

## 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 <sub>a</sub> (kV)	W <sub>o</sub> (kW)
30	7	17.7
	6	14.3

**HEATING:** direct, filament thoriated tungsten

Filament voltage	V <sub>f</sub>	=	6.3 V	+ 5%
				-10%
Filament current	I <sub>f</sub>	=	130 A	
Cold filament resistance	R <sub>fo</sub>	=	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 <sub>a</sub>	=	1.2 pF
Grid to all other elements except anode	C <sub>g</sub>	=	44.5 pF
Anode to grid	C <sub>ag</sub>	=	33.5 pF

### TYPICAL CHARACTERISTICS

Anode voltage	V <sub>a</sub>	=	6 kV
Anode current	I <sub>a</sub>	=	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**

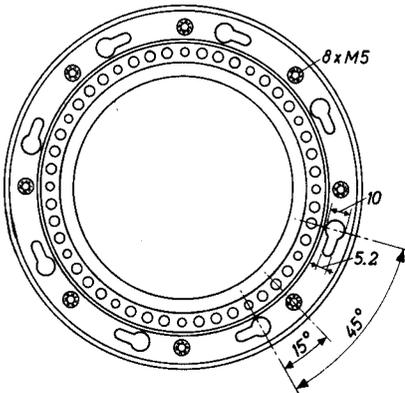
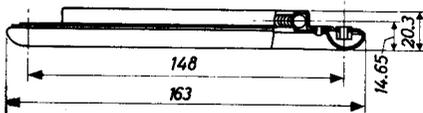
$W_a$ (kW)	$t_i$ (°C)	$Q_{min}$ (l/min)	$P_i$ (atm)	$t_o$ (°C)
5	20	2.3	0.02	56
	50	4.6	0.07	68
10	20	4.5	0.06	55
	50	9.0	0.21	67
15	20	7.0	0.14	53
	50	14.0	0.45	66

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

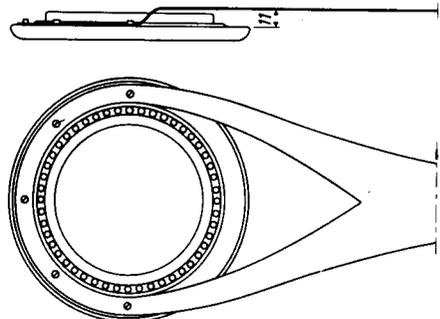
At water inlet temperatures between  $20 \text{ } ^\circ\text{C}$  and  $50 \text{ } ^\circ\text{C}$  the required quantity of water can be found by linear interpolation

**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

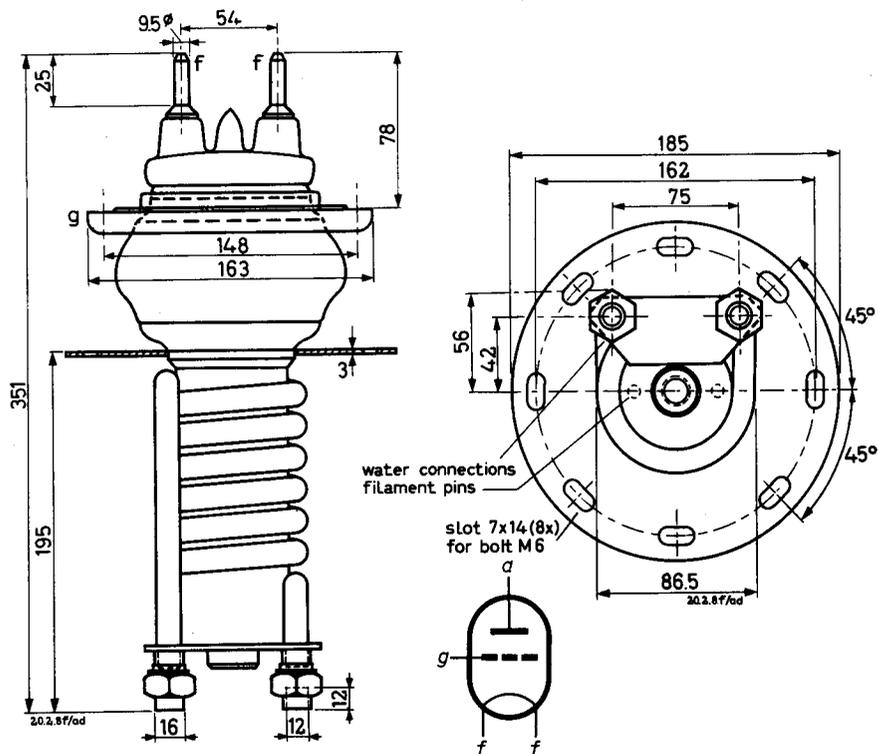
**MECHANICAL DATA** (continued)

Dimensions in mm

Filament connectors with cable 40662

Net weight 3.8 kg

Grid connector 40664



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 $\Omega$

**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	$\Omega$
Load resistance	$R_{a\sim}$	1000	870	$\Omega$
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	$\eta$	72	72	%
Output power in the load	$W_l$	14	11	kW <sup>1)</sup>

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

