numatics®

CST Series

Stopper Cylinders

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EMERSON
Industrial Automation

Table of Contents

CST Series

CST Series Stopper Cylinders

Features

- Magnetic piston is included as a bold standard feature.
- Rugged body is machined from aluminum extrusion and mounts rigidly to equipment using minimal space.
- A variety of styles are offered to meet different application requirements.
- The direction of rollers are adjustable for use in different applications.
- Shock absorbers are available as safety stops.
- Magnetic sensors can be mounted on cylinder surfaces when input signals are required for controllers.

Standard Stroke Table

Bore	Standard Stroke
32mm	20mm
40mm	30mm
50mm	30mm

Specifications

Action	Double Acting, Magnetic Piston
Bore Size	32, 40 and 50 mm
Operating Media	Compressed air
Max. Operating Pressure	145 psi (10 bar)
Piston Speed	50 - 100 mm/sec
Temperature Range	-10ºC to + 70ºC (14ºF to 158ºF)
Cushion	Buna-N bumpers at both ends
Stroke Tolerance	+1.4/-0
Sensors	See pages 8 & 9 for information

How To Order

CST 32 020 L A 2 2 1 N X

Cylinder Series

Bore Diameter
32 = 32 mm
40 = 40 mm
50 = 50 mm

Stroke
020 = 20 mm
030 = 30 mm

Standard Strokes
20 mm - 32 mm bore
30 mm - 40-50 mm bore

Type
J = Round Bar End
K = Non-Rotating
L = Roller
M = Lever
N = Lever with Lock-out Cap
P = Lever with Latch
Q = Lever with Latch and Lock-out Cap

Functions (Single Rod)
A = Double Acting
B = Double Acting, w/Spring Extended Rod
C = Single Acting, w/Spring Extended Rod

Piston Seal Options
2 = Standard Seals with Magnet

Roller Option
1 = Without Roller
2 = Standard : Delrin®

Rod Seal Option
1 = Standard Rod Seal

Port Options
N = NPT Ports
P = BSPT Ports

Environment Options
X = No Option

Delrin® is a registered trademark of DuPont.
*Call DuPont for general information (800) 441-0575 for information regarding properties of Delrin®

Example Order:

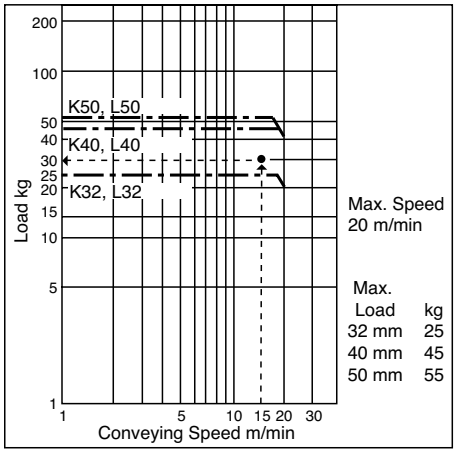
CST 32020 LA221NX

CST = Series
32 = 32mm Bore
020 = 20mm Stroke
L = Roller Type
A = Double Acting
2 = Standard Seals with magnet
2 = Standard : Delrin Roller
1 = Standard Rod End Seal
N = NPT Ports
X = No Environment Options

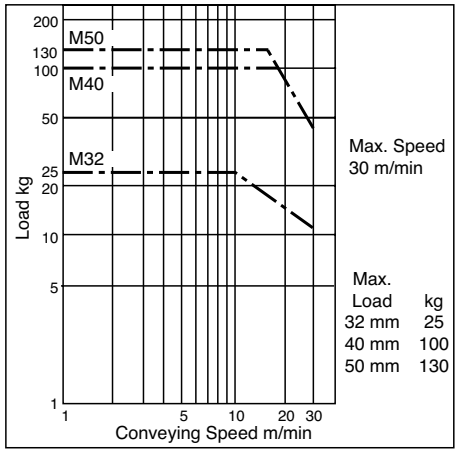
Note: Please order sensors separately from the tables on pages 8 and 9.

Selection Guide

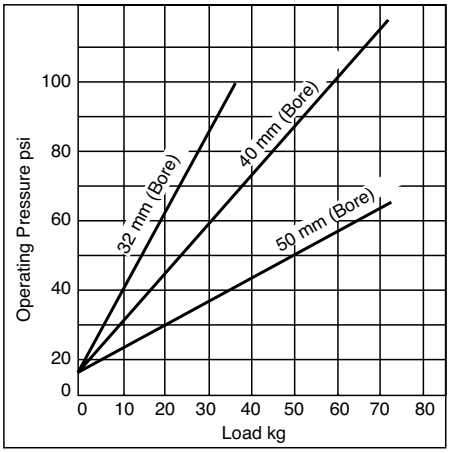
Round Bar, Non-Rotating or Roller Style



Lever (with shock absorber) Style



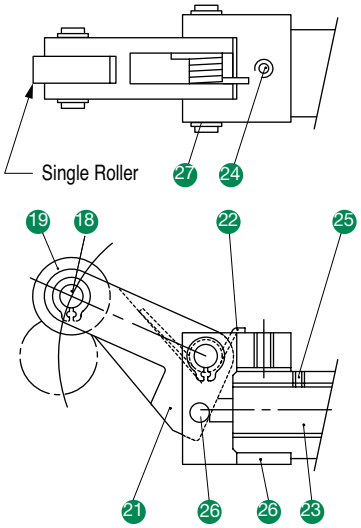
Min. Operating Pressure for Load & Model



Conversions: 1 Kg = 2.2 lbs; 1m = 3.3 ft

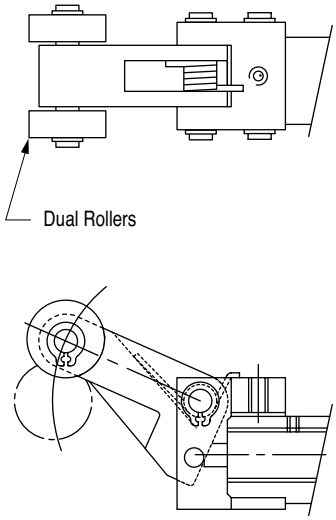
Example:
Roller Style Stopper Cylinder with 30 kg load moving at 15 m/min. Locate intersection of conveying speed & load in the chart (shown as black dotted lines on the chart). Choose nearest next larger size, for the model which is acceptable for the application.

Approximate Weight (Lbs)						
Bore mm	Rod End Style	Stroke				
		10	15	20	25	30
ø32	Round Shaft, Non-Rotating, Roller	0.92	0.97	1.01	–	–
	Lever	1.12	1.17	1.21	–	–
ø40	Round Shaft, Non-Rotating, Roller	–	–	1.62	1.76	1.89
	Lever	–	–	2.13	2.22	2.31
ø50	Round Shaft, Non-Rotating, Roller	–	–	2.26	2.35	2.44
	Lever	–	–	2.77	2.86	2.95

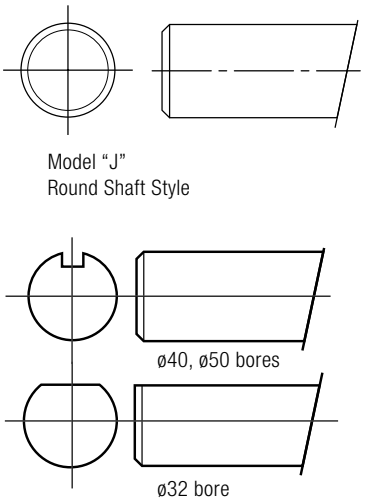


Model "M" Lever style
ø32 – Single Roller

† Shock absorber (No. 23) is a standard feature of all Lever Style Models. It is easily removed for screw adjustment of the damping characteristics.



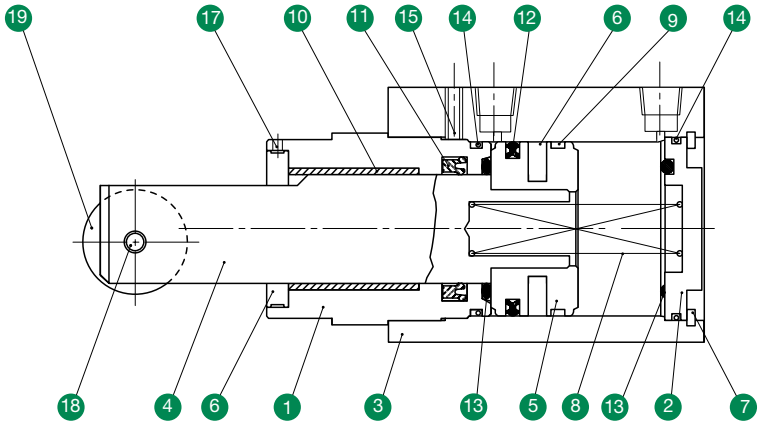
Model "M" Lever style
ø40, ø50 – Dual Rollers



‡ Model "K" Non-Rotating style:
ø32 Bore - Flatted shaft with matching plate;
ø40 & ø50 bores - pin, roller & slot in shaft.

Non-Rotating plate (No. 16) can be released from locking set screws to orient rod flat on non-rotating (K), rollers (L) or lever (M, N or P) to other positions.

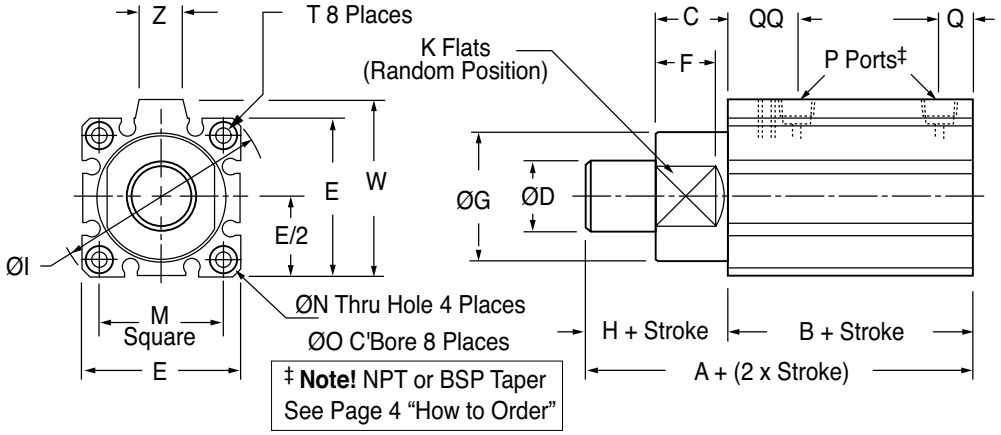
Roller Style (L) – Function "B" shown



Quick Reference to Components							
No.	**Description**	**Material**	**Qty.**	**No.**	**Description**	**Material**	**Qty.**
1	Front end cover	Anodized aluminum alloy	1	15	Set screw	Carbon steel	1
2	Rear end cover	Anodized aluminum alloy	1	16	Non-Rotating plate ‡	Delrin®	1
3	Housing	Anodized aluminum alloy	1	17	Set screw	Carbon Steel	1
4	Piston rod	Hard chrome plated carbon steel	1	18	Pin	Hardened alloy steel	2
5	Piston	Aluminum alloy	1	19	Roller	Delrin®	See Dwg.
6	Magnet	Magnet	1	20	Connector	Cast Iron	1
7	Snap ring	Carbon steel	1	21	Driven block	Carbon steel	1
8	Spring	Piano Wire	1	22	Spring	Piano wire	1
9	Wear ring	Synthetic resin	1	23	Shock absorber †	–	1
10	Bushing	Oil filled, sintered bronze	1	24	Set screw	Carbon steel	2
11	Seal	Buna-N	1	25	Set screw †	Carbon steel	1
12	Seal	Buna-N	1	26	Steel ball	Carbon steel	1
13	O' Ring	Buna-N	2	27	Snap ring	Carbon steel	4
14	O' Ring	Buna-N	1				

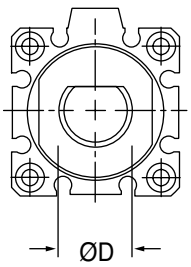
Dimensions: Inches (mm)

Round Shaft Style (J)

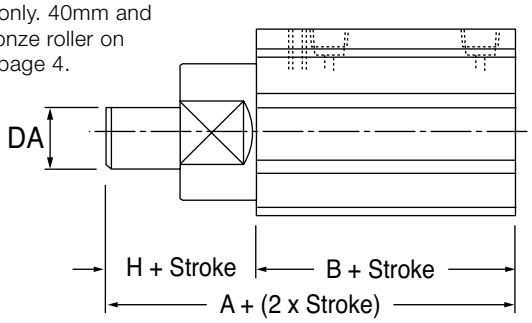


‡ **Note!** NPT or BSP Taper
See Page 4 "How to Order"

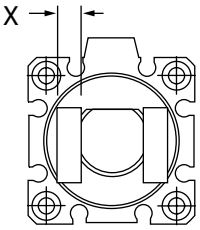
Non-Rotating Style (K)

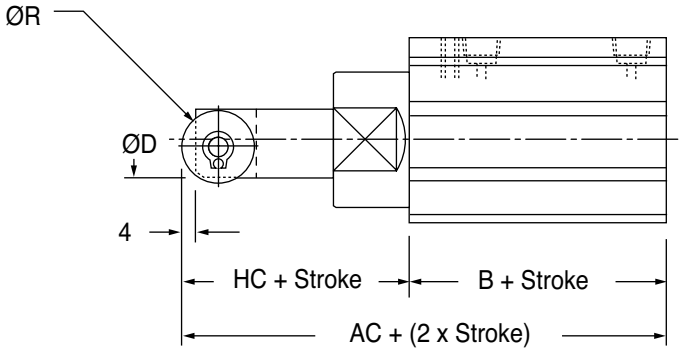


DA applies to 32mm only. 40mm and 50mm use Ø7mm bronze roller on pin in shaft slot. See page 4.



Roller Style (L)





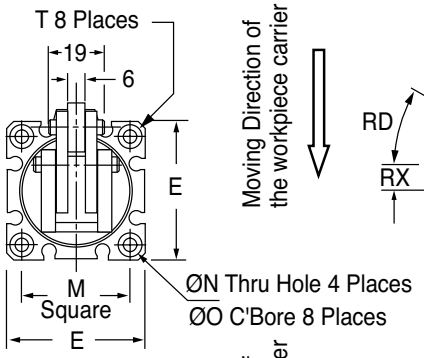
Bore (mm)	A	AC	B	C	ØD	DA	E	F	ØG	H	HC	I	K	M
Ø32	68	88.5	48	20	20	18	45	13	36	20	40.5	60	32	34
Ø40	80.5	106	52.5	28	25	–	52	15	44	28	53	69	41	40
Ø50	82	107	54	28	25	–	64	15	56	28	53	86	50	50

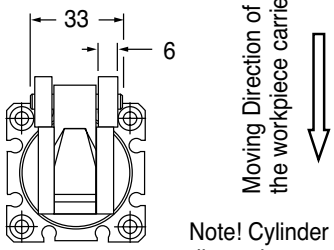
Bore (mm)	ØN	ØO	P	Q	QQ	ØR	T Threads	W	X	Z
Ø32	5.5	9 x 7 dp	1/8	9	20	20	M6 x 1.0 - 10 dp	49.5	6	18
Ø40	5.5	9 x 7 dp	1/8	10	24.5	24	M6 x 1.0 - 10 dp	57	8	18
Ø50	6.6	11 x 8 dp	1/4	10	24.5	24	M8 x 1.25 - 14 dp	71	8	22

Lever Style (M)

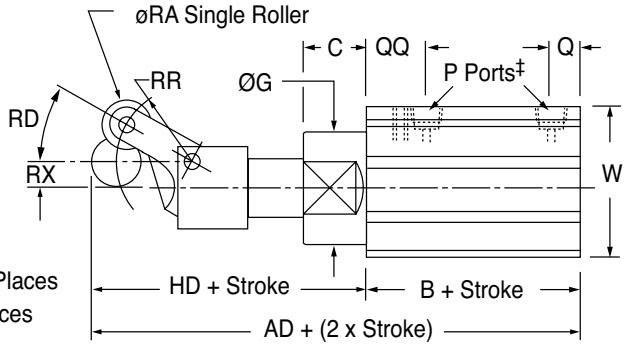
Ø32
Single Roller

Ø40, Ø50
Dual Rollers

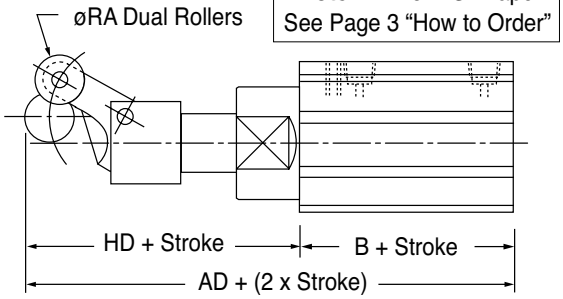




Note! Cylinder housing dimensions not shown are the same as Round Shaft (J)



‡ **Note!** NPT or BSP Taper
See Page 3 "How to Order"



Lever Style (N) – with lockout cap

A ball-chain retained lockout cap fits over the shock absorber stem to position the roller out of the conveyor stream.

Lever Style (P) – with latch

When a work piece pushes the lever through the shock absorber stroke, the latch locks the lever in alignment to the rod. This reduces additional strokes to the shock absorber. The latching mechanism is released when the rod fully retracts.

Lever Style (Q) – with latch and lockout cap.

Latch is the same as (Q);
lockout cap is the same as (N).

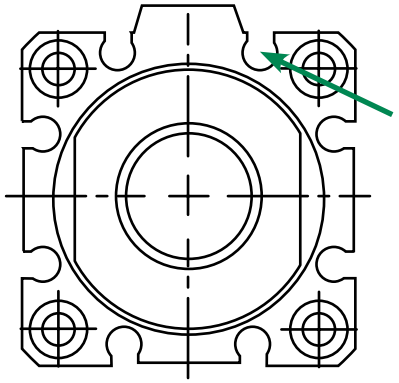
Bore (mm)	AD	B	C	E	ØG	HD	M	ØN	ØO
ø32	120.5	48	20	45	36	72.5	34	5.5	9x7 dp
ø40	152.5	52.5	28	52	44	100	40	5.5	9x7 dp
ø50	154	54	28	64	56	100	50	6.6	11x8 dp

Bore (mm)	P	Q	QQ	ØRA	RD	RR	RX	T Threads	W
ø32	1/8	9	20	15	30°	28	10.5	M6 x 1.0 - 10 dp	49.5
ø40	1/8	10	24.5	20	24°	38	14	M6 x 1.0 - 10 dp	57
ø50	1/4	10	24.5	20	24°	38	14	M8 x 1.25 - 14 dp	71

Magnetically Actuated Sensors

Magnetic Piston is a standard feature of Numatics stopper cylinders. When position sensing is desired for input to signal controllers, Numatics sensors mount easily and securely in slots on the cylinder body.

Round Profile Sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds. They slide into mating 4mm keyhole slots on either side of the cylinder housing and are easily positioned and locked in place with a set screw. They are offered in two styles: a quick connect style with a 6 inch pigtail and male connector, or a pre-wired style with a 9 foot lead.



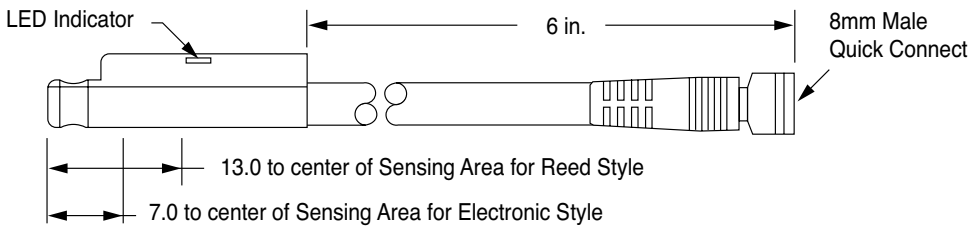
Female Cordsets are available in 3 pin configuration in a 5 meter length.

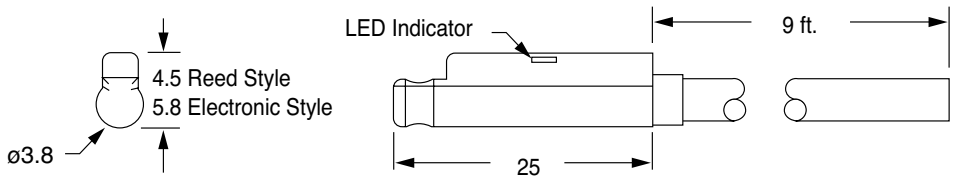
Order sensors and cordsets separately from the tables below and page 9.

8mm Female Cordsets for Quick Connect Sensors

Cordset Description	Part No.
5 meters, 3-Pin	PXCST

Sensor Dimensions (mm unless noted)



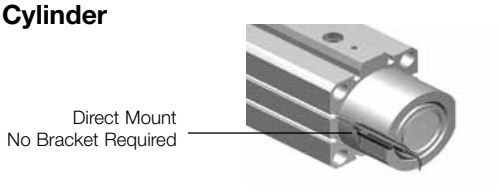


All sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds.

Magnetic Sensors - Electrical Characteristics							Part Numbers and Prices	
Sensor Type	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop	Prewired 9 ft. Part No.	Quick Connect Part No.
Reed Switch for PLC's w/LED (current limiting)	SPST Normally Open	5-120V AC/ DC 50/60 Hz	0.04 Amp max 0.005 Amp min.	4 Watts max.	0.5 ms operate 0.1 ms release	2.5 Volts	9C49-000-002	9C49-000-302 Requires 3 pin cordset
Electronic LED and Sourcing	PNP Normally Open	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-031	9C49-000-331 Requires 3 pin cordset
Electronic LED and Sinking	NPN Normally Open	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-032	9C49-000-332 Requires 3 pin cordset

Specifications and prices subject to change without notice or incurring obligation

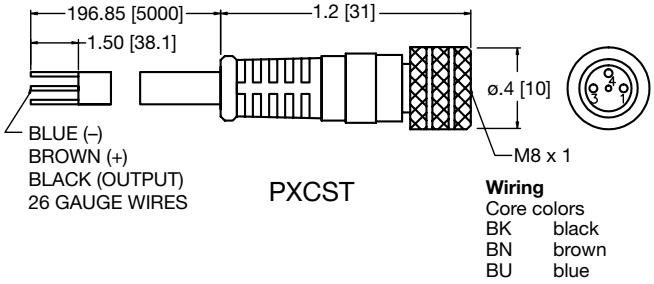
CST Series Stopper Cylinder

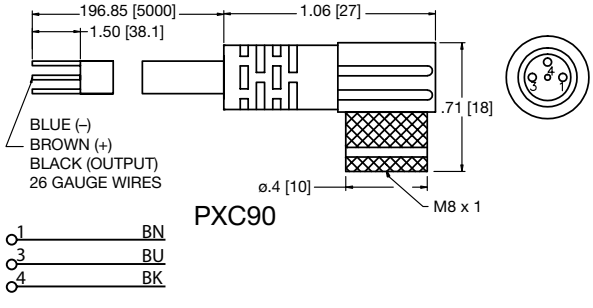


Sensor Description	Standard Cord Set	Quick Disconnect
Reed Switch	9C49-000-002	Not available
Hall PNP	9C49-000-031	9C49-000-331
Hall NPN	Not available	9C49-000-332

See page 18 for sensor specifications

Quick Disconnect Cables

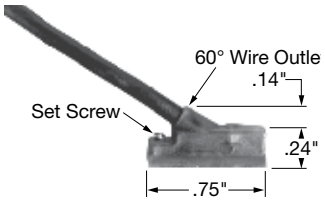


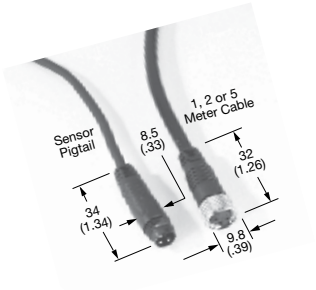


Order Code	Type	Operating Voltage	Current Rating	Cable Material	Protection	Connector
PXCST	Straight 5 m Cable (3 x 26 Gauge wire)	60 AC/75 DC	3 A	PUR	IP 68, III	M8
PXC90	90° 5 m Cable (3 x 26 Gauge wire)	60 AC/75 DC	3 A	PUR	IP 68, III	M8

Dove tail Sensor with 45 Degree Wire

- Encased in a plastic housing, dovetail style electronic sensors are corrosion resistant. 45° wire outlet allows close mounting.





Dovetail Style Magnetic Sensor with LED

Sensor Type	Standard Cord Set	Quick Disconnect	Electrical Characteristics
Electronic Electronic	949-200-031 949-200-032	949-200-331 949-200-332	Sourcing PNP 6-24 VDC, 0.20 Amp Max current, 0.5 Voltage Drop Sinking NPN 6-24 VDC, 0.20 Amp Max current, 0.5 Voltage Drop

Note*: Quick disconnect styles are supplied with 6 inch pigtail with male connector. Order female cordsets separately.

Sensor Temperature Range
-20° to +80° C (-4° to +176° F)

numatics®

World Class Supplier of Pneumatic Components

World Headquarters

USA Numatics, Incorporated
46280 Dylan Drive
Novi, Michigan 48377

P: 248-596-3200
F: 248-596-3201

Canada Numatics, Ltd
P: 519-758-2700
F: 519-758-5540

México - Ascomatica SA de CV
P: 52 55 58 09 56 40 (DF y Area metropolitana)
P: 01 800 000 ASCO (2726) (Interior de la República)
F: 52 55 58 09 56 60

Brazil Ascoval Ind.e Comercio Ltda
P: (55) 11-4208-1700
F: (55) 11-4195-3970

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