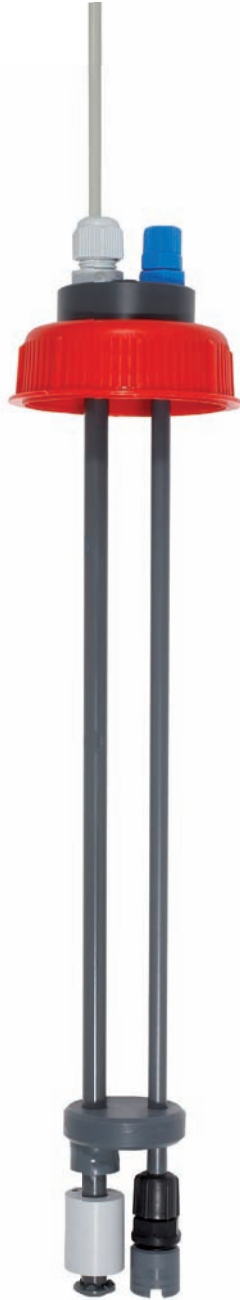
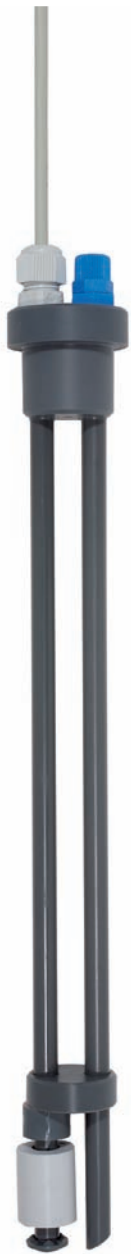


SUCTION LANCES





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Jacob GmbH - Measurement and control technology division

Our company

We are a southern Germany family company, based in Kernen-Rommelshausen.

Our company was founded in 1922 and now has around 200 qualified employees.

Jacob is not just a leading producer of cable glands, but also offers individual system solutions for specific requirements with its measurement and control technology division.

Our strengths lie in the quick and efficient implementation of our customers' various requirements and wishes for individual products as well as larger series of products.



A source of pride

Our headquarter in Germany and the "Made in Germany" quality seal are a source of great pride. Making this statement requires the highest level of quality from us and our products as well as our employees.

The high-quality measurement and control technology and our entire team's outstanding service make us internationally competitive. This combination makes us an innovative, growing company with a clear vision for the future.

Customised service

Producing high-quality products and making sure that the customers receive the products on time are things that we expect of ourselves as a matter of course. Just like our customers having a specific internal contact partner.

This is how we guarantee quick and efficient reactions and offer our customers optimal consultation at the same time. We consider this to be important:

Our customers should
always feel that
they come first

-
because they do!

To us, that is part of giving the
best service possible!



Other business areas

Business area cable glands

Cable glands and accessories

Jacob offers with his wide product range for quite every application the suitable solution. You receive Jacob cable glands in nickel plated brass, stainless steel and many different plastic materials with metric, Pg and NPT thread. Numerous series have the VDE test confirmation according to EN 50262 as well as the UL certification.

You can find our complete product range in our product catalogues:

- Metric cable glands
- Cable glands with Pg-, NPT- and pipe thread
- Cable glands for explosive atmospheres



HAWKE cable glands - the perfect connection for Hazardous Area

In cooperation with the company HAWKE International Jacob supplies exclusively in Germany, Austria and Switzerland Ex cable glands made of brass, nickel plated brass and 316 L Stainless steel for armoured and non-armoured cable with Exd & Exe certification.



Customized solutions

Haven't found what you are looking for?
Jacob offers not only a large range of standard products but also customized items for your specific application.

Starting from the earliest stage of product development we offer our support to make your ideas come true. Together with our customers we realize high quality products with unique design and highest functionality under economic conditions. We take our customers one step ahead of their competition.

Our range of customized solution includes:

- Metal and plastic parts according to drawing
- Non-standard materials in metal and plastics
- Individual thread lengths for metal parts
- Individual dimensions for metal parts



Customized component
for Lumberg Automation

Overview Suction lance program



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Suction lance with plug-in flange

SL 100

Materials		
Flange	PVC	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Flange Diameter	30 mm	
Tube connection	4/6 mm	
Suction pipe diameter	6 or 8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	no	
Sieve	no	



This device consists of a compact float switch with separately suction pipe.

The process connection as plug-in flange in straight form can be adapted on customer's request.

The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 100.021.10
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
1,0 m PVC-cable
Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with plug-in flange

SL 110

Materials		
Flange	PVC	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Flange Diameter	30 - 40 mm	
Tube connection	4/6 mm	
Suction pipe diameter	6 or 8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	no	
Sieve	no	



This device consists of a compact float switch with separately suction pipe.

The process connection as plug-in flange in cone form can be adapted on customer's requests.

The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC

max. 2 change over

Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 110.021.10

L0 = 300 mm

L1 = 30 mm (NO)

L2 = 250 mm (NC)

1,0 m PVC-cable

Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with plug-in flange

SL 120

Materials		
Flange	PVC	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Flange Diameter	40 mm	
Tube connection	4/6 mm	
Suction pipe diameter	6 or 8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	only for suction pipe 6 mm!	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.

The process connection as plug-in flange in straight form can be adapted on customer's request.

The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 120.021.12
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
1,0 m PVC-cable
Suction pipe diameter 6 mm
with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with plug-in flange

SL 130

Materials		
Flange	PVC	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Flange Diameter	40 - 50 mm	
Tube connection	4/6 mm	
Suction pipe diameter	6 or 8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	only for suction pipe 6 mm!	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.

The process connection as plug-in flange in cone form can be adapted on customer's requests.

The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC

max. 2 change over

Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 130.021.12

L0 = 300 mm

L1 = 30 mm (NO)

L2 = 250 mm (NC)

1,0 m PVC-cable

Suction pipe diameter 6 mm

with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with screw cap

SL 200

Materials

Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP

Dimensions

Screw cap	DIN 45
Canister Port	34 mm
Tube connection	6/8 mm
Suction pipe diameter	8 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm

Electrical specification

NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	0 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	

Operating conditions

Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³

Options

Non return valve	no
Sieve	no



This device consists of a compact float switch with separately suction pipe.

The screw cap is turnable stored in the process connection. The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 200.021.10
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
1,0 m PVC-cable
Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with screw cap

SL 210

Materials		
Screw cap	PE/PP	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Screw cap	DIN 50	
Canister Port	41 mm	
Tube connection	4/6 mm	
Suction pipe diameter	6, 8, 10 or 12 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	only for suction pipe 6 mm!	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.

The screw cap is turnable stored in the process connection. The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 210.021.12
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm
with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with screw cap

SL 220

Materials

Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP

Dimensions

Screw cap	DIN 60
Canister Port	48 mm
Tube connection	4/6 mm
Suction pipe diameter	6, 8, 10 or 12 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm

Electrical specification

NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	

Operating conditions

Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³

Options

Non return valve	yes
Sieve	yes



This device consists of a compact float switch with separately suction pipe.

The screw cap is turnable stored in the process connection. The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 220.021.10
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with screw cap

SL 300

Materials		
Screw cap	PE/PP	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Screw cap	DIN 50	
Canister Port	41 mm	
Tube connection	6 / 8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm³	
Options		
Non return valve	yes	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.

The screw cap is turnable stored in the process connection. The electrical connection is made by PVC or a silicone wire in desired length.

The wiring cable and suction tube are led away in a flexible protecting tube.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC

max. 2 change over

Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 300.021.22

L0 = 300 mm

L1 = 30 mm (NO)

L2 = 250 mm (NC)

Suction tube diameter 8 mm

with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with screw cap

SL 310

Materials		
Screw cap	PE/PP	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Screw cap	DIN 60	
Canister Port	48 mm	
Tube connection	6 / 8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	yes	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.

The screw cap is turnable stored in the process connection. The electrical connection is made by PVC or a silicone wire in desired length.

The wiring cable and suction tube are led away in a flexible protecting tube.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 310.021.22

L0 = 300 mm

L1 = 30 mm (NO)

L2 = 250 mm (NC)

Suction tube diameter 8 mm

with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with screw cap

SL 320

Materials		
Screw cap	PE/PP	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Screw cap	DIN 96	
Canister Port	80 mm	
Suction tube	6/8 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm³	
Options		
Non return valve	yes	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.

The screw cap is turnable stored in the process connection. The electrical connection is made by PVC or a silicone wire in desired length.

The wiring cable and suction tube are led away in a flexible protecting tube.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC

max. 2 change over

Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 320.021.22

L0 = 300 mm

L1 = 30 mm (NO)

L2 = 250 mm (NC)

Suction tube diameter 8 mm

with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with thread

SL 400

Materials

Thread	PVC
Suction pipe	PVC
Skid pipe	PVC
Float	PP

Dimensions

Thread	G 1 1/2 "
Canister Port	40 mm
Tube connection	4/6 mm
Suction pipe diameter	6, 8, 10 or 12 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm

Electrical specification

NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	

Operating conditions

Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³

Options

Non return valve	only for suction pipe 6 mm!
Sieve	yes



This device consists of a compact float switch with separately suction pipe.

The electrical connection is made by PVC or a silicone wire in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

- max. 3 NO / NC
- max. 2 change over
- Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 400.021.12

L0 = 300 mm

L1 = 30 mm (NO)

L2 = 250 mm (NC)

Suction pipe diameter 6 mm

with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with thread

SL 410

Materials		
Thread	PVC	
Suction pipe	PVC	
Skid pipe	PVC	
Float	PP	
Dimensions		
Thread	G 2 "	
Canister Port	50 mm	
Tube connection	4/6 mm	
Suction pipe diameter	6, 8, 10 or 12 mm	
Skid pipe diameter	8 mm	
Float	19,5 x 9,0 x 24,0 mm	
Min. lower switch point	30 mm	
Electrical specification		
NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	
Operating conditions		
Temperature	0 to +60 °C	
Pressure	0 bar	
Density	≥ 0,8 g/cm ³	
Options		
Non return valve	only for suction pipe 6 mm!	
Sieve	yes	



This device consists of a compact float switch with separately suction pipe.
The electrical connection is made by PVC or a silicone wire in desired length.
With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 410.021.12
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm
with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with thread

SL 420

Materials

Thread	PVDF
Suction pipe	PVDF
Skid pipe	PVDF
Float	PVDF

Dimensions

Thread	G 2 "
Canister Port	50 mm
Tube connection	4/6 mm
Suction pipe diameter	8 mm
Skid pipe diameter	8 mm
Float	27 x 10 x 30 mm
Min. lower switch point	30 mm

Electrical specification

NO	U	230 VAC
	I	0.5 A
	P	30 VA
NC / Change over	U	100 VAC
	I	0.25 A
	P	3 VA
Mechanical life	10 ⁶	
Delay time / switch on	100 ms	
Delay time / switch off	200 ms	
Protection grade	IP 64	

Operating conditions

Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³

Options

Non return valve	yes
Sieve	yes



This device consists of a compact float switch with separately suction pipe.

The electrical connecting takes place over a M12-connector or of cable in PVC or silicone in desired length.

With up to 3 switching points a direct or an indirect control of pumps and single solenoid valves for emptying or filling as well as a signalling can be realized.

Order example:

Number of switching points:

max. 3 NO / NC
max. 2 change over
Combination are possible

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 420.021.10
L0 = 300 mm
L1 = 30 mm (NO)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with transducer

SL 500

Materials	
Junction box	ABS
Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP
Dimensions	
Junction box	82 x 80 x 55 mm
Screw cap	DIN 45
Canister Port	34 mm
Tube connection	4/6 mm
Suction pipe diameter	6 or 8 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm
Electrical specification	
Power supply	4 x 1,5 V DC
Mechanical life	10 ⁶
Protection grade	IP 64
Operating conditions	
Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³
Options	
Non return valve	no
Sieve	no



This device consists of a compact float switch with separately suction pipe.
In the junction box an electronic circuit is accommodated for acoustic and optional signaling of different filling conditions. Power supply becomes through Batteries. The scope of supply is without Batteries.
The connection for the suction tube is outside of the junction box.

Order example:

Number of switching points:
2 NC

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 500.022.10
L0 = 300 mm
L1 = 30 mm (NC)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with transducer

SL 510

Materials

Junction box	ABS
Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP

Dimensions

Junction box	82 x 80 x 55 mm
Screw cap	DIN 50
Canister Port	41 mm
Tube connection	4/6 mm
Suction pipe diameter	6 or 8 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm

Electrical specification

Power supply	4 x 1,5 V DC
Mechanical life	10 ⁶
Protection grade	IP 64

Operating conditions

Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³

Options

Non return valve	only for suction pipe 6 mm!
Sieve	yes



This device consists of a compact float switch with separately suction pipe.
In the junction box an electronic circuit is accommodated for acoustic and optional signaling of different filling conditions. Power supply becomes through Batteries. The scope of supply is without Batteries.
The connection for the suction tube is outside of the junction box.

Order example:

Number of switching points:
2 NC

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 510.022.12
L0 = 300 mm
L1 = 30 mm (NC)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm
with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with transducer

SL 520

Materials	
Junction box	ABS
Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP
Dimensions	
Junction box	82 x 80 x 55 mm
Screw cap	DIN 60
Canister Port	48 mm
Tube connection	4/6 mm
Suction pipe diameter	6 or 8 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm
Electrical specification	
Power supply	4 x 1,5 V DC
Mechanical life	10 ⁶
Protection grade	IP 64
Operating conditions	
Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³
Options	
Non return valve	only for suction pipe 6 mm!
Sieve	yes



This device consists of a compact float switch with separately suction pipe.
In the junction box an electronic circuit is accommodated for acoustic and optional signaling of different filling conditions. Power supply becomes through Batteries. The scope of supply is without Batteries.
The connection for the suction tube is outside of the junction box.

Order example:

Number of switching points:
2 NC

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 520.022.12
L0 = 300 mm
L1 = 30 mm (NC)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm
with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with transducer

SL 530

Materials

Junction box	ABS
Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP

Dimensions

Junction box	82 x 80 x 55 mm
Screw cap	DIN 96
Canister Port	80 mm
Tube connection	4/6 mm
Suction pipe diameter	6 or 8 mm
Skid pipe diameter	8 mm
Float	19,5 x 9,0 x 24,0 mm
Min. lower switch point	30 mm

Electrical specification

Power supply	4 x 1,5 V DC
Mechanical life	10 ⁶
Protection grade	IP 64

Operating conditions

Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³

Options

Non return valve	only for suction pipe 6 mm!
Sieve	yes



This device consists of a compact float switch with separately suction pipe.
In the junction box an electronic circuit is accommodated for acoustic and optional signaling of different filling conditions. Power supply becomes through Batteries. The scope of supply is without Batteries.
The connection for the suction tube is outside of the junction box.

Order example:

Number of switching points:

2 NC

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 530.022.12

L0 = 300 mm

L1 = 30 mm (NC)

L2 = 250 mm (NC)

Suction pipe diameter 6 mm

with non return valve and sieve

You can find all order specifications on a folding page at the end of the catalogue.

Suction lance with transducer

SL 540

Materials	
Junction box	ABS
Screw cap	PE/PP
Suction pipe	PVC
Skid pipe	PVC
Float	PP
Dimensions	
Junction box	82 x 80 x 55 mm
Screw cap	DIN 96
Canister Port	80 mm
Tube connection	4/6 mm
Suction pipe diameter	6 mm
Skid pipe diameter	12 mm
Float	42 x 14 x 38 mm
Min. lower switch point	50 mm
Electrical specification	
Power supply	4 x 1,5 V DC
Mechanical life	10 ⁶
Protection grade	IP 64
Operating conditions	
Temperature	0 to +60 °C
Pressure	0 bar
Density	≥ 0,8 g/cm ³
Options	
Non return valve	no
Sieve	no



This suction lance consists of a float switch with integrated suction pipe in the skid pipe. Thus develops a compact and robust design. In the junction box an electronic circuit is accommodated for acoustic and optional signaling of different filling conditions. Power supply becomes through Batteries. The scope of supply is without Batteries. The connection for the suction tube is outside of the junction box.

Order example:

Number of switching points:
2 NC

Attention:

The function of the switching points refers on rising level of the fluid!

Order example:

Suction lance SL 540.022.10
L0 = 300 mm
L1 = 30 mm (NC)
L2 = 250 mm (NC)
Suction pipe diameter 6 mm

You can find all order specifications on a folding page at the end of the catalogue.

Notes

Technical description

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Description and functional principle of a suction lance	27
Electrical connection	28
Description Protection grades	29
Description of the plastics	30
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General

To help you with your order, we have included an order form at the end of the suction lance catalogue. On this page you can easily enter any details that you wish to vary from the standard programme and thus assemble the suction lance as it should be for your application.

Important factors when ordering are:

1. Selecting the material
2. Number of required switch points
3. Which switch point has which switch function when there is no liquid in the container?
4. How long must the suction lance be?
5. Where should the individual switch points be located?
6. Which process connection is suitable?
7. Is a non return valve needed for operation?

The minimum distances from slide tube end to the first switch point are stated on the corresponding page of the catalogue.

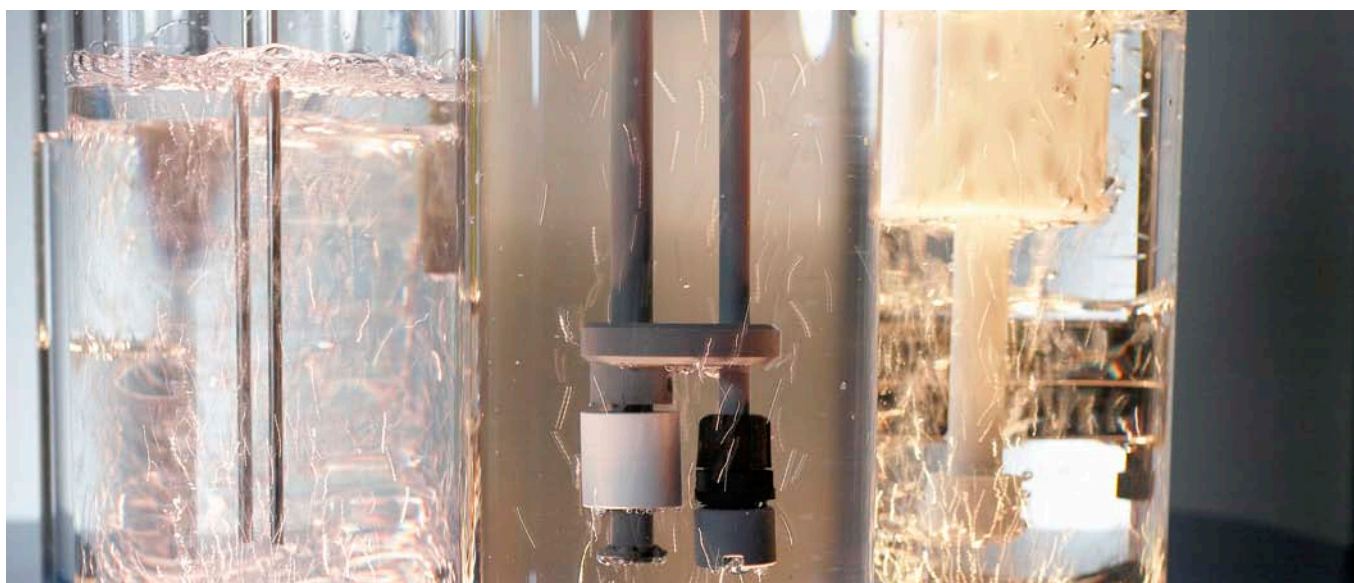
It should be noted that as the medium's density increases, the float's depth of immersion becomes lower and the switch point shifts upwards accordingly.

Of course, the opposite is also true. As the medium's density decreases, the float becomes even deeper immersed and the switch point shifts downwards.

Our range of products does not just include the suction lances in this catalogue. If you still cannot find the right solution for your situation, despite the variety of products listed, feel free to contact us.

We are happy to advise you and help you to find a practical and economic solution.

OUR AIM IS NOT TO
PROMISE,
BUT CONVINC.



Description and functional principle of a suction lance

In its most simple form, a suction lance is made up of a suction pipe, a skid pipe, a float containing a permanent magnet, a reed switch with a soldered-on cable and a process connection to secure the suction lance to the appropriate place. This can be practised on any moulded container for liquid mediums.

Of course, suction lances can be manufactured in the most unusual varieties. Unfortunately not all possibilities can be listed here or even stated because many parts can be combined to make our suction lances.

The combination possibilities are only limited by physical boundaries.

There are three possible switching functions:

"NO" contact,
"NC" contact,
"change-over" contact,
which means that the reed switch changes from its break contact to its moveable contact (a circuit is opened, another is closed).

These features are activated by the float rising. The float moves up or down with the level of the medium. If the float lies at the lowest position, the contact is opened or closed, depending on the specification. If the medium increases, the float rises as well. If the float reaches the reed contact at his specific position inside the skid pipe, the float's magnet field activates the reed contact.

This contact function remains as long as the float stays in this position or higher.

This so-called overrun of the switch point is then practised when the float is to serve another switch point. If the level falls and the float moves downwards, the reed contact returns to its idle position when the float has sunk below the specified position.

The function sequence corresponds exactly to that of the switch point first reached, only now the upper limit of the float path is limited by the stop position.

If the float moves further upwards, the reed contact then also returns to its idle position.

However, this is undesirable and would lead to incorrect switching functions.

Therefore another float is required for a potential third switching point. This float could then serve a fourth switching point as well.

Devices that work with reed contacts, such as our suction lances, float and magnet switches have many advantages - which should not be underestimated - over devices that work capacitively or inductively.

The advantages of reed contacts are:

- Potential free
- High switching capacity when used correctly
- Long life-time
- Highly reliable
- Economic, reliable switching element

We have made it our task to build suction lances that are tailored to our customers' needs and requirements. That is why we are able to offer customer-specific solutions too.

Installation

The suction lances are installed from above, in the port to the container.

However, it is essential to ensure that a lateral distance of at least 20 mm remains free when installing the float. The float's stop rings must not be misaligned.

If they are misaligned, they must be set so that the float can still move 3-5 mm to the stop ring from the switch-on or switch-off point.

Protective circuit

Switching high voltages from inductive loads such as solenoids, contactors, etc. results in high switching voltages and thus switch sparks, which can considerably shorten the life-time of the contacts.

For these cases, we recommend the following as a protective circuit:

1. Using a Jacob contact protection relay, Type CR 110
2. Connect an RC element or a voltage-dependent resistor (VDR) in parallel with the load for DC and AC voltages, see in the main catalogue.
3. A diode for a continuous current

The Jacob contact protection relay Type CR 110 has the advantage that only a small voltage is fed to the reed contact, which is galvanically separated from the network, but large currents can be switched using the relay.

Electrical connection

The terms of DIN VDE 0100 in particular must be observed for the electrical connection and the start-up.

The connection can be carried out directly on the float switch or with the interposition of a contact protection relay or contactor, depending on the size of the load. The electrical specifications for the contacts are maximum values, whereby the individual values must not be exceeded.

The contacts have the specified contact position in idle position, i.e. when the liquid has not yet lifted the float to the level of the switch point.

The arrow displayed in the contact shows the direction in which the movable contact tongue moves as the liquid rises, i.e. switches suddenly.

It should be noted that the stop rings must be remounted in such a way that the float can still move 3–5 mm from the switch-on point to the stop ring. This path is also required for the switch-off point.

The wires are to be connected according to the following examples.

If there is a protective earth connector (green/yellow), this is to be connected to your unit.

If there is no protective earth connector (green/yellow) and the voltage is over 48V, the user must arrange for his units and components to be professionally earthed.

e.g. Type

Contact = 1
SL 130.001.00
Normally open = 1

Contact = 2
SL 130.002.00
Normally closed = 2

Contact = 3
SL 130.003.00
Changeover = 3

Contact at L1



Unit with 2 switch points

e.g. Type

SL 130.012.00

SL 130.031.00

SL 130.033.00

Contact at L2



Contact at L1



Unit with 3 switch points

e.g. Type

SL 130.111.00

SL 130.112.00

SL 130.221.00

Contact at L3



Contact at L2



Contact at L1



Protection grades

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP-CODES) ACCORDING TO IEC 60529

Protections against solid foreign objects, marked first index

First Index	Protection grade	
	Short description	Definition
0	Non-protected	-
1	Protected against solid foreign objects of 50 mm diameter and greater	The object probe, sphere of 50 mm diameter, shall not fully penetrate *)
2	Protected against solid foreign objects of 12,5 mm diameter and greater	The object probe, sphere of 12,5 mm diameter, shall not fully penetrate *)
3	Protected against solid foreign objects of 2,5 mm diameter and greater	The object probe, sphere of 2,5 mm diameter, shall not penetrate at all *)
4	Protected against solid foreign objects of 1 mm diameter and greater	The object probe, sphere of 1mm diameter, shall not penetrate at all *)
5	Dust-protected	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of apparatus or to impair safety
6	Dust-tight	No ingress of dust

*) Note: The full diameter of the object probe shall not pass through an opening of the enclosure

Protection against water, marked second index

Second index	Protection grade	
	Short description	Definition
0	Non-protected	-
1	Protected against falling water drops	Vertically falling drops shall have no harmful effects
2	Protected against falling water drops when enclosure tilted up to 15°	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical
3	Protected against spraying water	Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects
5	Protected against water jet	Water projected in jets against the enclosure from any direction shall have no harmful effects
6	Protected against powered water jet	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7	Protected against the effects of temporary immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when enclosure is temporarily immersed in water under standardised conditions of pressure and time
8	Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7

Example: Code

IP 6 8

Description of the plastics

Polyvinyl chloride (PVC)

synthetic thermoplastic, hard in non-plasticised condition, rubbery when compound contains plasticising oils, not vulcanisable, weldable

Temperature range

Should not exceed +60°C. This volatilises at higher temperatures, depending on mechanical load and the type of composition or the type of plasticiser used. PVC HT suitable up to +90° C (high temperature polyvinyl chloride)

Advantages

By mixing various additives with its properties, especially in the softness, varying / average elasticity achievable / age-resistant and ozone-resistant / highly resistant to chemicals / partially oil-resistant / good mechanical strength / good electrical insulating properties / low-priced, non-flammable in own flame

Disadvantages

Mechanical properties are heavily dependent on operation temperature / are brittle to firm depending on composition at extremely low temperatures / depending on the quality of the plasticiser's migration possibility i.e. possible changes in colour and hardness after contact with similar and different materials, painted surfaces etc. (can be reduced by expensive combinations) / soft: hardens in petrol and oil.

Polyamide (PA)

a group of thermoplastics, initially known as Nylon (DuPont, USA) and Perlon (D), which are now available in various types and with varying origins, which differ in chemical make-up and display various characteristics that enable further areas of application, not vulcanisable. Specific weight 1.07 to 1.21

Temperature range

-40 to +120°C
(up to +180°C in special cases)

Advantages

Highly resistant to viscosity and wear (at normal water content), low friction coefficient offers self-lubricating bearings / physiologically safe / good electrical isolator / resistant to organic solvents, mineral, animal and plant oils and fats, petrol, aromatics

Disadvantages

Depending on the type of decay of the mechanical properties in the case of decreasing water content / changes to the moisture content (8–10%) require changes in volume / not resistant to acids and bases / flammable

Rubber (NBR)

synthetic rubber, acrylic nitrile butadiene rubber, previously Perbunan or Buna N cross-linked with sulphur

Temperature range

-20 to +100°C dry,
oil up to +140°C
water up to +80°C

Advantages

Highly resistant to oil and petrol / highly resistant to heat / good mechanical strength / low permanent deformation under pressure.

Disadvantages

Low resistance to ozone and weather / low elongation / flammable

Polypropylene (PP)

thermoplastic from the polyolefin group, normally pure, i.e. not used as a compound, not cross-linked, weldable, specific weight 0.90-0.91, hard.

Temperature range

0°C to +110°C

Advantages

Harder and rigid than PE / high surface hardness / high form stability and distortion free in warm conditions / excellent electrical isolation properties / absorbs almost no water / unflavoured and odourless / high resistance to acids, bases and solvents

Disadvantages

Loss of mechanical properties as temperatures increase / sensitive to cold (becomes brittle at 0° C) / more resistant to ozone and water if dyed black / flammable

Description of the plastics

Polyethylene (PE)

thermoplastic from the polyolefin group, normally pure, i.e. not used as a compound, not cross-linked, weldable, available as low-density polyethylene (LDPE, specific weight 0.92), soft, as well as high-density polyethylene (HDPE, specific weight 0.95), hard

Temperature range

LPDE: -50°C to +85°C

HPDE: -50°C to +95°C

Advantages

Plasticiser-free / good but rather limited mechanical strength compared to PVC / excellent electrical isolation properties / physiologically flawless at low temperatures more wear-resistant than PVC / unflavoured and odourless / high resistance to acids, bases and solvents / relatively low-priced

Disadvantages

Mechanical properties are temperature / only resistant to ozone and weather when dyed black, otherwise becomes brittle as a result of these influences / expands in oil and hydrogen chloride / flammable

Polyacetate (POM)

thermoplastic, non-cross-linkable Delrin (DuPont) POM-H = Homopolymer, Hostaform C = Copolymer (Hoechst) POM-C, a first-class construction material for machine parts instead of metals. Specific weight 1.4

Temperature range

-40°C to +100°C

Advantages

High strength and hardness / excellent stability / elasticity and viscosity at high temperatures as well / good machinability / highly resistant to chemicals and solvents

Disadvantages

Very limited resistance to oil / not acid-resistant / light-sensitive / flammable

Polytetrafluoroethylene (PTFE)

thermoplastic fluororesin, Teflon (DuPont, USA) Fluon (ICI), Hostafon TF (Hoechst), becomes sintered at +360-400°C, specific weight 2.2

Temperature range

-200°C to +260°C

Advantages

Unsurpassed in its resistance to solvents, chemicals and high temperatures / excellent electrical isolator / good machinability / physiologically flawless / non-flammable / resistant to weather / low friction coefficient offers self-lubricating properties

Disadvantages

High price / average mechanical properties, limited possibilities for use, but may be improved with filler materials / injection moulding not possible / Teflon FEP version thermoplastically processable / tendency to cold flow under mechanical load / flammable, but not in own flame

Polyvinyl fluoride (PVDF)

thermoplastic, thermoplastically processable from 300°C, specific weight 1.8

Temperature range

-40°C to +150°C

Advantages

Good mechanical machinability and tensile strength / resistant to weather / very high resistance to chemicals / flame-resistant, very high resistance to solvents and chemicals / high resistance to temperature

Disadvantages

high price / dielectrically not so high-quality / highly specific weight / hard to process thermoplastically

Overview chemical resistance

Description	Chemical notation	PA	PP	PVC hard	PVC soft	FEP	PTFE	PVDF	NBR	AL	ST. ST.
Acetone	C_3H_6O	1/0	1/3	4/4	0/0	(1)	1/1	3/4	4/4	1/1	1/1
Allyl alcohol	C_3H_6O	3/0	2/2	2/3	4/4	1/1	1/1	(2)	3/0	1/1	1/1
Formic acid 50%	CH_2O_2	4/4	1/2	2/3	0/0	1/1	1/1	1/1	4/4	(3)	1/2
Ammonium hydroxide	$NH_3 + H_2O$	(3)	1/2	1/2	0/0	1/1	1/1	(2)	2/3	1/1	1/1
Petrol	$C_5H_{12} - C_{12}H_{26}$	1/0	3/4	2/4	0/0	1/1	1/1	1/1	3/0	1/1	1/1
Benzole	C_6H_6	2/0	3/4	4/4	0/0	1/1	1/1	1/3	4/4	1/1	1/1
Calcium hydroxide	CaH_2O_2	1/0	1/1	0/0	0/0	1/1	1/1	1/1	1/0	3/4	1/1
Chlorine	Cl_2	4/4	4/4	1/2	0/0	1/1	1/1	(2)	4/4	4/4	4/4
Chloric acid	$HClO_3$	4/4	1/3	1/3	1/0	0/0	1/1	1/1	(3)	(3)	4/4
Diesel fuel	—	1/1	1/3	1/0	0/0	(1)	1/1	1/1	1/1	1/1	(1)
Iron-(II)-chloride	$FeCl_2$	3/0	1/1	1/1	1/0	1/1	1/1	1/1	(1)	4/4	1/1
Crude oil	—	1/0	1/0	0/0	0/0	(1)	1/0	1/1	3/3	(1)	(1)
Ethanol	C_2H_6O	1/0	1/1	1/1	0/0	1/1	1/1	1/1	1/1	1/1	1/1
Ethylene	C_2H_4	1/0	(2)	0/0	0/0	1/1	(1)	(2)	3/3	(1)	(1)
Ethylene chloride	$C_2H_4Cl_2$	3/0	3/4	4/4	4/4	1/1	1/1	1/1	4/4	1/3	1/1L
Hydrofluoric acid	HF	4/4	(2)	0/0	0/0	(1)	1/0	0/0	4/4	4/4	(3)
Formaldehyde solution	CH_2O	3/3	1/1	2/3	3/3	1/1	1/1	1/1	(2)	1/1	1/1
Glycerin	$C_3H_8O_3$	1/0	1/1	1/1	2/3	1/1	1/1	1/1	1/0	1/1	1/1
Heating oil	—	1/0	1/3	1/1	3/3	1/1	1/1	1/1	1/1	1/1	1/1
Hydrazine	N_2H_4	4/4	1/1	1/0	0/0	1/0	1/0	1/3	4/4	1/0	1/3
Isobutanol	$C_4H_{10}O$	(2)	1/1	1/2	0/0	1/1	(1)	1/1	3/4	1/0	(1)
Isopropanol	C_3H_8O	1/0	1/1	1/2	4/4	1/1	1/1	1/1	3/3	(2)	(1)
Carbon dioxide	CO_2	1/0	1/1	1/3	1/0	(1)	1/1	1/1	1/1	3/3	1/1
Magnesium chloride	$MgCl_2$	1/0	1/1	1/1	1/0	1/1	1/1	1/1	1/0	1/1	1/0L
Magnesium sulfate	$MgSO_4$	1/0	1/1	1/1	1/0	1/1	1/1	1/1	2/0	1/1	1/1
Machine oil	—	(1)	1/3	0/0	0/0	(1)	1/1	1/1	1/0	1/1	1/1
Mineral oil	—	(1)	1/3	1/2	0/0	1/1	1/1	1/1	2/2	1/1	1/1
Sodium chloride	$NaClO_2$	1/4	1/3	3/0	4/4	(1)	1/1	1/1	4/4	3/4	3/3
Sodium hydroxide	$NaHO$	1/3	1/1	0/0	0/0	0/0	1/1	(2)	3/4	4/4	(2)
Sodium nitrate	$NaNO_3$	1/0	1/1	1/3	1/3	1/1	1/1	1/1	2/3	1/1	1/1
Sodium Persulfate	$Na_2S_2O_8$	4/4	1/1	1/3	0/0	(1)	1/1	1/1	(3)	4/4	1/0
Oxalic acid	$C_2H_2O_4 \times 2H_2O$	4/4	1/1	0/0	0/0	1/1	1/1	(2)	3/3	1/0	1/3
Petroleum	—	1/0	1/3	1/0	3/0	(1)	1/1	1/1	1/1	1/1	1/1
Phosphoric acid	H_3PO_4	4/4	1/1	0/0	0/0	1/1	1/1	1/1	3/3	4/4	1/2
Propanol	C_3H_8O	1/1	1/1	2/2	3/3	1/1	1/1	1/1	3/3	1/1	(1)
Propylene glycol	$C_3H_8O_2$	4/4	1/1	3/4	0/0	1/1	1/1	1/1	1/3	1/1	(1)
Nitric acid	HNO_3	4/4	1/1	1/2	0/0	1/1	1/1	1/1	4/4	3/4	1/1
Hydrochloric acid	HCl	4/4	1/1	1/1	0/0	1/1	1/1	1/1	3/4	4/4	4/4
Sulphuric acid	H_2SO_4	4/4	1/1	1/3	1/3	1/1	1/1	1/1	4/4	3/4	2/3

Overview chemical resistance

Bezeichnung	Chemische Formel	PA	PP	PVC hard	PVC soft	FEP	PTFE	PVDF	NBR	AL	ST. ST.
Sulphuric acid 10%	H ₂ SO ₃	4/4	1/1	1/1	0/0	1/1	1/1	1/1	3/4	3/4	1/1
Ethyl alcohol	C ₂ H ₆ O	1/0	1/1	1/3	3/0	1/1	1/1	1/1	3/3	1/1	1/1
Trichlor ethylene(TRI)	C ₂ HCl ₃	3/0	4/4	4/4	4/4	1/1	1/0	1/1	4/4	1/3	1/1L
Trichlorofluoromethane	CCl ₃ F	1/0	(3)	0/0	0/0	(3)	(1)	0/0	1/0	(3)	0/0
Water	H ₂ O	1/0	1/1	1/3	1/3	1/1	1/1	1/1	1/1	1/1	1/1
Water, distilled	H ₂ O	1/0	1/1	1/3	1/3	1/1	1/1	1/1	1/1	1/1	1/1
Hydrogen peroxide	H ₂ O ₂	4/4	1/3	1/1	0/0	1/1	1/1	1/1	4/4	(3)	1/1

Resistance

For each liquid are two digits indicated.

left digit = Value at +20°C

right digit = Value at +50°C

0 non datas available

1 excellent resistant

2 resistant

3 partially resistant

4 not resistant

K non datas possible

L Danger of pitting corrosion or shatter crack corrosion

() not confirmed datas

General terms and conditions (status July 2005)

1. Scope of Validity

1.1 The terms and conditions hereinafter set out ("Conditions") apply in the latest version in force to all of our offers, sales and deliveries. The terms and conditions also apply to all of our future business transactions with purchaser.

1.2 Conflicting conditions of purchaser are not binding upon us. We hereby expressly object against any business conditions of purchaser. This also applies if purchaser objects in his purchase conditions the validity of our conditions and if we refrain from expressly rejecting once more. This also applies to all offers and orders.

1.3 Any conflicting conditions of purchaser are only binding upon us if we accept such conditions expressly in writing. Furthermore, our execution of purchaser's order shall not be deemed an acceptance of such conflicting terms and conditions of purchaser.

2. Offer

2.1 Our offers shall not be binding.

2.2 Any information contained in quotations and offers or other documents as for instance illustrations, drawings, etc. are only provisional unless we and purchaser have expressly agreed that the information shall be binding. Any information given in such document as well as the German Industrial Standard "DIN" shall not be construed as an agreement as to the fitness of the goods for a specific purpose. We reserve the title and any copyright in respect of all aforementioned documentation and all other documents that are provided to purchaser. Any such documentation may not be disclosed to a third party without our express consent in writing.

2.3 Oral collateral agreement as well as agreements as to the fitness of the goods for a specific purpose and alterations made after the conclusion of the contract shall only be binding upon us after our written confirmation of these agreements or alterations.

Order and Scope of Delivery

3.1 If purchaser's order shall be deemed to be an offer according to § German Civil Code, we have the right to accept the said offer within 4 weeks.

The text of our confirmation of order is decisive for the content of the contract made and the nature and content of order. Oral agreements are invalid unless confirmed in writing by us.

If no confirmation of order according to clause 3.2 of these conditions has been issued but we have provided an offer remaining open for a limited period which has been accepted in good time by purchaser, then the scope of delivery shall be determined by our offer.

4. Prices, changes in price

4.1 Subject to any other agreement our prices are quoted ex point of sale plus value added tax at a rate as from the time in force and - subject to clause 4.2 of these conditions - plus all additional costs for packaging.

4.2 In case of small orders below € 100,- without value added tax we will charge an additional fee (handling fee) amounting to € 25,-, unless a joint handling with other orders is possible subject to our reasonable discretion. Delivery is ex works. Unless otherwise expressly agreed in these conditions, the INCOTERMS shall apply in their respective latest version in force.

4.3 All prices only apply in case of acceptance of complete packaging-units. In case of partial package quantity we are entitled to charge packaging costs amounting to € 7,50.

4.4 Price basis for our brass metall products is the quotation for MS 58 amounting to € 155,-. Should that quotation increase (c.f. daily press) we are - for each rise in quotation amounting to € 13,- - entitled to charge an additional fee of 5% of the purchase price.

4.5 We reserve the right to reasonably change our prices, in the event that after conclusion of the contract increases or reductions in our manufacturing costs occur, especially as a result of an alteration of material cost or labour cost under collective agreements. We shall satisfactorily show such increase or reduction in costs at purchaser's request.

Conditions of payment

5.1 Unless otherwise agreed in writing all of our invoices are due and payable upon receipt by purchaser and have to be made in cash without any deduction.

5.2 Purchaser shall be in default of payment after having received our reminder. Such reminder is not required in case there is an agreed due date for payment determined according to the calendar or the parties have agreed on a payment within a certain period of time after an event specified in the contract has occurred. In any case purchaser is in default of payment 30 days after the receipt of the invoice, at the latest, if the receipt of the invoice cannot be determined, 30 days after receipt of the goods.

5.3 Should purchaser be in default of payment, we shall be entitled to claim default interest at a rate of 8 % above the respective basic interest rate mentioned in § 288 German Civil Code. Any of our rights to claim further damages caused by the default in payment remains unaffected.

5.4 We shall accept bills of exchange or cheques but always provided that where payment is made by means of bill of exchange or cheques or any other negotiable or not negotiable instrument, we shall not be deemed to have received payment until the bill of exchange or cheque or the other negotiable instrument or not negotiable instrument has been honoured notwithstanding that we may have negotiated such instrument and received value therefore. Purchaser shall bear any costs of any kind arising therewith, especially any banking-, discount- and collecting fees and taxes. Payments by bills of exchange or cheques or any other negotiable or not negotiable instruments shall only be deemed to have been made after we are finally entitled to dispose of the amount paid. We are under no obligation to properly present, protest, notify or return the bill of exchange or cheque or any other negotiable or not negotiable instrument. Purchaser is obliged to effect payment of the outstanding debts or the balance of such outstanding debts without delay in case a bill of exchange or cheque or any other negotiable or not negotiable instrument has not been honoured in time. In no event shall discount be given in case of payment by means of bill of exchange.

5.5 We can request that payment shall be made by an irrevocable confirmed letter or credit without charges for the account of the beneficiary which shall be opened through a German bank of our choice in our favour, allowing partial shipments, and one third (1/3) of which shall be immediately payable after the opening of the letter of credit upon first demand and the remaining two thirds (2/3) upon presentation of the documents.

5.6 Payments shall only be deemed to have been made after we are finally entitled to dispose of the amount paid.

6. Retention of Payment, Set-Off

6.1 Purchaser is only entitled to a right of retention of payment as such right arises under the same contract.

6.2 Any set-off of purchaser with his claims is not allowed except in so far as such claims of purchaser are undisputed or subject-matter of a final and conclusive judgment of a competent court.

7. Delivery

7.1 We cannot comply with an accurate number of items in case of custom-made products. We therefore reserve in any case the right of over- and under-deliveries not exceeding 10 %.

7.2 Partial deliveries are permissible.

7.3 Dates and periods of delivery are provisional and not binding upon us unless expressly and bindingly agreed in writing.

7.4 The delivery period commences upon the date of the confirmation of order and shall be deemed to be met if upon its expiry we have arranged for the delivery of the goods and after notification of purchaser that the goods are ready for dispatch.

7.5 The delivery period can only be observed if all documents to be supplied by purchaser, necessary permits and releases, especially concerning plans, are received in time and if agreed terms of payment and other obligations of purchaser are fulfilled. Unless these conditions are fulfilled in time, the delivery period shall be extended appropriately; this shall not apply where we are responsible for the delay.

7.6 The delivery period is subject to unforeseeable events that are beyond our control, especially in case of force majeure, business disruption, industrial disputes, especially strike and lockout, war, mobilisation, riots and problems with the material and energy supply. Should such events influence the performance of the contract in due time, the delivery period shall be extended adequately.

7.7 Modifications and additions requested by purchaser subsequent to the conclusion of the contract, which render delivery on the agreed date impossible, shall lead to a postponement of the delivery date corresponding to the period of time which is requested for making these modifications and additions.

7.8 We are entitled to refuse dispatch and delivery of goods until purchaser has paid all outstanding debts concerning previous deliveries. If, after the conclusion of the contract, we learn of adverse circumstances with respect to the creditworthiness of purchaser or if we have reasonable doubts as the solvency of purchaser, we are entitled to refuse the dispatch and delivery or to request an advance payment or a security before delivery. If purchaser does not effect any advance payment or does not provide a security within a reasonable period of time set by us, we are entitled to repudiate the contract.

8. Delay

8.1 If we are in delay of delivery, purchaser, provided that he is able to submit prima facie evidence for the existence of a damage caused by delay, is entitled to a compensation for each full week of delay amounting to 0,5 %, but in no case more than a total of 5 % of the price of the part of the delivery, which cannot purposively be used due to the delay of delivery.

8.2 Purchaser's claims for damages caused by delay of delivery as well as claims for damages in lieu of performance, exceeding the compensation specified in Clause 8.1 of these Conditions, shall be excluded in all cases of delayed delivery, even upon expiry of a time limit set for delivery. The above shall not apply in case of compulsory liability owing to intent, gross negligence, injury of life, body or health. Purchaser shall only be entitled to repudiate the contract according to the compulsory provisions as far as we are responsible for the delay of delivery. The aforementioned provisions shall not imply a change in the burden of proof to the detriment of purchaser.

8.3 Purchaser shall upon our request declare within an appropriate period of time whether he repudiates the contract due to the delay of delivery or whether he requests delivery.

8.4 If dispatch or shipment is delayed at purchaser's request by more than one month after notice of the readiness for dispatch, purchaser may be charged, for every month commenced, storage costs of 0,5 % of the price of the items of the deliveries, but in no case more than a total of 5 %. The parties to the contract may prove that higher or, as the case may be, lower storage costs have been incurred. However, we shall be entitled to set an appropriate time limit for the acceptance of the goods ; after fruitless expiry of such time limit, we shall be entitled to dispose otherwise of the goods or to deliver the goods to purchaser within an adequately extended delivery period.

9. Dispatch and Passing of Risk

9.1 Unless expressly otherwise agreed in writing, purchaser has to bear the costs of dispatch, transport and transport insurance. We select the way and type of dispatch at our own discretion.

9.1 Risk of accidental loss or deterioration of the goods shall pass to purchaser upon the moment in which the goods have left our premises. This also applies in case of deliveries free of all charges. We assume no liability for damage, breakage or loss of the goods during transport.

9.3 Purchaser has no right to reject delivery of the goods on the ground of minor discrepancies of the agreed quality or minor interferences in the application.

10. Retention of Title

10.1 All delivered goods remain our property until all existing claims of whatever legal ground we have against purchaser at the moment of the conclusion of the contract are paid in full. Where payment is made by means of bill of exchange, cheque or other negotiable or not negotiable instrument, we shall not be deemed to have received payment to purpose of this provision until the bill of exchange, cheque or other negotiable or not negotiable instrument has been honoured notwithstanding that we may have negotiated it. The title of the goods as well as we are totally released from any contingent liability which we undertook in the interest of purchaser in particular such liabilities as aforesaid resulting from the negotiation of negotiable instruments. In case of current account the reservation of title shall be deemed as collateral for the balance of account in our favour and if a balance is struck and confirmed, this shall not effect the retention of title.

10.2 Purchaser may process and use for manufacturing the delivered goods in the course of his usual business. Purchaser will process and use for manufacturing the delivered goods for and on behalf of us; no obligations for us shall arise from such processing or use in manufacturing. In case of manufacturing, assembly, amalgamation or mixing of the delivered goods with other goods which we have not delivered, we shall acquire a co-ownership share of the new device in a ratio of the invoice value of the delivered goods to the value of the other manufactured goods at the moment of the manufacturing, assembly, amalgamation or mixing. In the event that purchaser acquires sole ownership of the new device, purchaser now transfers in advance a co-ownership share of the new device to us corresponding the aforementioned ratio and commits itself to store such device free of charge for us.

10.3 In the event that purchaser sells the delivered goods or the new device in which we have acquired a co-ownership share according to Clause 10.2 of these Conditions solely or together with goods not owned by us, purchaser now hereby assigns in advance his claims arising from a further sale with all ancillary rights amounting to the value of the delivered goods. We hereby accept the assignment. In the event that we hold a co-ownership on the sold device, the aforementioned assignment applies to the claims corresponding the value of our co-ownership share. We hereby authorize purchaser, subject to

General terms and conditions (status July 2005)

revocation, to collect the debt assigned to us. In case purchaser is put to default, purchaser shall disclose to us the full name and address of the debtors of the assigned claims. Purchaser is moreover obliged to notify the assignment to the debtors. In such case we are also entitled to notify the assignment to the respective debtors and to collect debts.

10.4 Should purchaser be in breach of contract, in particular be in default of payment or in violation of his obligation of due care of the delivered goods, we shall be entitled to retake and permanently retain possession of the delivered goods subsequent to our reminder and the fruitless expiry of a final time limit. In such case purchaser is obliged to deliver possession of the delivered goods. Neither the execution of our right to retake possession of the delivered goods nor any execution or distress levied upon the delivered goods by us shall be regarded as an implied repudiation of the contract unless we expressly declare such repudiation. Purchaser hereby irrevocably authorizes us or our duly authorized agents to enter purchaser's premises to execute our right to retake.

10.5 Purchaser may solely sell the delivered goods in the course of his usual and proper business and provided that the transfer of the claims assigned to us according to the above is effective and valid. Purchaser shall not be entitled to any further disposal or transaction regarding the delivered goods' pledge or transfer by way of security.

10.6 Should any execution or distress be levied upon the delivered goods, purchaser shall without delay notify us thereof - even if we are only co-owner of the delivered goods - and deliver us any documentation required in order to object against such execution or distress.

10.7 Purchaser must insure the delivered goods at his own expense against fire and theft. Purchaser hereby assigns to us any claims against the insurer with regard to the delivered goods and we hereby accept such assignment.

10.8 Purchaser who is resident in a foreign country shall do any act required by law or otherwise to make our retention of title and our rights under Clause 10 of these conditions valid and effective.

10.9 Should the value of the delivered goods be more than 150 % in excess of all sums due from the purchaser to us then we shall be obliged to release such goods and to transfer title in these goods to purchaser.

11. Defects as to Quality

We shall be liable for defects as to quality, any failure to comply with any particular agreement or guarantee as to the fitness of the goods for a specific purpose or the durability of the goods, for any over-delivery, under-delivery or aliud-delivery ("Defect") as follows:

11.1 All parts of services where a Defect becomes apparent within the limitation period shall, at our discretion, be repaired, replaced or redelivered free of charge irrespective of the hours of operation elapsed, provided that the reason for the Defect has already existed at the time when the risk passed.

11.2 Claims based on Defects are subject to a limitation period of 12 months. This provision shall not apply where longer periods are prescribed by law according to Sec. 438 para. 1 No 2 (buildings and things used for a building), Sect. 479 para. 1 (right of recourse), and Sec. 634a para. 1 No 2 (defects of a building) German Civil Code ("BGB"), as well as in cases of injury of life, body or health, or where we intentionally or grossly negligently fail to fulfil our obligation or fraudulently conceal a Defect. The legal provisions regarding suspension of expiration ("Ablaufshemmung"), suspension ("Hemmung") and recommencement of limitation periods remain unaffected.

11.3 Written notice of apparent Defects must be given without delay at the latest 14 days from the receipt of the goods. Written notice of hidden Defects must be given without delay, at the latest 14 days from the discovery of such Defects. Claims based on Defects shall be excluded, should purchaser fail to give written notice of such Defects within the aforementioned period of time.

11.4 In case of notification of a Defect, purchaser may withhold payments to a reasonable extent taking into account the Defect occurred. Purchaser, however, may withhold payments only if the subject-matter of the notification of the Defect occurred is justified beyond doubt. Unjustified notifications of Defect shall entitle us to have our expenses reimbursed by purchaser.

11.5 We shall first be given the opportunity to supplement our performance ("Nacherfüllung") within a reasonable period of time.

11.6 If supplementary performance is unsuccessful, purchaser shall be entitled to repudiate the contract or reduce the remuneration, irrespective of any claims for damages he may have according to Clause 14 of these Conditions.

11.7 There shall be no claims based on a Defect in cases of insignificant deviations from the agreed quality, of only minor impairment of usefulness, of usual wear and tear or damage arising after the transfer of risk from faulty or negligent handling, excessive strain, unsuitable equipment, defective workmanship, inappropriate foundation soil or from particular external influences not assumed under the contract, or from non-reproducible software errors. Claims based on defects attributable to improper modifications or repair work carried out by purchaser or third parties and the consequences thereof shall be likewise excluded.

11.8 Purchaser shall have no claim with respect to expenses incurred in the course of supplementary performance, including costs of travel and transport, labour, and material, to the extent that expenses are increased because the subject-matter of the deliveries was subsequently brought to another location than purchaser's branch office, unless doing so is conformity with the intended use of the deliveries.

11.9 Purchaser's right of recourse against us pursuant to Sec. 478 BGB is limited to cases where purchaser has not concluded an agreement with his customers exceeding the scope of the statutory provisions governing claims based on Defects. Moreover, Clause 11.8 of these Conditions shall apply mutatis mutandis to the scope of the right of recourse purchaser has against us pursuant to Sec. 478 para. 2 BGB.

11.10 Furthermore, the provisions of Clause 14 of these conditions (Other Claims for Damages) shall apply in respect of claims of damages. Any other claims of purchaser against us or our agents or any such claims exceeding the claims provided for in Clause 11 of these Conditions, based on a Defect, shall be excluded.

11.11 Any return shipment of the goods by purchaser is in any event subject to our written approval. In case of such approval, the Goods have to be returned to our business premises at Gottlieb-Daimler-Straße 11, 71394 Kernen. Redeliveries not owing to our default are as a matter of principle only accepted upon prior agreement. The handling expenses are calculated according to the time and effort for examination, disassembling and re-storage.

12. Industrial Property Rights and Copyright; Defects in Title

12.1 Unless otherwise agreed, we shall provide the deliveries free from third parties' industrial property rights and copyrights (hereinafter referred to as "IPR") with respect to the country of the place of destination. If a third party asserts a justified claim against purchaser based on an infringement on an IPR with respect to the deliveries made by us and then used in conformity with the contract, we shall be liable to purchaser within the time period stipulated in Clause 11.2 of these Conditions and according to

the following Clauses 12.2 to 12.9 of these Conditions.

12.2 We shall choose whether to acquire, at our own expense, the right to use the IPR with respect to the deliveries concerned or whether to modify the deliveries such that they no longer infringe the IPR or replace them. If this is not reasonably possible for us, purchaser may repudiate the contract or reduce the remuneration pursuant to the applicable statutory provisions.

12.3 Our liability to pay damages shall be governed by Clause 14 of these Conditions.

12.4 Our above obligations shall only apply if purchaser immediately notifies us of any such claim asserted by the third party in writing, does not concede the existence of an infringement and leaves any protective measures and settlement negotiations to our discretion. If purchaser stops using the deliveries in order to reduce the damage or for other good reason, he shall be obliged to notify the third party that no acknowledgement of the alleged infringement may be inferred from the fact that the use has been discontinued.

12.5 Claims of purchaser shall also be excluded if he is himself responsible for the infringement of an IPR.

12.6 Claims of purchaser shall also be excluded if the infringement of the IPR is caused by specifications made by purchaser or owing a type of use not foreseeable by us or the deliveries being modified by purchaser or being used together with products not provided by us.

12.7 In addition, with respect to purchaser's claims pursuant to Clause 12.2 of these Conditions Clauses 11.4, 11.5 and 11.9 shall apply mutatis mutandis in the event of an infringement of an IPR.

12.8 Where other defects in title occur, Clause 11 of these Conditions shall apply mutatis mutandis.

12.9 Any other claims of purchaser against us or our agents or any such claims exceeding the claims provided for in Clause 12 of these Conditions, based on a defect in title, shall be excluded.

13. Impossibility of Performance; Adaption of Contract

13.1 To the extent that deliveries are impossible to be carried out, purchaser shall be entitled to claim damages, unless we are not responsible for the impossibility. Purchaser's claim for damages shall, however, be limited to an amount of 10 % of the value of the part of the deliveries which, due to the impossibility, cannot be put to the intended use. This limitation shall not apply in the case of compulsory liability based on intent, gross negligence or injury of life, body or health; this does not imply a chance in the burden of proof to the detriment of purchaser. Purchaser's right to repudiate the contract shall remain unaffected.

13.2 Where unforeseeable events within the meaning of Clause 7.6 of these Conditions substantially change the economic importance of the contents of the deliveries or considerably affect our business, the contract shall be adapted taking into account the principles of reasonableness and good faith. Where doing so is economically unreasonable, we shall have the right to repudiate the contract. If we intend to exercise our right to repudiate the contract, we shall notify purchaser thereof without undue delay after having realised the repercussions of the event; this shall also apply even where an extension of the delivery period has previously been agreed with purchaser.

14. Other Claims for Damages

14.1 Any claims for damages and reimbursement of expenses purchaser may have (hereinafter referred to as "Claims for Damages"), based on whatever legal reason, including infringement of duties arising in connection with the contract or tort, shall be excluded.

14.2 The above shall not apply in case of mandatory liability, e.g. under the German Product Liability Act ("Produkthaftungsgesetz"), in case of intent, gross negligence, injury of life, body or health, or breach of a condition which goes to the roots of the contract ("wesentliche Vertragspflichten"). However, Claims for Damages arising from a breach of a condition which goes to the roots of a condition which goes to the roots of the contract shall be limited to the foreseeable damage which is intrinsic to the contract, unless caused by intent or gross negligence or based on liability for injury of life, body or health. The above provision does not imply a change in the burden of proof to the detriment of purchaser.

14.3 To the extent that purchaser has a valid Claim for damages according to Clause 14 of these Conditions, he shall be time-barred upon expiration of the limitation period applicable to Defects pursuant to Clause 11.2 of these Conditions. In case of claims for damages under the German Product Liability Act, the statutory provisions governing limitation periods shall apply.

15. Measurement

We reserve our right to technically modify the products offered in our catalogue, especially to modify measurements and erroneous specifications.

16. Place of Performance and Venue

16.1 Place of performance for any actual or future claims under the business relationship with purchaser, especially claims for payment against purchaser or claims for delivery against us, is the place of our business seat, i.e. Kernen (Rems-Murr-Kreis).

16.2 If purchaser is a merchant, exclusive venue and jurisdiction for all disputes arising directly or indirectly out of the contract shall be the place of our business seat. However, we may also bring an action at purchaser's place of business or at any other statutory venue.

17. Applicable Law

These Conditions and the entire legal relations existing in connection with this contract between us and purchaser shall be governed by German substantive law, to the exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).

Order page

Company name: _____	Customer Nr.: _____
Street: _____	Article-Nr.: _____
City: _____	Quantity: _____
Phone: _____	Delivery date: _____
Order: _____	Date: _____

Total length Lo: _____ mm

Switching points		Function					Switch height	
	1. switch points		NO		NC		Change over	mm
	2. switch points		NO		NC		Change over	mm
	3. switch points		NO		NC		Change over	mm
	Measured from		down		up			

Material	Materials	Diameter				
Skid pipe	PVC	8 mm				
Suction pipe	PVC	6 mm	8 mm	10 mm	12 mm	
Float	PP	19,5 x 9,0 x 24,0 mm				
Enclosure	ABS	82 x 80 x 55 mm				

Process connection	Materials	Dimensions in mm				
Plug-in flange, straight	PVC	Ø30	Ø40			
Plug-in flange, cone	PVC	Ø30 - 40	Ø40 - 50			
Screw cap	PE/PP	DIN45	DIN50	DIN60	DIN96	
Thread	PVC	1 1/2"	2"			
Thread	PTFE	2"				

Cable	Material	Length	Width	Endsleeve	Clamp	Blank
	PVC	m	mm ²			
	Silicone	m	mm ²			

Suction connection	Tube diameter
PA fitting	4/6
PVC tube	6/8
Non return valve	
Sieve	

Liquid	Notation	Density	
		g/cm ³	
Operating conditions	Temperature range	Pressure	Protection grade
	°C	bar	IP

Comments:

Order specifications

e.g. Suction lance SL 100.012.12

Structure of the part number:



Minimum ordering designations

- L0 = Nominal length in mm
The nominal length measured of the reference edge of the process connection (upper edge bearing surface container) up to the lower edge of the suction lance.
- L1 = 1. Switch point in mm (measured from below)
- (L2) = 2. Switch point in mm (also measured from below)
etc.
- Length of the cable in meter
Material of the cable (PVC, Silicone, PTFE etc.)

Important ordering designations

- Technical designations of the liquid
- Density of the liquid
- Operating temperature (also from the cable)
- Operating pressure
- Connecting diagram (if contacts to be interconnected internally)

Explanations

¹⁾ Contact functions

- 0 = no contact
- 1 = NO
- 2 = NC
- 3 = Change over

Notes for the order:

- The function of the switching points always refers to rising level of the liquid and installation from above. A planned installation from downside is to be indicated however at the order.
- The possible combination of several switching points with different contact functions ist dependent of the position and the function of the switching points.
Inquire before the order, please!
- Indicate please interconnecting of several contacts.
Attaching of a connecting diagram is favourable.

²⁾ Suction pipe diameter (Depending from the process connetion)

- 1 = 6 mm Suction pipe diameter
- 2 = 8 mm Suction pipe diameter
- 3 = 10 mm Suction pipe diameter
- 4 = 12 mm Suction pipe diameter

³⁾ Non return valve and / or sieve

- 0 = without non return valve and without sieve
- 1 = with non return valve and without sieve
- 2 = with non return valve and with sieve
- 3 = without non return valve and with sieve

德国雅各布(JACOB)电缆接头Jacob Quick-Connect
Connecting Components西北地区经
销商联系方式：

西安嘉岳自动化技术有限公司 Garye Automation Company
地址：西安未央区未央大道138-1号中登大厦A座十二层
电话：029 - 8647 4991 传真：029 - 8647 3942
邮编：710016 手机：182 9256 1696
E-mail：sales@garye.cn
Web：http://www.garye.cn

