

WATER COOLED INDUSTRIAL R.F. POWER TRIODE WITH INTEGRAL HELICAL COOLER

QUICK REFERENCE DATA		
Industrial R.F. oscillator class C		
Freq. (Mc/s)	three phase	
	V _a (kV)	W _o (kW)
30	7	17.7
	6	14.3

HEATING: direct, filament thoriated tungsten

Filament voltage	V _f =	6.3 V ^{+ 5%} _{-10%}
Filament current	I _f =	130 A
Cold filament resistance	R _{f0} =	0.005 Ω

The filament current must never exceed a peak value of 280 A at any time during the initial energizing schedule

CAPACITANCES

Anode to all other elements except grid	C _a =	1.2 pF
Grid to all other elements except anode	C _g =	44.5 pF
Anode to grid	C _{ag} =	33.5 pF

TYPICAL CHARACTERISTICS

Anode voltage	V _a =	6 kV
Anode current	I _a =	2.5 A
Mutual conductance	S =	23 mA/V
Amplification factor	μ =	17.5

TEMPERATURE LIMITS (Absolute limits)

Temperature of all seals = max. 220 °C

WATER COOLING CHARACTERISTICS

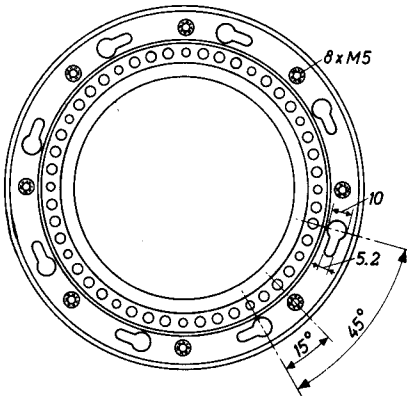
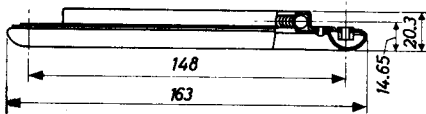
W_a (kW)	t_i (°C)	Q_{min} (l/min)	P_i (atm)	t_o (°C)
5	20	2.3	0.02	56
	50	4.6	0.07	68
10	20	4.5	0.06	55
	50	9.0	0.21	67
15	20	7.0	0.14	53
	50	14.0	0.45	66

Water inlet temperature $t_i = \text{max. } 50 \text{ } ^\circ\text{C}$

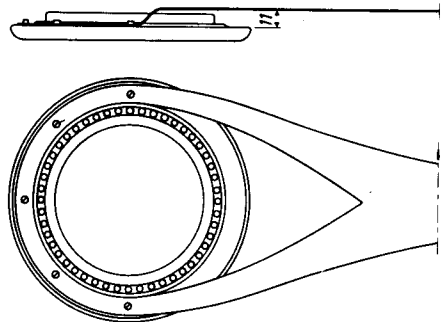
At water inlet temperatures between $20 \text{ } ^\circ\text{C}$ and $50 \text{ } ^\circ\text{C}$ the required quantity of water can be found by linear interpolation

MECHANICAL DATA

Dimensions in mm



Grid connector 40664



Connection of the grid lead

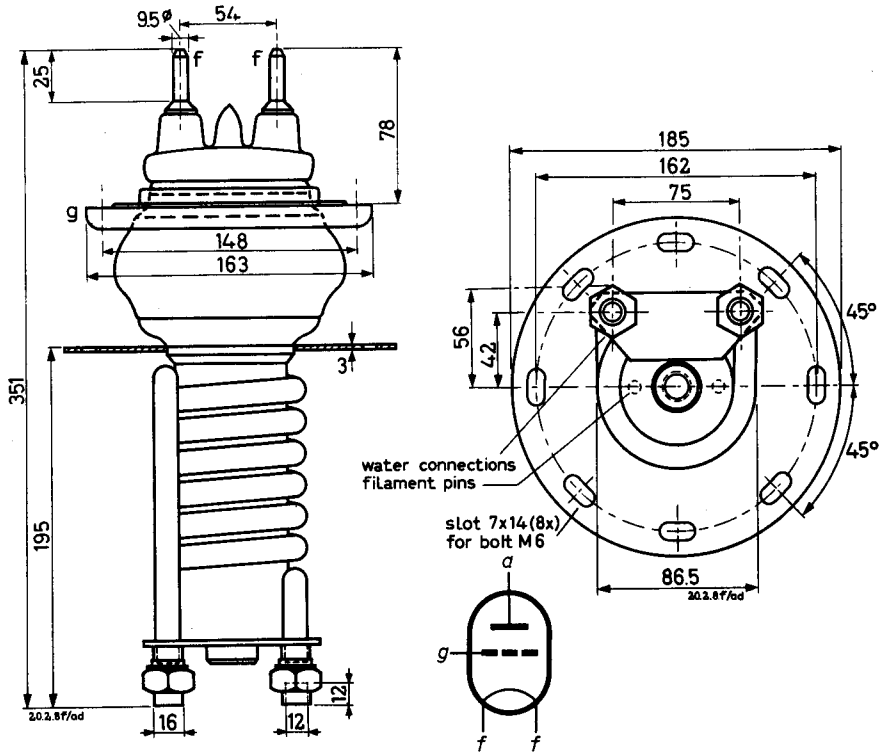
The rounded side of the grid connector should face the anode. To ensure a uniform R.F. current distribution in the grid seal at frequencies higher than 4 Mc/s, the grid lead should be connected as shown in the figure at right

MECHANICAL DATA (continued)

Dimensions in mm

Filament connectors with cable 40662
 Grid connector 40664

Net weight 3.8 kg



Mounting position: vertical with anode down

R.F. CLASS C OSCILLATOR FOR INDUSTRIAL USE with anode voltage from
three-phase rectifier without filter

LIMITING VALUES (Absolute limits)

Frequency	f	up to	30	MHz
Anode voltage	V_a	max.	8	kV
Anode input power	W_{ia}	max.	30	kW
Anode dissipation	W_a	max.	15	kW
Anode current	I_a	max.	4.0	A
Negative grid voltage	$-V_g$	max.	1600	V
Grid current, loaded	I_g	max.	1.5	A
Grid current, unloaded	I_g	max.	2.0	A
Grid circuit resistance	R_g	max.	10	k Ω

OPERATING CONDITIONS

Frequency	f	30	30	MHz
Anode voltage	V_a	7	6	kV
Anode current, loaded	I_a	3.5	3.3	A
Anode current, unloaded	I_a	0.7	0.51	A
Grid current, loaded	I_g	0.95	0.8	A
Grid current, unloaded	I_g	1.35	1.1	A
Grid resistor	R_g	950	1000	Ω
Load resistance	$R_{a\sim}$	1000	870	Ω
Feedback ratio under loaded conditions	$V_{g\sim}/V_{a\sim}$	25	26	%
Anode input power	W_{ia}	24.5	19.8	kW
Anode dissipation	W_a	6.8	5.5	kW
Output power	W_o	17.7	14.3	kW
Efficiency	η	72	72	%
Output power in the load	W_l	14	11	kW ¹⁾

1) Useful power in the load, measured in a circuit having an efficiency of about 85%.

