



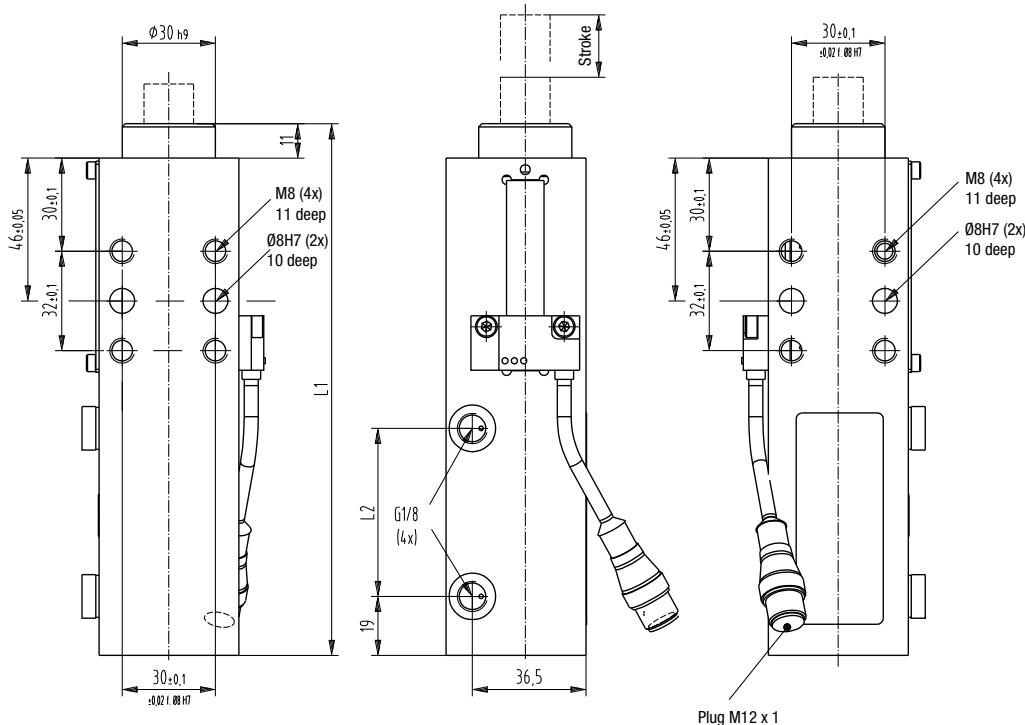
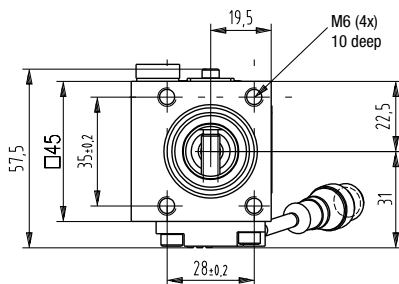
	Series	Section Page	Pushing Force (N) at 5 bar				Retracting Force at 5 bar				Piston Diameter			Stroke			Weight				Air Consumption at 5 bar [dm3]			Application Area											
			0 to 500 [N]	500 to 1000 [N]	1000 to 1500 [N]	1500 to 2000 [N]	0 to 500 [N]	500 to 1000 [N]	1000 to 1500 [N]	1500 to 2000 [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** Standard Pin Package Dimensions

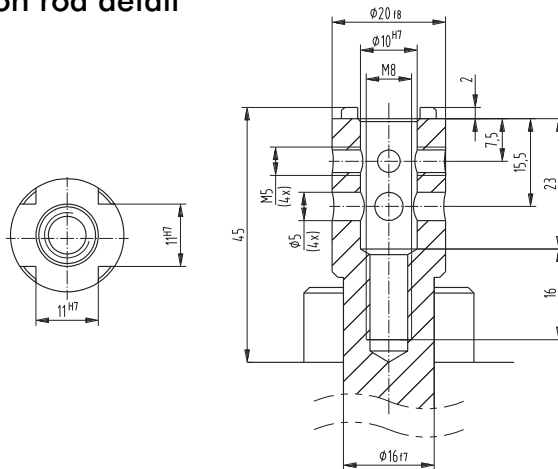
**86P30-105.....**



mm [INCH]  
THIRD ANGLE PROJECTION

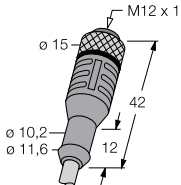
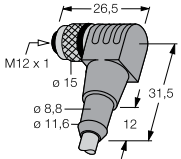
Model no.	L1 [mm]	L1 [mm]	Stroke [mm]
<b>86P30-105..004</b>	171	54	40
<b>86P30-105..002</b>	136	34	20

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



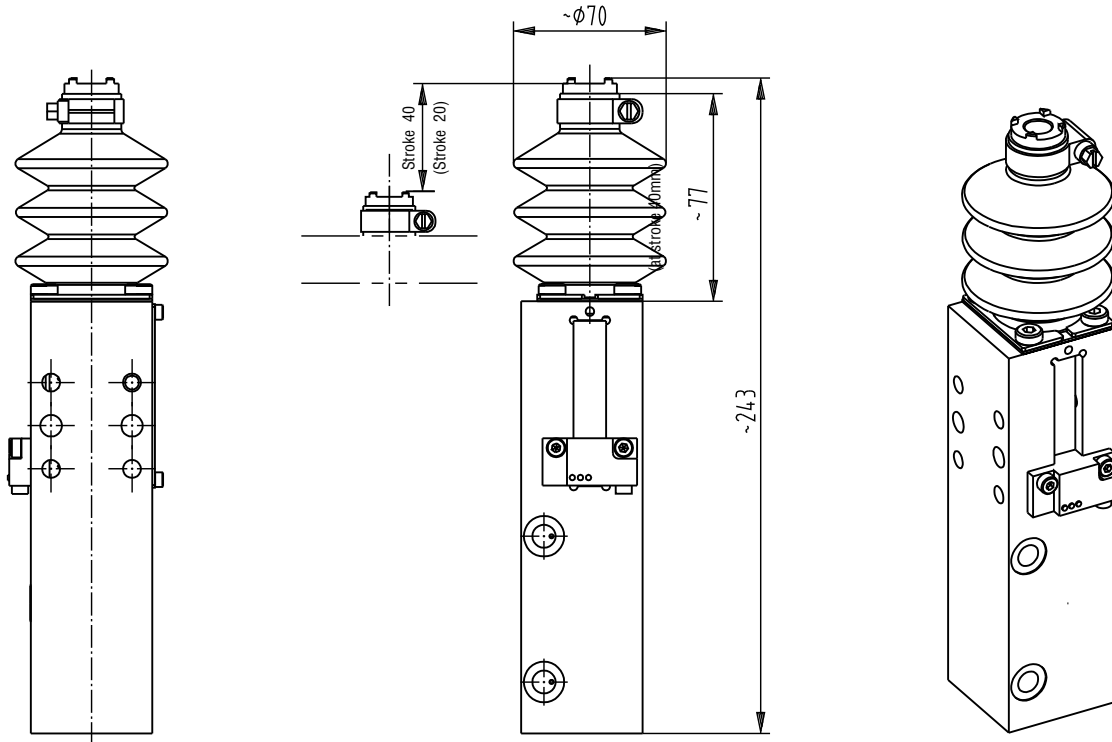
View shows piston rod in retracted position

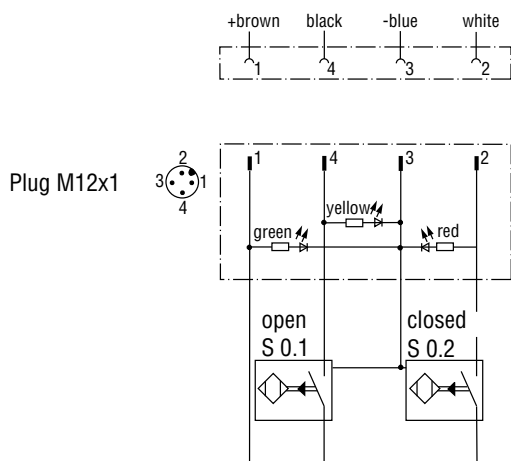
Series **86P30-1** Accessories

Specifications	Order no. for 86P30-105.....
<p><b>Bellows</b></p>	<p><b>82ZB-016-4</b></p>
<p><b>Connecting cable</b> (1 connector socket &amp; 5 m cable)</p>	<p><b>8EL-002-1</b></p>
<p><b>Connector socket M12x1 straight, 5-pin</b></p> 	<p><b>8EL-003-1</b></p>
<p><b>Connector socket M12x1 90 Degree, 4-pin</b></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
<b>End position sensing system B8</b> inductive connector plug M12x1 w/ lead	<b>8EA-033-2</b>	<b>8EA-091-1</b>
<b>Seal kit</b>	<b>86P3-1-00</b>	

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 dm <sup>3</sup> [ft <sup>3</sup> ]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
<b>86P30-1D5L3004</b>	<b>86P30-1D5B8004</b>	780 [175]	580 [130]	6 [87]	2x32 [1.26]	40 [1.57]	3,0 [6.60]	0,96 [0.03]
<b>86P30-1D5L3002</b>	<b>86P30-1D5B8002</b>	780 [175]	580 [130]	6 [87]	2x32 [1.26]	20 [0.79]	2,7 [5.94]	0,68 [0.02]
<b>86P30-1D5L3G14</b>	<b>86P30-1D5B8G14</b>	780 [175]	580 [130]	6 [87]	2x32 [1.26]	40 [1.57]	3,1 [6.82]	0,96 [0.03]
<b>86P30-1D5L3G12</b>	<b>86P30-1D5B8G12</b>	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

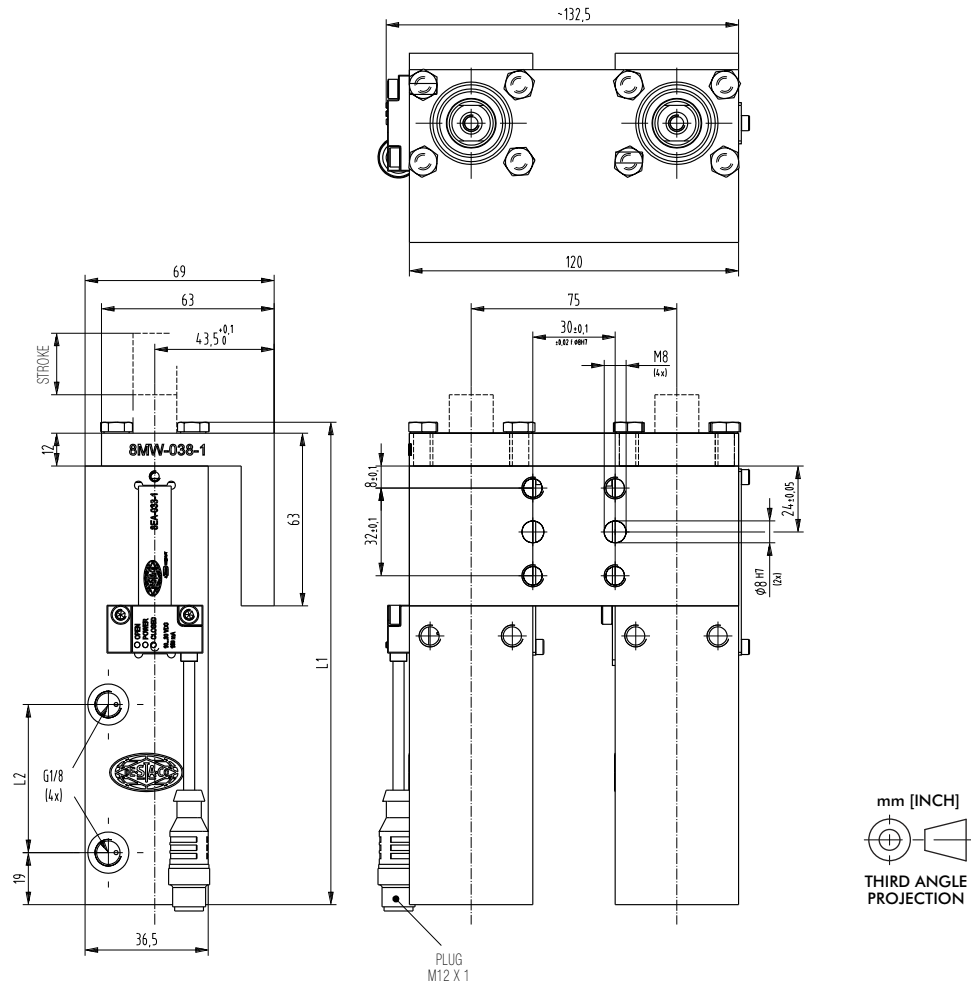
**G1** Air Manifold  
**82ZB-029-1** 40mm stroke  
**82ZB-041-1** 20mm stroke

**Accessories**

**4** = stroke 40 mm  
**2** = stroke 20 mm

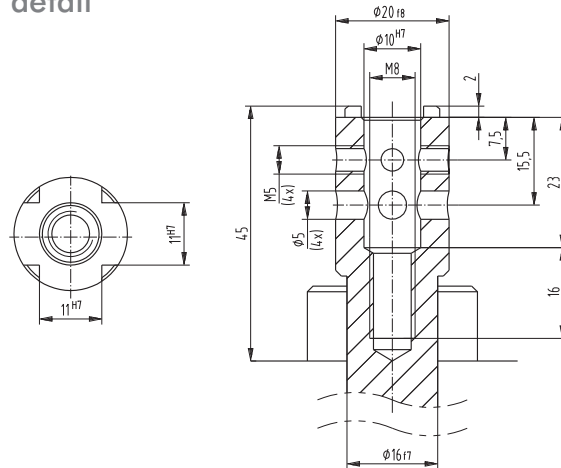
Series **86P30-1D5** Standard Pin Package Dimensions

**86P30-1D5.....**



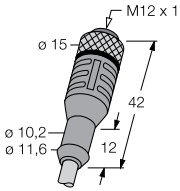
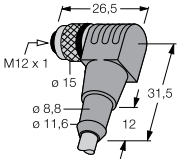
Model no.	L1 [mm]	L1 [mm]	Stroke [mm]
<b>86P30-105..004</b>	176	54	40
<b>86P30-105..002</b>	141	34	20

**86P30-1D5** Piston rod detail



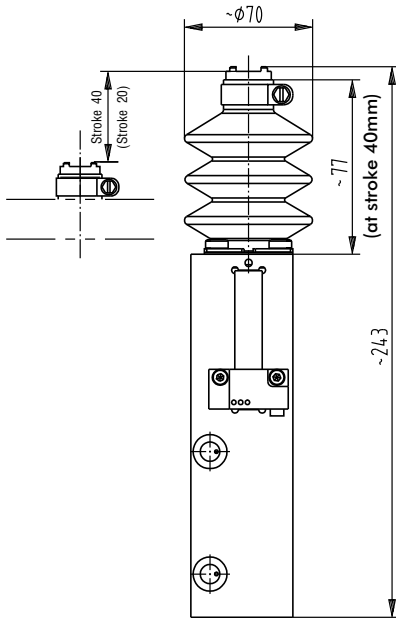
View shows piston rod in retracted position

Series **86P30-1D5** Accessories

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

**Bellows 82ZB-016-4**

Mounted on piston rod



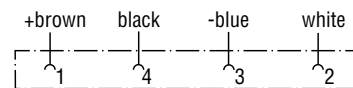
**Wiring diagram of electrical sensing system**

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

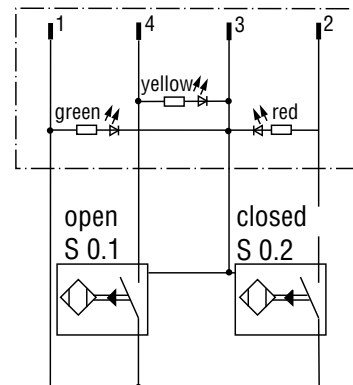
**Inductive design:**

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

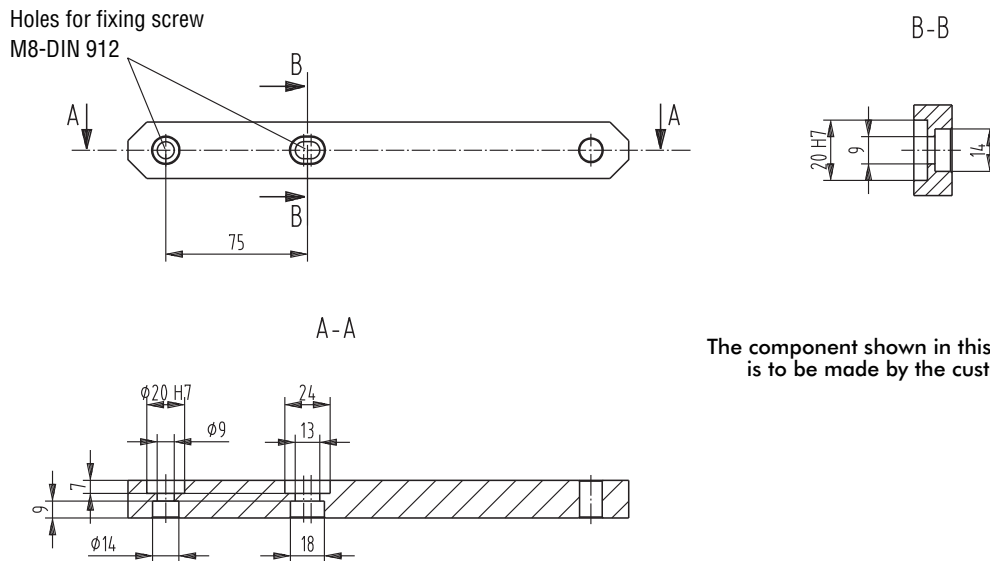
**Pin assignment**



Plug M12x1

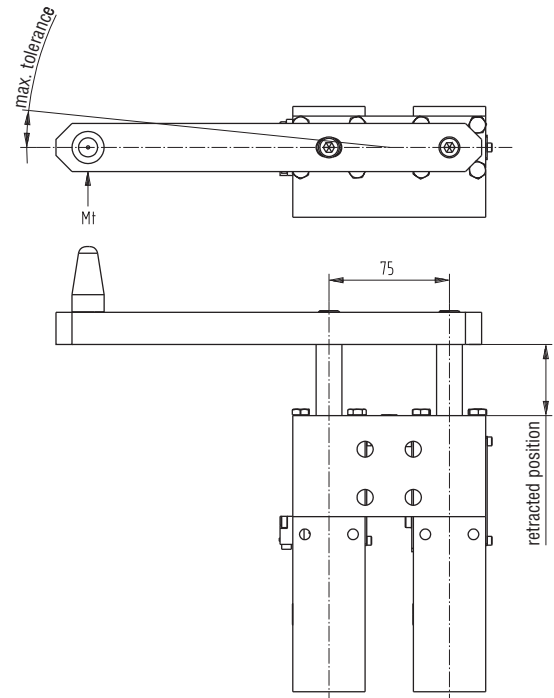
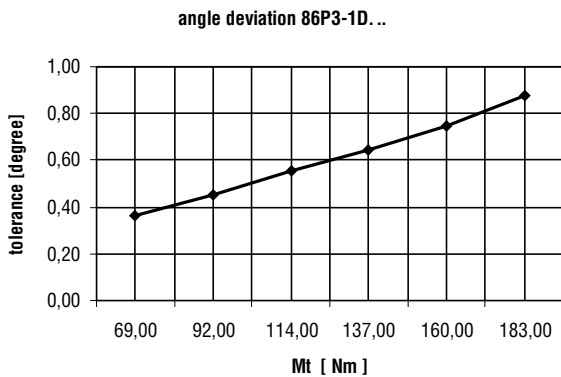


Example application of off-centre centring pin of **86P30-1D5.....**



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

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	<b>8EA-033-2</b>	<b>8EA-091-1</b>
Seal kit	<b>86P3-1-00</b>	

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

Pneumatic pin packages, single units

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

**Application:**

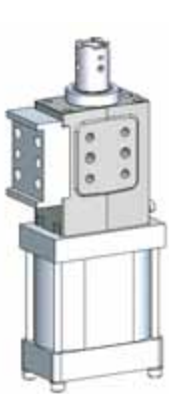
Accurate positioning of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig.

**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

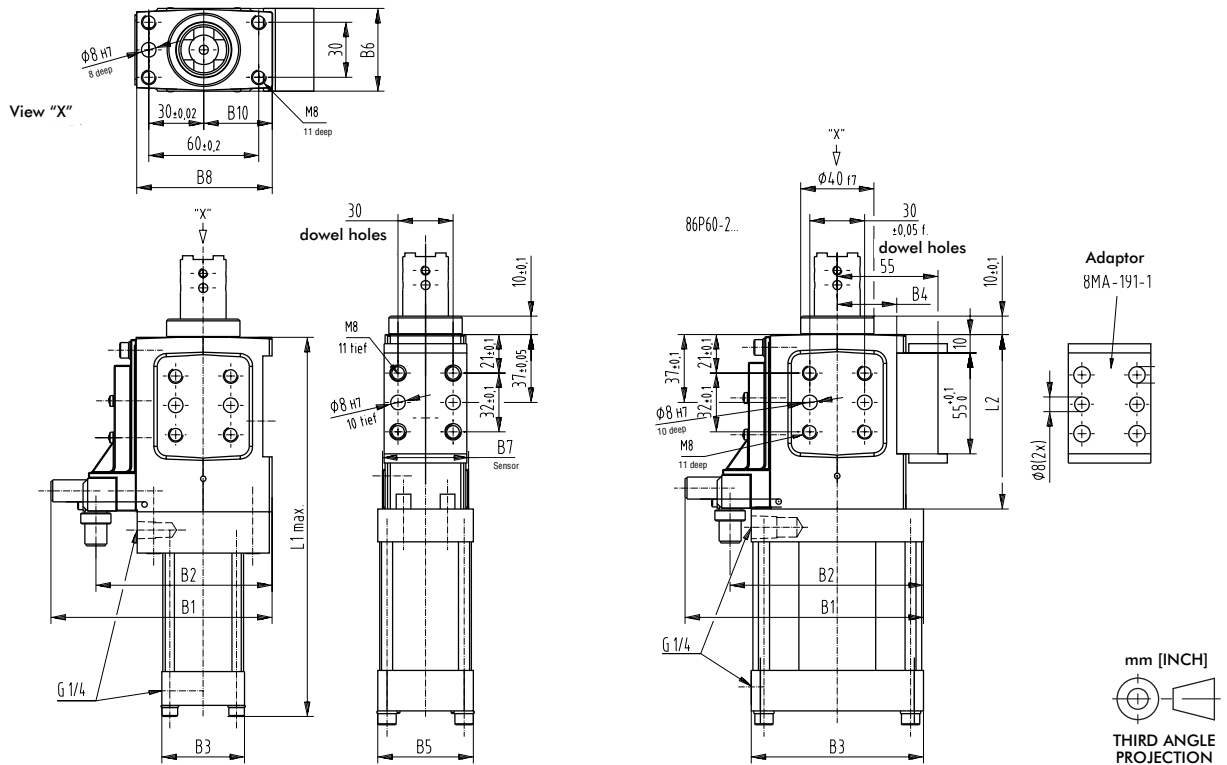
Example Model no.: **86P40 - 2 02 C8 00 A - K** ——— **K = ceramic coated pin**



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 <sup>3</sup> [ft <sup>3</sup> ]
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

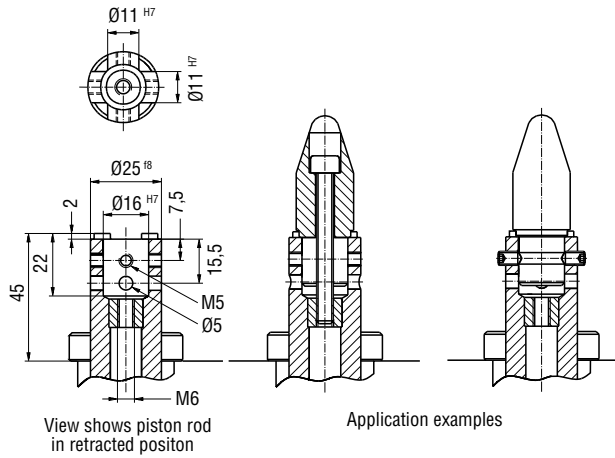


Medium: Operation with oil free air permissible

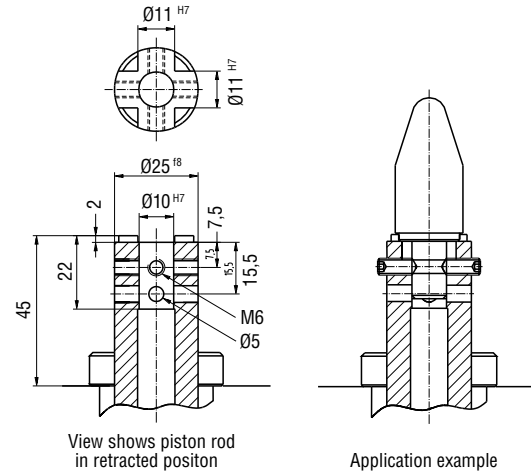
Model no.		B1	B2	B3	B4 + 0,02	B5	B6	B7	B8	B10	L1 max.	L2
w/o sensing	with inductive sensing connector M12x1 w/ lead											
86P40-2...L4...	86P40-2..._8...	121	96	45	32,5	45	45	47	74	37,5	207	95
86P40-2...L4...	86P40-2..._8...	121	96	45	32,5	45	45	47	74	37,5	207	95
86P40-2...L6...	86P40-2..._8...	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

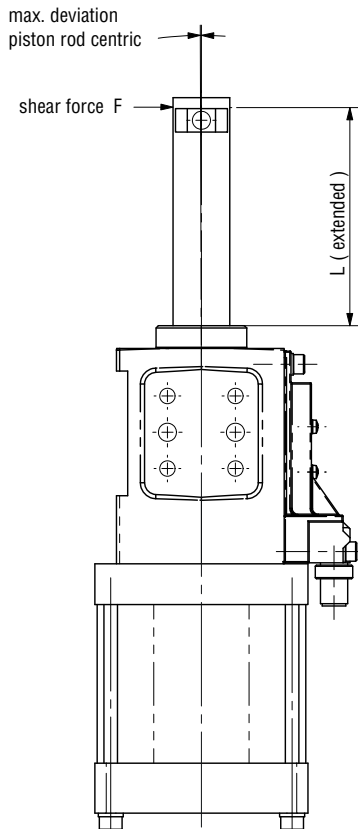
Pison Rod Model **-202** Detail mounting base  $\varnothing 16$  mm for **86P40-2, 86P60-2**



Pison Rod Model **-205** Detail mounting base  $\varnothing 10$  mm for **86P40-2, 86P60-2**



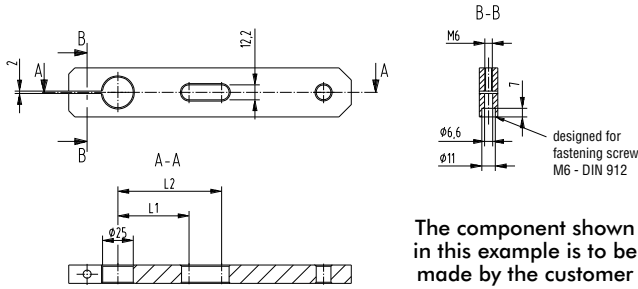
Max deflection for centering pin for **86P40-2, 86P60-2**



Model no.	Sheer force N [lbs]	L mm [in]	Stroke mm [in]	Deviation mm [in]
<b>86P40 / 60-2...B / 2</b>	200 [45]	52 [2.0]	20 [0.08]	0,06 [0.002]
<b>86P40 / 60-2...A / 4</b>	200 [45]	70 [2.8]	40 [1.60]	0,09 [0.004]
<b>86P40 / 60-2...C / 6</b>	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  $L_2 > 120$  mm [4.7 in] ( $L_2$  = extended piston rod plus centering pin).

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



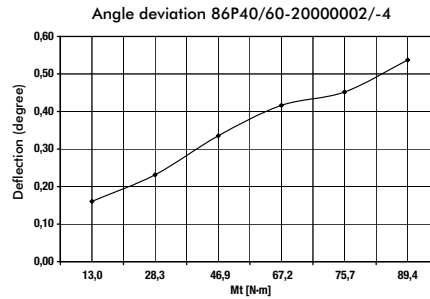
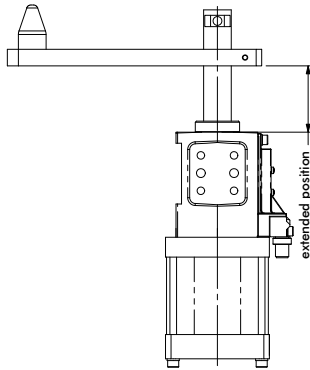
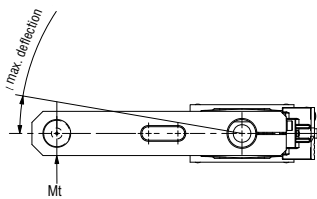
The component shown in this example is to be made by the customer

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

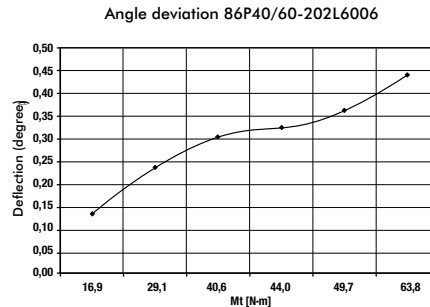
\* J1 is not available with stroke 60 mm.



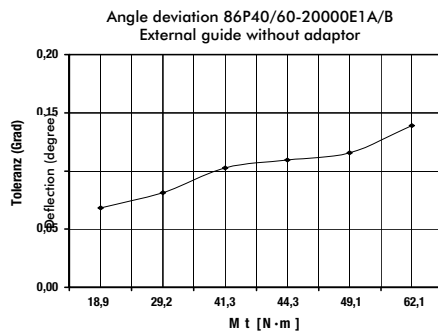
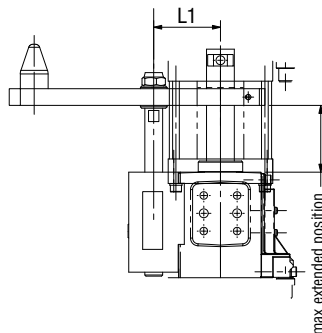
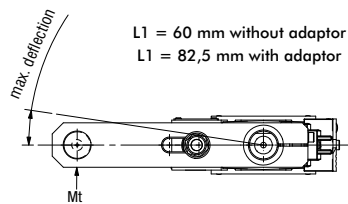
Internal anti-rotation device



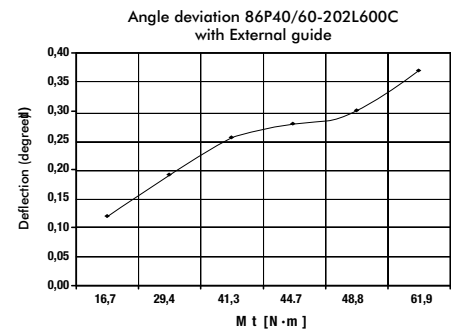
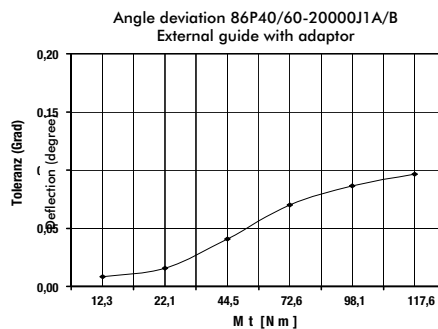
**Caution:** Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).



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

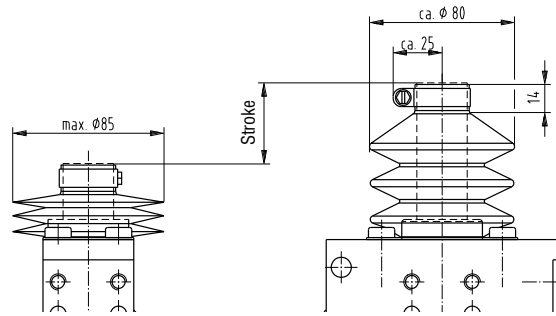




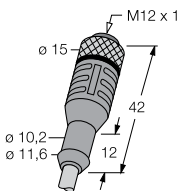
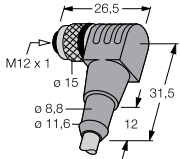
**Caution:** Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).



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

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



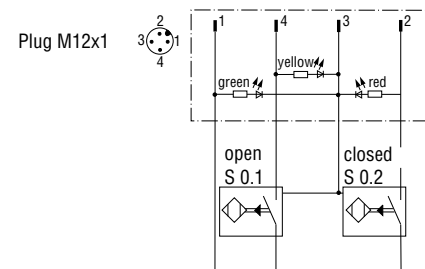
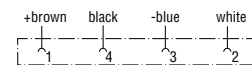
Specifications	Order no.
<b>External guide</b> (use w/o bellows) 	<b>82ZB-009-2</b> <b>82ZB-010-2</b> (only with A+B) <b>82ZB-090-1</b> (with C)
<b>Bellows</b> (use w/o external guide only) 	<b>82ZB-013-3</b> (only strokes 20 und 40)
<b>Connecting cable</b> (1 connector socket & 5 m cable)	
<b>Connector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

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
<b>End position sensing system B8</b>		
C8 connector plug M12x1, fixed (Turck)	<b>8EA-111-1</b>	<b>8EA-111-1</b>
D8 connector plug M12x1, fixed (Pepperl & Fuchs)	<b>8EA-055-2</b>	<b>8EA-055-2</b>
Seal kit	<b>8PW-079-1-00</b>	<b>8PW-090-1-00</b>



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:

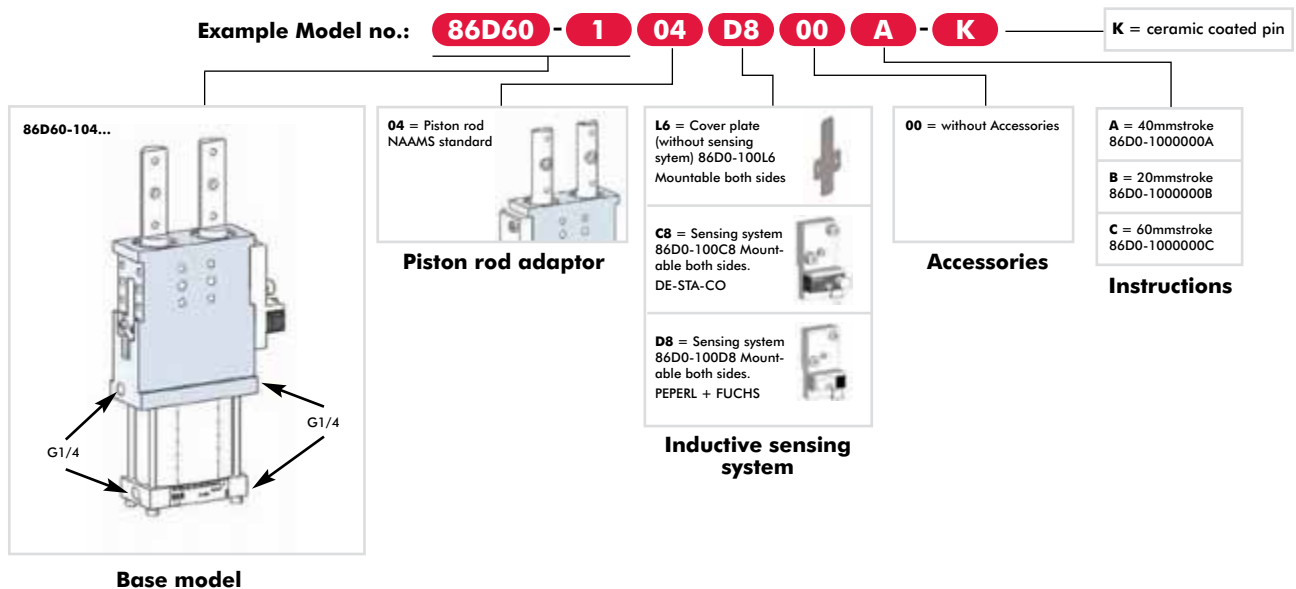
- Assembly
- Checking fixtures
- Handling systems
- Welding systems

86D60-1 Series [With sensing]

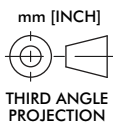
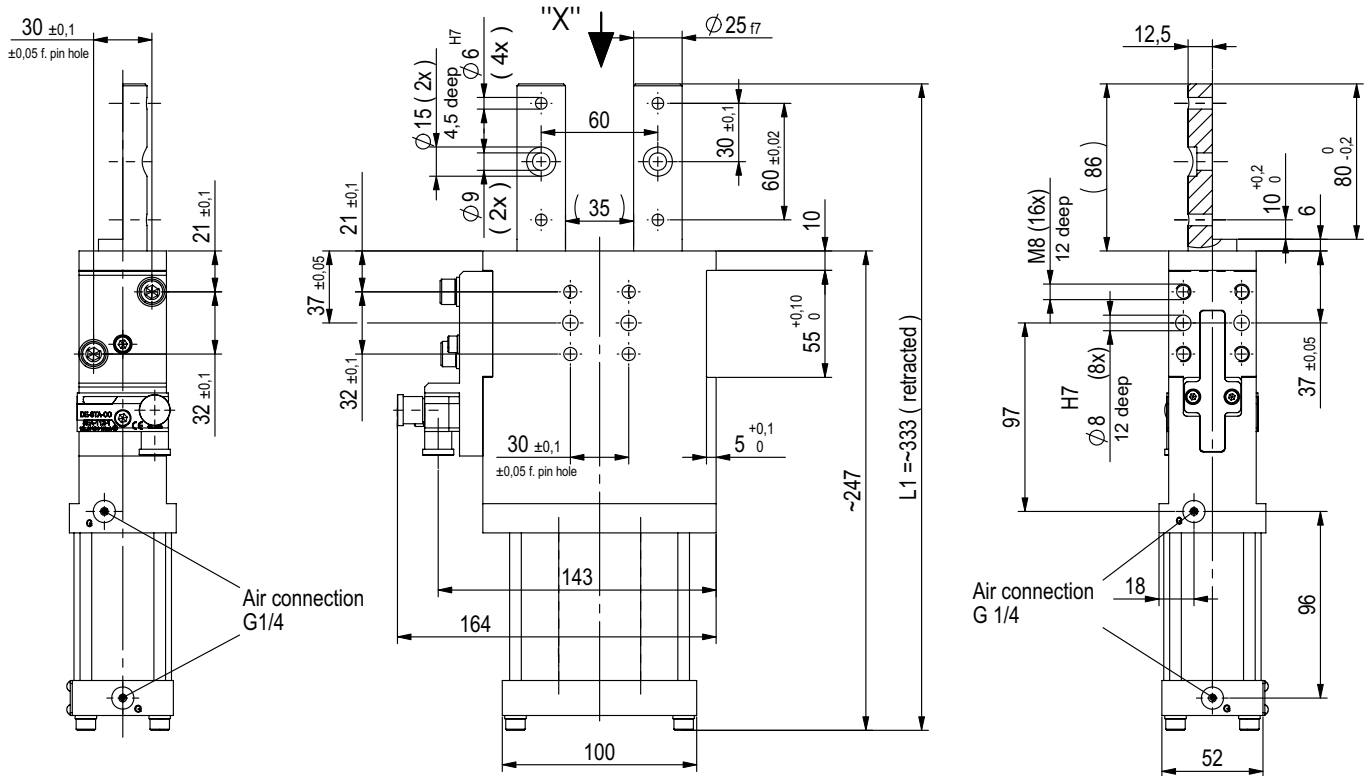
Series 86D60-1 Technical Information:

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 <sup>3</sup> [ft <sup>3</sup> ]
86D60-104C800A	1500 [377]	1100 [247]	6 [87]	63 [2.48]	40 [1.57]	3,8 [8.36]	1,4 [0.06]
20 [0.79]					4 [8.80]	0,8 [0.03]	
60 [2.36]					4,1 [9.02]	2 [0.08]	

Numbering code for 86D60...



Series 86D Standard Clamp Dimensions



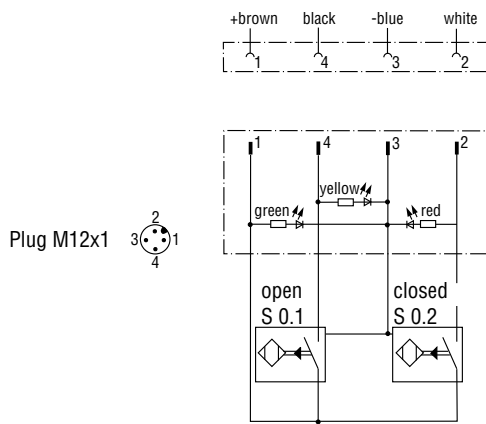
Power Operation with oil-free air is permissible.  
 Electrical data for inductive sensing system see "KSED-2" Piston rod separate data sheets.  
 To complete the model number see "Model-no. code".

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 <sup>3</sup> [ft <sup>3</sup> ]
<b>85P5-10400000</b>	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	40 [1.57]	3,8 [8.36]	1,1 [0.04]
<b>85P5-104B8000</b>								
<b>85P5-104000H0</b>	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	40 [1.57]	4,0 [8.80]	1,1 [0.04]
<b>85P5-104B80H0</b>								

**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

**85P5-1** = base model without sensing system

**Base models**

**04** = plunger adapter NAAMS-Standard

**Plunger variations**

**00** = without sensing system 8AD-036-1

**B8** = with sensing system 8EA-033-1 manufactured by Turck connecting plug M12x1

**Sensing system**



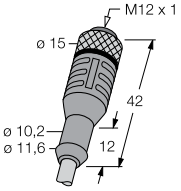
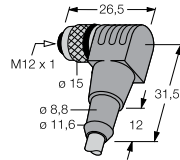
**00** = without accessory parts

**0** = without handlever  
**H** = with handlever

**0** = without troke limiter



Series **85P5-1** Accessories

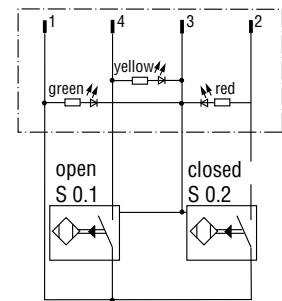
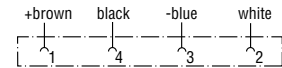
Specifications	Order no.
<p><b>External guide</b> (use for external centring pins)</p> 	<b>82ZB-010-2</b>
<p><b>Bellows</b> (use for external pins with locking for preventing from unintended moving)</p> 	<b>82ZB-026-1</b>
<p><b>Connecting cable</b> (1 connector socket &amp; 5 m cable)</p> <p><b>Connector socket M12x1 straight, 5-pin</b></p>  <p><b>Connector socket M12x1 90 Degree, 4-pin</b></p> 	<b>8EL-002-1</b>
	<b>8EL-003-1</b>

**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.
<b>Sensing B8</b>	<b>8EA-033-2</b>
<b>Seal-kit cylinder</b>	<b>8PW-050-1-00</b>
<b>Hand lever-kit</b>	<b>8KB-032-1</b>