



TECHNICAL DATA

M4516A

The Toshiba M4516A is a fixed frequency continuous wave magnetron, designed to operate on an unsmoothed D.C. anode supply, in the 2420 to 2480MHz frequency range with an average power output of 5.0 kilowatts.

The tube is required liquid cooling and an external magnetic field. The output fitting is designed for coupling to the rectangular waveguide or the heating cavity directly.

The tube is intended for use microwave heating, cooking and many other industrial applications.

GENERAL DATA

Electrical;

Frequency	2450 \pm 30	MHz
Heater voltage	9	V
Heater current	75	A
Cathode preheating time	240	sec
Cold heater resistance	0.01	

Mechanical;

Physical dimensions	See outline drawing
Base and electrical connection	See outline drawing
Mounting position	Cathode vertical
RF coupling	See attached drawing
Magnetic field	External
Cooling { Anode	Forced liquid
{ Cathode bushing	Forced air
Net weight	3 kg approx.
Type of cathode	Cermet cathode



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MAXIMUM RATINGS

	Minimum	Maximum	
Heater voltage (preheat)	8	10	V
Heater surge current	-	150	A
Cathode preheating time	240	-	sec
Heater voltage (operate)	Note 2		
Peak anode voltage	-	7.0	kV
Peak anode current	-	2.5	A
Average anode current	-	1.6	A _{dc}
Average anode power input	-	11.2	kW
Load VSWR	-	3	
Anode temperature (see outline drawing measurement point)	-	100	°C
Cathode bushing temperature (see outline drawing measurement point)	-	220	°C
Coolant temperature at outlet	-	70	°C
Output dome temperature	-	150	°C

TYPICAL OPERATION

	Note 1	
Frequency	2450	MHz
Heater voltage (operate)	4.5	V
Peak anode voltage	6.5	kV
Peak anode current	2.2	A
Average anode current	1.4	A
Average power output	4.8	kW
Pulling facroe (load VSWR 2.5)	8	MHz
Magnetic field strength	1300	Gauss
Cooling quantity	Anode (water)	5 l/min.
	Cathode bushing (forced air)	1000 l/min.
	Output dome (forced air)	500 l/min.

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- Note 1) All values in this sheet are given for the operation with an unsmoothed D.C. supply from a 3 phase-halfwave rectifier.
- 2) The heater voltage must be reduced immediately after applying the anode voltage according to the following schedule.

Average anode current	Heater voltage(operate)
Less than 300mA _{dc}	9.0V \pm 5%
300 - 500mA _{dc}	7.5V \pm 5%
500 - 800mA _{dc}	7.0V \pm 5%
800 - 1000mA _{dc}	6.0V
1000 - 1400mA _{dc}	4.5V



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CONSTANT VOLTAGE CHARACTERISTICS

Operating Conditions

Average anode current: Heater voltage

Less than 300mA_{dc} 9.0V

300-500mA_{dc} 7.5V

500-800mA_{dc} 7.0V

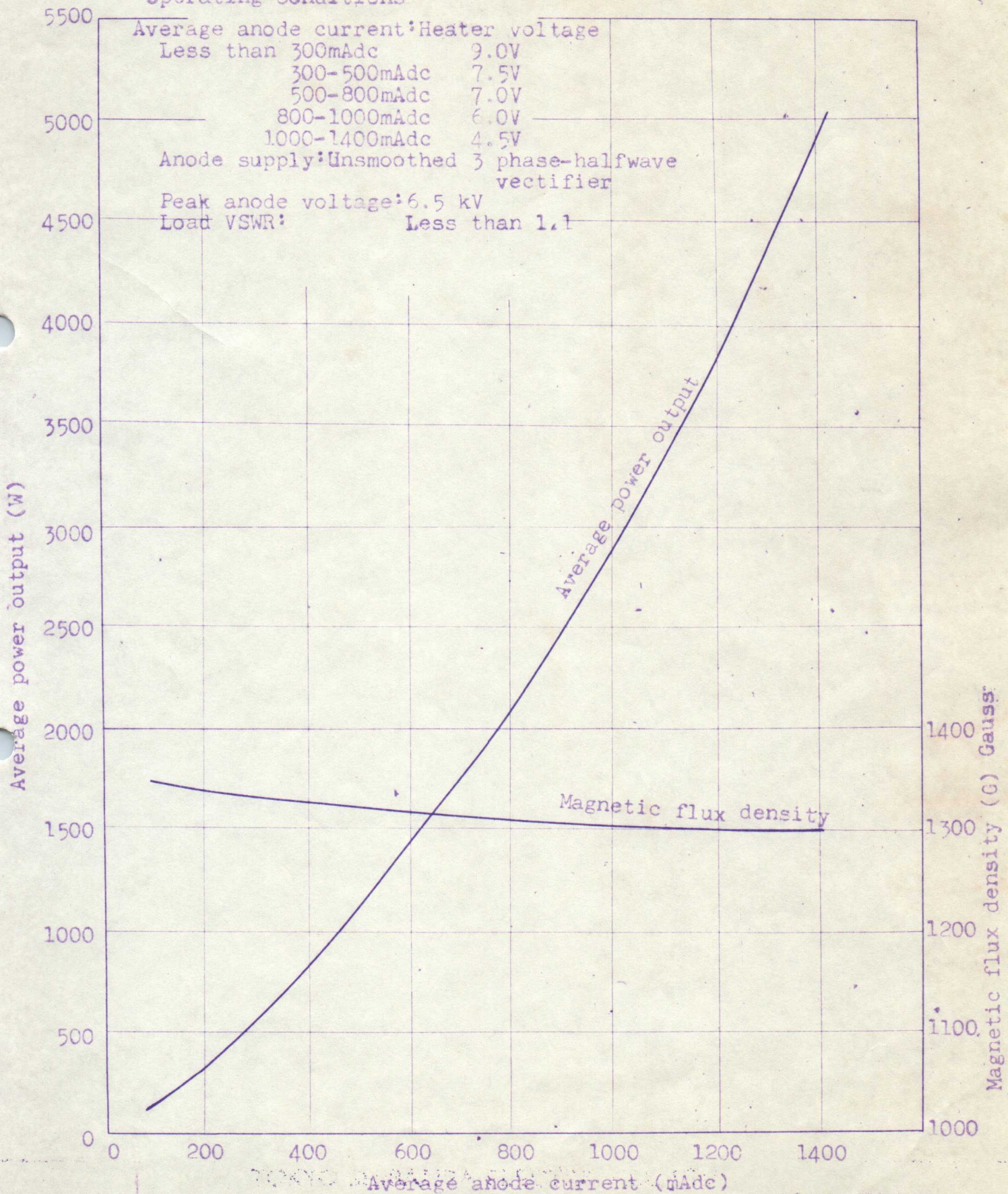
800-1000mA_{dc} 6.0V

1000-1400mA_{dc} 4.5V

Anode supply: Unsmoothed 3 phase-halfwave
rectifier

Peak anode voltage: 6.5 kV

Load VSWR: Less than 1.1



Average anode current (mA_{dc})

TOKYO SHIBAURA ELECTRIC CO., LTD.

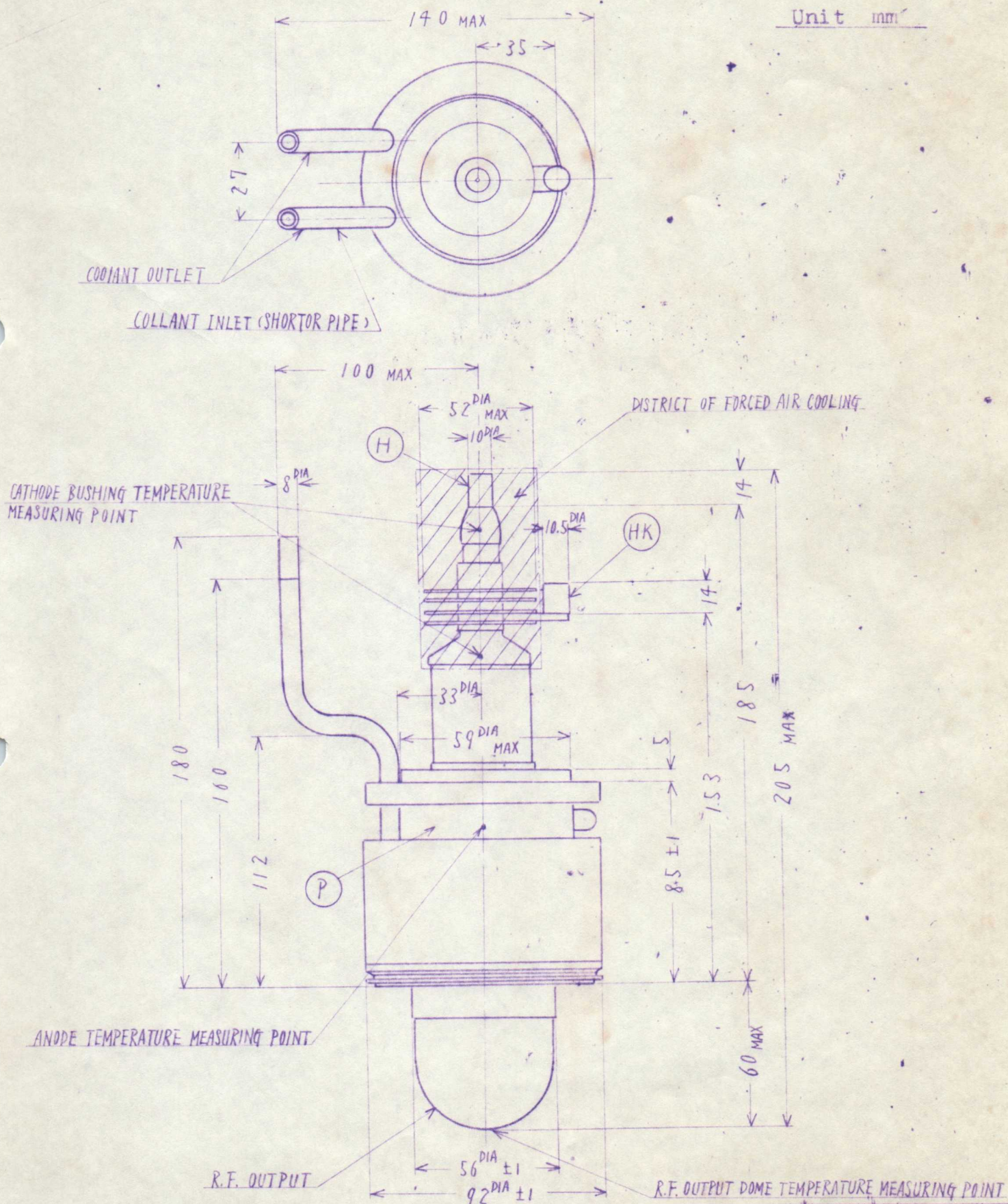


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OUTLINE DRAWING

Unit mm

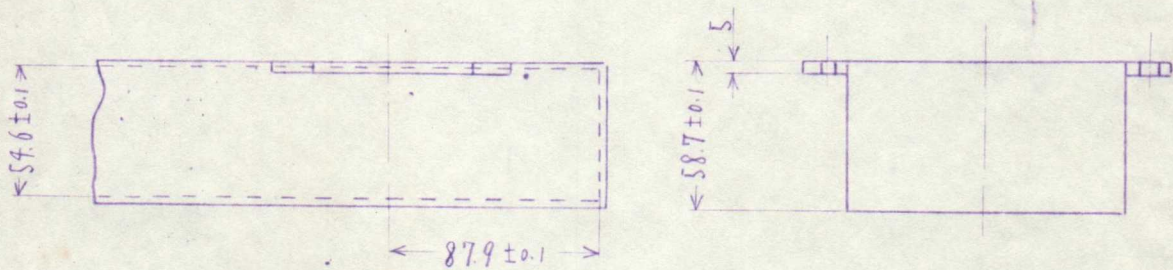
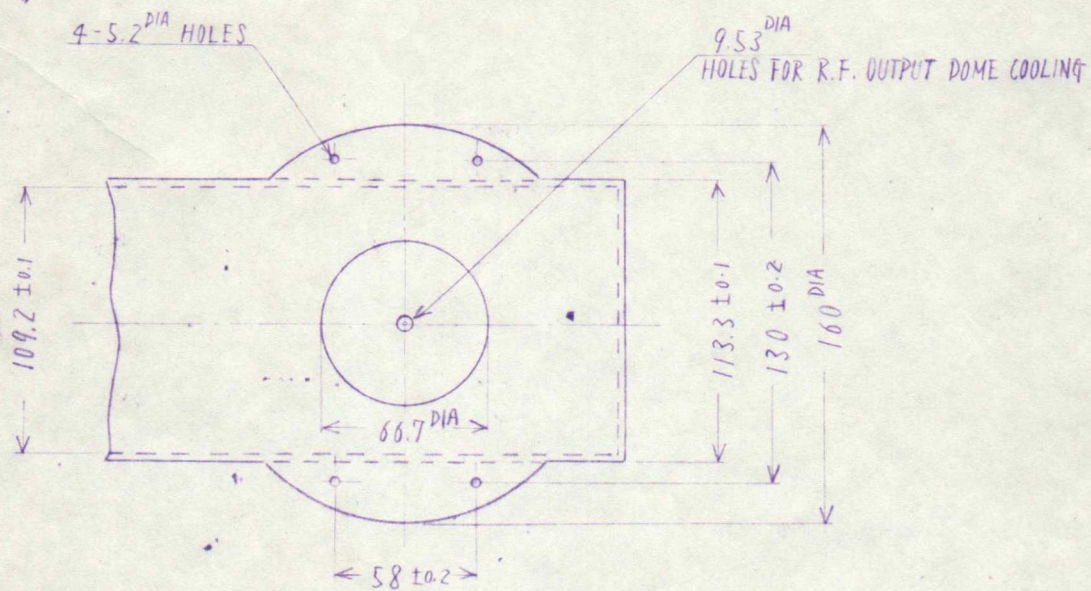


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R.F. OUTPUT COUPLER (4516-822)

Unit mm



Note. This coupler fits for waveguide WRJ -2

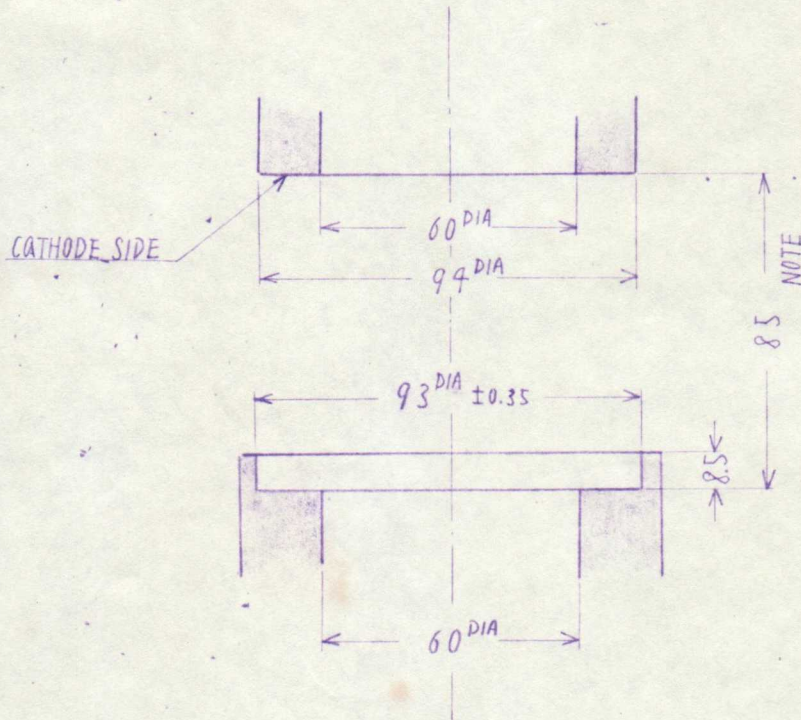


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MAGNETIC POLE PIECE

Unit mm



Note. Be adjustable ± 2mm