VAPOUR COOLED R.F. INDUSTRIAL TRIODE

Vapourcooled triode of metal-ceramic construction intended for use as an industrial oscillator.

QUICK REFERENCE DATA				
Oscillator output power (W_o- W_{feedb}), typical	W_{osc}		62.7	kW
Frequency for full ratings	f	max.	100	MHz

To be read in conjunction with "General Recommendations Transmitting tubes, Tubes for R.F. heating".

R.F. CLASS C OSCILLATOR FOR INDUSTRIAL USE

OPERATING CONDITIONS

Frequency	f	30	MHz
Oscillator output power (W_o-W_{feedb})	W_{osc}	62.7	kW
Anode voltage	V_a	8.0	kV
Anode current	I_a	10	A
Anode input power	W_{ia}	80	kW
Anode dissipation	W_a	15	kW
Anode output power	W_o	65	kW
Anode efficiency	η_a	81.2	%
Oscillator efficiency	η_{osc}	78.4	%
Feedback ratio	V_{gp}/V_{ap}	14.6	%
Grid resistor	R_g	300	Ω
Grid current, on load	I_g	2.25	A
Grid voltage, negative	$-V_g$	675	V
Grid dissipation	W_g	750	W
Grid resistor dissipation	W_{Rg}	1.52	kW

LIMITING VALUES (Absolute max. rating system)

Frequency for full ratings	f	up to	100	MHz[1)]
Anode voltage	V_a	max.	9.6	kV
Anode current	I_a	max.	12	A
Anode input power	W_{ia}	max.	96	kW
Anode dissipation	W_a	max.	40	kW
Grid voltage	$-V_g$	max.	1.5	kV
Grid current, on load	I_g	max.	2.5	A
off load	I_g	max.	3.5	A
Grid dissipation	W_g	max.	1	kW
Grid circuit resistance	R_g	max.	10	kΩ
Cathode current, mean	I_k	max.	14	A
peak	I_{kp}	max.	70	A
Envelope temperature	t_{env}	max.	240	°C

HEATING : direct; filament thoriated tungsten

Filament voltage	V_f		8.4	V
Filament current	I_f		235	A
Peak filament starting current	I_{fp}	max.	1500	A
Cold filament resistance	R_{fo}		3.9	mΩ

The filament is designed to accept temporary fluctuations of +5 % and −10 %.

CAPACITANCES

Anode to filament	C_{af}	1.3	pF
Grid to filament	C_{gf}	100	pF
Anode to grid	C_{ag}	45	pF

CHARACTERISTICS measured at V_a = 8 kV, I_a = 6 A

Transconductance	S	90	mA/V
Amplification factor	μ	35	

1) When the tube has to be used at frequencies above 30 MHz the manufacturer should be consulted for more detailed information.

COOLING

See also cooling curves
With integrated boiler-condensor type K735.

Anode + grid dissipation $W_a + W_g$ (kW)	Inlet temperature t_i (^oC)	Rate of flow q_{min} (ℓ/min)	Pressure drop p_i (atm)	Outlet temperature t_o (^oC)
40	20	11	0.05	74
	35	15	0.07	74
	50	25	0.16	74
30	20	8	0.03	76
	35	11	0.05	76
	50	17	0.09	76
20	20	5	0.02	80
	35	6.7	0.03	80
	50	10	0.04	80

Air-cooling of seals is required.

To obtain optimum life, the seal/envelope temperature under continuously loaded conditions should be kept at or lower than 200 ^oC.

ACCESSORIES

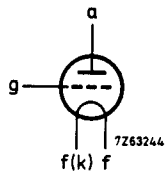
Filament connector	type	40706	net weight	390	g
Filament/cathode connector	type	40705	net weight	330	g
Filament cables (both required)	type	40718	net weight	460	g
	and				
	type	40719	net weight	475	g
Grid connector	type	40736	net weight	450	g
Boiler condenser	type	K735	net weight	70	kg

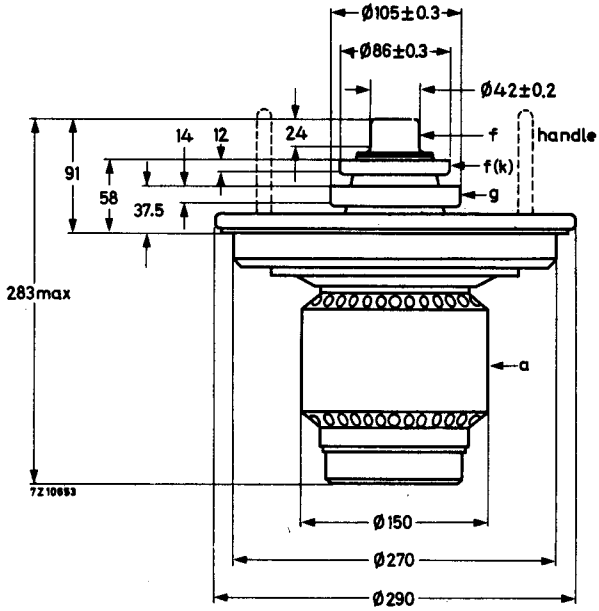
MECHANICAL DATA

Dimensions in mm

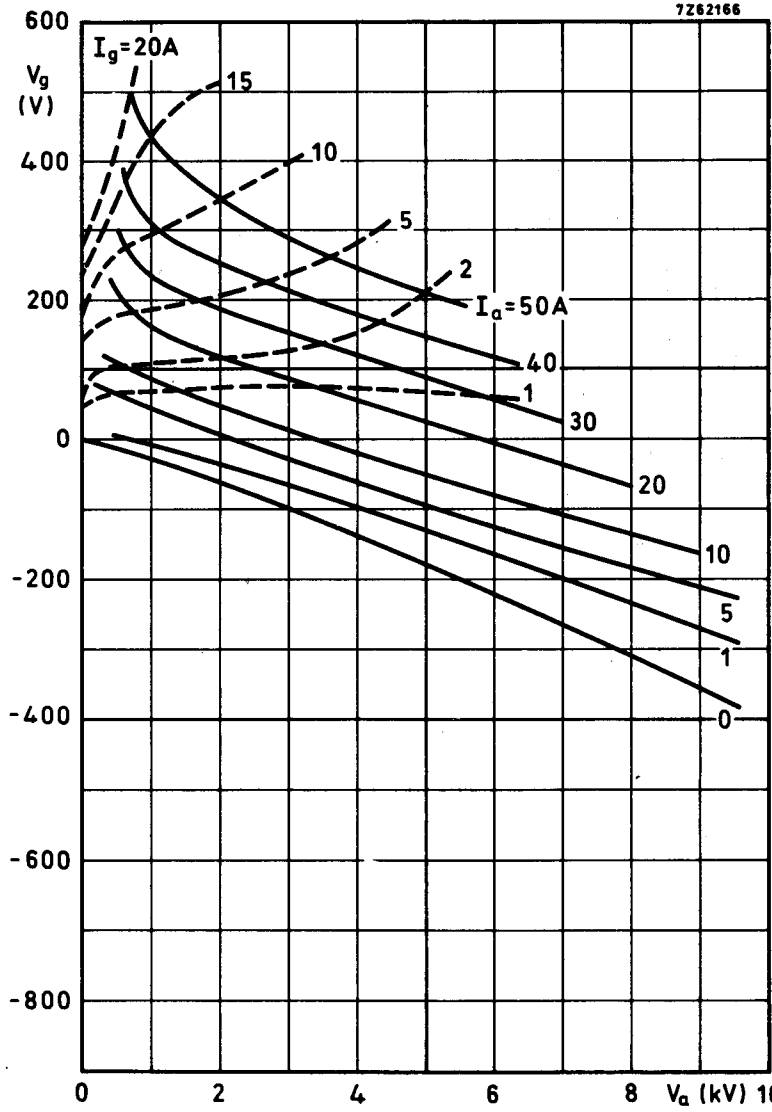
Mounting position: vertical with anode down

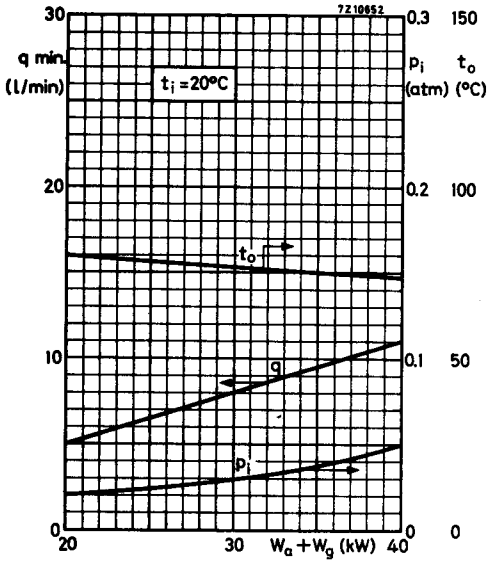
Net weight: approx 15.7 kg

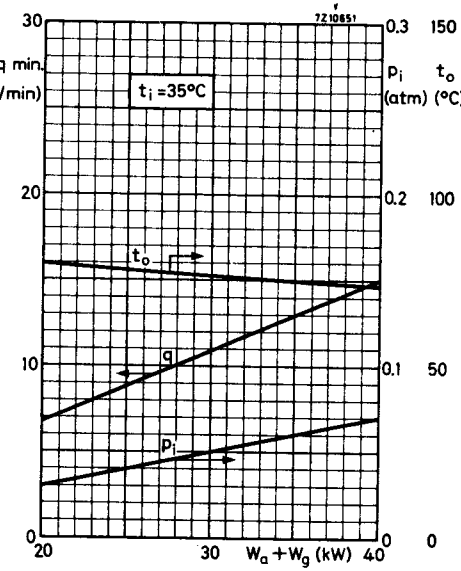


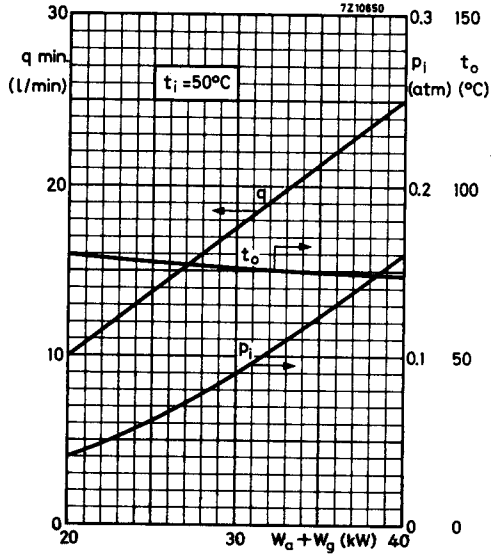


Note: The handles should be removed before switching on the tube.


7Z62166
600
400
200
0
-200
-400
-600
-800
V_g (V)
I_g=20A
15
10
5
2
I_a=50A
40
30
20
10
5
1
0
1
0
2
4
6
8
V_a (kV) 10


7Z10652
q min.
(l/min)
t_i =20°C
p_i (atm)
t_o (°C)
t_o
q
p_i
W_a+W_g (kW)


7Z10651
q min.
(l/min)
t_i =35°C
p_i (atm)
t_o (°C)
t_o
q
p_i
W_a+W_g (kW)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q min.
(l/min)
t_i =50°C
p_i (atm)
t_o (°C)
q
t_o
p_i
W_a+W_g (kW)