



	Series	Section Page	Pushing Force (N) at 5 bar				Retracting Force at 5 bar				Piston Diameter			Stroke			Weight			Air Consumption at 5 bar [dm3]			Application Area										
			0 to 500 [N]	500 to 1000 [N]	1000 to 1500 [N]	1500 to 2000 [N]	0 to 500 [N]	500 to 1000 [N]	1000 to 1500 [N]	1500 to 2000 [N]	32mm	40mm	50mm	63mm	20mm	40mm	60mm	0 to 1 [Kg]	1 to 2 [Kg]	2 to 3 [Kg]	3 to 4 [Kg]	0 to 0.5 [dm3]	0.50 to 1.00 [dm3]	1.00 to 2.00 [dm3]	2.00 to 2.50 [dm3]	Welding	Assembly	Machining	Duty Cycle	Dual Pin Option	Ceramic Coated Pin Option	Toggle Locking (Extended)	
	86P30	16.2	■				■				■				■	■			■								●	●	●	●			
	86P30-1D5	16.6	■				■				■				■	■				■			■				●	●	●	●	✓		
	86P4	16.10	■				■				■				■	■	■		■				■	■			●	●	●	●		✓	
	86P6	16.10					■				■				■	■	■		■				■				●	●	●	●		✓	
	86D60-1	16.16					■				■				■	■	■		■				■	■			●	●	●	●	✓	✓	
	85P5	16.20					■				■				■		■						■				●	●	●	●		✓	✓

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series **86P30-1** Product Overview

Pneumatic pin packages, enclosed single units with 32mm diameter cylinders

Models: **86P30-105.....**

Application:

Accurate positioning of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Features:

- Compact, low weight design
- High accuracy of positioning
- Lateral and front-face mounting areas
- Mounting base for centring pin incl. precision bore holes and grooves
- Inductive sensing module with LED display
- Long body for 40mm stroke, short body 20mm stroke
- Long & short body are interchangeable in connecting



86P30-105B8004 base model (w/o sensing, w/o add-ons)



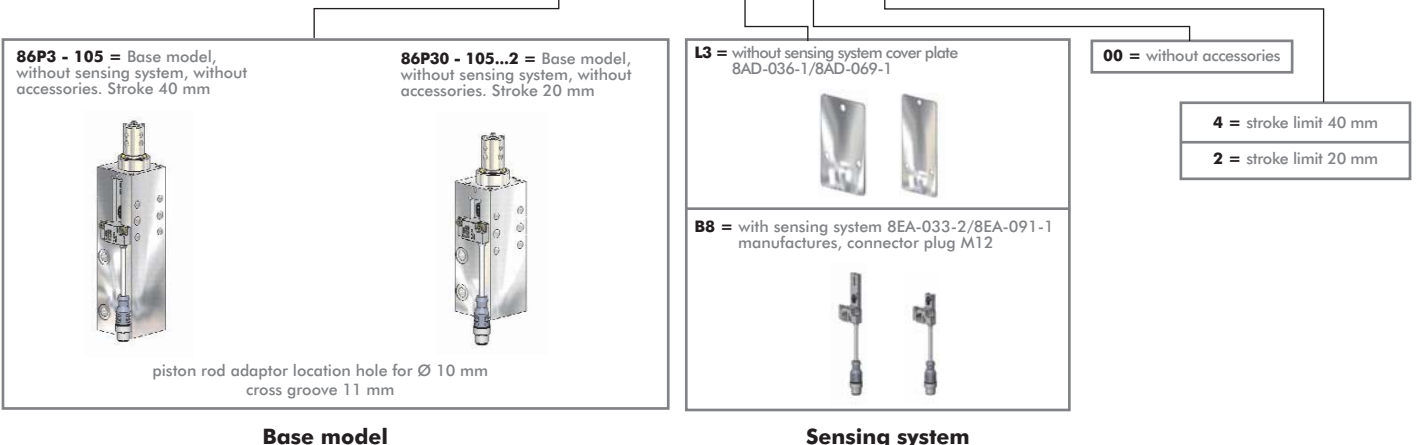
86P30-105B8002 base model w/ sensing (w/o add-ons)

Series **86P30-1** Technical Information

Model no.		Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
86P30-105L3004	86P30-105B8004	390 [88]	290 [65]	6 [87]	32 [1.26]	40 [1.57]	1,0 [2.20]	0,48 [0.02]
86P30-105L3002	86P30-105B8002	390 [88]	290 [65]	6 [87]	32 [1.26]	20 [0.79]	0,85 [1.87]	0,34 [0.01]

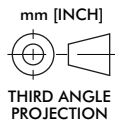
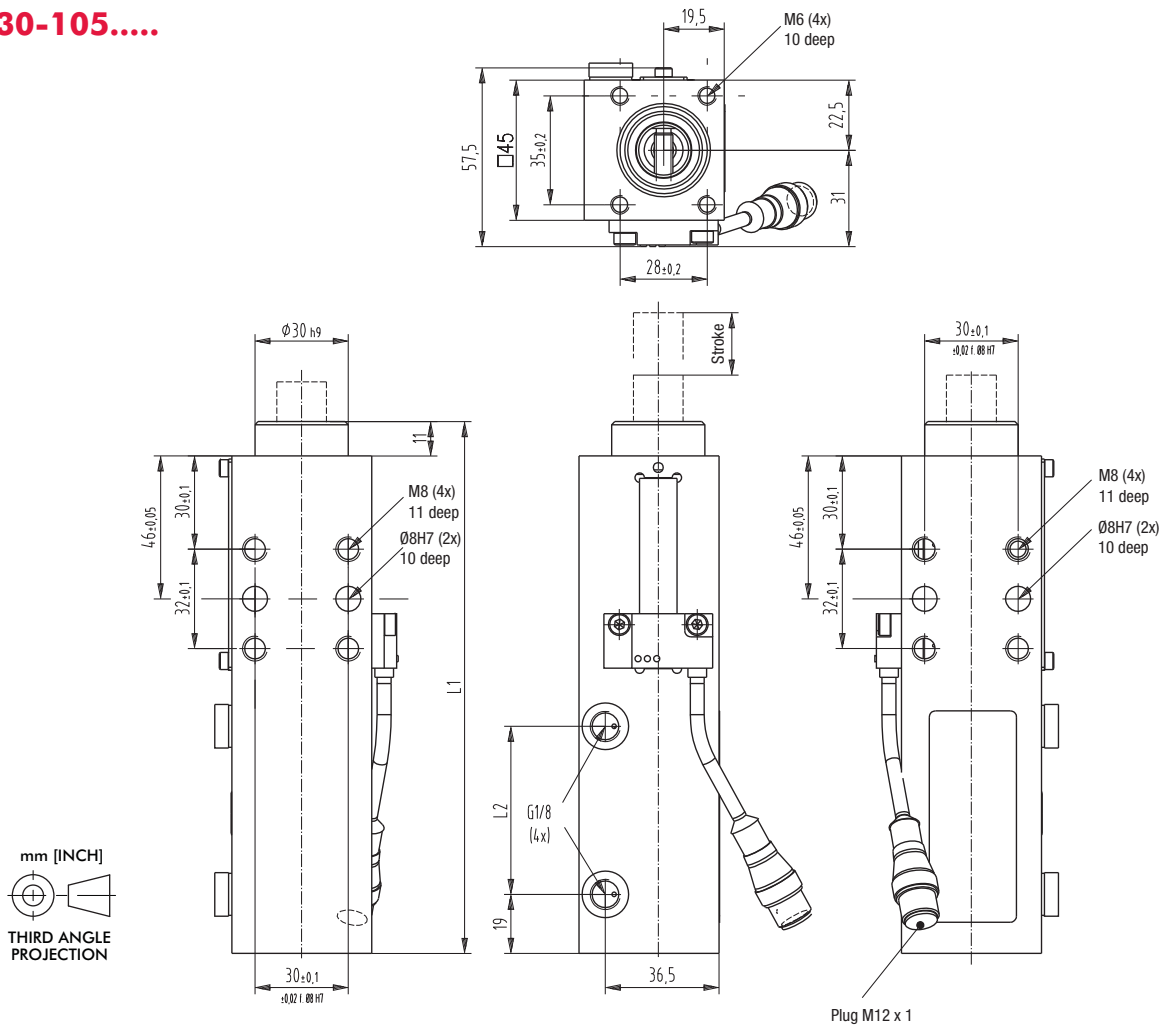
Order no. code for pin packages **86P30-105.....**

Example Order no.: **86P30 - 1 0 5 B8 00 4**



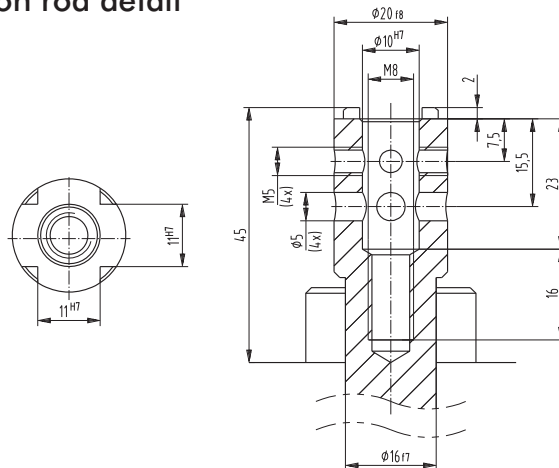
Series **86P30-1** Standard Pin Package Dimensions

86P30-105.....



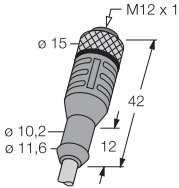
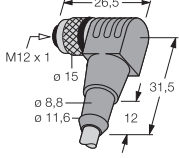
Model no.	L1 [mm]	L1 [mm]	Stroke [mm]
86P30-105..004	171	54	40
86P30-105..002	136	34	20

86P30-105..... Piston rod detail

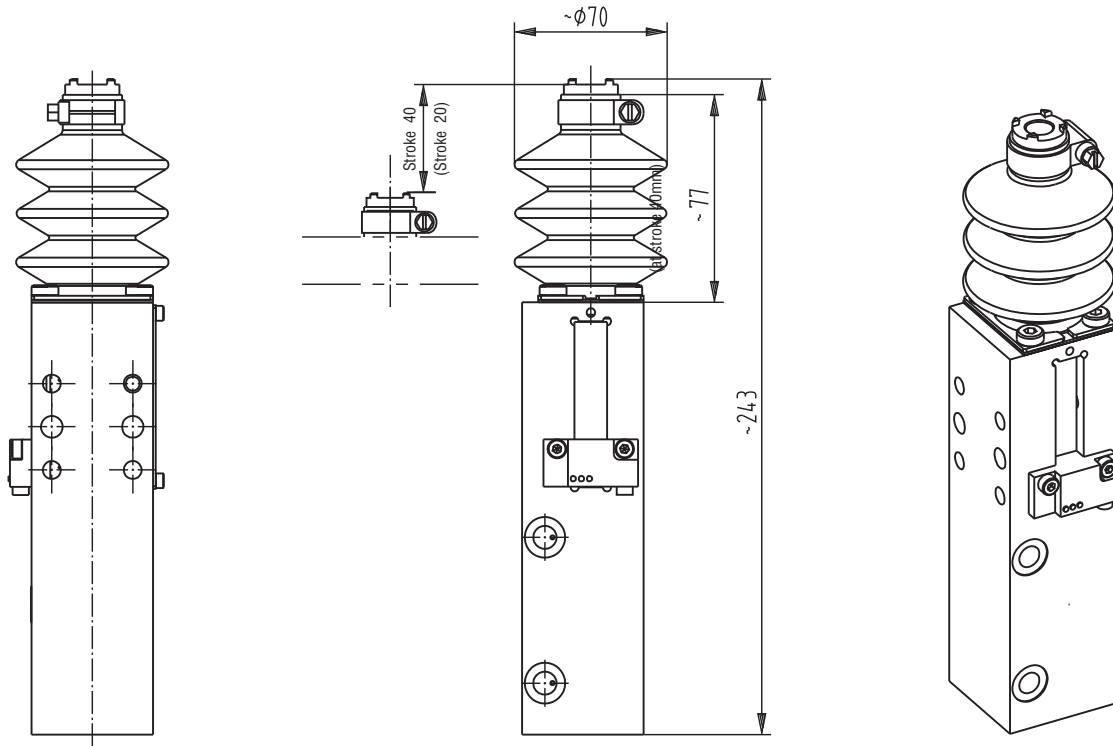


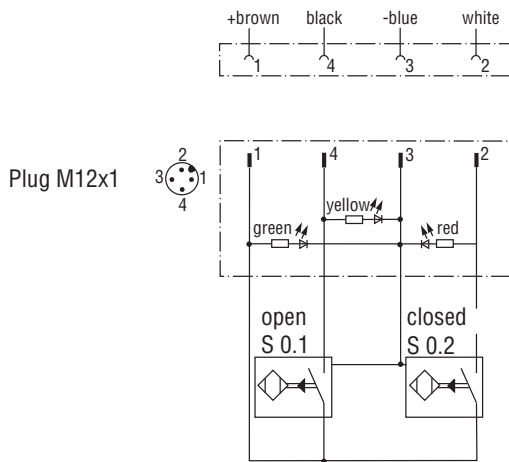
View shows piston rod in retracted position

Series **86P30-1** Accessories

Specifications	Order no. for 86P30-105.....
Bellows	82ZB-016-4
Connecting cable (1 connector socket & 5 m cable)	8EL-002-1
<p>Connector socket M12x1 straight, 5-pin</p> 	8EL-003-1
<p>Connector socket M12x1 90 Degree, 4-pin</p> 	

Bellows 82ZB-016-4
Mounted on 86P30-105L3000





Wiring diagram of electrical sensing system
Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:

- **B8** Connector plug M12x1 w/ lead

Major spare parts for **86P30-105.....**

Specifications	Order no. for 86P30-105..4	Order no. for 86P30-105..2
End position sensing system B8 inductive connector plug M12x1 w/ lead	8EA-033-2	8EA-091-1
Seal kit	86P3-1-00	

Series **86P30-1D5** Product Overview

Pneumatic pin packages, enclosed twin units with 32mm diameter cylinders

Models: **86P30-1D5.....**

Application:

Accurate positioning, with high precision of rotation, of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig. The pin package can also be used for centring pin positions outside the piston rod axis.

Features:

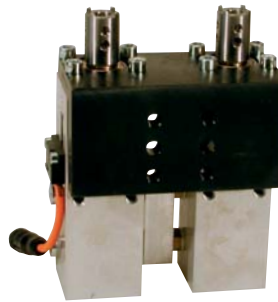
- Compact, low weight design
- High accuracy due to twin piston rod guide
- Lateral mounting areas
- Mounting base for centring pin incl. precision bore holes and grooves
- 1 inductive sensing module with LED display
- Twin guide for off-centre pins
- Long body for 40mm stroke, short body 20mm stroke
- Long & short body are interchangeable in connecting

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.



86P30-1D5B8004
base model w/ sensing
(w/o add-ons)



86P30-1D5B8G12
with central air connection


Series **86P30-1D5** Technical Information

Model no.		Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm³ [ft³]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
86P30-1D5L3004	86P30-1D5B8004	780 [175]	580 [130]	6 [87]	2x32 [1.26]	40 [1.57]	3,0 [6.60]	0,96 [0.03]
86P30-1D5L3002	86P30-1D5B8002	780 [175]	580 [130]	6 [87]	2x32 [1.26]	20 [0.79]	2,7 [5.94]	0,68 [0.02]
86P30-1D5L3G14	86P30-1D5B8G14	780 [175]	580 [130]	6 [87]	2x32 [1.26]	40 [1.57]	3,1 [6.82]	0,96 [0.03]
86P30-1D5L3G12	86P30-1D5B8G12	780 [175]	580 [130]	6 [87]	2x32 [1.26]	20 [0.79]	2,8 [6.16]	0,68 [0.02]

Order no. code for pin packages **86P30-1D5.....**

Example Order no.: **86P30 - 1 D 5 B8 00 4**

86P3-1D5 = Base model without sensing system, without accessories



piston rod adapter location hole for Ø 10 mm cross groove 11 mm

Base model

B8 = with sensing system 8EA-033-2/ 8EA-091-1 connector plug M12




Sensing system

L3 = without sensing system cover plate 8AD-036-1/8AD-069-1



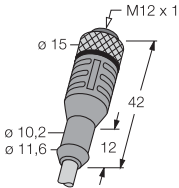
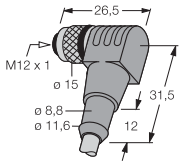
00 = without accessories
G1 Air Manifold
82ZB-029-1 40mm stroke
82ZB-041-1 20mm stroke



Accessories

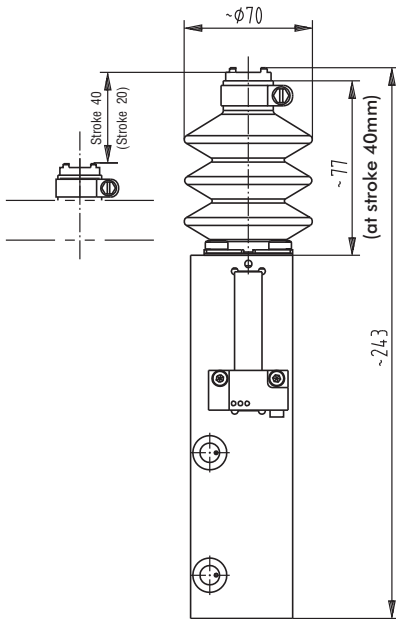
4 = stroke 40 mm
2 = stroke 20 mm

Series **86P30-1D5** Accessories

Specifications	Order no. for 86P30-1D5.....
Bellows	82ZB-016-4
Connecting cable (1 connector socket & 5 m cable)	8EL-002-1
Connector socket M12x1 straight, 5-pin 	8EL-003-1
Connector socket M12x1 90 Degree 4-pin 	8EL-003-1

Bellows 82ZB-016-4

Mounted on piston rod



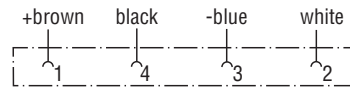
Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

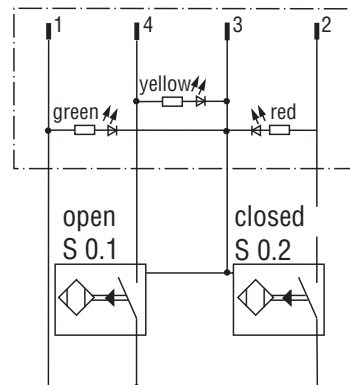
Inductive design:

- **B8** Connector plug M12x1 w/ lead (just 1 sensing system required)

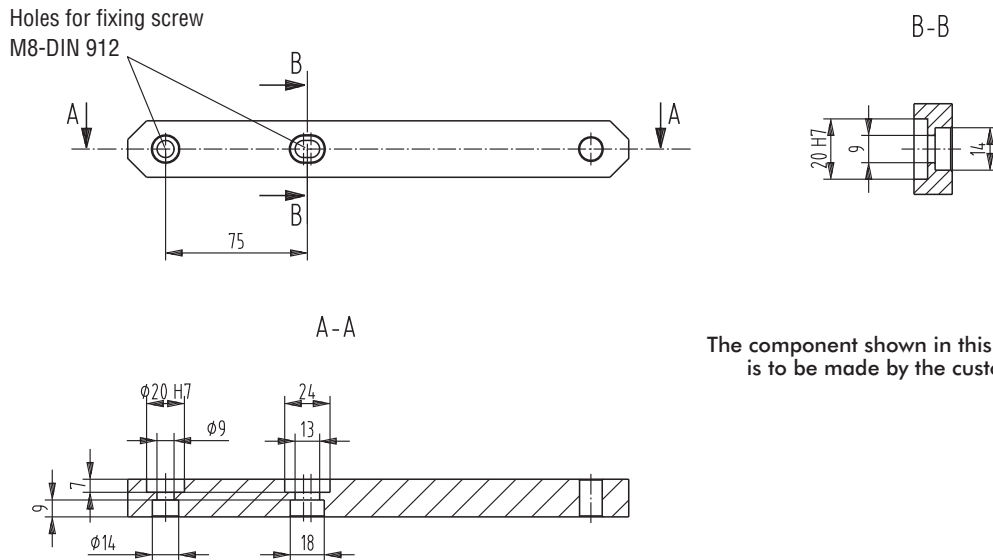
Pin assignment



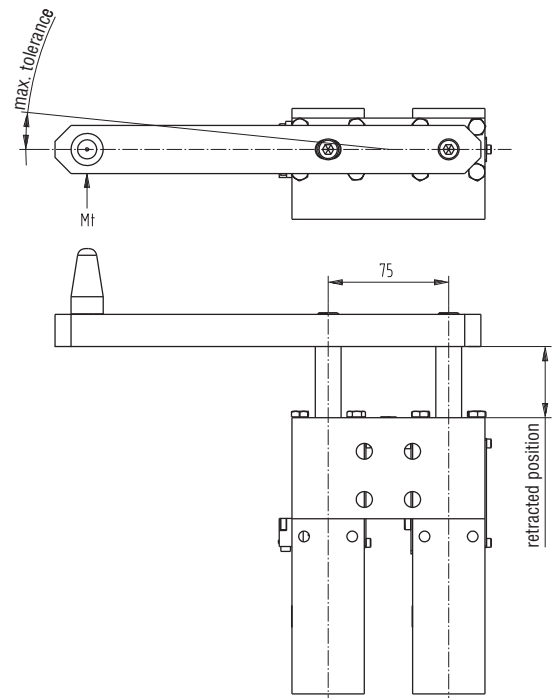
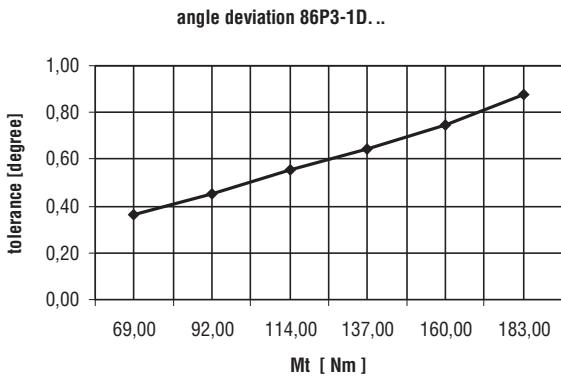
Plug M12x1



Example application of off-centre centring pin of **86P30-1D5.....**



Concept guidelines: angle deviation of off-centre centring pins



Major spare parts for **86P30-1D5.....**

Specifications	Order no. for 86P30-1D5..4	Order no. for 86P30-1D5..2
End position sensing system B8 inductive connector plug M12x1 w/ lead	8EA-033-2	8EA-091-1
Seal kit	86P3-1-00	

Series **86P40-2, 86P60-2** Product Overview

Pneumatic pin packages, single units

Models: **86P40-2**
86P60-2

Application:

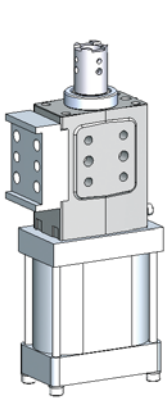
Accurate positioning of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig.

Key areas of application:

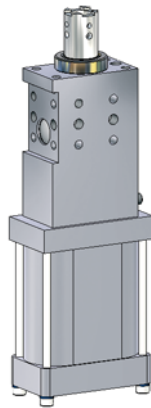
Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Features:

- Compact, low weight design
- High accuracy due to twin piston rod guide
- Lateral and front-face mounting areas
- Length of stroke: 20, 40 and 60 mm
- Various mounting bases for centring pin including precision bore holes and grooves or integrated thread
- Inductive sensing module with LED display
- One body for two cylinder sizes



86P60-202L4H14
with adaptor



86P60-202L6006
stroke 60 mm

Numbering code for **86P40/60-2** pin packages

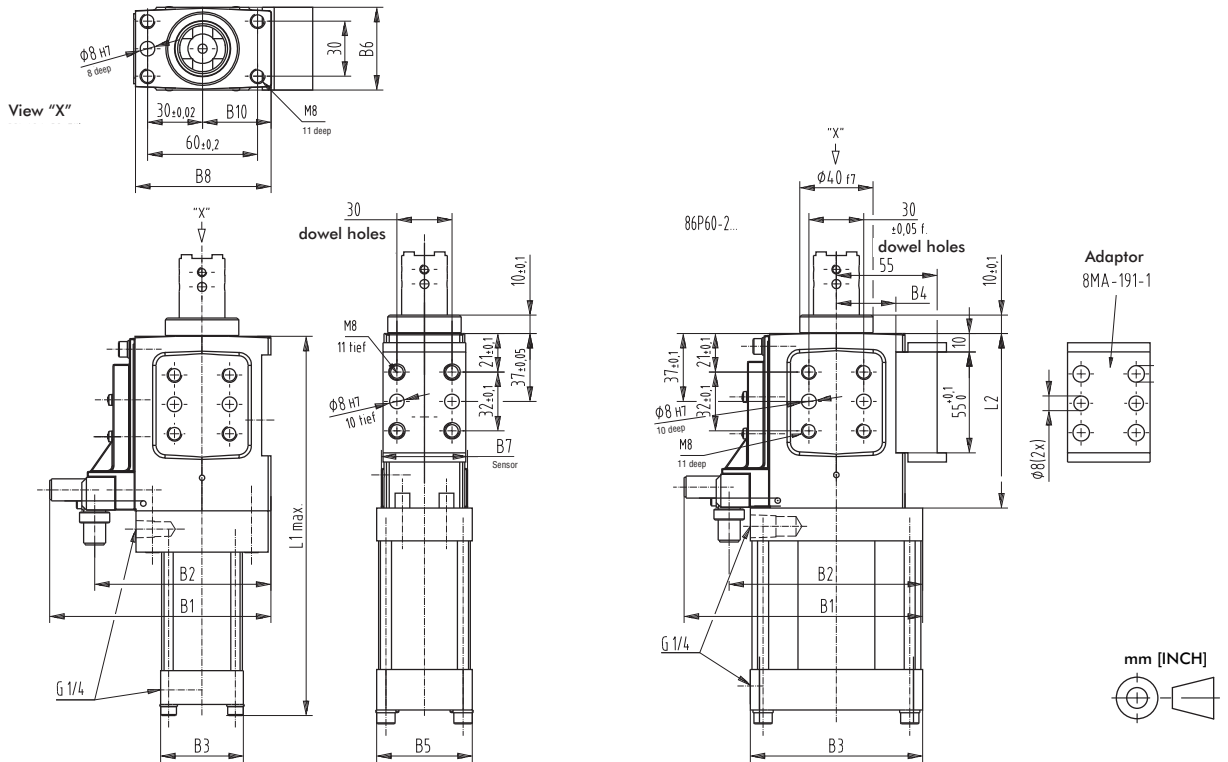
Example Model no.: **86P40 - 2 02 C8 00 A - K** ————— **K = ceramic coated pin**

<p>86P40-2 86P60-2</p> <p>H1 (optional to make up for 86P6-1...)</p>	<p>02 = piston rod adapter Ø 16 mm, cross groove and inside thread M6 8MS-104-1</p> <p>05 = piston rod adapter Ø 10 mm, cross groove 8MS-108-1</p>	<p>L4 (stroke 20/40) = without sensing system cover plate 86P0-200L4</p> <p>L6 (stroke 60) = without sensing system cover plate 86P0-200L6</p> <p>C8 = with sensing system 86P0-200C8 (for stroke 20/40) 86P0-200C8006 (for stroke 60) Fabr. Turck</p> <p>D8 = with sensing system 86P0-200D8 (for stroke 20 / 40) 86P0-200D8006 (for stroke 60) P&F</p> <p>C6 = with sensing system 86P0-200C6 (for stroke 20 / 40) 86P0-200C6006 (for stroke 60)</p>	<p>00 = without accessories</p> <p>E1 = (only with A or B) E1 = (only with C) external guide 82ZB-009-2</p> <p>F1 = Bellow 82ZB-013-3 (for stroke 20/40)</p> <p>G1 = Bellow/Adaptor (for stroke 20/40)</p> <p>H1 = Adaptor 86P0-2000H1</p> <p>J1 = (only with A and B) external guide Adaptor 86P0-2000J1</p>	<p>A = 40 mm stroke C = 60 mm stroke Anti - twist device low accuracy 8CE-231-1</p> <p>B = 20 mm stroke Anti - twist device low accuracy 8MF-071-1</p> <p>2 = 20 mm stroke Anti - twist device 86P0-2000002</p> <p>4 = 40 mm stroke Anti - twist device 86P0-2000004</p> <p>6 = 60 mm stroke Anti - twist device 86P0-2000006</p>
Base model	Piston rod adaptor	Inductive sensing system	Accessories	Instructions

Series 86P40/60-2 Technical Information

Model no.		Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Stroke "H" +2 mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
86P40-2...L4...	86P40-2..._8...	620 [139]	520 [117]	6 [87]	40 [1.57]	20 [0.79]	1,6 [3.52]	0,5 [0.02]
86P40-2...L4...	86P40-2..._8...	620 [139]	520 [117]	6 [87]	40 [1.57]	40 [1.57]	1,6 [3.52]	0,7 [0.02]
86P40-2...L6...	86P40-2..._8...	620 [139]	520 [117]	6 [87]	40 [1.57]	60 [2.36]	2,2 [4.84]	1,2 [0.04]
86P60-2...L4...	86P60-2..._8...	1550 [348]	1400 [315]	6 [87]	63 [2.48]	20 [0.79]	2,0 [4.40]	0,8 [0.02]
86P60-2...L4...	86P60-2..._8...	1550 [348]	1400 [315]	6 [87]	63 [2.48]	40 [1.57]	2,0 [4.40]	1,4 [0.05]
86P60-2...L6...	86P60-2..._8...	1550 [348]	1400 [315]	6 [87]	63 [2.48]	60 [2.36]	2,6 [5.72]	2,2 [0.08]

Series 86P40-2, 86P60-2 Standard Pin Package Dimensions

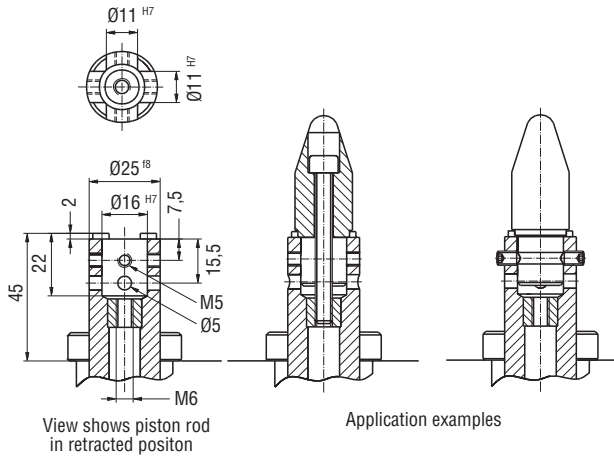


Medium: Operation with oil free air permissible

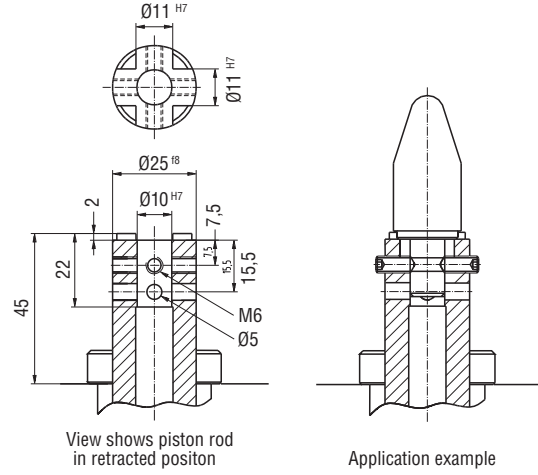
Model no.		B1	B2	B3	B4 + 0,02	B5	B6	B7	B8	B10	L1 max.	L2
w/o sensing	with inductive sensing connector M12x1 w/ lead											
86P40-2...L4...	86P40-2..._8...	121	96	45	32,5	45	45	47	74	37,5	207	95
86P40-2...L4...	86P40-2..._8...	121	96	45	32,5	45	45	47	74	37,5	207	95
86P40-2...L6...	86P40-2..._8...	114	97	45	32,5	45	45	47	74	37,5	247	115
86P60-2...L4...	86P60-2..._8...	130	106	94	32,5	52	45	47	74	37,5	213	95
86P60-2...L4...	86P60-2..._8...	130	106	94	32,5	52	45	47	74	37,5	213	95
86P60-2...L6...	86P60-2..._8...	124	107	94	32,5	52	45	47	74	37,5	253	115

Series **86P40-2, 86P60-2** Accessories

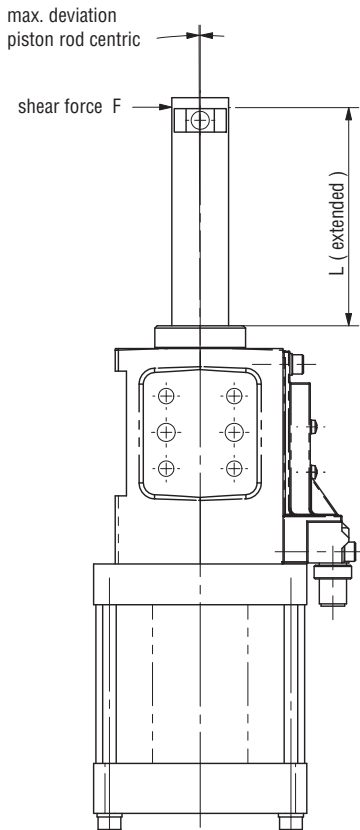
Pison Rod Model **-202** Detail mounting base Ø16 mm for **86P40-2, 86P60-2**



Pison Rod Model **-205** Detail mounting base Ø10 mm for **86P40-2, 86P60-2**



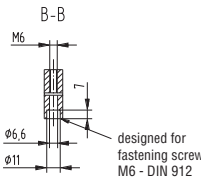
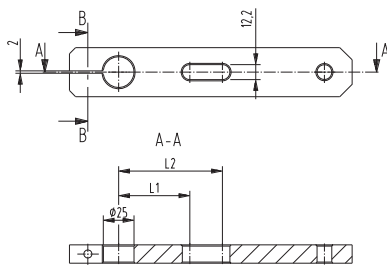
Max deflection for centering pin for **86P40-2, 86P60-2**



Model no.	Sheer force N [lbs]	L mm [in]	Stroke mm [in]	Deviation mm [in]
86P40 / 60-2...B / 2	200 [45]	52 [2.0]	20 [0.08]	0,06 [0.002]
86P40 / 60-2...A / 4	200 [45]	70 [2.8]	40 [1.60]	0,09 [0.004]
86P40 / 60-2...C / 6	200 [45]	90 [3.5]	60 [2.40]	0,12 [0.007]

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).

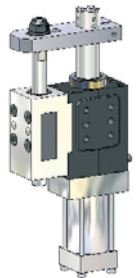
Example application of an off-center centering pin for 86P40-2, 86P60-2



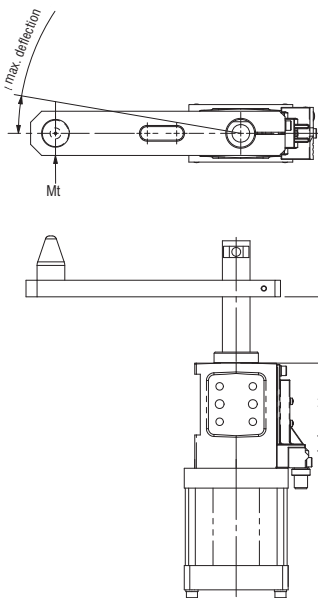
The component shown in this example is to be made by the customer

Model no.	L1	L2
86P40/60-2...E1 86P40/60-2...E2	58	62
86P40/60-2...J1*	80,5	84,5

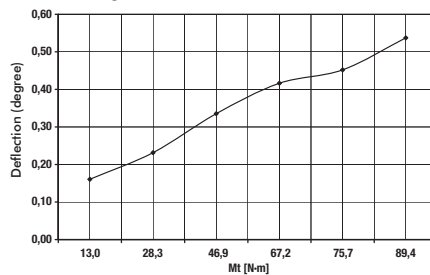
* J1 is not available with stroke 60 mm.



Internal anti-rotation device

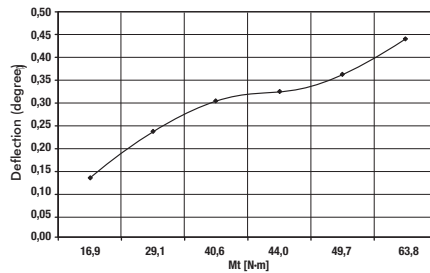


Angle deviation 86P40/60-20000002/-4

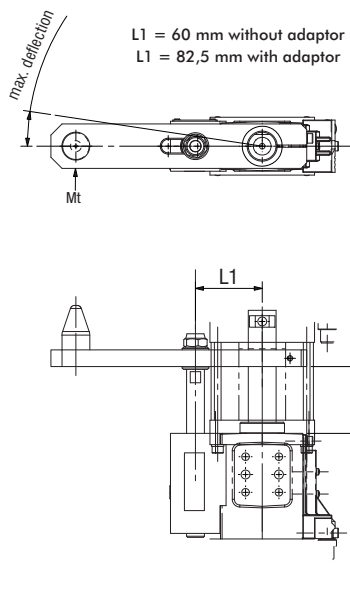


Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs] Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).

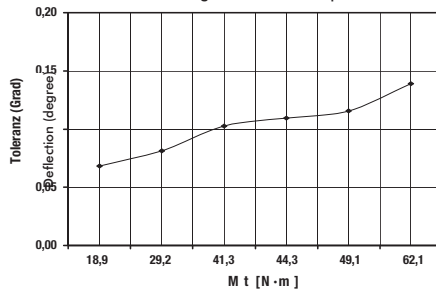
Angle deviation 86P40/60-202L6006



External guide 82ZB-009-2, 82ZB-010-2, 82ZB-090-1

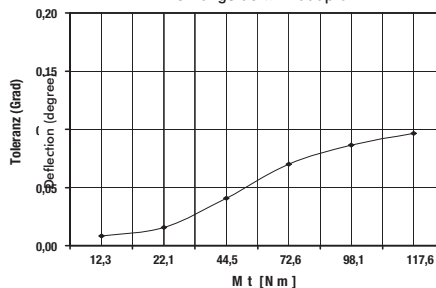


Angle deviation 86P40/60-20000E1A/B
External guide without adaptor

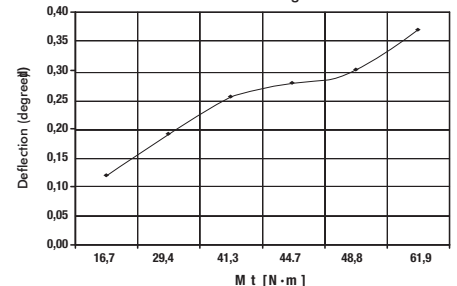


Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs] Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = deflection piston rod plus centering pin).

Angle deviation 86P40/60-20000J1A/B
External guide with adaptor

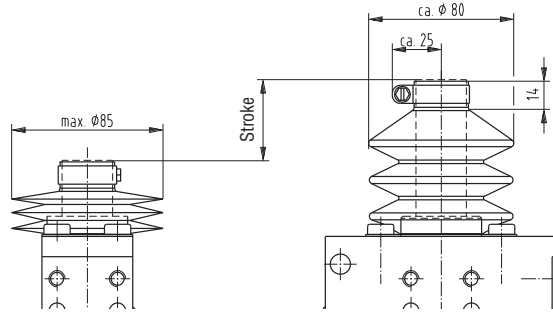
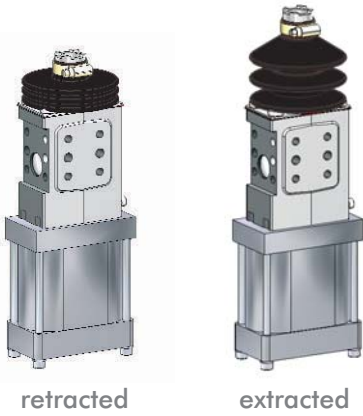




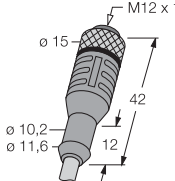
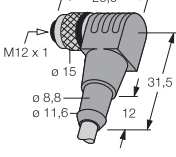
Angle deviation 86P40/60-202L600C
with External guide



Series **86P40-2, 86P60-2** Accessories

Piston rod cover (Bellow) **82ZB-013-3**



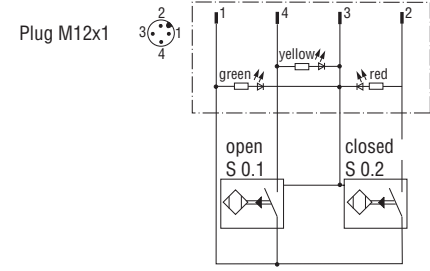
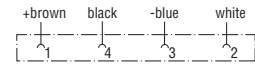
Specifications	Order no.
External guide (use w/o bellows) 	82ZB-009-2 82ZB-010-2 (only with A+B) 82ZB-090-1 (with C)
Bellows (use w/o external guide only) 	82ZB-013-3 (only strokes 20 und 40)
Connecting cable (1 connector socket & 5 m cable)	
Connector socket M12x1 straight, 5-pin 	8EL-002-1
Connector socket M12x1 90 Degree, 4-pin 	8EL-003-1

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:

- **C8** Connector plug M12x1, fixed (Turck)
- **D8** Connector plug M12x1, fixed (Pepperl & Fuchs)



Major spare parts for **86P40/60-2**

Specifications	Order no. for 86P40-2	Order no. for 86P60-2
End position sensing system B8		
C8 connector plug M12x1, fixed (Turck)	8EA-111-1	8EA-111-1
D8 connector plug M12x1, fixed (Pepperl & Fuchs)	8EA-055-2	8EA-055-2
Seal kit	8PW-079-1-00	8PW-090-1-00

Series 86D Product Overview

Series 86D Double Pin Package

Application:

- Accurate positioning of sheet metal parts in welding environments and handling systems without rotation.
- At the end of the process, the pins are retracted from the holes so the part can be removed.

Application Areas:

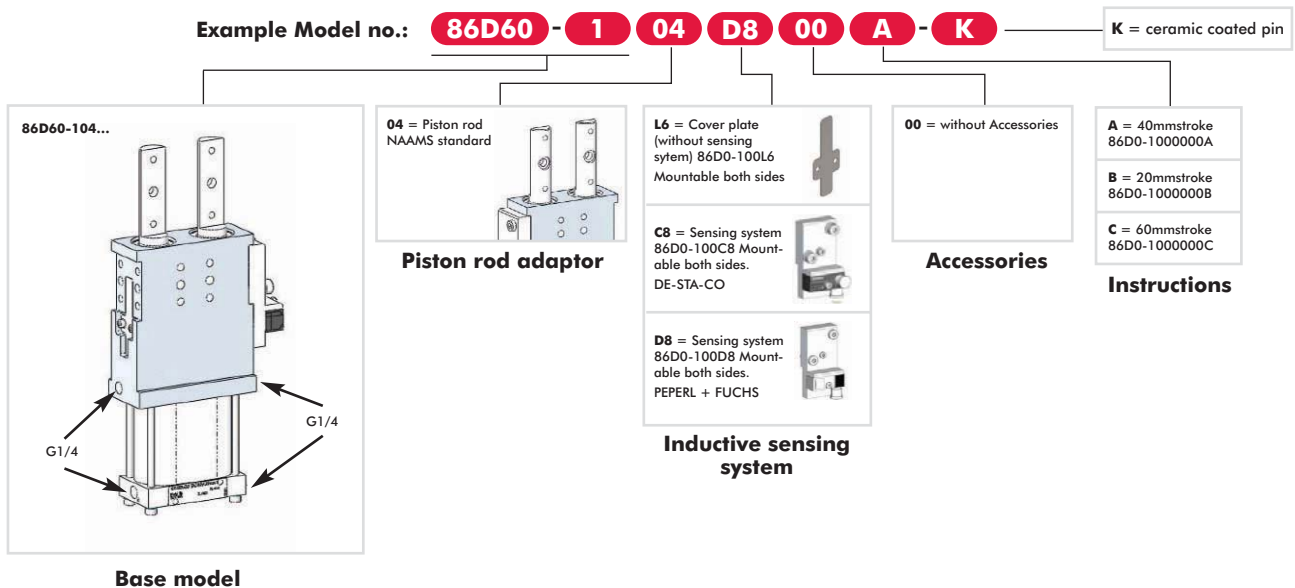
- Assembly
- Checking fixtures
- Handling systems
- Welding systems

86D60-1 Series [With sensing]

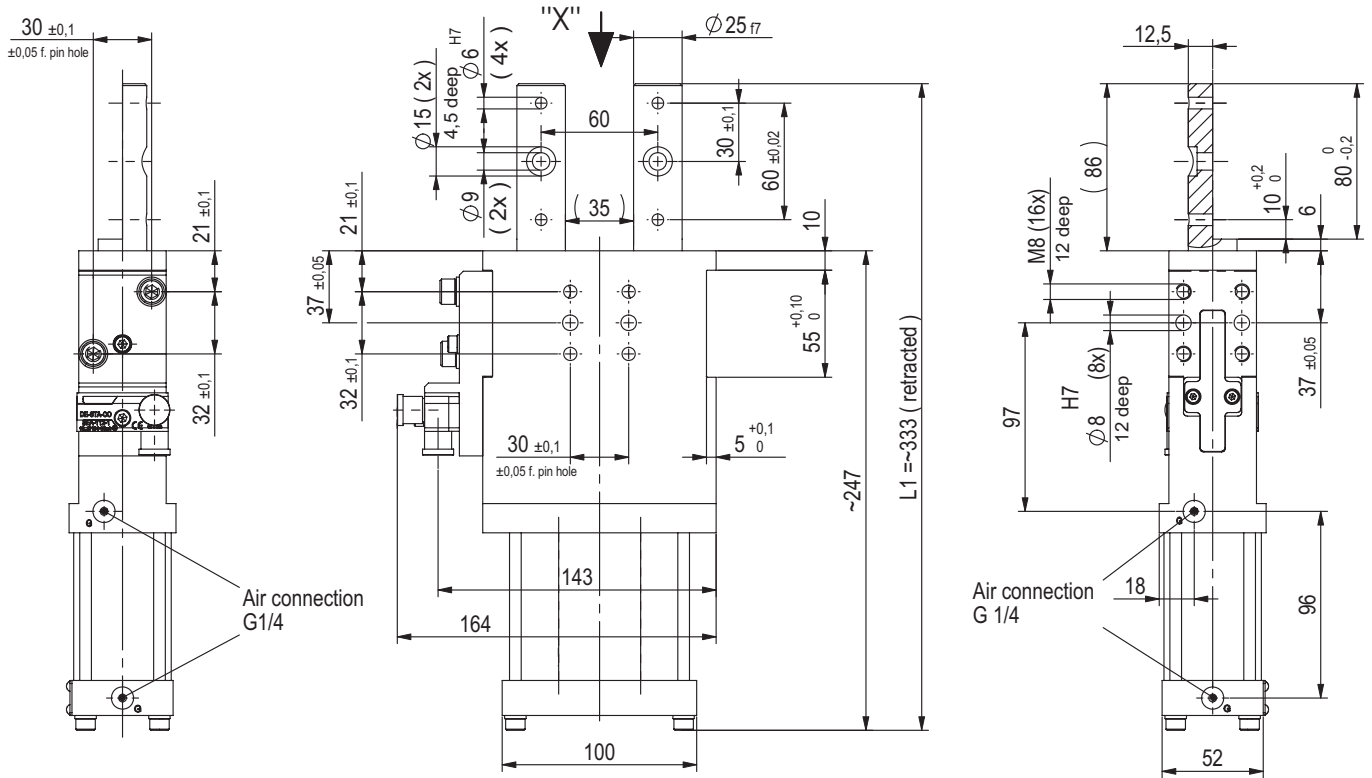
Series 86D60-1 Technical Information:

Model	Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. Operating Pressure bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
86D60-104C800A	1500 [377]	1100 [247]	6 [87]	63 [2.48]	40 [1.57]	3,8 [8.36]	1,4 [0.06]
86D60-104C800B					20 [0.79]	4 [8.80]	0,8 [0.03]
86D60-104C800C					60 [2.36]	4,1 [9.02]	2 [0.08]

Numbering code for 86D60...



Series 86D Standard Clamp Dimensions



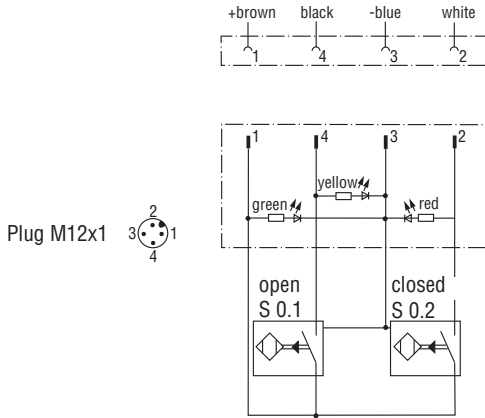
Power Operation with oil-free air is permissible.
 Electrical data for inductive sensing system see "KSED-2" Piston rod separate data sheets.
 To complete the model number see "Model-no. code".

Subject to technical modifications without notice.

Model	L1 Retracted [mm]	L1 Extended [mm]	Stroke [mm]
86D60-104C800A	333	373	40
86D60-104C800B		353	20
86D60-104C800C		393	60

Series 86D60-1... Accessories

Pin Assignment



Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding.

Inductive design:

- C / D8 Connector plug M12x1 w/lead

Series 86D60-1... Major Spare Parts

Specifications	Order Number
End position sensing system C8 (Turck) inductive connector plug M12x1 w/ lead	8EA-111-1
End position sensing system D8 (Pepperl & Fuchs) plug M12x1 rotary	8EA-055-2
Connecting Cable (1 connector socket & 5m cable) M12 x 1 Straight, 5 pin	8EL-002-1
Connecting Cable (1 connector socket & 5m cable) M12 x 1 90 degree, 5 pin	8EL-003-1

Series 85P5-1 Product Overview

Straight-Line Action Clamp

Models: **85P5-1**

Application:

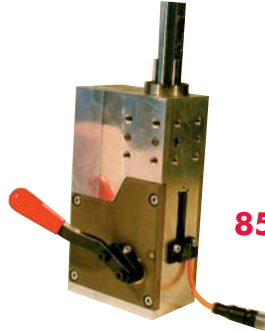
Accurate positioning of workpiece in jigs. Piston rod is locked in the extracted position. Here the piston rod can be used for cases of counter supporting for clamps.

Features:

- Compact Design
- High accuracy of positioning
- Lateral and front-face mounting areas
- Stroke 40mm
- Inductive sensing module
- Toggle-locked in extracted position



85P5-104B8000



85P5-104B80H0

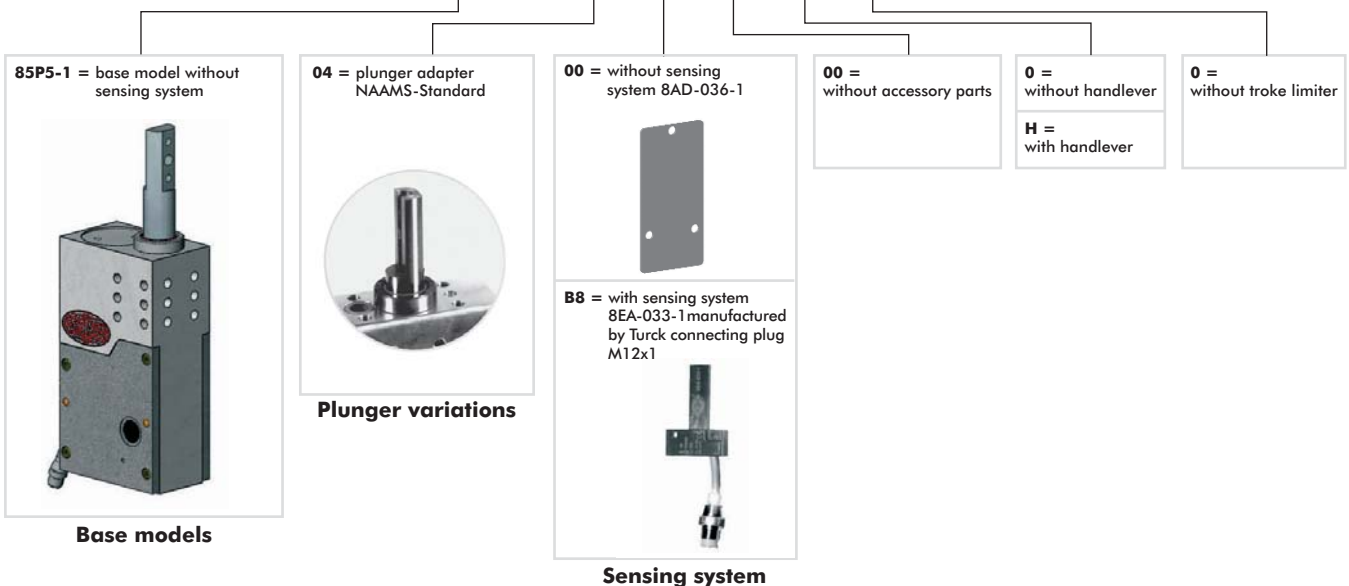
Series 85P5-1B8 Technical Information

Model no..	Pushing force at 6 bar N [lbs]	Retracting force at 6 bar N [lbs]	Holding force N [lbs]	Pressure max bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption at double stroke dm ³ [ft ³]
85P5-10400000	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	40 [1.57]	3,8 [8.36]	1,1 [0.04]
85P5-104000H0	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	40 [1.57]	4,0 [8.80]	1,1 [0.04]
85P5-104B8000								
85P5-104B80H0								



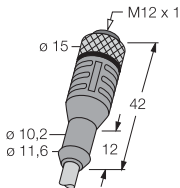
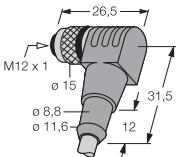
Remark: Extracting force and retracting force shown in this chart are only available with the last 2 mm stroke at extracted position. In the other range of the stroke the forces will be approximately 30 % of value in the chart.

Order no. code for **85P5-1.....**

Example order no.: **85P5 - 1 04 B8 00 0 0 - K** K = ceramic coated pin



Series **85P5-1** Accessories

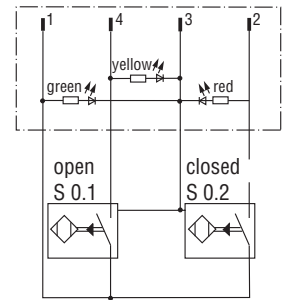
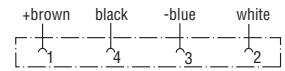
Specifications	Order no.
External guide (use for external centring pins) 	82ZB-010-2
Bellows (use for external pins with locking for preventing from unintended moving) 	82ZB-026-1
Connecting cable (1 connector socket & 5 m cable)	8EL-002-1
Connector socket M12x1 straight, 5-pin 	
Connector socket M12x190 Degree, 4-pin 	

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:

- **B8** Connector M12x1 w/lead (Turck)



Major spare parts for **85P5-1**

Specifications	Order no.
Sensing B8	8EA-033-2
Seal-kit cylinder	8PW-050-1-00
Hand lever-kit	8KB-032-1