7.9
5061227	109.0	90.0	4.0	8.2
5061237	103.0	93.0	4.0	8.1
5061278	104.0	92.0	4.0	7.9
5061280	100.0	93.0	4.0	8.2
5061282	90.0	99.0	4.0	7.9
5061283	99.0	96.0	4.0	8.1
5061290	98.0	92.0		
5061293	105.0	94.0	4.0	8.3
(Subfile=115-2)				
5061156	104.0	70.0	4.0	7.5
5061187	112.0	100.0	4.0	8.7
5061241	100.0	82.0	4.0	7.6
5061268	90.0	92.0	4.1	8.0
5061287	98.0	88.0	4.0	8.1

k-Week	N-Iaas	N-Vco	N-Vg3
(Subfile=115-1)			
506119	.1	74.0	530.0
506123	.1	70.0	540.0
5061149	.1	76.0	525.0
5061174	.1	73.0	530.0
5061189	.1	73.0	530.0
5061202	.1	76.0	525.0
5061225	.1	74.0	530.0
5061227	.1	75.0	520.0
5061237	.1	74.0	540.0
5061278	.1	73.0	530.0
5061280	.1	73.0	525.0
5061282	.1	74.0	530.0
5061283	.1	76.0	520.0
5061290	.1	75.0	530.0
5061293	.1	74.5	525.0
(Subfile=115-2)			
5061156	.1	76.0	530.0
5061187	.1	74.0	530.0
5061241	.1	74.0	525.0
5061268	.1	76.0	530.0
5061287	.1	74.0	540.0

k-Week	N-Ibx	N-Dip
(Subfile=115-1)		
506119	30.3	0.0
506123	27.3	0.0
5061149	33.7	0.0
5061174	25.6	0.0
5061189	22.1	0.0
5061202	19.2	1.0
5061225	22.7	0.0
5061227	25.1	0.0
5061237	30.7	0.0
5061278	27.0	0.0
5061280	31.5	0.0
5061282	22.3	1.0
5061283	27.8	0.0
5061290	32.4	0.0
5061293	29.6	0.0
(Subfile=115-2)		
5061156	22.3	1.0
5061187	35.4	0.0
5061241	33.8	0.0
5061268	34.7	0.0
5061287	28.6	0.0

115D14GH/93 N.M
Kanonnr.: 506119



Mx,y: X=7.92 Y=4.03 V/cm
Exc.: X=-.42 Y=-.6 mm
Hdl=89.93 |MaxRV=.36 mm
(Schaal: 1 div.=10 mm)

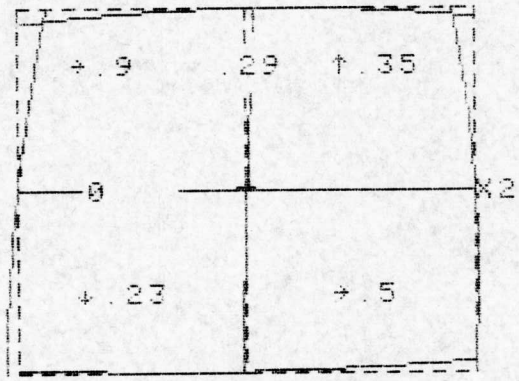
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		/ .09 /	
Tgv)(mid		(.23 (	
Ton/Kussen	) -.04		-.24)
Trapezium	/ .06		-.45 \
Gemeten:	.26	.28	.36

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .00 /	
Tgv)(mid		) -.00)	
Ton/Kussen	(.04		-.15)
Trapezium	/ .05		-.31 \
Gemeten:	.06	.00	.31

Maximale rastervert. = .36 mm

115D14GH/93 N.M
Kanonnr.: 506123



Mx,y: X=8.35 Y=4 V/cm
Exc.: X=-.38 Y=.36 mm
Hdl=89.79 |MaxRV=.9 mm
(Schaal: 1 div.=10 mm)

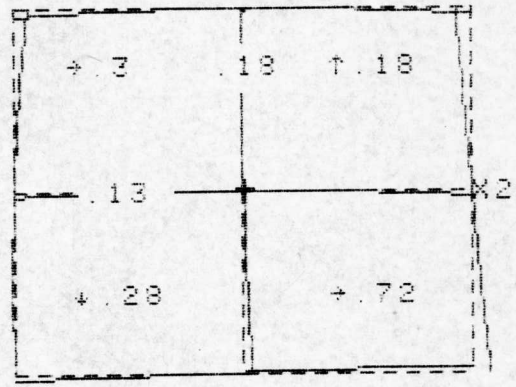
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		/ .29 /	
Tgv)(mid		(.03 (	
Ton/Kussen	(.16		-.30)
Trapezium	/ .62		-.75 \
Gemeten:	.90	.29	.50

Y-richting	Onder	Midden	Boven
Tgv Rotat.		0.00	
Tgv)(mid		0.00	
Ton/Kussen	(.15		-.27)
Trapezium	\ -.17		-.16 \
Gemeten:	.23	0.00	.35

Maximale rastervert. = .9 mm

115D14GH/93 N.M
Kanonnr.: 5061149



Mx,y: X=8.1 Y=3.93 V/cm
Exc.: X=.24 Y=.62 mm
Hdl=90.13 |MaxRV=.72 mm
(Schaal: 1 div.=10 mm)

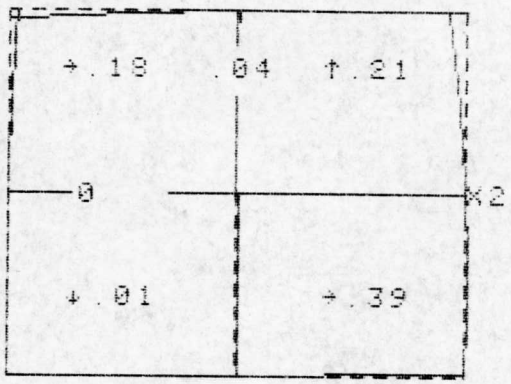
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.18 \	
Tgv)(mid		(.09 (	
Ton/Kussen	(.06		-.06)
Trapezium	/ .47		-.54 \
Gemeten:	.30	.18	.72

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .01 /	
Tgv)(mid		) -.12)	
Ton/Kussen	(.11		-.03)
Trapezium	\ -.28		-.04 \
Gemeten:	.28	.13	.18

Maximale rastervert. = .72 mm

115D14GH/93 N.M
Kanonnr.: 5061174



Mx,y: X=7.93 Y=3.93 V/cm
Exc.: X=-.24 Y=-.27 mm
Hdl=90.03 |MaxRV=.39 mm
(Schaal: 1 div.=10 mm)

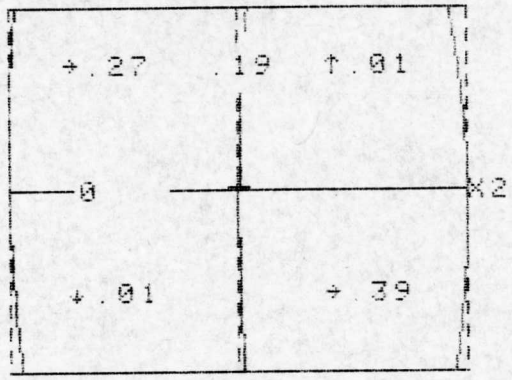
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		\ -.04 \	
Tav)(mid		(.02 (	
Ton/Kussen	(.07		-.21)
Trapezium	/ .22		-.35 \
Gemeten:	.18	.04	.39

Y-richting	Onder	Midden	Boven
Tav Rotat.		0.00	
Tav)(mid		(.00 (	
Ton/Kussen	) -.00		-.10)
Trapezium	\ -.01		-.21 \
Gemeten:	.01	.00	.21

Maximale rastervert. = .39 mm

115D14GH/93 N.M
Kanonnr.: 5061189



Mx,y: X=8.05 Y=3.97 V/cm
Exc.: X=-.06 Y=.8 mm
Hdl=89.94 |MaxRV=.39 mm
(Schaal: 1 div.=10 mm)

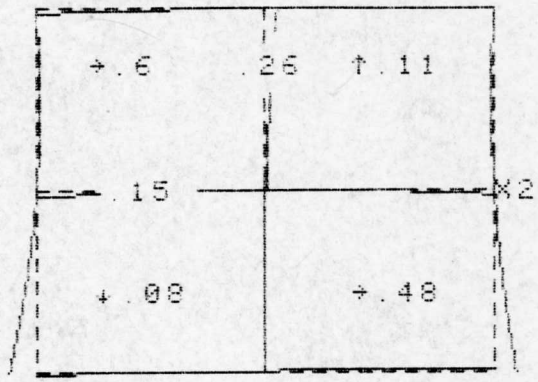
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		/ .08 /	
Tav)(mid		(.15 (	
Ton/Kussen	(.04		-.49)
Trapezium	\ -.23		-.19 \
Gemeten:	.27	.19	.39

Y-richting	Onder	Midden	Boven
Tav Rotat.		0.00	
Tav)(mid		0.00	
Ton/Kussen	) -.00		.01 (
Trapezium	\ -.01		.01 /
Gemeten:	.01	0.00	.01

Maximale rastervert. = .39 mm

115D14GH/93 N.M
Kanonnr.: 5061202



Mx,y: X=8.14 Y=3.92 V/cm
Exc.: X=-.51 Y=.15 mm
Hdl=89.8 |MaxRV=.6 mm
(Schaal: 1 div.=10 mm)

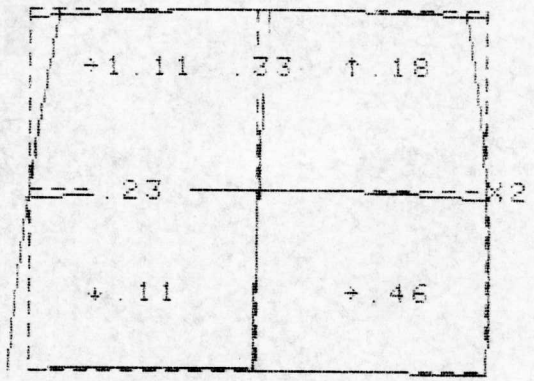
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		\ -.02 \	
Tav H.d.l.		/ .28 /	
Tav)(mid		(.13 (	
Ton/Kussen	) -.43		.11 (
Trapezium	/ .34		-.74 \
Gemeten:	.60	.26	.48

Y-richting	Onder	Midden	Boven
Tav Rotat.		\ -.03 \	
Tav)(mid		) -.14)	
Ton/Kussen	(.10		.07 (
Trapezium	\ -.05		-.06 \
Gemeten:	.08	15	.11

Maximale rastervert. = .6 mm

115D14GH/93 N.M
Kanonnr.: 5061225



Mx,y:X=7.89 Y=4.05 V/cm
Exc.:X=.39 Y=.14 mm
Hdl=89.76 |MaxRV=1.11 mm
(Schaal:1 div.=10 mm)

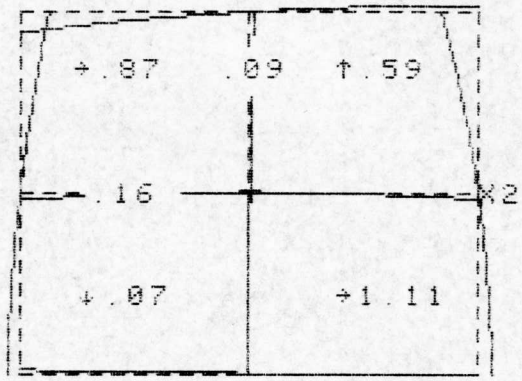
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.	\ -.01 \		
Tav H.d.l.	/ .34 /		
Tav)(mid	(.08 (		
Ton/Kussen	(.03	-.31	)
Trapezium	/ .78	-.78	\
Gemeten:	1.11	.33	.46

Y-richting	Onder	Midden	Boven
Tav Rotat.	\ -.02 \		
Tav)(mid	) -.22)		
Ton/Kussen	(.17	.06	(
Trapezium	/ .13	-.02	\
Gemeten:	.11	.23	.18

Maximale rastervert. = 1.11 mm
UITVAL RASTERVERTEKENING !!!

115D14GH/93 N.M
Kanonnr.: 5061227



Mx,y:X=8.21 Y=4.01 V/cm
Exc.:X=.03 Y=.27 mm
Hdl=89.92 |MaxRV=1.11 mm
(Schaal:1 div.=10 mm)

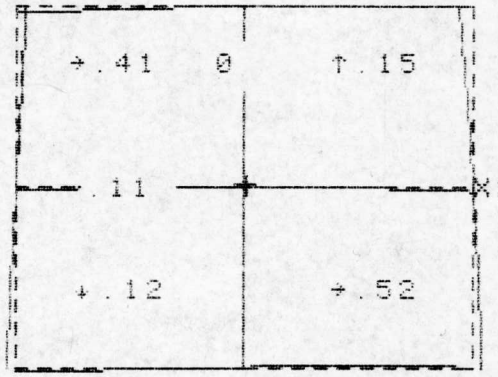
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.	\ -.02 \		
Tav H.d.l.	/ .11 /		
Tav)(mid	(.05 (		
Ton/Kussen	(.12	-.30	)
Trapezium	/ .78	-1.20	\
Gemeten:	.87	.09	1.11

Y-richting	Onder	Midden	Boven
Tav Rotat.	\ -.02 \		
Tav)(mid	) -.15)		
Ton/Kussen	(.19	-.01	)
Trapezium	/ .09	-.57	\
Gemeten:	.07	.16	.59

Maximale rastervert. = 1.11 mm
UITVAL RASTERVERTEKENING !!!

115D14GH/93 N.M
Kanonnr.: 5061237



Mx,y:X=8.06 Y=3.99 V/cm
Exc.:X=0 Y=.26 mm
Hdl=90.01 |MaxRV=.52 mm
(Schaal:1 div.=10 mm)

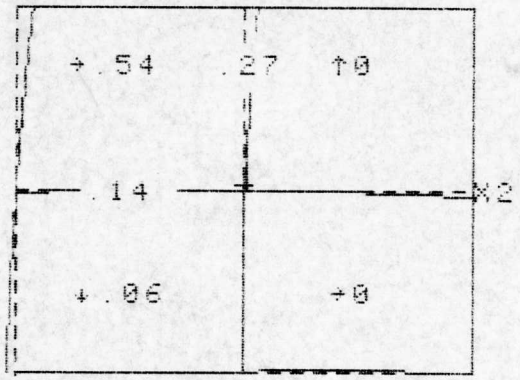
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.	/ .02 /		
Tav H.d.l.	\ -.02 \		
Tav)(mid	0.00		
Ton/Kussen	(.01	-.06	)
Trapezium	/ .41	-.52	\
Gemeten:	.41	0.00	.52

Y-richting	Onder	Midden	Boven
Tav Rotat.	/ .02 /		
Tav)(mid	) -.10)		
Ton/Kussen	(.04	.03	(
Trapezium	\ -.14	-.17	\
Gemeten:	.12	.11	.15

Maximale rastervert. = .52 mm

115D14GH/93 N.M
Kanonnr.: 5061278



Mx,y: X=7.85 Y=4 V/cm
Exc.: X=-.32 Y=1 mm
Hdl=89.84 MaxRV=.54 mm
(Schaal: 1 div.=10 mm)

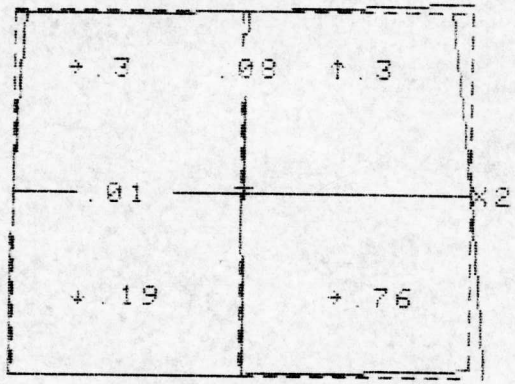
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		/ .05 /	
Tav H.d.l.		/ .22 /	
Tav)(mid		(.13 (	
Ton/Kussen	) -.05		-.14)
Trapezium	/ .27		-.27 \
Gemeten:	.54	.27	.00

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .07 /	
Tav)(mid		) -.10)	
Ton/Kussen	(.07		.10 (
Trapezium	\ -.12		-.06 \
Gemeten:	.06	.14	.00

Maximale rastervert. = .54 mm

115D14GH/93 N.M
Kanonnr.: 5061280



Mx,y: X=8.21 Y=3.99 V/cm
Exc.: X=.16 Y=.83 mm
Hdl=89.98 MaxRV=.76 mm
(Schaal: 1 div.=10 mm)

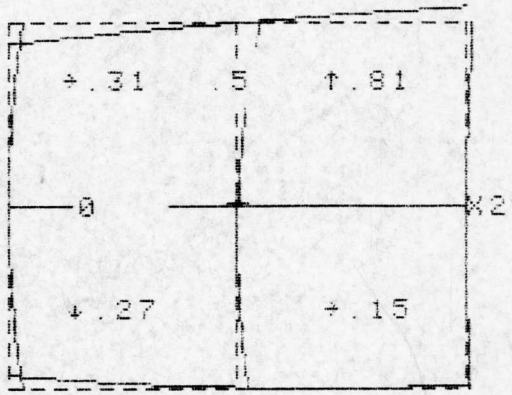
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		/ .01 /	
Tav H.d.l.		/ .03 /	
Tav)(mid		(.06 (	
Ton/Kussen	(.04		-.12)
Trapezium	/ .26		-.80 \
Gemeten:	.30	.08	.76

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .01 /	
Tav)(mid		(.00 (	
Ton/Kussen	(.04		.05 (
Trapezium	\ -.20		-.31 \
Gemeten:	.19	.01	.30

Maximale rastervert. = .76 mm

115D14GH/93 N.M
Kanonnr.: 5061282



Mx,y: X=7.92 Y=3.95 V/cm
Exc.: X=-.04 Y=.2 mm
Hdl=89.81 MaxRV=.81 mm
(Schaal: 1 div.=10 mm)

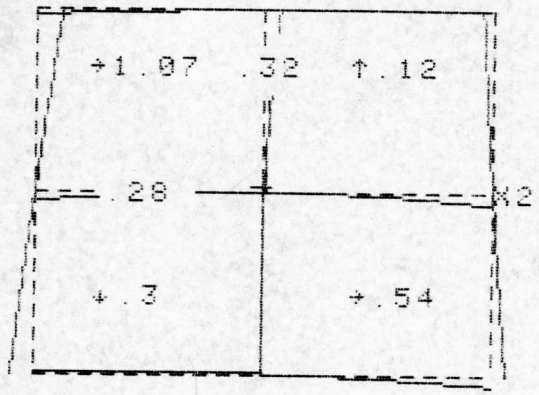
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		/ .27 /	
Tav)(mid		(.37 (	
Ton/Kussen	) -.06		-.25)
Trapezium	\ -.27		-.21 \
Gemeten:	.31	.50	.15

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .00 /	
Tav)(mid		(.00 (	
Ton/Kussen	(.16		-.06)
Trapezium	/ .23		-.81 \
Gemeten:	.27	.00	.81

Maximale rastervert. = .81 mm

115D14GH/93 N.M
Kanonnr.: 5061283



Mx,y:X=8.12 Y=3.97 V/cm
Exc.:X=-.59 Y=1.2 mm
Hdl=89.8 !MaxRV=1.07 mm
(Schaal:1 div.=10 mm)

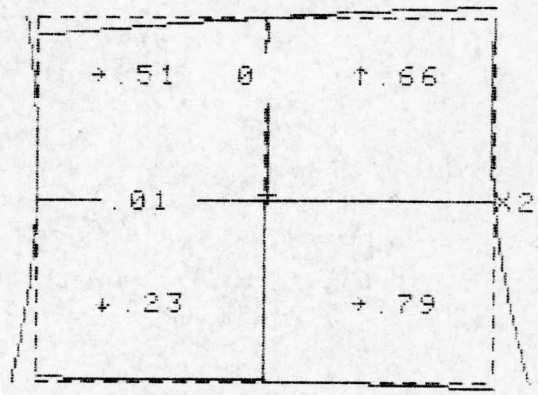
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		/ .04 /	
Tav H.d.l.		/ .27 /	
Tav)(mid		(.16 (	
Ton/Kussen	) -.11		-.12)
Trapezium	/ .76		-.86 \
Gemeten:	1.07	.32	.54

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .06 /	
Tav)(mid		) -.25)	
Ton/Kussen	(.14		.20 (
Trapezium	/ .24		-.18 \
Gemeten:	.30	.28	.12

Maximale rastervert. = 1.07 mm
UITVAL RASTERVERTEKENING !!!

115D14GH/93 N.M
Kanonnr.: 5061293



Mx,y:X=8.3 Y=3.98 V/cm
Exc.:X=.4 Y=.95 mm
Hdl=90 !MaxRV=.79 mm
(Schaal:1 div.=10 mm)

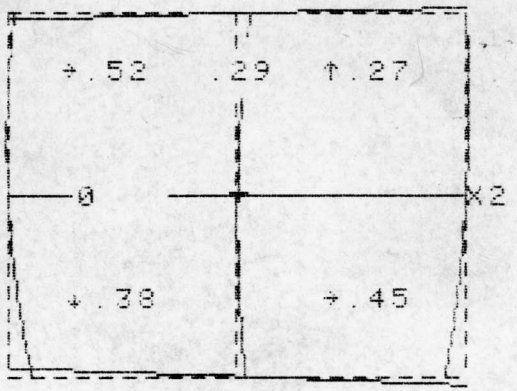
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		\ -.00 \	
Tav)(mid		) -.00)	
Ton/Kussen	) -.37		.40 (
Trapezium	/ .28		-.79 \
Gemeten:	.51	.00	.79

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .01 /	
Tav)(mid		(.00 (	
Ton/Kussen	) -.05		-.08)
Trapezium	/ .23		-.66 \
Gemeten:	.23	.01	.66

Maximale rastervert. = .79 mm

115D14GH/93 N.M
Kanonnr.: 5061156



Mx,y: X=7.54 Y=4.03 V/cm
Exc.: X=.14 Y=.45 mm
Hdl=89.92 |MaxRV=.52 mm
(Schaal: 1 div.=10 mm)

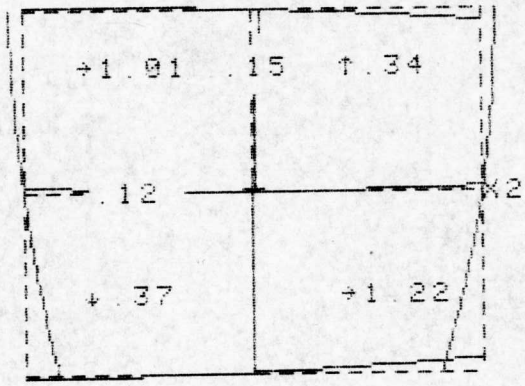
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .11 /	
Tgv H.d.l.		/ .11 /	
Tgv)(mid		(.23 (	
Ton/Kussen	(.09		-.45)
Trapezium	\ -.51		.34 /
Gemeten:	.52	.29	.45

Y-richting	Onder	Midden	Boven
Tgv Rotat.		0.00	
Tgv)(mid		0.00	
Ton/Kussen	) -.01		-.02)
Trapezium	/ .38		-.27 \
Gemeten:	.38	0.00	.27

Maximale rastervert. = .52 mm

115D14GH/93 N.M
Kanonnr.: 5061187



Mx,y: X=8.69 Y=4.01 V/cm
Exc.: X=-.1 Y=.34 mm
Hdl=89.91 |MaxRV=1.22 mm
(Schaal: 1 div.=10 mm)

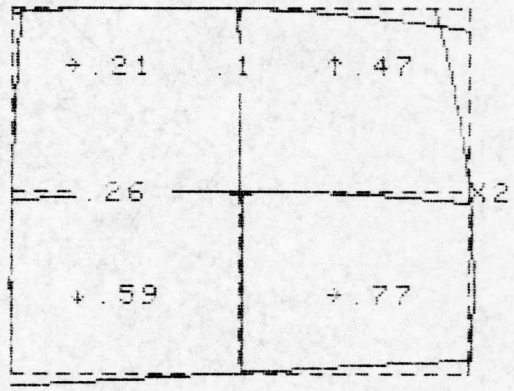
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .03 /	
Tgv H.d.l.		/ .13 /	
Tgv)(mid		(.08 (	
Ton/Kussen	(.13		-.40)
Trapezium	\ -1.17		1.06 /
Gemeten:	1.01	.15	1.22

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .03 /	
Tgv)(mid		(.11 (	
Ton/Kussen	(.01		-.19)
Trapezium	\ -.40		.30 /
Gemeten:	.37	.12	.34

Maximale rastervert. = 1.22 mm
UITVAL RASTERVERTEKENING !!!

115D14GH/93 N.M
Kanonnr.: 5061241



Mx,y: X=7.6 Y=4.03 V/cm
Exc.: X=-.07 Y=-.49 mm
Hdl=90.09 |MaxRV=.77 mm
(Schaal: 1 div.=10 mm)

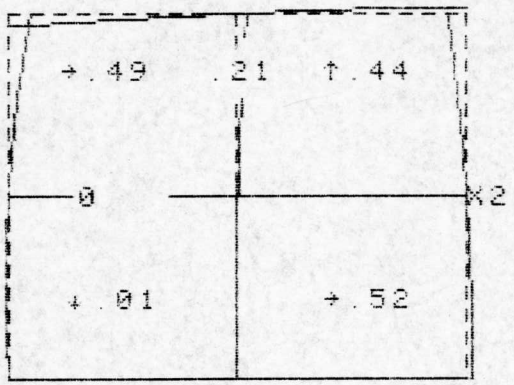
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .03 /	
Tgv H.d.l.		\ -.13 \	
Tgv)(mid		) -.05)	
Ton/Kussen	(.16		-.33)
Trapezium	/ .31		-.67 \
Gemeten:	.21	.10	.77

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .03 /	
Tgv)(mid		) -.25)	
Ton/Kussen	(.24		-.04)
Trapezium	\ -.62		.34 /
Gemeten:	.59	.26	.47

Maximale rastervert. = .77 mm

115D14GH/93 N.M
Kanonnr.: 5061268



Mx,y: X=7.98 Y=4.1 V/cm
Exc.: X=-.21 Y=.12 mm
Hdl=89.86 MaxRV=.52 mm
(Schaal: 1 div.=10 mm)

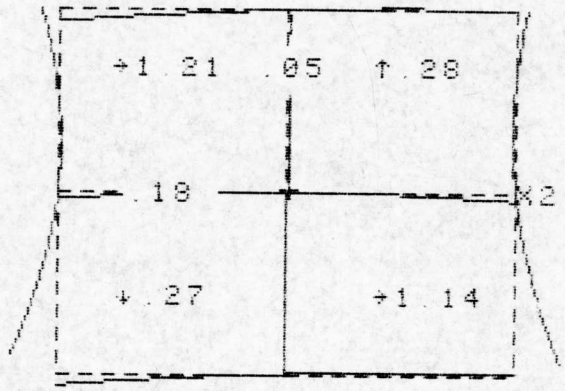
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		.20	
Tav)(mid		.10	
Ton/Kussen	.14		-.24
Trapezium	.28		-.72
Gemeten:	.49	.21	.52

Y-richting	Onder	Midden	Boven
Tav Rotat.		.00	
Tav)(mid		0.00	
Ton/Kussen	-.00		-.06
Trapezium	-.01		-.44
Gemeten:	.01	.00	.44

Maximale rastervert. = .52 mm

115D14GH/93 N.M
Kanonnr.: 5061287



Mx,y: X=8.14 Y=3.96 V/cm
Exc.: X=.16 Y=.33 mm
Hdl=89.97 MaxRV=1.21 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

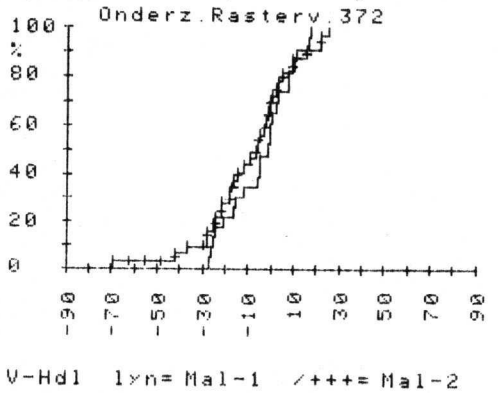
X-richting	Links	Midden	Rechts
Tav Rotat.		.01	
Tav H.d.l.		.05	
Tav)(mid		-.03	
Ton/Kussen	-.77		.71
Trapezium	.77		-.96
Gemeten:	1.21	.05	1.14

Y-richting	Onder	Midden	Boven
Tav Rotat.		.01	
Tav)(mid		-.17	
Ton/Kussen	.04		.04
Trapezium	-.28		-.29
Gemeten:	.27	.18	.28

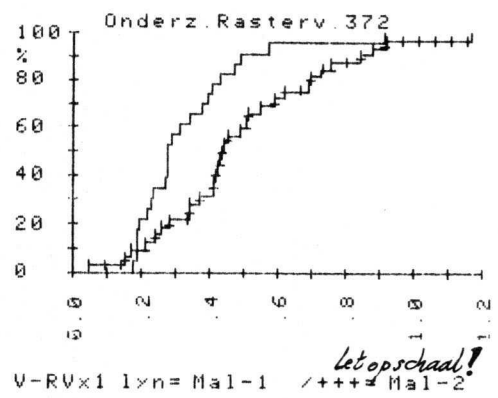
Maximale rastervert. = 1.21 mm
UITVAL RASTERVERTEKENING !!!

Onderzoek. rastervervorming D14-372 (staafje) vóór magnetiseren

```
**********************************
  Projekt:Onderz.Rasterv.372
==================================
Subfile: Mal-1    Mal-2
Var.:    V-Hdl    V-Hdl
----------------------------------
Xgem=     -5.03    -9.56
Sdev=     13.8     19.97
n   =     23       32
Max.=     16.73    25.3
Min.=    -26.94   -69.67
----------------------------------
Range  =  43.68    94.97
----------------------------------
Xgem+3s=  36.35    50.36
Xgem-3s= -46.42   -69.48
==================================
      Toets mbt VARIANTIES
----------------------------------
Fisher's F= 2.1
vhg:teller= 31   ,noemer= 22
Gecombineerde So= 17.67
==================================
      Toets mbt GEMIDDELDEN
          Ho:mu1-mu2= 0
----------------------------------
Ongelyke var.:t= .99 ,vhg= 55
  Gelyke var.:t= .94 ,vhg= 53
----------------------------------
Opm.    t-Toetsgrens:
Sign. als t> 1.69 (vhg= 55 )
     resp t> 1.69 (vhg= 53 )
```

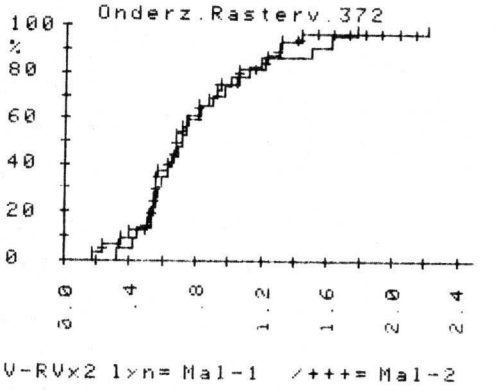



```
**********************************
  Projekt:Onderz.Rasterv.372
==================================
Subfile: Mal-1    Mal-2
Var.:    V-RVx1   V-RVx1
----------------------------------
Xgem=      .34      .49
Sdev=      .17      .25
n   =    23       32
Max.=      .92     1.16
Min.=      .18      .05
----------------------------------
Range  =   .74     1.12
----------------------------------
Xgem+3s=   .84     1.23
Xgem-3s=  -.16     -.24
==================================
      Toets mbt VARIANTIES
----------------------------------
Fisher's F= 2.17
vhg:teller= 31   ,noemer= 22
Gecombineerde So= .22
==================================
      Toets mbt GEMIDDELDEN
          Ho:mu1-mu2= 0
----------------------------------
Ongelyke var.:t=-2.83 ,vhg= 55
  Gelyke var.:t=-2.66 ,vhg= 53
----------------------------------
Opm.    t-Toetsgrens:
Sign. als t> 1.69 (vhg= 55 )
     resp t> 1.69 (vhg= 53 )
```



let op schaal!

```
**********************************
  Projekt:Onderz.Rasterv.372
==================================
Subfile: Mal-1    Mal-2
Var.:    V-RVx2   V-RVx2
----------------------------------
Xgem=      .83      .79
Sdev=      .39      .41
n   =    23       32
Max.=     1.78     2.21
Min.=      .32      .18
----------------------------------
Range  =  1.46     2.04
----------------------------------
Xgem+3s=  2        2.02
Xgem-3s= -.34     -.43
==================================
      Toets mbt VARIANTIES
----------------------------------
Fisher's F= 1.1
vhg:teller= 31   ,noemer= 22
Gecombineerde So= .4
==================================
      Toets mbt GEMIDDELDEN
          Ho:mu1-mu2= 0
----------------------------------
Ongelyke var.:t= .32 ,vhg= 51
  Gelyke var.:t= .31 ,vhg= 53
----------------------------------
Opm.    t-Toetsgrens:
Sign. als t> 1.69 (vhg= 51 )
     resp t> 1.69 (vhg= 53 )
```



Konklusie:- Mal 2. gemiddeld ca -10' Hdlijnen.

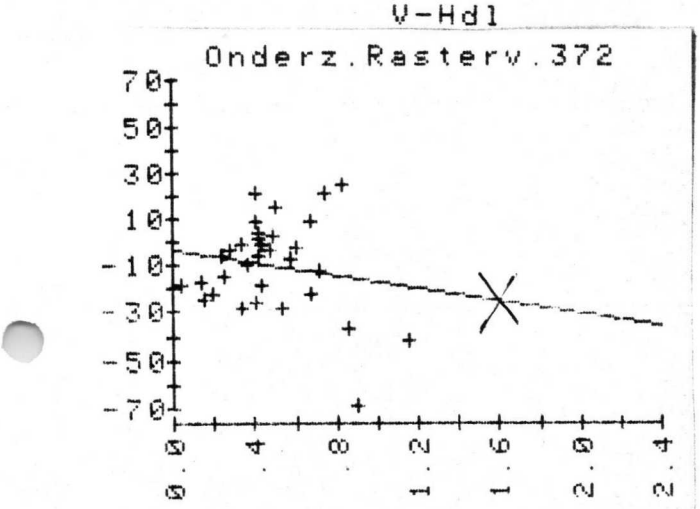
- Rastervervorming van X2 zijde beduidend groter dan X1 zijde, deels veroorzaakt door -10' Hdl fout. (zie ook detailinfo van week 528 en 529).

Kopie: HH. Koppelmans.
Cobben
Geurts.
Thiessen
Sieben.
Geurts.
Wannier.
Godschalk.

21.8.85 J. Vloerbouwers.

```
**********************************
Projekt:Onderz.Rasterv.372
 Subfile:Mal-2        n= 32
Var.:      X=V-RVx1   Y=V-Hdl
----------------------------------
Gem.=        .49        -9.56
Sdev=        .25         19.97
Max.=       1.16         25.3
Min.=        .05        -69.67
==================================
* * *  Regressie-analyse  * * *
Y*=-13.51 X-2.89
(X-intercept=-.21 )
r= .166    Ho:α=0 →t=-.92
----------------------------------
Toetsgrens t(95%)= 1.69  f= 30
```

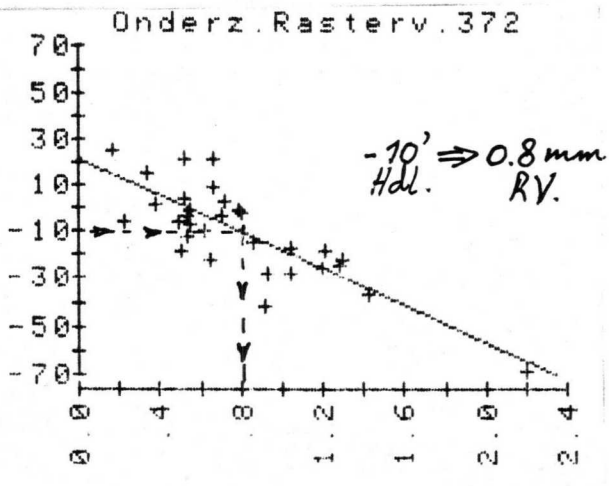
V-Hdl



Mal-2 V-RVx1

```
**********************************
Projekt:Onderz.Rasterv.372
 Subfile:Mal-2        n= 32
Var.:      X=V-RVx2   Y=V-Hdl
----------------------------------
Gem.=        .79        -9.56
Sdev=        .41         19.97
Max.=       2.21         25.3
Min.=        .18        -69.67
==================================
* * *  Regressie-analyse  * * *
Y*=-39.11 X+ 21.45
(X-intercept= .55 )
r= .799    Ho:α=0 →t=-7.28
----------------------------------
Toetsgrens t(95%)= 1.69  f= 30
```

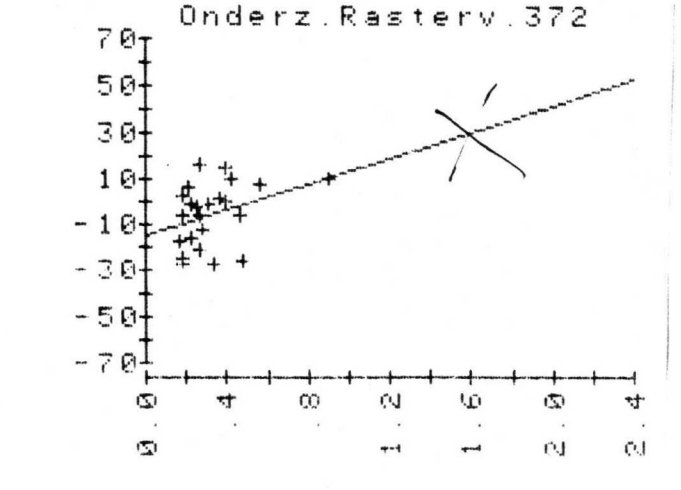
V-Hdl



Mal-2 V-RVx2

```
**********************************
Projekt:Onderz.Rasterv.372
 Subfile:Mal-1        n= 23
Var.:      X=V-RVx1   Y=V-Hdl
----------------------------------
Gem.=        .34        -5.03
Sdev=        .17         13.8
Max.=        .92         16.73
Min.=        .18        -26.94
==================================
* * *  Regressie-analyse  * * *
Y*= 28.3 X-14.55
(X-intercept= .51 )
r= .343    Ho:α=0 →t= 1.67
----------------------------------
Toetsgrens t(95%)= 1.721  f= 21
```

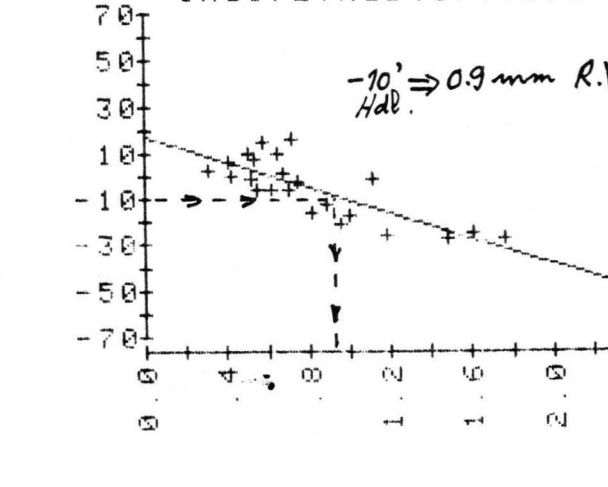
V-Hdl



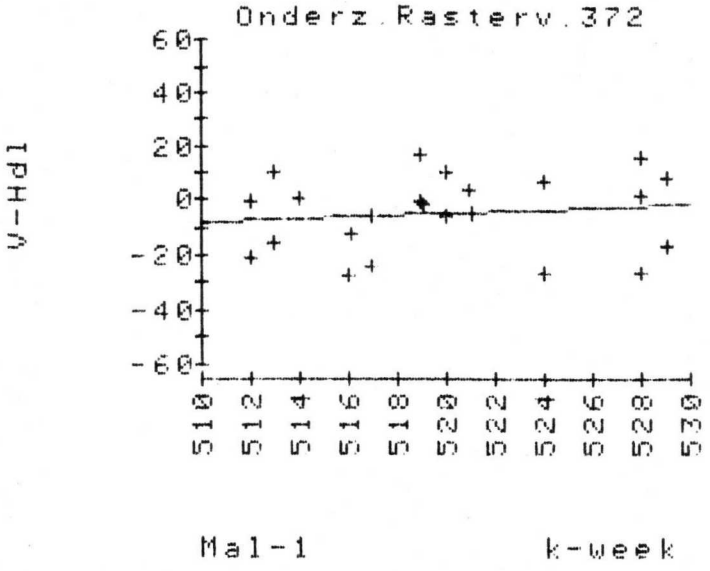
Mal-1 V-RVx1

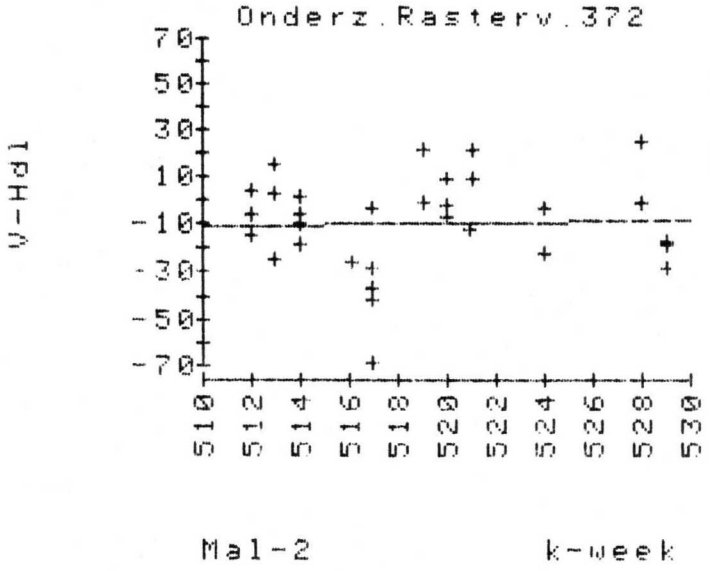
```
**********************************
Projekt:Onderz.Rasterv.372
 Subfile:Mal-1        n= 23
Var.:      X=V-RVx2   Y=V-Hdl
----------------------------------
Gem.=        .83        -5.03
Sdev=        .39         13.8
Max.=       1.78         16.73
Min.=        .32        -26.94
==================================
* * *  Regressie-analyse  * * *
Y*=-27.92 X+ 18.06
(X-intercept= .65 )
r= .789    Ho:α=0 →t=-5.88
----------------------------------
Toetsgrens t(95%)= 1.721  f= 21
```

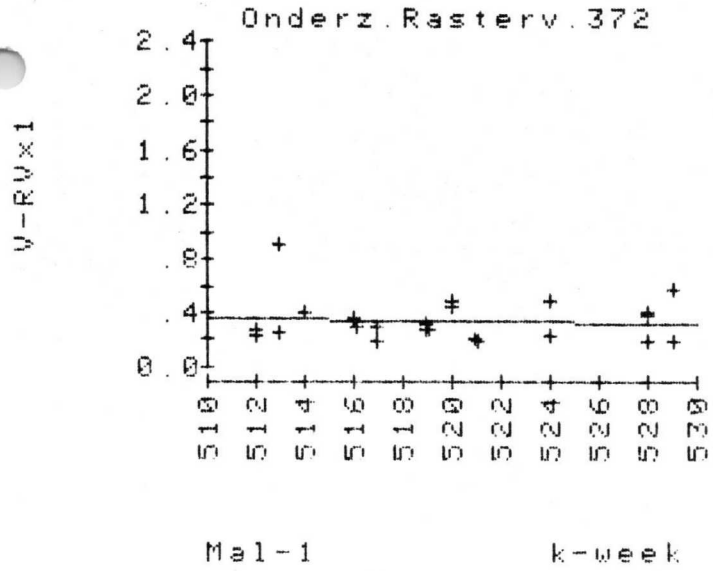
V-Hdl

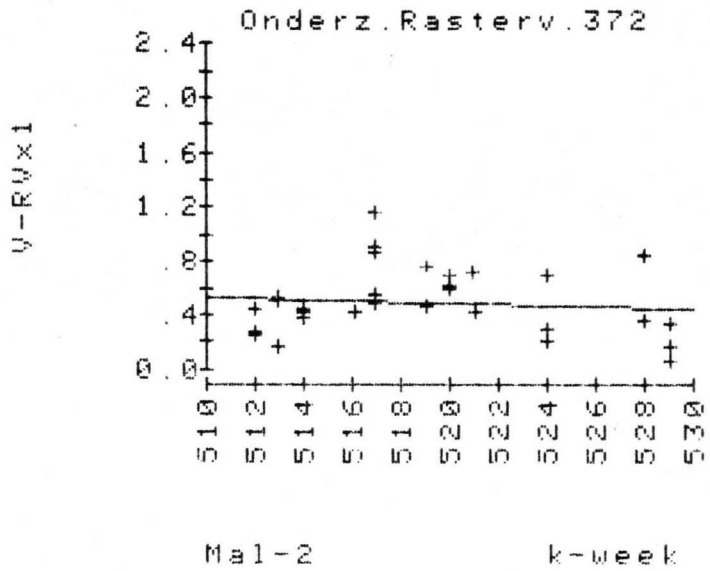


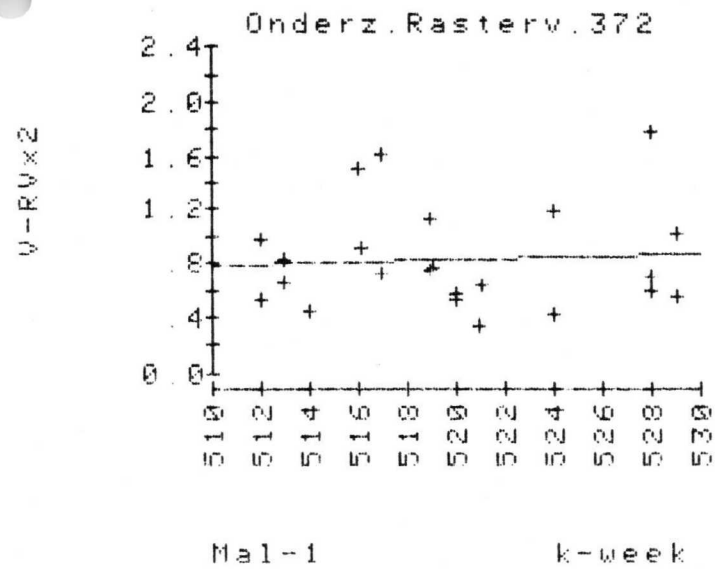
Mal-1 V-RVx2

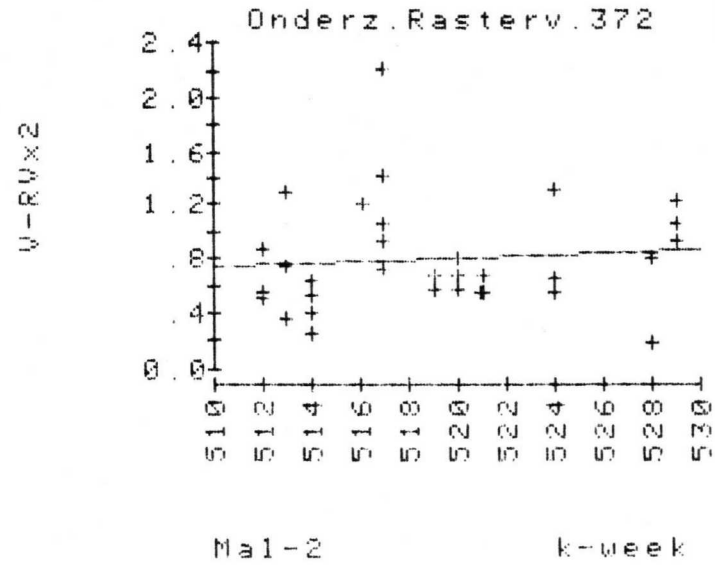

Onderz.Rasterv.372
V-Hdl
60
40
20
0
-20
-40
-60
510 512 514 516 518 520 522 524 526 528 530
Mal-1
k-week


Onderz.Rasterv.372
V-Hdl
70
50
30
10
-10
-30
-50
-70
510 512 514 516 518 520 522 524 526 528 530
Mal-2
k-week


Onderz.Rasterv.372
V-RVx1
2.4
2.0
1.6
1.2
.8
.4
0.0
510 512 514 516 518 520 522 524 526 528 530
Mal-1
k-week

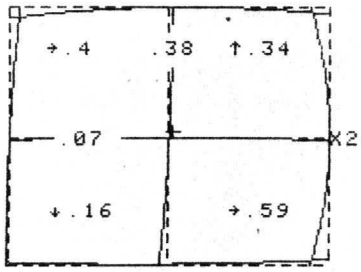

Onderz.Rasterv.372
V-RVx1
2.4
2.0
1.6
1.2
.8
.4
0.0
510 512 514 516 518 520 522 524 526 528 530
Mal-2
k-week


Onderz.Rasterv.372
V-RVx2
2.4
2.0
1.6
1.2
.8
.4
0.0
510 512 514 516 518 520 522 524 526 528 530
Mal-1
k-week


Onderz.Rasterv.372
V-RVx2
2.4
2.0
1.6
1.2
.8
.4
0.0
510 512 514 516 518 520 522 524 526 528 530
Mal-2
k-week

Detailinformatie : Kanonweekproduktie 528 en 529.

D14-370GH/123 V.M
Kanonnr.: 5281152
mal 1.



Mx,y: X=8.55 Y=4.43 V/cm
Exc.: X=1.17 Y=1.67 mm
Hdl=89.74 |MaxRV=.59 mm
(Schaal: 1 div.=10 mm)

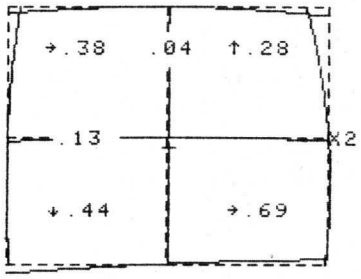
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .01 /	
Tgv H.d.l.		/ .37 /	
Tgv)(mid		) -.10)	
Ton/Kussen	(.24		-.48)
Trapezium	/ .02		-.38 \
Gemeten:	.40	.38	.59

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .01 /	
Tgv)(mid		) -.07)	
Ton/Kussen	(.18		-.20)
Trapezium	\ -.10		-.15 \
Gemeten:	.16	.07	.34

Maximale rastervert. = .59 mm

D14-370GH/123 V.M
Kanonnr.: 5281190
mal 1



Mx,y: X=8.24 Y=4.32 V/cm
Exc.: X=.14 Y=-3.26 mm
Hdl=89.97 |MaxRV=.69 6mm
(Schaal: 1 div.=10 mm)

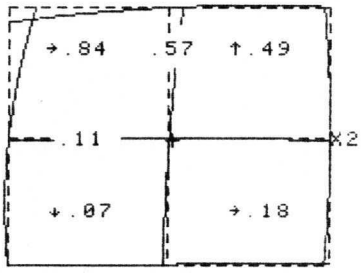
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.04 \	
Tgv H.d.l.		/ .04 /	
Tgv)(mid		(.04 (	
Ton/Kussen	(.20		-.42)
Trapezium	/ .27		-.62 \
Gemeten:	.38	.04	.69

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.04 \	
Tgv)(mid		) -.11)	
Ton/Kussen	(.03		-.14)
Trapezium	\ -.40		.11 /
Gemeten:	.44	.13	.28

Maximale rastervert. = .69 mm

D14-370GH/123 V.M
Kanonnr.: 5281192
mal 2



Mx,y: X=8.54 Y=4.31 V/cm
Exc.: X=.86 Y=-.67 mm
Hdl=89.58 |MaxRV=.84 mm
(Schaal: 1 div.=10 mm)

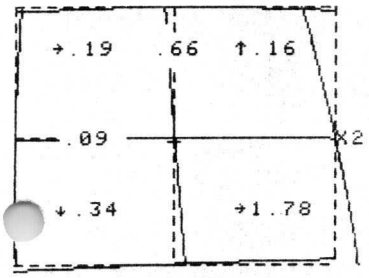
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		/ .59 /	
Tgv)(mid		(.13 (	
Ton/Kussen	(.29		-.31)
Trapezium	/ .28		-.57 \
Gemeten:	.84	.57	.18

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.03 \	
Tgv)(mid		) -.10)	
Ton/Kussen	(.09		-.12)
Trapezium	\ -.04		-.46 \
Gemeten:	.07	.11	.49

Maximale rastervert. = .84 mm

D14-370GH/123 V.M
Kanonnr.: 5281129
mal 1



Mx,y: X=8.48 Y=4.36 V/cm
Exc.: X=-.4 Y=-1.3 mm
Hdl=90.44 |MaxRV=1.78 mm
(Schaal: 1 div.=10 mm)

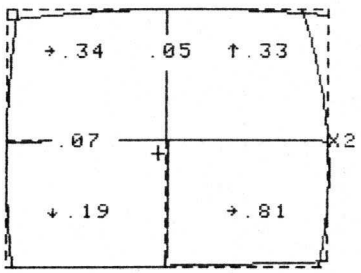
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.04 \	
Tgv H.d.l.		\ -.62 \	
Tgv)(mid		(.00 (	
Ton/Kussen	(.12		-.16)
Trapezium	/ .79		-1.12 \
Gemeten:	.19	.66	1.78

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.05 \	
Tgv)(mid		) -.07)	
Ton/Kussen	(.04		-.07)
Trapezium	\ -.30		-.00 \
Gemeten:	.34	.09	.16

Maximale rastervert. = 1.78 mm
UITVAL RASTERVERTEKENING !!!

D14-370GH/123 V.M
Kanonnr.: 5281143
mal 2



Mx,y: X=8.43 Y=4.28 V/cm
Exc.: X=-2.97 Y=-4.28 mm
Hdl=90.02 |MaxRV=.81 8mm
(Schaal: 1 div.=10 mm)

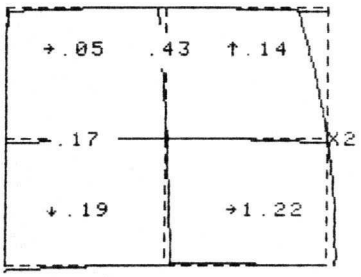
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		\ -.03 \	
Tgv)(mid		) -.02)	
Ton/Kussen	(.30		-.51)
Trapezium	/ .19		-.50 \
Gemeten:	.34	.05	.81

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.02 \	
Tgv)(mid		) -.06)	
Ton/Kussen	(.11		-.20)
Trapezium	\ -.16		-.12 \
Gemeten:	.19	.07	.33

Maximale rastervert. = .81 mm

D14-370GH/123 V.M
Kanonnr.: 5291828
mal 2



Mx,y: X=8.34 Y=4.28 V/cm
Exc.: X=.61 Y=.11 mm
Hdl=90.3 |MaxRV=1.22 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.01 \	
Tgv H.d.l.		\ -.42 \	
Tgv)(mid		) -.05)	
Ton/Kussen	(.09		-.28)
Trapezium	/ .45		-.80 \
Gemeten:	.05	.43	1.22

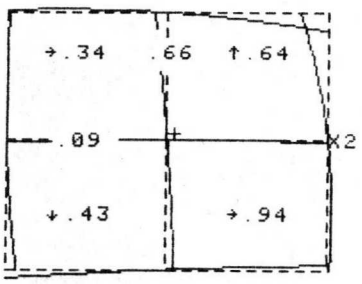
Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.01 \	
Tgv)(mid		) -.17)	
Ton/Kussen	(.05		.04 (
Trapezium	\ -.13		.04 /
Gemeten:	.19	.17	.14

Maximale rastervert. = 1.22 mm
UITVAL RASTERVERTEKENING !!!

Detailinformatie : kanonweekproduktie 528 en 529.

D14-370GH/123 V.M
Kanonnr.: 5291830

mal 2



Mx,y: X=8.18 Y=4.24 V/cm
Exc.: X=1.96 Y=1.8 mm
Hdl=90.47 | MaxRV=.94 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

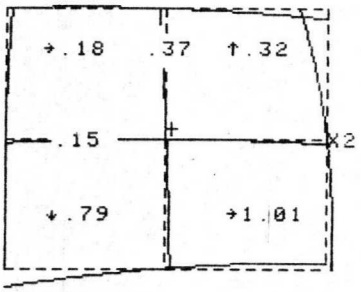
X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.65 \	
Tgv)(mid		) -.07)	
Ton/Kussen	(.28		-.32)
Trapezium	/ .37		-.29 \
Gemeten:	.34	.66	.94

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.00 \	
Tgv)(mid		) -.09)	
Ton/Kussen	(.02		-.16)
Trapezium	\ -.42		.64 /
Gemeten:	.43	.09	.64

Maximale rastervert. = .94 mm

D14-370GH/123 V.M
Kanonnr.: 5291833

mal 1



Mx,y: X=8.4 Y=4.33 V/cm
Exc.: X=1.42 Y=2.88 mm
Hdl=90.28 | MaxRV=1.01 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

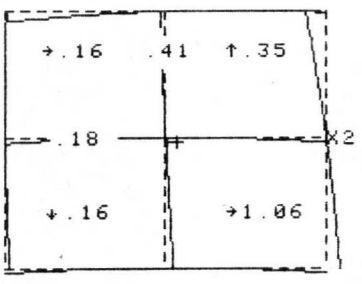
X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .02 /	
Tgv H.d.l.		\ -.39 \	
Tgv)(mid		) -.05)	
Ton/Kussen	(.16		-.30)
Trapezium	/ .51		-.64 \
Gemeten:	.18	.37	1.01

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .03 /	
Tgv)(mid		) -.14)	
Ton/Kussen	) -.07		-.03)
Trapezium	\ -.81		.30 /
Gemeten:	.79	.15	.32

Maximale rastervert. = 1.01 mm
UITVAL RASTERVERTEKENING !!!

D14-370GH/123 V.M
Kanonnr.: 5291809

mal 2



Mx,y: X=8.34 Y=4.34 V/cm
Exc.: X=3.22 Y=-1.33 mm
Hdl=90.28 | MaxRV=1.063mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

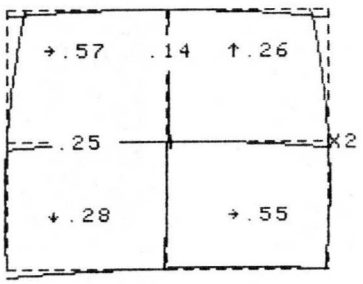
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		\ -.39 \	
Tgv)(mid		(.05 (	
Ton/Kussen	(.05		-.16)
Trapezium	/ .30		-.65 \
Gemeten:	.16	.41	1.06

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.03 \	
Tgv)(mid		) -.17)	
Ton/Kussen	(.01		-.03)
Trapezium	/ .03		-.27 \
Gemeten:	.16	.18	.35

Maximale rastervert. = 1.06 mm
UITVAL RASTERVERTEKENING !!!

D14-370GH/123 V.M
Kanonnr.: 5291859

mal 1



Mx,y: X=8.37 Y=4.28 V/cm
Exc.: X=.88 Y=-.05 mm
Hdl=89.88 | MaxRV=.57 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.03 \	
Tgv H.d.l.		/ .17 /	
Tgv)(mid		) -.02)	
Ton/Kussen	(.31		-.31)
Trapezium	/ .43		-.58 \
Gemeten:	.57	.14	.55

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.04 \	
Tgv)(mid		) -.23)	
Ton/Kussen	(.07		-.01)
Trapezium	\ -.22		.09 /
Gemeten:	.28	.25	.26

Maximale rastervert. = .57 mm

D14-372 : Fotografische Schrijfsnelheid. (PWS)

1. Inleiding: In het kader van de vrijgave werden de beschikbare PWS-metingen verzameld.

2. Resultaten:

a) Indiv. o-hr metingen van: PWS
Is/spot ⌀
Ibx (V_d=30V)
Ibx (V_d=50V)
Lum.
zie app. 4.

b) App 1: Histogram PWS

c) App. 2: Samengevatte info op alle parameters

d) App. 3: Korrelatie PWS = f (Ibx 50V)
PWS = f (Lum).

3. Konklusie:

Het nivo van PWS (gem. 1,5 cm/ns) is veel te laag in relatie tot de wens van ≥2 cm/ns.

Verband tussen PWS en enige andere bovengenoemde parameter is niet aangetoond.
(zie correlatie-matrix in app.2)

Zodra buizen gereed zijn met een betere konstruktie qua emissie-gedrag moet nader onderzoek volgen, en wel in kruisproef (Al ↔ Hit) meten om de meetspreiding zoveel mogelijk uit te schakelen.

Met deze gegevens is het niet verantwoord om de publikatie op typical 2 cm/ns te handhaven indien geen verbetering bereikt wordt.

kopie HH Modderman
Zeppenfeld
Koppelmans
Warnier
Cobben
Vleeschouwers
Geurts
Schols RfP dossier

Heerlen, 29-8-'85

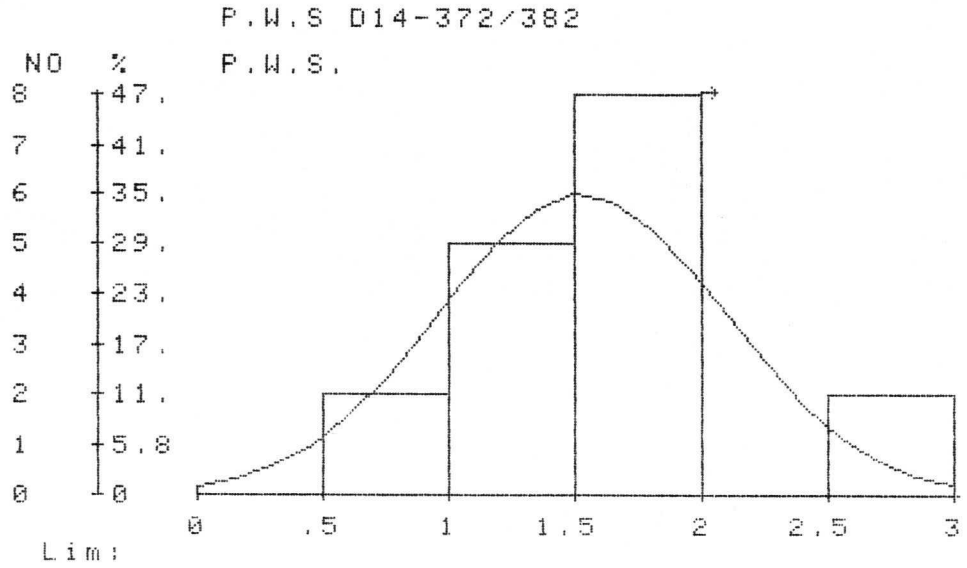
Sieben d.g.

App. 1

* * STATISTIEK * *

P.W.S D14-372/382. Geen subfiles. Var.:P.W.S.

Gemiddelde= 1.53	Gem.-3S= -.17
Sdev. = .57	Gem.+3S= 3.22
N = 17	Min. X = .5
Range= 2.1	Max. X = 2.6



```
**********************************
*      STAT. SAMENVATTING        *
*         VAN DATA SET:          *
*       P.W.S D14-372/382        *
**********************************
```

App. 2

Var.:	Aantal waarn.	Missend	GEMIDDELDE	Stand.dev.
P.W.S.	17	2	1.5253	.5650
Is/O	5	14	27.2200	3.1665
Ibx30V	19	0	25.9684	3.9199
Ibx50V	11	8	70.1727	11.1982
Lum.	19	0	766.9474	27.9016

95% BETROUWBAARHEIDSINT.v/h GEM.

Var. Namen	Ondergrens	Bovengrens
P.W.S.	1.2347	1.8159
Is/O	23.2880	31.1520
Ibx30V	24.0786	27.8582
Ibx50V	62.6477	77.6978
Lum.	753.4960	780.3988

Gemiddelde +/- 3*Sdev

	Gem.-3S	Gem.+3S
P.W.S.	-.1698	3.2204
Is/O	17.7204	36.7196
Ibx30V	14.2087	37.7281
Ibx50V	36.5781	103.7674
Lum.	683.2427	850.6520

CORRELATIE MATRIX

	Is/O	Ibx30V	Ibx50V
P.W.S.	-.2675	-.0017	.5642
Is/O		.6392	.0661
Ibx30V			.5877

	Lum.
P.W.S.	.2417
Is/O	-.2308
Ibx30V	-.2268
Ibx50V	-.3135

ORDE STATISTIEK

Var.	Maximum	MEDIAAN	Minimum	range
P.W.S.	2.6000	1.6300	.5000	2.1000
Is/O	31.9000	27.0000	24.2000	7.7000
Ibx30V	38.5000	25.4000	21.5000	17.0000
Ibx50V	85.2000	69.2000	52.7000	32.5000
Lum.	815.0000	772.0000	682.0000	133.0000

App.3

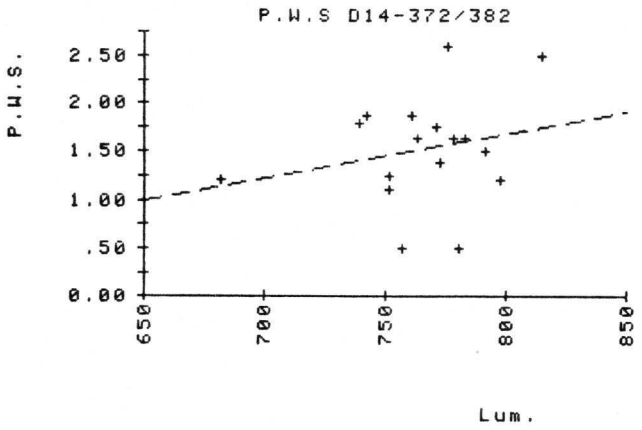
* * LINEAIRE REGRESSIE * *

Projektnaam:P.W.S D14-372/382. Geen subfiles.

	X=Lum.	Y=P.W.S.
n = 17		
Gem.	766	1.53
Sdev	29.27	.57
Min.	682	.5
Max.	815	2.6

Regr.lyn is Y*= 0 X-2.05
Corr. coeff. r= .242 ,en toets op regressie:t= .96
Toetsgrens t(95% eenz.)= 1.753 by phi= 15 vhg.

Opm.: Regr. van X op Y zou zyn: X*= 12.52 Y+ 746.91



2022 100 88283

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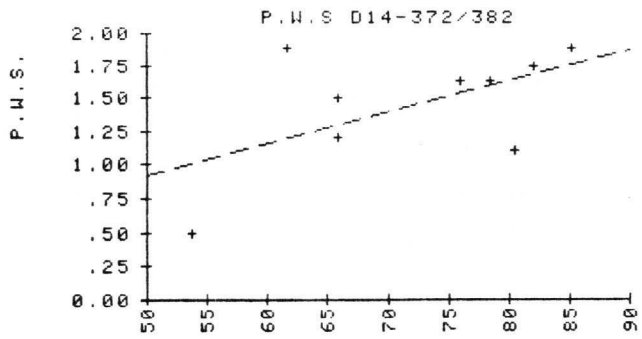
* * LINEAIRE REGRESSIE * *

Projektnaam:P.W.S D14-372/382. Geen subfiles.

	X=Ibx50V	Y=P.W.S.
n = 9		
Gem.	72.22	1.45
Sdev	10.67	.45
Min.	53.9	.5
Max.	85.2	1.88

Regr.lyn is Y*= .02 X-.26
Corr. coeff. r= .564 ,en toets op regressie:t= 1.81
Toetsgrens t(95% eenz.)= 1.895 by phi= 7 vhg.

Opm.: Regr. van X op Y zou zyn: X*= 13.39 Y+ 52.77



	pws	I_s/ϕ	I_{bx} 30 V$_d$	I_{bx} 50 V$_d$	Lum.	LD kaart/ proef			
5050956	2.6	15.3 1)	26		776	1350			
09 63	2,5	15.2 1)	24.6		815	"			
0957	1,2	13.9 1)	23		682	"			
5101492	1.8		28.5		740	1360			
1481	1.25		23.3		752	"			
510 1462	< 0,5		23.5		781	1361			
1466	1.38		22.8		773	"			
0931	1.63		25.4		764	"			
510 1473	1.2		23	66	798	1362			
1489	1.63		26	76	783	"			
0934	1.5		21.5	66	792	"			
5730312	1.1		38.5	80.5	752	"			
0304	1.63		27.7	78.5	779	"			
0368	str. str.		21.6	52.7	784	"			
520 1077	str. str	31.9 2)	28.2	69.2	766	RfP			
1306	1.88	24.2 2)	25	61.8	762	Serie			
514 1174	1.75	24.5 2)	27.1	82.1	772	III			
1151	1.88	28.5 2)	30.3	85.2	743				
513 0356	< 0,5	27 4)	27.4	53.9	758				
TOTAAL:									

1) $f = 50$ Hz $S = 25\%$. 2) $t_p = 100$ ns $T = 100$ à 500 µs.
$V_d = 50$ V

I

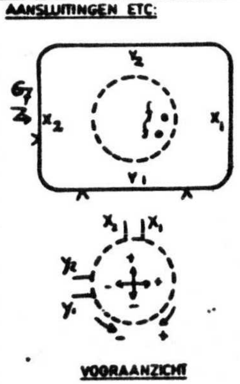
PHILIPS
M.I.B.D.
Elektronic components and materials Division

TENZIJ ANDERS AANGEGEVEN:
KANONSPANNING: $-V_k/g_2$ = 2,2 kV
NAVERSNELLING: $+V_3/g_2$ = 14,3 kV

VOORWARMEN tot I_k stabiel is

AANSLUITINGEN ETC:

PENNEN	
1:	f
2:	k
3:	g_1
4:	g_3
5:	G4
6:	G5
7:	Opm. 1
8:	-
9:	Opm. 1
10:	-
11:	Opm. 1
12:	g_2
13:	Opm. 1
14:	f



VOORAANZICHT

INSTELLING / METING NR	2521	2525	2519	2523	2537	2541	2545	2549	2553	2557				
	— Kruiscapaciteiten —													
	2701 + 2710 + (afgeschermde snoertjes)										afgeschermde snoertjes			
Meetbuishouder														
Houder op ref.punt	9	11	9	8	8	7	3	2	4					
Steker plaat	11090	10932	3004	2907	10868	10869	11053	11053	11053					
RH 6-3-0 /487 SCHEMA	A3 ←									→ A3				
NR:	53 ←									→ 53				
METING	C_{x_1/x_2}	$C_{x_1(x_2)}$	$C_{x_2(x_1)}$	C_{y_1/y_2}	$C_{y_1(y_2)}$	$C_{y_2(y_1)}$	$C_{g_1/rest}$	$C_{k/rest}$	$C_{g_3/rest}$	$C_{g_7/rest}$ (S=nav)		X_1/Y_1	X_1/Y_2	X_2/Y_1	X_2/Y_2

TYPE	POS-FOR	RASTER	KANONNR:	C_{x_1/x_2}	$C_{x_1(x_2)}$	$C_{x_2(x_1)}$	C_{y_1/y_2}	$C_{y_1(y_2)}$	$C_{y_2(y_1)}$	$C_{g_1/rest}$	$C_{k/rest}$	$C_{g_3/rest}$	$C_{g_7/rest}$		X_1/Y_1	X_1/Y_2	X_2/Y_1	X_2/Y_2
115D14	GH	93	521085	3.21	4.50	3.51	1.35	2.93	3.03	6.42	3.21	7.80	495		0.57	0.03	0.44	0.04
			521026	3.40	4.68	3.50	1.35	2.94	3.00	6.41	3.16	7.88	489		0.57	0.03	0.42	0.04
			521044	3.22	4.58	3.55	1.35	2.94	3.09	6.45	3.18	7.84	478	*	0.58	0.03	0.48	0.04
			521037	3.22	4.56	3.50	1.35	2.86	3.05	6.43	3.16	7.91	489	*	0.52	0.03	0.45	0.04
115D14	GH	93	521025	3.19	4.65	3.69	1.35	2.94	3.04	6.42	3.21	7.95	487	*	0.56	0.03	0.47	0.04

		C_{x_1/x_2}	$C_{x_1(x_2)}$	$C_{x_2(x_1)}$	C_{y_1/y_2}	$C_{y_1(y_2)}$	$C_{y_2(y_1)}$	$C_{g_1/rest}$	$C_{k/rest}$	$C_{g_3/rest}$	$C_{g_7/rest}$
STEEKPROEF-RESULTAAT											
EISEN F/L-EISEN	MIN.							5,3	2,5		
	NOM							5,9	3,1		
	MAX.							6,5	3,7		
SPECIALE EISEN											
EENHEID		pF	pF	pF	pF	pF	pF	pF	pF	pF	pF
OPMERKING:		106 / 111	106 / 111	106 / 111	106 / 111	106 / 111	106 / 111				

Opm 1	X,Y op zijkond.	geen zijkond.
TYPE / pen	D14-380GH/93	D14-370GH/93
7	ic	Y_2
9	ic	Y_1
11	ic	X_2
13	ic	X_1

opm*: aquadag hals maakt geen kontakt met aquadag conus. visueel niets te zien aan plaknaad,: kan ook overgangsweerstand zijn.

Test L

~~D14-380GH/93~~
~~D14-370GH/93~~
115D14

83-05-31
84-03-20

NAAM / NAME: Offermans
VERV. / SUPERS.
KH
BL. SH. 362-5 027
CONTR. CHECK
Dat 83-05-31
Form. A3

N.V. PHILIPS' GLOEILAMPENFABRIEKEN - EINDHOVEN NEDERLAND

1

(2)

II

PHILIPS

M.I.S.D.
Electronic components and materials Division

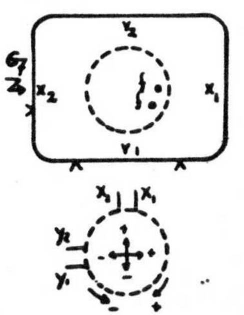
TENZIJ ANDERS AANGEGEVEN:

KANONSPANNING: $-V_k/g_2$ = 2,2 kV
NAVERSNELLING: $+V_s/g_2$ = 14,3 kV

VOORWARMEN tot I_k stabiel is

AANSLUITINGEN ETC:

PENNEN:	
1:	f
2:	k
3:	g_1
4:	g_2
5:	G4
6:	G5
7:	Opm. 1
8:	–
9:	Opm. 1
10:	–
11:	Opm. 1
12:	g_3
13:	Opm. 1
14:	f



VOORAANZICHT

INSTELLING / METING NR	2521	2525	2519	2523	2537	2541	2545	2549	2553	2557
Meetbuishouder	2701 + 2710 (afgeschermde snoertjes)									
Houder op ref. punt	9	11	9	8	8	7	3	2	4	
Steekerplaat	11090	10932	3004	2907	10868	10869	11053	11053	11053	
RH 6-3-0 /487 SCHEMA	A3 →									→ A3
NR:	53 →									→ 53

— Kruiscapaciteiten —

afgeschermde snoertjes

TYPE	FOSFOR	RASTER	KANONNR:	$C_{x1/x2}$	$C_{x1(x2)}$	$C_{x2(x1)}$	$C_{y1/y2}$	$C_{y1(y2)}$	$C_{y2(y1)}$	$C_{g1/rest}$	$C_{k/rest}$	$C_{g3/rest}$	$C_{g7/rest}$ (S=nav)		X_1/Y_1	X_1/Y_2	X_2/Y_1	X_2/Y_2
115D14	GH	93	5130375	3.23	4.98	3.37	1.38	2.94	2.90	6.42	3.18	7.89	496	*	0.60	0.03	0.40	0.04
			5130373	3.28	4.70	3.43	1.34	2.97	2.78	6.45	3.20	7.69	498	*	0.53	0.03	0.44	0.04
			5130381	3.24	4.72	3.39	1.35	3.01	2.74	6.48	3.19	7.60	495		0.57	0.03	0.40	0.04
			5130309	3.38	4.67	3.44	1.37	2.92	2.92	6.50	3.21	7.72	499	*	0.53	0.03	0.42	0.04
115D14	GH	93	5130370	3.21	4.39	3.60	1.37	2.98	2.84	6.34	3.20	7.68	500		0.54	0.03	0.42	0.04
STEEKPROEF-RESULTAAT																		
EISEN F/L-EISEN MIN.										5,3	2,5							
NOM										5,9	3,1							
MAX.										6,5	3,7							
SPECIALE EISEN																		
EENHEID				pF	pF	pF	pF	pF	pF	pF	pF	pF	pF					
OPMERKING:				106 / 111	106 / 111	106 / 111	106 / 111	106 / 111	106 / 111									

Opm 1	X, Y op zijkond.	geen zijkond.
TYPE	D14-380GH/93	D14-370GH/93
7	ic	Y_2
9	ic	Y_1
11	ic	X_2
13	ic	X_1

opm *: aquadag hals maakt met aquadag conus geen goed kontakt, overgangsweerstand.

Test L

~~D14-380GH/93~~
~~D14-370GH/93~~
115D14

83-05-31
84-03-20

BL. 362-5 027

NAAM Offermans; VERV. / SUPERS.; CONTR. / CHECK; Dat 83-05-31

N.V. PHILIPS' GLOEILAMPENFABRIEKEN - EINDHOVEN NEDERLAND

Form. A3

III

PHILIPS

M.I.B.D.
Elektronic components and materials Division

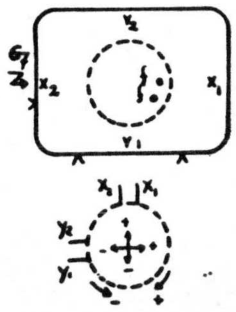
TENZIJ ANDERS AANGEGEVEN:

KANONSPANNING: $-V_k/g_2$ = 2,2 kV
NAVERSNELLING: $+V_3/g_2$ = 14,3 kV

VOORWARMEN tot Ik stabiel is

AANSLUITINGEN ETC:

PENNEN:	
1:	f
2:	k
3:	g_1
4:	g_3
5:	G4
6:	G5
7:	Opm. 1
8:	–
9:	Opm. 1
10:	–
11:	Opm. 1
12:	g_2
13:	Opm. 1
14:	f



VOORAANZICHT

INSTELLING / METING NR	2521	2525	2529	2533	2537	2541	2545	2549	2553	2557					
												— Kruiscapaciteiten —			
												afgeschermde snoertjes			
Meetbuishouder	9701 + 9710 + (afgeschermde snoertjes)														
Houder op ref.punt	9	11	9	8	8	7	3	2	4						
Stekerplaat	11090	10932	3004	2907	10868	10869	11053	11053	11053	→ A3					
RK 6-3-0/407 SCHEMA	A3 ←									→ 53					
NR:	53 ←														
METING	$C_{x1/x2}$	$C_{x1(x2)}$	$C_{x2(x1)}$	$C_{y1/y2}$	$C_{y1(y2)}$	$C_{y2(y1)}$	$C_{g1/rest}$	$C_{k/rest}$	$C_{g3/rest}$	$C_{g7/rest}$ (S=nav)	opm.	X_1/Y_1	X_1/Y_2	X_2/Y_1	X_2/Y_2

TYPE	FOSFOR	RASTER	KANONNR:	$C_{x1/x2}$	$C_{x1(x2)}$	$C_{x2(x1)}$	$C_{y1/y2}$	$C_{y1(y2)}$	$C_{y2(y1)}$	$C_{g1/rest}$	$C_{k/rest}$	$C_{g3/rest}$	$C_{g7/rest}$	opm.	X_1/Y_1	X_1/Y_2	X_2/Y_1	X_2/Y_2
115D14	GH	123	520077	3.17	4.71	3.44	1.35	2.84	3.12	6.48	3.25	7.69	505	*	0.57	0.04	0.41	0.05
			5201306	3.13	4.81	3.51	1.37	2.83	3.03	6.60	3.17	7.93	498	*	0.58	0.05	0.44	0.05
			541171	3.16	4.43	3.43	1.36	2.80	2.93	6.43	3.14	7.60	516		0.45	0.04	0.44	0.05
			541151	3.13	4.75	3.47	1.36	2.76	2.98	6.46	3.09	7.89	514		0.53	0.05	0.46	0.05
115D14	GH	123	530356	3.12	4.67	3.44	1.35	2.91	2.93	6.38	3.15	7.79	498		0.59	0.04	0.45	0.05

		$C_{x1/x2}$	$C_{x1(x2)}$	$C_{x2(x1)}$	$C_{y1/y2}$	$C_{y1(y2)}$	$C_{y2(y1)}$	$C_{g1/rest}$	$C_{k/rest}$	$C_{g3/rest}$	$C_{g7/rest}$
STEEKPROEF-RESULTAAT											
EISEN F/L-EISEN	MIN.							5,3	2,5		
	NOM.							5,9	3,1		
	MAX.							6,5	3,7		
SPECIALE EISEN											
EENHEID		pF	pF	pF	pF	pF	pF	pF	pF	pF	pF
OPMERKING:											

Opm 1	x, y op zijkant.	geen zijkant.
TYPE	D14-380GH/93	D14-370GH/93
7	ic	Y_2
9	ic	Y_1
11	ic	X_2
13	ic	X_1

opm* bij aarding van de aquadag op de hals van de buis is de capaciteit lager. (< 50pF)

Test L

~~D14-380GH/93~~
~~D14-370GH/93~~
115D14

BL. 362-5 027
83-05-31
84-03-20

NAAM Offermans
KH
N V PHILIPS' GLOEILAMPENFABRIEKEN - EINDHOVEN NEDERLAND
CONTR. CHECK Dat 83-05-31
Form. A3

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: n = 5 . Date: 29-8-'85 Type: D14-372GH/123

Ref: Serie III Factory: HRL Code: . . .

Vrijgave 2-staafjes. Spec. metingen.

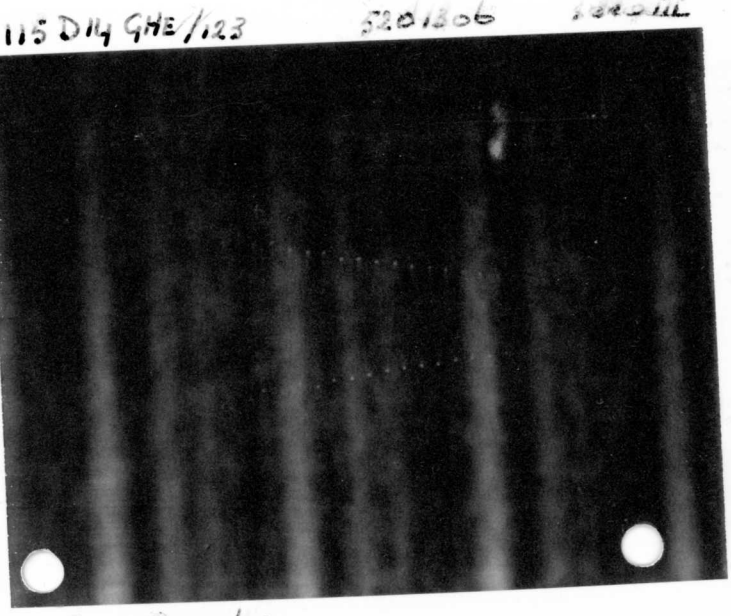
measurement												
test conditions												
meting.	lijnbreedte shrinking raster.											
plaats.	Schermmidden.											
	I-scherm.											
	2		10		15		25		µA.			
tube number	x	y	x	y	x	y	x	y		Vf = 6,3 V		
1= 5201077	0,27	0,27	0,30	0,31	0,33	0,34	0,41	0,43				
2= 5201306	0,25	0,26	0,34	0,35	0,37	0,39	0,46	0,46		Vk/g2 = 1,5 kV		
3= 5141174	0,28	0,28	0,30	0,32	0,33	0,36	0,50	0,51		Vs/k = 7,5 kV		
4= 5141151	0,27	0,28	0,31	0,32	0,33	0,34	0,48	0,47				
5= 5130356	0,26	0,26	0,32	0,32	0,33	0,34	0,43	0,41				
1	0,30	0,30	0,33	0,33	0,37	0,37	0,45	0,46				
2	0,29	0,31	0,33	0,36	0,40	0,42	0,53	0,54		Vk/g2 = 1,5 kV		
3	0,30	0,31	0,33	0,34	0,38	0,41	0,53	0,55		Vs/k = 12 kV		
4	0,30	0,32	0,35	0,36	0,38	0,40	0,51	0,54				
5	0,30	0,32	0,37	0,36	0,38	0,37	0,48	0,46				
1	0,27	0,26	0,30	0,31	0,32	0,33	0,37	0,37				
2	0,25	0,27	0,31	0,33	0,31	0,34	0,35	0,40		Vk/g2 = 2,2 kV		
3	0,28	0,28	0,31	0,32	0,32	0,33	0,37	0,39		Vs/k = 16,5 kV		
4	0,27	0,28	0,30	0,30	0,33	0,33	0,36	0,37				
5	0,26	0,26	0,29	0,30	0,30	0,30	0,35	0,35				
1	0,21	0,21	0,26	0,26	0,27	0,27	0,27	0,28				
2	0,19	0,20	0,24	0,25	0,26	0,28	0,28	0,30		Vk/g2 = 3 kV		
3	0,20	0,21	0,25	0,26	0,26	0,29	0,28	0,30		Vs/k = 16,5 kV.		
4	0,21	0,22	0,25	0,26	0,27	0,27	0,28	0,29				
5.	0,21	0,21	0,24	0,24	0,26	0,25	0,28	0,28				
average												
nom.												
100% min.												
Me min.												
Me max.												
100% max.												
unit	—	—	—	mm	—	—	—	—				

conclusion:

remark:

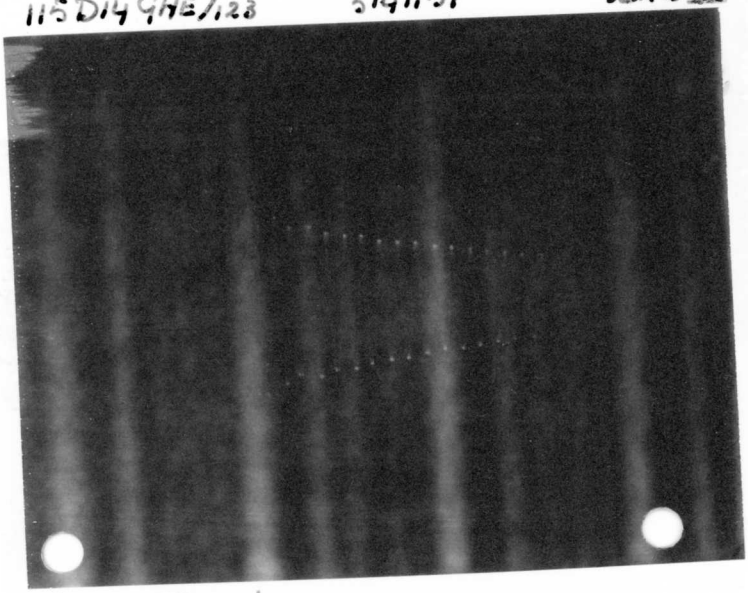
29-8-'85
F.G. Schols.

115 D14 GHE/123 520806 serie III



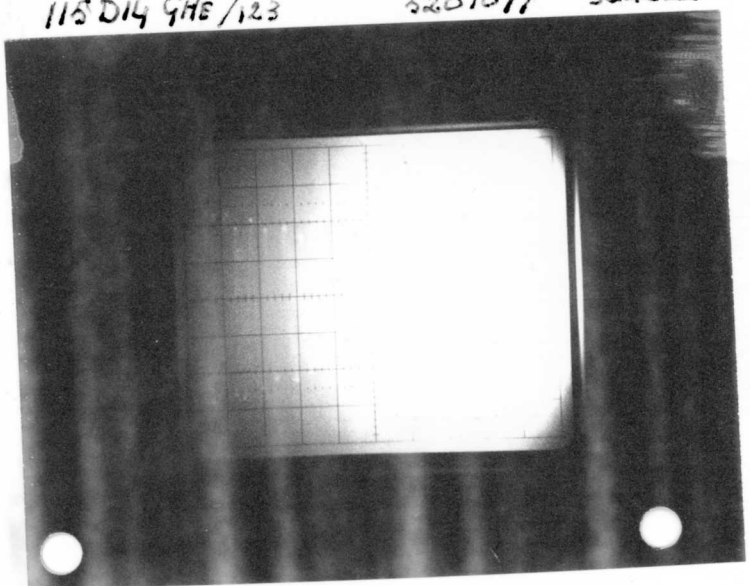
Ws = 1,88 cm/ns.

115 D14 GHE/123 5141151 serie III

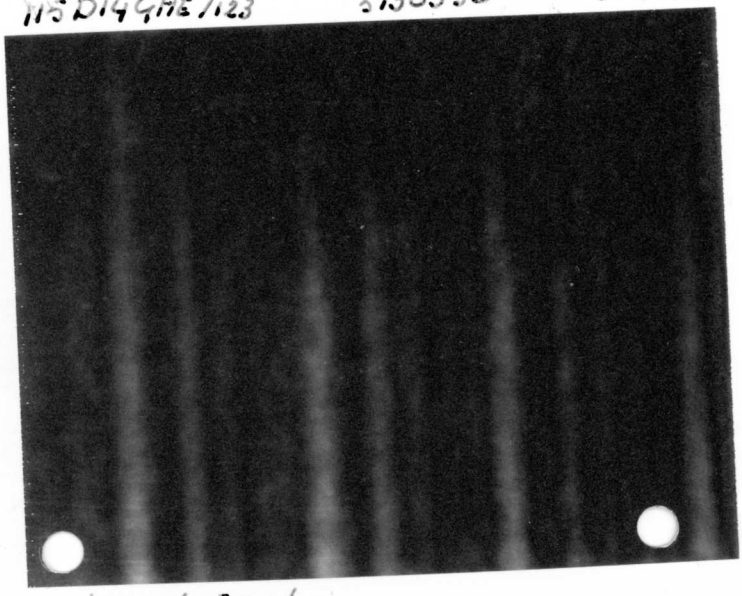


Ws = 1,88 cm/ns

115 D14 GHE/123 520777 serie III

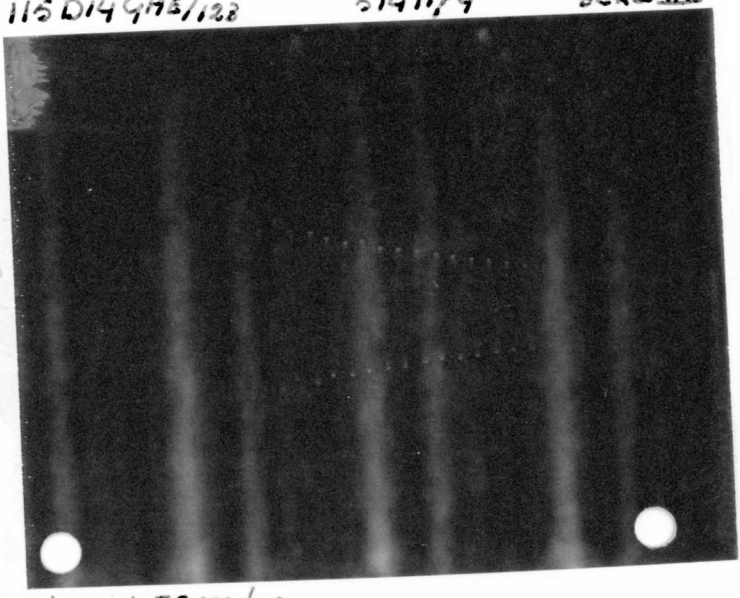


115 D14 GHE/123



Ws = < 0,5 cm/ns.

115 D14 GHE/123 5141174 serie III



Ws = 1,75 cm/ns.

Speciale metingen aan 2 Staafjes-bolgaas 14cm typen.

Vg7 / Vg4,5 = nav. verh.		A	B	C	D	E
	Vg2	1.5	2	2.2	2,5	7,5
	Vg4,5	1.5	2	2.2	2.5	3,3
1	4	Vs/k 6	8	8,8	10	13,2
2	5	7.5	10			16,5
3	7.5			16.5		(18)
4	8		16	17.6	/	/
5	10	15	/	/	/	/ Vs-k

Procedure:

N = 5 buizen. Serie III.

1: Demagnetiseren en meten bij 2,2/2,2+14.3 kV : Proceskontrole-metingen (progr. na magn.)

2: Magnetiseren volgens standaard-procedure bij 2,2/2,2+14.3 kV. (C3)

3: Meten op L-ei volgens 2,2/2,2+14,3 kV (C3) als vrijgaveserie. + gepulste spotprofiel + W_s + I/ϕ

4: Bijzondere metingen z.v.:

Meting	Instelling volgens cel	
Resthelderheid $X_1 X_2 Y_1 Y_2$	E1	(app. RH van fabriek!)
RV plaatjes met HP85	E1 + B2	
Rotatiekonstante	E3	
Spotprofiel X+Y Schermmidden:		
- profielmeter, gepulste spot (W_s)	A5	
- Shrinking raster bij 10+20 μA; I_s	A5	
- defl. defoc $X_1 X_2 Y_1 Y_2$	A5	
$V_{g3} = f(V_d)$ (tot max. V_d = 2.5% van $V_{g4,5}$, ΔV_d = 10V)	A1	
Lineariteit	A1	

Laat de metingen niet bederven door bv slechte emissie e.d! Geschikte, stabiele buizen!

Sieben
3-5-88.

Kopie HH Zeppenfeld
Schols
Thiessen
Koppelmans
Cobben
Feusts

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: . . . . Date: . . . . . Type: . . . .

Ref: . . . . . Factory: . . . . Code: . . . .

Speciale metingen:

measurement												
test conditions												
puls =	100 ns.			} Vd = 50V.								
δ =	100 á 200 µs.											
				→ ium. halderheid camerabus:								
inst	C3.						inst			A5		
	Spot ⌀			Ibk		Is.	Spot ⌀				Ibk	Is.
	X	Y					X	Y				
tube number	Loop						Loop.					
5201077.	1,5	1.7		67,2		51	3.0	3,0			73.0	56.0
5201306.	1.5	1.8		55,5		40	3.0	3.2			74.0	54.0
5141174.	2.0	2.0		67,9		49	3.5	3.8			76.4	64.0
5141151.	1.6	1.8		69.7		48.5	3.0	3.0			74.7	56,0
5130356.	1.6	1.8		62.3		46.0	2.6	2.8			81.7	65,0
average												
nom.												
100% min.												
Me min.												
Me max.												
100% max.												
unit												

conclusion:

remark:

PHILIPS

D14-372

L 2 staafjes

buisnrs 520 1077
1306
514 1174
1151
573 0356.

nog meten:

Shrinking raster schermmidden.

bij I scherm = 2 / 10 / 15 / 25 μA.

bij 2,2 / 16,5

1,5 / 7.5

1,5 / 12

3 / 16,5

↑ V_{g4} ↑ tov kath.!

ΔV_{g3} / $50 V_d$ = 55 V bij 2,2 kV.

= $44/V_d$ =

" / $40 V_d$ = 45 V bij 1,5 kV

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** **Appendix . .**

Number: . . . . . Date: . . . . . . Type: 115D14GH/123

Ref: . . . . . . Factory: . . . . . Code: . . . .

Vrijgave 3e serie Speciale metingen

measurement												
test conditions						spotprofiel/ gepulste spot (ws). vd=50 onmogelijk S=						
A5												
Vg2 - Vg4·5 = 1,5kV Vs/k = 15 kV.	lijnbreedte. str. kasten.							deflectie defasering.				
	Is=10		Is=20				Vastm.	(vastm=0)				
tube number	X	Y	X	Y				X_1	X_2	Y_1	Y_2	
5201077	0,40	0,41	0,53	0,53			-4	0,9	0,9	1,0	1,1	
520 1306	0,41	0,43	0,54	0,56			-7	0,8	0,9	1,25	1,13	
514 1174	0,40	0,40	0,55	0,55			-5	0,8	0,8	1,0	1,0	
514 1151	0,43	0,43	0,54	0,55			-7	0,9	0,8	1,0	1,0	
5130356.	0,43	0,43	0,52	0,52			-6	0,8	0,8	1,0	1,0	
S	0.015	0.014	0.011	0.016								
average $\bar{X}_5$	0.41	0.42	0.54	0.54			-6	0.8	0.8	1.05	1.05	
nom.												
100% min.												
Me min.												
Me max.												
100% max.												
unit												

conclusion:

remark:

Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: . . . . Date: . . . . Type: 11SD14GH/123

Ref: . . . . . Factory: . . . . Code: . . .

Vrijgave 3e serie. Speciale metingen

measurement												
test conditions												
A1												
$V_{g2}-V_{g4,5}=1{,}5kV$												
$V_{s/k}=6kV$		linearitet.			V_{c0}	V_{g3}	Vasim.					
tube number												
5201077					52,5	370	-2					
5201306					55,0	375	0					
5141174		zie bijlage.			55,0	370	-5					
5141151					51,0	370	-2,5					
5130356.					54,0	380	+0,5					
					V	V	V					
A1												
			$V_{g3}=f(V_d)$					ΔV_{g3} ($\Delta V_d=40V$)				
$V_d=$	0	10	20	30	40							
5201077	370	370	360	345	330			40				
5201306	375	375	365	345	330			45				
5141174	370	365	355	340	325			45				
5141151	370	370	365	340	325			45				
5130356.	380	375	360	350	330	[V]		50				
								$\bar{x}=45V$				
average												
nom.												
100% min.												
Me min.												
Me max.												
100% max.												
unit												

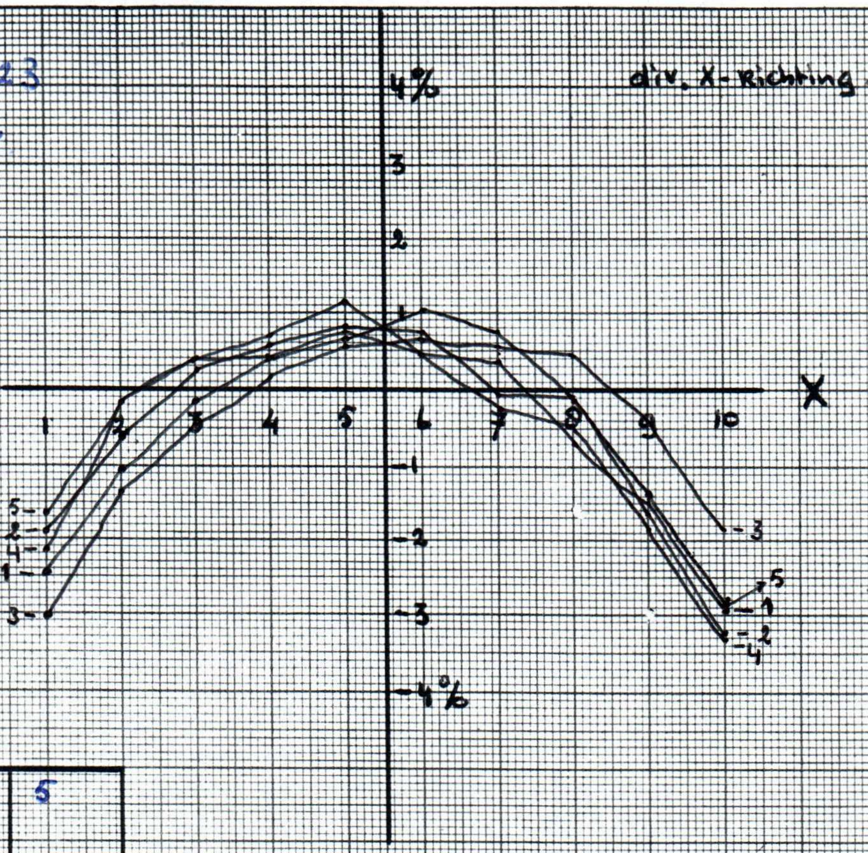
conclusion:

remark:

Type : 115DI4GH/123

just: $V_{g2\text{-}4\text{-}5}$ = 1,5 kV
$V_{g3/4}$ = 6 kV

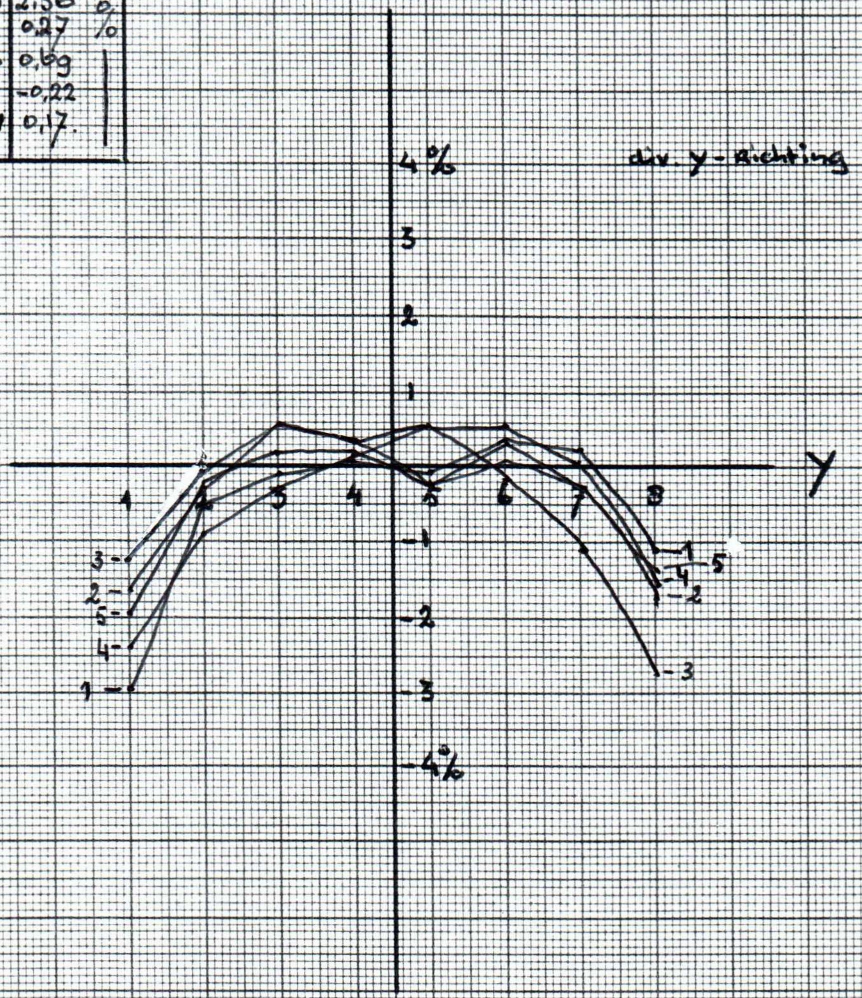
Lin. gem. 80% → f(div)



	1	2	3	4	5
Buisnummer.	520-1077	520-1306	514 1174	514 1151	513 0356.
Lin. max x	4,07	4,15	3,76	4,61	3,61
Lin. max y	3,41	2,37	3,36	2,99	2,36
Lin (25-75%) x1	0,56	0,44	0,66	0,51	0,27
Lin (25-75%) x2	0,80	0,72	0,26	0,76	0,69
Lin (25-75%) y1	-0,28	-0,11	0,01	0,16	-0,22
Lin (25-75%) y2	0,22	0,17	0,11	0,54	0,17.

(values in %)

Lin. gem. 75% → f(div)



24-6-'05
JB.

```
============================
Vrygave inst.vk=1.5 vs/k=6
115D14GH/123  5201077
INPUT overzicht HORIZONTAAL
============================
Div  1ste   2de   Meetfout Gem.
X 1   6.30   6.28     .3%   6.29
X 2   6.38   6.38    0.0%   6.38
X 3   6.44   6.44    0.0%   6.44
X 4   6.48   6.47     .2%   6.48
X 5   6.49   6.49    0.0%   6.49
X 6   6.51   6.52    -.2%   6.52
X 7   6.50   6.49     .2%   6.50
X 8   6.44   6.44    0.0%   6.44
X 9   6.36   6.36    0.0%   6.36
X10   6.26   6.26    0.0%   6.26
/

INPUT overzicht VERTIKAAL
==========================
Div  1ste   2de   Meetfout Gem.
Y 1   2.94   2.93     .3%   2.94
Y 2   3.01   3.01    0.0%   3.01
Y 3   3.02   3.02    0.0%   3.02
Y 4   3.03   3.02     .3%   3.03
Y 5   3.02   3.02    0.0%   3.02
Y 6   3.03   3.04    -.3%   3.04
Y 7   3.03   3.03    0.0%   3.03
Y 8   2.99   2.99    0.0%   2.99


%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%   Rapport LINEARITEIT van:   %
% Vrygave inst.vk=1.5 vs/k=6   %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Type      :115D14GH/123

Buis      :5201077
Meetdatum:19-6-1985

HORIZONTAAL   LIN    LIN
Div Mx/div   100%    80%
--------------------------------
X 1   6.29  -1.94  -2.47
X 2   6.38   -.54  -1.08
X 3   6.44    .40   -.15
X 4   6.48    .94    .40
X 5   6.49   1.18    .63
X 6   6.52   1.57   1.02
X 7   6.50   1.25    .71
X 8   6.44    .40   -.15
X 9   6.36   -.85  -1.39
X10   6.26  -2.41  -2.94
In:[V/div]    [%]    [%]

Lin.max.= 4.07 %

Lin(25/75%)X1= .56 %
Lin(25/75%)X2= .8 %

Overzicht DEFLEKTIEFACTOREN X:
==============================
Gem.(100%)= 6.41  V/div
Gem.(80%) = 6.45  V/div
Mx (def.) = 6.49  V/div

Exc defl.factor=-.02 V =-.35 %
◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀
```

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◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀

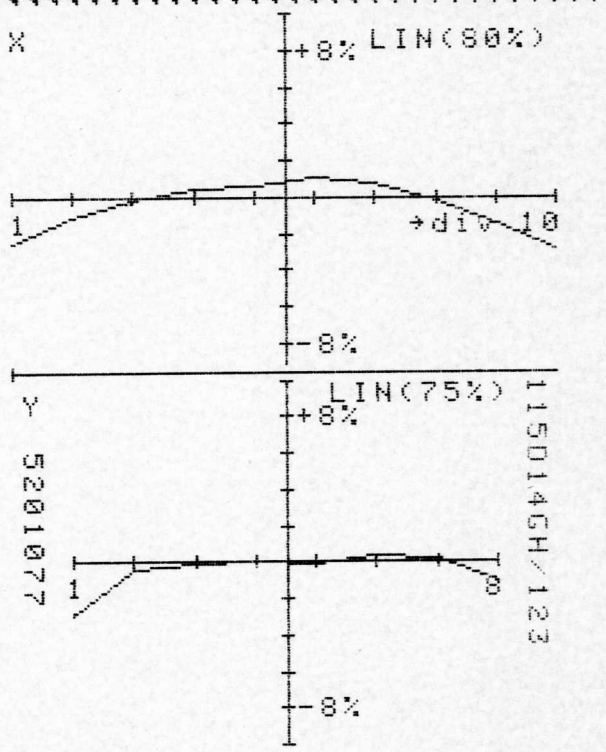
VERTIKAAL      LIN     LIN     LIN
Div My/div    100%    80%     75%
--------------------------------------
Y 1    2.94  -2.43   -2.80   -2.92
Y 2    3.01    .06    -.32    -.44
Y 3    3.02    .39     .02    -.11
Y 4    3.03    .56     .18     .06
Y 5    3.02    .39     .02    -.11
Y 6    3.04    .89     .51     .39
Y 7    3.03    .73     .35     .22
Y 8    2.99   -.60    -.98   -1.10
In:[V/div]    [%]     [%]     [%]

Lin.max.= 3.41 %

Lin(25/75%)Y1=-.28 %
Lin(25/75%)Y2= .22 %

Overzicht DEFLEKTIEFACTOREN:Y
==============================
Gem.(100%)= 3.01  V/div
Gem.(80%) = 3.02  V/div
Gem.(75%) = 3.02  V/div
My (def.) = 3.03  V/div

Exc defl.factor= 0 V =-.17 %
◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀
```



```
============================
Vrygave vk=1.5 vs/k=6kV
115D14GH/123  5201306
INPUT overzicht HORIZONTAAL
============================
Div  1ste   2de   Meetfout Gem.
X 1   6.24   6.21     .5%   6.23
X 2   6.31   6.30     .2%   6.31
X 3   6.36   6.36    0.0%   6.36
X 4   6.38   6.38    0.0%   6.38
X 5   6.40   6.39     .2%   6.40
X 6   6.39   6.39    0.0%   6.39
X 7   6.34   6.34    0.0%   6.34
X 8   6.34   6.34    0.0%   6.34
X 9   6.25   6.24     .2%   6.25
X10   6.14   6.14    0.0%   6.14

INPUT overzicht VERTIKAAL
=========================
Div  1ste   2de   Meetfout Gem.
Y 1   2.96   2.96    0.0%   2.96
Y 2   3.00   3.00    0.0%   3.00
Y 3   3.03   3.02     .3%   3.03
Y 4   3.02   3.02    0.0%   3.02
Y 5   3.00   3.00    0.0%   3.00
Y 6   3.01   3.01    0.0%   3.01
Y 7   3.00   3.00    0.0%   3.00
Y 8   2.96   2.95     .3%   2.96


▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒
▒   Rapport LINEARITEIT van:   ▒
▒ Vrygave vk=1.5 vs/k=6kV      ▒
▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒

Type      :115D14GH/123

Buis      :5201306
Meetdatum:19-6-1985

HORIZONTAAL   LIN    LIN
Div Mx/div   100%   80%
-------------------------------
X 1   6.23  -1.38  -1.88
X 2   6.31   -.11   -.62
X 3   6.36    .76    .25
X 4   6.38   1.08    .56
X 5   6.40   1.31    .80
X 6   6.39   1.24    .72
X 7   6.34    .44   -.07
X 8   6.34    .44   -.07
X 9   6.25  -1.06  -1.57
X10   6.14  -2.72  -3.22
In:[V/div]    [%]    [%]

Lin.max.= 4.15 %

Lin(25/75%)X1=  .44 %
Lin(25/75%)X2=  .72 %

Overzicht DEFLEKTIEFACTOREN X:
==============================
Gem.(100%)= 6.31  V/div
Gem.(80%) = 6.34  V/div
Mx (def.) = 6.38  V/div

Exc defl.factor= .02 V =  .35 %
◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀
```

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◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀

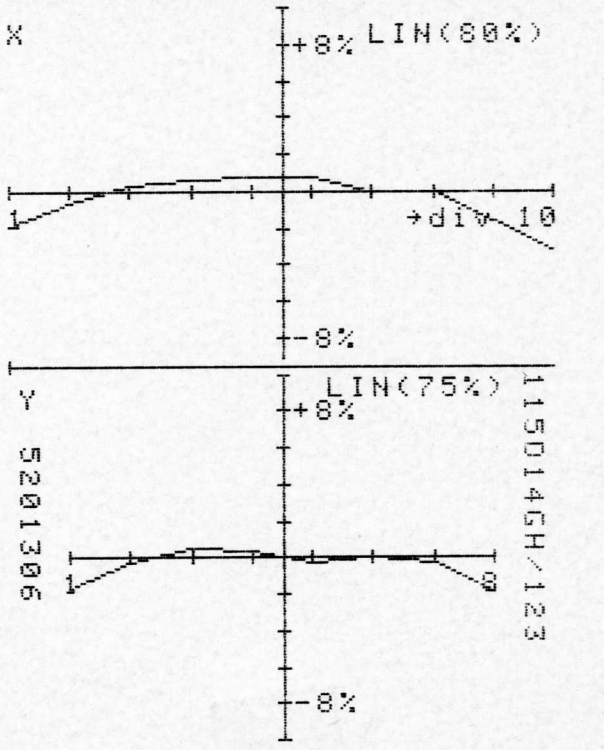
VERTIKAAL      LIN    LIN    LIN
Div My/div    100%   80%    75%
-------------------------------------
Y 1    2.96  -1.21  -1.53  -1.63
Y 2    3.00    .13   -.20   -.30
Y 3    3.03    .96    .63    .53
Y 4    3.02    .79    .47    .36
Y 5    3.00    .13   -.20   -.30
Y 6    3.01    .46    .14    .03
Y 7    3.00    .13   -.20   -.30
Y 8    2.96  -1.38  -1.69  -1.80
In:[V/div]    [%]    [%]    [%]

Lin.max.= 2.37 %

Lin(25/75%)Y1=-.11 %
Lin(25/75%)Y2= .17 %

Overzicht DEFLEKTIEFACTOREN:Y
==============================
Gem.(100%)= 3     V/div
Gem.(80%) = 3.01  V/div
Gem.(75%) = 3.01  V/div
My (def.) = 3.01  V/div

Exc defl.factor= .02 V =  .58 %
◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀
```



==========
Vrygave vk=1.5 vs/k=6 kV
115D14GH/123 5141174
INPUT overzicht HORIZONTAAL
==========

Div	1ste	2de	Meetfout	Gem.
X 1	5.99	5.98	.2%	5.99
X 2	6.09	6.09	0.0%	6.09
X 3	6.14	6.15	-.2%	6.15
X 4	6.18	6.18	0.0%	6.18
X 5	6.21	6.20	.2%	6.21
X 6	6.21	6.21	0.0%	6.21
X 7	6.20	6.21	-.2%	6.21
X 8	6.20	6.20	0.0%	6.20
X 9	6.15	6.14	.2%	6.15
X10	6.06	6.06	0.0%	6.06

INPUT overzicht VERTIKAAL
==========

Div	1ste	2de	Meetfout	Gem.
Y 1	3.02	3.02	0.0%	3.02
Y 2	3.06	3.05	.3%	3.06
Y 3	3.07	3.08	-.3%	3.08
Y 4	3.08	3.06	.6%	3.07
Y 5	3.07	3.08	-.3%	3.08
Y 6	3.05	3.05	0.0%	3.05
Y 7	3.03	3.02	.3%	3.03
Y 8	2.97	2.98	-.3%	2.98

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Rapport LINEARITEIT van: %
% Vrygave vk=1.5 vs/k=6 kV %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Type :115D14GH/123

Buis :5141174
Meetdatum:19-6-1985

HORIZONTAAL Div	Mx/div	LIN 100%	LIN 80%
X 1	5.99	-2.56	-3.04
X 2	6.09	-.85	-1.34
X 3	6.15	.04	-.45
X 4	6.18	.61	.12
X 5	6.21	1.02	.53
X 6	6.21	1.10	.61
X 7	6.21	1.02	.53
X 8	6.20	.94	.45
X 9	6.15	.04	-.45
X10	6.06	-1.34	-1.82
In:	[V/div]	[%]	[%]

Lin.max.= 3.76 %

Lin(25/75%)X1= .66 %
Lin(25/75%)X2= .26 %

Overzicht DEFLEKTIEFACTOREN X:
==========
Gem.(100%)= 6.14 V/div
Gem.(80%) = 6.17 V/div
Mx (def.) = 6.2   V/div

Exc defl.factor=-.01 V =-.24 %
◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀

◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀

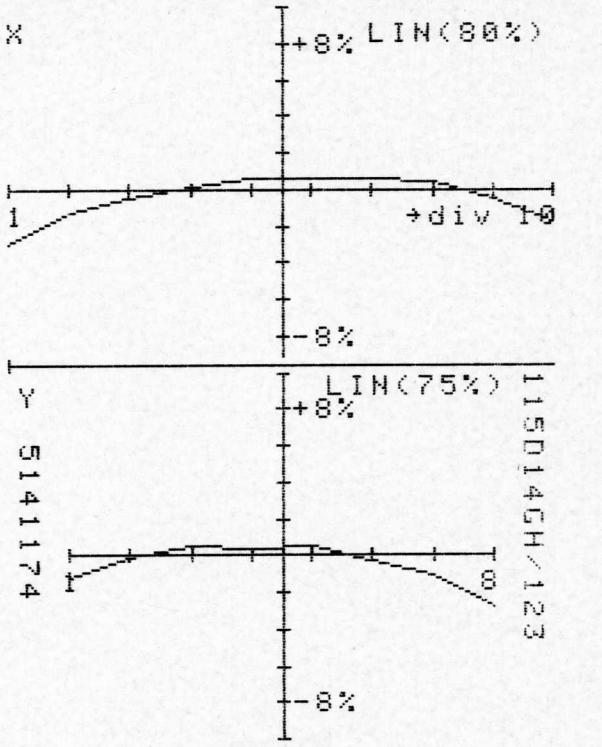
VERTIKAAL Div	My/div	LIN 100%	LIN 80%	LIN 75%
Y 1	3.02	-.76	-1.13	-1.25
Y 2	3.06	.39	.02	-.11
Y 3	3.08	1.05	.67	.54
Y 4	3.07	.88	.51	.38
Y 5	3.08	1.05	.67	.54
Y 6	3.05	.23	-.15	-.27
Y 7	3.03	-.60	-.97	-1.09
Y 8	2.98	-2.24	-2.60	-2.72
In:	[V/div]	[%]	[%]	[%]

Lin.max.= 3.36 %

Lin(25/75%)Y1= .81 %
Lin(25/75%)Y2= .11 %

Overzicht DEFLEKTIEFACTOREN:Y
==========
Gem.(100%)= 3.04 V/div
Gem.(80%) = 3.05 V/div
Gem.(75%) = 3.06 V/div
My (def.) = 3.07 V/div

Exc defl.factor= .01 V = .33 %
◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀◀



```
============================
Vrygave vk=1.5 vs/k=6 kV
115D14GH/123  5141151
INPUT overzicht HORIZONTAAL
============================
Div  1ste   2de   Meetfout Gem.
X 1   6.15   6.14     .2%   6.15
X 2   6.27   6.27    0.0%   6.27
X 3   6.30   6.31    -.2%   6.31
X 4   6.33   6.32     .2%   6.33
X 5   6.36   6.35     .2%   6.36
X 6   6.30   6.32    -.3%   6.31
X 7   6.27   6.26     .2%   6.27
X 8   6.25   6.25    0.0%   6.25
X 9   6.16   6.17    -.2%   6.17
X10   6.08   6.07     .2%   6.08


INPUT overzicht VERTIKAAL
=========================
Div  1ste   2de   Meetfout Gem.
Y 1   3.01   3.01    0.0%   3.01
Y 2   3.06   3.05     .3%   3.06
Y 3   3.07   3.08    -.3%   3.08
Y 4   3.09   3.09    0.0%   3.09
Y 5   3.10   3.10    0.0%   3.10
Y 6   3.10   3.10    0.0%   3.10
Y 7   3.09   3.08     .3%   3.09
Y 8   3.03   3.04    -.3%   3.04


%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%   Rapport LINEARITEIT van:   %
% Vrygave vk=1.5 vs/k=6 kV     %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Type      :115D14GH/123

Buis      :5141151
Meetdatum:19-6-1985

HORIZONTAAL   LIN    LIN
Div Mx/div    100%   80%
--------------------------------
X 1   6.15  -1.62  -2.16
X 2   6.27    .38   -.17
X 3   6.31    .94    .39
X 4   6.33   1.26    .71
X 5   6.36   1.74   1.18
X 6   6.31   1.02    .47
X 7   6.27    .30   -.25
X 8   6.25    .06   -.49
X 9   6.17  -1.30  -1.84
X10   6.08  -2.75  -3.27
In:[V/div]   [%]   [%]

Lin.max.= 4.61 %

Lin(25/75%)X1= .51 %
Lin(25/75%)X2= .76 %

Overzicht DEFLEKTIEFACTOREN X:
==============================
Gem.(100%)= 6.25  V/div
Gem.(80%) = 6.28  V/div
Mx (def.) = 6.31  V/div

Exc defl.factor= .05 V = .83 %
```

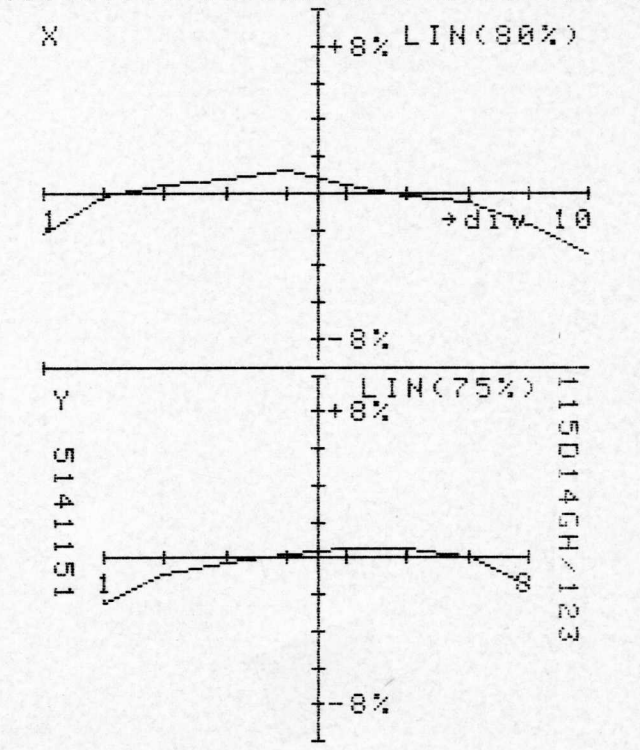
```
VERTIKAAL      LIN    LIN    LIN
Div My/div    100%   80%    75%
--------------------------------
Y 1   3.01  -1.91  -2.28  -2.40
Y 2   3.06   -.45   -.82   -.95
Y 3   3.08    .20   -.17   -.30
Y 4   3.09    .69    .31    .19
Y 5   3.10   1.02    .64    .51
Y 6   3.10   1.02    .64    .51
Y 7   3.09    .53    .15    .03
Y 8   3.04  -1.10  -1.47  -1.59
In:[V/div]   [%]   [%]   [%]

Lin.max.= 2.99 %

Lin(25/75%)Y1= .16 %
Lin(25/75%)Y2= .54 %

Overzicht DEFLEKTIEFACTOREN:Y
=============================
Gem.(100%)= 3.07  V/div
Gem.(80%) = 3.08  V/div
Gem.(75%) = 3.08  V/div
My (def.) = 3.09  V/div

Exc defl.factor=-.02 V =-.57 %
```



```
============================
Vrygave vk=1.5 vs/k=6 kV
115D14GH/123  5130356
INPUT overzicht HORIZONTAAL
============================
Div   1ste    2de    Meetfout  Gem.
X 1    6.32    6.30      .3%    6.31
X 2    6.41    6.40      .2%    6.41
X 3    6.45    6.43      .3%    6.44
X 4    6.44    6.44     0.0%    6.44
X 5    6.46    6.46     0.0%    6.46
X 6    6.45    6.44      .2%    6.45
X 7    6.43    6.44     -.2%    6.44
X 8    6.37    6.37     0.0%    6.37
X 9    6.33    6.32      .2%    6.33
X10    6.23    6.24     -.2%    6.24


INPUT overzicht VERTIKAAL
============================
Div   1ste    2de    Meetfout  Gem.
Y 1    2.96    2.96     0.0%    2.96
Y 2    3.01    3.01     0.0%    3.01
Y 3    3.02    3.03     -.3%    3.03
Y 4    3.03    3.02      .3%    3.03
Y 5    3.01    3.01     0.0%    3.01
Y 6    3.03    3.03     0.0%    3.03
Y 7    3.01    3.01     0.0%    3.01
Y 8    2.98    2.97      .3%    2.98



%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%   Rapport LINEARITEIT van:     %
% Vrygave vk=1.5 vs/k=6 kV       %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Type      :115D14GH/123

Buis      :5130356
Meetdatum:19-6-1985

HORIZONTAAL    LIN     LIN
Div Mx/div    100%    80%
--------------------------------
X 1    6.31   -1.20   -1.64
X 2    6.41     .29    -.16
X 3    6.44     .84     .39
X 4    6.44     .84     .39
X 5    6.46    1.15     .70
X 6    6.45     .92     .47
X 7    6.44     .76     .31
X 8    6.37    -.26    -.70
X 9    6.33    -.96   -1.40
X10    6.24   -2.37   -2.81
In:[V/div]     [%]     [%]

Lin.max.= 3.61 %

Lin(25/75%)X1=  .27 %
Lin(25/75%)X2=  .69 %

Overzicht DEFLEKTIEFACTOREN X:
==============================
Gem.(100%)= 6.39  V/div
Gem.(80%) = 6.42  V/div
Mx (def.) = 6.45  V/div

Exc defl.factor=  .01 V =  .16 %
```

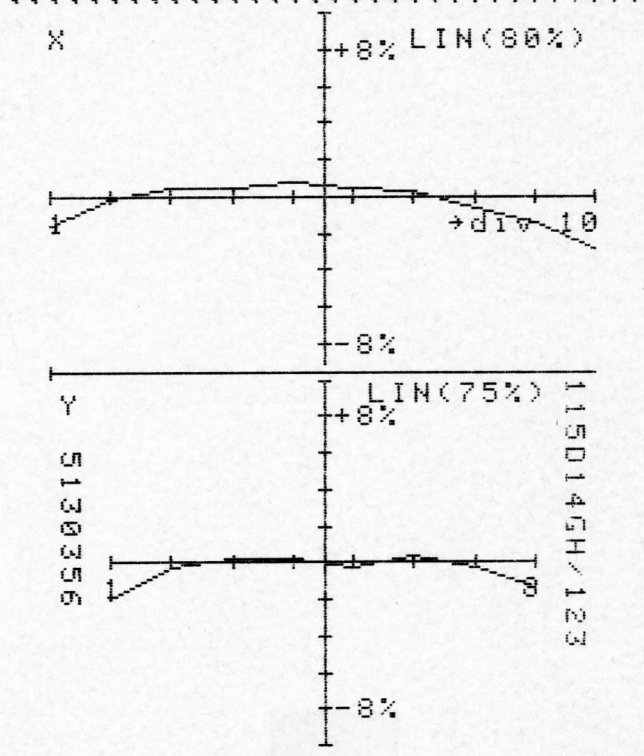
```
VERTIKAAL      LIN     LIN     LIN
Div My/div    100%    80%     75%
--------------------------------------
Y 1    2.96   -1.52   -1.83   -1.93
Y 2    3.01     .15    -.17    -.28
Y 3    3.03     .64     .33     .22
Y 4    3.03     .64     .33     .22
Y 5    3.01     .15    -.17    -.28
Y 6    3.03     .81     .49     .39
Y 7    3.01     .15    -.17    -.28
Y 8    2.98   -1.02   -1.33   -1.44
In:[V/div]     [%]     [%]     [%]

Lin.max.= 2.36 %

Lin(25/75%)Y1=-.22 %
Lin(25/75%)Y2= .17 %

Overzicht DEFLEKTIEFACTOREN:Y
==============================
Gem.(100%)= 3.01  V/div
Gem.(80%) = 3.02  V/div
Gem.(75%) = 3.02  V/div
My (def.) = 3.02  V/div

Exc defl.factor=  .01 V =  .17 %
```



Measuring Dept. Heerlen. **CATHODE-RAY TUBES** Appendix . .

Number: . . . . Date: . . . . . Type: 115 D14 GH/23.

Ref: . . . . . Factory: . . . . Code: . . .

Vrijgave 5e serie. Speciale metingen

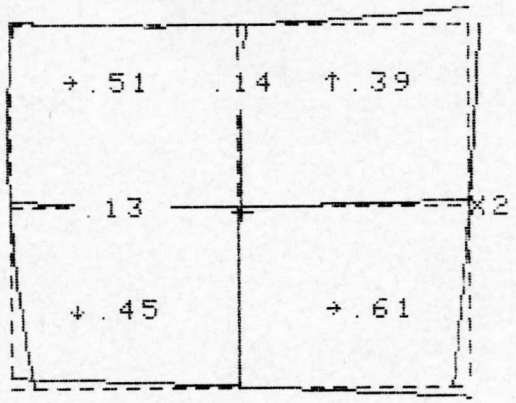
measurement													
test conditions													
(E1)													
V_{g2} = 1.5 kV													
V_{g4-5} = 3.3 kV													
$V_{s/k}$ = 13.2 kV													
					Resthelderheid (RH app. Fabr)				Rasterverkv				
tube number	V_{c0}	V_{g3}	Vastm.	X_1	X_2	Y_1	Y_2	X_1	X_2	Y_1	Y_2	opm.	
5201077	56	820	-2	84	72	85	83						
5201306	57	825	-2	71	73	92	73		zie bijlage.			*	
5141174	57	825	-2	84	60	100	78						
5141151	54	820	0	85	85	100	72					*	
5130356	56	840	-4	93	72	100	76						
	V	V	V	%	%	%	%						
(B2)	V_{g2} = 2 kV		V_{g4-5} = 2 kV		$V_{s/k}$ = 10 kV								
	Rasterverkv.				V_{c0}	V_{g3}	Vastm.						
5201077					68	485	-4						
5201306					69	490	-0,5						
5141174	zie bijlage.				71,5	490	-4						
5141151					65,0	485	-2						
5130356					70	490	0						
					V	V	V						
(E3)	V_{g2} = 1.5 kV		V_{g4-5} = 3.3 kV		$V_{s/k}$ = 10 kV								
	Rotatie constante.												
5201077		7,3											
5201306		7,1											
5141174		7,6											
5141151		7,2											
5130356		7,2											
average		mA/o											
nom.													
100% min.													
Me min.													
Me max.													
100% max.													
unit													

conclusion:

remark: (E1) * opl + verkv. Xany lijn in haak X_2/Y_2

Rastervervorming: insl: E1 Vg2 = 1.5kV. Vg4-5 = 3.3kV. Vg6 = 13.2 kV

Type : 115D14/123 E1
K.nr.: 5201077 N.M.



Mx,y: X=14.29 Y=7 V/cm
Exc.: X=.58 Y=-1.5 mm
Hdl=89.89 |MaxRV=.61 mm
(Schaal: 1 div.=10 mm)

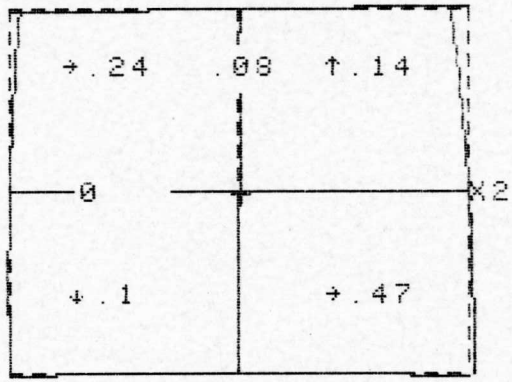
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		\ -.01 \	
Tav H.d.l.		/ .16 /	
Tav)(mid		(.07 (	
Ton/Kussen	(.21		-.14)
Trapezium	\ -.60		.47 /
Gemeten:	.51	.14	.61

Y-richting	Onder	Midden	Boven
Tav Rotat.		\ -.02 \	
Tav)(mid		(.12 (	
Ton/Kussen	) -.14		.11 (
Trapezium	/ .47		-.31 \
Gemeten:	.45	.13	.39

Maximale rastervert. = .61 mm

Type : 115D14/123 E1
K.nr.: 5201306 N.M.



Mx,y: X=14.17 Y=6.97 V/cm
Exc.: X=.3 Y=-.98 mm
Hdl=89.95 |MaxRV=.47 mm
(Schaal: 1 div.=10 mm)

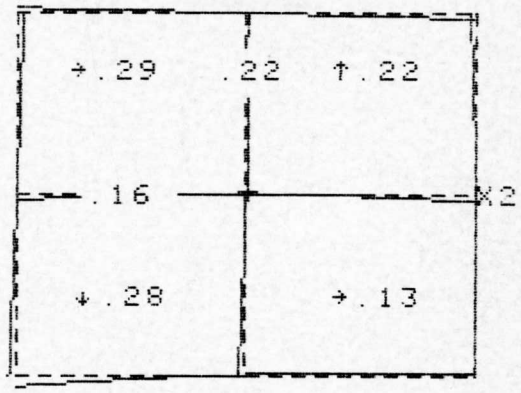
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		/ .08 /	
Tav)(mid		(.02 (	
Ton/Kussen	(.10		-.16)
Trapezium	/ .16		-.55 \
Gemeten:	.24	.08	.47

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .00 /	
Tav)(mid		(.00 (	
Ton/Kussen	) -.10		-.01)
Trapezium	/ .01		-.14 \
Gemeten:	.10	.00	.14

Maximale rastervert. = .47 mm

Type : 115D14/123 E1
K.nr.: 5141174 N.M.



Mx,y: X=13.73 Y=7.02 V/cm
Exc.: X=.26 Y=.43 mm
Hdl=89.86 |MaxRV=.29 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

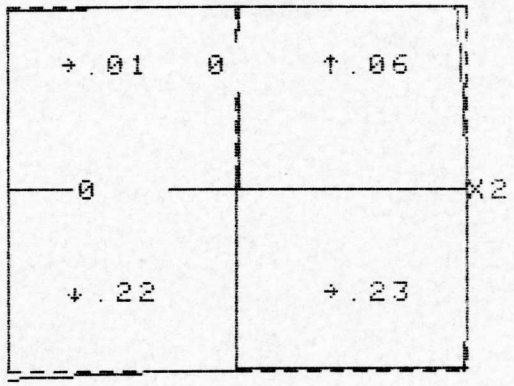
X-richting	Links	Midden	Rechts
Tav Rotat.		/ .02 /	
Tav H.d.l.		/ .20 /	
Tav)(mid		) -.05)	
Ton/Kussen	(.04		-.02)
Trapezium	/ .07		-.35 \
Gemeten:	.29	.22	.13

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .02 /	
Tav)(mid		) -.15)	
Ton/Kussen	(.02		.15 (
Trapezium	\ -.30		.20 /
Gemeten:	.28	.16	.22

Maximale rastervert. = .29 mm

E,

Type : 115D14/123 E1
K.nr.: 5141151 N.M.



Mx,y:X=13.94 Y=7.06 V/cm
Exc.:X=-.11 Y=-.3 mm
Hdl=90 !MaxRV=.23 mm
(Schaal:1 div.=10 mm)

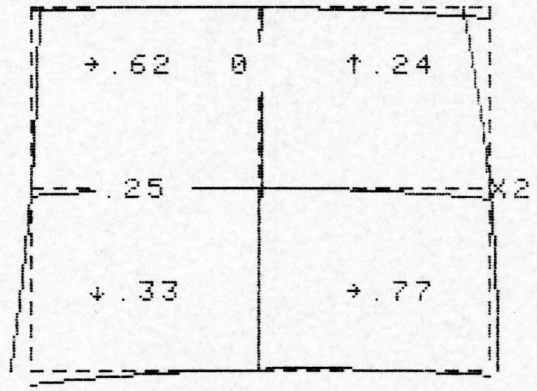
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		/ .00 /	
Tav)(mid		0.00	
Ton/Kussen	(.01		-.15)
Trapezium	\ -.00		-.16 \
Gemeten:	.01	.00	.23

Y-richting	Onder	Midden	Boven
Tav Rotat.	\ -.00 \		
Tav)(mid	) -.00)		
Ton/Kussen	) -.09		-.03)
Trapezium	\ -.22		-.04 \
Gemeten:	.22	.00	.06

Maximale rastervert. = .23 mm

Type : 115D14/123 E1
K.nr.: 5130356 N.M.



Mx,y:X=14.3 Y=7.05 V/cm
Exc.:X=.27 Y=-.18 mm
Hdl=90.04 !MaxRV=.77 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		/ .05 /	
Tav H.d.l.		\ -.05 \	
Tav)(mid		(.00 (	
Ton/Kussen	) -.13		-.20)
Trapezium	/ .62		-.77 \
Gemeten:	.62	.00	.77

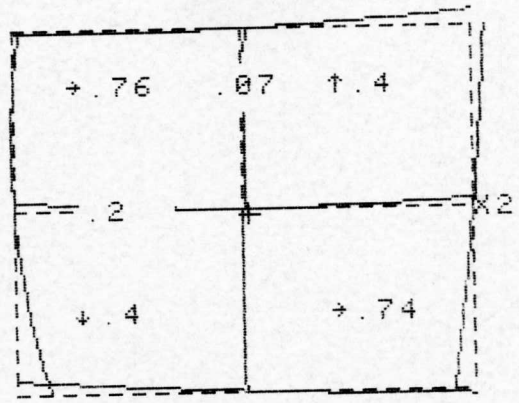
Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .06 /	
Tav)(mid		) -.21)	
Ton/Kussen	) -.02		.05 (
Trapezium	\ -.26		.09 /
Gemeten:	.33	.25	.24

Maximale rastervert. = .77 mm

Rastervervorming: inst. B2

Vq2 = 2kV
Vq4.5 = 2kV
Vs/k = 10kV

Type : 115D14/123 B2
K.nr.: 5201077 N.M.



Mx,y: X=8.23 Y=3.88 V/cm
Exc.: X=1.21 Y=-1.16 mm
Hdl=89.96 |MaxRV=.76 6mm
(Schaal: 1 div.=10 mm)

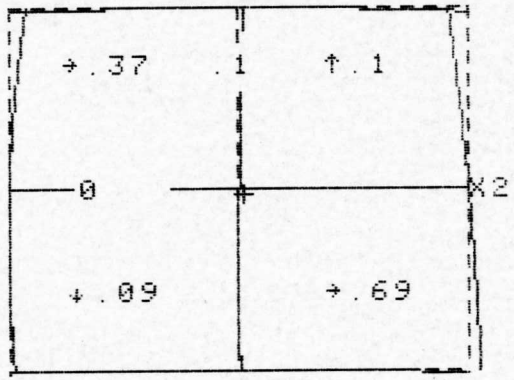
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		.02	
Tgv H.d.l.		.05	
Tgv)(mid		.03	
Ton/Kussen	.42		-.12
Trapezium	-.68		.67
Gemeten:	.76	.07	.74

Y-richting	Onder	Midden	Boven
Tgv Rotat.		.02	
Tgv)(mid		.19	
Ton/Kussen	-.11		-.04
Trapezium	.38		-.43
Gemeten:	.40	.20	.40

Maximale rastervert. = .76 mm

Type : 115D14/123 B2
K.nr.: 5201306 N.M.



Mx,y: X=8.18 Y=3.88 V/cm
Exc.: X=.77 Y=-1.28 mm
Hdl=89.94 |MaxRV=.69 8mm
(Schaal: 1 div.=10 mm)

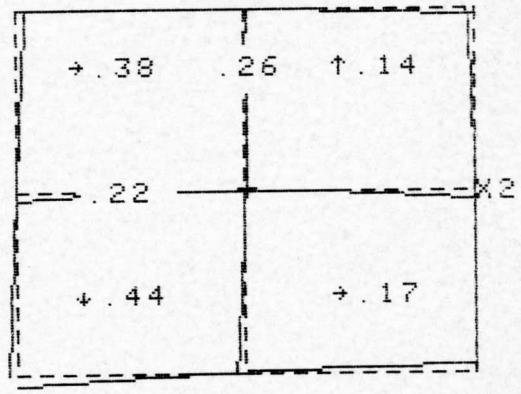
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		.09	
Tgv)(mid		.05	
Ton/Kussen	.19		-.14
Trapezium	.17		-.78
Gemeten:	.37	.10	.69

Y-richting	Onder	Midden	Boven
Tgv Rotat.		0.00	
Tgv)(mid		0.00	
Ton/Kussen	-.08		-.10
Trapezium	.03		.01
Gemeten:	.09	0.00	.10

Maximale rastervert. = .69 mm

Type : 115D14/123 B2
K.nr.: 5141174 N.M.



Mx,y: X=7.9 Y=3.9 V/cm
Exc.: X=.36 Y=.66 mm
Hdl=89.82 |MaxRV=.44 mm
(Schaal: 1 div.=10 mm)

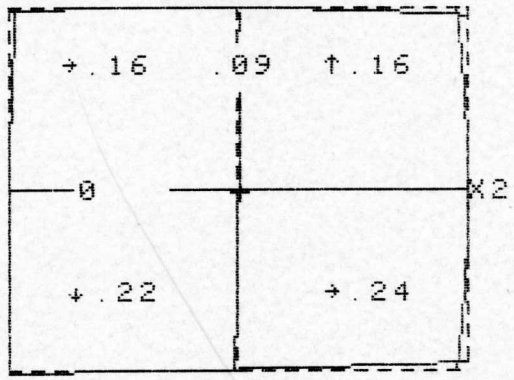
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		.01	
Tgv H.d.l.		.25	
Tgv)(mid		-.07	
Ton/Kussen	.09		-.02
Trapezium	.12		-.41
Gemeten:	.38	.26	.17

Y-richting	Onder	Midden	Boven
Tgv Rotat.		.02	
Tgv)(mid		-.21	
Ton/Kussen	.14		.14
Trapezium	-.45		.12
Gemeten:	.44	.22	.14

Maximale rastervert. = .44 mm

Type : 115D14/123 B2
K.nr.: 5141151 N.M.



Mx,y:X=8 Y=3.92 V/cm
Exc.:X=.39 Y=-.69 mm
Hdl=89.94 !MaxRV=.24 mm
(Schaal:1 div.=10 mm)

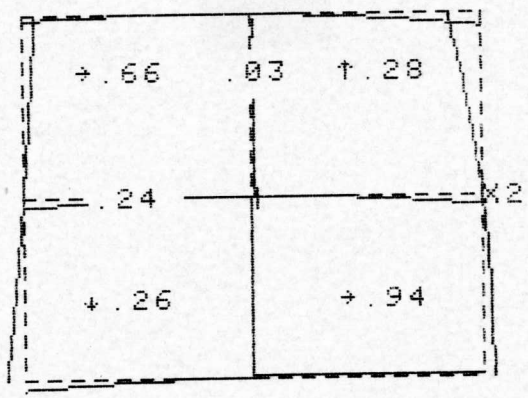
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		.09	
Tav)(mid		-.04	
Ton/Kussen	.13		-.20
Trapezium	.07		-.09
Gemeten:	.16	.09	.24

Y-richting	Onder	Midden	Boven
Tav Rotat.		0.00	
Tav)(mid		-.00	
Ton/Kussen	.04		-.11
Trapezium	-.22		.09
Gemeten:	.22	.00	.16

Maximale rastervert. = .24 mm

Type : 115D14/123 B2
K.nr.: 5130356 N.M.



Mx,y:X=8.21 Y=3.89 V/cm
Exc.:X=.79 Y=-.4 mm
Hdl=89.97 !MaxRV=.94 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		-.01	
Tav H.d.l.		.04	
Tav)(mid		-.02	
Ton/Kussen	-.04		-.24
Trapezium	.63		-.97
Gemeten:	.66	.03	.94

Y-richting	Onder	Midden	Boven
Tav Rotat.		-.01	
Tav)(mid		-.23	
Ton/Kussen	.11		.03
Trapezium	-.25		.17
Gemeten:	.26	.24	.28

Maximal rastervert. = .94 mm

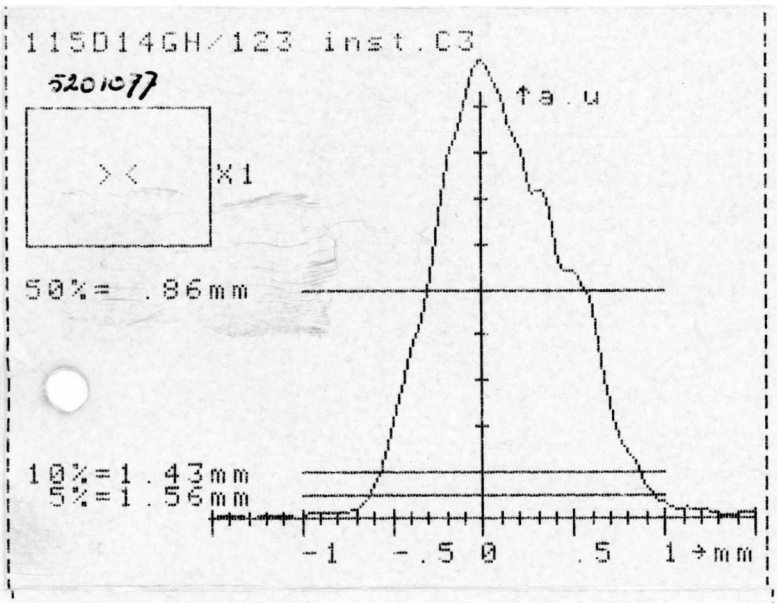
Type: 115 D14 GH/123.

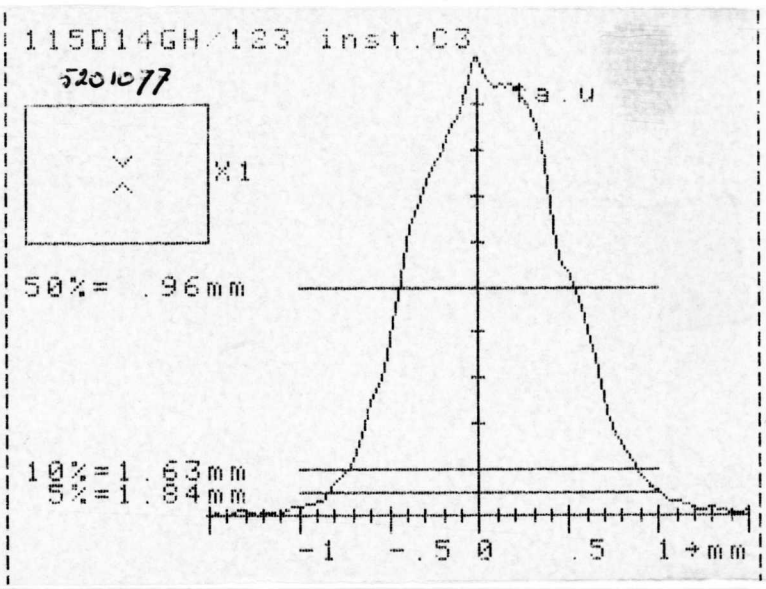
meting: Spotprofiel.

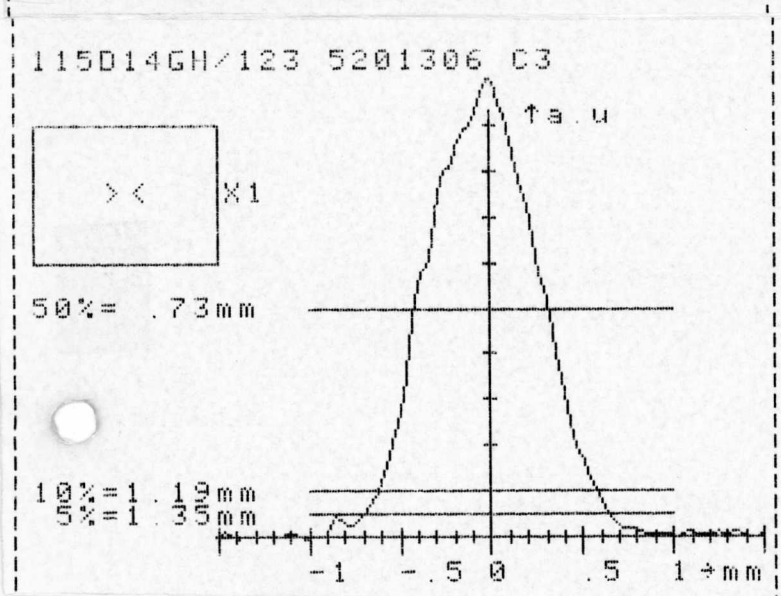
inst. C3.

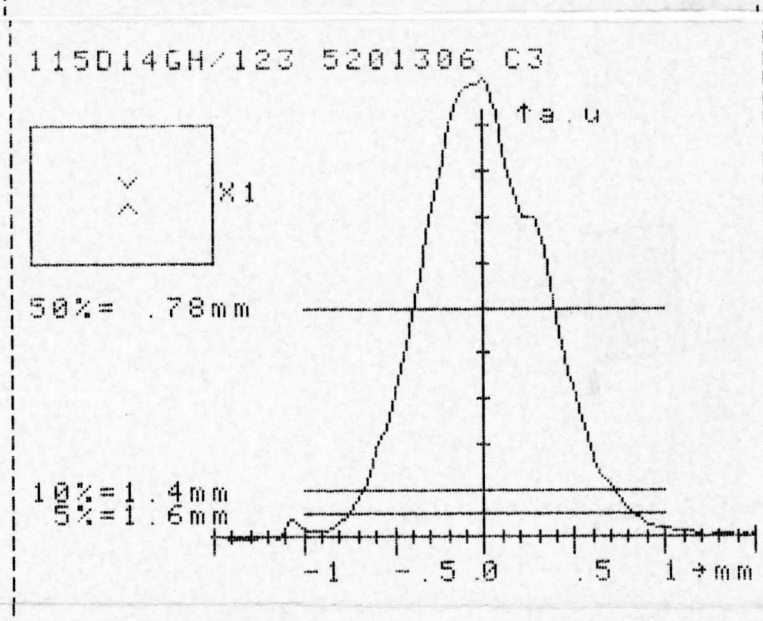
(V = 2,2/2,2+14,3)

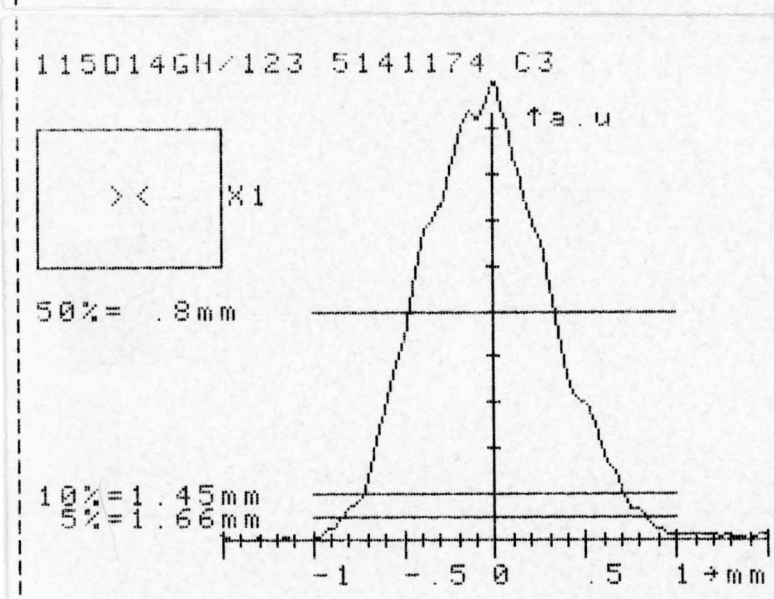
Exp. hor. as ijking
Afst tussen ijklijnen = 2.150 mm
Bemonsteringsinterval = .016 mm

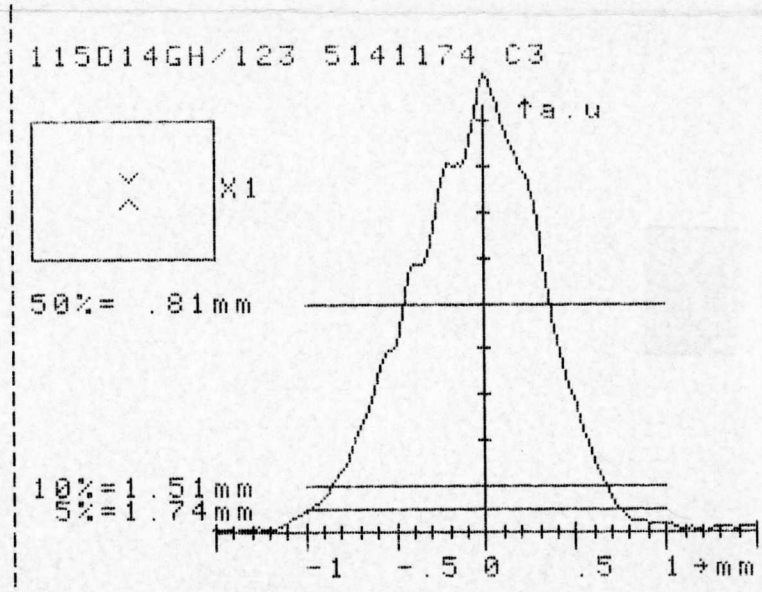


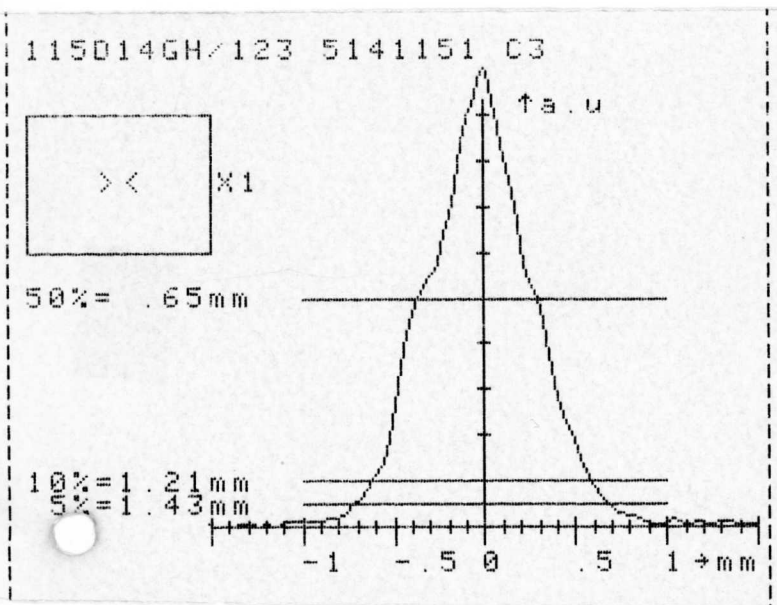


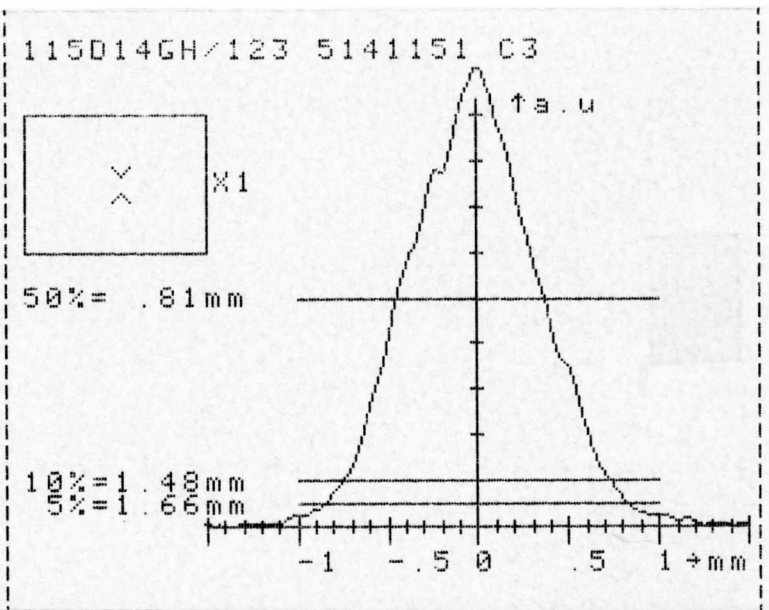


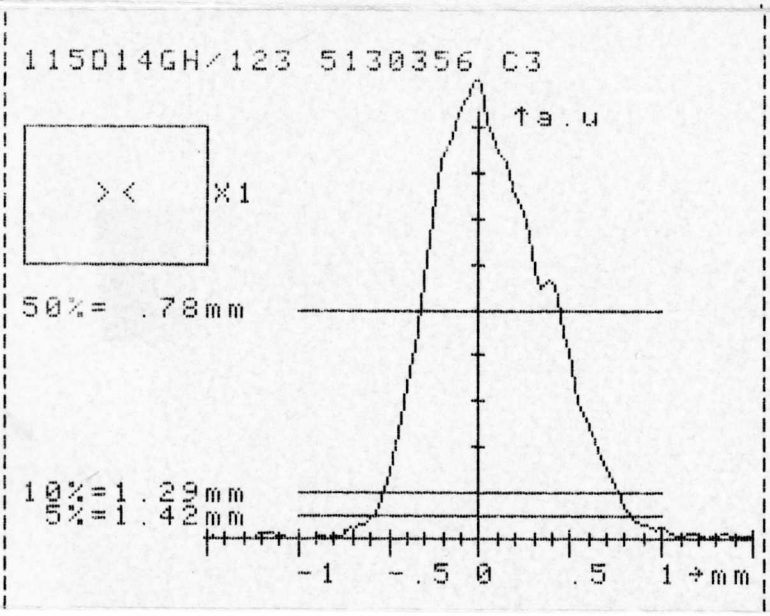


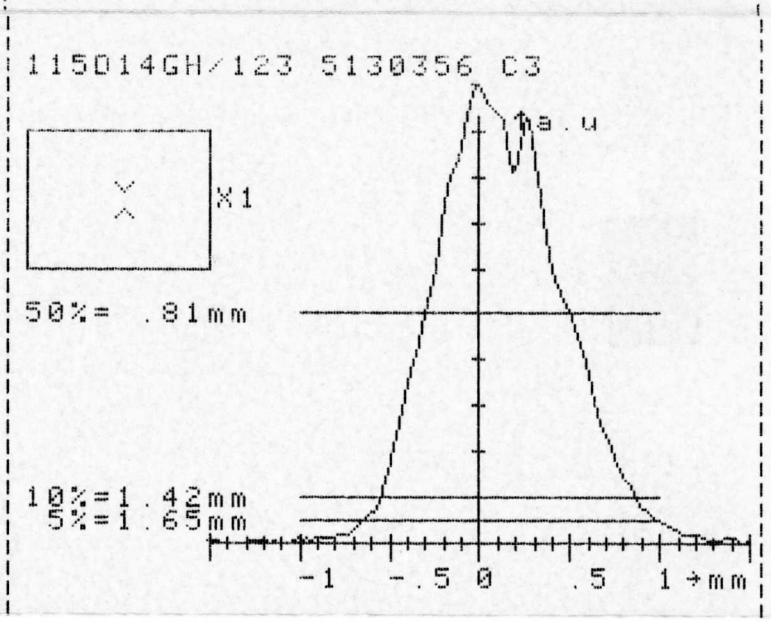




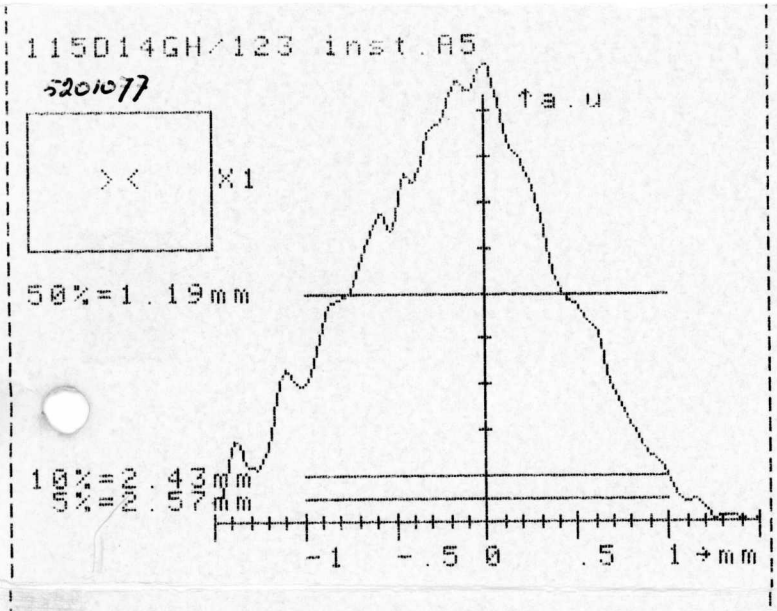

115D14GH/123 5141151 C3
X1
50%= .65mm
10%=1.21mm
5%=1.43mm
↑a.u
-1 -.5 0 .5 1→mm

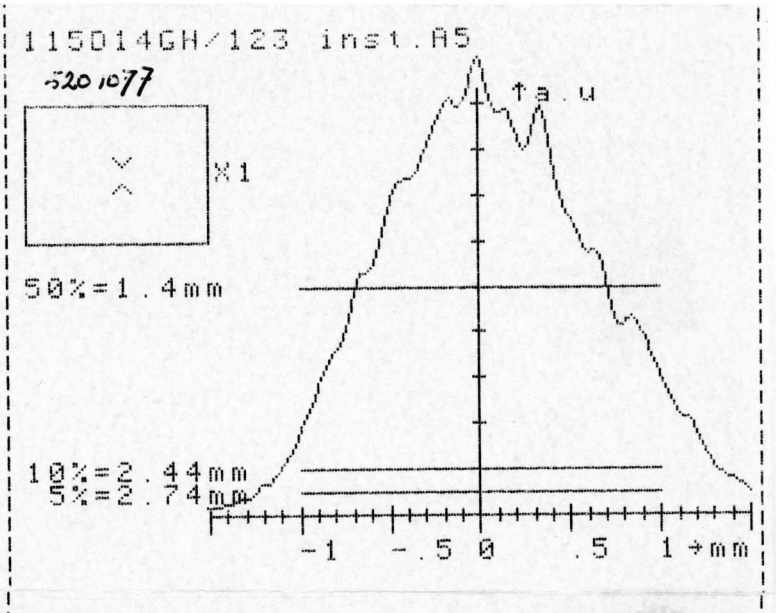

115D14GH/123 5141151 C3
X1
50%= .81mm
10%=1.48mm
5%=1.66mm
↑a.u
-1 -.5 0 .5 1→mm

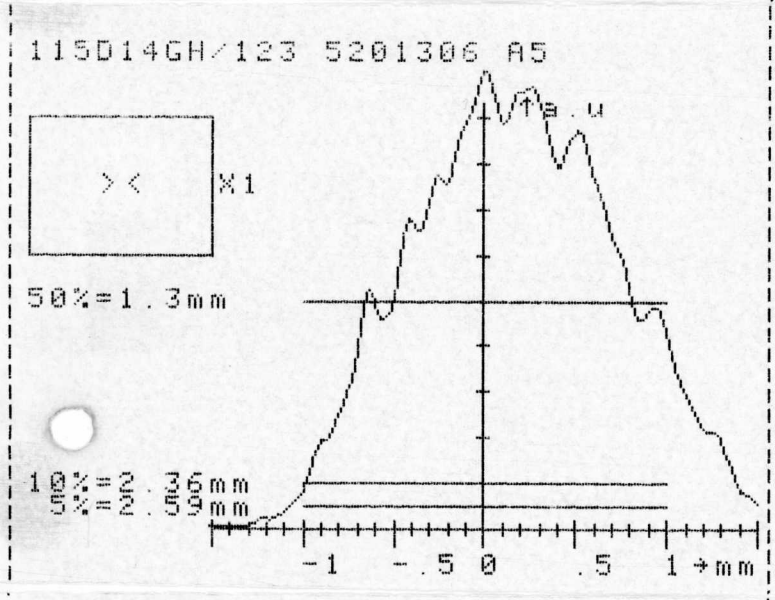

115D14GH/123 5130356 C3
X1
50%= .78mm
10%=1.29mm
5%=1.42mm
↑a.u
-1 -.5 0 .5 1→mm

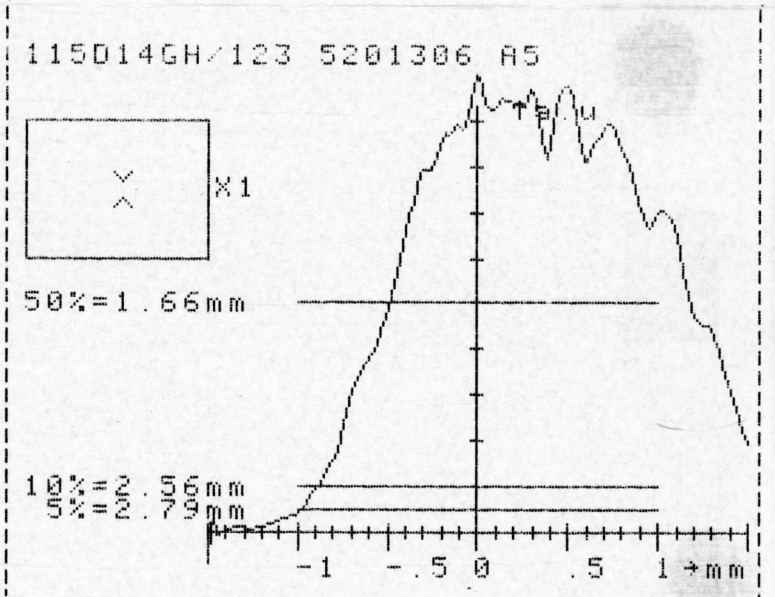

115D14GH/123 5130356 C3
X1
50%= .81mm
10%=1.42mm
5%=1.65mm
↑a.u
-1 -.5 0 .5 1→mm

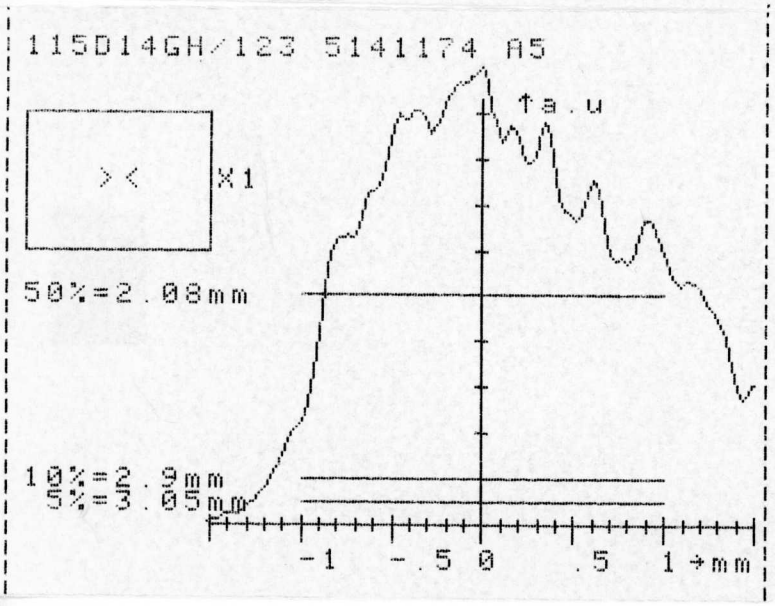
Type: 115D14GH/123.
meting: Spotprofiel
inst: A5
(V = 1.5/1.5+13.5)

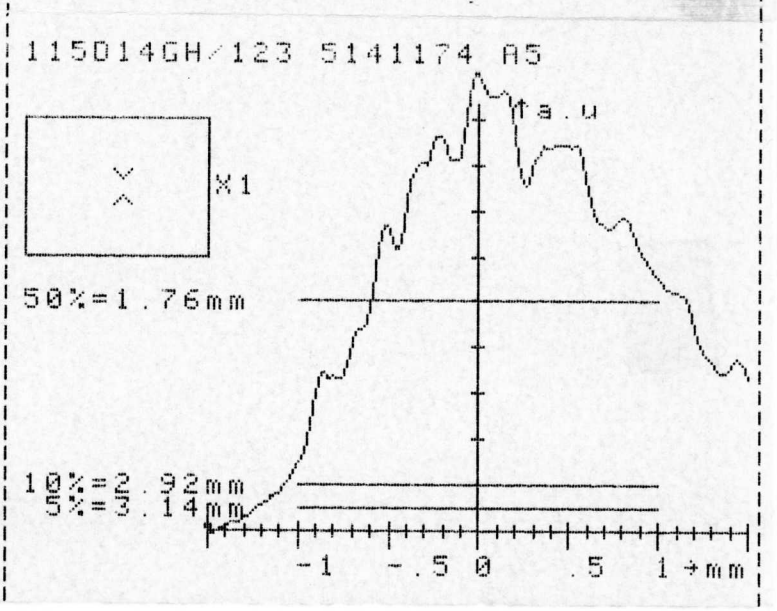


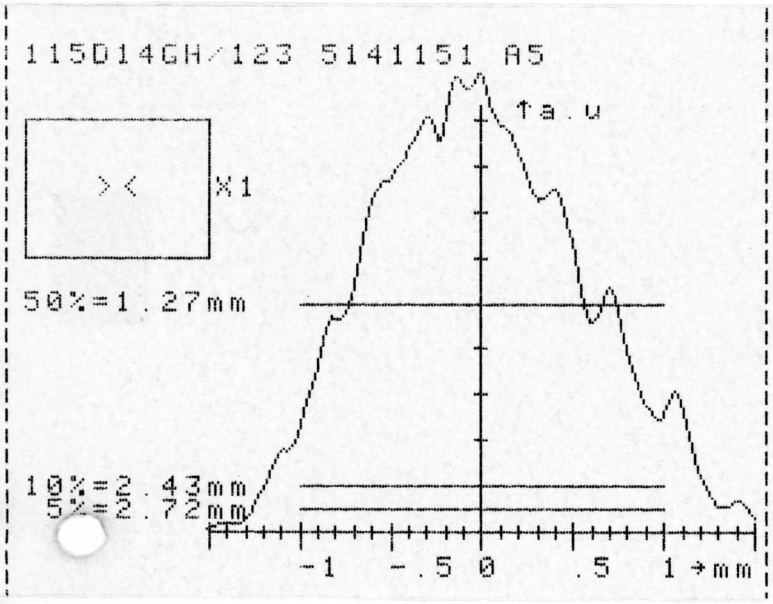


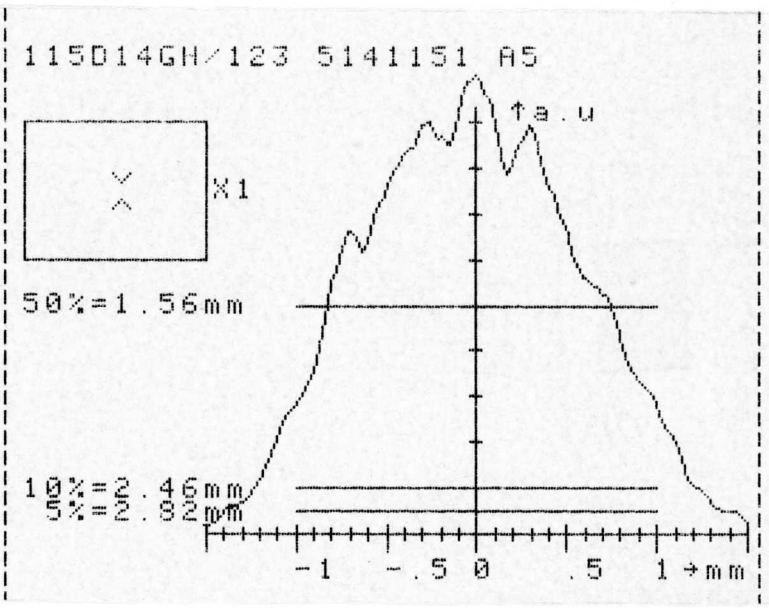


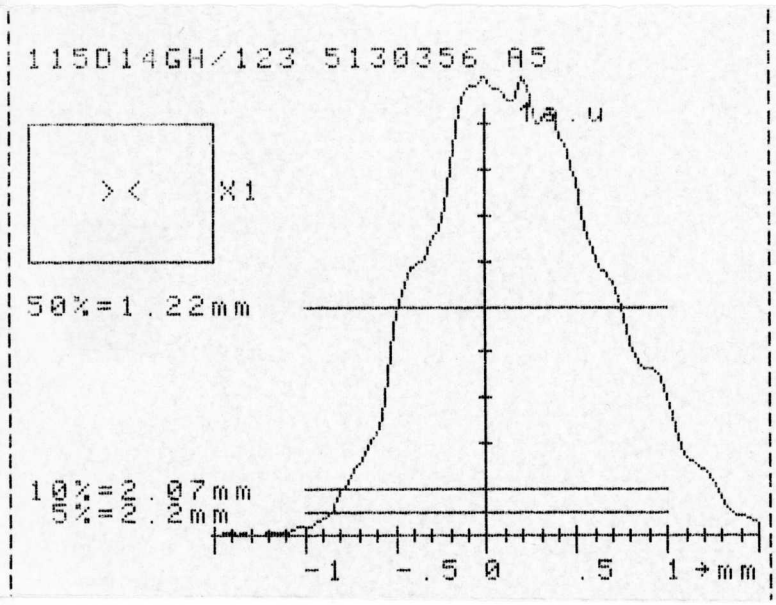


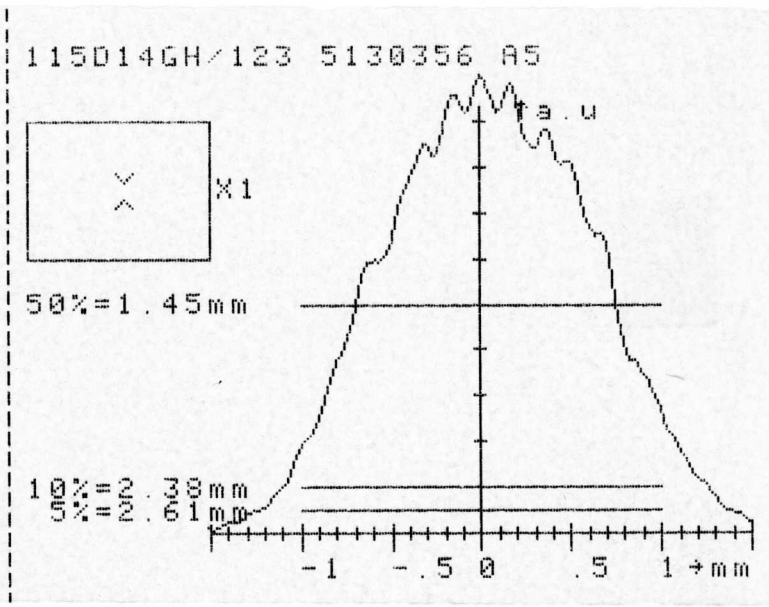





115D14GH/123 5141151 A5
X1
50%=1.27mm
10%=2.43mm
5%=2.72mm
↑a.u
-1
-.5
0
.5
1→mm


115D14GH/123 5141151 A5
X1
50%=1.56mm
10%=2.46mm
5%=2.82mm
↑a.u
-1
-.5
0
.5
1→mm


115D14GH/123 5130356 A5
X1
50%=1.22mm
10%=2.07mm
5%=2.2mm
↑a.u
-1
-.5
0
.5
1→mm


115D14GH/123 5130356 A5
X1
50%=1.45mm
10%=2.38mm
5%=2.61mm
↑a.u
-1
-.5
0
.5
1→mm

115 D14 GH/123.

PHILIPS

3° serie vrijgave. programma „RH+"

1° RH - gemeten met fabr. kastje.

(1) → Voor magnetiseren.

		RHy1	RHy2	DDy1	DDy2
5201077 -	vuilgaas.	112	66	1.1	1.0
5201306 -	deukje gaas.	105	63	1.1	1.0
5141174 -	vuilgaas.	106	79.	1.0	1.0
5141151 -	vuilgaas.	112	86	1.1	1.1
5130356 -	puntenpoeder.	125	69.	1.1	1.1

File = 115V3e.

(2) Na magnetiseren.

	RHy1	RHy2	DDy1	DDy2
5201077.	100	95	1.0	1.0
5201306.	95	93	1.0	1.0
5141174.	98	92	1.1	1.1
5141151	110	87	1.0	1.1
5130356.	100	91	1.2	1.0

Dekende vuil ↑

File = 115N3e.

Bzn: ingevoerd op nieuwe lab. tafel; Meetcentrum. door Ton Cobben, en gedemagnetiseerd.

PHILIPS

Kontrole:
115V3e 115D14GH/123 V 5
115N3e 115D14GH/123 N 5

115D14GH/123 N.M.

Info uit DATA-bankjes: 115V3e
115N3e

k-Week	I-Mal	N-Ast	N-WSx	N-WSy
(Subfile=115V3e)				
5130356	1.0	21.0	0.0	1.8
5141151	2.0	17.0	1.2	0.0
5141174	2.0	17.0	.2	0.0
5201077	2.0	15.5	0.0	0.0
5201306	2.0	24.0	1.5	.3
(Subfile=115N3e)				
5130356	1.0	-4.0	0.0	0.0
5141151	2.0	-6.0	1.6	0.0
5141174	2.0	-10.0	0.0	0.0
5201077	2.0	-1.5	0.0	.5
5201306	2.0	-2.0	1.5	0.0

k-Week	N-Hdl	N-RVx1	N-RVx2	N-RVy
(Subfile=115V3e)				
5130356	12.1	.9	.6	.4
5141151	-9.8	.4	.5	.4
5141174	-12.8	.2	.8	.5
5201077	-3.1	1.0	.7	.5
5201306	34.3	.7	.3	.2
(Subfile=115N3e)				
5130356	-5.3	.7	1.1	.5
5141151	.2	.3	.5	.2
5141174	2.0	.3	.5	.6
5201077	-.4	.9	.5	.4
5201306	.1	.3	.7	.1

k-Week	N-ExcX	N-ExcY	N-DDx1	N-DDx2
(Subfile=115V3e)				
5130356	-1.4	2.8	1.0	1.0
5141151	-1.8	1.6	1.1	1.0
5141174	.5	.1	1.0	1.1
5201077	-2.1	-2.1	1.0	1.1
5201306	-2.4	1.3	1.4	1.4
(Subfile=115N3e)				
5130356	.7	-.2	1.0	1.0
5141151	.3	-.8	1.2	1.1
5141174	.7	.5	1.0	1.0
5201077	1.1	-1.4	1.0	1.0
5201306	.7	-1.2	1.0	1.0

k-Week	N-RHx1	N-RHx2	N-My	N-Mx
(Subfile=115V3e)				
5130356	98.0	102.0	4.3	8.4
5141151	105.0	86.0	4.2	8.2
5141174	71.0	100.0	4.2	8.1
5201077	67.0	92.0	4.3	8.5
5201306	88.0	100.0	4.2	8.4
(Subfile=115N3e)				
5130356	91.0	78.0	3.9	8.4
5141151	97.0	100.0	3.9	8.2
5141174	98.0	83.0	3.9	8.1
5201077	85.0	80.0	3.9	8.4
5201306	93.0	80.0	3.9	8.3

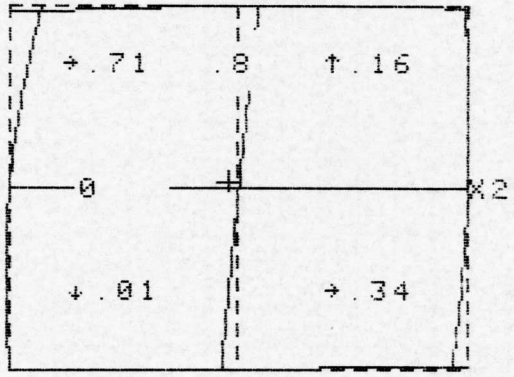
k-Week	N-Ieas	N-Vco	N-Ve3
(Subfile=115V3e)			
5130356	2.9	76.0	540.0
5141151	1.1	72.0	540.0
5141174	1.5	78.0	530.0
5201077	.2	75.0	535.0
5201306	.5	76.0	540.0
(Subfile=115N3e)			
5130356	.6	75.0	525.0
5141151	.2	70.0	530.0
5141174	.0	78.0	520.0
5201077	.0	76.0	530.0
5201306	.2	76.0	530.0

k-Week	N-Ibx	N-Dip
(Subfile=115V3e)		
5130356	70.4	0.0
5141151	74.2	0.0
5141174	89.8	0.0
5201077	74.5	0.0
5201306	64.9	0.0
(Subfile=115N3e)		
5130356	63.5	0.0
5141151	77.8	0.0
5141174	68.1	0.0
5201077	68.4	0.0
5201306	54.7	0.0

PHILIPS

voor.-

115D14GH/123 V.M
Kanonnr.: 5201306



Mx,y: X=8.4 Y=4.21 V/cm
Exc.: X=-2.42 Y=1.34 mm
Hdl=89.43 !MaxRV=.71 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

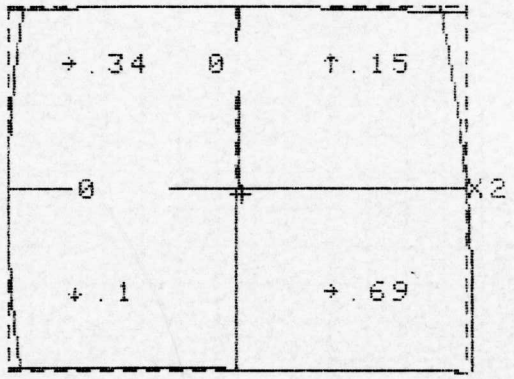
X-richting	Links	Midden	Rechts
Tgv H.d.l.		.80	
Tgv)(mid		.03	
Ton/Kussen	.33		-.24
Trapezium	-.09		-.53
Gemeten:	.71	.80	.34

Y-richting	Onder	Midden	Boven
Tgv Rotat.		.00	
Tgv)(mid		.00	
Ton/Kussen	.00		-.10
Trapezium	-.01		-.11
Gemeten:	.01	.00	.16

Maximale rastervert. = .71 mm

na magnetiseren.

115D14GH/123 N.M
Kanonnr.: 5201306



Mx,y: X=8.33 Y=3.88 V/cm
Exc.: X=.66 Y=-1.22 mm
Hdl=90 !MaxRV=.69 2mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		.00	
Tgv)(mid		-.00	
Ton/Kussen	.30		-.23
Trapezium	.08		-.69
Gemeten:	.34	.00	.69

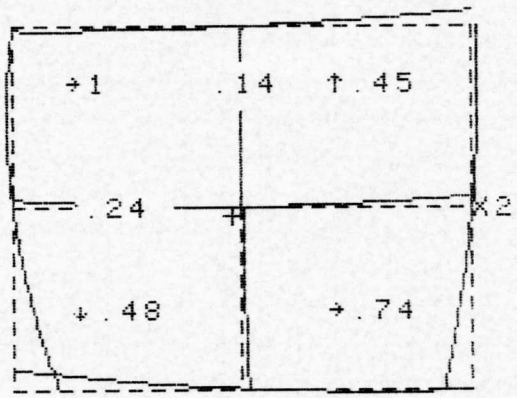
Y-richting	Onder	Midden	Boven
Tgv Rotat.		.00	
Tgv)(mid		-.00	
Ton/Kussen	-.02		-.11
Trapezium	.09		.07
Gemeten:	.10	.00	.15

Maximale rastervert. = .69 mm

PHILIPS

Voor -

115D14GH/123 M.M
Kanonnr.: 5201077



Mx,y:X=8.45 Y=4.29 V/cm
Exc.:X=-2.09 Y=-2.05 mm
Hdl=90.05 |MaxRV=1 5mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

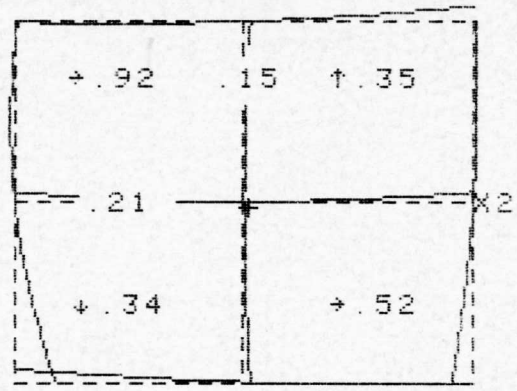
X-richting	Links	Midden	Rechts
Tav Rotat.		\ -.07 \	
Tav H.d.l.		\ -.07 \	
Tav)(mid		(.07 (	
Ton/Kussen	(.43		-.31)
Trapezium	\ -.87		.87 /
Gemeten:	1.00	.14	.74

Y-richting	Onder	Midden	Boven
Tav Rotat.		\ -.08 \	
Tav)(mid		(.20 (	
Ton/Kussen	) -.01		-.07)
Trapezium	/ .56		-.37 \
Gemeten:	.48	.24	.45

Maximale rastervert. = 1 mm
UITVAL RASTERVERTEKENING !!!

Na magnetiseren.

115D14GH/123 N.M
Kanonnr.: 5201077



Mx,y:X=8.41 Y=3.89 V/cm
Exc.:X=1.05 Y=-1.43 mm
Hdl=90.01 |MaxRV=.92 3mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav Rotat.		\ -.01 \	
Tav H.d.l.		\ -.01 \	
Tav)(mid		(.14 (	
Ton/Kussen	(.35		-.33)
Trapezium	\ -.85		.54 /
Gemeten:	.92	.15	.52

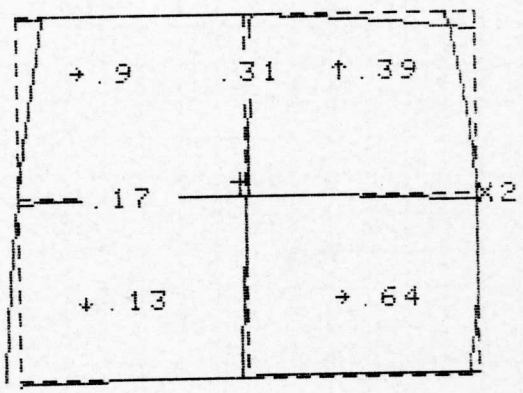
Y-richting	Onder	Midden	Boven
Tav Rotat.		\ -.01 \	
Tav)(mid		(.20 (	
Ton/Kussen	) -.08		-.04)
Trapezium	/ .35		-.34 \
Gemeten:	.34	.21	.35

Maximale rastervert. = .92 mm

PHILIPS

Voor –

115D14GH/123 V.M
Kanonnr.: 5130356



Mx,y:X=8.45 Y=4.29 V/cm
Exc.:X=-1.4 Y=2.77 mm
Hdl=89.8 |MaxRV=.9 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

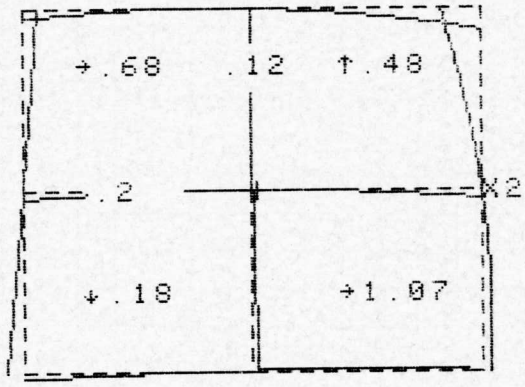
X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .03 /	
Tgv H.d.l.		/ .28 /	
Tgv)(mid		) -.03)	
Ton/Kussen	(.17		-.40)
Trapezium	/ .59		-.73 \
Gemeten:	.90	.31	.64

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .04 /	
Tgv)(mid		) -.15)	
Ton/Kussen	(.09		-.08)
Trapezium	\ -.17		.29 /
Gemeten:	.13	.17	.39

Maximale rastervert. = .9 mm

Na magnetiseren.

115D14GH/123 N.M
Kanonnr.: 5130356



Mx,y:X=8.4 Y=3.9 V/cm
Exc.:X=.65 Y=-.21 mm
Hdl=90.09 |MaxRV=1.07 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.12 \	
Tgv)(mid		(.06 (	
Ton/Kussen	) -.09		-.40)
Trapezium	/ .81		-.95 \
Gemeten:	.68	.12	1.07

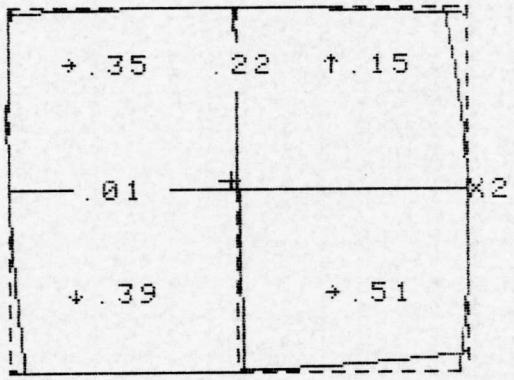
Y-richting	Onder	Midden	Boven
Tgv Rotat.		0.00	
Tgv)(mid		) -.20)	
Ton/Kussen	(.11		-.15)
Trapezium	\ -.17		.26 /
Gemeten:	.18	.20	.48

Maximale rastervert. = 1.07 mm
UITVAL RASTERVERTEKENING !!!

PHILIPS

voor –

115D14GH/123 V.M
Kanonnr.: 5141151



Mx,y: X=8.23 Y=4.19 V/cm
Exc.: X=-1.77 Y=1.58 mm
Hdl=90.16 |MaxRV=.51 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

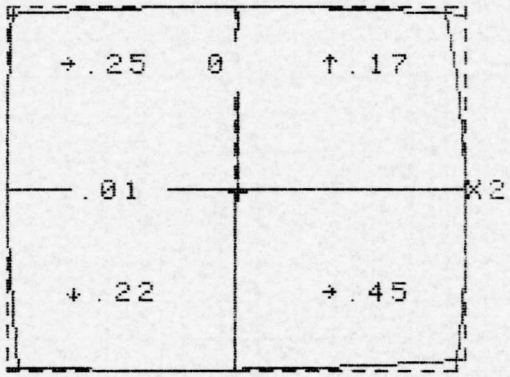
X-richting	Links	Midden	Rechts
Tav Rotat.		/ .01 /	
Tav H.d.l.		\ -.23 \	
Tav)(mid		(.00 (	
Ton/Kussen	(.20		-.37)
Trapezium	\ -.09		-.08 \
Gemeten:	.35	.22	.51

Y-richting	Onder	Midden	Boven
Tav Rotat.		/ .01 /	
Tav)(mid		(.00 (	
Ton/Kussen	(.20		-.14)
Trapezium	\ -.39		.01 /
Gemeten:	.39	.01	.15

Maximale rastervert. = .51 mm

ha, magnetiseren.

115D14GH/123 N.M
Kanonnr.: 5141151



Mx,y: X=8.17 Y=3.92 V/cm
Exc.: X=.27 Y=-.77 mm
Hdl=90 |MaxRV=.45 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tav H.d.l.		/ .01 /	
Tav)(mid		) -.00)	
Ton/Kussen	(.19		-.34)
Trapezium	\ -.13		-.24 \
Gemeten:	.25	.00	45

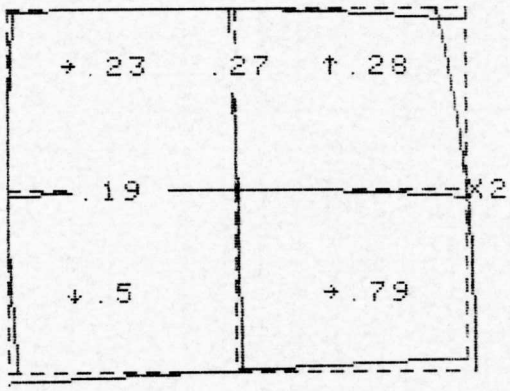
Y-richting	Onder	Midden	Boven
Tav Rotat.		\ -.01 \	
Tav)(mid		(.00 (	
Ton/Kussen	(.14		-.18)
Trapezium	\ -.16		.01 /
Gemeten:	.22	.01	.17

Maximale rastervert. = .45 mm

PHILIPS

voor -

115D14GH/123 V.M
Kanonnr.: 5141174



Mx,y: X=8.1 Y=4.19 V/cm
Exc.: X=.46 Y=.1 mm
Hdl=90.21 |MaxRV=.79 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

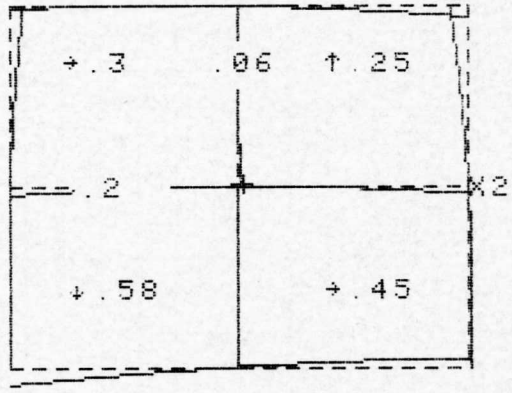
X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .03 /	
Tgv H.d.l.		\ -.30 \	
Tgv)(mid		) -.05)	
Ton/Kussen	(.23		-.19)
Trapezium	/ .19		-.53 \
Gemeten:	.23	.27	.79

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .04 /	
Tgv)(mid		) -.17)	
Ton/Kussen	(.17		-.00)
Trapezium	\ -.54		.17 /
Gemeten:	.50	.19	.28

Maximale rastervert. = .79 mm

na magnetiseren.

115D14GH/123 N.M
Kanonnr.: 5141174



Mx,y: X=8.05 Y=3.9 V/cm
Exc.: X=.74 Y=.54 mm
Hdl=89.97 |MaxRV=.58 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		/ .05 /	
Tgv)(mid		) -.05)	
Ton/Kussen	(.21		-.13)
Trapezium	/ .24		-.47 \
Gemeten:	.30	.06	.45

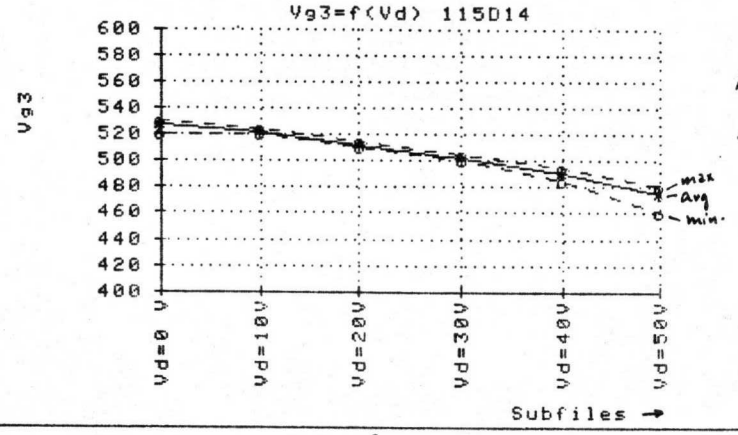
Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.03 \	
Tgv)(mid		) -.18)	
Ton/Kussen	(.07		.03 (
Trapezium	\ -.55		.22 /
Gemeten:	.58	.20	.25

Maximale rastervert. = .58 mm

PROJEKTnaam: Vo3=f(Vd) 115D14. Subfiles van var. 1 : **Vg3**

Subfiles		n	Gem.	Δ	Sdev.	Max.	Min.
1	Vd=0 V	13	527.3077		3.3011	530.0000	520.0000
2	Vd=10V	13	521.1538	6	2.1926	525.0000	520.0000
3	Vd=20V	13	511.5385	10	2.4019	515.0000	510.0000
4	Vd=30V	13	501.9231	10	2.5318	505.0000	500.0000
5	Vd=40V	13	491.1538	11	3.6251	495.0000	485.0000
6	Vd=50V	13	475.0000	16	6.4550	480.0000	460.0000
			V	V			

↳ 52V ΔV_{g3} for ΔV_d = 50V.



Measured at 2.2/2.2+14.3 kV.

Derivation of focus range: — In % of V_{g4}

Low intens. V_{foc} ~ 530 V ± 50V — 24%

Over grid-drive range of 50V : ΔV_{g3} ~ -55V

Published data range : max 580 V — 26 %

min 420 V — 19 %

(typ. 530 V) — (24 %)

Testspec : Condition : "CJZ" → 530 ± 40V.

Focuscharacteristic :

Condition : ΔV_d = 50V → ΔV_{g3} ~ 50V.

25-4-85

KHR-89/SB-876

D14-372
D14-382

Correction of pincushion/
barreldistortion.

1. Introduction:

By means of varying Vg5, the geometry of these type-families can be optimized.

This report shows the relations:

- Pincushion/barreldistortion= f (Vg5)
- Vg4= f (Vg5)

2. Testresults:

- 3 Tubes tested under 5 conditions: App. 1 to 5 incl.
- Survey of testresults: App. 6
- Relations: App. 7

3. Conclusion:

Operating conditions: Typical 2.2/16.5 kV

$V_{\overline{x}}$ = Vij = oV

Under these conditions the best geometry is obtained with Vg5 = - 35 V.

The corresponding average Vg4 $\sim$ + 25 V

Eventual ranges should be: Vg5 : - 35 V ± 50 V

(In case of individual adjustment)

Vg4 : + 25 V ± 25 V

Note: *

Qual. Lab. Instr. CRT's

Heerlen, 85.10.14

Sieben A.G.

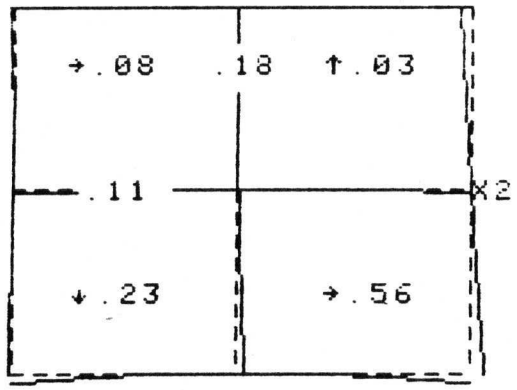
Copy Messrs: Modderman - Koppelmans - Bintanja - Helfferich - - Zeppenfeld

* The validity of this recommendation is only temporarily, because of intended adaptations of the X- plates to reduce barreldistortion.

D14-372GH/123.
Vg5 = -50 V.

Type : D14-372GH/123
K.nr.: 5380250 N.M.

Vg5 -50V
Vg4 +35V



Mx,y: X=8.32 Y=3.87 V/cm
Exc.: X=-.18 Y=-.43 mm
Hdl=90.11 |MaxRV=.56 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

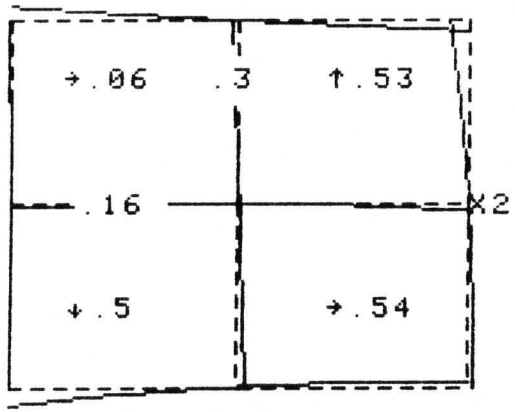
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		\ -.16 \	
Tgv)(mid		(.09 (	
Ton/Kussen	) -.17		-.06)
Trapezium	/ .18		-.38 \
Gemeten:	.08	.18	.56

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.03 \	
Tgv)(mid		) -.09)	
Ton/Kussen	) -.14		.10 (
Trapezium	/ .03		.01 /
Gemeten:	.23	.11	.03

Maximale rastervert. = .56 mm

Type : D14-372GH/123
K.nr.: 5380286 N.M.

Vg5 -50V
Vg4 +39V



Mx,y: X=8.03 Y=3.78 V/cm
Exc.: X=.18 Y=-.36 mm
Hdl=90.25 |MaxRV=.54 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

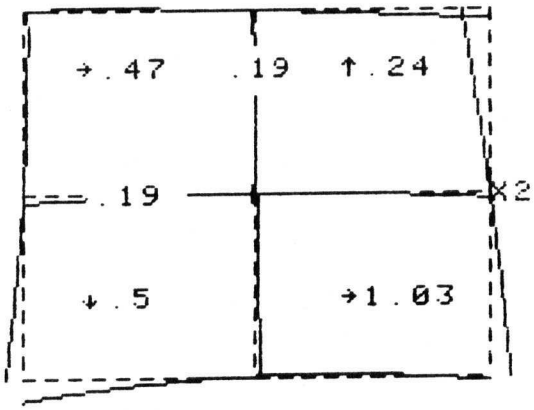
X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .05 /	
Tgv H.d.l.		\ -.35 \	
Tgv)(mid		(.00 (	
Ton/Kussen	) -.04		-.16)
Trapezium	/ .25		-.23 \
Gemeten:	.06	.30	.54

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .06 /	
Tgv)(mid		) -.13)	
Ton/Kussen	) -.01		.16 (
Trapezium	\ -.56		.47 /
Gemeten:	.50	.16	.53

Maximale rastervert. = .54 mm

Type : D14-372GH/123
K.nr.: 5380287 N.M.

Vg5 -50V
Vg4 +42V



Mx,y: X=8.22 Y=3.77 V/cm
Exc.: X=-.79 Y=-.21 mm
Hdl=90.09 |MaxRV=1.03 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.06 \	
Tgv H.d.l.		\ -.13 \	
Tgv)(mid		) -.00)	
Ton/Kussen	) -.14		-.07)
Trapezium	/ .66		-.85 \
Gemeten:	.47	.19	1.03

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.07 \	
Tgv)(mid		) -.16)	
Ton/Kussen	) -.15		.06 (
Trapezium	\ -.33		.31 /
Gemeten:	.50	.19	.24

Maximale rastervert. = 1.03 mm
UITVAL RASTERVERTEKENING !!!

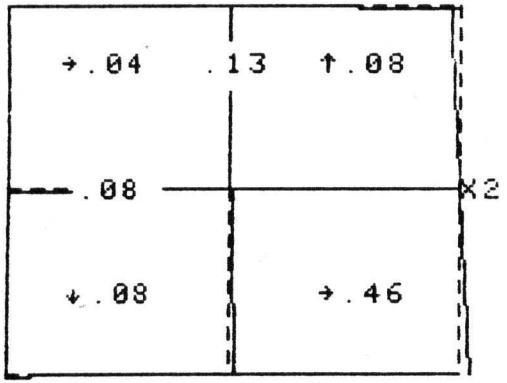
(1)

D14-372GH/123

Vgs = −25 V.

Type : D14-372GH/123
K.nr.: 5380250 N.M.

Vgs −25 V
Vg4 +19 V



Mx,y: X=8.43 Y=3.97 V/cm
Exc.: X=-.2 Y=-.32 mm
Hdl=90.06 |MaxRV=.46 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

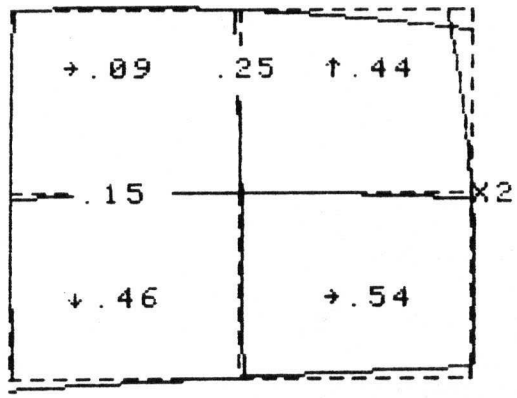
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.04 \	
Tgv H.d.l.		\ -.09 \	
Tgv)(mid		(.07 (	
Ton/Kussen	) -.04		-.06)
Trapezium	/ .15		-.33 \
Gemeten:	.04	.13	.46

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.05 \	
Tgv)(mid		) -.05)	
Ton/Kussen	) -.01		.00 (
Trapezium	/ .03		.10 /
Gemeten:	.08	.08	.08

Maximale rastervert. = .46 mm

Type : D14-372GH/123
K.nr.: 5380286 N.M.

Vgs −25 V
Vg4 +18 V



Mx,y: X=8.12 Y=3.88 V/cm
Exc.: X=.35 Y=-.36 mm
Hdl=90.18 |MaxRV=.54 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

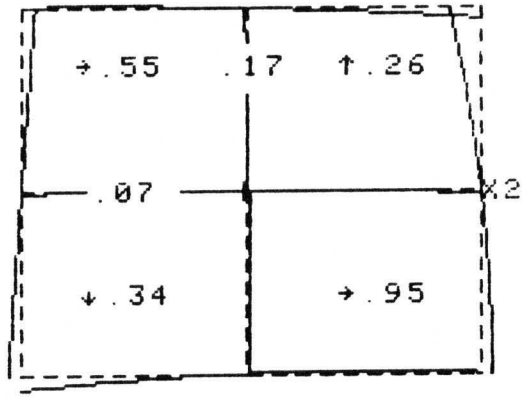
X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.25 \	
Tgv)(mid		) -.06)	
Ton/Kussen	(.13		-.20)
Trapezium	/ .21		-.30 \
Gemeten:	.09	.25	.54

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .01 /	
Tgv)(mid		) -.14).	
Ton/Kussen	(.12		-.07)
Trapezium	\ -.47		.43 /
Gemeten:	.46	.15	.44

Maximale rastervert. = .54 mm

Type : D14-372GH/123
K.nr.: 5380287 N.M.

Vgs −25 V
Vg4 +10 V



Mx,y: X=8.31 Y=3.86 V/cm
Exc.: X=-.68 Y=-.26 mm
Hdl=90.13 |MaxRV=.95 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Recht
Tgv Rotat.		/ .01 /	
Tgv H.d.l.		\ -.18 \	
Tgv)(mid		) -.03)	
Ton/Kussen	(.05		-.19
Trapezium	/ .72		-.78 \
Gemeten:	.55	.17	.95

Y-richting	Onder	Midden	Bover
Tgv Rotat.		/ .01 /	
Tgv)(mid		) -.06)	
Ton/Kussen	) -.11		-.04
Trapezium	\ -.35		.25 /
Gemeten:	.34	.07	.26

Maximale rastervert. = .95 mm

(2)

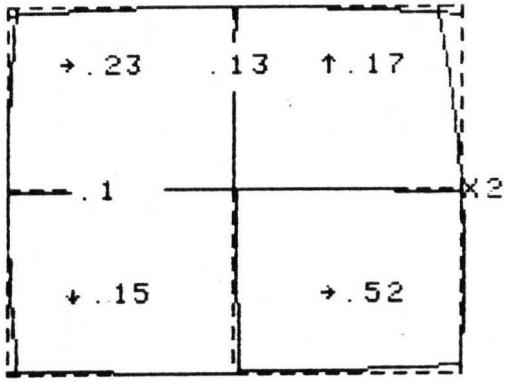
D14-372GH/123

Vg5 = 0 V

Vg4 = 0 V.

Type : D14-372GH/123
K.nr.: 5380250 N.M.

Vg5 0V
Vg4 0V



Mx,y:X=8.52 Y=4.08 V/cm
Exc.:X=-.24 Y=-.01 mm
Hdl=90.08 |MaxRV=.52 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

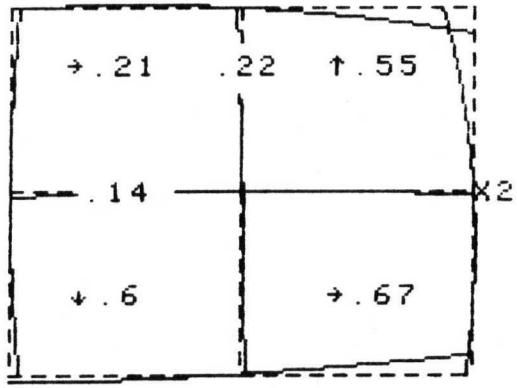
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.01 \	
Tgv H.d.l.		\ -.11 \	
Tgv)(mid		(.07 (	
Ton/Kussen	(.14		-.34)
Trapezium	/ .08		-.38 \
Gemeten:	.23	.13	.52

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.01 \	
Tgv)(mid		) -.10)	
Ton/Kussen	(.20		-.07)
Trapezium	\ -.09		.01 /
Gemeten:	.15	.10	.17

Maximale rastervert. = .52 mm

Type : D14-372GH/123
K.nr.: 5380286 N.M.

Vg5 0V
Vg4 0V



Mx,y:X=8.22 Y=3.98 V/cm
Exc.:X=.45 Y=-.18 mm
Hdl=90.13 |MaxRV=.67 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

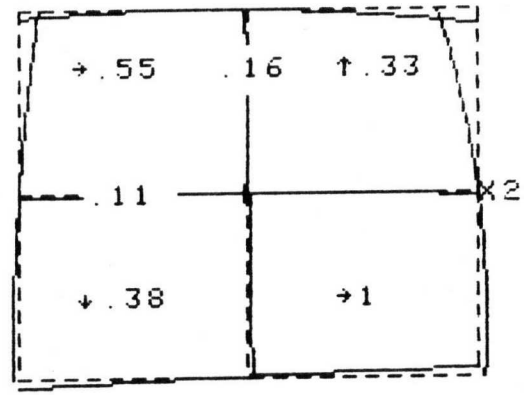
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.04 \	
Tgv H.d.l.		\ -.18 \	
Tgv)(mid		) -.04)	
Ton/Kussen	(.23		-.37)
Trapezium	/ .19		-.31 \
Gemeten:	.21	.22	.67

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.05 \	
Tgv)(mid		) -.11)	
Ton/Kussen	(.24		-.18)
Trapezium	\ -.56		.58 /
Gemeten:	.60	.14	.55

Maximale rastervert. = .67 mm

Type : D14-372GH/123
K.nr.: 5380287 N.M.

Vg5 0V
Vg4 0V



Mx,y:X=8.42 Y=3.97 V/cm
Exc.:X=-.68 Y=-.14 mm
Hdl=90.09 |MaxRV=1 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm

X-richting	Links	Midden	Recht
Tgv Rotat.		\ -.03 \	
Tgv H.d.l.		\ -.12 \	
Tgv)(mid		) -.00)	
Ton/Kussen	(.17		-.35
Trapezium	/ .70		-.84
Gemeten:	.55	.16	1.00

Y-richting	Onder	Midden	Bove
Tgv Rotat.		\ -.04 \	
Tgv)(mid		) -.09)	
Ton/Kussen	(.05		-.16
Trapezium	\ -.34		.19
Gemeten:	.38	.11	.33

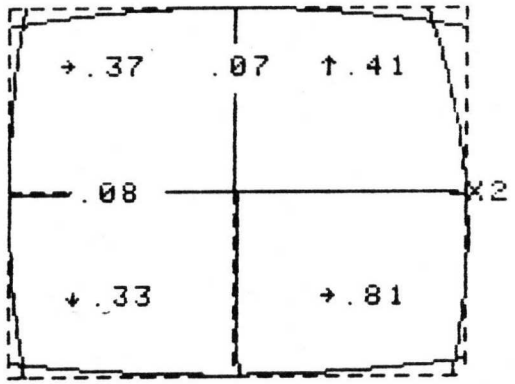
Maximale rastervert. = 1 mm

(3)

D14-372GH/123
Vg5 = +25 V.

Type : D14-372GH/123
K.nr.: 5380250 N.M.

Vg5 +25 V
Vg4 -15 V



Mx,y: X=8.63 Y=4.18 V/cm
Exc.: X=-.22 Y=-.03 mm
Hdl=90.03 | MaxRV=.81 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

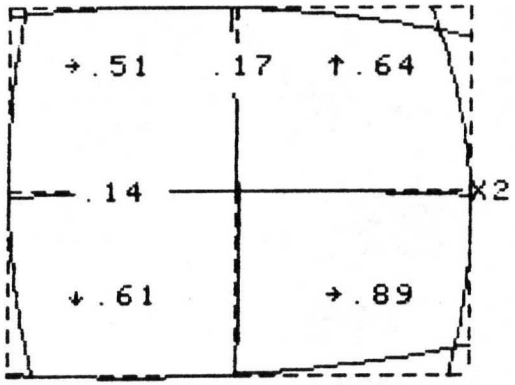
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		\ -.05 \	
Tgv)(mid		(.03 (	
Ton/Kussen	(.33		-.58)
Trapezium	/ .08		-.45 \
Gemeten:	.37	.07	.81

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.03 \	
Tgv)(mid		) -.07)	
Ton/Kussen	(.38		-.34)
Trapezium	\ -.02		.03 /
Gemeten:	.33	.08	.41

Maximale rastervert. = .81 mm

Type : D14-372GH/123
K.nr.: 5380286 N.M.

Vg5 +25 V
Vg4 -14 V



Mx,y: X=8.32 Y=4.08 V/cm
Exc.: X=.61 Y=-.12 mm
Hdl=90.1 | MaxRV=.89 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

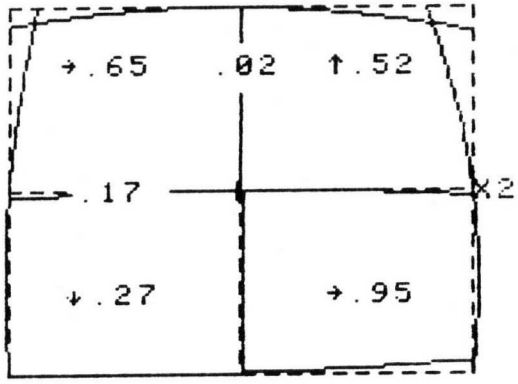
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.01 \	
Tgv H.d.l.		\ -.14 \	
Tgv)(mid		) -.09)	
Ton/Kussen	(.52		-.60)
Trapezium	\ -.00		-.24 \
Gemeten:	.51	.17	.89

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.02 \	
Tgv)(mid		) -.13)	
Ton/Kussen	(.45		-.29)
Trapezium	\ -.57		.46 /
Gemeten:	.61	.14	.64

Maximale rastervert. = .89 mm

Type : D14-372GH/123
K.nr.: 5380287 N.M.

Vg5 +25 V
Vg4 -11 V



Mx,y: X=8.52 Y=4.07 V/cm
Exc.: X=-.64 Y=-.14 mm
Hdl=89.99 | MaxRV=.95 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm

X-richting	Links	Midden	Recht
Tgv Rotat.		\ -.04 \	
Tgv H.d.l.		/ .02 /	
Tgv)(mid		(.01 (	
Ton/Kussen	(.32		- 49
Trapezium	/ .65		-.92
Gemeten:	.65	.02	.95

Y-richting	Onder	Midden	Bove
Tgv Rotat.		\ -.04 \	
Tgv)(mid		) -.15)	
Ton/Kussen	(.26		-.31
Trapezium	\ -.23		.14
Gemeten:	.27	.17	.52

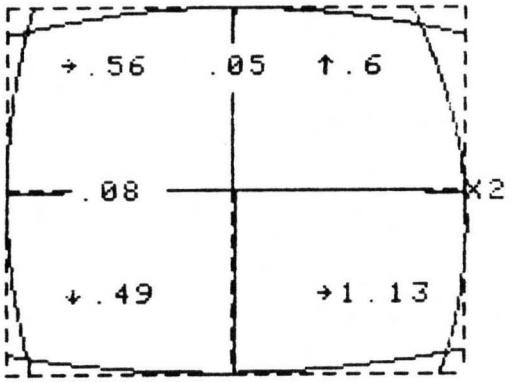
Maximale rastervert. = .95 mm

(4)

D14-372GH/123
Vg5: +50V.

Type : D14-372GH/123
K.nr.: 5380250 N.M.

Vg5 +50V
Vg4 -38V



Mx,y: X=8.73 Y=4.3 V/cm
Exc.: X=-.29 Y=.07 mm
Hdl=90.03 !MaxRV=1.13 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

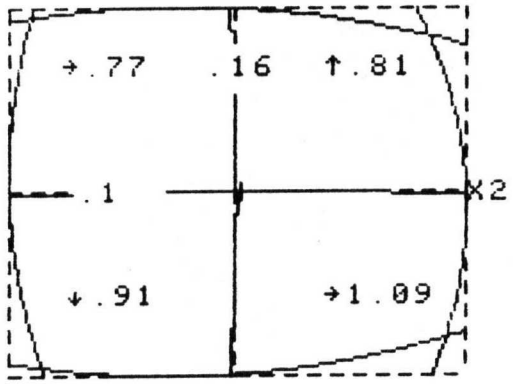
X-richting	Links	Midden	Rechts
Tgv Rotat.		\ -.01 \	
Tgv H.d.l.		\ -.04 \	
Tgv)(mid		(.03 (	
Ton/Kussen	(.53		-.85)
Trapezium	/ .05		-.57 \
Gemeten:	.56	.05	1.13

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.01 \	
Tgv)(mid		) -.07)	
Ton/Kussen	(.51		-.52)
Trapezium	\ -.08		-.01 \
Gemeten:	.49	.08	.60

Maximale rastervert. = 1.13 mm
UITVAL RASTERVERTEKENING !!!

Type : D14-372GH/123
K.nr.: 5380286 N.M.

Vg5 +50V
Vg4 -36V



Mx,y: X=8.41 Y=4.19 V/cm
Exc.: X=.8 Y=.03 mm
Hdl=90.02 !MaxRV=1.09 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

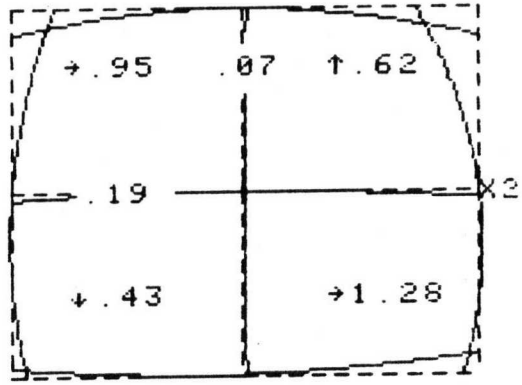
X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.03 \	
Tgv)(mid		) -.14)	
Ton/Kussen	(.79		-.78)
Trapezium	\ -.20		-.32 \
Gemeten:	.77	.16	1.09

Y-richting	Onder	Midden	Boven
Tgv Rotat.		\ -.00 \	
Tgv)(mid		) -.10)	
Ton/Kussen	(.69		-.45)
Trapezium	\ -.64		.53 /
Gemeten:	.91	.10	.81

Maximale rastervert. = 1.09 mm
UITVAL RASTERVERTEKENING !!!

Type : D14-372GH/123
K.nr.: 5380287 N.M.

Vg5 +50V
Vg4 -29V.



Mx,y: X=8.62 Y=4.18 V/cm
Exc.: X=-.59 Y=-.1 mm
Hdl=89.99 !MaxRV=1.28 mm
(Schaal: 1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm

X-richting	Links	Midden	Recht
Tgv Rotat.		\ -.02 \	
Tgv H.d.l.		/ .02 /	
Tgv)(mid		(.07 (	
Ton/Kussen	(.57		-.87
Trapezium	/ .62		-.95
Gemeten:	.95	.07	1.28

Y-richting	Onder	Midden	Bove
Tgv Rotat.		\ -.03 \	
Tgv)(mid		) -.18)	
Ton/Kussen	(.48		-.43
Trapezium	\ -.24		.05
Gemeten:	.43	.19	.62

Maximale rastervert. = 1.28 m
UITVAL RASTERVERTEKENING !!!

(5)

PHILIPS

App. 6

Adjustment of geometry-correction

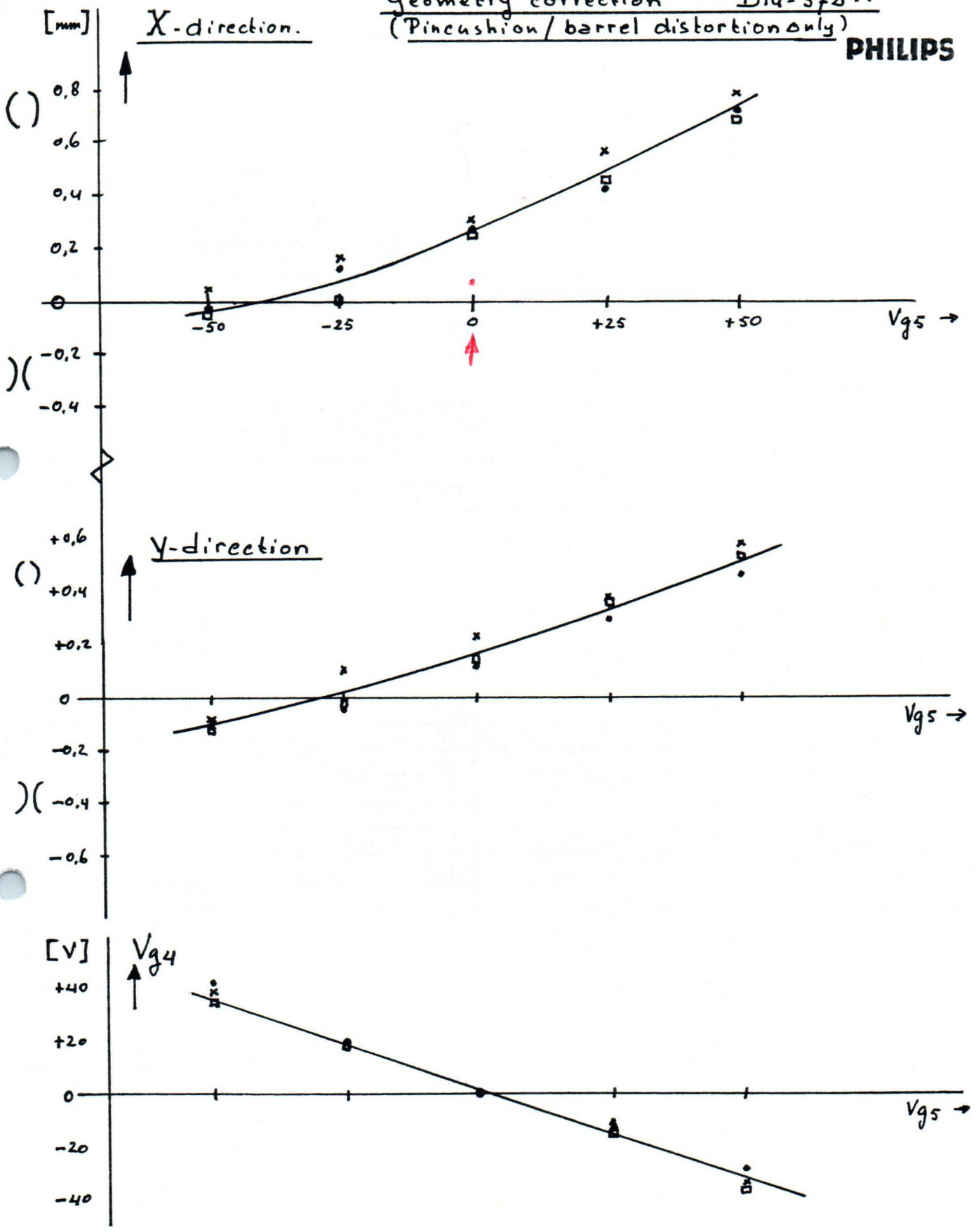
Only pincushion / barrel distortion
(averaged left/right → x
top/down → y

) (= − ( ) = +

Tube	direction \ Vg5	−50	−25	0	+25	+50	Graph
538 0250	X	-0,06	+0,01	+0,24	+0,46	+0,69	□
	y	-0,12	-0,01	+0,14	+0,36	+0,52	
538 0286	X	+0,06	+0,17	+0,30	+0,56	+0,79	x
	y	-0,09	+0,10	+0,21	+0,37	+0,57	
538 0287	X	-0,04	+0,12	+0,26	+0,41	+0,72	•
	y	-0,11	-0,04	+0,11	+0,29	+0,46	
Vg4 (V):							
5380250		+35	+19	0	-15	-38	□
5380286		+39	+18	0	-14	-36	x
5380287		+42	+18	0	-11	-29	•

Geometry correction D14-372..
(Pincushion / barrel distortion only)

PHILIPS



measured at typical operation: 22/16,5 kV
$V_{\bar{x}} = V_{\bar{y}} = 0V.$

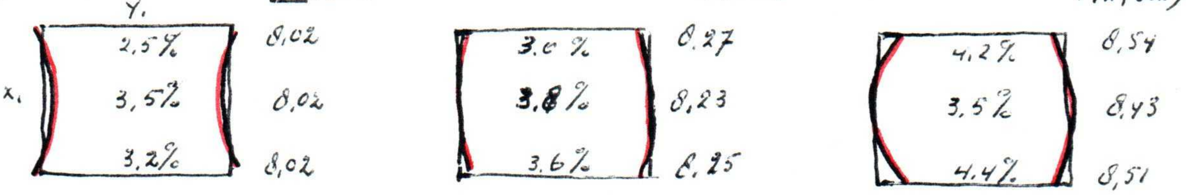
D 14-372

KHR-89/SB-883

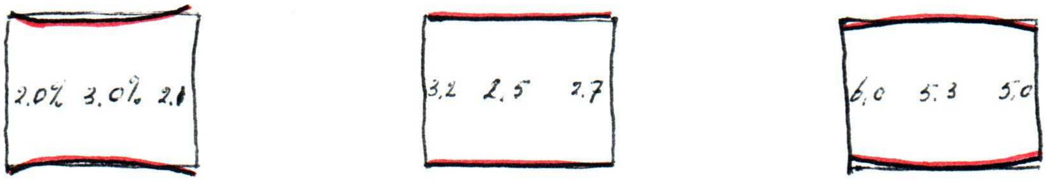
Onderzoek Lin. = f (Vg5) (Def. Lin. max)

Vg5 = -50	Vg5 = 0	Vg5 = +50

X-ri



Y-ri



My (80%): 3,73 3,73 3,70 3,96 3,94 3,94 4,2 4,16 4,19

%. Variatie van M̄ (80%) van de grens van de useful scan t.o.v. het schermmidden:

Mx:	0%	+ 0,4%	+ 1,1%
My:	-0,4%	+ 0,3%	+ 0,8%

Konklusie: De kleinste alineariteit bestaat bij Vg5 = -50V indien zowel het midden als de randen beschouwd worden.
Indiv. metingen: zie bijlagen.

Kopie HH Zeppenfeld
Koppelmans.
Schols / Thissen

31-10-'85

Sieben af

KHR-89/SB-883

OPDRACHTFORMULIER/RAPPORTAGE KHR-89/MC 465

MEETCENTRUM OSCILLOGRAAFBUIZEN

NAAM INZENDER : Sieben TEL. :
DATUM INZENDING: LEVERTIJD:
BUDGET/BON : 2-57.

TYPE: D14-372/382 AANTAL : 1

GEGEVENS : V = 2.2 / 2.2 + 14.3 (kV)
V x̄, ȳ = 0.

PROEFOMSCHR. :
Buis 5121044 - vrijgave serie I.

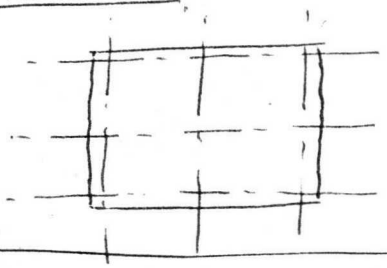
GEMETEN DOOR : F.C. Schols.
DATUM GEMETEN : 23-10-'85
DATUM AFGEWERKT: 24-10-'85
PARAAF : JS.

RETOUR NAAR : Hr. Sieben

KOPIE H.H. :

OMSCHRIJVING MEETPROGRAMMA Lineariteit d.v.

V_{g5} = +50V V_{g4} = afr. + not (-29)
= 0V = 0
= -50V = afr + not (+40)

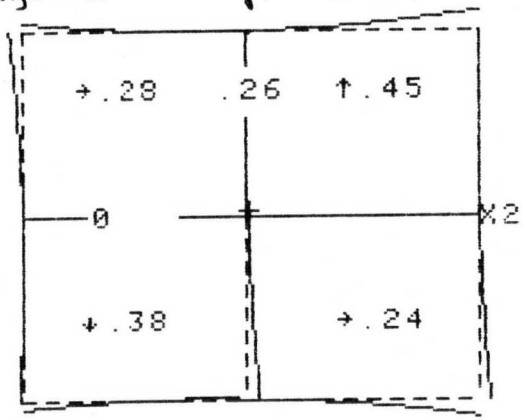


+ RV foto onder de 3 condities.

Vfoc. ingesteld in midden v/h scherm bij alle 3 condities. (Lin = $X_1 \rightarrow X_2$, $Y_1 \rightarrow Y_2$)
(Y_1-Y_2-X_1,X_2 op laatste div gemeten.)

OPM./SAMENVATTING/KONKLUSIE

Type : D14-372GH/93
K.nr.: 5121044 N.M.
Vgs=-30V Vg4=+40V.



Mx,y:X=8.01 Y=3.76 V/cm
Exc.:X=.33 Y=.96 mm
Hdl=90.18 !MaxRV=.45 mm
(Schaal:1 div.=10 mm)

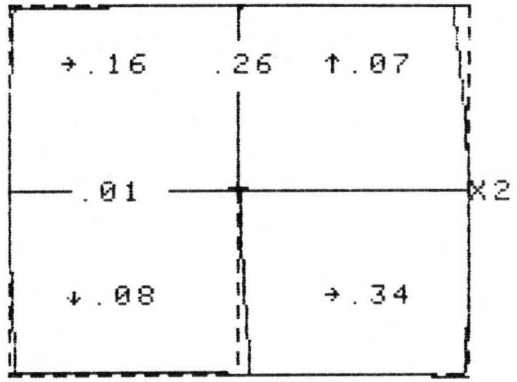
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.25 \	
Tgv)(mid		(.13 (	
Ton/Kussen	) -.31		-.01)
Trapezium	/ .05		.01 /
Gemeten:	.28	.26	.24

Y-richting	Onder	Midden	Boven
Tgv Rotat.		0.00	
Tgv)(mid		(.00 (	
Ton/Kussen	) -.30		.32 (
Trapezium	/ .17		-.26 \
Gemeten:	.38	.00	.45

Maximale rastervert. = .45 mm

Type : D14-372GH/93
K.nr.: 5121044 N.M.
Vgs=0V Vg4=0V



Mx,y:X=8.22 Y=3.96 V/cm
Exc.:X=-.15 Y=.64 mm
Hdl=90.19 !MaxRV=.34 mm
(Schaal:1 div.=10 mm)

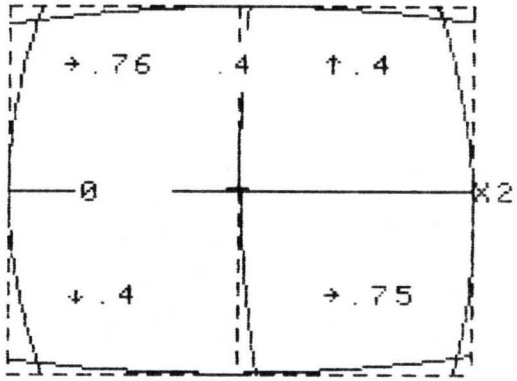
ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv Rotat.		/ .01 /	
Tgv H.d.l.		\ -.27 \	
Tgv)(mid		(.13 (	
Ton/Kussen	(.00		-.36)
Trapezium	/ .20		.02 /
Gemeten:	.16	.26	.34

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .01 /	
Tgv)(mid		) -.00)	
Ton/Kussen	) -.04		-.04)
Trapezium	/ .07		-.08 \
Gemeten:	.08	.01	.07

Maximale rastervert. = .34 mm

Type : D14-372GH/93
K.nr.: 5121044 N.M.
Vgs=+50V Vg4=-2gV.



Mx,y:X=8.42 Y=4.17 V/cm
Exc.:X=-.62 Y=.48 mm
Hdl=90.15 !MaxRV=.76 mm
(Schaal:1 div.=10 mm)

ANALYSE RASTERVERVORMING (mm)

X-richting	Links	Midden	Rechts
Tgv H.d.l.		\ -.21 \	
Tgv)(mid		(.29 (	
Ton/Kussen	(.44		-.86)
Trapezium	/ .16		-.16 \
Gemeten:	.76	.40	.75

Y-richting	Onder	Midden	Boven
Tgv Rotat.		/ .00 /	
Tgv)(mid		) -.00)	
Ton/Kussen	(.35		-.37)
Trapezium	\ -.09		-.06 \
Gemeten:	.40	.00	.40

Maximale rastervert. = .76 mm

KHR-89/SB - 823

KHR-89/SB-883

==========
Vg5=0 en Vg4=0V X/Y-midden
D14-372GH/93 5121044
INPUT survey HORIZONTAL
==========

Div	1st.	2nd	Error	Avg.
X 1	8.25	8.24	.1%	8.25
X 2	8.29	8.29	0.0%	8.29
X 3	8.31	8.30	.1%	8.31
X 4	8.28	8.28	0.0%	8.28
X 5	8.25	8.26	-.1%	8.26
X 6	8.24	8.25	-.1%	8.25
X 7	8.20	8.19	.1%	8.20
X 8	8.18	8.17	.1%	8.18
X 9	8.11	8.10	.1%	8.11
X10	8.00	8.01	-.1%	8.01

INPUT survey VERTICAL
==========

Div	1st.	2nd	Error	Avg.
Y 1	3.88	3.88	0.0%	3.88
Y 2	3.92	3.92	0.0%	3.92
Y 3	3.93	3.93	0.0%	3.93
Y 4	3.93	3.93	0.0%	3.93
Y 5	3.95	3.95	0.0%	3.95
Y 6	3.96	3.96	0.0%	3.96
Y 7	3.98	3.97	.3%	3.98
Y 8	3.96	3.97	-.3%	3.97

****
* LINEARITY-report of: *
* Vg5=0 en Vg4=0V X/Y-midden *
****

Type :D14-372GH/93

Tube :5121044
Test date:23-10-1985

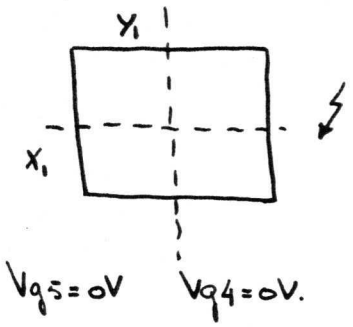
HORIZONTAL Div	Mx/div	LIN 100%	LIN 80%
X 1	8.25	.43	.17
X 2	8.29	.97	.71
X 3	8.31	1.16	.90
X 4	8.28	.85	.59
X 5	8.26	.55	.29
X 6	8.25	.43	.17
X 7	8.20	-.18	-.44
X 8	8.18	-.43	-.68
X 9	8.11	-1.28	-1.53
X10	8.01	-2.50	-2.75
In:[V/div]		[%]	[%]

Lin.max.= 3.75 %
Delta Mx = 1.25 %

Lin(25/75%)X1=-.27 %
Lin(25/75%)X2= .61 %

Survey of DEFLECTION FACTOR X:
==========
Avg.(100%)= 8.21 V/div
Avg.(80%) = 8.23 V/div
Mx (def.) = 8.24 V/div

Ecc defl.factor= .05 V = .58 %



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VERTICAL Div	My/div	LIN 100%	LIN 80%	LIN 75%
Y 1	3.88	-1.49	-1.59	-1.63
Y 2	3.92	-.48	-.58	-.61
Y 3	3.93	-.22	-.32	-.36
Y 4	3.93	-.22	-.32	-.36
Y 5	3.95	.29	.18	.15
Y 6	3.96	.54	.44	.40
Y 7	3.98	.92	.82	.78
Y 8	3.97	.67	.56	.53
In:[V/div]		[%]	[%]	[%]

Lin.max.= 2.45 %

Lin(25/75%)Y1=-.3 %
Lin(25/75%)Y2= .08 %

Survey of DEFLECTION FACTOR Y
==========
Avg.(100%)= 3.94 V/div
Avg.(80%) = 3.94 V/div
Avg.(75%) = 3.94 V/div
My (def.) = 3.94 V/div

Exc defl.factor=-.02 V =-.64 %

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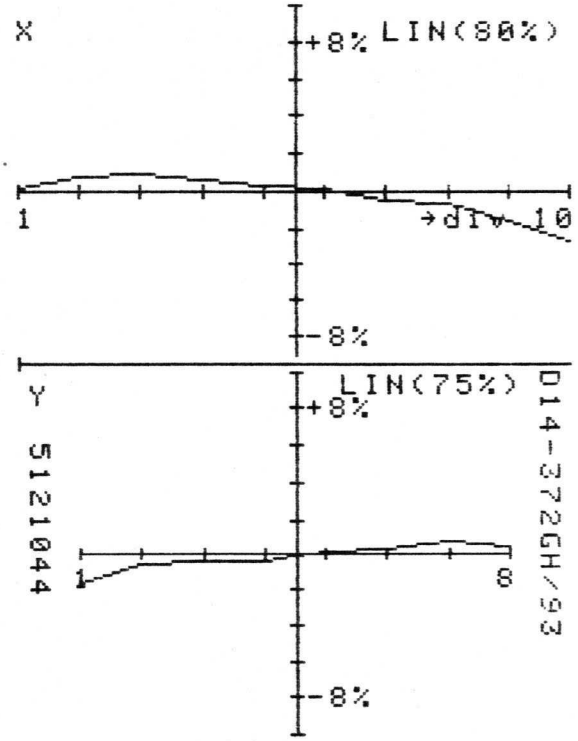


KHR-89/SB-883

```
============================
Vg5=0 en Vg4=0V Y1enX1 kant
D14-372GH/93  5121044
INPUT survey     HORIZONTAL
============================
Div   1st.    2nd    Error     Avg.
X 1    8.23    8.23     0.0%    8.23
X 2    8.30    8.29      .1%    8.30
X 3    8.29    8.30     -.1%    8.30
X 4    8.32    8.30      .2%    8.31
X 5    8.31    8.31     0.0%    8.31
X 6    8.29    8.29     0.0%    8.29
X 7    8.25    8.25     0.0%    8.25
X 8    8.22    8.22     0.0%    8.22
X 9    8.17    8.16      .1%    8.17
X10    8.07    8.07     0.0%    8.07

INPUT survey     VERTICAL
==========================
Div   1st.    2nd    Error     Avg.
Y 1    3.86    3.86     0.0%    3.86
Y 2    3.92    3.92     0.0%    3.92
Y 3    3.96    3.94      .5%    3.95
Y 4    3.96    3.97     -.3%    3.97
Y 5    3.98    3.99     -.3%    3.99
Y 6    3.99    3.98      .3%    3.99
Y 7    3.97    3.97     0.0%    3.97
Y 8    3.92    3.93     -.3%    3.93
```

```
##################################
#    LINEARITY-report of:        #
# Vg5=0 en Vg4=0V Y1enX1 kant    #
##################################

Type      :D14-372GH/93

Tube      :5121044
Test date:23-10-1985

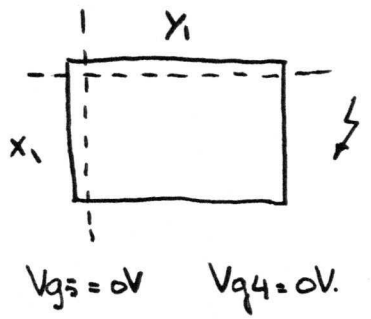
HORIZONTAL     LIN     LIN
Div Mx/div    100%    80%
-------------------------------
X 1    8.23    -.16    -.45
X 2    8.30     .62     .34
X 3    8.30     .62     .34
X 4    8.31     .81     .52
X 5    8.31     .81     .52
X 6    8.29     .56     .28
X 7    8.25     .08    -.20
X 8    8.22    -.29    -.57
X 9    8.17    -.95   -1.23
X10    8.07   -2.10   -2.38
In:[V/div]     [%]     [%]

Lin.max.= 2.97 %
Delta Mx = .86 %

Lin(25/75%)X1= .08 %
Lin(25/75%)X2= .56 %

Survey of DEFLECTION FACTOR X:
==============================
Avg.(100%)= 8.24  V/div
Avg.(80%) = 8.27  V/div
Mx (def.) = 8.29  V/div

Ecc defl.factor= .04 V =  .48 %
```

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VERTICAL       LIN     LIN     LIN
Div My/div    100%    80%     75%
-------------------------------------
Y 1    3.86   -2.15   -2.48   -2.59
Y 2    3.92    -.63    -.96   -1.07
Y 3    3.95     .13    -.21    -.32
Y 4    3.97     .51     .17     .06
Y 5    3.99    1.01     .68     .57
Y 6    3.99    1.01     .68     .57
Y 7    3.97     .63     .30     .19
Y 8    3.93    -.51    -.84    -.95
In:[V/div]     [%]     [%]     [%]

Lin.max.= 3.24 %

Lin(25/75%)Y1= .13 %
Lin(25/75%)Y2= .5 %

Survey of DEFLECTION FACTOR Y
=============================
Avg.(100%)= 3.95  V/div
Avg.(80%) = 3.96  V/div
Avg.(75%) = 3.96  V/div
My (def.) = 3.97  V/div

Ecc defl.factor=-.03 V =-.69 %
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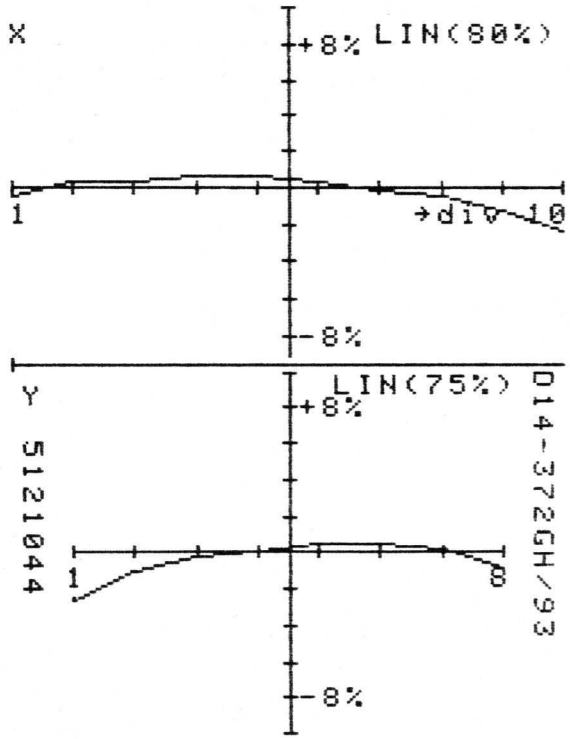
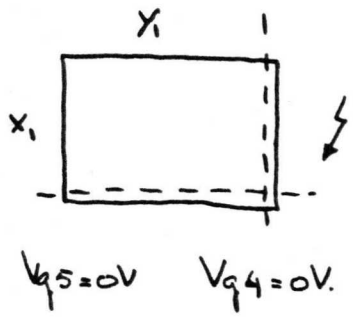
```





==========
Vg5=0 en Vg4=0V Y2/X2 kant
D14-372GH/93 5121044
INPUT survey HORIZONTAL
==========

Div	1st.	2nd	Error	Avg.
X 1	8.13	8.11	.2%	8.12
X 2	8.23	8.24	-.1%	8.24
X 3	8.29	8.30	-.1%	8.30
X 4	8.32	8.31	.1%	8.32
X 5	8.31	8.33	-.2%	8.32
X 6	8.29	8.27	.2%	8.28
X 7	8.23	8.24	-.1%	8.24
X 8	8.21	8.21	0.0%	8.21
X 9	8.14	8.14	0.0%	8.14
X10	8.04	8.03	.1%	8.04

INPUT survey VERTICAL
==========

Div	1st.	2nd	Error	Avg.
Y 1	3.86	3.87	-.3%	3.87
Y 2	3.90	3.89	.3%	3.90
Y 3	3.91	3.91	0.0%	3.91
Y 4	3.93	3.93	0.0%	3.93
Y 5	3.97	3.97	0.0%	3.97
Y 6	3.97	3.97	0.0%	3.97
Y 7	3.96	3.95	.3%	3.96
Y 8	3.94	3.94	0.0%	3.94

****
* LINEARITY-report of: *
* Vg5=0 en Vg4=0V Y2/X2 kant *
****

Type :D14-372GH/93

Tube :5121044
Test date:23-10-1985

HORIZONTAL Div	Mx/div	LIN 100%	LIN 80%
X 1	8.12	-1.20	-1.62
X 2	8.24	.20	-.23
X 3	8.30	.93	.50
X 4	8.32	1.17	.74
X 5	8.32	1.24	.80
X 6	8.28	.75	.32
X 7	8.24	.20	-.23
X 8	8.21	-.10	-.53
X 9	8.14	-.96	-1.38
X10	8.04	-2.23	-2.65
In:	[V/div]	[%]	[%]

Lin.max.= 3.55 %
Delta Mx = .91 %

Lin(25/75%)X1= .29 %
Lin(25/75%)X2= .6 %

Survey of DEFLECTION FACTOR X:
==========
Avg.(100%)= 8.22 V/div
Avg.(80%) = 8.25 V/div
Mx (def.) = 8.29 V/div

Ecc defl.factor= .06 V = .73 %

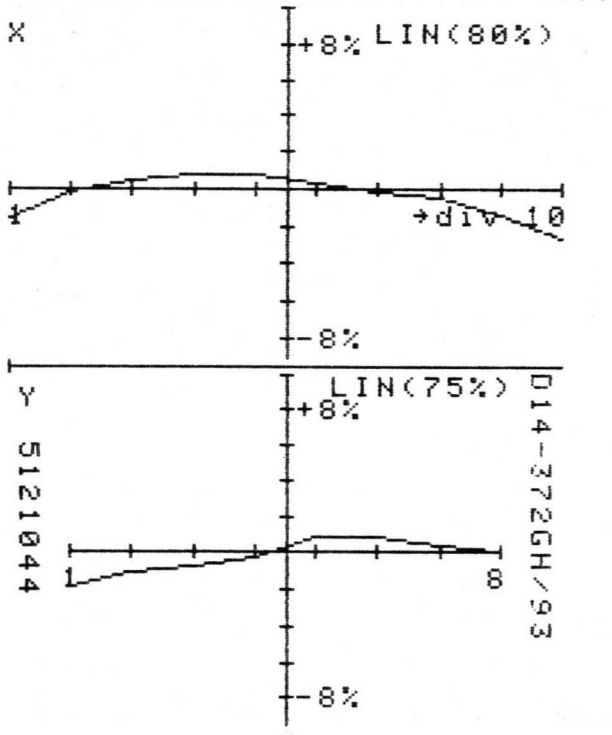
VERTICAL Div	My/div	LIN 100%	LIN 80%	LIN 75%
Y 1	3.87	-1.64	-1.81	-1.86
Y 2	3.90	-.87	-1.04	-1.10
Y 3	3.91	-.49	-.66	-.72
Y 4	3.93	.02	-.15	-.21
Y 5	3.97	1.03	.86	.80
Y 6	3.97	1.03	.86	.80
Y 7	3.96	.65	.48	.42
Y 8	3.94	.27	.10	.04
In:	[V/div]	[%]	[%]	[%]

Lin.max.= 2.72 %

Lin(25/75%)Y1= .13 %
Lin(25/75%)Y2= .47 %

Survey of DEFLECTION FACTOR Y
==========
Avg.(100%)= 3.93 V/div
Avg.(80%) = 3.94 V/div
Avg.(75%) = 3.94 V/div
My (def.) = 3.95 V/div

Exc defl.factor=-.05 V =-1.28 %



KHR-89/SB-883

```
============================
Vg5=+50V Vg4=-29V X/Y mid.
D14-372GH/93  5121044
INPUT survey     HORIZONTAL
============================
Div   1st.    2nd    Error     Avg.
X 1    8.45    8.47     -.2%    8.46
X 2    8.50    8.49      .1%    8.50
X 3    8.50    8.49      .1%    8.50
X 4    8.48    8.49     -.1%    8.49
X 5    8.45    8.45     0.0%    8.45
X 6    8.44    8.43      .1%    8.44
X 7    8.41    8.42     -.1%    8.42
X 8    8.35    8.35     0.0%    8.35
X 9    8.28    8.29     -.1%    8.29
X10    8.21    8.20      .1%    8.21

INPUT survey     VERTICAL
============================
Div   1st.    2nd    Error     Avg.
Y 1    4.00    3.99      .3%    4.00
Y 2    4.10    4.10     0.0%    4.10
Y 3    4.17    4.16      .2%    4.17
Y 4    4.18    4.18     0.0%    4.18
Y 5    4.20    4.20     0.0%    4.20
Y 6    4.21    4.20      .2%    4.21
Y 7    4.17    4.17     0.0%    4.17
Y 8    4.08    4.08     0.0%    4.08


##################################
#    LINEARITY-report of:        #
# Vg5=+50V Vg4=-29V X/Y mid.     #
##################################

Type      :D14-372GH/93

Tube      :5121044
Test date:23-10-1985

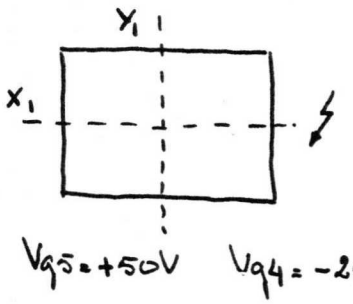
HORIZONTAL     LIN     LIN
Div Mx/div    100%    80%
-------------------------------
X 1    8.46     .62     .40
X 2    8.50    1.04     .82
X 3    8.50    1.04     .82
X 4    8.49     .92     .70
X 5    8.45     .51     .28
X 6    8.44     .33     .10
X 7    8.42     .09    -.13
X 8    8.35    -.68    -.90
X 9    8.29   -1.46   -1.68
X10    8.21   -2.41   -2.63
In:[V/div]     [%]     [%]

Lin.max.= 3.53 %
Delta Mx = 1.31 %

Lin(25/75%)X1=-.28 %
Lin(25/75%)X2= .64 %

Survey of DEFLECTION FACTOR X:
==============================
Avg.(100%)= 8.41  V/div
Avg.(80%) = 8.43  V/div
Mx (def.) = 8.45  V/div

Exc defl.factor= .04 V = .5 %
```

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VERTICAL       LIN     LIN     LIN
Div My/div    100%    80%     75%
-------------------------------------
Y 1    4.00   -3.43   -4.01   -4.20
Y 2    4.10    -.89   -1.48   -1.68
Y 3    4.17     .68     .08    -.12
Y 4    4.18    1.04     .44     .24
Y 5    4.20    1.53     .92     .72
Y 6    4.21    1.65    1.04     .84
Y 7    4.17     .80     .20     0.00
Y 8    4.08   -1.37   -1.96   -2.16
In:[V/div]     [%]     [%]     [%]

Lin.max.= 5.26 %

Lin(25/75%)Y1= .2 %
Lin(25/75%)Y2= .76 %

Survey of DEFLECTION FACTOR Y
=============================
Avg.(100%)= 4.14  V/div
Avg.(80%) = 4.16  V/div
Avg.(75%) = 4.17  V/div
My (def.) = 4.19  V/div

Exc defl.factor=-.03 V =-.72 %
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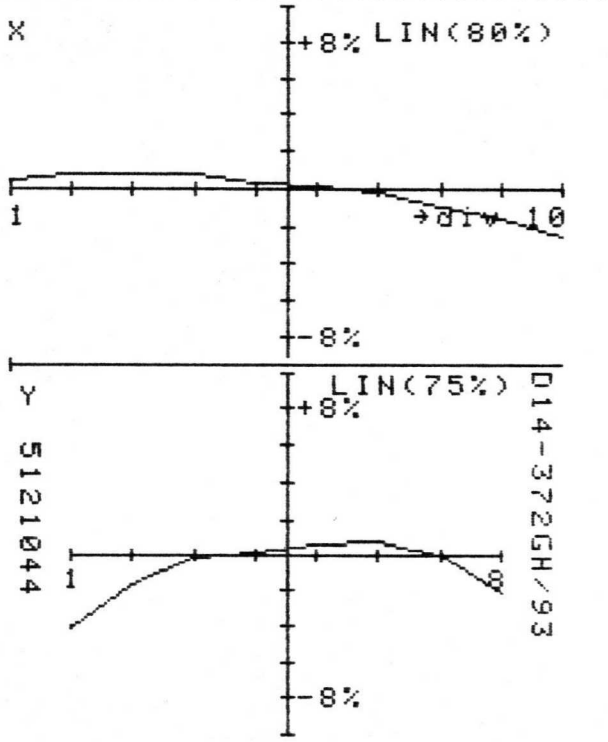
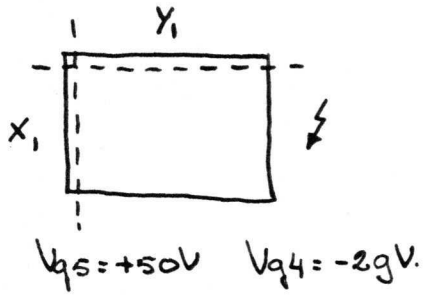


KHR-89/SB-883




```
============================
Vg5=+50V Vg4=-29V Y1/X1 kant
D14-372GH/93  5121044
INPUT survey     HORIZONTAL
============================
Div   1st.    2nd    Error     Avg.
X 1    8.46    8.47     -.1%    8.47
X 2    8.56    8.54      .2%    8.55
X 3    8.58    8.56      .2%    8.57
X 4    8.60    8.60     0.0%    8.60
X 5    8.59    8.58      .1%    8.59
X 6    8.60    8.60     0.0%    8.60
X 7    8.53    8.53     0.0%    8.53
X 8    8.48    8.48     0.0%    8.48
X 9    8.40    8.41     -.1%    8.41
X10    8.26    8.25      .1%    8.26

INPUT survey     VERTICAL
============================
Div   1st.    2nd    Error     Avg.
Y 1    4.02    4.02     0.0%    4.02
Y 2    4.14    4.14     0.0%    4.14
Y 3    4.21    4.20      .2%    4.21
Y 4    4.23    4.23     0.0%    4.23
Y 5    4.26    4.26     0.0%    4.26
Y 6    4.24    4.24     0.0%    4.24
Y 7    4.19    4.19     0.0%    4.19
Y 8    4.09    4.09     0.0%    4.09
```

```
VERTICAL        LIN      LIN      LIN
Div My/div     100%     80%      75%
-------------------------------------
Y 1    4.02   -3.64    -4.31    -4.53
Y 2    4.14    -.76    -1.45    -1.68
Y 3    4.21     .79      .09     -.14
Y 4    4.23    1.39      .69      .46
Y 5    4.26    2.11     1.40     1.17
Y 6    4.24    1.63      .93      .69
Y 7    4.19     .43     -.26     -.49
Y 8    4.09   -1.96    -2.64    -2.87
In:[V/div]     [%]      [%]      [%]

Lin.max.= 5.97 %

Lin(25/75%)Y1= .7 %
Lin(25/75%)Y2= .91 %

Survey of DEFLECTION FACTOR Y
=============================
Avg.(100%)= 4.17  V/div
Avg.(80%) = 4.2   V/div
Avg.(75%) = 4.21  V/div
My (def.) = 4.23  V/div

Exc defl.factor=-.03 V =-.77 %
```

```
**********************************
*    LINEARITY-report of:        *
* Vg5=+50V Vg4=-29V Y1/X1 kant *
**********************************

Type      :D14-372GH/93

Tube      :5121044
Test date:23-10-1985

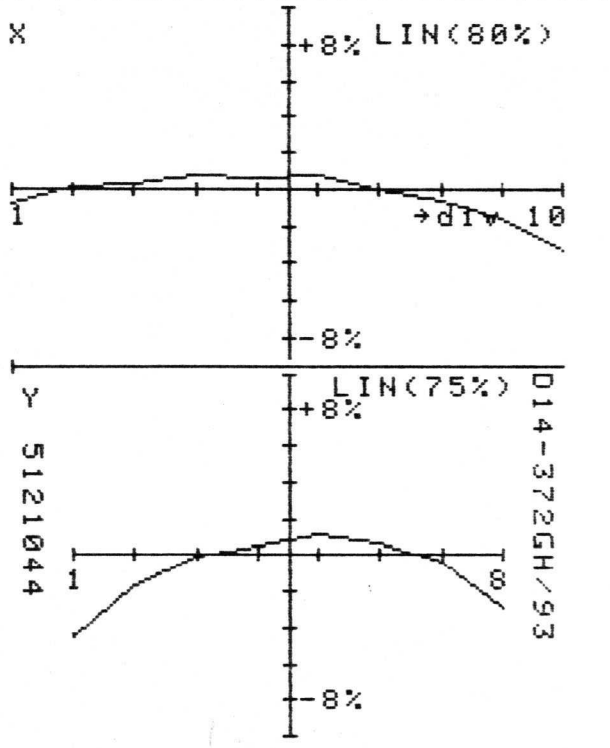
HORIZONTAL      LIN      LIN
Div Mx/div     100%     80%
-------------------------------
X 1    8.47    -.46    -.88
X 2    8.55     .54     .12
X 3    8.57     .78     .35
X 4    8.60    1.13     .70
X 5    8.59     .95     .53
X 6    8.60    1.13     .70
X 7    8.53     .31    -.12
X 8    8.48    -.28    -.70
X 9    8.41   -1.16   -1.58
X10    8.26   -2.93   -3.34
In:[V/div]     [%]     [%]

Lin.max.= 4.18 %
Delta Mx = .85 %

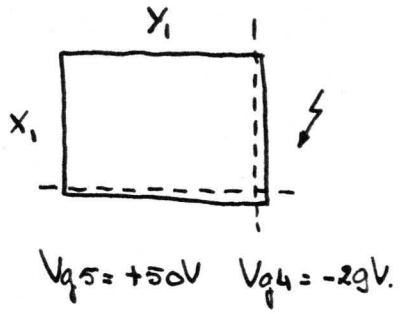
Lin(25/75%)X1= .12 %
Lin(25/75%)X2= .88 %

Survey of DEFLECTION FACTOR X:
==============================
Avg.(100%)= 8.5   V/div
Avg.(80%) = 8.54  V/div
Mx (def.) = 8.58  V/div

Ecc defl.factor= .03 V = .32 %
```



KHR-89/SB-883



==========
Vg5=+50V Vg4=-29V Y2/X2 kant
D14-372GH/93 5121044
INPUT survey HORIZONTAL
==========

Div	1st.	2nd	Error	Avg.
X 1	8.36	8.37	-.1%	8.37
X 2	8.47	8.48	-.1%	8.48
X 3	8.57	8.55	.2%	8.56
X 4	8.60	8.59	.1%	8.60
X 5	8.59	8.62	-.3%	8.61
X 6	8.57	8.54	.4%	8.56
X 7	8.49	8.49	0.0%	8.49
X 8	8.46	8.46	0.0%	8.46
X 9	8.36	8.36	0.0%	8.36
X10	8.24	8.24	0.0%	8.24

INPUT survey VERTICAL
==========

Div	1st.	2nd	Error	Avg.
Y 1	4.04	4.04	0.0%	4.04
Y 2	4.13	4.12	.2%	4.13
Y 3	4.17	4.18	-.2%	4.18
Y 4	4.21	4.20	.2%	4.21
Y 5	4.24	4.24	0.0%	4.24
Y 6	4.22	4.23	-.2%	4.23
Y 7	4.20	4.20	0.0%	4.20
Y 8	4.14	4.13	.2%	4.14

****
* LINEARITY-report of: *
* Vg5=+50V Vg4=-29V Y2/X2 kant *
****

Type :D14-372GH/93

Tube :5121044
Test date:23-10-1985

HORIZONTAL Div	Mx/div	LIN 100%	LIN 80%
X 1	8.37	-1.25	-1.73
X 2	8.48	.05	-.44
X 3	8.56	1.06	.56
X 4	8.60	1.47	.97
X 5	8.61	1.59	1.09
X 6	8.56	1.00	.50
X 7	8.49	.23	-.26
X 8	8.46	-.12	-.62
X 9	8.36	-1.30	-1.79
X10	8.24	-2.72	-3.20
In:[V/div]		[%]	[%]

Lin.max.= 4.43 %
Delta Mx = 1.09 %

Lin(25/75%)X1= .45 %
Lin(25/75%)X2= .8 %

Survey of DEFLECTION FACTOR X:
==========
Avg.(100%)= 8.47 V/div
Avg.(80%) = 8.51 V/div
Mx (def.) = 8.56 V/div

Ecc defl.factor= .08 V = .91 %

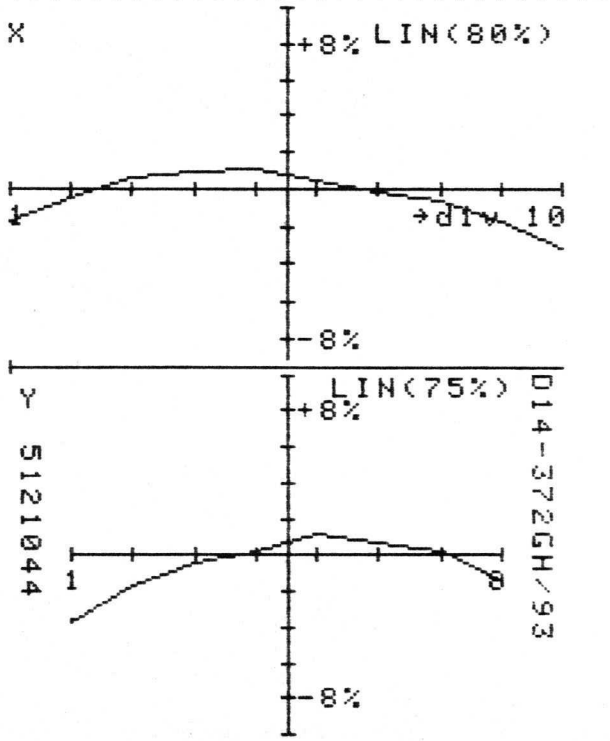
VERTICAL Div	My/div	LIN 100%	LIN 80%	LIN 75%
Y 1	4.04	-3.07	-3.54	-3.69
Y 2	4.13	-1.03	-1.51	-1.67
Y 3	4.18	.16	-.32	-.48
Y 4	4.21	.88	.40	.24
Y 5	4.24	1.72	1.23	1.07
Y 6	4.23	1.36	.88	.72
Y 7	4.20	.76	.28	.12
Y 8	4.14	-.79	-1.27	-1.43
In:[V/div]		[%]	[%]	[%]

Lin.max.= 4.95 %

Lin(25/75%)Y1= .43 %
Lin(25/75%)Y2= .87 %

Survey of DEFLECTION FACTOR Y
==========
Avg.(100%)= 4.17 V/div
Avg.(80%) = 4.19 V/div
Avg.(75%) = 4.2 V/div
My (def.) = 4.21 V/div

Ecc defl.factor=-.04 V =-1.01 %



KHR-89/SB-883

==========
Vg5=-50V Vg4=+40V X/Y mid.
D14-372GH/93 5121044
INPUT survey HORIZONTAL
==========

Div	1st.	2nd	Error	Avg.
X 1	8.05	8.04	.1%	8.05
X 2	8.08	8.07	.1%	8.08
X 3	8.10	8.09	.1%	8.10
X 4	8.09	8.07	.2%	8.08
X 5	8.05	8.04	.1%	8.05
X 6	8.01	8.01	0.0%	8.01
X 7	7.99	7.98	.1%	7.99
X 8	7.96	7.96	0.0%	7.96
X 9	7.92	7.90	.3%	7.91
X10	7.82	7.82	0.0%	7.82

INPUT survey VERTICAL
==========

Div	1st.	2nd	Error	Avg.
Y 1	3.73	3.73	0.0%	3.73
Y 2	3.72	3.73	-.3%	3.73
Y 3	3.71	3.70	.3%	3.71
Y 4	3.70	3.70	0.0%	3.70
Y 5	3.72	3.73	-.3%	3.73
Y 6	3.75	3.74	.3%	3.75
Y 7	3.77	3.77	0.0%	3.77
Y 8	3.81	3.81	0.0%	3.81

LINEARITY-report of:
Vg5=-50V Vg4=+40V X/Y mid.

Type :D14-372GH/93

Tube :5121044
Test date:23-10-1985

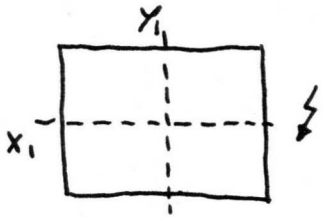
HORIZONTAL Div	Mx/div	LIN 100%	LIN 80%
X 1	8.05	.53	.31
X 2	8.08	.91	.69
X 3	8.10	1.16	.94
X 4	8.08	.97	.75
X 5	8.05	.53	.31
X 6	8.01	.09	-.12
X 7	7.99	-.22	-.44
X 8	7.96	-.53	-.75
X 9	7.91	-1.16	-1.37
X10	7.82	-2.28	-2.49
In:	[V/div]	[%]	[%]

Lin.max.= 3.52 %
Delta Mx = 1.34 %

Lin(25/75%)X1=-.27 %
Lin(25/75%)X2= .44 %

Survey of DEFLECTION FACTOR X:
==========
Avg.(100%)= 8 V/div
Avg.(80%) = 8.02 V/div
Mx (def.) = 8.03 V/div

Ecc defl.factor= .07 V = .81 %



Vg5=-50V Vg4=+40V.

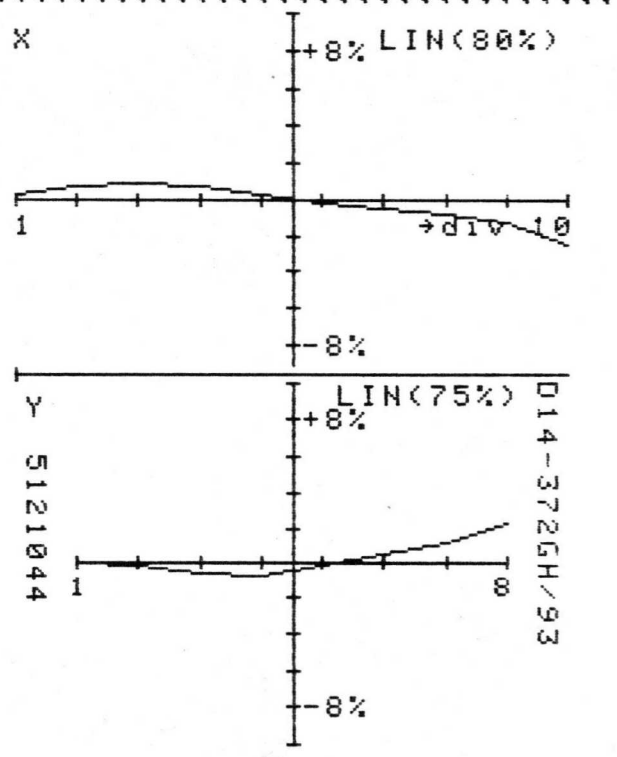
VERTICAL Div	My/div	LIN 100%	LIN 80%	LIN 75%
Y 1	3.73	-.23	-.03	.04
Y 2	3.73	-.37	-.16	-.09
Y 3	3.71	-.90	-.70	-.63
Y 4	3.70	-1.04	-.83	-.76
Y 5	3.73	-.37	-.16	-.09
Y 6	3.75	.17	.38	.45
Y 7	3.77	.84	1.05	1.12
Y 8	3.81	1.91	2.12	2.19
In:	[V/div]	[%]	[%]	[%]

Lin.max.= 2.97 %

Lin(25/75%)Y1=-.58 %
Lin(25/75%)Y2=-.27 %

Survey of DEFLECTION FACTOR Y
==========
Avg.(100%)= 3.74 V/div
Avg.(80%) = 3.73 V/div
Avg.(75%) = 3.73 V/div
My (def.) = 3.72 V/div

Exc defl.factor=-.03 V =-.88 %



KHR-89/SB-883

```
============================
Vg5=-50V Vg4=+40V Y1/X1 kant
D14-372GH/93  5121044
INPUT survey     HORIZONTAL
============================
Div   1st.    2nd    Error     Avg.
X 1    7.98    7.98     0.0%    7.98
X 2    8.07    8.05      .2%    8.06
X 3    8.04    8.04     0.0%    8.04
X 4    8.05    8.05     0.0%    8.05
X 5    8.07    8.06      .1%    8.07
X 6    8.01    8.02     -.1%    8.02
X 7    7.99    8.00     -.1%    8.00
X 8    7.98    7.97      .1%    7.98
X 9    7.93    7.93     0.0%    7.93
X10    7.86    7.87     -.1%    7.87

INPUT survey     VERTICAL
============================
Div   1st.    2nd    Error     Avg.
Y 1    3.69    3.69     0.0%    3.69
Y 2    3.70    3.70     0.0%    3.70
Y 3    3.71    3.71     0.0%    3.71
Y 4    3.72    3.72     0.0%    3.72
Y 5    3.74    3.74     0.0%    3.74
Y 6    3.75    3.75     0.0%    3.75
Y 7    3.75    3.75     0.0%    3.75
Y 8    3.77    3.76      .3%    3.77


%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%    LINEARITY-report of:           %
% Vg5=-50V Vg4=+40V Y1/X1 kant      %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Type      :D14-372GH/93

Tube      :5121044
Test date:23-10-1985

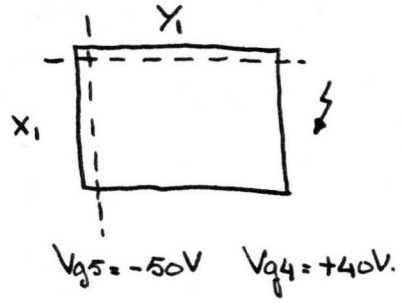
HORIZONTAL     LIN     LIN
Div Mx/div    100%    80%
-------------------------------
X 1    7.98    -.22    -.45
X 2    8.06     .78     .55
X 3    8.04     .53     .30
X 4    8.05     .66     .42
X 5    8.07     .84     .61
X 6    8.02     .22    -.02
X 7    8.00    -.03    -.27
X 8    7.98    -.28    -.51
X 9    7.93    -.84   -1.08
X10    7.87   -1.66   -1.89
In:[V/div]     [%]     [%]

Lin.max.= 2.54 %
Delta Mx = .94 %

Lin(25/75%)X1= .11 %
Lin(25/75%)X2= .36 %

Survey of DEFLECTION FACTOR X:
==============================
Avg.(100%)= 8      V/div
Avg.(80%) = 8.02   V/div
Mx (def.) = 8.03   V/div

Ecc defl.factor= .05 V = .66 %
```



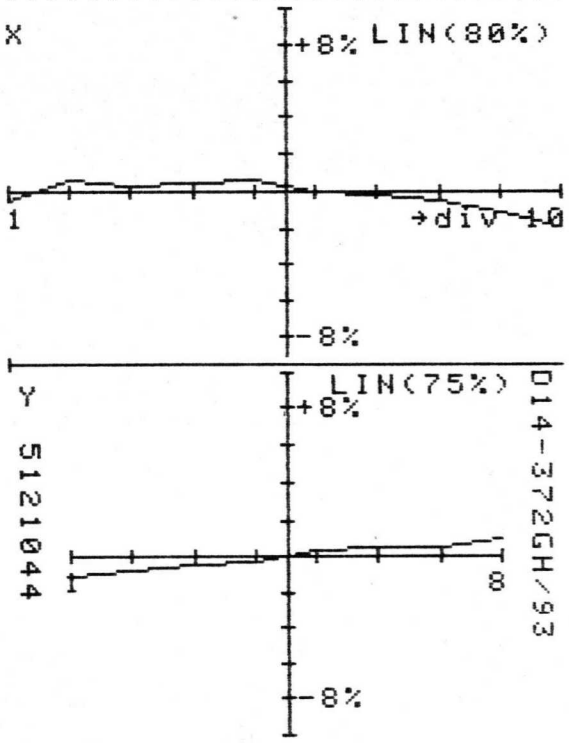

```
VERTICAL       LIN     LIN     LIN
Div My/div    100%    80%     75%
-------------------------------------
Y 1    3.69   -1.02   -1.03   -1.03
Y 2    3.70    -.75    -.76    -.76
Y 3    3.71    -.49    -.49    -.49
Y 4    3.72    -.22    -.22    -.22
Y 5    3.74     .32     .31     .31
Y 6    3.75     .59     .58     .58
Y 7    3.75     .59     .58     .58
Y 8    3.77     .99     .98     .98
In:[V/div]     [%]     [%]     [%]

Lin.max.= 2.03 %

Lin(25/75%)Y1=-.18 %
Lin(25/75%)Y2= .27 %

Survey of DEFLECTION FACTOR Y
==============================
Avg.(100%)= 3.73  V/div
Avg.(80%) = 3.73  V/div
Avg.(75%) = 3.73  V/div
My (def.) = 3.73  V/div

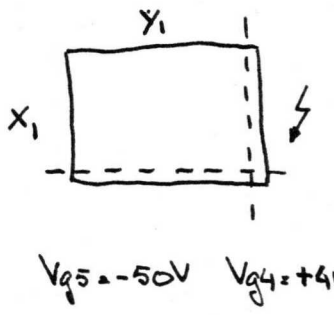
Exc defl.factor=-.03 V =-.81 %
```



KHR-89/SB-883

```
============================
Vg5=-50V Vg4=+40V Y2/X2 kant
D14-372GH/93  5121044
INPUT survey     HORIZONTAL
============================
Div   1st.    2nd    Error     Avg.
X 1    7.90    7.91     -.1%    7.91
X 2    8.02    8.01      .1%    8.02
X 3    8.07    8.05      .2%    8.06
X 4    8.08    8.09     -.1%    8.09
X 5    8.07    8.07     0.0%    8.07
X 6    8.03    8.04     -.1%    8.04
X 7    8.00    7.99      .1%    8.00
X 8    7.97    7.98     -.1%    7.98
X 9    7.95    7.93      .3%    7.94
X10    7.85    7.82      .4%    7.84

INPUT survey     VERTICAL
==========================
Div   1st.    2nd    Error     Avg.
Y 1    3.68    3.67      .3%    3.68
Y 2    3.68    3.68     0.0%    3.68
Y 3    3.66    3.67     -.3%    3.67
Y 4    3.68    3.68     0.0%    3.68
Y 5    3.73    3.73     0.0%    3.73
Y 6    3.72    3.71      .3%    3.72
Y 7    3.74    3.73      .3%    3.74
Y 8    3.73    3.75     -.5%    3.74
```




```
VERTICAL        LIN     LIN     LIN
Div My/div     100%    80%     75%
-----------------------------------
Y 1    3.68    -.74    -.71    -.70
Y 2    3.68    -.61    -.57    -.56
Y 3    3.67   -1.01    -.98    -.97
Y 4    3.68    -.61    -.57    -.56
Y 5    3.73     .74     .78     .79
Y 6    3.72     .34     .37     .38
Y 7    3.74     .88     .91     .92
Y 8    3.74    1.01    1.05    1.06
In:[V/div]     [%]     [%]     [%]

Lin.max.= 2.05 %

Lin(25/75%)Y1=  .09 %
Lin(25/75%)Y2=  .14 %

Survey of DEFLECTION FACTOR Y
=============================
Avg.(100%)= 3.7   V/div
Avg.(80%) = 3.7   V/div
Avg.(75%) = 3.7   V/div
My (def.) = 3.7   V/div

Exc defl.factor=-.05 V =-1.36 %
```

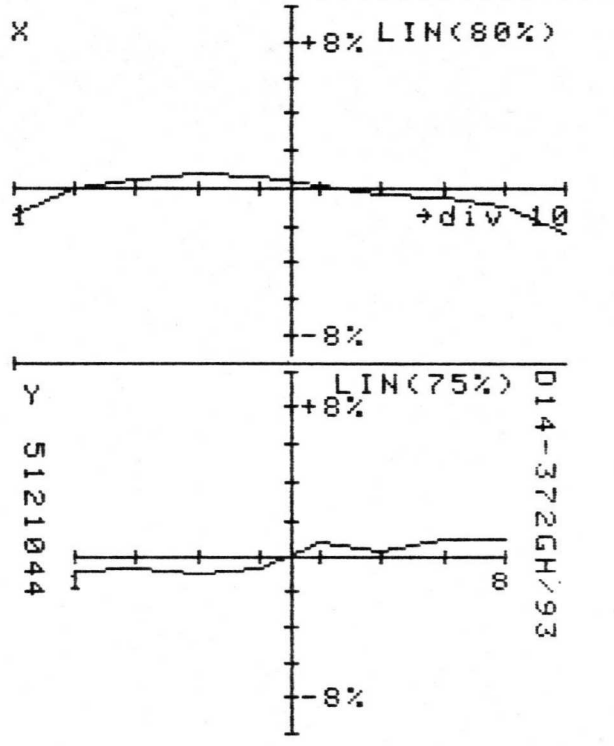
```
HORIZONTAL      LIN     LIN
Div Mx/div     100%    80%
---------------------------
X 1    7.91   -1.08   -1.46
X 2    8.02     .29    -.09
X 3    8.06     .86     .48
X 4    8.09    1.17     .79
X 5    8.07     .98     .60
X 6    8.04     .54     .16
X 7    8.00     .04    -.34
X 8    7.98    -.21    -.58
X 9    7.94    -.64   -1.02
X10    7.84   -1.96   -2.33
In:[V/div]     [%]     [%]

Lin.max.= 3.19 %
Delta Mx =  .89 %

Lin(25/75%)X1=  .16 %
Lin(25/75%)X2=  .47 %

Survey of DEFLECTION FACTOR X:
==============================
Avg.(100%)= 7.99  V/div
Avg.(80%) = 8.02  V/div
Mx (def.) = 8.05  V/div

Ecc defl.factor=  .06 V =  .78 %
```



```
10 ! "TESBOX"   TESTPROGRAMMA VOOR DE MEETBOX
20 ! Cass.BOX1984   26-06-1985
30 ! Floppy AUDIO MAP 2
40 !
50 ! DIMENSIONS
60 !
70 ON KBD GOSUB 3380
80 DIM Z$[10] ! INPUTBUFFER VOOR POTMETERS
90 DIM Z1$[40] ! MEETBUFFER VOOR BINAIR PROGRAMMA
100 DIM A(15)
110 IOBUFFER Z$ @ MEETBUFFER Z1$
120 IMAGE #,6A,3D.2D,X,2A,2X
130 IMAGE #,6A,4D.D,X,2A,2X
140 IMAGE #,6A,5DZ,X,2A,2X
150 IMAGE 6A,3D.2D,X,2A
160 IMAGE 6A,4D.D,X,2A
170 IMAGE 6A,5DZ,X,2A
180 !
190 ! RESET
200 !
210 X=SLITE(0,-1) @ X=SLITE(1,-1) @ X=SLITE(2,-1) @ X=SLITE(3,-1) @ X=SLITE(4,1)
220 RESET 4 @ RESET 5 @ CCLEAR
230 SET TIMEOUT 4;1000
240 SET TIMEOUT 5;1000
250 ON TIMEOUT 4 GOTO 3650
260 ON TIMEOUT 5 GOTO 3660
270 RESET SPANNINGEN @ ISOLATIEMETING
280 !
290 ! HOOFDSELECTIE
300 !
310 DISP @ CCLEAR @ CCURSOR 64 @ DISP "DRAAI    = DRAAIVELD TESTEN"
320 DISP "MAGNET  = KLEINE SPOELTJES"
330 DISP "ISOLAT  = ISOLATIEMETING TESTEN"
340 DISP "KARAKT  = SPANNINGEN EN STROMEN"
350 DISP "POT     = POTMETERS TESTEN"
360 DISP @ DISP @ DISP "     MEETSLEDE VRIJGEGEVEN"
370 CCURSOR 13*32 @ CDISP "--------------------------------"
380 CDISP " POT                          "
390 CDISP " DRAAI   MAGNET  ISOLAT  KARAKT "
400 ON KBD GOTO 420
405 ISOLATIEMETING
410 GOTO 410
420 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
430 IF K=128 THEN GOSUB 500 @ GOTO 190
440 IF K=129 THEN GOSUB 740 @ GOTO 190
450 IF K=130 THEN GOSUB 1350 @ GOTO 190
460 IF K=131 THEN GOSUB 1890 @ GOTO 190
470 IF K=132 THEN GOSUB 3200 @ GOTO 190
480 GOTO 400
490 !
500 ! DRAAIVELD TESTEN
510 !
520 CCLEAR
530 CCURSOR 232 @ DISP "DRAAIVELD TESTEN"
540 CCURSOR 294 @ DISP "MEETSLEE VRIJGEGEVEN"
550 CCURSOR 13*32 @ CDISP "--------------------------------"
560 CDISP "                              "
570 CDISP " KLAAR                 START  "
580 ON KBD GOTO 610
590 CCURSOR 360 @ STATUS 4,2 ; S4@ IF BINAND(S4,64) THEN DISP "SPOELEN TE WARM" ELSE DISP
600 GOTO 590
610 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
```

```
650 STATUS 5,2 ; S5@ IF NOT BINAND(S5,128) THEN X=SLITE(4,-1) @ WAIT 200 @ STATUS 5,2 ; S5
660 IF NOT BINAND(S5,64) AND NOT BINAND(S5,128) THEN 680
670 X=SLITE(4,1) @ CCURSOR 294 @ DISP "   SLEDE SLUITEN  " @ GOTO 580
680 X=SLITE(0,1) @ WAIT 500 @ DEMAGNETIZE @ WAIT 500 @ X=SLITE(0,-1)
690 X=SLITE(4,1) @ GOTO 500
700 !
710 ! KLEINE SPOELTJES TESTEN
720 !
730 !
740 ! KEUZE SPOELUNIT
750 !
760 CCLEAR
770 CCURSOR 228 @ DISP "KLEINE SPOELTJES TESTEN"
780 CCURSOR 294 @ DISP "MEETSLEE VRIJGEGEVEN"
790 CCURSOR 13*32 @ CDISP "--------------------------------"
800 CDISP "                                "
810 CDISP " KLAAR           UNIT A  UNIT B "
820 ON KBD GOTO 840
830 GOTO 830
840 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
850 IF K=128 THEN RETURN
860 IF K=131 THEN A9=55 @ GOTO 880
870 IF K=130 THEN A9=47 ELSE GOTO 820
880 CCURSOR 290 @ CDISP "        SPOELUNIT " @ IF A9=47 THEN DISP "A" ELSE DISP "B"
890 STATUS 5,2 ; S5@ IF NOT BINAND(S5,128) THEN X=SLITE(4,-1) @ WAIT 200 @ STATUS 5,2 ; S5
900 IF NOT BINAND(S5,64) AND NOT BINAND(S5,128) THEN 920
910 X=SLITE(4,1) @ CCURSOR 294 @ DISP "   SLEDE SLUITEN  " @ GOTO 820
920 RESET SPANNINGEN @ X=SLITE(2,1) @ X=SLITE(3,1) @ WAIT 500 @ X=SLITE(3,-1) @ RESET SPANNINGEN
930 !
940 ! KEUZE SPOEL
950 !
960 CCLEAR @ DISP @ DISP "OM DE ANDERE UNIT TE KIEZEN     MOET OP EEN VAN DE TOETSEN VAN"
970 DISP "HET RECHTSE TOETSENBORD GEDRUKT WORDEN."
980 CCURSOR 228 @ DISP "KLEINE SPOELTJES TESTEN"
990 CCURSOR 290 @ CDISP "        SPOELUNIT " @ IF A9=47 THEN DISP "A" ELSE DISP "B"
1000 CCURSOR 13*32 @ CDISP "--------------------------------"
1010 CCURSOR 14*32 @ CDISP "SPOEL 5 SPOEL 6 SPOEL 7 SPOEL 8 "
1020 CDISP "SPOEL 1 SPOEL 2 SPOEL 3 SPOEL 4 "
1030 ON KBD GOTO 1050
1040 GOTO 1040
1050 K=NUM(KBD$) @ IF K=139 THEN 3410
1060 IF K>127 AND K<136 THEN A1=K-127 @ GOTO 1090
1070 RESET SPANNINGEN @ ISOLATIEMETING @ X=SLITE(2,-1) @ X=SLITE(3,-1) @ GOTO 740
1080 !
1090 ! KEUZE STROOMWAARDE
1100 !
1110 CCURSOR 32 @ DISP USING "4/"
1120 CCURSOR 10*32 @ DISP "SPOEL ";A1
1130 CCURSOR 12*32 @ DISP @ CCURSOR 11*32
1140 DISP "WELKE WAARDE";@ INPUT A2
1150 IF A2>=-10 AND A2<10 THEN 1180
1160 CCURSOR 12*32 @ DISP
1170 CCURSOR 11*32 @ DISP "WAARDE TE GROOT - ";@ GOTO 1140
1180 A3=A2*51.2+512 !                                                    AANPASSEN
1190 OUTPUT 410 USING "#,K" ; CHR$(4*(A9+A1)+A3 DIV 256)&CHR$(A3 MOD 256)
1200 CCURSOR 11*32
1210 DISP USING "18A,2D.2D,X,2A" ; "UITGANG D/A-CONV. =";A3/1024*20-10;" V"
1220 DISP USING "18A,5D,X,2A" ; "SPOELSTROOM       =";A2;"mA"
1230 DISP "--------------------------------"
1240 DISP "                                "
1250 CDISP " KLAAR                  WAARDE "
```

```
1290 IF K=128 THEN RESET SPANNINGEN @ GOTO 940
1300 IF K=131 THEN 1130 ELSE 1260
1310 !
1320 ! ISOLATIEMETING
1330 !
1340 !
1350 ! OPBOUWEN DISPLAY
1360 !
1370 STATUS 5,2 ; S5@ IF NOT BINAND(S5,128) THEN X=SLITE(4,-1) @ WAIT 200 @ STATUS 5,2 ; S5
1380 IF NOT BINAND(S5,64) AND NOT BINAND(S5,128) THEN 1400
1390 X=SLITE(4,1) @ CCURSOR 293 @ DISP "    SLEDE SLUITEN  " @ GOTO 400
1400 RESET SPANNINGEN @ X=SLITE(1,1) @ RESET SPANNINGEN
1410 CCLEAR @ B=0 @ B1=0
1420 CCURSOR 0 @ DISP "       |       |       |       "
1430 IMAGE #,2(3X,4A,A)
1440 DISP USING 1430 ; CHR$(75+128*BIT(B1,1)),"|",CHR$(102+128*BIT(B1,0)),"|"
1450 DISP USING 1430 ; CHR$(49+128*BIT(B1,8))&"10","|",CHR$(49+128*BIT(B1,9))&"50"
1460 DISP "       |       |       |       "
1470 DISP "-------------------------------"
1480 DISP "       |       |       |       "
1490 DISP USING 1430 ; CHR$(103+128*BIT(B,0))&"1","|",CHR$(103+128*BIT(B,1))&"2","|"
1500 DISP USING 1430 ; CHR$(103+128*BIT(B,3))&"3","|"
1510 DISP "       |       |       |       "
1520 DISP "-------------------------------"
1530 DISP "       |       |       |       "
1540 DISP USING 1430 ; CHR$(103+128*BIT(B,2))&"2'","|",CHR$(103+128*BIT(B,4))&"4","|"
1550 DISP USING "3X,4A,9A" ; CHR$(103+128*BIT(B,5))&"6","| KLAAR"
1560 DISP "       |       |       |       "
1570 DISP "-------------------------------"
1580 DISP "       |       |       |       "
1590 DISP USING 1430 ; CHR$(88+128*BIT(B,8))&"1","|",CHR$(88+128*BIT(B,9))&"2","|"
1600 DISP USING 1430 ; CHR$(89+128*BIT(B,6))&"1","|",CHR$(89+128*BIT(B,7))&"2"
1610 DISP "       |       |       |       "
1620 ON KBD GOTO 1650
1630 GOTO 1630
1640 !
1650 ! SCHAKELEN RELAIS
1660 !
1670 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
1680 IF K=55 THEN B1=BINEOR(B1,2)
1690 IF K=56 THEN B1=BINEOR(B1,1)
1700 IF K=57 THEN B1=BINEOR(B1,256)
1710 IF K=153 THEN B1=BINEOR(B1,512)
1720 IF K=52 THEN B=BINEOR(B,1)
1730 IF K=53 THEN B=BINEOR(B,2)
1740 IF K=54 THEN B=BINEOR(B,8)
1750 IF K=49 THEN B=BINEOR(B,4)
1760 IF K=50 THEN B=BINEOR(B,16)
1770 IF K=51 THEN B=BINEOR(B,32)
1780 IF K=76 THEN ISOLATIEMETING @ WAIT 500 @ X=SLITE(1,-1) @ X=SLITE(4,1) @ RETURN
1790 IF K=48 THEN B=BINEOR(B,256)
1800 IF K=46 THEN B=BINEOR(B,512)
1810 IF K=45 THEN B=BINEOR(B,64)
1820 IF K=154 THEN B=BINEOR(B,128)
1830 OUTPUT 410 USING "#,K" ; CHR$(120+B DIV 256)&CHR$(B MOD 256)&CHR$(124+B1 DIV 256)&CHR$(B1
OD 256)
1840 GOTO 1420
1850 !
1860 ! BUISSPANNINGEN
1870 !
1880 !
1890 ! OPBOUWEN DISPLAY
```

```
1940 RESET SPANNINGEN @ X=SLITE(1,1) @ RESET SPANNINGEN @ F=0
1950 WAIT 1000 @ KARAKTERISTIEKMETING
1960 CCLEAR
1970 CCURSOR 8*32+9 @ DISP "BUISSPANNINGEN  "
1980 CCURSOR 13*32 @ CDISP "--------------------------------"
1990 DISP "STROMEN                    RESET "
2000 CDISP " KLAAR  PATROON   RELAIS  INSTEL"
2010 ON KBD GOTO 2340
2020 !
2030 ! DISPLAY SPANNINGEN OF STROMEN
2040 !
2050 IF F THEN 2210
2060 A=V_F @ CCURSOR 0 @ DISP USING 120 ; "Vf   =",A," V"
2070 A=V_K @ DISP USING 150 ; "Vk   =",A,"kV"
2080 A=V_G1 @ DISP USING 130 ; "Vg1  =",A," V"
2090 A=V_G2 @ DISP USING 150 ; "Vg2  =",A,"kV"
2100 A=V_G3 @ DISP USING 120 ; "Vg3  =",A,"kV"
2110 A=V_NAVER @ DISP USING 160 ; "Vnav =",A,"kV"
2120 A=V_AST @ DISP USING 130 ; "Vast =",A," V"
2130 A=V_GAAS @ DISP USING 160 ; "Vgaas=",A," V"
2140 A=V_HULP1 @ DISP USING 130 ; "Vhul1=",A," V"
2150 A=V_HULP2 @ DISP USING 160 ; "Vhul2=",A," V"
2160 A=V_ROT @ DISP USING 120 ; "Vrot =",A," V"
2170 A=D3_CORR @ DISP USING 150 ; "D3cor=",A,"  "
2180 A=V_REF1 @ DISP USING 120 ; "Vref1=",A," V"
2190 A=V_REF2 @ DISP USING 150 ; "Vref2=",A," V"
2200 DISP @ CCURSOR 14*32 @ CDISP "STROMEN " @ GOTO 2030 ! ↘
↳2210 A=I_F @ CCURSOR 0 @ DISP USING 140 ; "If   =",A,"mA"↘
↳2220 A=I_K @ DISP USING 170 ; "Ik   =",A,"↳A"↘
↳2230 A=I_G1 @ DISP USING 140 ; "Ig1  =",A,"↳A"↘
↳2240 A=I_G2 @ DISP USING 170 ; "Ig2  =",A,"↳A"↘
↳2245 A=I_G2' @ DISP USING 140 ; "Ig2' =",A,"↳A"↘
↳2250 A=I_G3 @ DISP USING 170 ; "Ig3  =",A,"↳A"↘
↳2260 A=I_NAVER @ DISP USING 170 ; "Inav =",A,"↳A"↘
↳2270 A=I_AST @ DISP USING 140 ; "Iast =",A,"↳A"↘
↳2280 A=I_GAAS @ DISP USING 170 ; "Igaas=",A,"↳A"↘
↳2290 A=I_HULP1 @ DISP USING 140 ; "Ihul1=",A,"↳A"↘
↳2300 A=I_HULP2 @ DISP USING 170 ; "Ihul2=",A,"↳A"↘
↳2310 A=I_ROT @ DISP USING 140 ; "Irot =",A,"mA" ! ↳Z
2320 DISP
2330 DISP @ CCURSOR 14*32 @ CDISP "SPANNING" @ GOTO 2030
2340 CCURSOR 0 @ DISP @ K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
2350 IF K=128 THEN RESET SPANNINGEN @ WAIT 1500 @ ISOLATIEMETING @ X=SLITE(1,-1) @ RETURN
2360 IF K=129 THEN 2430
2370 IF K=130 THEN 2660
2380 IF K=131 THEN 2830
2390 IF K=132 THEN F=NOT F @ ON KBD GOTO 2340
2400 IF K=135 THEN RESET SPANNINGEN @ KARAKTERISTIEKMETING
2410 GOTO 2010
2420 !
2430 ! PATROON KEUZE
2440 !
2450 CCLEAR @ DISP "1 = PUNT"
2460 DISP "2 = CIRKEL "
2470 DISP "3 = VERTIKALE LIJN"
2480 DISP "4 = HORIZONTALE LIJN"
2490 DISP "5 = 100 LIJNEN VERTIKAAL"
2500 DISP "6 = 100 LIJNEN HORIZONTAAL"
2510 DISP "7 = TRAMRAILS"
2520 DISP "8 = RASTER 9*11 LIJNEN"
2530 ON KBD GOTO 2550
2540 GOTO 2540
```

(4)

```
2590 IF K=52 THEN HORIZONTALE LIJN
2600 IF K=53 THEN VERTIKAAL 100 LIJNEN
2610 IF K=54 THEN HORIZONTAAL 100 LIJNEN
2620 IF K=55 THEN TRAMRAILS
2630 IF K=56 THEN RASTER 9*11 LIJNEN
2640 GOTO 1960
2650 !
2660 ! SCHAKELEN RELAIS
2670 !
2680 CCURSOR 14*32 @ CDISP "  IbX1    IbX2    IbY1    IbY2  "
2690 CDISP " KLAAR                   PUNT  "
2700 ON KBD GOTO 2730
2710 IF K>131 AND K<136 THEN A=I_LEK @ CCURSOR 11*32+10 @ DISP USING "5D.D,2A" ; A,CHR$(12)&"
2720 GOTO 2710
2730 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
2740 CCURSOR 11*32
2750 IF K=128 THEN DISP @ KARAKTERISTIEKMETING @ GOTO 1970
2760 IF K=131 THEN DISP "AFBUIGPLATEN GEAARD" @ AFBUIGPLATEN GEAARD
2770 IF K=132 THEN DISP "IBX1" @ RELAIS IBX1
2780 IF K=133 THEN DISP "IBX2" @ RELAIS IBX2
2790 IF K=134 THEN DISP "IBY1" @ RELAIS IBY1
2800 IF K=135 THEN DISP "IBY2" @ RELAIS IBY2
2810 GOTO 2700
2820 !
2830 ! INSTELLEN SPANNINGEN
2840 !
2850 CCLEAR @ DISP "       |       |       |       "
2860 DISP "   K   |   f   |  ROT  | KLAAR"
2870 DISP "       |       |       |       "
2880 DISP "-------------------------------"
2890 DISP "       |       |       |       "
2900 DISP "   g1  |   g2  |   g3  | NAVER"
2910 DISP "       |       |       |       "
2920 DISP "-------------------------------"
2930 DISP "       |       |       |       "
2940 DISP "  AST  | GAAS  | HULP1 | HULP2"
2950 DISP "       |       |       |       "
2960 DISP "-------------------------------"
2970 DISP "       |       |       |       "
2980 DISP "   X   |   X   |   Y   |   Y   "
2990 DISP "  AMPL | SHIFT |  AMPL | SHIFT"
3000 ON KBD GOTO 3020
3010 GOTO 3010
3020 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
3030 IF K=55 THEN E1=0 @ E2=-4000 @ DISP "V_K" @ GOSUB 3430 @ V_K = W1,W2
3040 IF K=56 THEN DISP "V_F" @ E1=5 @ E2=9 @ GOSUB 3570 @ V_F = W1
3050 IF K=57 THEN DISP "V_ROT" @ E1=-30 @ E2=30 @ GOSUB 3570 @ V_ROT = W1
3060 IF K=52 THEN DISP "V_G1" @ E1=-150 @ E2=0 @ GOSUB 3570 @ V_G1 = W1
3070 IF K=53 THEN DISP "V_G2" @ E1=0 @ E2=4000 @ GOSUB 3430 @ V_G2 = W1,W2
3080 IF K=54 THEN DISP "V_G3" @ E1=0 @ E2=4000 @ GOSUB 3430 @ V_G3 = W1,W2
3090 IF K=68 THEN DISP "V_NAVER" @ E1=0 @ E2=30000 @ GOSUB 3430 @ V_NAVER = W1,W2
3100 IF K=49 THEN DISP "V_AST" @ E1=-145 @ E2=145 @ GOSUB 3570 @ V_AST = W1
3110 IF K=50 THEN DISP "V_GAAS" @ E1=-145 @ E2=145 @ GOSUB 3570 @ V_GAAS = W1
3120 IF K=51 THEN DISP "V_HULP1" @ E1=-145 @ E2=145 @ GOSUB 3570 @ V_HULP1 = W1
3130 IF K=76 THEN DISP "V_HULP2" @ E1=-145 @ E2=145 @ GOSUB 3570 @ V_HULP2 = W1
3140 IF K=48 THEN DISP "X_AMPL" @ E1=0 @ E2=290 @ GOSUB 3570 @ X_AMPL = W1
3150 IF K=46 THEN DISP "X_SHIFT" @ E1=-145 @ E2=145 @ GOSUB 3570 @ X_SHIFT = W1
3160 IF K=45 THEN DISP "Y_AMPL" @ E1=0 @ E2=145 @ GOSUB 3570 @ Y_AMPL = W1
3170 IF K=154 THEN DISP "Y_SHIFT" @ E1=-145 @ E2=145 @ GOSUB 3570 @ Y_SHIFT = W1
3180 GOTO 1960
3190 !
3200 !     POTMETERS TESTEN
3210 !
```

```
3250 DISP "Rechtsom is positief"
3260 CCURSOR 7*32+8 @ DISP "POTMETERS TESTEN"
3270 CCURSOR 13*32 @ CDISP "--------------------------------"
3280 DISP @ CDISP " KLAAR"
3290 TRANSFER 410 TO Z$ INTR ; COUNT 2
3300 ON EOT 4 GOSUB 3710
3310 ON KBD GOTO 3350
3320 CCURSOR 9*32 @ DISP USING "4D,5X,5D,3X,5D,5X,5D" ; A(0),A(2),A(3),A(1)
3330 DISP @ DISP USING "4D,5D,5D,3X,5D,5D,5D" ; A(4),A(14),A(6),A(7),A(15),A(5)
3340 GOTO 3320
3350 K=NUM(KBD$) @ IF K=139 THEN GOTO 3410
3360 IF K=128 THEN RETURN ELSE GOTO 3310
3370 !
3380 ! DUMMY KBD-LOOP
3390 !
3400 K=NUM(KBD$) @ IF K#139 THEN ON KBD GOSUB 3380 @ RETURN
3410 OFF KBD @ STOP
3420 !
3430 ! SUBROUTINE INPUT GROF EN FIJN
3440 !
3450 DISP "WELKE GROFINSTELLING";@ INPUT W1
3460 IF E1>E2 THEN 3490
3470 IF W1<E1 OR W1>=E2 THEN DISP "FOUT-";@ GOTO 3450
3480 GOTO 3500
3490 IF W1<=E2 OR W1>E1 THEN DISP "FOUT-";@ GOTO 3450
3500 DISP "WELKE FIJNINSTELLING";@ INPUT W2
3510 IF E1>E2 THEN 3540
3520 IF W2<E1/10 OR W2>=E2/10 THEN DISP "FOUT-";@ GOTO 3500
3530 GOTO 3550
3540 IF W2<=E2/10 OR W2>E1/10 THEN DISP "FOUT-";@ GOTO 3500
3550 RETURN
3560 !
3570 ! SUBROUTINE INPUT WAARDE
3580 !
3590 DISP "WELKE INSTELLING";@ INPUT W1
3600 IF W1<E1 OR W1>=E2 THEN DISP "FOUT-";@ GOTO 3590
3610 RETURN
3620 !
3630 ! PROGRAMMA AFBREKEN
3640 !
3650 ABORTIO 4 @ CCLEAR @ DISP "STUURSYSTEEM NIET AKTIEF" @ GOTO 3680
3660 ABORTIO 5 @ CCLEAR @ DISP "MEETSYSTEEM NIET AKTIEF"
3670 ISOLATIEMETING @ RESET SPANNINGEN
3680 X=SLITE(0,-1) @ X=SLITE(1,-1) @ X=SLITE(2,-1) @ X=SLITE(3,-1) @ X=SLITE(4,1) @ OFF KBD @ ST
OP
3690 END
3700 !
3710 ! INTERRUPT POTMETERS
3720 !
3730 STATUS Z$,1 ; Q@ IF Q=0 THEN 3750 ELSE ENTER Z$ USING "#,W" ; A@ A(A DIV 1024)=A MOD 1024
3740 TRANSFER 410 TO Z$ INTR ; COUNT 2 @ ON EOT 4 GOSUB 3710 @ RETURN
3750 ON EOT 4 GOSUB 3710 @ RETURN
```

```
10 ! Progr. MENU  (Fabrieks Programma )
20 ! Cass. 42 , Floppy 09   Datum 24 oktober 1985
30 !
40 ON KBD GOSUB 5560
50 SET TIMEOUT 4;1000
60 SET TIMEOUT 5;1000
70 ON TIMEOUT 4 GOTO 4420
80 ON TIMEOUT 5 GOTO 4430
90 IMAGE #,19A,5D,2A,X
100 IMAGE 10A,4DZ,2A
110 IMAGE #,19A,4D.D,2A,X
120 IMAGE #,16A,2D.2D,X,4A
130 IMAGE 10A,4D.D,2A
140 IMAGE 20A,1D.3D,2A
150 IMAGE 21A,3D.D,2A
160 IMAGE 6A,3(5D),2D.2D
170 IMAGE X,3(5A," | "),5A
180 !

190 DIM A$[40],Z$[10],B$[80],T2$[24],T3$[32],F$[64],M$[125]
200 MEETBUFFER A$ @ IOBUFFER Z$ @ IOBUFFER B$
210 T1,T2,T3,T4,T5,T6,T7,T8,M9=0
220 T2$="       |       |       |"
230 T3$="--------------------------------"
240 M$="Hele programma#Hele prog excl ISOL en LEK#Karakteristiek en IbX#Visuele kontrole"
250 M$=M$&"#Gaskruis#Rastervervorming#Astigmatisme#"
260 K1$="789"&CHR$(153)&"456D123L0.-"&CHR$(154)
270 K2$=CHR$(128)&CHR$(129)&CHR$(130)&CHR$(131)&CHR$(132)&CHR$(133)&CHR$(134)&CHR$(135)
280 Q=SLITE(0,-1) @ Q=SLITE(1,-1) @ Q=SLITE(2,-1) @ Q=SLITE(3,-1) @ Q=SLITE(4,1)
290 ISOLATIEMETING
300 !
      TYPE KEUZE

310 CCLEAR
320 DISP USING 170 ; "D10-","D10-","","D12-"
330 DISP USING 170 ; " 180"," 181","","  130"
340 DISP T2$,T3$ @ DISP USING 170 ; "D14-","D14-",""
350 DISP USING 170 ; " 360"," 362",""
360 DISP T2$,T3$ @ DISP USING 170 ; "D14-","D14-",""
370 DISP USING 170 ; " 372"," 372",""
371 DISP USING 170 ; "","  B  C",""
380 DISP T3$ @ DISP USING 170 ; "D14-","","","DEMAG"
390 DISP USING 170 ; " 400","","","NETI"
400 DISP USING 170 ; "","","","SEREN"
410 K=1 @ ON KBD GOSUB 5470
420 ON K GOTO 420,430,440,410,490,450,460,410,410,470,480,410,410,500,410,410,5320
430 T$="180" @ RESTORE 4690 @ GOTO 520
440 T$="181" @ RESTORE 4770 @ GOTO 520
450 T$="360" @ RESTORE 4850 @ GOTO 520
460 T$="362" @ RESTORE 4930 @ GOTO 520
470 T$="370" @ RESTORE 5010 @ GOTO 520
480 T$="375" @ RESTORE 5080 @ GOTO 520
490 T$="130" @ RESTORE 5170 @ GOTO 520
500 T$="400" @ RESTORE 5250 @ GOTO 520
510 !

520 CCLEAR @ READ K1,K2,S1,G1,G2,G3,X,Y,X1,Y1,S2,T1$
530 IF T1$#"A"&T$ THEN 4410
540 !
      MATRIX SPOEL A

550 ! Z1=HOEK X/Y
```

```
580 READ Z1,Z2,Z3,Z4,T1$@ IF T1$#"MA"&T$ THEN 4410
590 GOSUB 4360 @ MATRIX SPOEL 1 B$
600 !
      MATRIX SPOEL B

610 ! Z1 en Z2=ASTIGMATISME
620 ! Z3 en Z4=AFSCHADUWING

630 READ Z1,Z2,Z3,Z4,T1$@ IF T1$#"MB"&T$ THEN 4410
640 GOSUB 4360 @ MATRIX SPOEL 2 B$
650 !
      MAGNETISEERFAKTOREN PER POTMETER
660 ! Volgorde als bij matrix

670 B$="" @ FOR I=1 TO 8 @ READ Z1@ OUTPUT B$ USING "#,W" ; Z1 @ NEXT I
680 READ T1$@ IF T1$#"MC"&T$ THEN 4410
690 MAGNETFAKTORS B$
700 !
      LIMIETEN VOOR MAGNETISEERPOTMETERS
710 ! Volgorde als bij matrix

720 B$="" @ FOR I=1 TO 8 @ OUTPUT B$ USING "#,W" ; 384,640 @ NEXT I
730 MAGPOTLIMITS B$
740 !
      EISEN

750 READ B2,B3,B4,B5,T1$@ IF T1$#"B"&T$ THEN 4410
760 READ C1,C2,C3,C4,C5,C6,C7,C8,C9,T1$@ IF T1$#"C"&T$ THEN 4410
770 READ D1,D2,D3,D4,T1$@ IF T1$#"D"&T$ THEN 4410
771 IF T$="370" THEN T$="372"
772 IF T$="375" THEN T$="372 B en C"
780 !
      MENUKEUZE

785 CCLEAR @ DISP "MENUKEUZE VOOR OVERMETEN        ========================            "
790 K=0 @ I9=1 @ FOR I=1 TO 7 @ I8=POS(M$[I9],"#")+I9 @ DISP I;M$[I9,I8-2] @ I9=I8 @ NEXT I
800 ON KBD GOSUB 5491
810 IF K<1 OR K>7 THEN 800 ELSE M9,M8=K+1 @ DISP K
820 I9=1 @ FOR I=3 TO M8 @ I9=POS(M$[I9],"#")+I9 @ NEXT I @ I8=POS(M$[I9],"#")+I9
830 !
      VERWISSEL BUIS

840 T9,M9=1
850 CCLEAR
860 DISP USING 160 ; "START",T1,T3,T5,T7/(T5+(T5=0))
870 DISP USING 160 ; "OVER",T2,T4,T6,T8/(T6+(T6=0))
880 CCURSOR 128 @ DISP "OVER= "&M$[I9,I8-2]
890 CCURSOR 236 @ IF T$<"200" THEN DISP "D10-"&T$ ELSE DISP "D14-"&T$
900 CCURSOR 297 @ DISP "VERWISSEL BUIS"
910 F$="  MENU           SELECT                    OVER          START"
920 CCURSOR 416 @ CDISP T3$&F$
930 GOSUB 4340
940 RESET SPANNINGEN @ A=I_F @ IF A<20 THEN T9=0
950 ON K GOTO 940,930,960,930,970,780,930,310,930
960 K9=1 @ M9=M8 @ GOTO 980
970 K9=0 @ M9=1
980 SETTIME 0,0
990 STATUS 5,2 ; S5@ IF NOT BINAND(S5,128) THEN Q=SLITE(4,-1) @ WAIT 200 @ STATUS 5,2 ; S5
1000 IF BINAND(S5,64) OR BINAND(S5,128) THEN CCURSOR 297 @ DISP "SLEDE SLUITEN" @ GOTO 930
1010 Q=SLITE(0,1) @ Q=SLITE(1,1) @ RESET SPANNINGEN
1020 AMPLITUDES X*X1,Y*Y1
1030 IF K9 THEN 1060
1040 IF T9 THEN T3=T3+1 ELSE T1=T1+1
```

```
      GLOEISTROOM METEN

1080 RESET SPANNINGEN @ CCLEAR @ A=I_F @ DISP USING 90 ; "GLOEISTROOM ",A,"mA"
1090 IF A<B2 OR A>B3 THEN DISP "FOUT" ELSE DISP
1100 IF M9>2 THEN 1430
1110 IF T$="400" THEN 1430
1120 !
      ISOLATIEMETINGEN

1130 V_F = 7 @ CCURSOR 32
1140 IF B2>200 THEN ISOLATIEMETING F- V=-150 ELSE ISOLATIEMETING F- V=-110
1150 WAIT 900
1160 A=I_FK @ DISP USING 110 ; "METING 1121, I =",A,CHR$(12)&"A"
1170 IF ABS(A)>45 THEN DISP "FOUT" ELSE DISP !

1180 IF B2>200 THEN ISOLATIEMETING K- V=-150 ELSE ISOLATIEMETING K-
1190 WAIT 900
1200 A=I_FK @ DISP USING 110 ; "METING 1125, I =",A,CHR$(12)&"A"
1210 IF ABS(A)>45 OR ABS(A)>6 AND B2<200 THEN DISP "FOUT" ELSE DISP !

1220 F5=0 @ ISOLATIEMETING G1- X1- X2- Y2- @ WAIT 100
1230 A=I_LEK @ DISP USING 110 ; "METING 1129, I =",A,CHR$(12)&"A"
1240 IF ABS(A)>15 THEN F5=1
1250 IF ABS(A)>9 THEN DISP "FOUT" ELSE DISP !

1260 ISOLATIEMETING X1- X2- Y1- Y2- @ WAIT 100
1270 A=I_LEK @ DISP USING 110 ; "METING 1133, I =",A,CHR$(12)&"A"
1280 IF ABS(A)>15 THEN F5=1
1290 IF ABS(A)>3 THEN DISP "FOUT" ELSE DISP !

1300 ISOLATIEMETING G6- Y1- Y2- @ WAIT 4000
1310 A=I_LEK @ DISP USING 110 ; "METING 1137, I =",A,CHR$(12)&"A"
1320 IF ABS(A)>15 THEN F5=1
1330 IF ABS(A)>3 THEN DISP "FOUT" ELSE DISP !

1340 ISOLATIEMETING G2- G6- X2- Y2- @ WAIT 4000
1350 A=I_LEK @ DISP USING 110 ; "METING 1145, I =",A,CHR$(12)&"A"
1360 IF ABS(A)>15 THEN F5=1
1370 IF ABS(A)>3 THEN DISP "FOUT" ELSE DISP !

1380 ISOLATIEMETING G2- G3- X1- X2- @ WAIT 100
1390 A=I_LEK @ DISP USING 110 ; "METING 1141, I =",A,CHR$(12)&"A"
1400 IF ABS(A)>15 THEN F5=1
1410 IF ABS(A)>3 THEN DISP "FOUT" ELSE DISP
1430 F$[1,24]=" RESET" @ F$[33,48]="       " @ F$[57]="CONTINUE"
1435 IF M9<4 THEN F$[25,32]="VORIGE"
1440 CCURSOR 416 @ CDISP T3$&F$
1450 IF M9>2 THEN 1510
1460 IF T$="400" THEN 1510
1470 GOSUB 4340
1480 ON K GOTO 1480,1470,1470,1470,1490,4050,1470,1470,1120
1490 !
      LEKSTROMEN METEN

1500 IF F5 THEN 4050
1510 A=V_K @ A1=V_G2 @ A2=V_G3
1520 IF A<-.3 OR A1>.3 OR A2>.3 THEN 1510 ELSE WAIT 500
1530 KARAKTERISTIEKMETING
1540 V_F = 6.3 @ V_G1 = G1 @ V_G3 = G3+(-280),280 @ PUNT @ V_G1 CONTINUE
1550 IF G2=0 THEN 1580
1560 FOR I=200 TO G2+(-200) STEP 400 @ V_K = -I,-200 @ V_G2 = I,200 @ WAIT 200 @ NEXT I !  Opreg
elen
1570 V_G2 = G2+(-200),200
1580 V_K = K1+200,-200 @ WAIT 200
```

```
1610 IF M9>2 THEN 1780
1620 CCURSOR 288 @ A=I_FK @ DISP USING 110 ; "LEK  f/rest =";A,CHR$(12)&"A"
1630 IF ABS(A)>3 THEN DISP "FOUT" ELSE DISP
1640 A=I_K @ DISP USING 110 ; "LEK  k/rest =";A,CHR$(12)&"A"
1650 IF ABS(A)>8 THEN DISP "FOUT" ELSE DISP
1660 A=I_G1 @ DISP USING 110 ; "LEK g1/rest =";A,CHR$(12)&"A"
1670 IF ABS(A)>1 THEN DISP "FOUT" ELSE DISP
1680 A=I_G3-10*V_G3 @ DISP USING 110 ; "LEK g3/rest =";A,CHR$(12)&"A"
1690 IF ABS(A)>2 THEN DISP "FOUT" ELSE DISP
1700 F$[17,24]=" METEN" @ CCURSOR 448 @ CDISP F$
1710 GOSUB 4340
1720 ON K GOTO 1720,1710,1710,1710,1740,4050,1710,1730,1620
1730 GOSUB 4470 @ GOTO 1710
1740 !
       DEMAGNETISEREN

1750 IF M9#1 THEN 1780
1760 STATUS 4,2 ; S4@ IF BINAND(S4,64) THEN CCLEAR @ CCURSOR 166 @ DISP "SPOELEN TE WARM" @ GOTO
 4050
1770 DEMAGNETIZE
1[illegible] IF K9 THEN 2710
1780 !
       KARAKTERISTIEK

1790 CCLEAR @ OFF EOT 4
1800 CCURSOR 288 @ DISP "KARAKTERISTIEK OPNEMEN"
1810 V_G1 = G1 @ RELAIS IBX1 @ V_G1 CONTINUE @ A1,B=0
1820 FOR I=0 TO C2/-5-1
1830 A=A1 @ V_G1 = C2+5*I @ WAIT 50 @ A1=I_K
1840 IF A1<-10 AND B=0 THEN B=C2+5*I-A1/(A1-A)*7.5
1850 IF A1<-100 THEN D=C2+5*(I-(A1+100)/(A1-A)) @ GOTO 1880
1860 NEXT I
1870 D=-5 @ IF B=0 THEN B=C2-5
1880 V_G1 = B @ KARAKTERISTIEKMETING
1890 !
       AFKNIJPSPANNING

1900 POT V_G3 = 0,2 @ CIRKEL @ X_AMPL = 1.75*X @ Y_AMPL = 1.75*Y
1910 POT X_SHIFT = 6 @ POT Y_SHIFT = 7 @ POT V_G1 = 1 @ V_G1 CONTINUE @ POT V_ROT = 5
1[illegible] V_G1 = B
1930 CCURSOR 352 @ CDISP "g3" @ CCURSOR 380 @ CDISP " g1"
1940 CCURSOR 392 @ CDISP " Xsh          Ysh      ROT"
1950 CCURSOR 288 @ DISP "STEL IN OP JUIST ONZICHTBAAR   "
1960 IF M9<4 THEN DISP "EN KIES IbX of CONTINUE" @ F$[49,56]=" IbX"
1970 IF K9 THEN F$[33,40]="MAGNET"
1971 CCURSOR 416 @ CDISP T3$&F$
1980 GOSUB 4330
1990 ON K GOTO 1990,1980,1980,2010,2020,4050,1980,2000,1780 !

2000 GOSUB 4470 @ GOTO 1980
2010 IF M9>3 THEN 1980
2020 V_G1 CONTINUE @ B1=V_G1
2021 CCURSOR 288 @ DISP @ DISP
2030 ON M9 GOTO 2040,2040,2040,3300,2280,2140,3720,2720
2040 IF K=5 THEN 2140
2050 ! IbX
2060 V_G1 GEPULST
2070 VERTIKAAL 100 LIJNEN @ Y_AMPL = 2*Y @ X_AMPL = 4*X-2*X*(T$<"370")
2080 V_G1 = B1+C6/8
2090 RELAIS IBX2 @ IF C7 THEN L9=C7 ELSE L9=C6
2100 WAIT 300 @ V_G1 CONTINUE @ V_G1 = B1+L9 @ WAIT 50 @ A2=I_LEK
2110 V_G1 = B1+C6/8 @ V_G1 GEPULST @ KARAKTERISTIEKMETING
2120 CCURSOR 96 @ DISP USING "#,11A,2D,6A,4D.D,2A" ; "IbX2 (Vmod=",L9,") =",A2,CHR$(12)&"A"
```

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2150 CCURSOR 224 @ DISP @ DISP
2160 V_K = K1+200,-200 @ IF S1 THEN V_NAVER = S1*1000-1500,1500
2170 IF G2#0 THEN V_G2 = G2+(-200),200
2180 POT X_AMPL = 2 @ POT Y_AMPL = 3 @ V_G1 GEPULST @ VERTIKAAL 100 LIJNEN
2190 X_AMPL = X1*X*(.8+.2*(T$<"200")) @ Y_AMPL = Y1*Y/(2-(T$<"200")) @ V_G1 = D
2200 CCURSOR 288 @ DISP "   GASKRUIS"
2210 CCURSOR 360 @ CDISP " Xam         Yam     "
2215 F$[49,56]=""
2220 CCURSOR 448 @ CDISP F$
2230 GOSUB 4330
2240 ON K GOTO 2240,2230,2230,2230,2260,4050,2230,2250,1900
2250 GOSUB 4470 @ GOTO 2230
2260 !
       STRALINGSMETING

2270 IF M9>3 THEN 4050
2280 IF T$#"400" THEN 2440
2290 A=B1+1.2*(D-B1) @ VERTIKAAL 100 LIJNEN @ X_AMPL = X1*X*1.2 @ Y_AMPL = Y1*Y
2300 IF A>-.2 THEN A=-.2
2310 V_G1 = A @ IF G2#0 THEN V_G2 = G2+K1-K2-200,200 @ V_G1 CONTINUE
2320 V_K = K2+200,-200 @ V_NAVER = S2*1000-1500,1500
2330 CCURSOR 288 @ DISP "Rntgenstralingsmeting" @ K=1
2340 GOSUB 4340
2350 CCURSOR 224 @ A=I_K @ DISP USING 100 ; "Ik =",A,CHR$(10)&"A"
2360 ON K GOTO 2350,2340,2340,2340,2380,4050,2340,2370,2160
2370 GOSUB 4470 @ GOTO 2340
2380 !
       STROOISTRALEN

2390 V_G1 GEPULST @ V_G1 = B @ HORIZONTALE LIJN
2400 CCURSOR 224 @ DISP "STROOISTRALING" @ DISP @ DISP "STEL IN OP JUIST ONZICHTBAAR"
2410 GOSUB 4330
2420 ON K GOTO 2420,2410,2410,2410,2440,4050,2410,2430,2260
2430 GOSUB 4470 @ GOTO 2410
2440 !
       VISUELE INSPEKTIE

2450 VERTIKAAL 100 LIJNEN @ V_G1 GEPULST @ X_AMPL = X1*X*1.2 @ Y_AMPL = Y1*Y*1.2 @ V_G1 = B1+C6/
3
2460 V_K = K1+200,-200 @ IF G2#0 THEN V_G2 = G2+(-200),200
2470 X_SHIFT = 0 @ Y_SHIFT = 0
2480 IF S2=0 THEN 2560
2490 V_NAVER = S2*1000-1500,1500
2500 CCURSOR 288 @ DISP "VISUELE INSPEKTIE - HOGE V_NAVER"
2510 F$[41,56]=" REPAR  PATROON" @ CCURSOR 448 @ CDISP F$
2520 GOSUB 4330
2530 ON K GOTO 2530,2520,2620,2535,2550,4050,2520,2540,2140
2535 VOLGEND PATROON @ GOTO 2520
2540 GOSUB 4470 @ GOTO 2520
2550 V_NAVER = S1*1000-1500,1500
2560 CCURSOR 288 @ DISP "VISUELE INSPEKTIE";
2570 IF T$<"200" THEN DISP ", 3D_KORREKTIE" ELSE DISP
2580 GOSUB 4330
2590 IF T$<"200" THEN A=D3_CORR @ CCURSOR 96 @ DISP USING 150 ; "3D-instelfaktor =",A
2600 ON K GOTO 2590,2580,2620,2605,2700,4050,2580,2610,2140
2605 VOLGEND PATROON @ GOTO 2580
2610 GOSUB 4470 @ GOTO 2580
2620 !
       REPARATIE

2630 PUNT @ V_G1 = B1-10 @ V_G1 CONTINUE
2640 V_K = K2+200,-200 @ IF G2#0 THEN V_G2 = G2+K1-K2-200,200
2650 CCURSOR 288 @ DISP "REPARATIE"
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(5)

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2680 ON K GOTO 2680,2670,2670,2670,2440,4050,2670,2690,2670
2690 GOSUB 4470 @ GOTO 2670
2700 !
       MAGNETISEERCYCLUS

2710 IF M9>3 THEN 4050
2720 F$=" RESET           METEN  VORIGE   MAGNET  KLAAR  PATROON CONTINUE" @ Z9=1
2730 IF M9=1 THEN Q=SLITE(3,1) @ Q=SLITE(2,1)
2740 CCURSOR 416 @ CDISP T3$&F$
2750 POT X_AMPL = -1 @ POT Y_AMPL = -1 @ V_G1 GEPULST
2760 X_SHIFT = 0 @ Y_SHIFT = 0
2770 CCURSOR 224 @ DISP "MAGNETISEERCYCLUS" @ DISP "=================="
2780 CCURSOR 360 @ CDISP "                          g1"
2781 IF M9=1 THEN ASTIGMATISME @ ROTATIE EN GEVOELIGHEID @ MAGNETIZE
2790 Q=SLITE(3,-1)
2800 !
       AFSCHADUWING

2810 KARAKTERISTIEKMETING
2820 CCURSOR 0 @ DISP @ DISP
2830 VERTIKAAL 100 LIJNEN @ X_AMPL = X1*X*1.2 @ Y_AMPL = Y1*Y*1.2 @ V_G1 = B1+C6/3
2840 IF M9#1 THEN 3040 ELSE CCURSOR 288 @ DISP "STEL AFSCHADUWING IN" @ AFSCHADUWING
2850 CCURSOR 388 @ CDISP " AFS Xsh        Ysh AFS "
2860 GOTO 3040
2870 !
       EXCENTRICITEIT

2880 PUNT @ AFBUIGPLATEN GEAARD @ V_G1 = B1+C6/4
2890 IF M9#1 THEN 3040 ELSE CCURSOR 288 @ DISP "STEL EXCENTRICITEIT IN" @ EXCENTRICITEIT
2900 CCURSOR 388 @ CDISP " EXC Xsh        Ysh EXC "
2910 GOTO 3040
2920 !
       ROTATIE EN GEVOELIGHEID

2930 TRAMRAILS @ X_AMPL = X1*X @ Y_AMPL = Y1*Y @ V_G1 = B1+C6/3 @ KARAKTERISTIEKMETING
2940 IF M9#1 THEN 3040 ELSE ROTATIE EN GEVOELIGHEID
2950 CCURSOR 288 @ CDISP "StelHOEKX/Y " @ IF T$<"200" THEN DISP "in" ELSE DISP "en GEV.VERT in"
2960 CCURSOR 388 @ CDISP "HOEK Xsh        Ysh " @ IF T$<"200" THEN CDISP "    " ELSE CDISP "AMPL
"
2970 GOTO 3040
2980 !
       ASTIGMATISME

2990 KARAKTERISTIEKMETING
3000 V_G1 = B1+C6/5
3010 CIRKEL @ X_AMPL = 1.75*X @ Y_AMPL = 1.75*Y
3020 IF M9#1 THEN 3040 ELSE CCURSOR 388 @ CDISP " AST Xsh        Ysh AST " @ ASTIGMATISME
3030 CCURSOR 288 @ DISP "CORRIGEER ASTIGMATISME" @ DISP
3040 GOSUB 4330
3050 IF Z9=3 THEN Q=Q+23 ELSE Q=Q+1 @ GOTO 3080
3060 A=I_ROT @ CCURSOR 0 @ DISP USING 100 ; "I_ROT =",A,"mA"
3070 IF ABS(A)>C4 THEN DISP "I_ROT TE GROOT" ELSE DISP
3080 IF Q>6000 THEN ABORTIO 4 @ GOTO 4050
3090 ON K GOTO 3050,3140,3180,3095,3110,4050,3040,3100,3120
3095 VOLGEND PATROON @ GOTO 3040
3100 GOSUB 4470 @ GOTO 3040
3110 Z9=Z9 MOD 4+1 @ GOTO 3130
3120 IF M9#1 THEN 3040
3125 Z9=Z9-1 @ IF Z9<1 THEN Z9=4
3130 Q=0 @ ON Z9 GOTO 2800,2870,2920,2980
3140 !
       MAGNETIZE
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3160 Q=SLITE(3,1) @ MAGNETIZE @ Q=SLITE(3,-1)
3170 Z9=1 @ GOTO 3130
3180 !
       AFKNIJPPUNT

3185 IF M9>3 THEN 3846 ELSE M9=2
3190 CIRKEL @ X_AMPL = 1.75*X @ Y_AMPL = 1.75*Y @ DESELECT @ KARAKTERISTIEKMETING
3200 V_G1 GEPULST
3210 V_G1 = B1+5 @ Q=SLITE(2,-1) @ POT V_G1 = 1
3220 CCURSOR 388 @ CDISP "     Xsh          Ysh      "
3230 F$[41,48]="" @ CCURSOR 448 @ CDISP F$
3240 CCURSOR 224 @ DISP @ DISP @ DISP "STEL IN OP JUIST ONZICHTBAAR   "
3250 GOSUB 4330
3260 ON K GOTO 3260,3250,3250,3250,3280,4050,3250,3270,3250
3270 GOSUB 4470 @ GOTO 3250
3280 V_G1 CONTINUE @ B1=V_G1 @ CCURSOR 192 @ DISP USING 110 ; "AFKNIJPSPANNING",B1," V"
3290 IF B1<C2 OR B1>C3 THEN DISP "FOUT"
3300 !
       KARAKTERISTIEK

3310 GCLEAR @ SCALE B1,0,0,100 @ MOVE B1,0
3320 V_G1 = B1 @ RELAIS IBX2 @ V_G1 CONTINUE
3330 VERTIKAAL 100 LIJNEN @ X_AMPL = X @ Y_AMPL = Y
3340 IF C7=0 THEN L9=C6 ELSE L9=C7
3350 IF B1>-13-L9 THEN L9=-3 ELSE L9=B1+L9+10
3360 FOR I=B1 TO L9 STEP 3
3370 V_G1 = I @ WAIT 50
3380 A=I_LEK @ V_G1 = B1 @ PLOT I,-(A*(A<0))
3390 IF A<-95 THEN 3410
3400 NEXT I
3410 KARAKTERISTIEKMETING
3420 !
       IbX1 EN IbX2

3430 CCURSOR 224 @ DISP @ DISP
3440 CCURSOR 288 @ DISP "  Stel Focus in" @ CCURSOR 380 @ CDISP "     "
3450 V_G1 GEPULST @ POT V_G1 = -1
3460 RASTER 9*11 LIJNEN @ Y_AMPL = 2*Y @ X_AMPL = 2*X
3470 V_G1 = B1+C6
3480 GOSUB 4330
3490 ON K GOTO 3490,3480,3480,3480,3510,4050,3480,3500,3180
3500 GOSUB 4470 @ GOTO 3480
3510 V_G1 = B1+C6/8 @ VERTIKAAL 100 LIJNEN
3520 RELAIS IBX1 @ WAIT 300 @ V_G1 = B1+C6 @ V_G1 CONTINUE @ WAIT 200
3530 A=I_LEK @ V_G1 = B1+C6/8 @ RELAIS IBX2
3540 CCURSOR 0 @ DISP USING 110 ; "IbX1 =",A,CHR$(12)&"A"
3550 IF ABS(A)<C5 THEN DISP "FOUT" ELSE DISP
3560 WAIT 200 @ V_G1 = B1+C6 @ WAIT 200 @ A1=I_LEK !

3570 CCURSOR 32 @ DISP USING 110 ; "IbX2 =",A1,CHR$(12)&"A"
3580 IF ABS(A1)<C5 THEN DISP "FOUT" ELSE DISP !

3590 IF C7=0 THEN 3670 ELSE CCURSOR 472 @ CDISP "         "
3595 CCURSOR 288 @ DISP "CONTINUE is einde Ibx-meting"
3600 A2=512+C8*2.56 @ POT V_G3 = 0 @ MULTIPLY CHR$(A2 DIV 256)&CHR$(A2 MOD 256)
3610 V_G1 = B1+C7 @ WAIT 50 @ ON TIMER# 1,60000 GOSUB 5580
3615 GOSUB 4340
3620 A2=I_LEK
3630 CCURSOR 64 @ DISP USING "#,11A,2D,6A,4D.D,2A" ; "IbX2 (Vmod=",C7,") =",A2,CHR$(12)&"A"
3640 IF ABS(A2)<C9 THEN DISP "FOUT" ELSE DISP !

3650 ON K GOTO 3620,3615,3615,3615,3660,4050,3615,3651,3615
3651 GOSUB 4470 @ GOTO 3615
3660 OFF TIMER# 1
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3690 IF 1000*A<B4 OR 1000*A>B5 THEN DISP "FOUT" ELSE DISP
3700 !
       RASTERVERVORMING

3710 IF M9>3 THEN 3845
3720 V_G1 GEPULST @ RASTER 9*11 LIJNEN @ X_AMPL = X1*X @ Y_AMPL = Y1*Y
3730 X_SHIFT = 0 @ Y_SHIFT = 0 @ V_G1 = D
3740 POT V_G1 = 1 @ POT X_AMPL = 2 @ POT Y_AMPL = 3
3750 CCURSOR 288 @ DISP "  RASTERVERVORMING, Mx en My"
3760 CCURSOR 360 @ CDISP " Xam          Yam      g1 "
3761 CCURSOR 448 @ CDISP F$
3770 GOSUB 4330
3780 ON K GOTO 3780,3770,3770,3785,3800,4050,3770,3790,3420
3785 VOLGEND PATROON @ GOTO 3770
3790 GOSUB 4470 @ GOTO 3770
3800 !
       Deflectiefactor My en Mx

3810 A=Y_AMPL/Y1 @ CCURSOR 96 @ DISP USING 120 ; "DEFL.FAKTOR Y =",A,"V/CM"
3820 IF A<D3 OR A>D4 THEN DISP " FOUT" ELSE DISP
3830 A=X_AMPL/X1 @ DISP USING 120 ; "DEFL.FAKTOR X =",A,"V/CM"
3840 IF A<D1 OR A>D2 THEN DISP " FOUT" ELSE DISP
3845 F$[41,48]="KARAKT" @ CCURSOR 448 @ CDISP F$
3846 CCURSOR 288 @ DISP "CONTINUE is einde programma."
3850 GOSUB 4340
3860 ON K GOTO 3860,3850,3890,3865,4030,4050,3890,3870,3700
3865 VOLGEND PATROON @ GOTO 3850
3870 GOSUB 4470 @ GOTO 3850
3880 !
       KARAKTERISTIEK

3890 FOR I=B1+20 TO B1+50 STEP 10 @ MOVE I,0 @ DRAW I,100 @ NEXT I
3910 FOR I=20 TO 50 STEP 10 @ MOVE B1,I @ DRAW 0,I @ NEXT I @ MOVE B1,10 @ LABEL "RESET"
3920 V_G1 = B1 @ RELAIS IBX2 @ V_G1 CONTINUE
3930 VERTIKAAL 100 LIJNEN @ X_AMPL = X @ Y_AMPL = Y
3940 FOR I=B1 TO L9 STEP 3
3950 V_G1 = I @ WAIT 50
3960 A=I_LEK @ V_G1 = B1 @ PLOT I,-(A*(A<0))
3970 IF A<-95 THEN 3990
3980 NEXT I @ MOVE B1/4,5 @ LABEL "CONTINUE"
3990 KARAKTERISTIEKMETING
4000 GOSUB 4340
4010 IF K=1 THEN 4010 ELSE 3846
4020 !
       UITSCHAKELEN

4030 IF K9 THEN T8=T8+TIME/60 @ T6=T6+1 @ GOTO 4050
4040 T7=T7+TIME/60 @ T5=T5+1
4050 OFF EOT 4 @ RESET SPANNINGEN
4052 A=V_K @ A1=V_G2 @ A2=V_G3 @ IF A<-.3 OR A1>.3 OR A2>.3 THEN 4050
4054 ISOLATIEMETING @ RESET SPANNINGEN @ WAIT 500
4060 Q=SLITE(0,-1) @ Q=SLITE(1,-1) @ Q=SLITE(2,-1) @ Q=SLITE(3,-1) @ Q=SLITE(4,1) @ OFF TIMER# 1

4070 CCLEAR @ CCURSOR 288 @ DISP "         VERWISSEL BUIS"
4080 WAIT 1500 @ GOTO 830
4090 !
       RASTERVERVORMING AFKEUREN

4100 !
4110 !
4120 !
4130 !
4140 GOTO 4050
4150 !
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4210 !
       VISUEEL AFKEUREN

4220 IF M9#1 THEN M9=1 @ GOTO 1740
4230 !
4240 !
4250 !
4260 GOTO 4050
4270 !
       INTERRUPTROUTINE

4280 STATUS Z$,1 ; Q@ IF Q=0 THEN RETURN ELSE MULTIPLY Z$ @ Z$="" @ TRANSFER 410 TO Z$ INTR @ ON
 EOT 4 GOSUB 4280 @ RETURN
4290 RETURN
4320 !
       ON KBD

4330 STATUS Z$,2 ; Q@ IF Q=0 THEN Z$="" @ TRANSFER 410 TO Z$ INTR @ ON EOT 4 GOSUB 4280
4340 K=NUM(KBD$) @ K=1 @ ON KBD GOSUB 5500 @ RETURN
4350 !
       SUBROUTINE VOOR VULLEN VAN MATRIX

4360 B$="" @ OUTPUT B$ USING "#,W" ; Z1,0,-Z1,0,Z1,0,-Z1,0
4370 OUTPUT B$ USING "#,W" ; 0,Z2,0,-Z2,0,Z2,0,-Z2
4380 OUTPUT B$ USING "#,W" ; Z3,Z3/SQR(2),0,-(Z3/SQR(2)),-Z3,-(Z3/SQR(2)),0,Z3/SQR(2)
4390 OUTPUT B$ USING "#,W" ; 0,Z4/SQR(2),Z4,Z4/SQR(2),0,-(Z4/SQR(2)),-Z4,-(Z4/SQR(2))
4400 RETURN !

4410 ABORTIO 4 @ ENABLE KBD 136 @ CCLEAR @ DISP "ERROR IN DATASTATEMENTS:";T1$ @ GOTO 4440
4420 ABORTIO 4 @ ENABLE KBD 136 @ CCLEAR @ DISP "STUURSYSTEEM NIET AKTIEF" @ GOTO 4450
4430 ABORTIO 4 @ ENABLE KBD 136 @ CCLEAR @ DISP "MEETSYSTEEM NIET AKTIEF"
4440 ISOLATIEMETING @ RESET SPANNINGEN
4450 Q=SLITE(0,-1) @ Q=SLITE(1,-1) @ Q=SLITE(2,-1) @ Q=SLITE(3,-1) @ Q=SLITE(4,1)
4460 STOP
4470 !
       SUBROUTINE VOOR DISPLAYEN VAN SPANNINGEN

4480 CCURSOR 992 @ CLINE 31
4490 V_G1 CONTINUE @ Q8=V_F @ Q9=V_K @ V_G1 GEPULST
4500 DISP USING "6A,3D.2D,X,2A,2X,6A,3D.2D,X,2A" ; "Vf   =",Q8," V","Vk   =",Q9,"kV"
4510 V_G1 CONTINUE @ Q8=V_G1 @ Q9=V_G2 @ V_G1 GEPULST
4520 DISP USING "6A,4D.D,X,2A,2X,6A,3D.2D,X,2A" ; "Vg1  =",Q8," V","Vg2  =",Q9,"kV"
4530 V_G1 CONTINUE @ Q8=V_G3 @ Q9=V_NAVER @ V_G1 GEPULST
4540 DISP USING "6A,3D.2D,X,2A,2X,6A,4D.D,X,2A" ; "Vg3  =",Q8,"kV","Vnav =",Q9,"kV"
4550 V_G1 CONTINUE @ Q8=V_AST @ Q9=V_GAAS @ V_G1 GEPULST
4560 DISP USING "6A,4D.D,X,2A,2X,6A,4D.D,X,2A" ; "Vast =",Q8," V","Vgaas=",Q9," V"
4570 V_G1 CONTINUE @ Q8=V_HULP1 @ Q9=V_HULP2 @ V_G1 GEPULST
4580 DISP USING "6A,4D.D,X,2A,2X,6A,4D.D,X,2A" ; "Vhul1=",Q8," V","Vhul2=",Q9," V"
4590 V_G1 CONTINUE @ Q8=V_ROT @ V_G1 GEPULST
4600 DISP USING "6A,4D.D,X,2A" ; "Vrot =",Q8," V"
4610 V_G1 CONTINUE @ Q8=V_REF1 @ Q9=V_REF2 @ V_G1 GEPULST
4620 DISP USING "6A,2D.3D,X,2A,2X,6A,2D.3D,X,2A" ; "Vref1=",Q8," V","Vref2=",Q9," V"
4630 V_G1 CONTINUE @ Q8=I_F @ Q9=I_K @ V_G1 GEPULST
4640 DISP USING "6A,5DZ,X,2A,2X,6A,5DZ,X,2A" ; "If   =",Q8,"mA","Ik   =",Q9,CHR$(12)&"A"
4650 GOSUB 4340
4660 IF K=1 THEN 4660
4670 CLINE 0 @ RETURN
4680 !
       D10-180

4690 DATA -2000,-2400,0,-75,0,300,36,23,3.33333333334,2.66666666667,0,A180
4700 DATA 512,0,512,512,MA180
4710 DATA 512,512,512,512,MB180
4720 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC180
4730 DATA 228,252,250,350,B180
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4750 DATA 31.5,38,20.5,24.8,D180
4760 !
       D10-181

4770 DATA -2000,-2400,0,-75,0,300,36,23,3.33333333334,2.66666666667,0,A181
4780 DATA 512,0,512,512,MA181
4790 DATA 512,512,512,512,MB181
4800 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC181
4810 DATA 87,103,250,350,B181
4820 DATA 750,-61,-24,24,30,20,0,0,0,C181
4830 DATA 31.5,38,20.5,24.8,D181
4840 !
       D14-360

4850 DATA -2000,-2400,0,-75,0,300,22,11.5,5,4,0,A360
4860 DATA 512,1024,512,512,MA360
4870 DATA 512,1024,512,512,MB360
4880 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC360
4890 DATA 228,252,230,360,B360
4900 DATA 750,-61,-24,27,30,20,0,0,0,C360
4910 DATA 19.5,23.5,11.2,11.8,D360
4920 !
       D14-362

4930 DATA -2000,-2400,0,-75,0,300,19,11.5,5,4,0,A362
4940 DATA 512,1024,512,512,MA362
4950 DATA 512,1024,512,512,MB362
4960 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC362
4970 DATA 228,252,230,360,B362
4980 DATA 750,-61,-24,27,30,20,0,0,0,C362
4990 DATA 17.2,20.8,11.2,11.8,D362
5000 !
       D14-370

5010 DATA -2200,-2500,14.3,-120,2200,550,8.4,4,5,4,15.8,A370
5020 DATA 512,1024,512,512,MA370
5030 DATA 512,1024,512,512,MB370
5040 DATA 3700,3700,3700,3700,3700,3700,3700,3700,MC370
5050 DATA 228,252,410,790,B370
5060 DATA 1000,-96,-51,24,19,30,50,-15,45,C370
5070 DATA 7.7,9.1,3.85,4.15,D370
5080 !
       D14-375

5090 DATA -2000,-2300,6,-120,2000,600,8.4,4.15,5,4,8,A375
5100 DATA 512,1024,512,512,MA375
5110 DATA 512,1024,512,512,MB375
5120 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC375
5130 DATA 228,252,360,740,B375
5140 DATA 1000,-86,-46,24,19,30,50,-15,45,C375
5150 DATA 7.7,9.1,4,4.3,D375
5160 !
       D12-130

5170 DATA -2000,-2400,0,-75,2000,300,32,21,4,3.2,0,A130
5180 DATA 512,1024,512,512,MA130
5190 DATA 512,1024,512,512,MB130
5200 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC130
5210 DATA 228,252,230,350,B130
5220 DATA 1000,-61,-24,24,30,20,0,0,0,C130
5230 DATA 28.5,34.5,18.5,22.5,D130
5240 !
       D14-400
```

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5270 DATA 512,1024,512,512,MB400
5280 DATA 3400,3400,3400,3400,3400,3400,3400,3400,MC400
5290 DATA 228,252,705,1095,B400
5300 DATA 1000,-124,-81,24,21,30,70,-40,21,C400
5310 DATA 6.7,7.9,2.75,3,D400
5320 !
       DEMAGNETISEREN

5330 CCLEAR @ CCURSOR 233 @ DISP "DEMAGNETISEREN"
5340 CCURSOR 297 @ DISP "VERWISSEL BUIS"
5350 F$="                    SELECT                                    START"
5360 CCURSOR 416 @ CDISP T3$&F$
5370 K=1 @ ON KBD GOSUB 5500
5380 CCURSOR 166 @ STATUS 4,2 ; S4@ IF BINAND(S4,64) THEN DISP "SPOELEN TE WARM" ELSE DISP
5390 ON K GOTO 5380,5370,5370,5370,5400,5370,5370,310,5370
5400 IF BINAND(S4,64) THEN 5370
5410 CCURSOR 297 @ DISP
5420 STATUS 5,2 ; S5@ IF NOT BINAND(S5,128) THEN Q=SLITE(4,-1) @ WAIT 200 @ STATUS 5,2 ; S5
5430 IF BINAND(S5,64) OR BINAND(S5,128) THEN Q=SLITE(4,1) @ CCURSOR 297 @ DISP "SLEDE SLUITEN"
 GOTO 5370
5440 Q=SLITE(0,1) @ WAIT 500 @ DEMAGNETIZE @ WAIT 500 @ Q=SLITE(0,-1)
5450 Q=SLITE(4,1) @ GOTO 5340
5460 !
       INTERRUPT BUISKEUZE

5470 ABORTIO 4 @ Z$="" @ K5=NUM(KBD$) @ IF K5=139 THEN OFF KBD @ STOP
5480 K=POS(K1$,CHR$(K5))+1 @ IF K=1 THEN ON KBD GOSUB 5460
5490 RETURN
5491 !
       INTERRUPT MENUKEUZE

5492 ABORTIO 4 @ Z$="" @ K5=NUM(KBD$) @ IF K5=139 THEN OFF KBD @ STOP
5493 K=-48+K5 @ IF K<1 OR K>7 THEN ON KBD GOSUB 5491
5494 RETURN
5500 !
       INTERRUPT 8 TOETSEN

5510 ABORTIO 4 @ Z$="" @ K5=NUM(KBD$) @ IF K5=139 THEN OFF KBD @ STOP
5520 K=POS(K2$,CHR$(K5))+1 @ IF K=9 AND M9>3 THEN K=1
5525 IF K=2 AND M9#1 THEN M9=1 @ ON TIMER# 2,0 GOTO 1740 @ ON KBD GOSUB 5550 @ RETURN
5530 IF K=1 THEN ON KBD GOSUB 5500 ELSE ON KBD GOSUB 5550
5540 RETURN
5550 !
       INTERRUPT RESET

5560 K5=NUM(KBD$) @ IF K5=132 THEN ON TIMER# 1,0 GOTO 4050 @ RETURN
5570 RETURN
5580 K=5 @ RETURN
```