

QUICK REFERENCE DATA

External anode triodes of ceramic-metal construction, intended for use as industrial oscillators.

The YD1150 is forced-air cooled.

The YD1151 is water-cooled by means of a separate jacket.

The YD1152 has an integral helical water cooler.

f	160	27.12	MHz
P _{out} (less P _{drive})	3.55	4.57	kW
f max.	160		MHz
V _a max.	7.2		kV
p _a max.	2.5		kW

Unless otherwise shown, data is applicable to all types

To be read in conjunction with

GENERAL OPERATIONAL RECOMMENDATIONS - TRANSMITTING VALVES

INDUSTRIAL OSCILLATOR, CLASS 'C'

OPERATING CONDITIONS

f	160	27.12	27.12	MHz
P _{out}	3.9	4.9	4.0	kW
P _{out} (less P _{drive})	3.55	4.57	3.75	kW
P _{load}	3.1	3.7	3.3	kW
Duty factor	1.0	1.0	1.0	
η_a	78	82	80	%
V _a	5.0	6.0	5.0	kV
I _a	1.0	1.0	1.0	A
-V _g	520	625	520	V
I _g	260	250	260	mA
R _{g-f}	2.0	2.5	2.0	k Ω
Feedback ratio $v_{in(pk)}/v_{a(pk)}$	0.17	0.17	0.17	
P _{drive}	350	330	250	W
p _a	1.1	1.1	1.0	kW
p _g	120	110	100	W
V _f	6.0	6.3	6.3	V

RATINGS (ABSOLUTE MAXIMUM SYSTEM)

f max.	85	160	MHz
V_a max.	7.2	6.0	kV
$-V_g$ max.	1.0	1.0	kV
I_g max. on load	280	280	mA
off load	400	400	mA
I_k max.	1.4	1.4	A
$i_{k(pk)}$ max.	7.5	7.5	A
P_{in} max.	6.5	6.0	kW
p_a max.	2.5	2.5	kW
p_g max.	150	150	W
R_{g-f} max.	20	20	k Ω

CATHODE

Directly heated, thoriated tungsten

V_f (≤ 120 MHz)	6.3	V
(> 120 MHz)	6.0	V
I_f (measured at 6.3V)	33	A

The filament has been designed to accept temporary fluctuations of supply voltage of +5 to -10%.

CAPACITANCES

c_{a-g}	14	pF
c_{a-f}	400	mpF
c_{g-f}	17	pF

CHARACTERISTICS (measured at $V_a = 2.0$ kV, $I_a = 0.5$ A)

g_m	10	mA/V
μ	20	

MOUNTING POSITION - YD1150, YD1152
 - YD1151

Vertical, anode up or down
Vertical, anode down

COOLING

Maximum temperature of ceramic-metal seals 220 °C

YD1150 - Forced-air cooled. See curves on page C4

YD1151 - Anode water cooled using jacket type K713

Seals - low velocity air flow may be required

See curves on page C5

YD1152 - Anode water cooled with integral helical cooler

Seals - low velocity air flow may be required

See curves on page C6

V.H.F. INDUSTRIAL TRIODES

YD1150
YD1151
YD1152

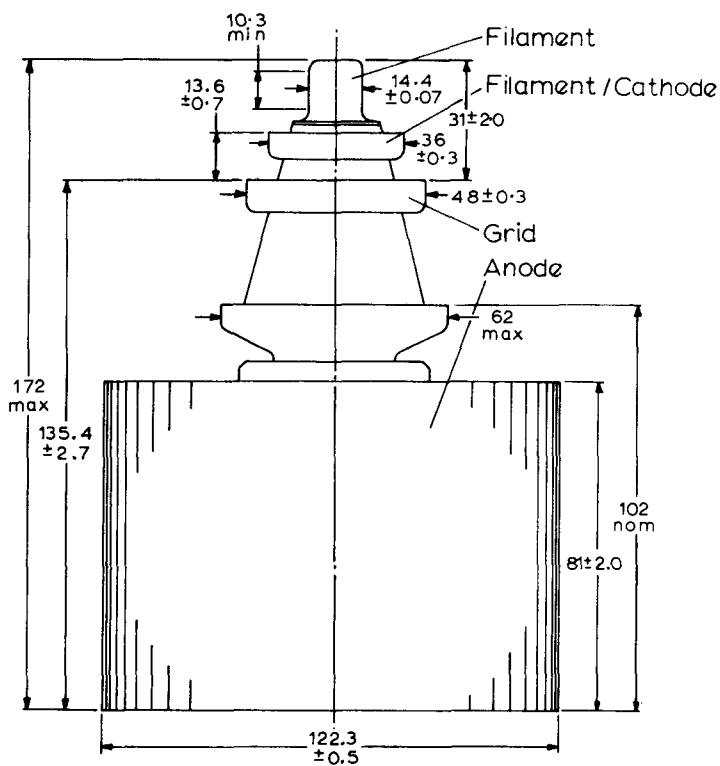
PHYSICAL DATA

	YD1150	YD1151	YD1152	
Weight of valve	6.6	1.4	1.9	lb
	3.0	0.65	0.85	kg

ACCESSORIES

Filament clip	40688
Filament/cathode clip	40689
Grid connector (f < 30MHz)	40686
Insulating pedestal (YD1150)	40630
Water jacket (YD1151)	K713



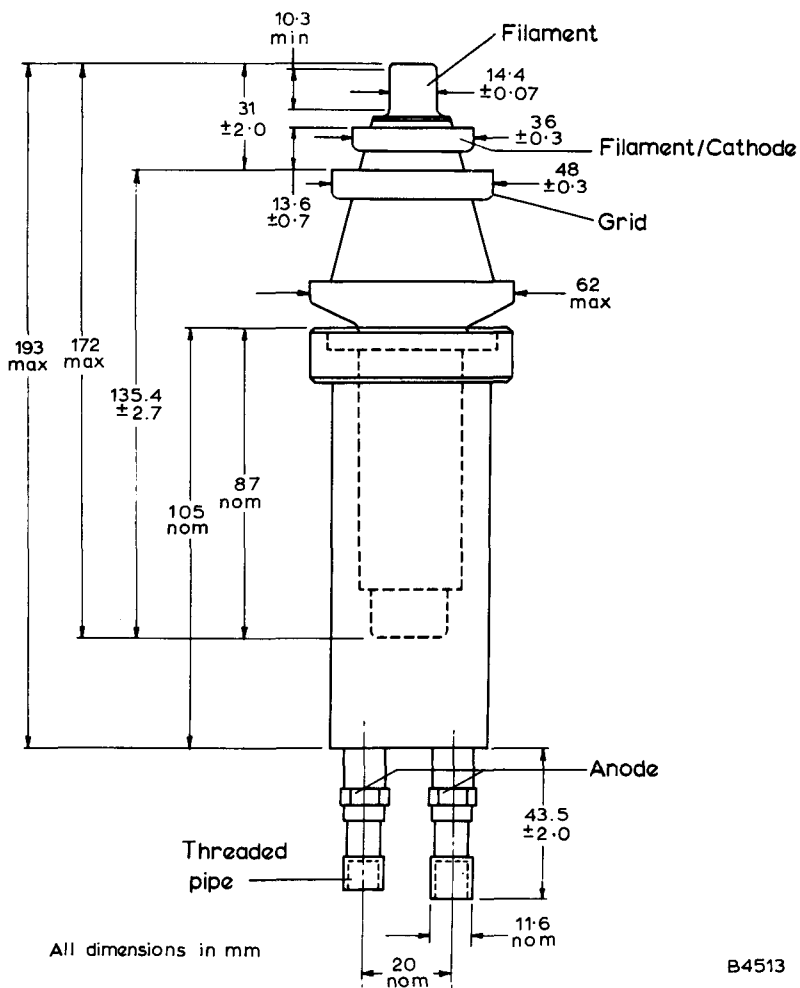


All dimensions in mm

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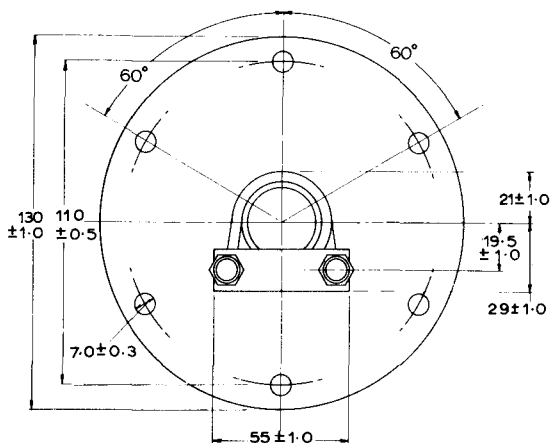
OUTLINE DRAWING OF YD1150

OUTLINE DRAWING OF YD1151 MOUNTED IN WATER JACKET K713

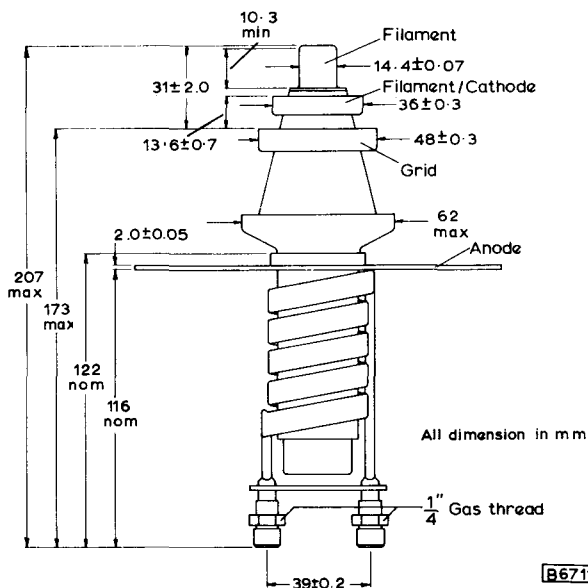


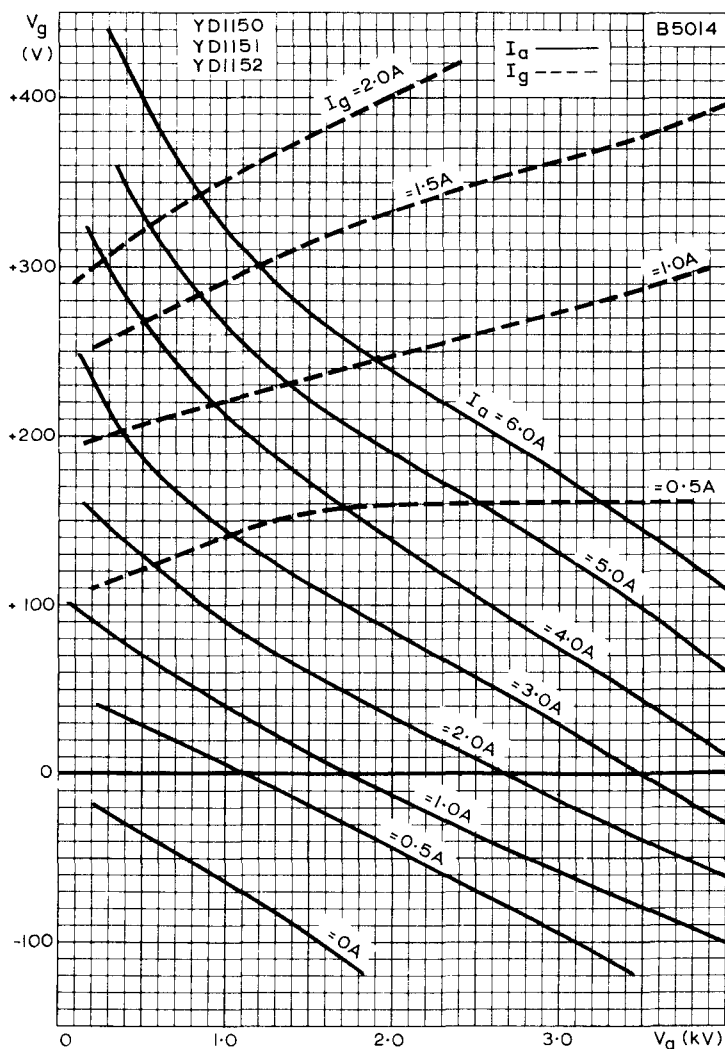
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OUTLINE DRAWING OF YD1152

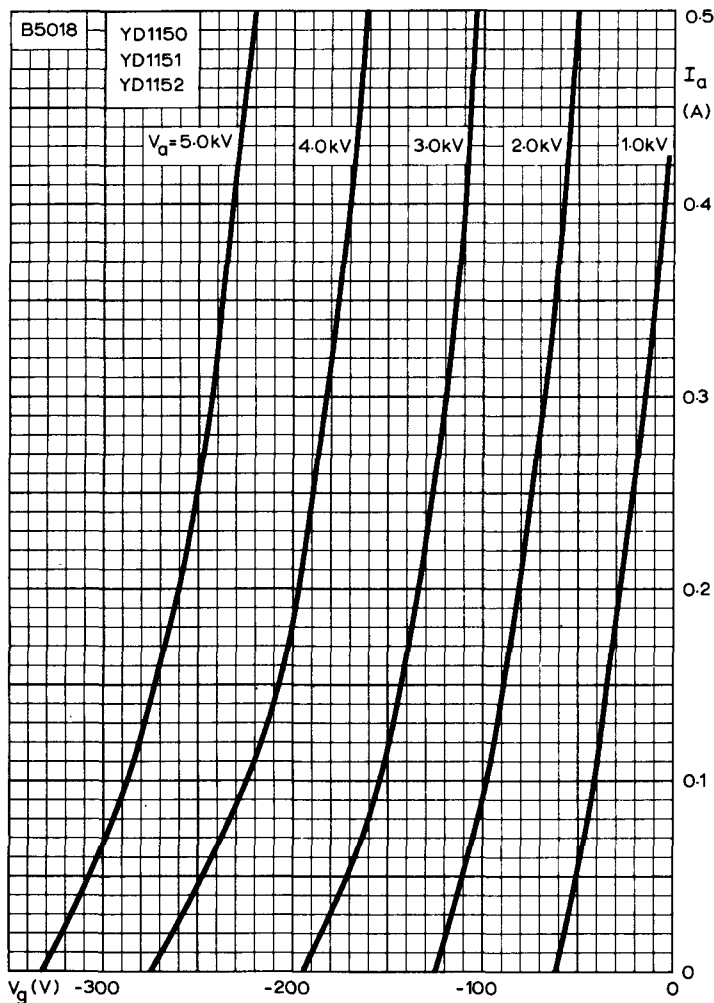


The use of wing nuts should be avoided

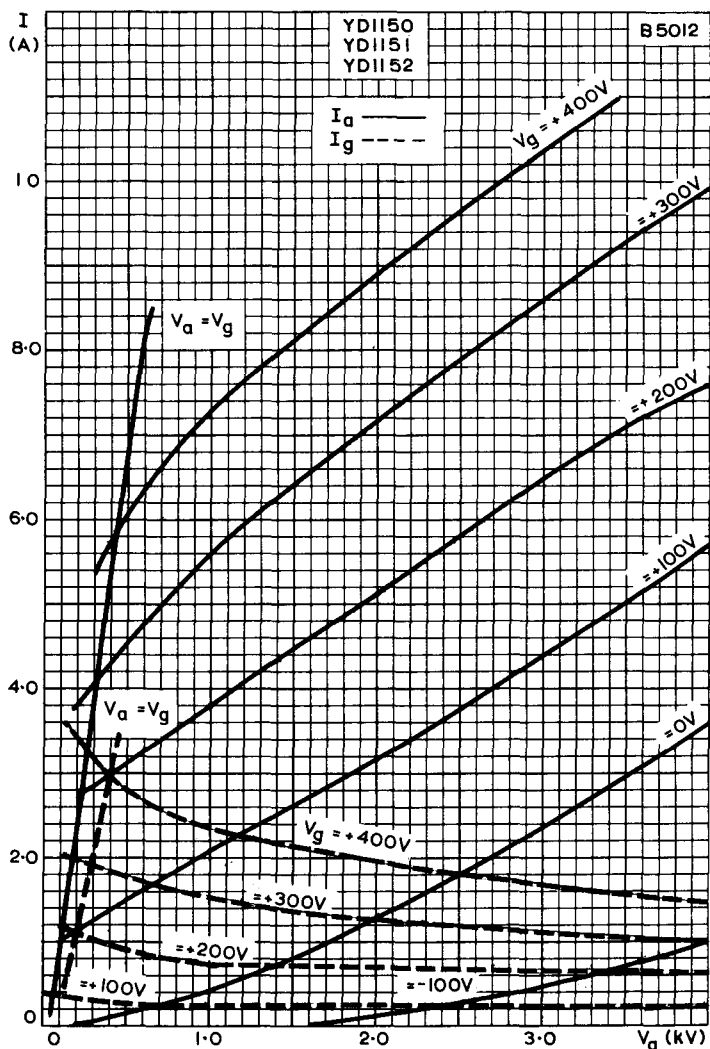




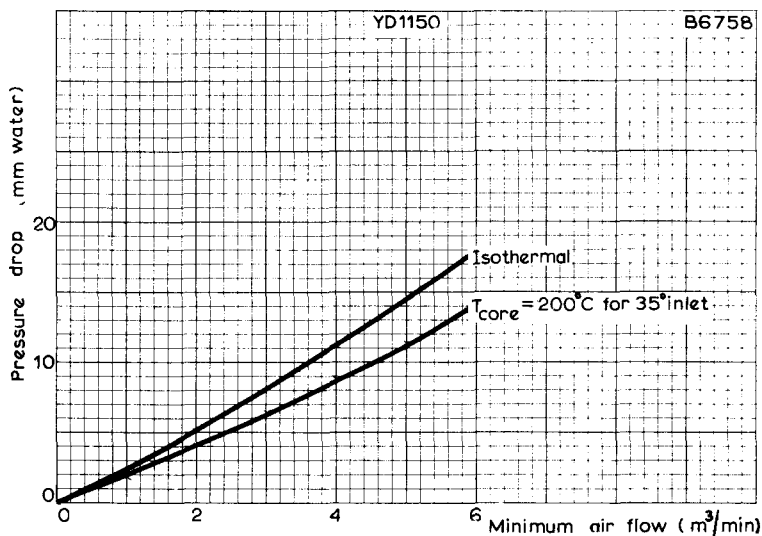
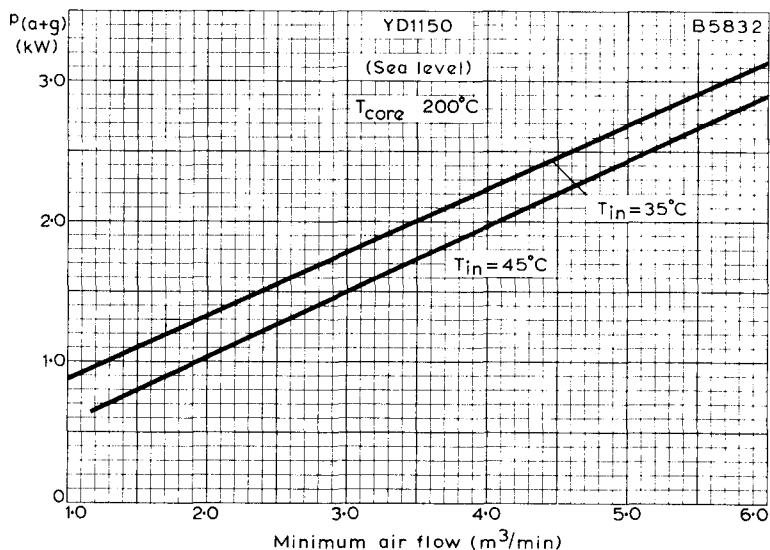
CONSTANT CURRENT CHARACTERISTICS



ANODE CURRENT PLOTTED AGAINST GRID VOLTAGE WITH ANODE VOLTAGE AS PARAMETER

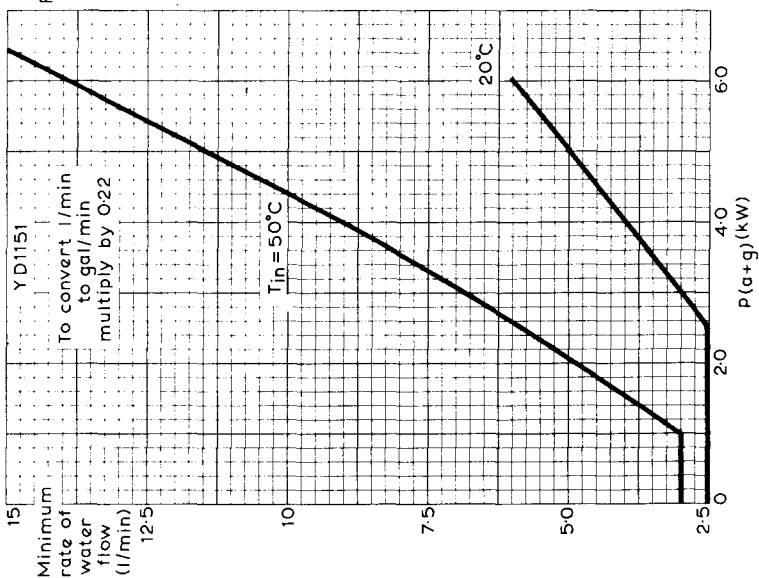
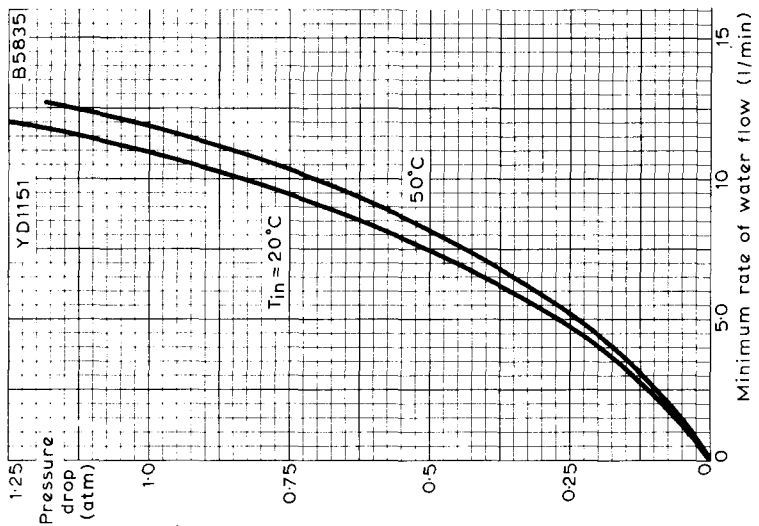


ANODE AND GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE WITH
GRID VOLTAGE AS PARAMETER



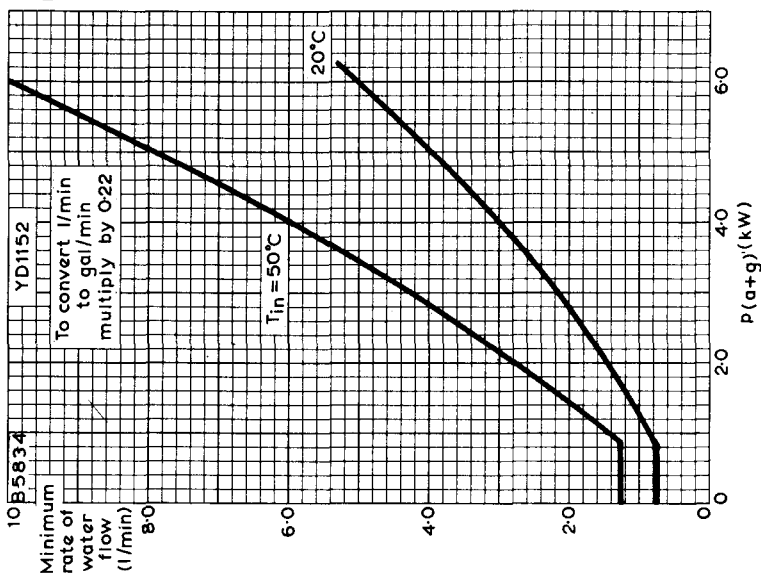
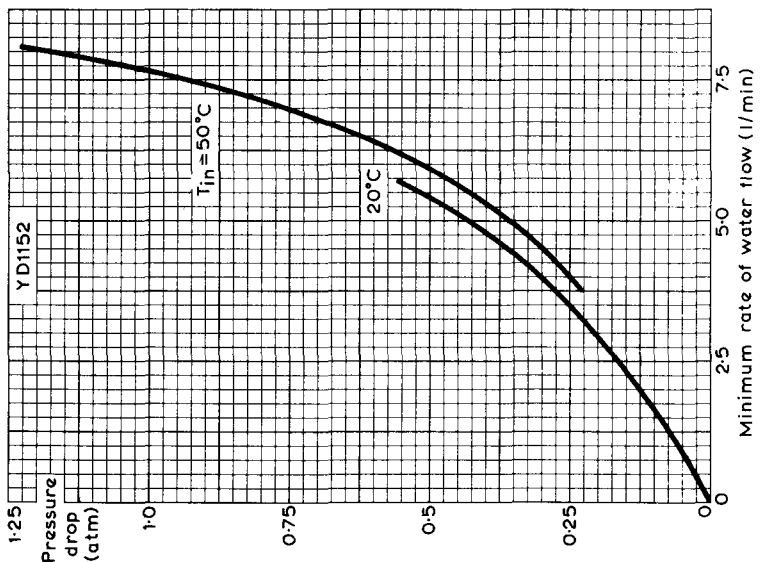
MINIMUM COOLING REQUIREMENTS AT SEA LEVEL WITH AIR INLET TEMPERATURES OF 35 AND 45°C AND A CORE TEMPERATURE OF 200°C

PRESSURE DROP PLOTTED AGAINST MINIMUM AIR FLOW FOR AN ISOTHERMAL CONDITION AND FOR A RISE IN CORE TEMPERATURE OVER INCOMING AIR OF 165°C



MINIMUM RATE OF WATER FLOW PLOTTED AGAINST ANODE AND GRID
DISSIPATION FOR $T_{in} = 20$ AND 50°C

PRESSURE DROP PLOTTED AGAINST MINIMUM RATE OF WATER FLOW
FOR $T_{in} = 20$ AND 50°C



MINIMUM RATE OF WATER FLOW PLOTTED AGAINST ANODE AND GRID DISSIPATION FOR $T_{in} = 20$ AND 50°C
 PRESSURE DROP PLOTTED AGAINST MINIMUM RATE OF WATER FLOW FOR $T_{in} = 20$ AND 50°C