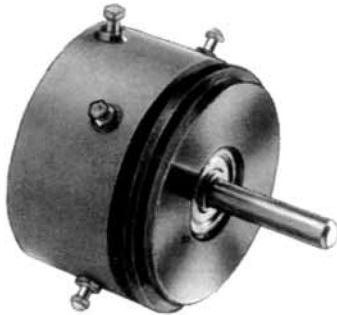


ROT

116 -BF
200 -SF **Z**

Data sheet $\frac{4}{5,657}$ E

10096



precision rotative transducer

laws:
sine and cosine / sine only / cosine only

MIL-R-39023

A comprehensive range of rotational motion transducers with trigonometric laws for industrial applications.

- SIZE 11 - 20
- CONTINUOUS MEASURE ON 360°
- LONG LIFE UP TO 40 10⁶ CYCLES
- CONFORMITY FROM ±1 % down to ±0,35 %
- BUSHING OR SERVO MOUNTING

Size	11		20	
Model	116 SF / Z - S - C	116 BF / Z - S - C	200 SF / Z - S - C	200 BF / Z - S - C
Law	Z: sine and cosine / S: sine (only) / C: cosine (only)			

ELECTRICAL CHARACTERISTICS

Theoretical electrical angle (TEA) = 360°	actual electrical angle (AEA) = TEA	
Conformity peak to peak	A ≤ ±1 %; B ≤ ±0,5 %; down to ≤±0,35 %	
Number of cups	up to 2	
Ohmic values (R _T per quadrant)	1 kΩ; 5 kΩ; 10 kΩ; on request other values	
Ohmic value tolerances at 20°C	± 20 %	
Output smoothness	≤0,05 %	
Maximum power rating at 70°C	1,5 W	3 W
Wiper current	recommended: a few μA - 1 mA max. (continuous)	
Ground taps	on request	
Resistance load on wiper	minimum 10 ³ x R _T	
Resolution	essentially infinite	
Insulation resistance	≥1000 MΩ 500 V DC	
Dielectric strength	≥500 V RMS 50 Hz	

MECHANICAL SPECIFICATIONS

Mechanical angle (MA)	360° continuous			
Mounting type	servo	bushing	servo	bushing
Shaft guiding	ball bearings	sleeve bearings	ball bearings	sleeve bearings
Shaft	stainless steel			
Housing	plastic moulding			
Termination	turrets			
Wiper	precious metal multi-finger contact			
Starting torque (N.cm)	1 cup	≤0,3	≤0,5	≤0,4
	2 cups	≤0,5	≤0,8	≤0,6
				≤0,9
Weight (g)	30 ±2 (1 cup) + 17 ±2 (2 cups)		100 ±3 (1 cup) + 26 ±3 (2 cups)	

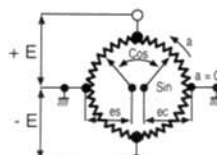
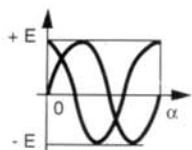
PERFORMANCES

Life (10 ⁶ cycles)	≥40	≥20	≥40	≥20
Temperature range	-55°C, +125°C			
Climatic category	55 / 125 / 04			
Speed rotation (RPM)	600	150	600	150
Sine vibrations on 3 axes	1,5 mm or 20 g from 10 Hz to 2000 Hz			
Mechanical shocks on 3 axes	50 g - 11 ms - half sine			

trigonometric functions

Sine/cosine
over 360°

LAW Z

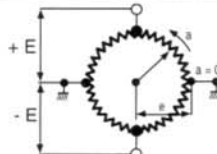
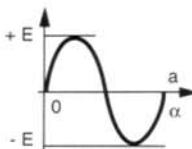


$$\frac{e_s}{E} = \sin a \quad \frac{e_c}{E} = \cos a$$

$$0^\circ \leq \alpha \leq 360^\circ$$

Sine
over 360°

LAW S

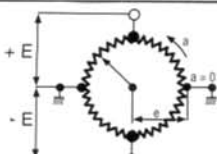
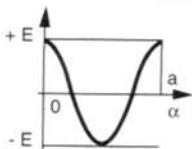


$$\frac{e_s}{E} = \sin a$$

$$0^\circ \leq \alpha \leq 360^\circ$$

Cosine
over 360°

LAW C



$$\frac{e_c}{E} = \cos a$$

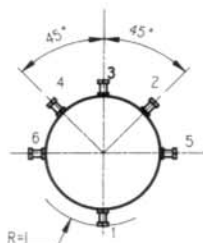
$$0^\circ \leq \alpha \leq 360^\circ$$

Dimensions in mm.
General tolerance $\pm 0,5$ mm.

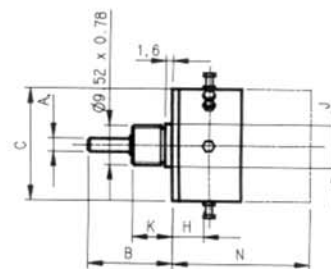
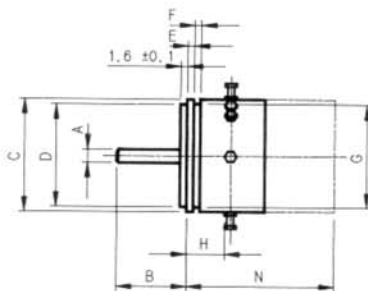
116 SF Z

SIZE 11

116 BF Z



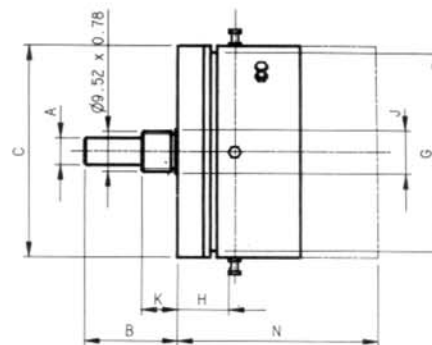
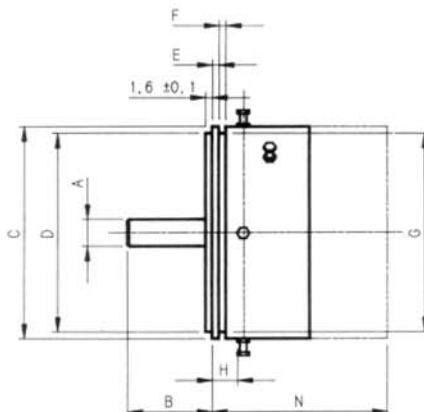
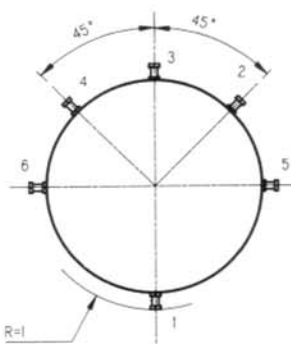
- 1: Feeding (+)
- 2: Feeding (-)
- 3: Wiper sinus
- 4: Wiper cosinus
- 5: Ground tap (on request)
- 6: Ground tap (on request)



200 SF Z

SIZE 20

200 BF Z



Designation	Dimensions mm A $+0 -0,013$	B max.	C max.	D $+0 -0,013$	E $\pm 0,1$	F min.	G max.	H min.	I max.	J $+0 -0,02$	K max.	N max. (1 cup)	N max. (2 cups)
116 SF Z	3,175	16,6	27,05	24,608	1,6	1,5	24,8	4,5	-	-	-	18,5	35
116 BF Z		20	27,05	-	-	-	-	3	29,3	10,3	9,6	16,5	33
200 SF Z	6,345	16,6	51	47,625	2,4	2,2	47,6	7	-	-	-	23,1	41,5
200 BF Z		20	47,6	-	-	-	47,6	13	29,3	10,3	9,6	29,5	48

ORDERING PROCEDURE

SERIES	MODEL	MOUNTING TYPE	CONDUCTOR	LAW	NUMBER OF CUPS	CONFORMITY	OHMIC VALUE	MODIFICATIONS
ROT	116	S	F	Z	1	A	502	W...
		S: Servo B: Bushing	F: Plastic	Z: Sine/Cosine S: Sine C: Cosine	2 max.	A $\pm 1\%$ B $\pm 0,5\%$	First 2 digits are significant numbers 3rd digit indicates number of zeros	Special feature code number