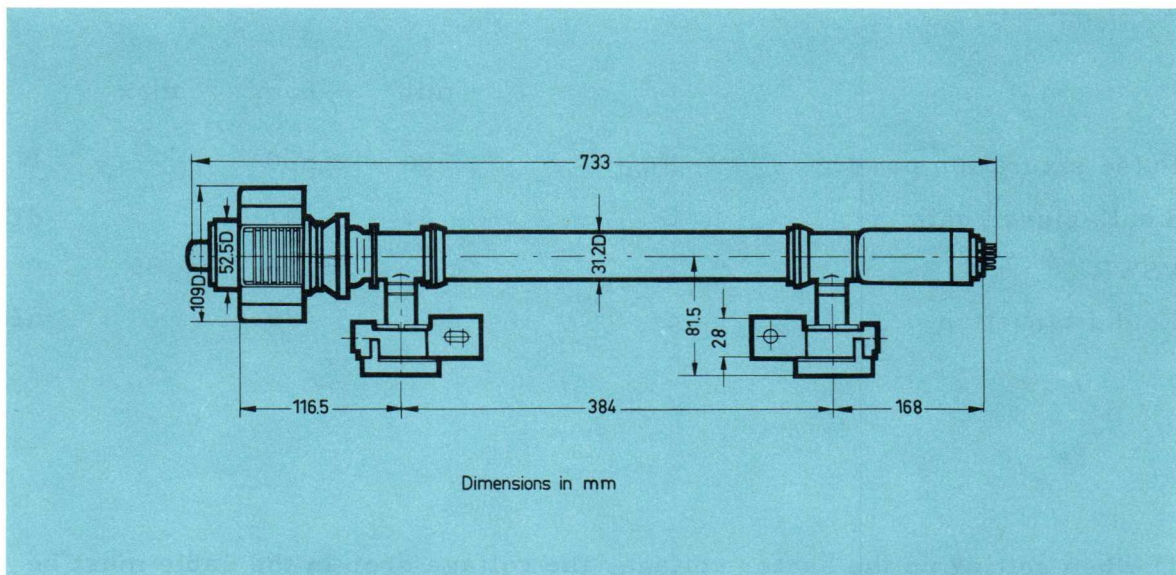


**Design and Application**

Forced-air cooled high-power traveling-wave tube for the frequency range 470 to 860 MHz with an average gain of 30 dB.

The tube is intended for use in Band IV/V UHF TV transmitters and translators, FM sound transmitters and microwave radio amplifiers. It is focused by a permanent magnet, and is replaceable within this magnet system.

The tube is designed for use with coaxial input and output circuits.



Base:	special 8-pin type 1)
Weight of tube:	3 kp (6.6 lbs)
Weight of magnet system:	40 kp (88 lbs)
Dimensions of magnet system:	approx. 200 x 220 x 750 mm (8" x 8.5" x 29 1/2")
r. f. connector:	coaxial connection, 50 or 60 Ω (various standardized connections, see page 9)
Mounting position:	in fixed equipment, optional when mounted vertically, the best position with respect to cooling is with the collector uppermost

1) The socket with cable is supplied as an accessory (see page 9)

Heating
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Heater voltage	$E_f$	6.3	Vac 1)
Heater current	$I_f$	$\approx 2.6$	Aac

indirect by ac, parallel supply  
Metal capillary dispenser cathode

Characteristics
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( $F = 700$  MHz,  $I_k = 750$  mA)

		min	nom	max	
Pulse saturation power	$P_{sat}$	500	600		W 2)
Small-signal gain	G	33	37		dB
VSWR			1.35	1.85	3)
Cold attenuation	$\alpha$		70		dB

1) When setting up the heater voltage, the voltage drop in the cable must be taken into account. This is 0.25 V in the standard cable 1.2 m long supplied with the magnet.

If the heater voltage variation exceeds the admissible 2 % of the setting value (absolute limits) the operational performance and life of the tube will be impaired. For standby operation, the heater voltage must be reduced to 5.6 V; the tube is then fully operational when the heater voltage is increased to its nominal value and the electrode voltages and r. f. drive applied simultaneously.

2) The saturation power may only be measured in pulsed operation.

3) Cold match at the tube input and output over the frequency band 470 to 860 MHz.

Maximum Ratings	(absolute values)			
Collector voltage	$E_b$	max	3300	Vdc <sup>1)</sup>
Collector voltage at zero collector current	$E_{bo}$	max	4000	Vdc
Collector dissipation	$P_p$	max	2600	W
Helix voltage	$E_h$	max	3500	Vdc
Helix voltage at zero helix current	$E_{ho}$	max	4000	Vdc
Helix current	$I_h$	max	30	mAdc <sup>2)</sup>
Grid No. 2 voltage	$E_{c2}$	max	1000	Vdc
Grid No. 2 current	$I_{c2}$	max	$\pm 3$	mAdc
Grid No. 1 voltage negative	$E_{c1}$	min	- 200	Vdc
Grid No. 1 voltage positive	$+E_{c1}$	max	0	Vdc
Cathode current	$I_k$	max	750	mAdc
Reflected CW power		max	20	W
Collector temperature	$T$	max	200	$^{\circ}C$
Magnet system temperature	$T$	max	55	$^{\circ}C$ <sup>3)</sup>
Ambient temperature	$T_A$	min	- 20	$^{\circ}C$
Storage temperature for tube and magnet	$T_A$	min	- 50	$^{\circ}C$

Typical Operation	(for characteristics see page K 1)			
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The collector, helix and grid No. 1 voltages and the cathode current are fixed values for each frequency, and remain unchanged when the tube is replaced. The helix voltage must be set up depending on the operating frequency (see pages K 2 and K 5), and the collector voltage must always be 200 V below the helix voltage.

TV band		IV	V	
Video carrier frequency	$F_v$	550	700	MHz
Sync power output	$P_{syn}$	170	210	W
Gain	$G$	32	33	dB
Collector voltage	$E_b$	3000	2900	Vdc
Helix voltage	$E_h$	3200	3100	Vdc
Grid No. 2 voltage	$E_{c2}$	$\approx 550 \pm 200$	$\approx 600 \pm 200$	Vdc <sup>4)</sup>
Grid No. 1 voltage	$E_{c1}$	- 100	- 100	Vdc <sup>5)</sup>
Helix current	$I_h$	6	6	mAdc
Grid No. 2 current	$I_{c2}$	$\leq \pm 0.5$	$\leq \pm 0.5$	mAdc
Cathode current	$I_k$	700	700	mAdc
Linearity (10 to 65 % peak amplitude)		$\geq 0.95$	$\geq 0.95$	
Differential phase of the color sub-carrier	$\Delta\varphi$	$\leq 3$	$\leq 3$	degrees
Gain variation within the channel		$\leq \pm 0.5$	$\leq \pm 0.5$	dB

- 1) The collector voltage must be 200 V lower than the helix voltage
- 2) Switch-off level of the helix current overload relay (see "Operating Instruction", page 5)
- 3) Measured with a thermocouple at the periphery at the two outer and one of the center cooling fins on the outlet side (see cooling page 6).
- 4) The tolerances apply for designing the power supply
- 5) It is recommended to obtain the grid No. 1 voltage from a cathode resistor