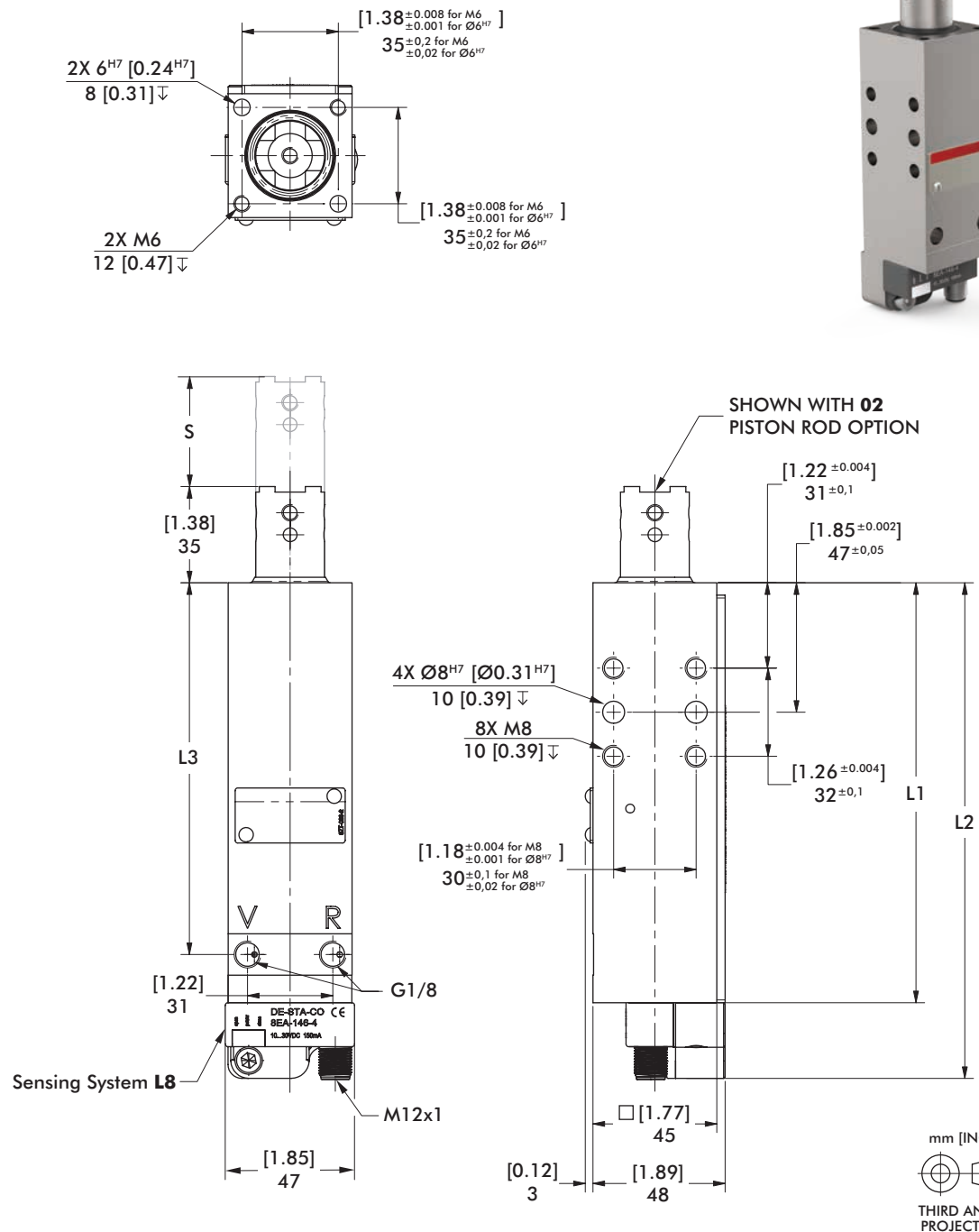


Pneumatic Pin Package | Single Shaft | Ordering and Technical Information



Order No.	Description
8EL-002-1	M12x1, Straight, 5-pin Connector with 5 m [16 ft.] Cable
8EL-003-1	M12x1, Angular, 4-pin Connector with 5 m [16 ft.] Cable

86P30-5

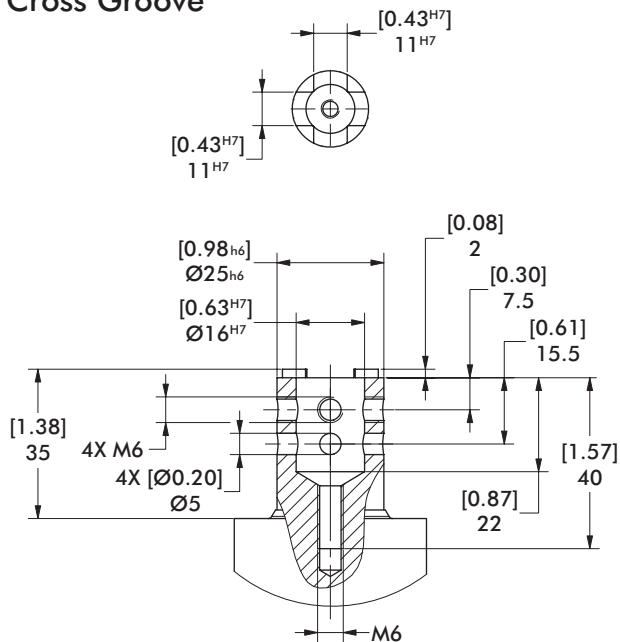


Base Model	Stroke Option	S Stroke mm [in]	L1 mm [in]	L2 mm [in]	L3 mm [in]	Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm³ [ft³]
86P30-5	2	20 [0.79]	112,5 [4.43]	140 [5.51]	95 [3.74]	340 [76]	250 [56]	6 [87]	30 [1.18]	0,8 [1.76]	0,32 [0.011]
	4	40 [1.57]	152,5 [6.00]	180 [7.09]	135 [5.30]					1 [2.20]	0.45 [0.015]

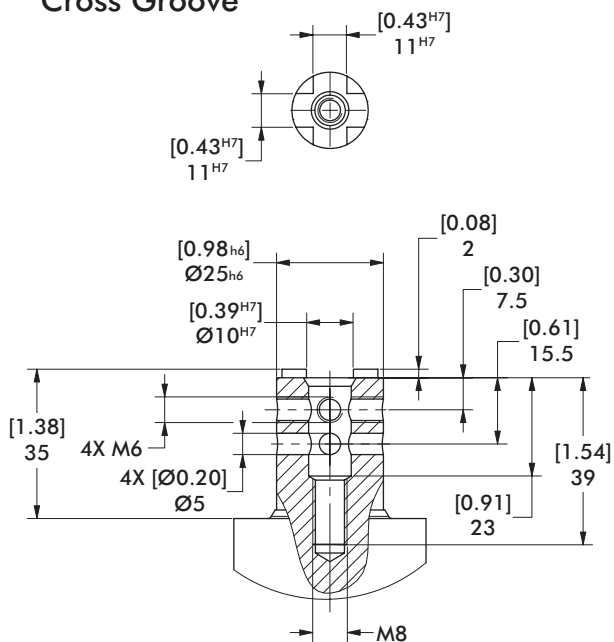
86P30-5 PISTON RODS

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

02 Ø16 mm M6 Threaded Inside Hole,
Cross Groove

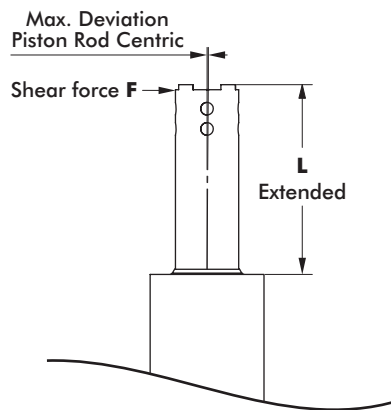


05 Ø10 mm M8 Threaded Inside Hole,
Cross Groove

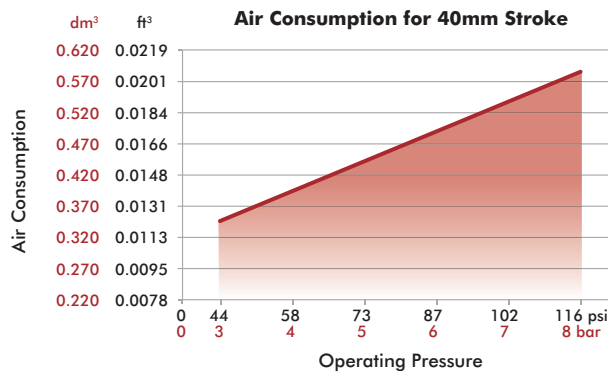
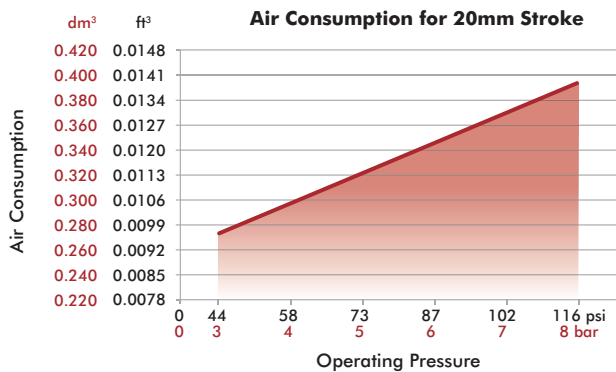


Max Deflection for Centering Pin

Model no.	Shear force N [lbs]	L mm [in]	Stroke mm [in]	Deflection ± mm [in]
86P30-50***004	200 [45]	75 [2.95]	40 [1.58]	0,12 [0.0047]
	150 [34]			0,10 [0.0039]
	100 [22]			0,08 [0.0031]
	75 [17]			0,06 [0.0023]
86P30-50***002	200 [45]	55 [2.17]	20 [0.79]	0,07 [0.0027]
	150 [34]			0,06 [0.0023]
	100 [22]			
	75 [17]			0,05 [0.0019]



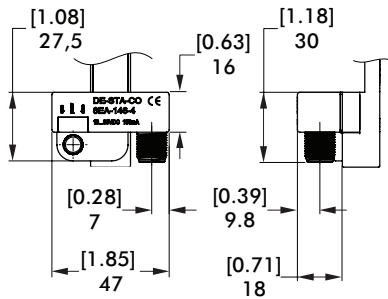
Angle Deviation and Air Consumption



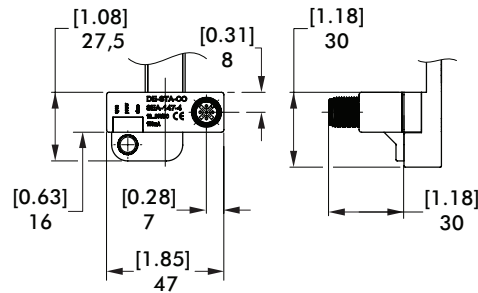
86P30-5 SENSORS

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

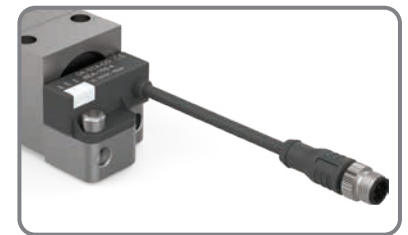
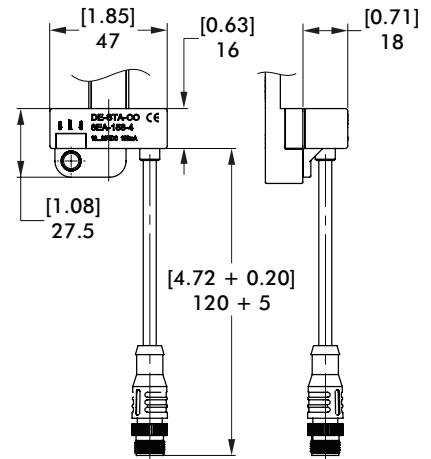
L8, N8 Inductive Sensing System



L9, N9 Inductive Sensing System with 90° Connector

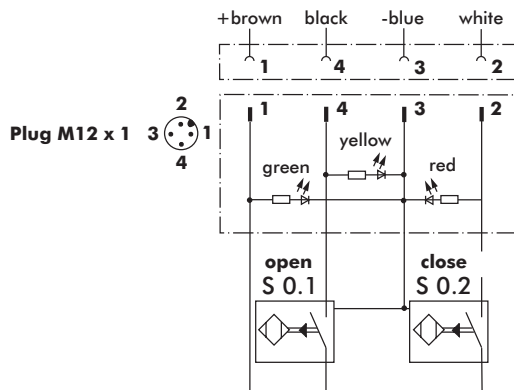


K8, K9 Inductive Sensing System with Pigtail Connector



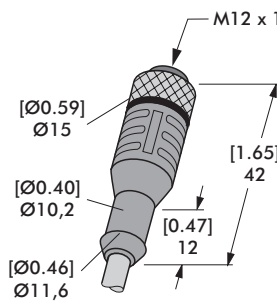
Inductive Sensor Wiring Diagram

Sensing system immune to interference from AC / DC arc welding.

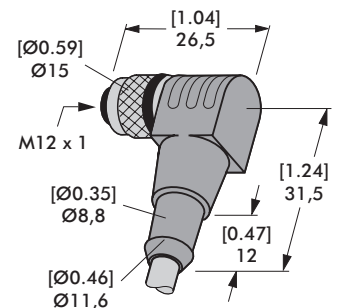


Sensor Cable Accessories

Sensor Cables (1 connector & 5m cable)	Order no.
M12x1 connector, straight, 5-pin	8EL-002-1
M12x1 connector, 90° angular, 4-pin	8EL-003-1



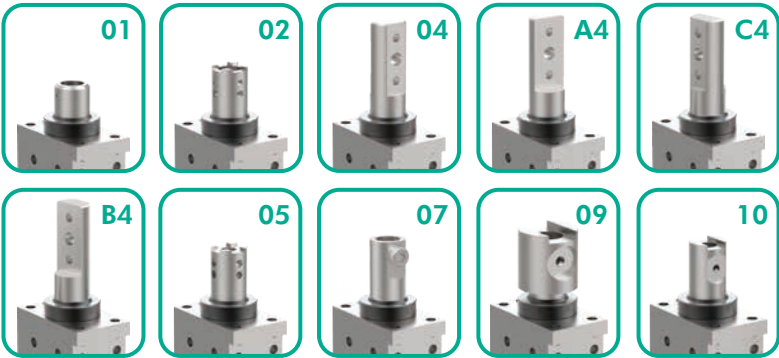
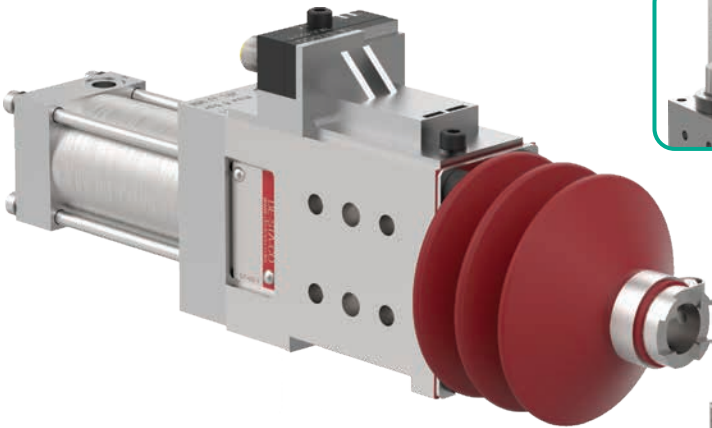
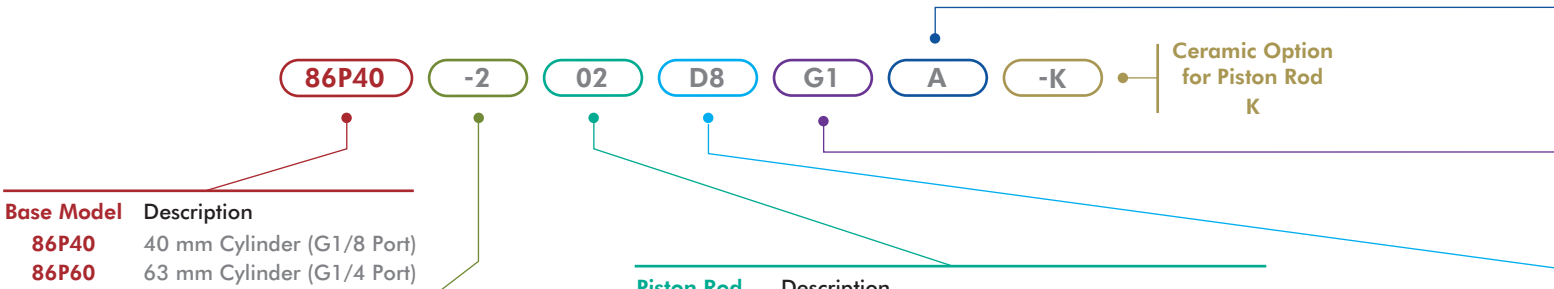
Straight Cable
8EL-002-1



Angular Cable
8EL-003-1

86P40/86P60

Pneumatic Pin Package | Single Shaft | Ordering and Technical Information

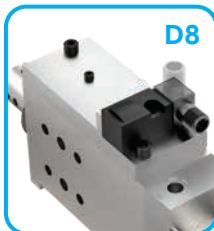


	86P40			86P60		
Stroke Option:	B, A, 2, 4	C, 6	F, 8	B, A, 2, 4	C, 6	F, 8
Max Pushing Force at 5 bar [72 psi]:	620 N [139 lbf]			1550 N [348 lbf]		
Max Retracting Force at 5 bar [72 psi]:	520 N [117 lbf]			1400 N [315 lbf]		

Accessories	Description
00	No Accessories
F1	Bellows for piston rods 02, 05, 07, 10 in strokes B, A, 2, 4 (82ZB-013-3)
R1	Guide Bushing for piston rods 01, 02, 05 (82ZB-192-1)



Sensor	Description
L4	Cover Plate for B, A, 2, 4 (86P0-200L4)
L6	Cover Plate for C, 6 (86P0-200L6)
L8	Cover Plate for F, 8 (86P0-200L8)
D8	Inductive Sensing System with 90° M12x1 Swivel Connector for B, A, 2, 4 (86P0-200D8), for C, 6 (86P0-200D8006), for F, 8 (86P0-200D8008)



Sensor Cables Order separately

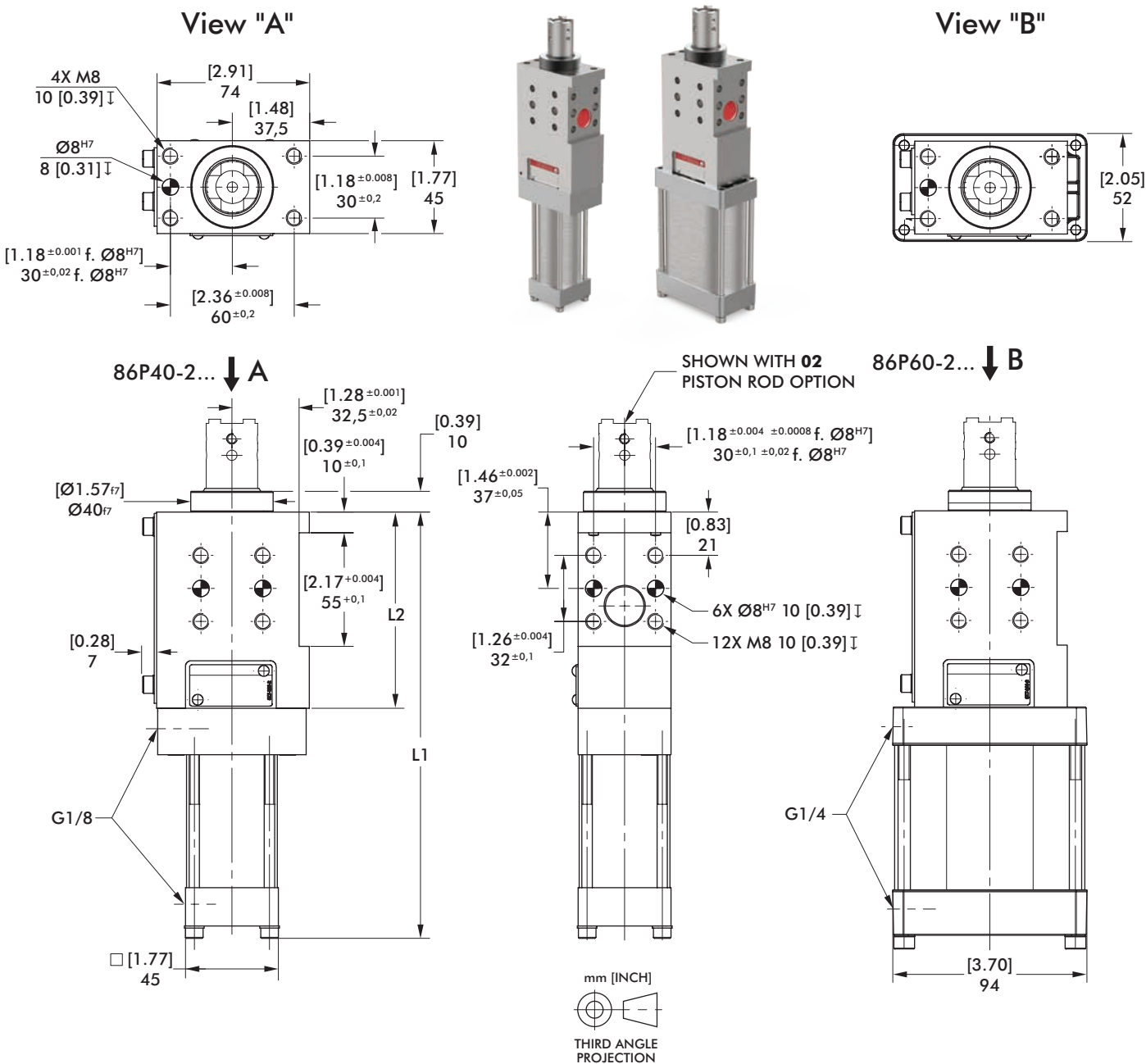
Order No.	Description
8EL-002-1	M12x1, Straight, 5-pin Connector with 5 m [16 ft.] Cable
8EL-003-1	M12x1, Angular, 4-pin Connector with 5 m [16 ft.] Cable

Stroke	Description
	Anti-Twist Device/Low Accuracy
B	20 mm Stroke (8MF-071-1)
A	40 mm Stroke (8CE-231-1)
C	60 mm Stroke (8CE-231-1)
F	80 mm Stroke (8CE-231-1)
	Anti-Twist Device
2	20 mm Stroke (86P0-20000002)
4	40 mm Stroke (86P0-20000004)
6	60 mm Stroke (86P0-20000006)
8	80 mm Stroke (86P0-20000008)



86P40-2/86P60-2

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

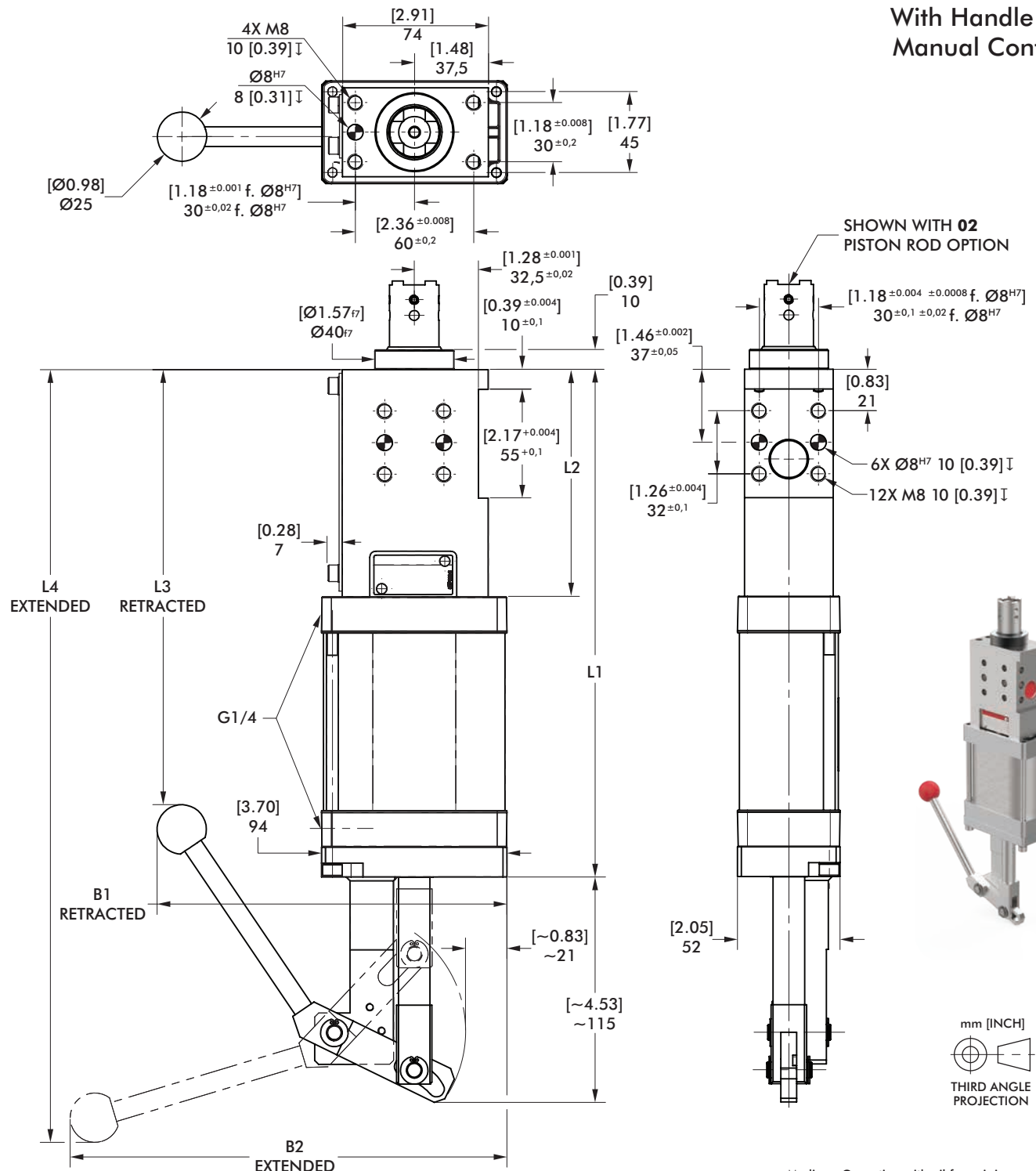


Medium: Operation with oil free air is permissible

Base Model	Stroke Option	Stroke +2 [0.08] mm [in]	L1 mm [in]	L2 mm [in]	Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
86P40	B, 2	20 [0.79]	207 [8.15]	95 [3.74]	620 [139]	520 [117]	6 [87]	40 [1.57]	1,6 [3.52]	0,5 [0.017]
	A, 4	40 [1.57]								0,7 [0.025]
	C, 6	60 [2.36]								0,9 [0.032]
	F, 8	80 [3.15]								1,0 [0.035]
86P60	B, 2	20 [0.79]	213 [8.39]	95 [3.74]	1550 [348]	1400 [315]	6 [87]	63 [2.48]	2,0 [4.40]	0,8 [0.028]
	A, 4	40 [1.57]								1,4 [0.049]
	C, 6	60 [2.36]								2,0 [0.070]
	F, 8	80 [3.15]								2,5 [0.088]

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

With Handle for
Manual Control



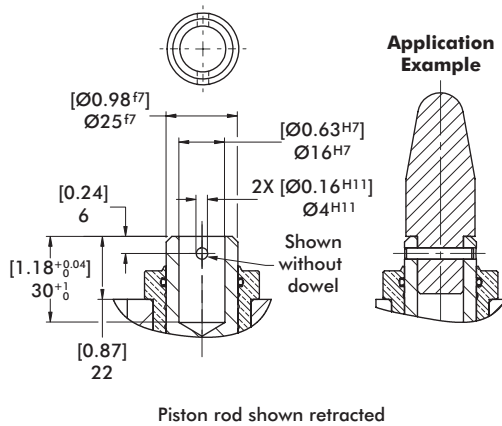
Medium: Operation with oil free air is permissible

Base Model	Stroke Option	Stroke +2 [0.08] mm [in]	B1 (retracted) mm [in]	B2 (extended) mm [in]	L1 mm [in]	L2 mm [in]	L3 (retracted) mm [in]	L4 (extended) mm [in]	Weight Kg [lbs]
86P60H2	B, 2	20 [0.79]	177 [6.97]	216 [8.50]	217 [8.54]	95 [3.74]	179 [7.05]	253 [9.96]	2,3 [5.07]
	A, 4	40 [1.57]		229 [9.02]				306 [12.05]	
	C, 6	60 [2.36]		223 [8.78]				392 [15.43]	

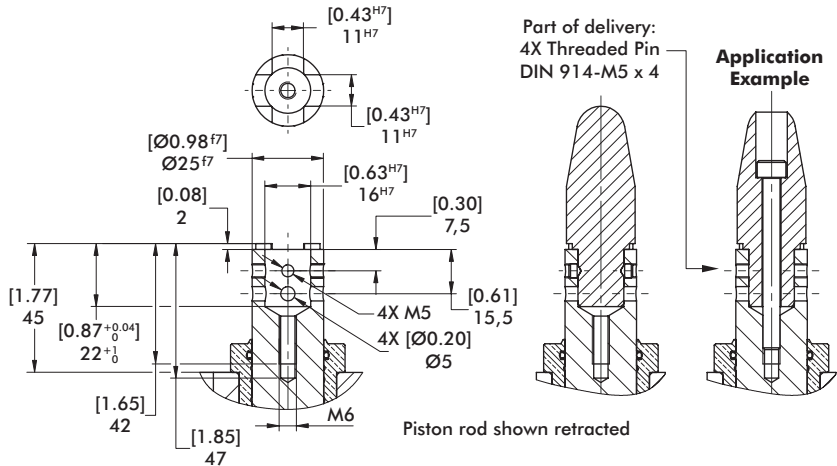
86P40/86P60 PISTON RODS

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

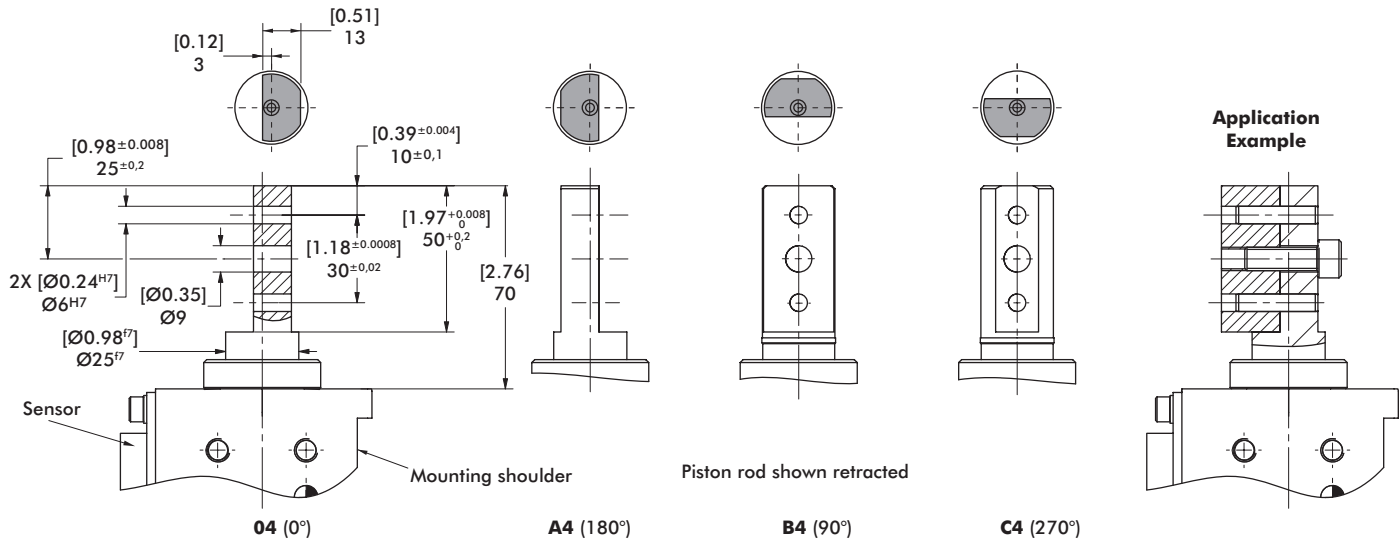
01 Ø16 mm Inside Hole



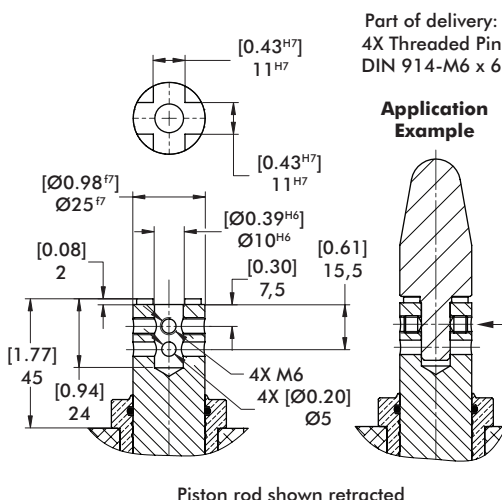
02 Ø16 mm M6 Threaded Inside Hole, Cross Groove



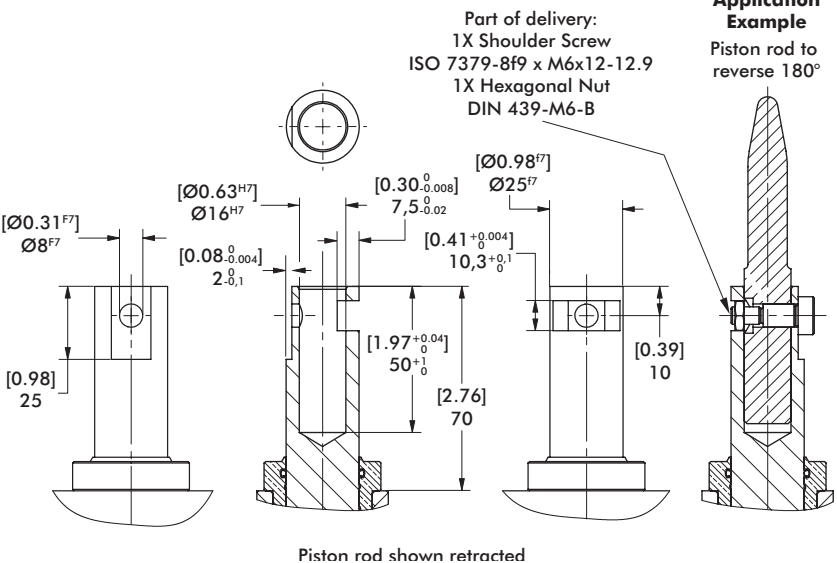
04, A4, B4, C4 NAAMS Standard



05 Ø10 mm Inside Hole, Cross Groove



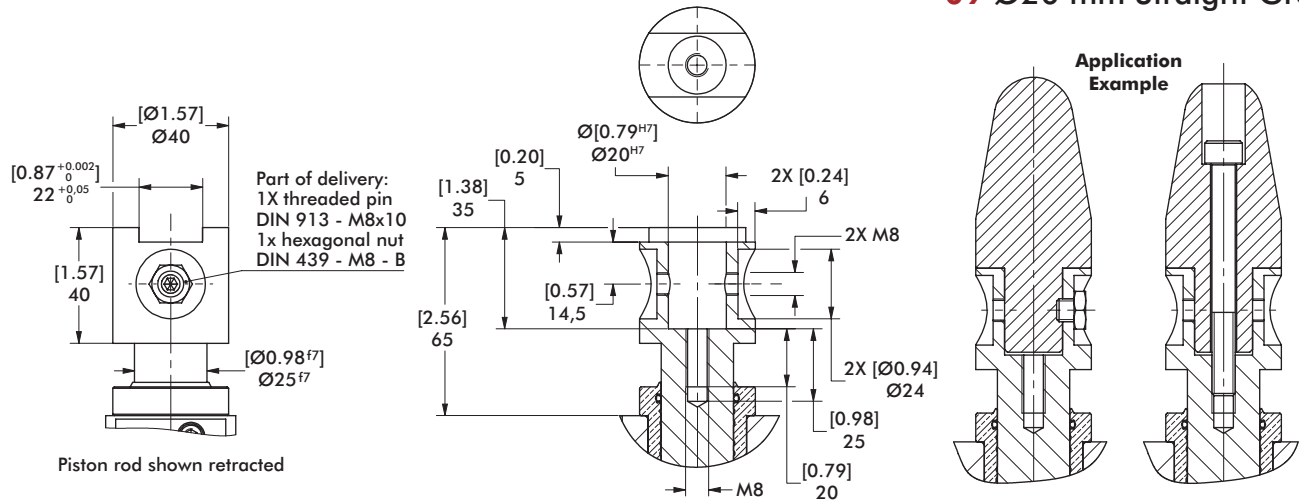
07 Ø16 mm Inside Hole, NAAMS



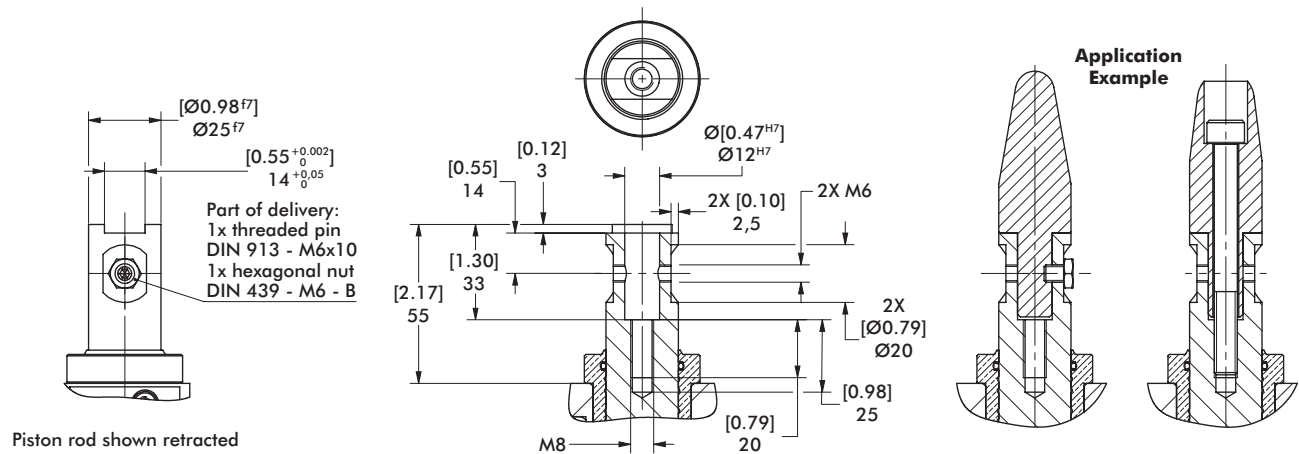
86P40/86P60 PISTON RODS

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

09 Ø20 mm Straight Groove



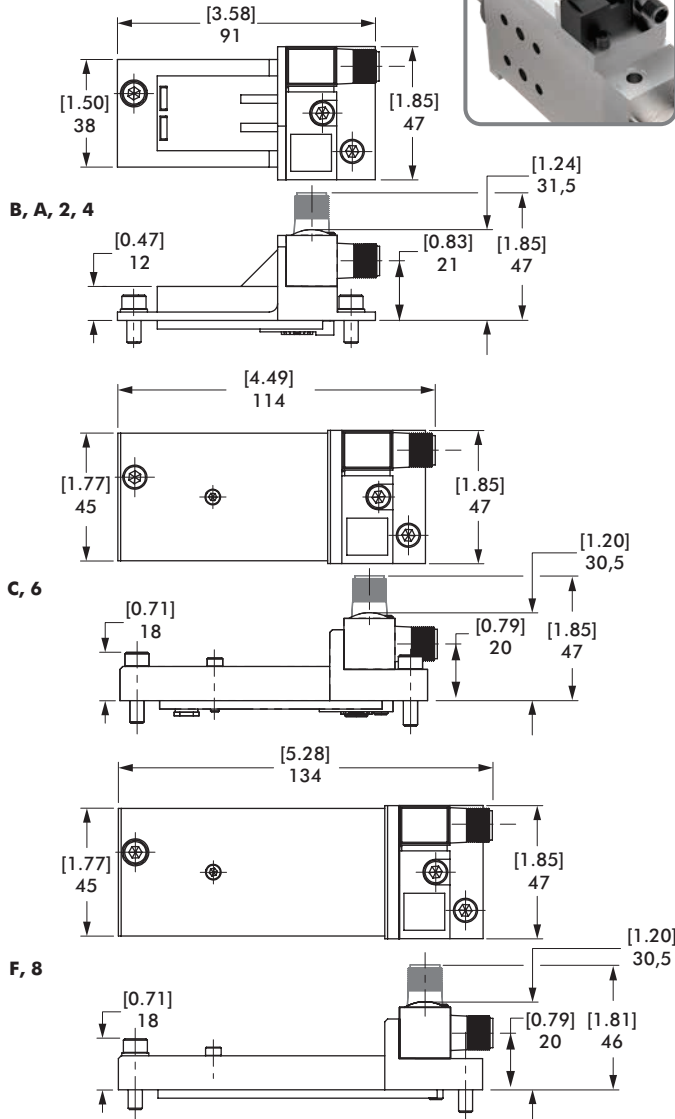
10 Ø12 mm Straight Groove



86P40/86P60 SENSORS

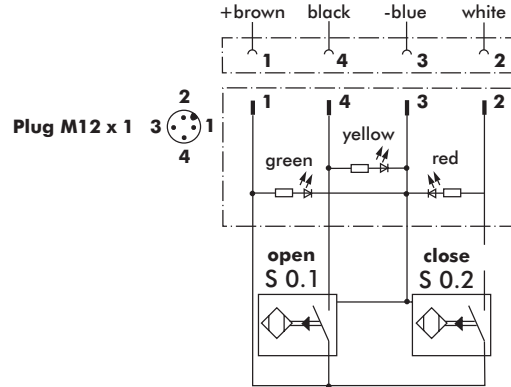
Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

D8 Inductive Sensing System with 90° Swivel Connector

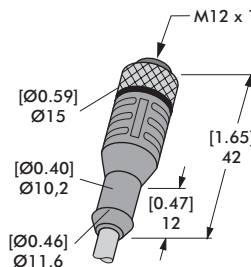


Inductive Sensor Wiring Diagram

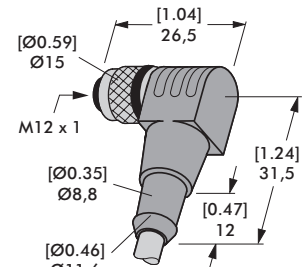
Sensing system immune to interference from AC / DC arc welding.



Sensor Cable Accessories



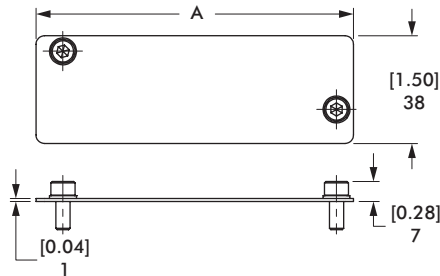
Straight: 8EL-002-1



Angular: 8EL-003-1

Order no.	Sensor Cables (1 connector & 5m cable)
8EL-002-1	M12x1, Straight, 5-pin Connector with 5 m [16 ft.] Cable
8EL-003-1	M12x1, Angular, 4-pin Connector with 5 m [16 ft.] Cable

L4, L6, L8 Sensor Cover Plate

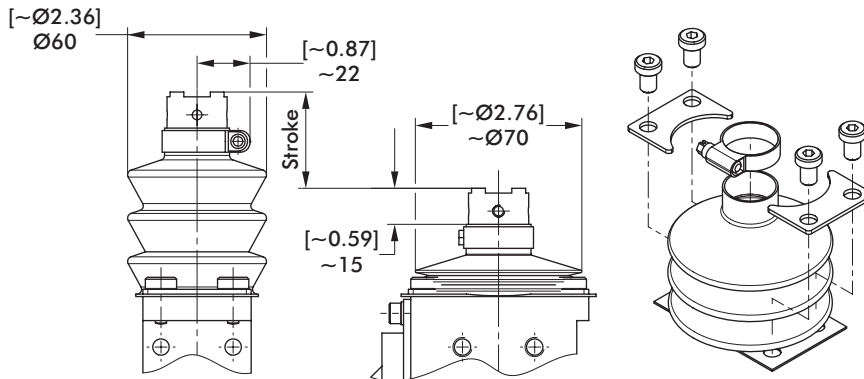


Cover Plate Option	Stroke Option	A mm [in]
L4	B, A, 2, 4	92 [3.62]
L6	C, 6	112 [4.41]
L8	F, 8	132 [5.20]

86P40/86P60 ACCESSORIES

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

F1 Bellows (Piston Rod Cover)



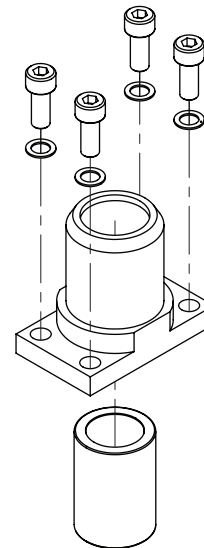
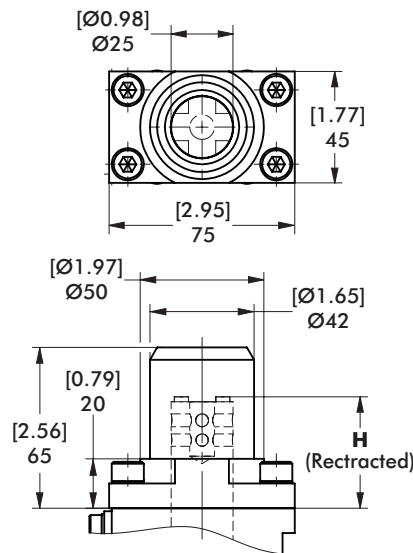
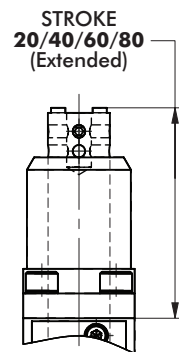
Extended



Retracted

R1 Guide Bushing

Piston Rod 05 Shown

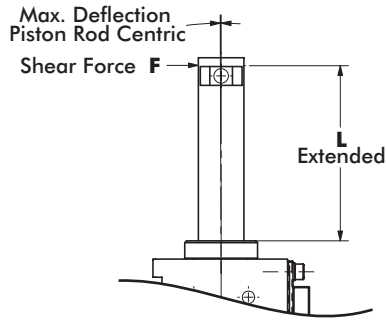


Model No.	Piston Rod Adapter	Stroke				
		H mm [in]	20 mm [in]	40 mm [in]	60 mm [in]	80 mm [in]
86P40-2...	01	22 [0.87]	42 [1.65]	62 [2.44]	82 [3.23]	102 [4.02]
86P60-2...	02	45 [1.77]	65 [2.56]	85 [3.35]	105 [4.13]	125 [4.92]
86P60H2...	05					
56H40-2...						

86P40/86P60

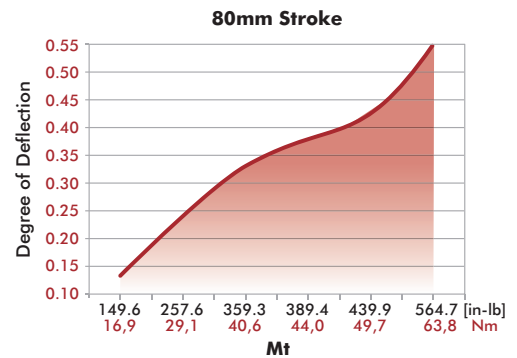
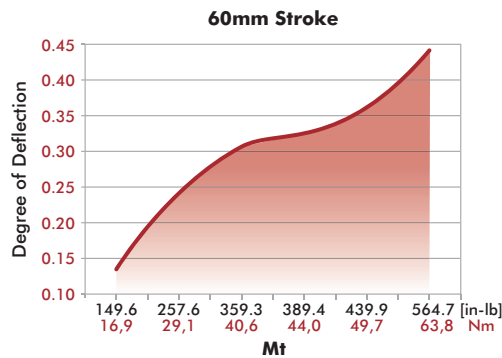
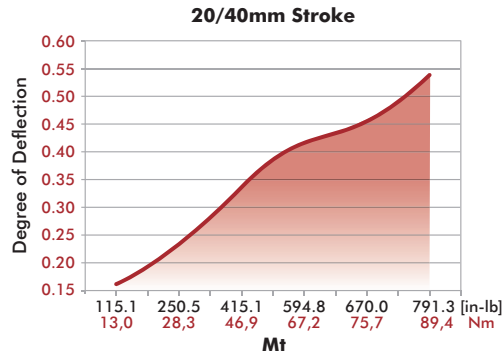
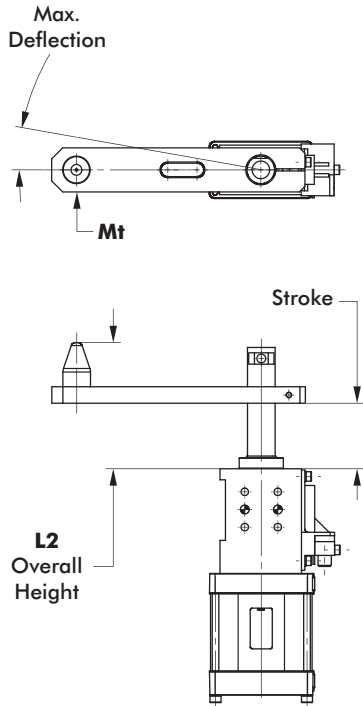
Pneumatic Pin Package | Single Shaft | Technical Specifications

Maximum Deflection for Centering Pin



Model no.	Shear force N [lbs]	L mm [in]	Stroke mm [in]	Deflection mm [in]
86P40 / 60-2...B / 2	200 [45]	52 [2.05]	20 [0.79]	0,06 [0.002]
86P40 / 60-2...A / 4		70 [2.76]	40 [1.58]	0,09 [0.004]
86P40 / 60-2...C / 6		90 [3.54]	60 [2.36]	0,12 [0.005]
86P40 / 60-2...F / 8		115 [4.53]	80 [3.15]	0,15 [0.006]

Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height $L2 > 120$ mm [4.7 in] ($L2$ = extended piston rod plus centering pin).

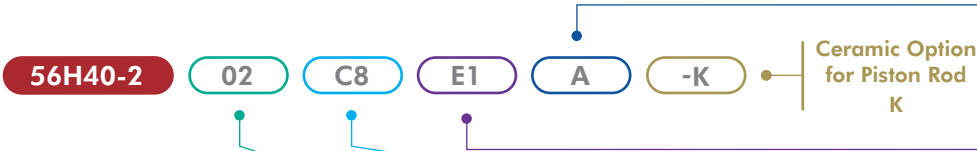


Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height $L2 > 120$ mm [4.7 in] ($L2$ = extended piston rod plus centering pin).

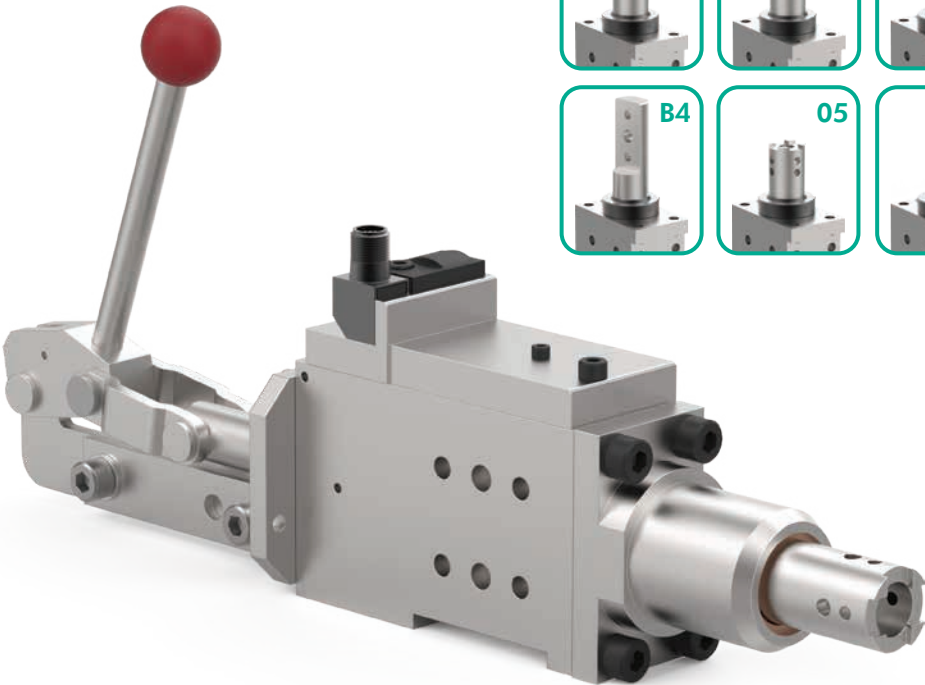
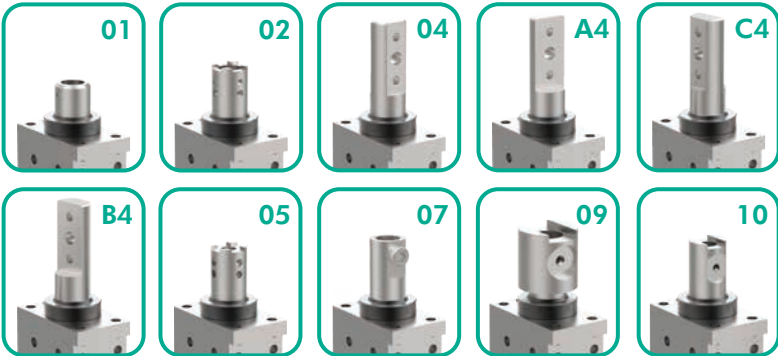


56H40-2

Manual Pin Package | Single Shaft | Ordering Information



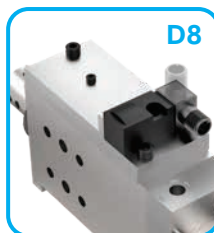
Piston Rod	Description
01	Ø16 mm Inside Hole (Standard)
02	Ø16 mm M6 Threaded Inside Hole, Cross Groove
04	NAAMS Standard
A4	NAAMS Standard Rotated 180°
B4	NAAMS Standard Rotated 90°
C4	NAAMS Standard Rotated 270°
05	Ø10 mm Inside Hole, Cross Groove
07	Ø16 mm Inside Hole, NAAMS
09	Ø20 mm Straight Groove
10	Ø12 mm Straight Groove



Accessories	Description
00	No Accessories
F1	Bellows for piston rods 02, 05, 07, 10 in strokes B, A, 2, 4 (82ZB-013-3)
R1	Guide Bushing for piston rods 01, 02, 05 (82ZB-192-1)



Sensor	Description
L4	Cover Plate for B, A, 2, 4 (86P0-200L4)
L6	Cover Plate for C, 6 (86P0-200L6)
D8	Inductive Sensing System with 90° M12x1 Swivel Connector for B, A, 2, 4 (86P0-200D8), for C, 6 (86P0-200D8006)



Sensor Cables Order separately

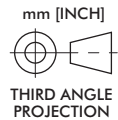
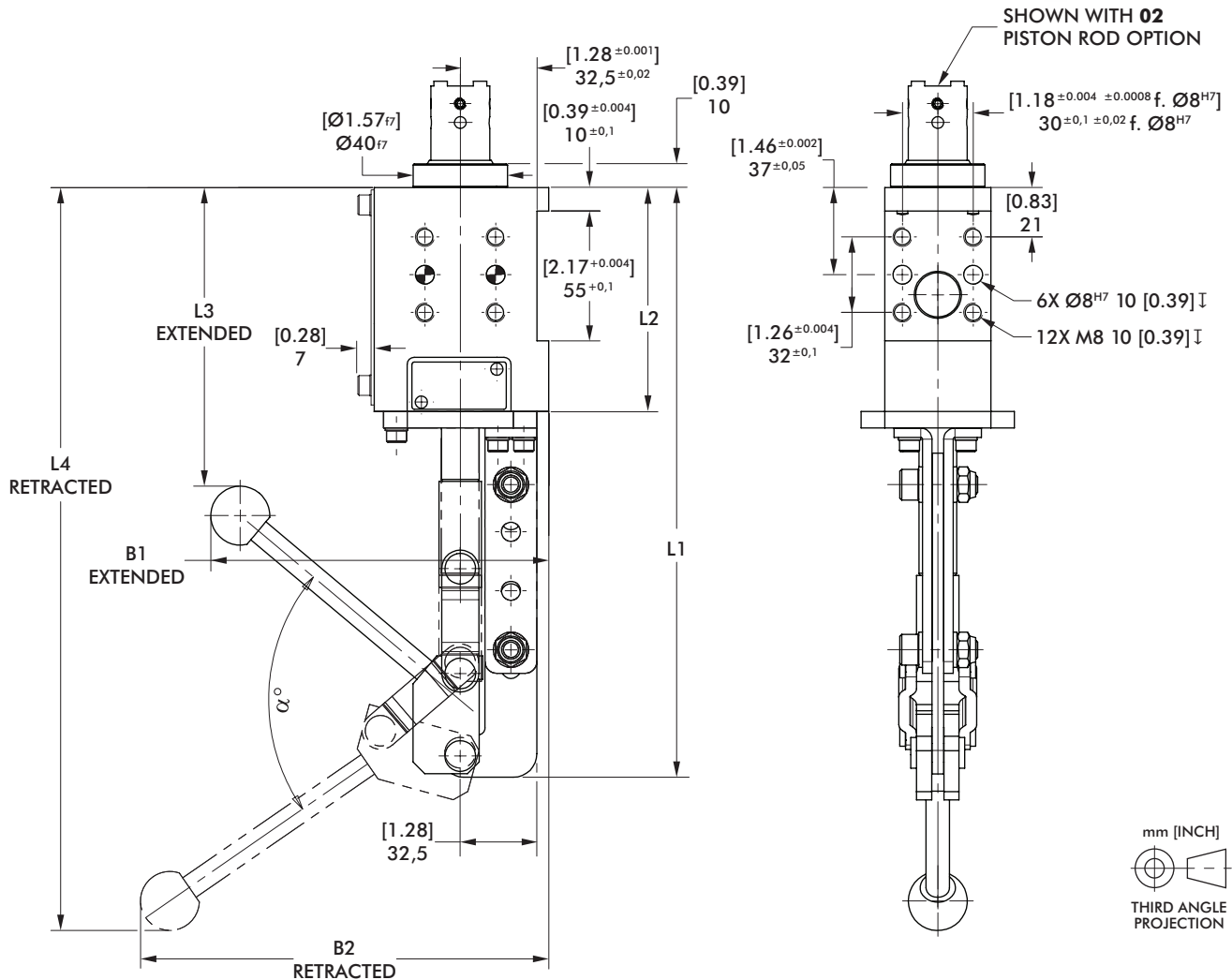
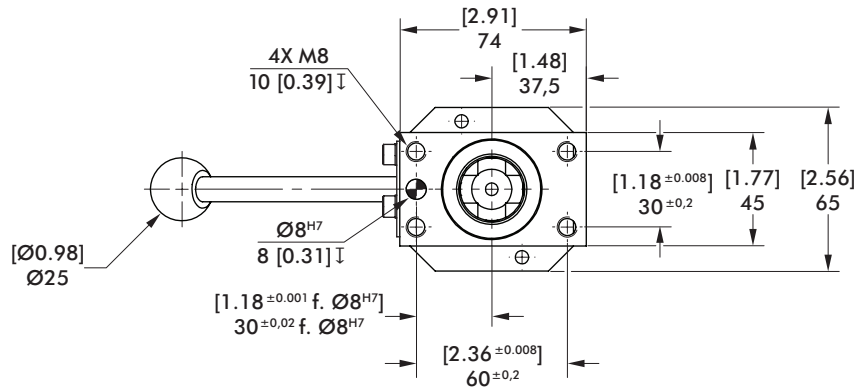
Order No.	Description
8EL-002-1	M12x1, Straight, 5-pin Connector with 5 m [16 ft.] Cable
8EL-003-1	M12x1, Angular, 4-pin Connector with 5 m [16 ft.] Cable

Stroke	Description
	Anti-Twist Device/Low Accuracy
B	20 mm Stroke (8MF-071-1)
A	40 mm Stroke (8CE-231-1)
C	60 mm Stroke (8CE-231-1)
	Anti-Twist Device
2	20 mm Stroke (86P0-20000002)
4	40 mm Stroke (86P0-20000004)
6	60 mm Stroke (86P0-20000006)



56H40-2

Manual Pin Package | Single Shaft | Dimensions and Technical Specifications

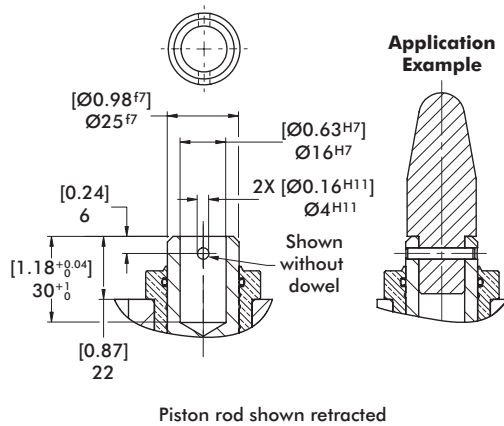


Base Model	Stroke Option	Stroke +2 mm [in]	B1 (extended) mm [in]	B2 (retracted) mm [in]	L1 (max.) mm [in]	L2 mm [in]	L3 (extended) mm [in]	L4 (retracted) mm [in]	Opening Angle α	Weight Kg [lbs]
56H40-2	B, 2	20 [0.79]		188 [7.40]	270 [10.63]		146 [5.75]	277 [10.91]	50°	2,0 [4.41]
	A, 4	40 [1.57]	144 [5.67]	173 [6.81]	250 [9.84]	95 [3.74]	126 [4.96]	315 [12.40]	75°	
	C, 6	60 [2.36]		116 [4.57]	270 [10.63]	115 [4.53]	146 [5.75]	394 [15.51]	109°	

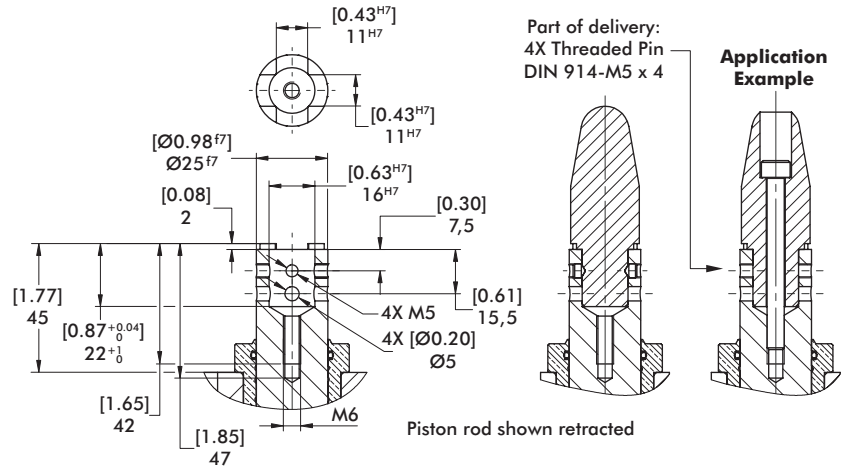
56H40-2 PISTON RODS

Manual Pin Package | Single Shaft | Dimensions and Technical Specifications

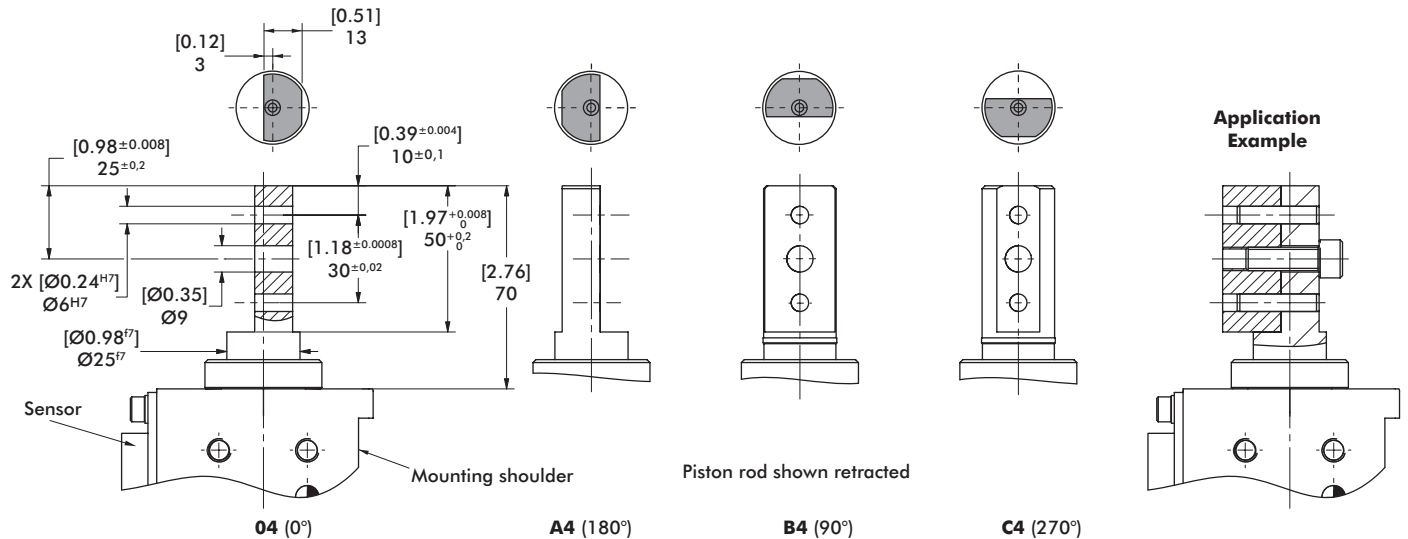
01 Ø16 mm Inside Hole



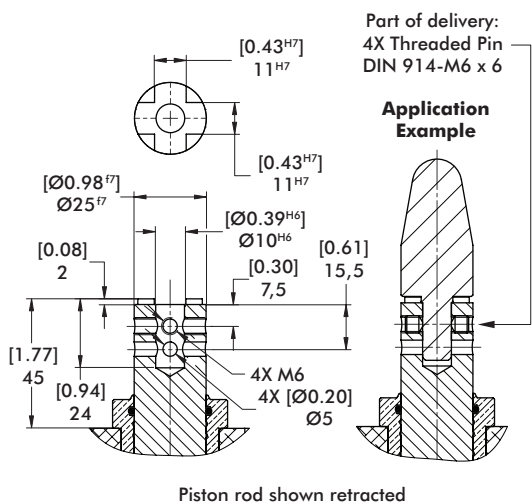
02 Ø16 mm M6 Threaded Inside Hole, Cross Groove



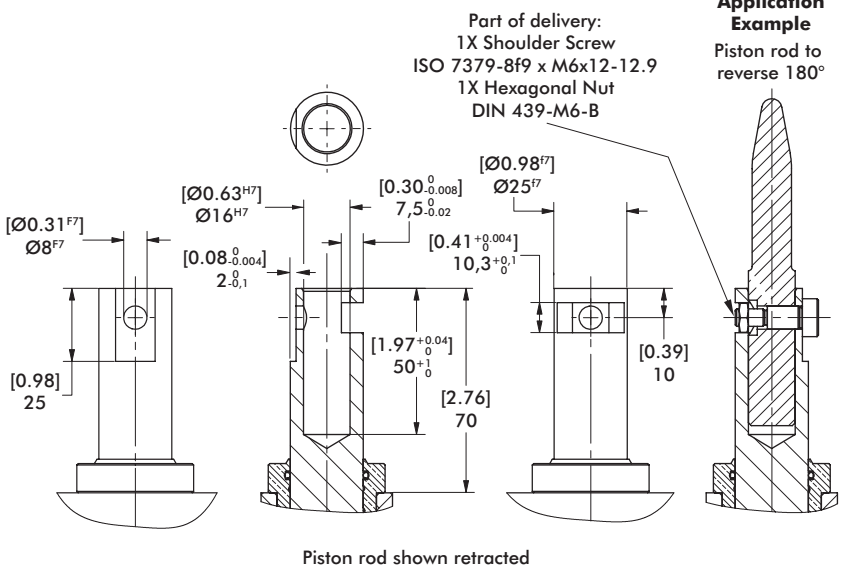
04, A4, B4, C4 NAAMS Standard



05 Ø10 mm Inside Hole, Cross Groove



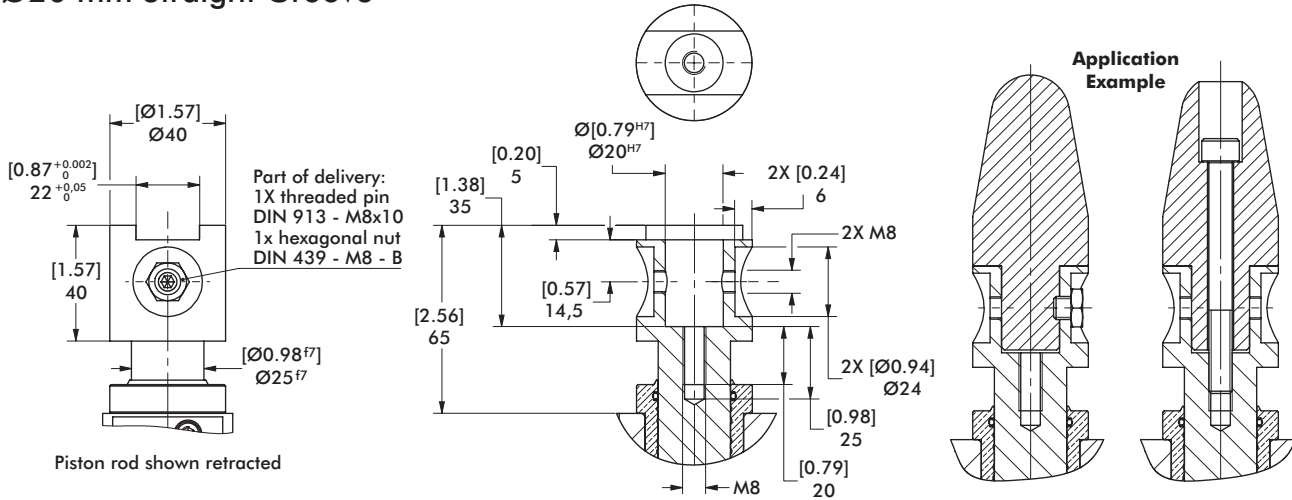
07 Ø16 mm Inside Hole, NAAMS



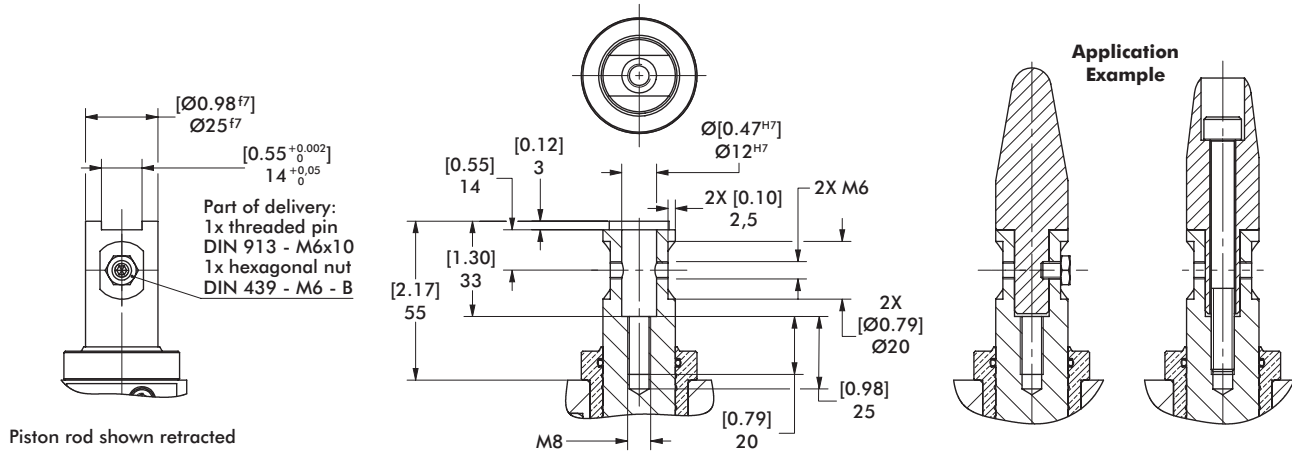
56H40-2 PISTON RODS

Manual Pin Package | Single Shaft | Dimensions and Technical Specifications

09 Ø20 mm Straight Groove



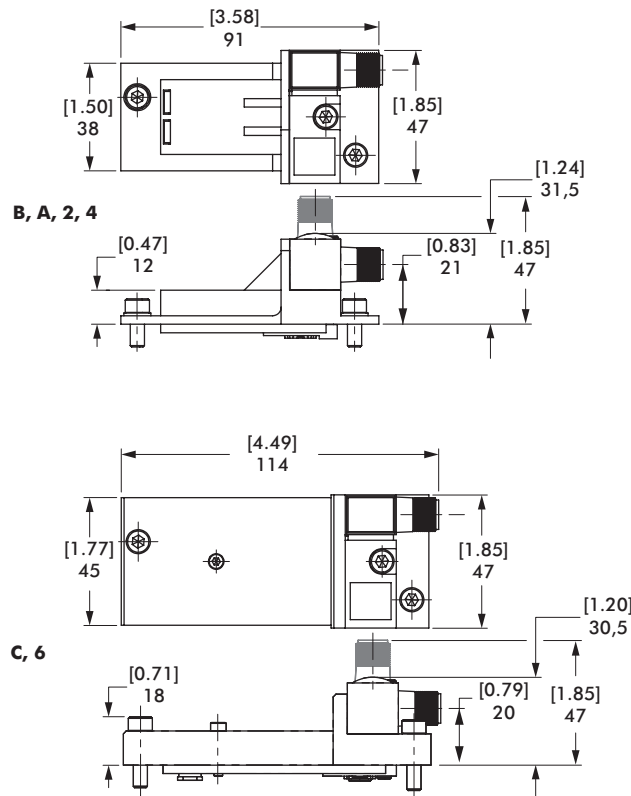
10 Ø12 mm Straight Groove



56H40-2 SENSORS

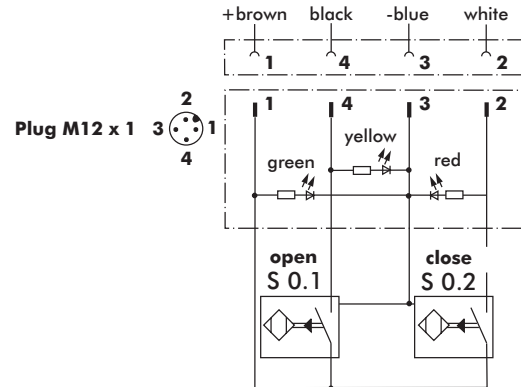
Manual Pin Package | Single Shaft | Dimensions and Technical Specifications

D8 Inductive Sensing System with 90° Swivel Connector

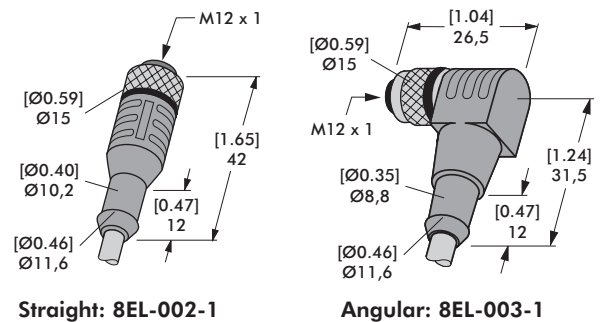


Inductive Sensor Wiring Diagram

Sensing system immune to interference from AC / DC arc welding.



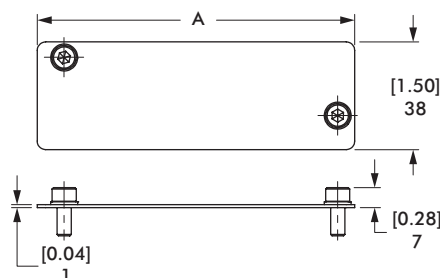
Sensor Cable Accessories



Order no. Sensor Cables (1 connector & 5m cable)

8EL-002-1	M12x1, Straight, 5-pin Connector with 5 m [16 ft.] Cable
8EL-003-1	M12x1, Angular, 4-pin Connector with 5 m [16 ft.] Cable

L4, L6 Sensor Cover Plate



Cover Plate Option	Stroke Option	A mm [in]
L4	B, A, 2, 4	92 [3.62]
L6	C, 6	112 [4.41]

56H40-2 ACCESSORIES

Manual Pin Package | Single Shaft | Dimensions and Technical Specifications

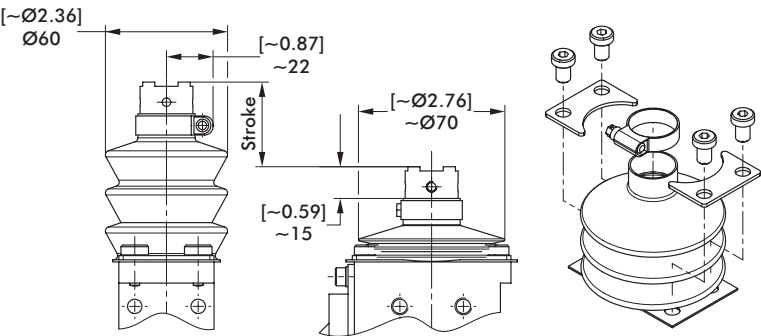
F1 Bellows (Piston Rod Cover)



Extended



Retracted

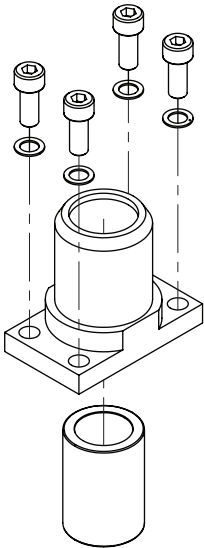
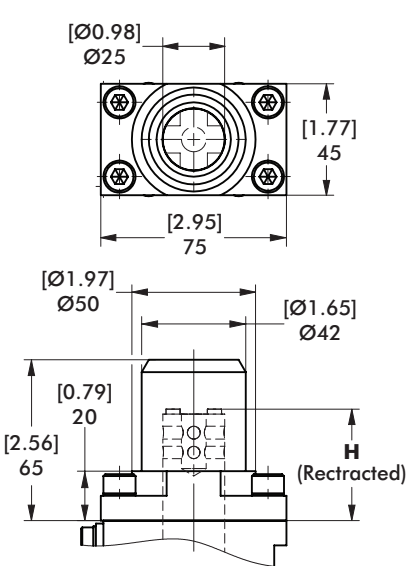
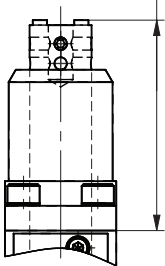


R1 Guide Bushing



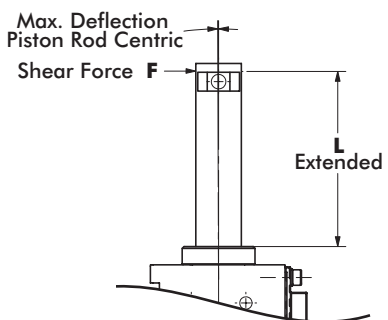
Piston Rod 05 Shown

STROKE
20/40/60/80
(Extended)



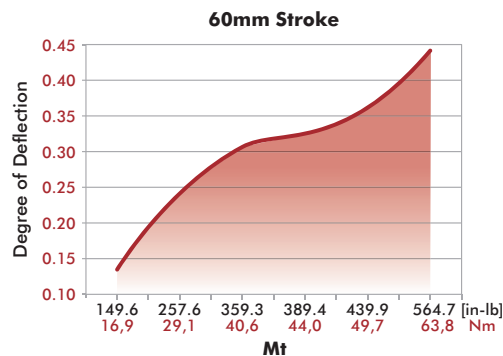
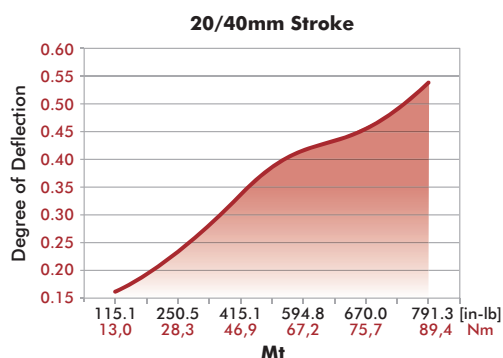
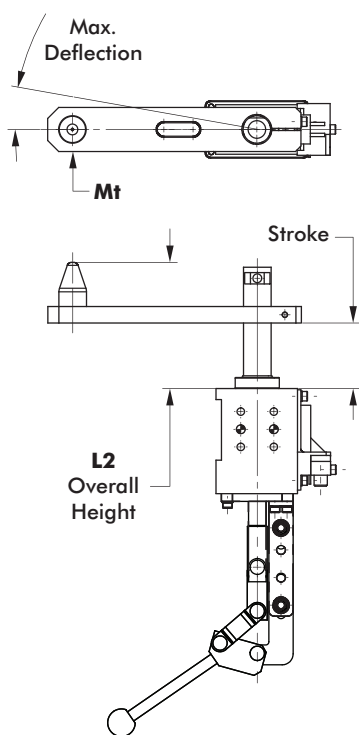
Model No.	Piston Rod Adapter	Stroke				
		H mm [in]	20 mm [in]	40 mm [in]	60 mm [in]	80 mm [in]
86P40-2...	01	22 [0.87]	42 [1.65]	62 [2.44]	82 [3.23]	102 [4.02]
86P60-2...	02	45 [1.77]	65 [2.56]	85 [3.35]	105 [4.13]	125 [4.92]
86P60H2...	02	45 [1.77]	65 [2.56]	85 [3.35]	105 [4.13]	125 [4.92]
56H40-2...	05	45 [1.77]	65 [2.56]	85 [3.35]	105 [4.13]	125 [4.92]

Maximum Deflection for Centering Pin



Model no.	Shear force N [lbs]	L mm [in]	Stroke mm [in]	Deflection mm [in]
56H40-2...B / 2	200 [45]	52 [2.05]	20 [0.79]	0,06 [0.002]
56H40-2...A / 4		70 [2.76]	40 [1.58]	0,09 [0.004]
56H40-2...C / 6		90 [3.54]	60 [2.36]	0,12 [0.005]

Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height $L2 > 120$ mm [4.7 in] ($L2$ = extended piston rod plus centering pin).



Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height $L2 > 120$ mm [4.7 in] ($L2$ = extended piston rod plus centering pin).

85P5-1

Pneumatic Pin Package | Single Shaft | Ordering Information

85P5-1 **04** **B8** **E1** **H** **0** **-K**

Plunger **K** Description
Ceramic Coated Plunger

Stroke **0** Description
without Stroke Limiter

Accessories Description

00 No Accessories

E1* External Guide (82ZB-010-2)
*External Guide can be mounted to front or sides of unit by customer.

Hand Lever Description

0 No Hand Lever

H Hand Lever
*Hand Lever can be attached on either side of unit.

Piston Rod Description

02 Ø16 mm M6 Threaded
Inside Hole, Cross Groove

04 NAAMS Standard

A4 NAAMS Standard Rotated 180°

05 Ø10 mm Inside Hole, Cross Groove

Sensor Description

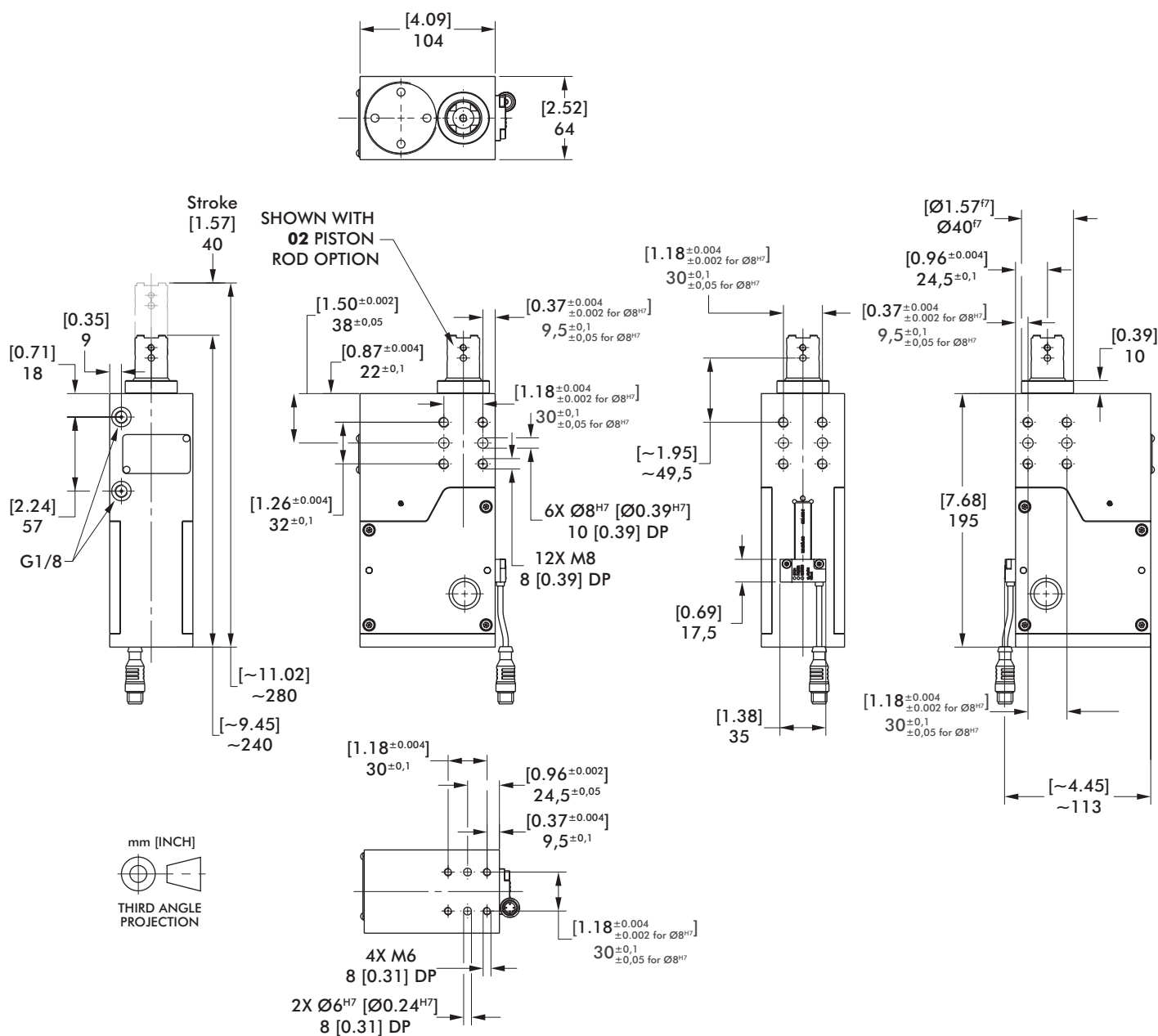
00 Without Sensing System

B8 Inductive Sensing System with M12x1
Cable Connector (8EA-033-2)

Shown with Hand
Lever H Option.
Hand Lever can be
attached on either
side of unit.

External Guide
E1 option shown.
Can be mounted
to front or sides of
unit by customer.

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications



Medium: Operation with oil free air is permissible

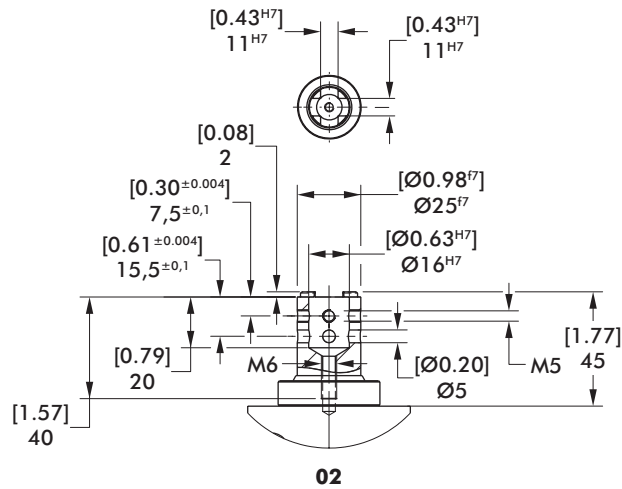
Note: Extracting force and retracting force shown in this chart are only available with the last 2 mm stroke at extracted position. In the other range of the stroke the forces will be approximately 30% of value in the chart.

Base Model	Stroke mm [in]	Pushing Force at 6 bar N [lbf]	Retraction Force at 6 bar N [lbf]	Holding Force at 6 bar N [lbf]	Max. Operating Pressure bar [psi]	Piston Ø mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm³ [ft³]
85P5-1	40 [1.57]	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	3,8 [8.36]	1,1 [0.04]

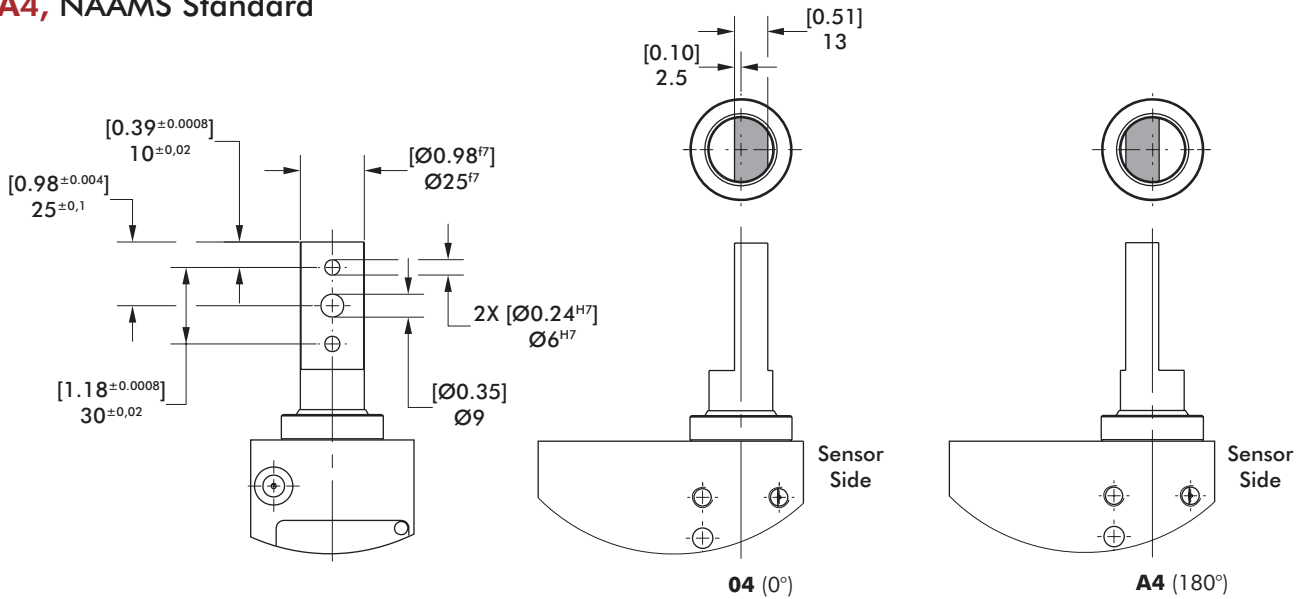
85P5-1 PISTON RODS

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

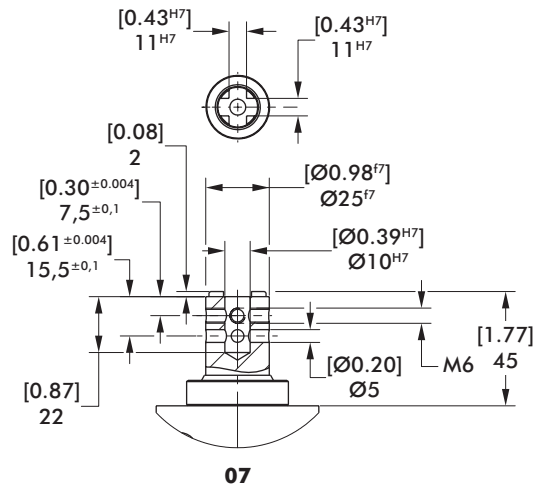
02 Ø16 mm M6 Threaded Inside Hole, Cross Groove



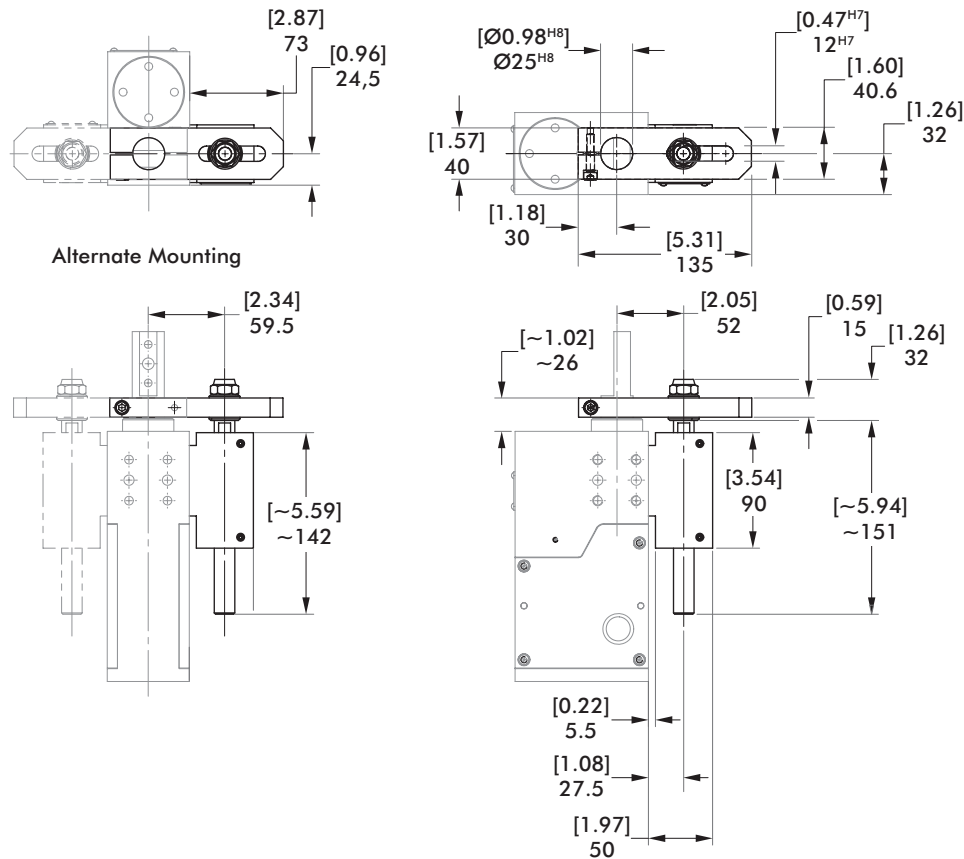
04, A4, NAAMS Standard



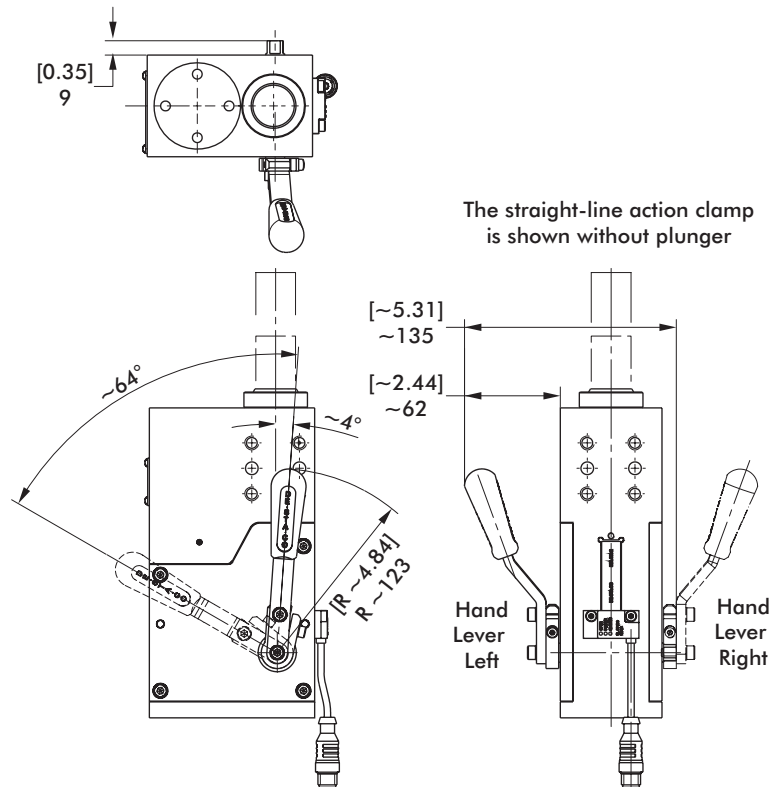
07 Ø16 mm Inside Hole, NAAMS



E1 External Guide



H Hand Lever



Model no.

85P5-1****00H0

Weight
kg [lb]

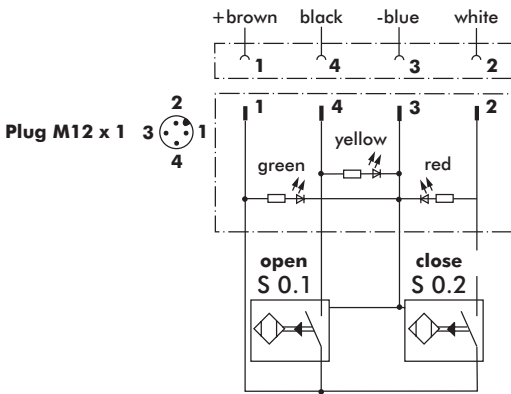
4 [8.82]

85P5-1

Pneumatic Pin Package | Single Shaft | Dimensions and Technical Specifications

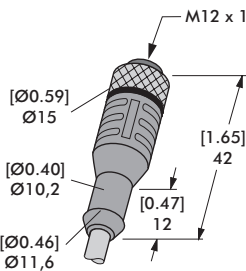
Inductive Sensor Wiring Diagram

Sensing system immune to interference from A.C./D.C. arc welding.

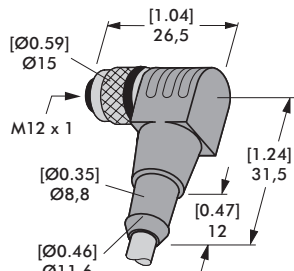


Sensor Accessories and Spare Parts

Description	Order no.
Sensor Cables (1 connector & 5 m cable)	
M12x1 connector, straight, 5-pin	8EL-002-1
M12x1 connector, 90° angular, 4-pin	8EL-003-1
Spare Parts	
Cylinder	8PW-105-1
Cylinder Seal Kit	8PW-105-1-00



Straight: 8EL-002-1



Angular: 8EL-003-1

