



Superior Clamping and Gripping



Product data sheet

Pneumatic positioning device PPD

PPD

Pneumatic positioning device

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Pneumatic positioning device for flexible control of standard pneumatic grippers via IO-Link.

Field of application

The PPD allows flexibility in all applications with pneumatic grippers through free positioning, gripping force and speed adjustment. The sealed design makes the PPD highly suitable for use in industrial environments.



Advantages – Your benefits

Free positioning of a pneumatic gripper enables cycle time optimization or collision avoidance by pre-positioning the gripper fingers

The gripping force can be set by adjusting the output pressure for gripping workpieces of varying sensitivity

Adjustability of the gripper jaw speed for workpiece-friendly gripping due to the reduction of the gripping impulse

Use of standard pneumatic grippers enables use in various applications by selecting from the large product portfolio of pneumatic grippers

Simple optimization of existing production plants by retrofitting the pneumatic positioning unit PPD without changing the gripping system

Simple commissioning and efficient operation by using IO-Link as communication interface



M5x6 (2x)

Functional description

The pneumatic positioning device is an accessory for pneumatic grippers. Together with a position sensor, any positions of the gripper fingers can be approached in addition to the end positions (gripper open and gripper

closed). Four integrated high-speed 2/2 valves together with the integrated electronics ensure a closed control loop.



① Pneumatic positioning device PPD

② Pneumatic parallel gripper PGL-plus-P

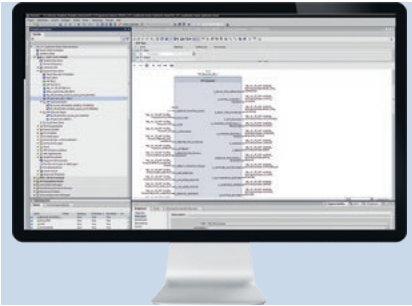
③ Position sensor (integrated in the gripper)

PPD

Pneumatic positioning device

Detailed functional description

Software Service – PLC integration



For seamless interaction between the PPD and PLC control, function modules for the programming interfaces of leading manufacturers are available. This means that the PPD's range of functions can be used directly without any additional programming effort and programming of the application can be started immediately. PLC compatibility: Siemens TIA Portal (IO-Link), Beckhoff TwinCAT (IO-Link) and Allen Bradley Studio 5000 Logix Designer (IO-Link).

PPD

Pneumatic positioning device

General notes about the series

Housing material: Aluminum alloy, anodized

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Warranty: 12 months

Scope of delivery: Pneumatic positioning device PPD. (Gripper, position sensor, as well as required cables and pneumatic accessories are application-specific and have to be ordered separately)

Suitable positioning sensors: The PPD can communicate with SCHUNK IO-Link sensors as well as with analog sensors (4...20 mA). SCHUNK recommends using the position sensors listed with the respective gripper

Positioning accuracy: depends on the position sensor used, the gripper, and the PPD variant

Target position of the gripper fingers: can achieve an accuracy up to ± 0.5 mm. Grippers with stroke per jaw > 50 mm achieve up to 1% of the nominal stroke

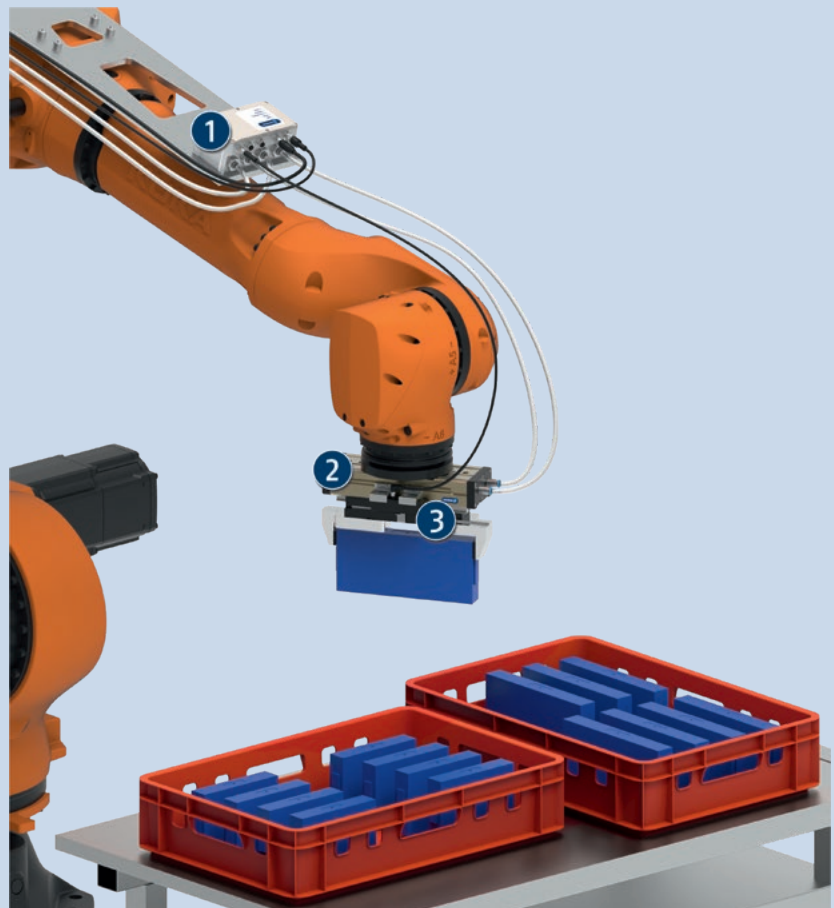
The accuracy can be influenced by these parameters:

- **Travel speed:** slower travel speeds lead to higher positioning accuracy
- **Proportionality controller:** lower factor leads to higher positioning accuracy and avoids overshoot
- **Pneumatic pressure:** higher operating pressure leads to better positioning accuracy than lower pressure
- **Hose length between PPD and gripper:** Recommendation <3 m, in general shorter hose lengths lead to better results than long hose lengths

Application example

Flexible and cycle-time-optimized handling of prismatic battery cells during the assembly of battery modules. The PHL long-stroke gripper handles cell formats of various dimensions. By using the PPD pneumatic positioning unit, the gripper fingers can be pre-positioned cell-specifically to save cycle time and avoid collisions in narrow deposit positions when opening the gripper fingers.

- 1 Pneumatic positioning device PPD
- 2 2-finger long-stroke gripper PHL
- 3 Inductive analog position sensor BIP



SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Pneumatic grippers



Positioning sensors



Power cable



Communication cables



Assembly set PPD

For more information on these products can be found on the following product pages or at schunk.com.

Assignment of gripper size to PPD variant

The table shows possible combinations of gripper sizes and PPD variants from our portfolio on which a standardized sensor monitoring system is optionally available.

The appropriate sensors for the gripper can be found in the respective catalog chapter of the gripper series under "accessories".

Gripper/PPD	PPD 10-IOL	PPD 20-IOL	PPD 40-IOL
PGL-plus-P	10, 13, 16	20, 25	-
PGN-plus-P	50, 64, 80	100, 125, 160	200
JGP-P	50, 64, 80	100, 125, 160	200
DPG-plus	64, 80	100, 125, 160	-
PZN-plus	-	64, 80, 100, 125	160
JGZ	-	64, 80, 100, 125	160
DPZ-plus	-	64, 80, 100, 125	160
PZH-plus	20	30, 50, 75	-
PHL	25	32, 40, 50, 63	-
PLG	-	20, 30	50, 75, 120
General *	Ø24 - Ø40	Ø41 - Ø100	> Ø100

* The pneumatic positioning device PPD can generally be used for all pneumatic grippers and pneumatic actuators. The assignment to the respective PPD variant is based on the effective piston surface of the actuator. An analog sensor (4...20 mA) is required for the full range of functions. In addition, the piston surfaces and the piston stroke must be known in order to store this in the PLC control system.

If you should have any further questions about the PPD product, please contact our technical sales experts.

Ordering example

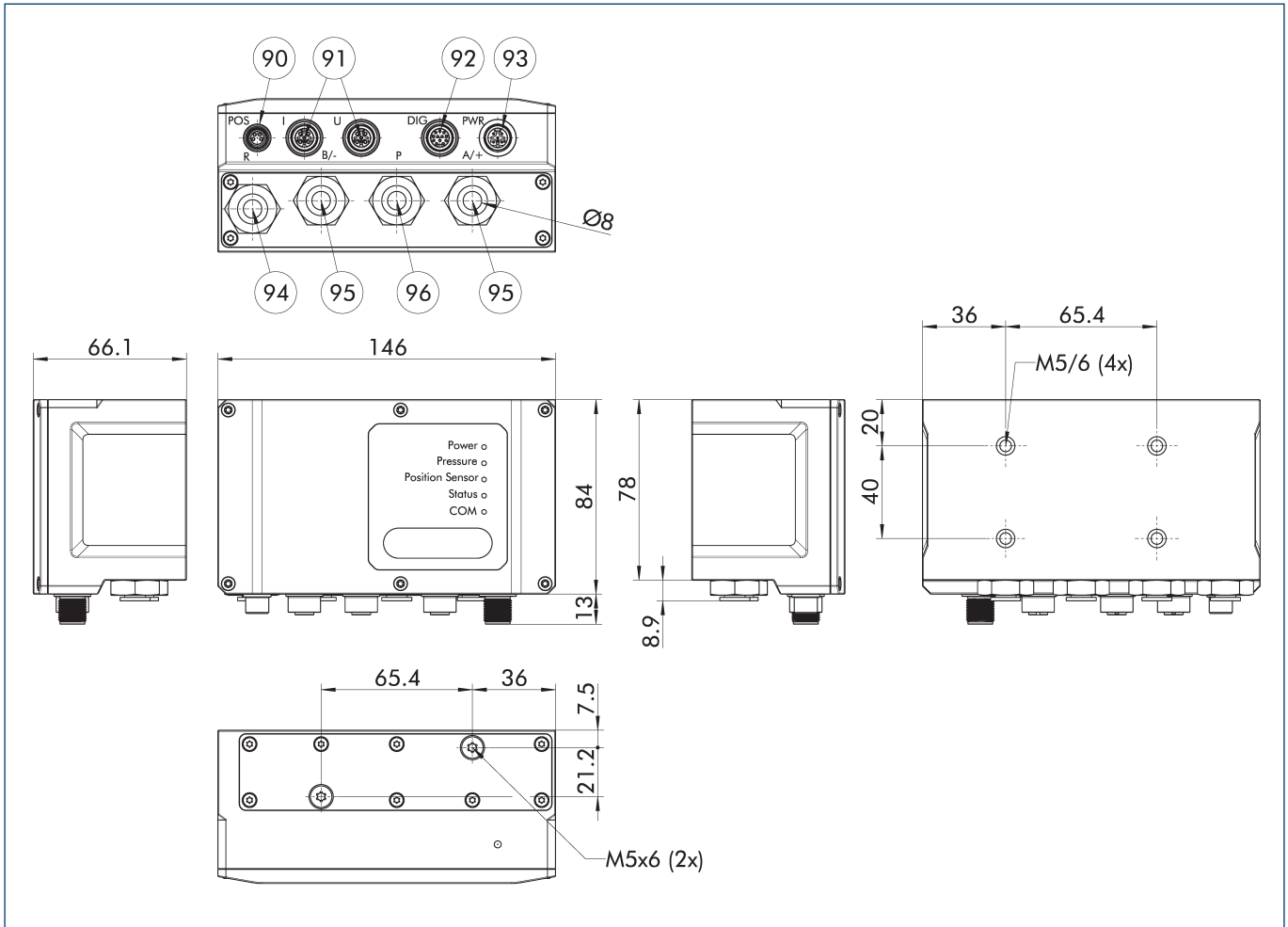
	PPD	20	-	IOL
Description	Pneumatic positioning device			
Variant	10 = valve diameter 1.0 mm 20 = valve diameter 2.0 mm 40 = valve diameter 4.0 mm			
Communication interface	IOL = IO-Link			



Technical data

Description		PPD 10-IOL	PPD 20-IOL	PPD 40-IOL
ID		1540698	1540700	1540701
Pneumatic operating data				
Nominal size valve	[mm]	1	2	4
Rate of flow at 6 bar	[l/min]	63	266	868
Pneumatic connection		4 x Ø 8 mm (G3/8")	4 x Ø 8 mm (G3/8")	4 x Ø 8 mm (G3/8")
Min./max. operating pressure	[bar]	4/8	4/8	4/8
Min./max. control pressure	[bar]	2/8	2/8	2/8
General operating data				
Weight	[kg]	1.8	1.8	1.8
Min./max. ambient temperature	[°C]	0/60	0/60	0/60
IP protection class		67	67	67
Electrical operating data				
Operating voltage	[V]	24	24	24
Current consumption nominal/max.	[A]	0.42/6.5	0.42/6.5	0.42/6.5
Communication interface/ specification		IO-Link/V1.1	IO-Link/V1.1	IO-Link/V1.1
Transmission rate		COM2	COM2	COM2
Port		Class A	Class A	Class A
Connection position sensor				
Current consumption max.	[A]	0.5	0.5	0.5
Voltage	[V]	24	24	24

Main view



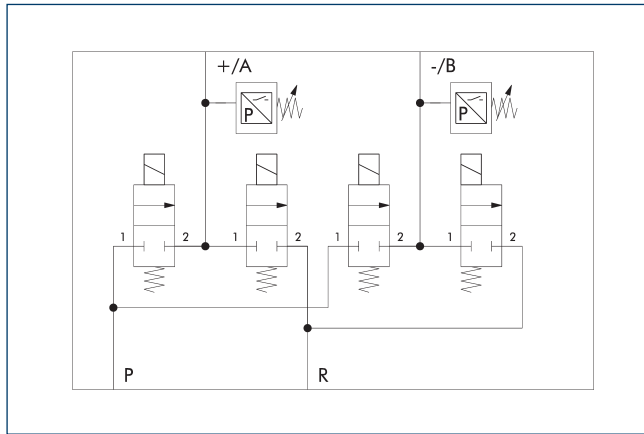
- ⑨⑩ Pos: Position sensor (M8, socket, 4 pin, A-coded)
- ⑨① I/U: intended for future functions
- ⑨② DIG: Communication (M12, socket, 12 pin, A-coded)

- ⑨③ PWR: Voltage supply (M12, connector, 5 pin, B-coded)
- ⑨④ R: Exhaust air (G3/8")
- ⑨⑤ A/+ and B/-: Actuation of gripper A/B (G3/8")
- ⑨⑥ P: Supply pressure (G3/8")

PPD

Pneumatic positioning device

Electronic symbol according to DIN ISO 1219

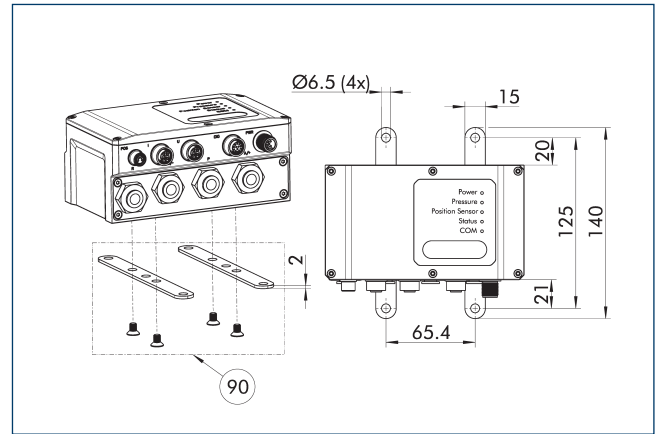


- 90 R: Exhaust air (G3/8")
- 92 P: Supply pressure (G3/8")
- 91 A/+ and B/-: Actuation of gripper A/B (G3/8")

The circuit symbol shows the connection options and the function of the pneumatic positioning unit device PPD. The supply pressure is applied to connection P. The exhaust connection can escape via connection R. "+/A" and "-/B" are the working connections used to control the gripper.

① SCHUNK also provides ECAD data for your design. You can choose between direct access via your EPLAN-Electric P8 software or download using the EPLAN Data Portal. Further information can be found on the SCHUNK website.

Assembly set PPD



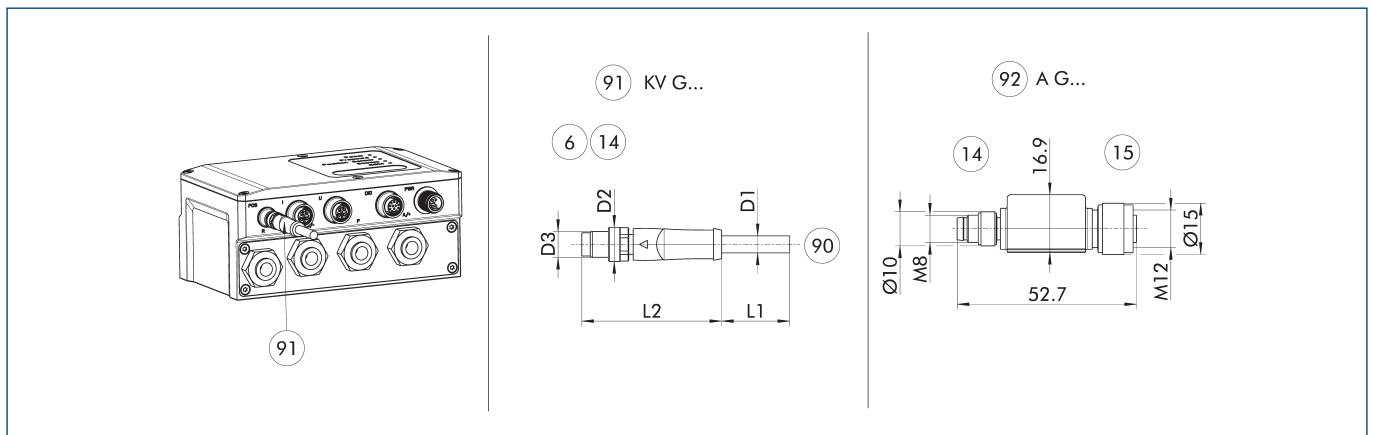
- 90 Assembly set PPD

Alternative mounting option from above for the PPD.

Description	ID
Assembly set	
Assembly set PPD	1540705

- ① The scope of delivery includes two stainless steel mounting brackets and four M5x5 stainless steel screws.

Cable extension



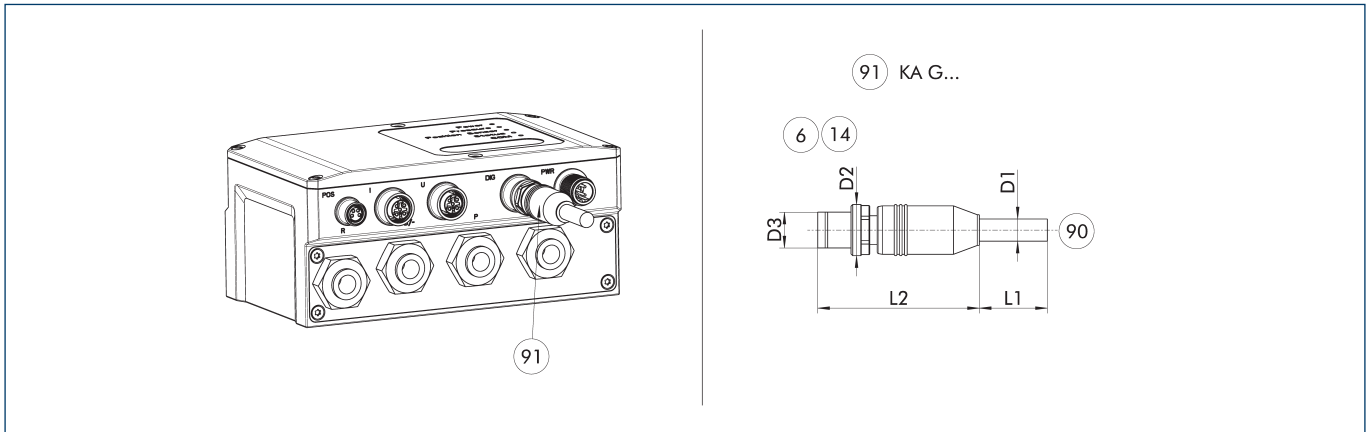
The cable extensions are suitable as an extension cable for connecting the position sensors to the PPD. The cable extensions have a 4-pin M8 socket with a straight or angled design on the module side and a 4-pin M8 connector with a straight design on the other side. The cable extensions are suitable for use in the drag chain.

- 6 Connection module side
- 14 Connector
- 15 Socket
- 90 Cable end with straight connector
- 91 Cable with straight connector
- 92 Adapter

Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	D3
Adapter						
A GGN0804-1204-A	1540691					M8
Cable extension						
KV GGN0804-I0-00150-A	1540662	1.5	5	41.1	10	M8
KV GGN0804-I0-00300-A	1540663	3	5	41.1	10	M8

- ① Sensors with an M12 connector can be connected to the PPD using adapter A GGN0804-1204-A. The adapter has a 4-pin M8 male connector and a 4-pin M12 female connector.

Connection cable for IO-Link communication

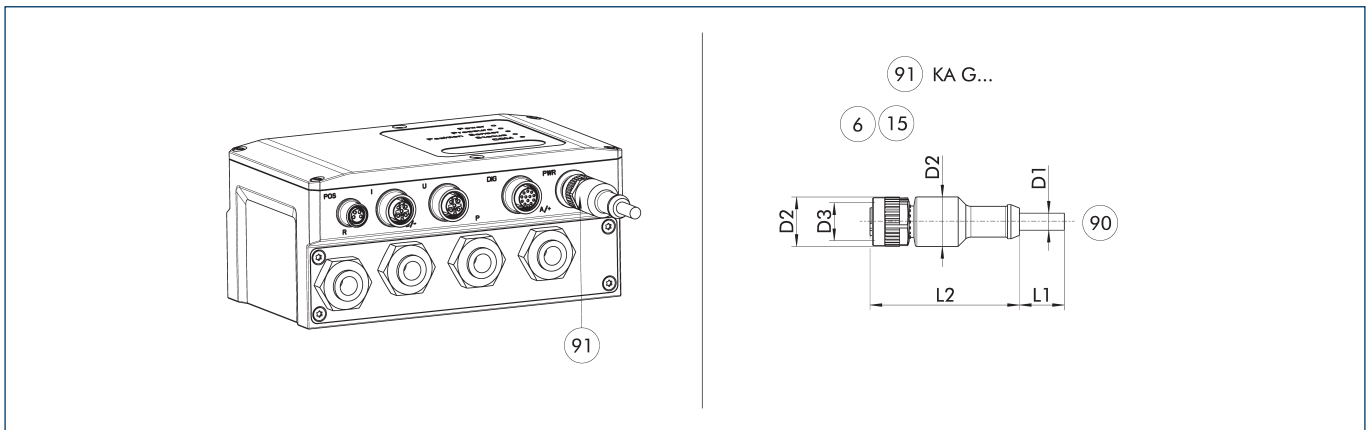


The connection cable is ideal for connecting the PPD to an IO-Link master. The connection cable has a 12-pin M12 connector on one side for connection to the PPD and a 5-pin M12 connector on the other side for connection to an IO-Link master.

- 6 Connection module side
- 14 Connector
- 90 Cable end with straight connector
- 91 Cable with straight connector

Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	D3
IO-Link connection cable						
KA GGN1205-1212-IO-00100-A	1540697	1	6.5	47.5	15	M12

Connection cables for voltage supply



The connection cable is ideal for connecting the corresponding components to the controller or the power supply unit. The connection cable has a 5-pin M12 socket on one side, and open wire strands on the other side for individual connections. The connection cables are only suitable for use in the drag chain.

- 6 Connection module side
- 15 Socket
- 90 SAC connection cable with open wire strands
- 91 Cable with straight female connector

Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	D3
Voltage supply connection cable - cable track compatible						
KA GLN12B05-LK-01000-A	1540660	10	5	43.9	14.5	M12



SCHUNK GmbH & Co. KG
Spann- und Greiftechnik

Bahnhofstr. 106 - 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
Fax +49-7133-103-2399
info@de.schunk.com
schunk.com

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