VISHAY

SFERNICE

ECO

ECO

MIL-R 39023
NF C 93-255

precision rotative transducer

– conductive plastic, economic series

The "ECO" models are a comprehensive range of rotational motion transducers for industrial applications.

- **SIZE 05 - 09 - 13**
- **ACCURACY ±1 % down to ±0,25 %**
- **REASONABLE COST**
- **BUSH OR SERVO MOUNTING**
- **LONG LIFE**
- **REAR MOUNTED TERMINALS**

All mechanical and electrical parameters can be adapted to meet your specifications.

Size	05		09			13		
Model	**50 ES**	**50 CB**	**78 ES**	**78 CS**	**78 CB**	**156 ES**	**156 CS**	**156 CB**

ELECTRICAL CHARACTERISTICS

Theoretical electrical angle (TEA)	actual electrical angle (AEA) −2°							
Independent linearity (over TEA)	A ≤ ± 1 %; B ≤ ± 0,5 %; C ≤ ± 0,25 %							
Actual electrical angle (AEA)	330° ±5°		340° ±5°			350° ±3°		
Ohmic values (R_T)	1 kΩ; 5 kΩ; 10 kΩ; on request other values							
Ohmic value tolerances at 20°C	±10 %	±20 %	± 10%	± 20%		±10%	±20%	
Output smoothness	≦ 0,05 %							
Maximum power rating at 70°C	0,5 W		1 W			1,5 W		
Wiper current	recommended: a few µA - 1 mA max. (continuous)							
Tap (current or voltage)	NA		1 on request					
Resistance load on wiper	minimum 10^3 x R_T							
End voltage	≦0,2%	≦0,5%	≦0,2%	≦ 0,5%		≦ 0,2%	≦ 0,5%	
Insulation resistance	≧1000 MΩ 500 V DC							
Dielectric strength	≧500 V RMS 50 Hz							

MECHANICAL SPECIFICATIONS

Mechanical angle (MA)	360° continuous							
on request: stops	NA		340° ± 3°			350° ± 3°		
Mounting type	servo	bushing	servo		bushing	servo		bushing
Shaft guiding	ball bearings	sleeve bearings	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)	≦0,2	≦0,5	≦ 0,2	≦ 0,5		≦ 0,2	≦ 0,5	
Torque on stops (N.cm)	50							
Weight (g)	5 ±2	8 ±2	13 ± 2		17 ± 2	29 ± 2		34 ± 2
Moment of inertia (g.cm²)	≦ 0,5		≦ 1			≦ 2		

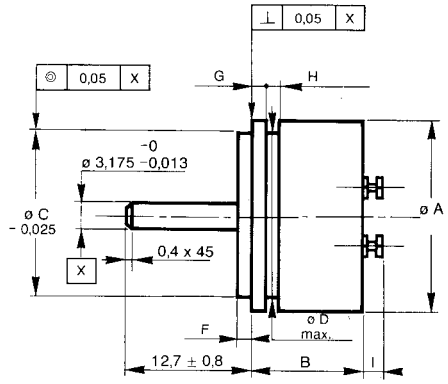
PERFORMANCES

Life (10^6 cycles)	40	20	40	20		40	20	
Temperature range	−55°C, +125°C							
Climatic category	55 / 125 / 04							
Speed rotation (RPM)	600	150	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							

"ECO"

SIZE 05/09/13

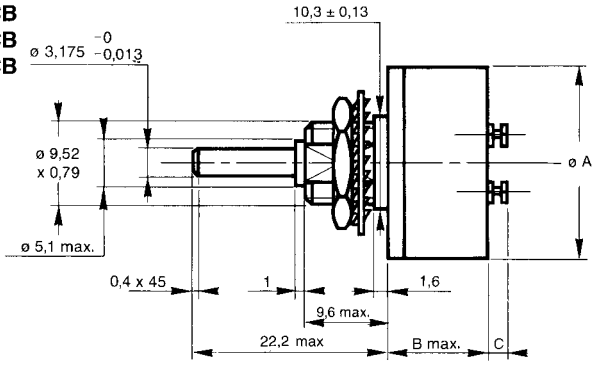
50 ES
78 ES
78 CS
156 ES
156 CS



DIMEN-SIONS	DESIGNATION	SIZE 05	SIZE 09		SIZE 13	
		50 ES	78 ES	78 CS	156 ES	156 CS
Ø A	Ø housing	12,7	22,2		33,3	
B	length	13,0	13,5		18,0	
Ø C	Ø pilot	9,525	19,05		30,16	
Ø D max.	Ø groove	11,45	19,64		30,9	
F	flange thickness	1 ± 0,1	1,6 ± 0,1			
G	shoulder	1,2 ± 0,1	1,6 ± 0,1			
H	dia. of groove	1,2 ± 0,2	1,5 min.			
I max.	height of the turret	2,5	2,5		3,6	

SIZE 05/09/13

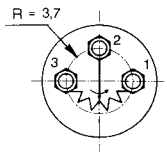
50 CB
78 CB
156 CB



DIMEN-SIONS	DESIGNATION	SIZE 05	SIZE 09	SIZE 13
		50 CB	78 CB	156 CB
Ø A	Ø housing	12,7	22,2	33,3
B max.	length	11	11,5	16
C max.	height of the turret	2,5	2,5	3,6

REAR VIEWS

SIZE 05



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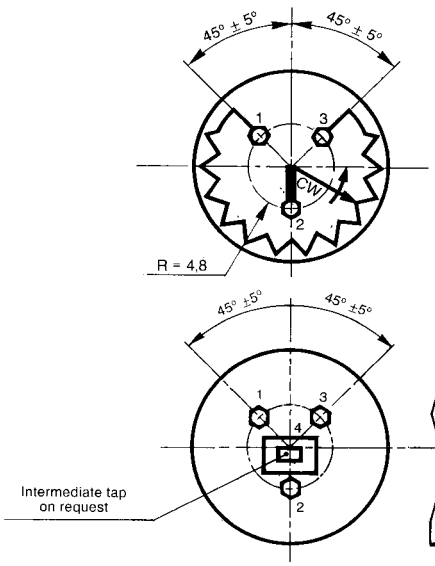
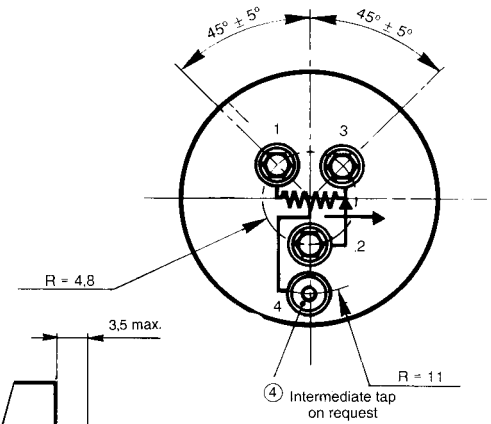


SIZE 13



Dimensions in mm.
General tolerance ±0,5 mm.

ORDERING PROCEDURE

SERIES	MODEL	TYPE	FIXATION	LINEARITY	TAP	OHMIC VALUE	MODIFICATION
ECO	78	E	S	A	T	103	W...
		E = Ball bearings C = Sleeve bearings	S: Servo B: Bushing	A ±1% B ±0,5% C ±0,25%	on request T: voltage U: current position to be specified	First 2 digits are significant numbers 3rd digit indicates number of zeros	Special feature code number

VISHAY S.A.
International Department
199, Boulevard de la Madeleine
B.P. 1159
F 06003 NICE CEDEX 1
Tel. : (33) 04 93 37 27 27
Fax. : (33) 04 93 37 27 26

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