

WATER-COOLED MAGNETICALLY BEAMED INDUSTRIAL R.F. TRIODE

Water-cooled magnetically focused triode of metal-ceramic construction with integral water jacket intended for use as industrial oscillator.

QUICK REFERENCE DATA

Oscillator output power ($W_o - W_{\text{feedb}}$), typical	W_{osc}	3	kW
Frequency for full ratings	f max.	5	MHz

To be read in conjunction with "General Operational Recommendations Transmitting Tubes for Communication, Tubes for R.F. Heating".

R.F. CLASS.C OSCILLATOR FOR INDUSTRIAL USE

Anode voltage single phase, full-wave rectified, unfiltered

OPERATING CONDITIONS

Frequency	f	5	MHz
Oscillator output power ($W_o - W_{\text{feedb}}$)	W_{osc}	3094	W
Transformer voltage	$V_{\text{tr rms}}$	5000	V
Anode voltage, mean	V_a	4500	V
Anode current, mean	I_a	720	mA
Anode input power	W_{ia}	4000	W
Anode dissipation	W_a	900	W
Anode output power	W_o	3100	W
Anode efficiency	η_a	78	%
Oscillator efficiency	η_{osc}	77,4	%
Feedback ratio	$V_{\text{gp}}/V_{\text{ap}}$	33	%
Grid resistor	R_g	80	k Ω
Grid current, on load	I_g	4,5	mA
off load	I_g	9,0	mA
Grid voltage, negative	$-V_g$	360	V ¹⁾
Grid dissipation	W_g	4,4	W
Grid resistor dissipation	W_{Rg}	1,6	W

1) Max. -565 V.

LIMITING VALUES (Absolute max. rating system)

Frequency for full ratings	f	max.	5	MHz
Anode voltage, mean	V_a	max.	4500	V
Anode current, mean	I_a	max.	725	mA
Anode input power	W_{ia}	max.	4	kW
Anode dissipation	W_a	max.	2	kW
Grid voltage	V_g	max.	2400	V
Grid current	I_g	max.		see 1)
Grid dissipation	W_g	max.	25	W
Grid circuit resistance	R_g	max.	88	k Ω
Cathode current, mean	I_k	max.	730	mA
Seal temperature	t	max.	200	$^{\circ}\text{C}$

HEATING : indirect; nickel-oxide cathode, dispenser type

Heater voltage	V_f		5	V
Heater current	I_f		6,1	A
Waiting time	T_w min.		2	min.

The filament is designed to accept temporary fluctuations of +10 % and -10 %.

CAPACITANCES

Anode to cathode	C_{ak}		0,3	pF
Grid to cathode	C_{gk}		9,8	pF
Anode to grid	C_{ag}		11,5	pF

CHARACTERISTICS measured at $V_a = 3$ kV, $I_a = 500$ mA

Transconductance	S		4	mA/V
Amplification factor	μ		25	
Magnetic flux density	B	min.	115	mT (= 1150 Gs)

Care should be taken that the magnetic flux density is not influenced by external magnetic materials.

1) Limited by W_g max. and I_k max.

COOLING

Anode + grid dissipation $W_a + W_g$ (kW)	Inlet temperature t_i (°C)	Rate of flow q min (ℓ/min)	Pressure drop P_i (kPa*)
2	20	3,8	31
	50	5,7	62

The water flow must be maintained for at least 1 minute after anode power is removed. Additional air cooling of the seals may be necessary to keep the temperature below the limiting value. The direction of the water flow must be such that the inflow is below the outlet for either of the two vertical mounting positions.

ACCESSORIES

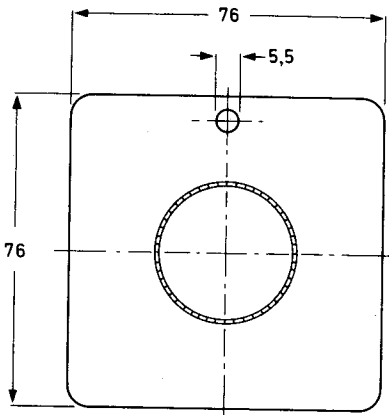
Magnet assembly (magnetic nest)

type 40765 net mass 2,3 kg

Grid connector

40766

Dimensions in mm



7273470

Grid connector 40766

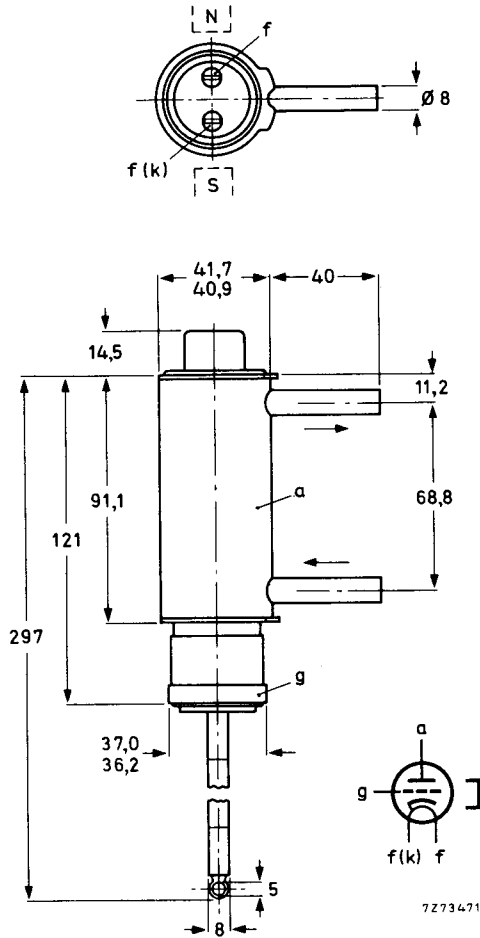
* 100 Pa ≈ 1 at.

MECHANICAL DATA

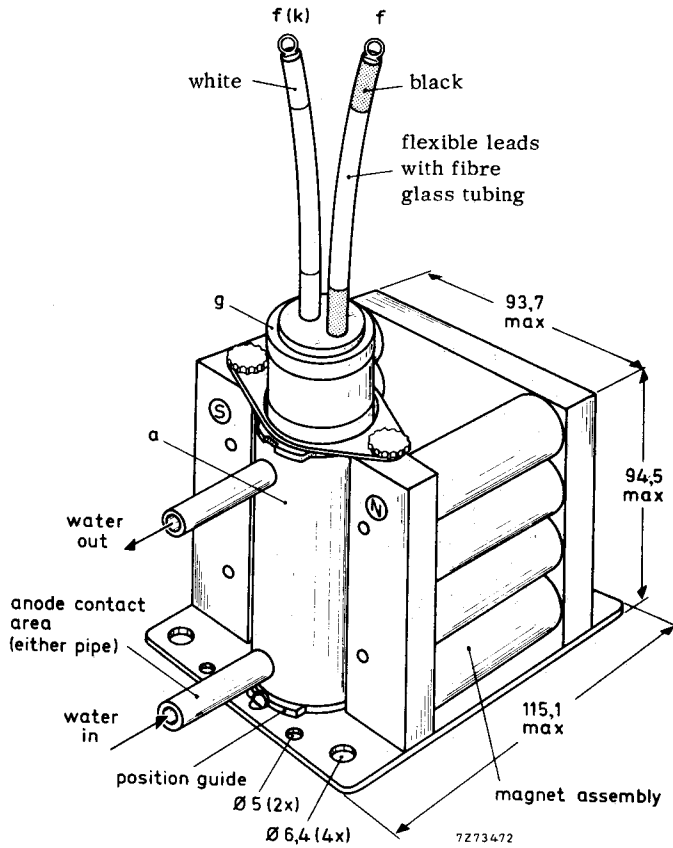
Dimensions in mm

Mounting position : vertical

Net mass : approx. 0,45 kg



Due to the very rugged construction of this type, generally it can be shipped mounted in the equipment.



Tube mounted in magnet assembly 40765

