

cylinders

ISO 6432 Series

Metric Mini Cylinder Line



numatics

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The **ISO 6432 Series** is a metric, ISO standard, mini cylinder line. The ISO 6432 Series includes a multitude of standard features and benefits.

Tube

The type 303 stainless steel tube, is drawn and polished to a micro-inch finish on the I.D. This enables low friction and longevity.

End Caps

The **end caps** are accurately machined from solid aluminum bar stock. They are anodized for corrosion resistance.

Rod Bushing

Oil impregnated sintered bronze **rod bushing** provides excellent wear resistance and anti-friction qualities for smooth operation and long life.

Piston

High strength anodized aluminum alloy **piston** is standard on 32 mm through 63 mm bores. A durable brass piston is standard on 8 mm through 25 mm bores.

Piston Seals

Low friction Buna N "U" cup

piston seals (optional high temperature seals) are wear compensating for millions of maintenance free cycles.

Rod Seal

The low friction Buna N "U" cup **rod seal** (optional high temperature seals) is wear compensating to ensure longevity.

Standard Specifications:

- Mini cylinders with piston diameter from 8 to 25 mm correspond to standard ISO 6432 CETOP RP 52 P
- Bore sizes from 8 mm through 63 mm
- Nominal pressure rating is 150 psi air (10 bar)
- Standard temperature -10°F to 165°F (-23°C to 74°C)
- Adjustable cushions





ISO 6432 Metric Mini Cylinders

numatics®

How To Order

O R 025/0080

Series

- O = Standard
- S = All Stainless Steel

Cylinder Type

- K = Single acting, single rod end, w/o magnetic sensor
- M = Double acting, single rod end, w/o magnetic sensor
- P = Double acting, single rod end, with magnetic sensor
- S = Double acting, single rod end, w/o magnetic sensor, with cushioning
- R = Double acting, single rod end, with magnetic sensor, with cushioning

Piston Diameter (Type)

- 008 = 8mm (OK, OP)
- 010 = 10mm (OK, OP)
- 012 = 12mm (OK, **OP**)
- 016 = 16mm (OK, **OP, OR**, OS, SM, SP)
- 020 = 20mm (OK, **OP, OR**, OS, SM, SP)
- 025 = 25mm (OK, **OP, OR**, OS, SM, SP)
- 032 = 32mm (OK, OM, OP, OR, OS, SM, SP, SR)
- 040 = 40mm (OK, OM, OP, OR, OS, SM, SP, SR)
- 050 = 50mm (OK, OM, OP, OR, OS, SM, SP, SR)
- 063 = 63mm (OK, OM, OP, OR, OS, SM, SP, SR)

Standard Strokes

- 0010 = 10mm (OK, OM, OP, SM, SP)
- 0025 = 25mm (OK, OM, **OP, OR**, OS, SM, SP, SR)
- 0050 = 50mm (OK, OM, **OP, OR**, OS, SM, SP, SR)
- 0080 = 80mm (OM, **OP, OR**, OS, SM, SP, SR)
- 0100 = 100mm (OM, **OP, OR**, OS, SM, SP, SR)
- 0125 = 125mm (OM, OP, OR, OS, SM, SP, SR)
- 0160 = 160mm (OM, OP, **OR**, OS, SM, SP, SR)
- 0200 = 200mm (OM, OP, **OR**, OS, SM, SP, SR)
- 0250 = 250mm (OM, OP, OR, OS, SM, SP, SR)
- 0320 = 320mm (OM, OP, OR, OS, SM, SP, SR)
- 0400 = 400mm (OM, OP, OR, OS, SM, SP, SR)
- 0500 = 500mm (OM, OP, OR, OS, SM, SP, SR)

**Mounting Accessories

- Clevis Bracket
- Female Flange
- Flange
- Foot
- Male Flange
- Pivot
- Rod Nut

Piston Diameter

- 12, 16, 20, 25, 32, 40, 50, 63
- 32, 40, 50, 63, 80, 100
- 12, 16, 20, 25, 32, 40, 50, 63
- 12, 16, 20, 25, 32, 40, 50, 63
- 32, 40, 50, 63, 80, 100
- 32, 40, 50, 63
- 12, 16, 20, 25, 32, 40, 50, 63

Viton® is a registered trademark of DuPont Dow Elastomers.

WEIGHTS (kg)

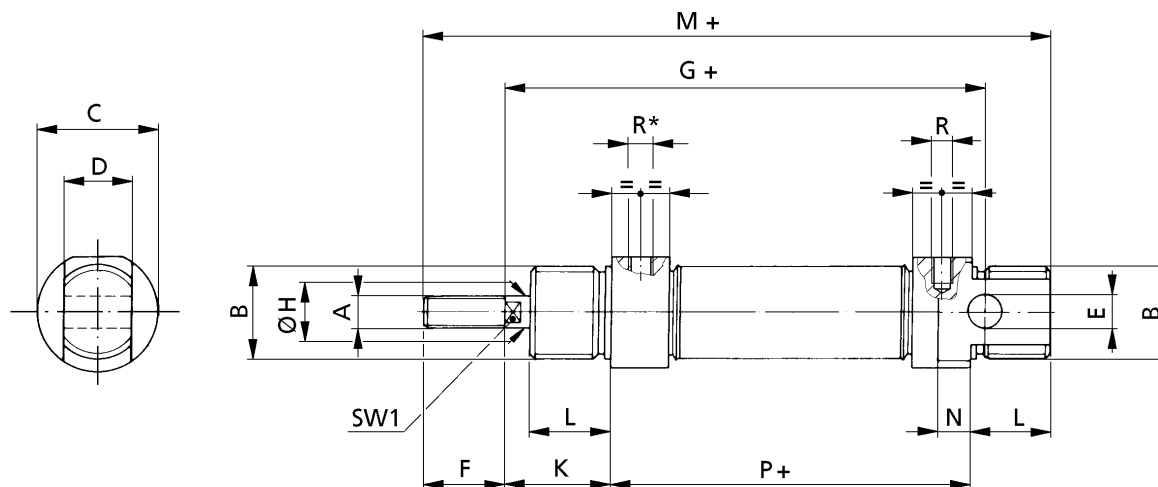
Cylinder type OK; OM; or OP, piston diameter	8	10	12	16	20	25	32	40	50	63
0 mm stroke	0.04	0.08	0.10	0.12	0.20	0.28	0.45	0.82	1.33	2.37
to be added per 100 mm stroke	0.01	0.01	0.03	0.03	0.05	0.07	0.10	0.13	0.22	0.23
Cylinder type OS; OR; SM or SP, piston diameter				16	20	25	32	40	50	63
0 mm stroke				0.12	0.20	0.28	0.45	0.82	1.33	2.37
to be added per 100 mm stroke				0.03	0.05	0.07	0.10	0.13	0.22	0.23



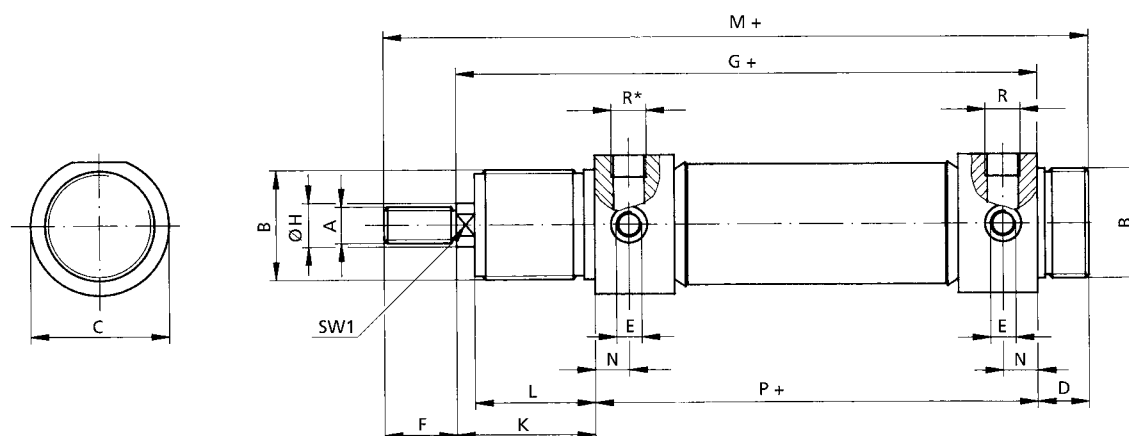
Single Rod End, Single and Double Acting

Mini Cylinder type OK; OM; OP; OS; OR; SM; SP

Piston Diameters from 8 mm to 25 mm, to DIN/ISO 6432 CETOP RP 52 P



Piston Diameters from 32 mm to 63 mm



Piston DIA. [mm]	A	B	C	D	E	F	G	H	K	L	M	N	P	R*	SW1
8	M4	M12x1.25	16.0	8.0	4.0	12.0	64.0	4.0	16.0	12.0	86.0	6.0	46.0	M5	—
10	M4	M12x1.25	16.0	8.0	4.0	12.0	64.0	4.0	16.0	12.0	86.0	6.0	46.0	M5	—
12	M6	M16x1.5	19.0	12.0	6.0	16.0	75.0	6.0	22.0	18.0	104.0	9.0	48.0	M5	5
16	M6	M16x1.5	19.0	12.0	6.0	16.0	82.0	6.0	22.0	18.0	109.0	9.0	53.0	M5	5
20	M8	M22x1.5	27.0	16.0	8.0	20.0	95.0	8.0	24.0	20.0	131.0	12.0	68.0	G 1/8	7
25	M10x1.25	M22x1.5	30.0	16.0	8.0	22.0	104.0	10.0	28.0	22.0	140.0	12.0	68.0	G 1/8	9
32	M10	M30x1.5	38.0	14.0	M8x1	20.0	134.0	12.0	38.0	30.0	168.0	9.0	96.0	G 1/8	10
40	M12	M38x1.5	46.0	16.0	M10x1	24.0	158.0	14.0	45.0	35.0	198.0	12.0	113.0	G 1/4	12
50	M16	M45x1.5	57.0	18.0	M12x1.5	32.0	170.0	18.0	50.0	38.0	220.0	12.0	120.0	G 1/4	16
63	M16	M45x1.5	70.0	18.0	M12x1.5	31.0	175.0	18.0	51.0	38.0	224.0	12.0	124.0	G 3/8	16

*This dimension does not apply for OK



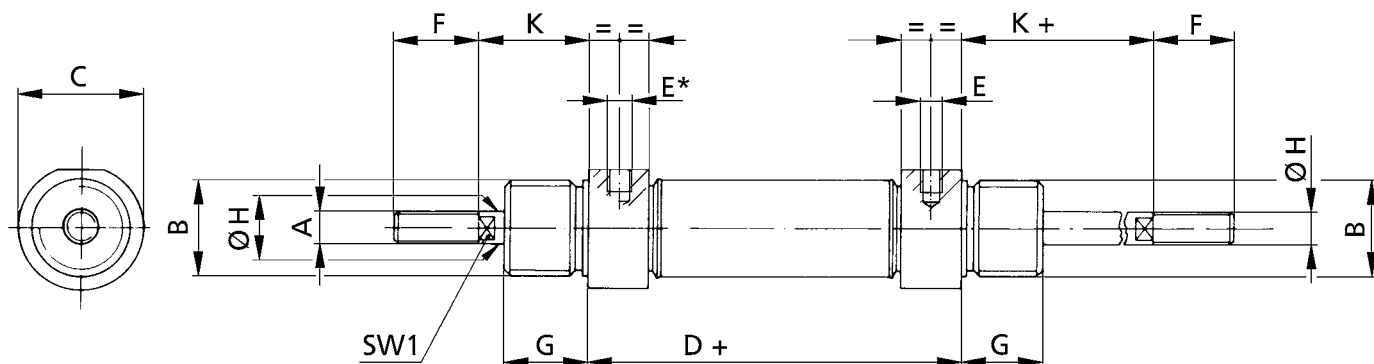
ISO 6432 Metric Mini Cylinders

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Single and Double Acting - Double Rod End

Mini Cylinder type OK; OM; OP; OS; OR; SM; SP

Piston Diameters from 8 mm to 25 mm, to DIN/ISO 6432 CETOP RP 52 P



Cylinder Forces (single acting)

CYLINDER TYPE	PISTON DIAMETER [mm]	THRUST AT 6 BAR/87 PSIG [N] (lbs)	STROKE 10 mm (inch)	SPRING RESISTANCE [N]		
				MINIMUM STROKE 25 mm	STROKE 50 mm	MAXIMUM STROKE 10 - 50
OK; OI	8	18.5 (4)	3.4 (0.75)	3.9 (0.88)	3.2 (0.72)	4.5 (1.01)
OK; OI	10	34.3 (7)	3.8 (0.85)	4.5 (1.01)	3.5 (0.87)	5.7 (1.28)
OK; OI	12	46.5 (10)	5.2 (1.17)	6.0 (1.35)	4.7 (1.06)	7.5 (1.69)
OK; OI	16	84.8 (19)	12.8 (2.87)	15.4 (3.46)	11.0 (2.47)	20.2 (4.54)
OK; OI	20	115.3 (26)	18.4 (4.14)	22.6 (5.08)	7.0 (1.57)	28.1 (6.31)
OK; OI	25	232.2 (52)	24.4 (5.49)	27.2 (6.11)	22.3 (5.01)	32.7 (7.35)
OK	32	427.5 (96)	56.0 (12.59)	51.0 (11.46)	42.0 (9.44)	60.0 (13.48)
OK	40	657.4 (148)	60.0 (13.49)	55.0 (12.36)	44.0 (9.89)	65.0 (14.61)
OK	50	1075.2 (242)	64.0 (14.39)	57.0 (12.81)	46.0 (10.34)	68.0 (15.29)
OK	63	1752.3 (394)	65.0 (14.61)	58.0 (13.04)	47.0 (10.57)	70.0 (15.73)

Cylinder Forces (double acting)

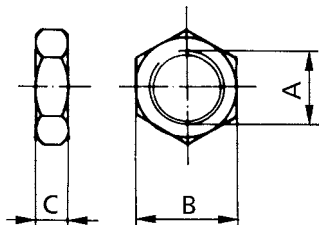
CYLINDER TYPE	PISTON DIAMETER [mm]	THRUST AT 6 BAR [N]	RETRACT AT 6 BAR [N]
OM; OP	8	23.0 (5.17)	15.0 (3.37)
OM; OP	10	40.0 (8.99)	32.0 (7.19)
OM; OP	12	54.0 (12.14)	37.0 (8.32)
OM; OP, OS; OR; SP, SM	16	105.0 (23.60)	88.0 (19.78)
OM; OP, OS; OR; SP, SM	20	172.0 (38.67)	142.0 (31.92)
OM; OP, OS; OR; SP, SM	25	265.0 (59.51)	218.0 (49.00)
OM; OP, OS; OR	32	440.0 (98.91)	380.0 (85.42)
OM; OP, OS; OR	40	690.0 (155.11)	600.0 (134.88)
OM; OP, OS; OR	50	1100.0 (247.28)	950.0 (213.56)
OM; OP, OS; OR	63	1770.0 (397.90)	1650.0 (370.92)



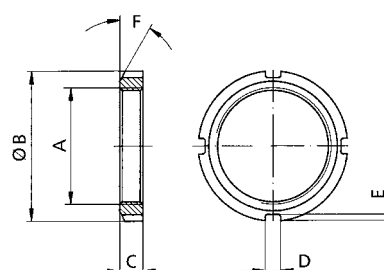
Mounting Accessories

Nut for Additional Mounting Accessories (Mini Cylinders)

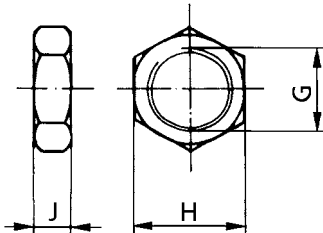
Nut for end cap,
piston diameters from 8 to 25 mm



Nut for end cap,
piston diameters from 32 to 63 mm



Nut for piston rod,
piston diameters from 8 to 63 mm



Weights

kg (oz)	ORDER CODE	kg (oz)	ORDER CODE
0.008 (0.282)	128-217	0.003 (0.106)	128-301
0.010 (0.352)	128-218	0.012 (0.423)	128-303
0.015 (0.529)	128-219	0.018 (0.634)	128-304
0.044 (1.55)	128-228	0.006 (0.212)	44.1361
0.067 (2.36)	128-229	0.008 (0.282)	44.1359
0.066 (2.33)	128-230	0.011 (0.388)	128-225
0.002 (0.071)	128-220	0.016 (0.564)	128-226
0.002 (0.071)	128-221	0.032 (1.13)	128-227
0.005 (0.176)	128-222		
0.010 (0.352)	128-223		

Dimensions (mm)

PISTON DIAMETER [mm]										ORDER CODE			
	A	B	C	D	E	F	G	H	J	(END CAPS)*		(PISTON DIA.)*	
										GALV. STEEL	STAINLESS	GALV. STEEL	STAINLESS
8/10	M12x1.25	19.0	7.0	—	—	—	M4	7.0	3.2	128-217	—	128-220	—
12/16	M16x1.5	24.0	8.0	—	—	—	M6	10.0	5.0	128-218	128-303	128-221	128-301
20	M22x1.5	27.0	8.0	—	—	—	M8	13.0	6.5	128-219	128-304	128-222	44.1361
25	M22x1.5	27.0	8.0	—	—	—	M10x1.25	17.0	8.0	128-219	128-304	128-223	44.1359
32	M30x1.5	45.0	7.0	5.0	2.0	30°	M10	17.0	8.0	128-228	—	—	128-225
40	M38x1.5	50.0	8.0	6.0	2.0	30°	M12	19.0	10.0	128-229	—	—	128-226
50/63	M45x1.5	58.0	9.0	6.0	2.5	30°	M16	24.0	13.0	128-230	—	—	128-227

*1 nut each included

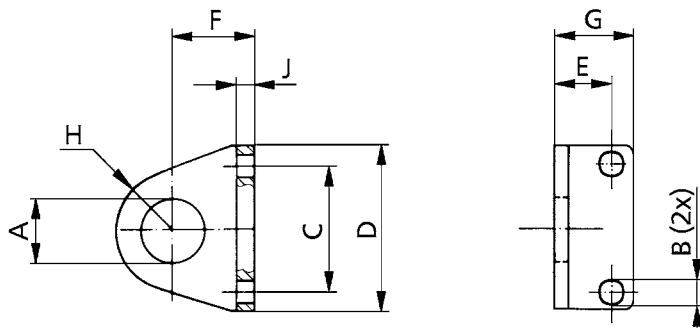


ISO 6432 Mini Cylinders Accessories

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Mounting Accessories

Foot Bracket for Piston Diameters 8 mm to 63 mm



Weights

APPROX. [kg]	ORDER CODE
0.010	155-114
0.020	155-115
0.045	155-116
0.115	155-138
0.215	155-139
0.315	155-140
0.022	155-236
0.050	155-237

Dimensions (mm)

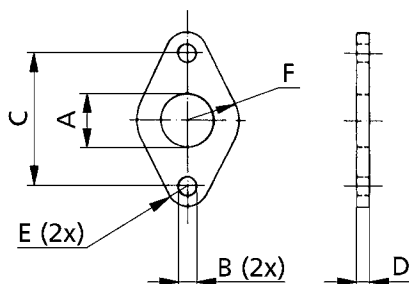
PISTON DIA. [mm]	A	B	C	D	E	F	G	H	J	ORDER CODE	
										GALVANIZED STEEL	STAINLESS STEEL
8/10	12.0	4.5	25.0	35.0	11.0	16.0	16.0	10.0	3.0	155-114	—
12/16	16.0	5.5	32.0	42.0	14.0	20.0	20.0	13.4	4.0	155-115	155-236
20/25	22.0	6.6	40.0	54.0	17.0	25.0	25.0	18.0	5.0	155-116	155-237
32	30.0	7.0	52.0	66.0	14.0	28.0	21.0	—	4.0	155-138	—
40	38.0	9.0	60.0	88.0	20.0	33.0	30.0	—	5.0	155-139	—
50/63	45.0	9.0	70.0	90.0	20.0	40.0	30.0	—	6.0	155-140	—

*For stainless steel information please contact your sales representative.



Mounting Accessories

Flange Mounting for Piston Diameters from 8 mm to 25 mm

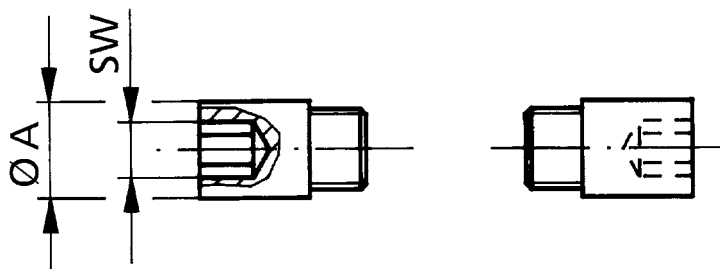


Dimensions (mm)

PISTON DIA. [mm]	A	B	C	D	E	F	WEIGHT APPROX. [kg]	ORDER CODE GALVANIZED STEEL	WEIGHT APPROX. [kg]	ORDER CODE STAINLESS STEEL
8/10	12.0	4.5	30.0	3.0	5.0	12.5	0.012	155-111	—	—
12/16	16.0	5.5	40.0	4.0	6.0	15.0	0.026	155-112	0.030	155-226
20/25	22.0	6.6	50.0	5.0	8.0	20.0	0.050	155-113A	0.055	155-246

*For stainless steel information please contact your sales representative.

Pivot for Piston Diameters from 32 mm to 50 mm



Dimensions (mm)

PISTON DIA. [mm]	A	SW	WEIGHT APPROX. [kg]	ORDER CODE GALVANIZED STEEL
32	10.0	5	0.010	155-135
40	12.0	6	0.020	155-136
50	14.0	6	0.040	155-137



ISO 6432 Mini Cylinders Accessories

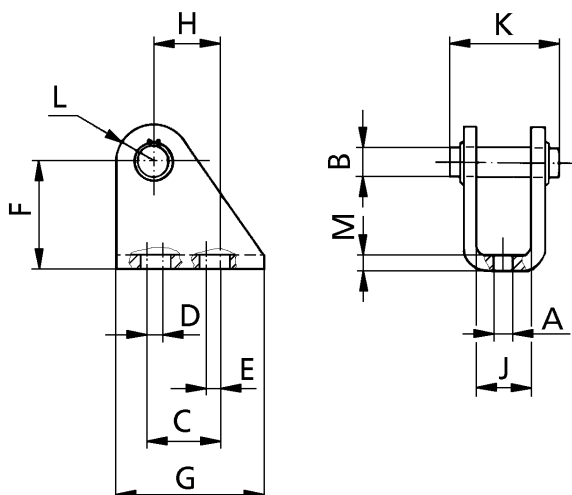
numatics®

Mounting Accessories

Rear Clevis Bracket for Piston Diameters from 8 mm to 25 mm

Weights

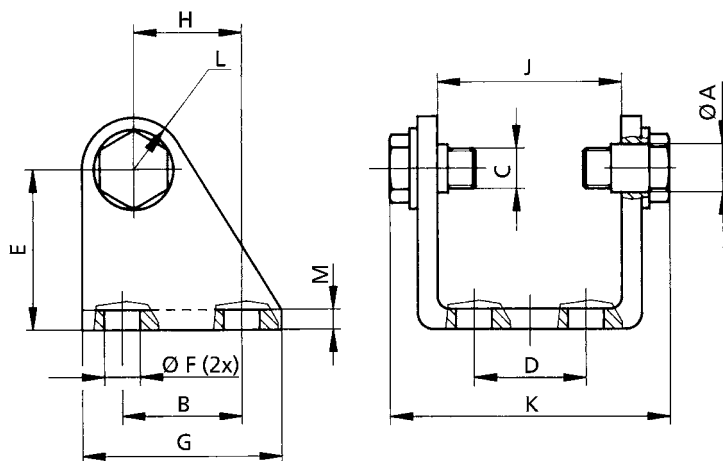
APPROX. [kg]	ORDER CODE
0.020	155-117
0.036	155-118
0.078	155-119
0.039	155-228
0.085	155-229



Dimensions (mm)

PISTON DIA. [mm]													ORDER CODE	
	A	B	C	D	E	F	G	H	J	K	L	M	GALVANIZED STEEL	STAINLESS STEEL
8/10	4.5	4.0	12.5	—	—	24.0	20.0	12.5	8.1	17.0	5.0	2.5	155-117	—
12/16	5.5	6.0	15.0	—	5.0	27.0	25.0	20.0	12.1	23.0	7.0	3.0	155-118A	155-228
20/25	6.6	8.0	20.0	5.0	—	30.0	32.0	23.0	16.1	30.0	10.0	4.0	155-119A	155-229

Rear Clevis Bracket for Piston Diameters from 32 mm to 63 mm



Dimensions (mm)

PISTON DIA. [mm]													WEIGHT APPROX. [kg]	ORDER CODE GALV. STEEL
	A	B	C	D	E	F	G	H	J	K	L	M		
32	10.0	24.0	M8x1	20.0	35.0	7.0	40.0	20.0	38.1	58.0	12.0	4.0	0.160	155-132
40	12.0	30.0	M10x1	28.0	40.0	9.0	50.0	27.0	46.1	70.0	13.0	5.0	0.225	155-133
50	14.0	34.0	M12x1.5	36.0	45.0	9.0	54.0	30.0	57.1	86.5	14.0	6.0	0.380	155-134
63	16.0	35.0	M14x1.5	42.0	50.0	9.0	65.0	34.0	70.1	100.1	16.0	6.0	0.530	155-247

*For stainless steel information please contact your sales representative.

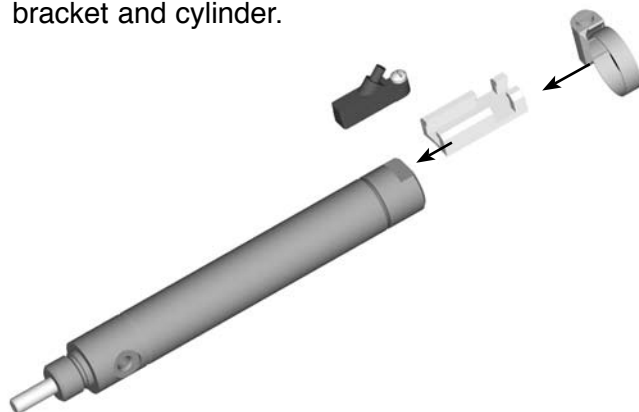


ISO 6432 Series Switch Information

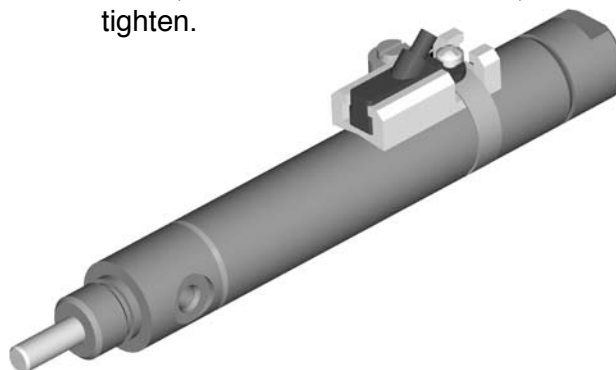
Global Switch Mounting

Tie Rod Cylinders

1. Loosen band clamp and slide over both the bracket and cylinder.



2. Tighten band clamp, loosen Phillips head screw, insert switch into bracket, and then tighten.

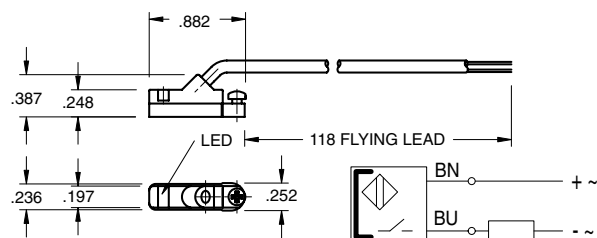


ISO 6432 Series Global Switch Bracket

Cylinders	Bore	Part Number
ISO6432 series Short Bracket Kit	08mm-12mm	N199-1003
ISO6432 series Short Bracket Kit	16mm	N199-1004
ISO6432 series Short Bracket Kit	20mm-32mm	N199-1005
ISO6432 series Short Bracket Kit	40mm-50mm	N199-1007
ISO6432 series Short Bracket Kit	63mm	N199-1008

ISO 6432 Series Global Switches

Reed Switch (AC/DC NO), flying lead - RSS02



Sensing Data

Ambient temperature range T_a
Frequency of operating cycles f at U_e
Turn on time t
turn off time t
LED function indication

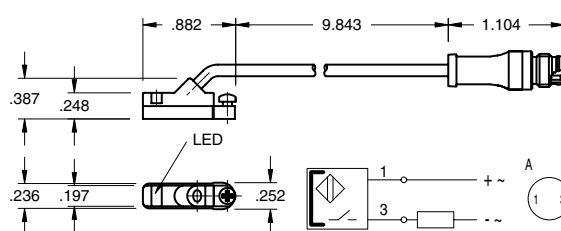
(°F/°C)	-4 to 176 (-20 to 80)
(kHz)	0.5
(ms)	≤ 0.25
(ms)	0.03
	yes

Electrical Data

Rated operational voltage U_e
Supply voltage U_B
Voltage drop U_d at I_e Stat./dyn.
Rated insulation voltage U_i
Rated supply frequency
Rated operational current I_e
No-load supply current I_o at U_B d./und.
Observe polarity for correct LED function

(V)	3...130 AC/DC
(V)	3...130 AC/DC
(V)	3.5
(V)	2750 DC (EN 60335-1)
(Hz)	AC/DC
(mA)	50 (10W max.)
(mA)	0

Reed Switch (AC/DC NO), 8mm connector - RSQ02



Mechanical Data

Housing material
Material of sensing face
Connection
Degree of Protection
Rated shock: half-sinus, 50g, 11 ms
Rated vibration environment: 10g, 10...2000 Hz. 90 min

Polyamide
Polyamide
PVC cable
67

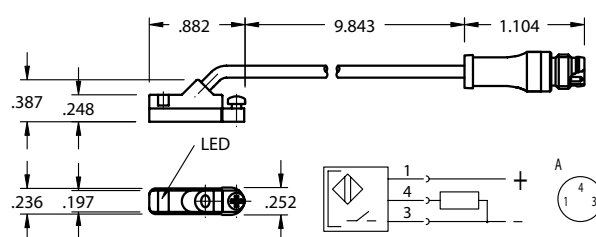
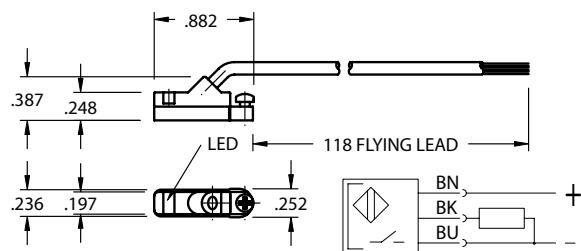




ISO 6432 Metric Mini Cylinders

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Electronic Switch (PNP NO), flying lead - HPNPS31 Electronic Switch (PNP NO), 8mm connector - HPNPQ31



Sensing Data

Ambient temperature range Δ	(°F/°C)	-13 to +158 (-25 to +70)
Temperature drift	(% of)	$\leq 0.3\%/^{\circ}\text{C}$
Frequency of operating cycles f at U_e	(kHz)	10
Turn on time t	(ms)	.05
Turn off time t	(ms)	.05
Utilization categories		DC13
Function-/supply voltage indication		YES

Electrical Data

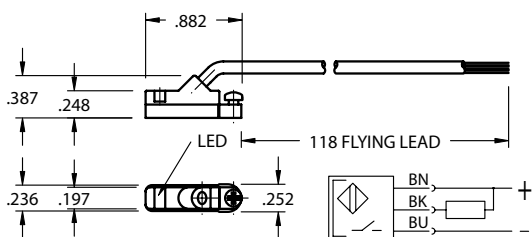
Rated operational voltage U_e	(V)	24 DC
Supply voltage U_B	(V)	10...30 DC
incl. ripple	(% of U_e)	15
Voltage drop U_d at I_e Stat./dyn.	(V)	1/-
Rated insulation voltage U_i	(V)	75 AC
Rated supply frequency	(Hz)	DC
Rated operational current I_e	(mA)	200
No-load supply current I_o at U_e d./und.	(mA)	25/13
Protected against polarity reversal		YES

Mechanical Data

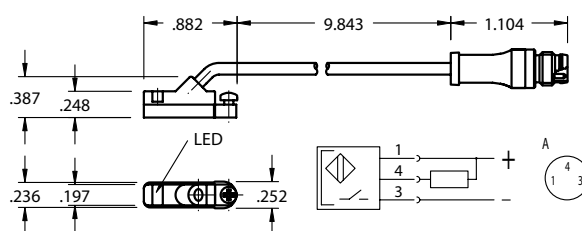
Housing material	Polyamide
Material of sensing face	Polyamide
Connection	PVC cable
Degree of Protection	IP 67
Rated shock: half-sinus, 30 g, 11 ms	
Rated vibration environment: 55 Hz, 1mm amplitude, 3 x 30	



Electronic Switch (NPN NO), flying lead - HNPNS32



Electronic Switch (NPN NO), 8mm connector - HNPNQ32



Sensing Data

Ambient temperature range Δ	(°F/°C)	-13 to +158 (-25 to +70)
Temperature drift	(% of S_T)	$\leq 0.3\%/^{\circ}\text{C}$
Frequency of operating cycles f at U_e	(kHz)	10
Turn on time t	(ms)	.05
Turn off time t	(ms)	.05
Utilization categories		DC13
Function-/supply voltage indication		YES

Electrical Data

Rated operational voltage U_e	(V)	24 DC
Supply voltage U_B	(V)	10...30 DC
incl. ripple	(% of U_e)	15
Voltage drop U_d at I_e Stat./dyn.	(V)	1/-
Rated insulation voltage U_i	(V)	75 AC
Rated supply frequency	(Hz)	DC
Rated operational current I_e	(mA)	200
No-load supply current I_o at U_e d./und.	(mA)	25/13
Protected against polarity reversal		YES

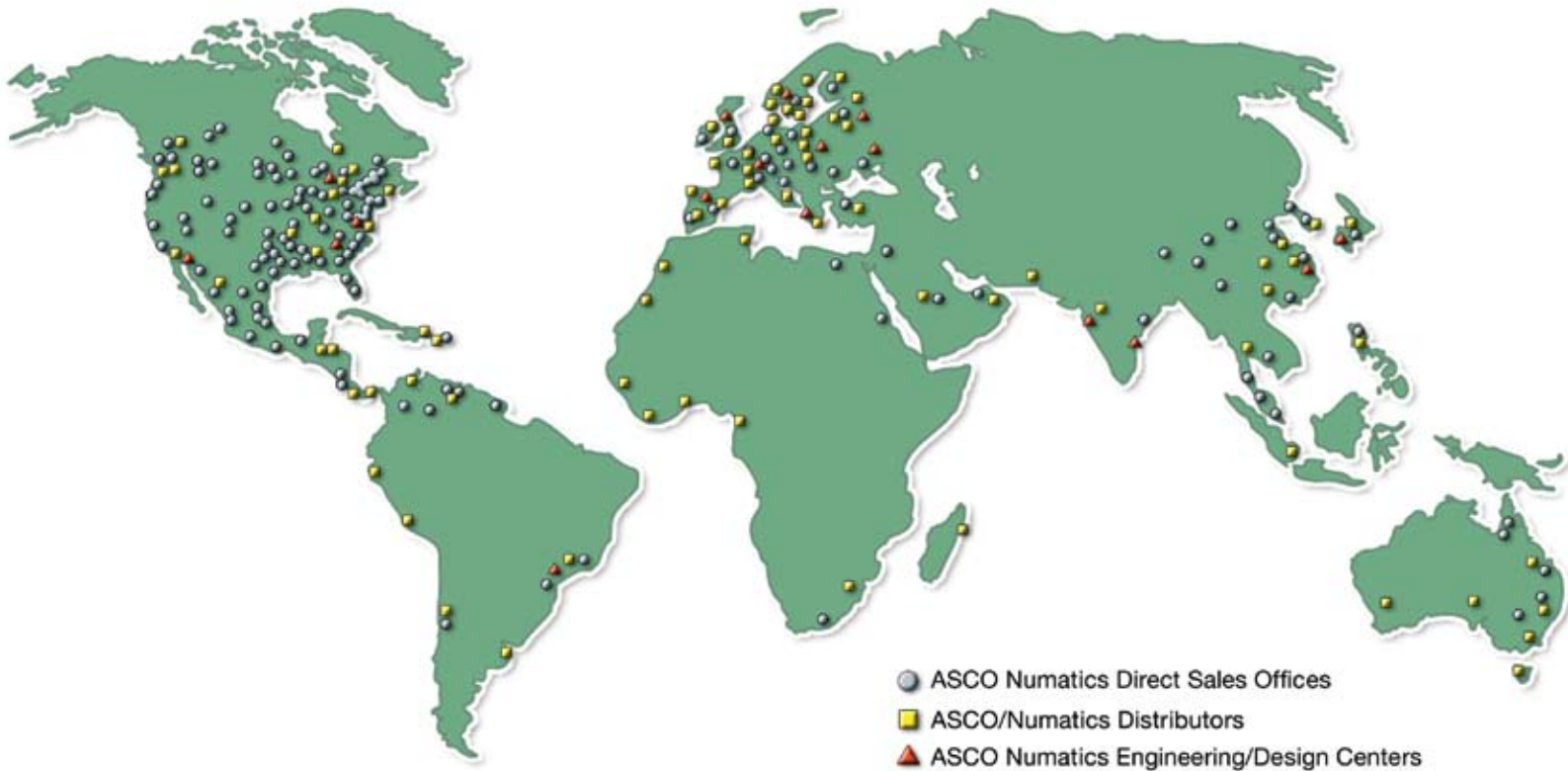
Mechanical Data

Housing material	Polyamide
Material of sensing face	Polyamide
Connection	PVC cable
Degree of Protection	IP 67
Rated shock: half-sinus, 30 g, 11 ms	
Rated vibration environment: 55 Hz, 1mm amplitude, 3 x 30	



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