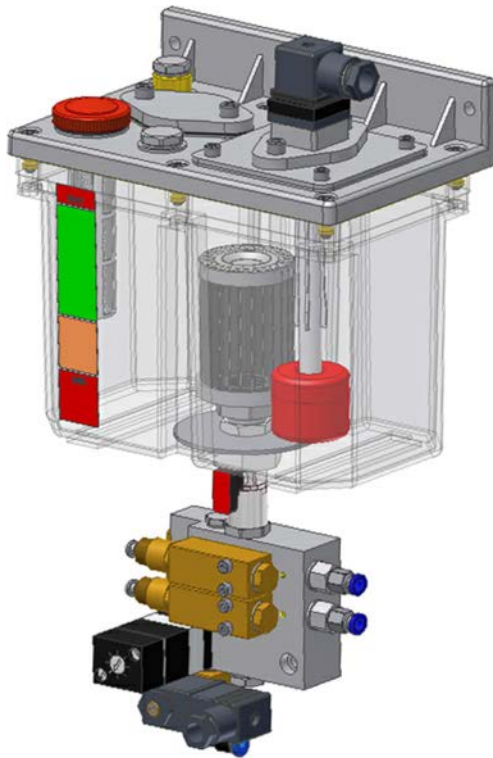
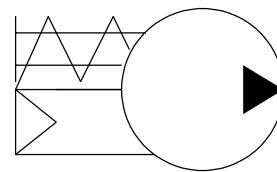
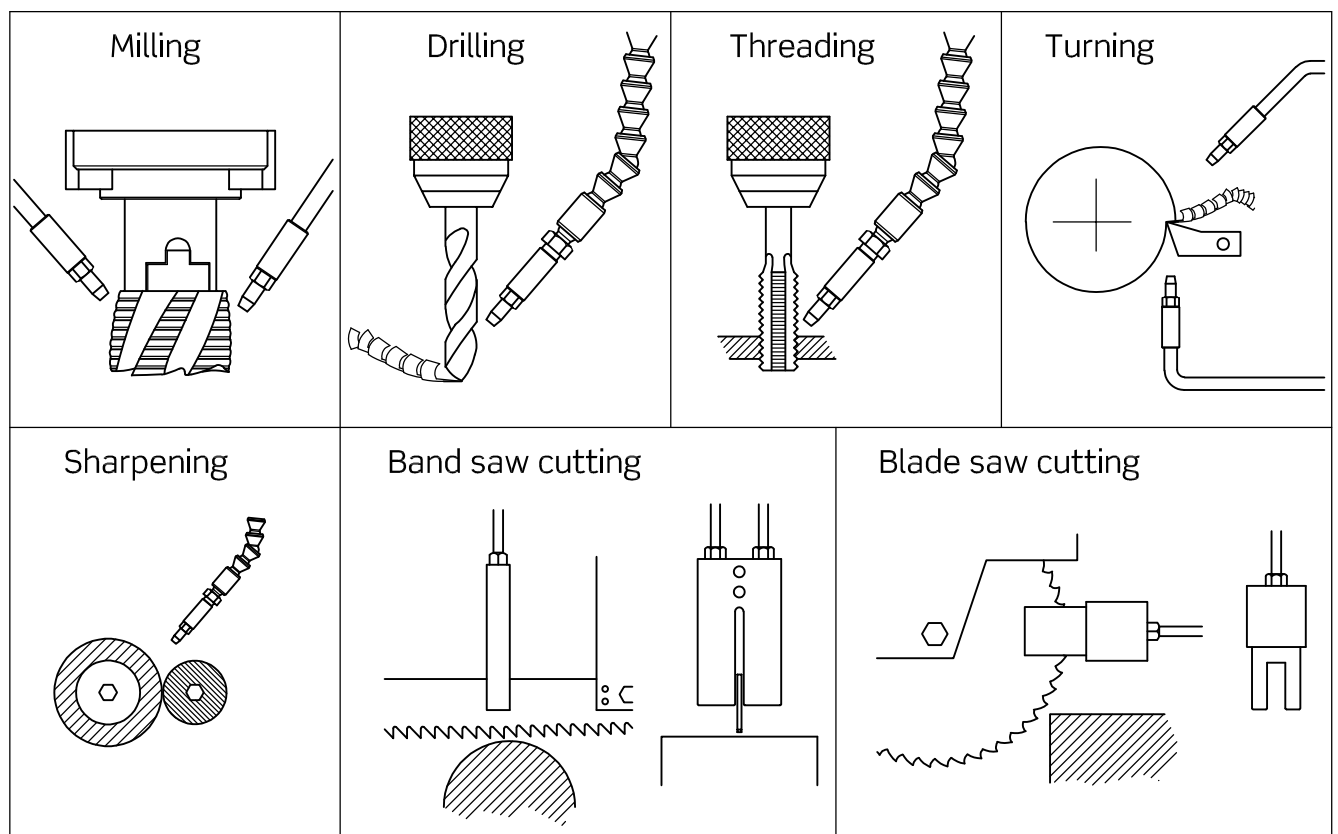




MQLC units for external lubrication and refrigeration of tools



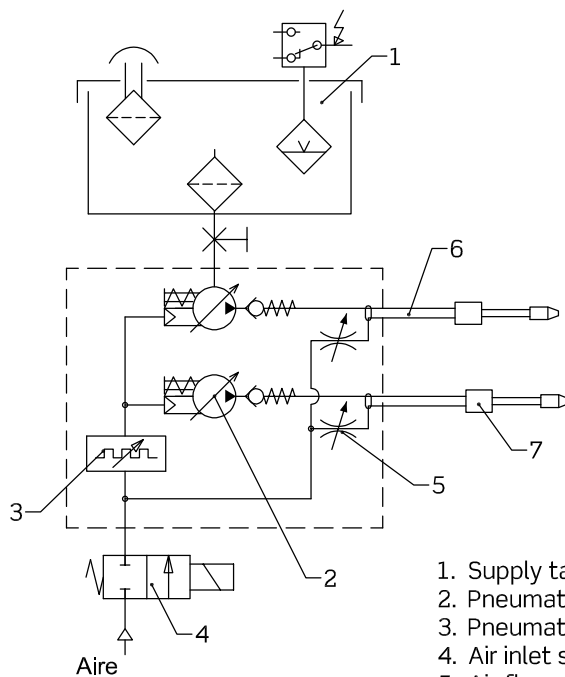
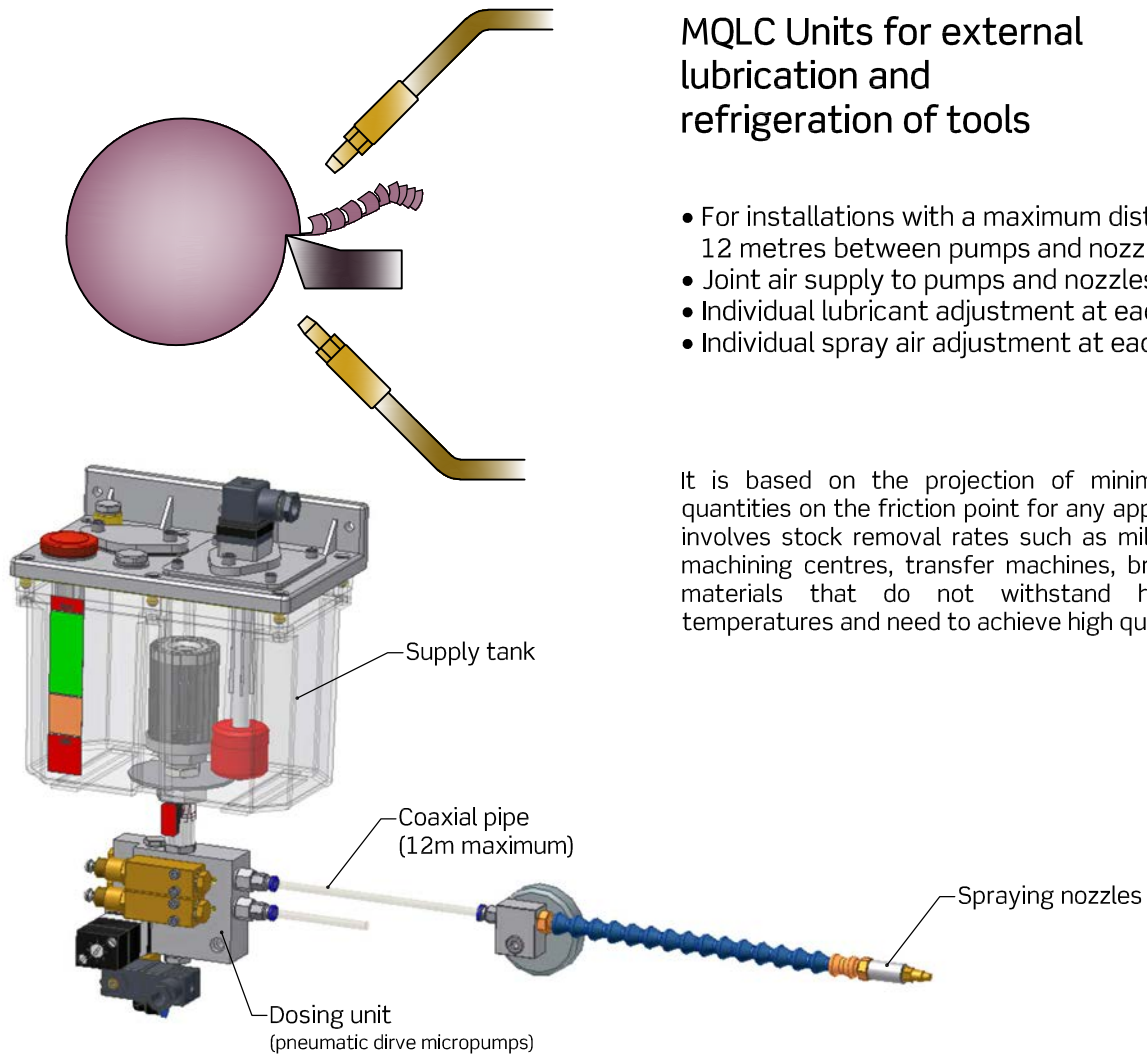
with pneumatic drive
micropumps
gravity-fed from tank



MQLC Units for external lubrication and refrigeration of tools

- For installations with a maximum distance of 12 metres between pumps and nozzles.
- Joint air supply to pumps and nozzles.
- Individual lubricant adjustment at each pump.
- Individual spray air adjustment at each nozzle.

It is based on the projection of minimal lubricant quantities on the friction point for any application that involves stock removal rates such as milling, turning, machining centres, transfer machines, broaching... to materials that do not withstand high friction temperatures and need to achieve high quality finish.

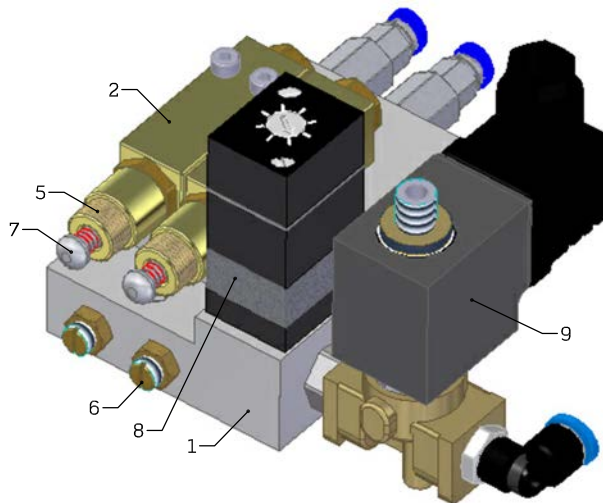


1. Supply tank
2. Pneumatic drive micropumps
3. Pneumatic pulse generator
4. Air inlet solenoid valve
5. Air flow regulator
6. Coaxial pipe
7. Spraying nozzle



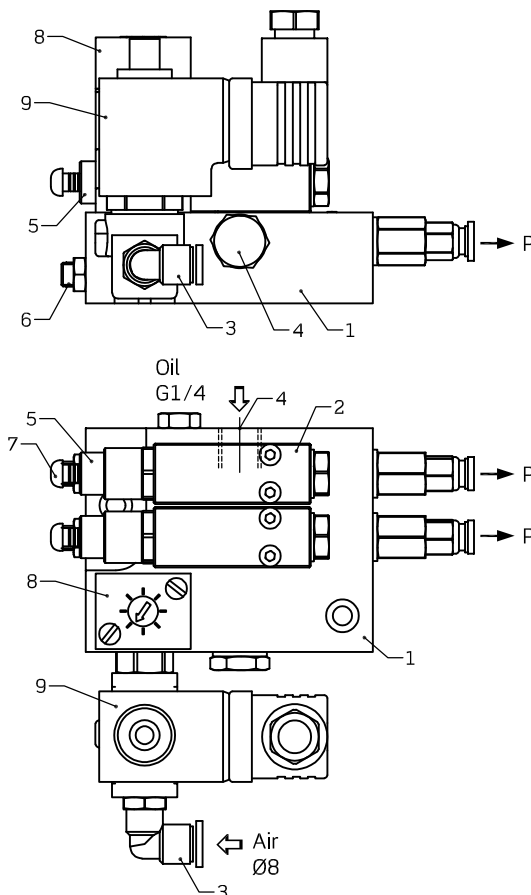
Pneumatic drive micropumps for MQLC system

PN02/A
210.500.000



1. Base plate
2. Dosing element
3. Air inlet Ø8
4. Oil inlet G1/4
5. Oil flow regulator
6. Air flow regulator
7. Manual drive and visual control
8. Pulse generator
9. Solenoid valve

P = Coaxial pipe connection



Technical data

Flow rate mm ³ /pulse.....	3 ÷ 35	6 ÷ 60
Maximum pressure.....	20 bar	15 bar
P/P1 ratio.....	1/17	1/10
Air pressure control.....	4 ÷ 8 bar	
Room temperature.....	-10°C...+80°C	
Maximum frequency.....	2 Hz	
Outlet air consumption.....	50 Nl/min	
Maximum lubricant viscosity.....	400 cSt	
Maximum suction pressure.....	2 bar	

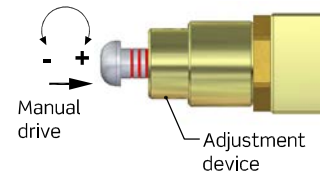
Lubricant

It is recommended the use of biodegradable lubricants particularly suitable for MQLC applications.

Oil flow rate control and regulation

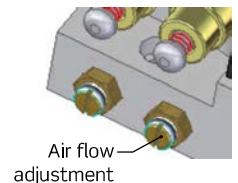
The piston stroke determines the amount of lubricant supplied at cycle

It serves as a visual monitoring of the doser operation



Air flow regulation

Air flow is regulated individually for each outlet by manipulating the throttling screw placed on the left side of the base plate: release the locknut and turn the screw.



Operation frequency

Lubrication frequency regulation is carried out by turning the device screw from 2 cycles/second up to 2 cycles/minute.

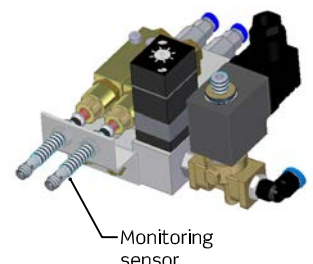
Clockwise = fewer pulses.
Anticlockwise = more pulses.



Cycle control

Piston operation can be monitored through proximity detectors.

By using this complement pumps can not be manually driven.

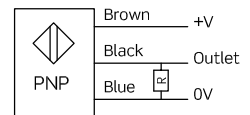


Solenoid valve characteristics

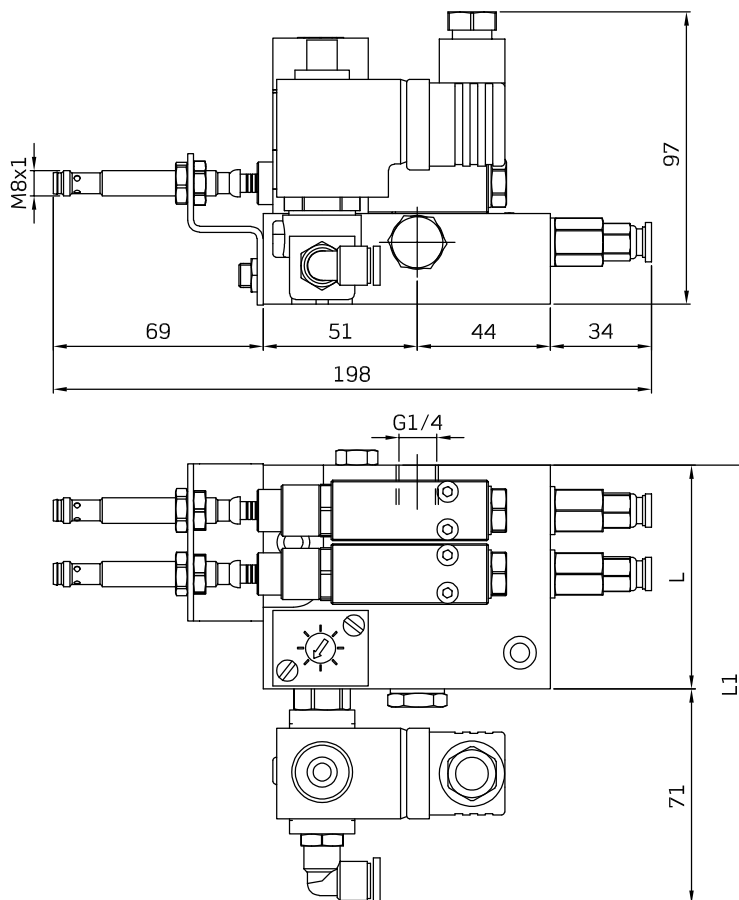
Function..... NC
Inlet pressure..... 7 ÷ 8 bar
Ambient temperature..... -10°C...+80°C
Standard voltage..... (~) AC: (24-115-230)V-50/60Hz
(=) DC: 24V
Voltage tolerance..... (~) AC (+10%/-15%)
(=) DC (+10%)
Consumption..... AC 13VA - DC 8W
Service type..... 100% ED
Protection degree..... IP65
It includes DIN 43650A connector

Inductive sensor characteristics

Function..... NO
Voltage..... 10 ÷ 30V
Maximum load admitted..... 200 mA
Protection degree..... IP67
Connection..... M8x1 3 poles

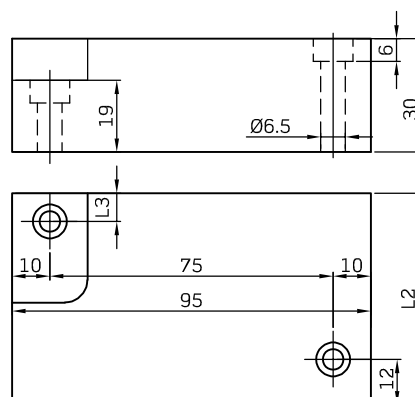


Pumping unit dimensions



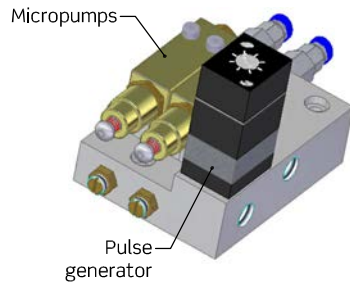
Nº of outlets	L	L1
1	56	127
2	74	145
3	95	166
4	116	187
5	137	208
6	158	229
7	200	271
8	200	271
9	242	313
10	242	313

Base plate dimensions



Nº of outlets	L2	L3
1	56	7,5
2	74	25,5
3	95	25,5
4	116	25,5
5	137	25,5
6	158	25,5
8	200	25,5
10	242	25,5

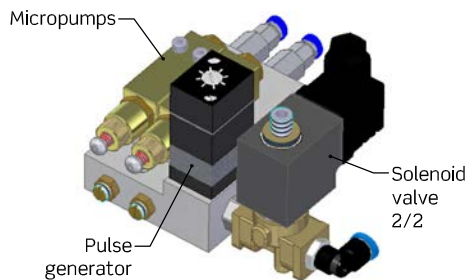
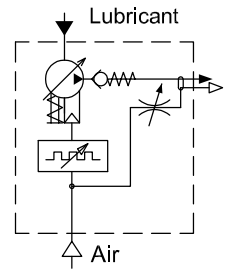
Control system (mode of operation):



Option 2 Control by pulse generator

With continuous air supply, lubrication cycles will be done according to the cadence regulated by the pulse generator.

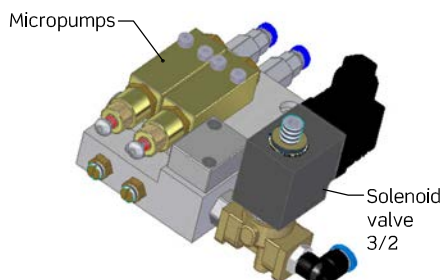
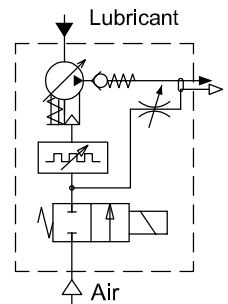
Lubricant intermittent
Air continuous



Option 3 Control by pulse generator and 2/2 solenoid valve

Lubrication cycles will be done according to the cadence regulated by the pulse generator while the solenoid valve for air is open.

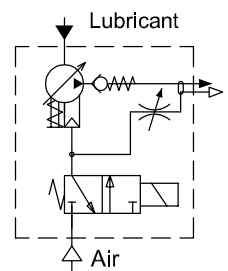
Lubricant intermittent
Air continuous



Option 4 Control by 3/2 solenoid valve

The operation of the micropump and the air supply to the nozzle are at the same time, in intermittent working by the opening/close of the solenoid valve.

Lubricant intermittent
Air intermittent



References

PN02 / A - 1 / X X - X X X / X											
N° of outlets	X	Flow x outlet mm3/stroke	X	GEN*	EV*	X	Solenoid valve voltage	X	Cycle control	X	Coaxial connection
1	1	3 ÷ 35 6 ÷ 60 Material brass	A	●		2	Without	0	Without	0	For plastic pipe
2	2								Only bracket without sensor	1	
3	3			●	●	3	24Vdc	1	Bracket with sensor	2	For hose with reinforced protection
4	4						24Vac	2			
5	5	3 ÷ 35 6 ÷ 60 Material AISI	A6 B6				115Vac	5			
6	6						230Vac	6			
7	7				●	4					
8	8										
9	9										
10	10										

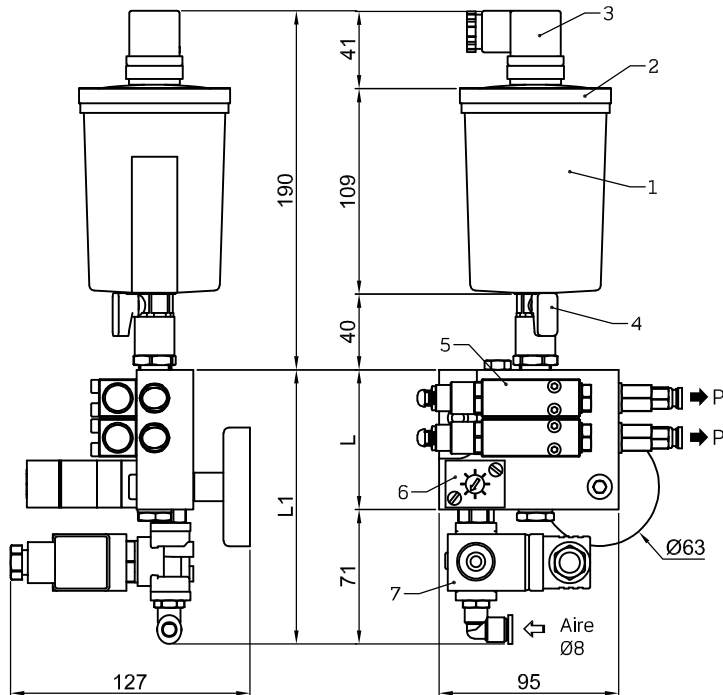
*GEN = pulse generator
*EV = solenoid valve

Doser
DN01 / X

Base plate
AN02/A-1 / X X

- 0,25 litres nylon tank
- 1 to 6 outlets

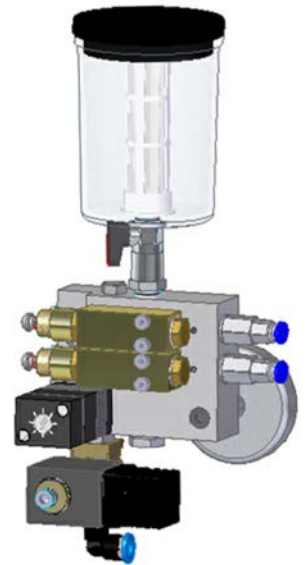
PN02/B



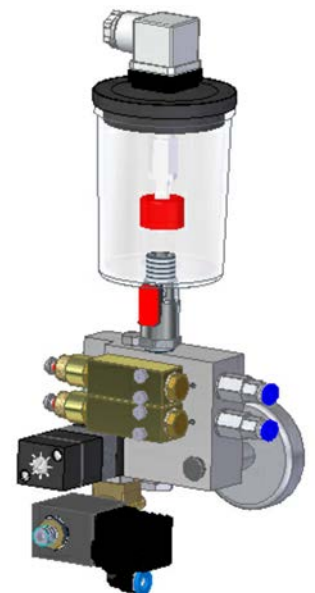
1. Reservoir
 2. Lid
 3. Level switch
 4. Shut-off valve
 5. Doser
 6. Pulse generator
 7. Solenoid valve
- P = Coaxial pipe connection

Dimensions

N° outlets	L	L1
1	56	127
2	74	145
3	95	166
4	116	187
5	137	208
6	158	229



Tank without level switch



Tank with level switch

PN02/B-X/J 6 X/X X-X X X/X

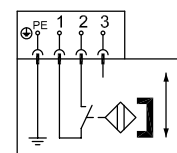
Mount	X	Level switch	X	N° out.	X	Flow x out. mm3/stroke	X	GEN*	EV*	X	EV voltage	X	Cycle monitoring	X	Coaxial connection*	X
By screw fastener	1	Without	0	1	1	3 ÷ 35	A	•		2	Without	0	Without	0	For plastic pipe	2
By magnet	2	Minimum	5	2	2	6 ÷ 60	B	•		3	24Vdc	1	Only bracket without sensor	1	For hose with reinforced protection	4
				3	3	Mat. brass		•	•		24Vac	2	Bracket with sensor	2		
				4	4	3 ÷ 35	A6				115Vac	5				
				5	5	6 ÷ 60	B6				230Vac	6				
				6	6	Material AISI			•	4						

The tank with level switch doesn't have feeding filter

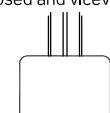
*GEN = pulse generator
*EV = solenoid valve

Level switch characteristics

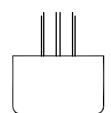
-max. operating voltage..... 230 VUC
-max. consumption..... 1 A
-power breakdown..... 20 W
-connector..... DIN43650 Form A



By reversing the position of the float over the guide pipe the position of the contact is modified: from open to closed and viceversa.



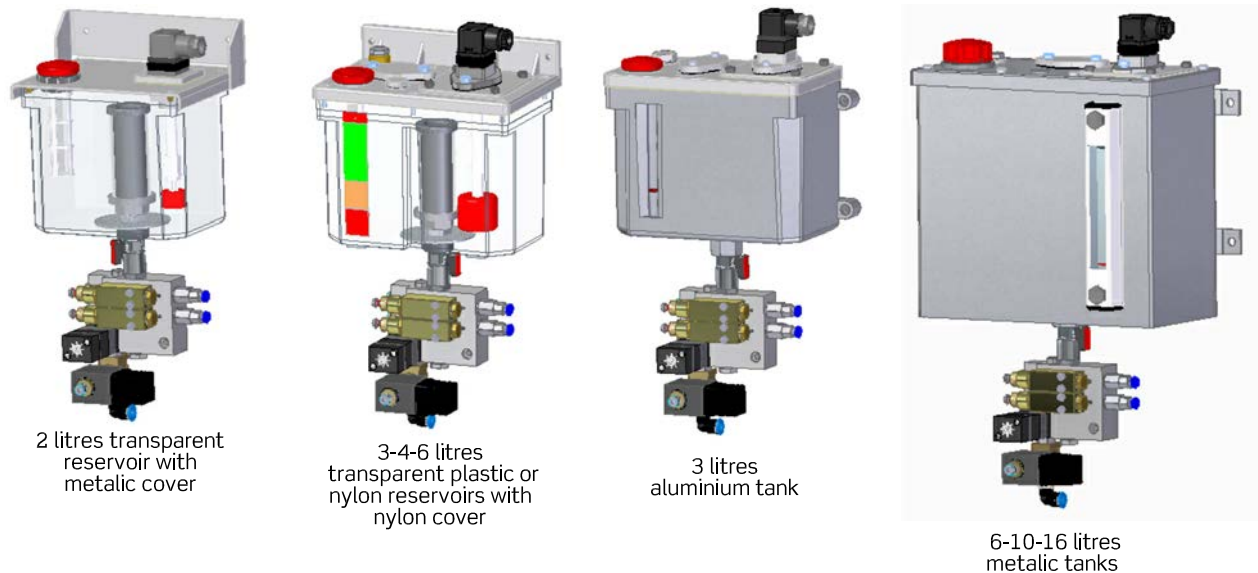
Round edges upwards:
NO contact



Round edges downwards:
NC contact

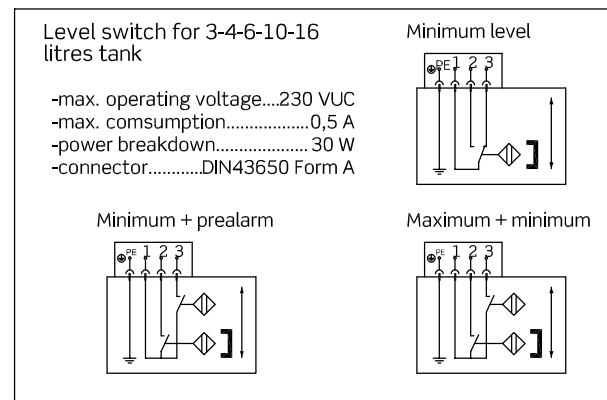
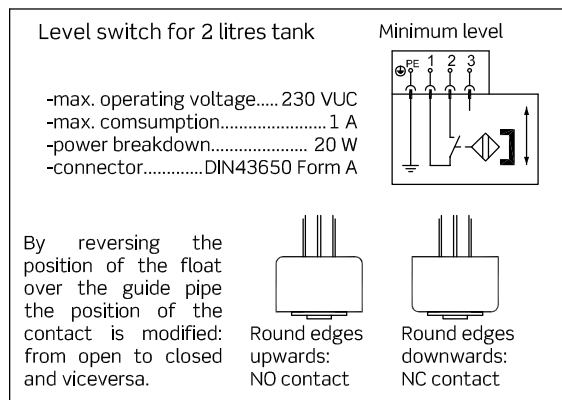
- 2-3-4-6 litres tanks in plastic
- 3 litres tank in aluminium
- 6-10-16 litres metal tanks
- 1 to 6 outlets

PN02/B



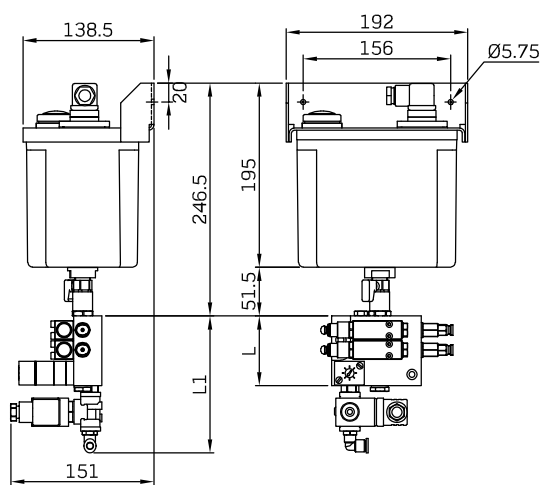
PN02 / B - 1 / X X X / X X - X X X / X																		
Tank capacity	X	Reservoir material	X	Level switch	X	N° of outlets	X	Flow x out. mm3/stroke	X	GEN*	EV*	X	EV voltage	X	Cycle monitoring	X	Coaxial connection*	X
2 l	A	Transp.	4	Without Minimum	0	1	1	3 ÷ 35	A	●		2	Sin	0	Without	0	For plastic pipe	2
3 l	B	Transp.	4	Without Minimum	0	2	2	6 ÷ 60	B						Only bracket without sensor	1	For hose with reinforced protection	4
6 l	C	Nylon	6		6	3	3	Material brass								1		
4 l	H	Nylon	6	Minimum	5	4	4		A6	●	●	3	24Vdc	1		Bracket with sensor		
3 l	B	Aluminium	3	Minimum +maximum	6	5	5	3 ÷ 35	B6				24Vac	2				
6 l	C	Metal AISI	5	Minimum +prealarm	7	6	6	6 ÷ 60			●	4	115Vac	5				
10 l	D		7											230Vac	6			
16 l	E																	
See page 16																		

*GEN = pulse generator
*EV = solenoid valve

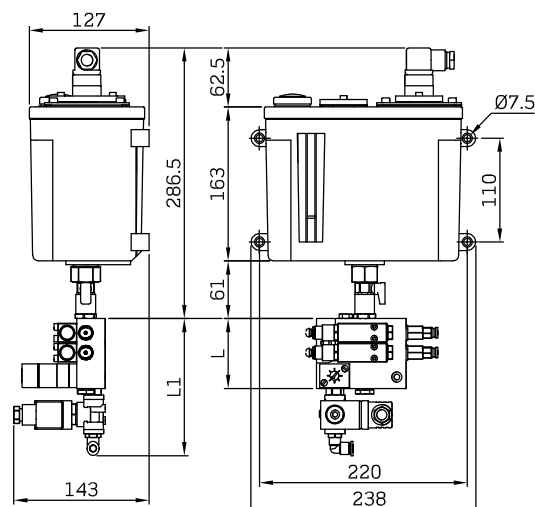


Dimensions

PN02/B

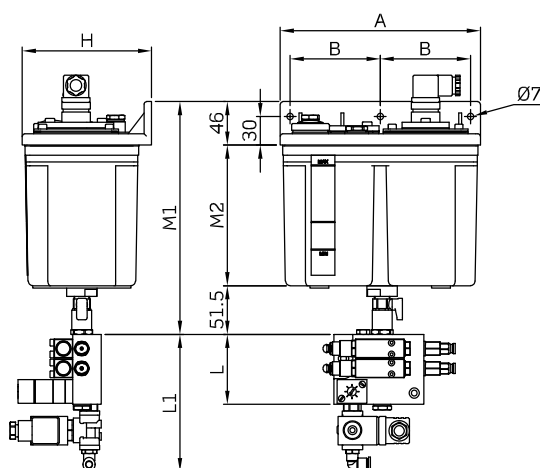


2 litres plastic tank



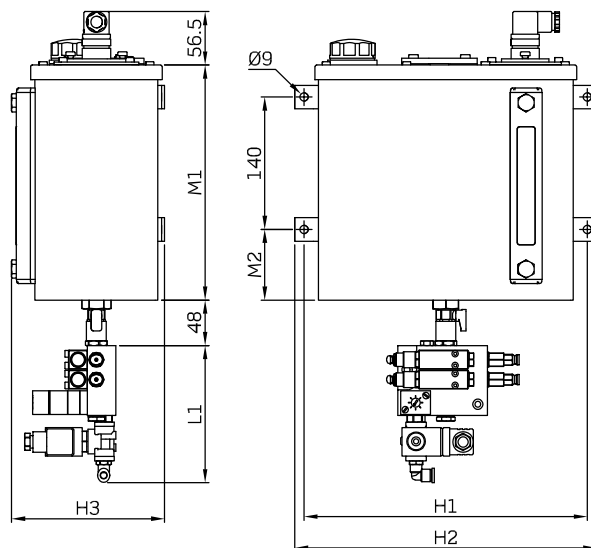
3 litres aluminium tank

Nº of outlets	L	L1
1	56	127
2	74	145
3	95	166
4	116	187
5	137	208
6	158	229



3-4,5-6 litres plastic tanks

Capacity	A	B	H	M1	M2
3 L	212	96	137	252	148
4,5 L	212	96	137	354	250
6 L	275	122	145	301	200

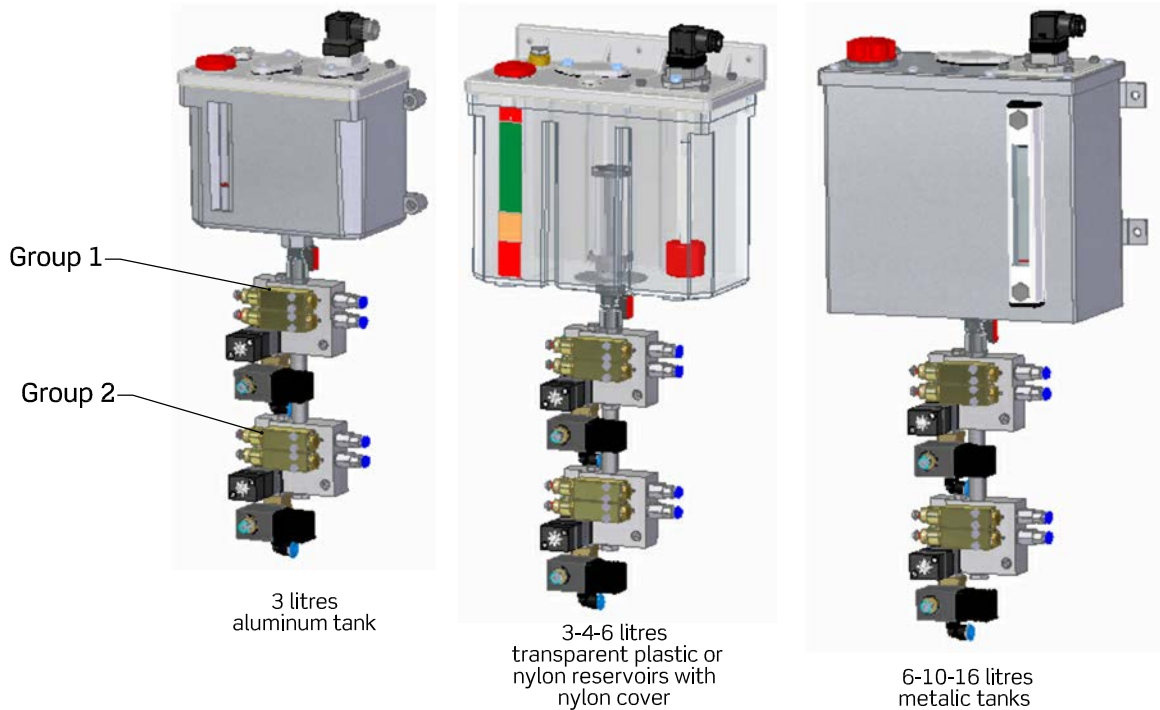


6-10-16 litres metallic tanks

Capacity	H1	H2	H3	M1	M2
6 L	300	320	162	249	75
10 L	405	425	187	249	75
16 L	405	425	187	329	155

- 3-4-6 litres tank in plastic
- 3 litres tank in aluminium
- 6-10-16 litres metal tanks
- 2 groups of pumps from 1 to 3 outputs with independent control

PN02/B1



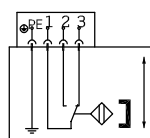
PN02 / B - 1 / X X X / 1 X X X X X X X / 2 X X X X X X X																		
Tank capacity	X	Reservoir material	X	Level switch	X	N° of outlets	X	Flow x out. mm3/stroke	X	GEN*	EV*	X	EV voltage	X	Cycle monitoring	X	Coaxial connection*	X
3 l	B	Transp.	4	Without	0	1	1	3 ÷ 35	A	●		2	Without	0	Without	0	For plastic pipe	2
6 l	C	Nylon	6	Minimum	5	2	2	6 ÷ 60	B						Only bracket without sensor	1	For hose with reinforced protection	4
4 l	H	Nylon	6	Minimum + maximum	6	3	3	Material brass	A6	●	●	3	24Vdc	1				
3 l	B	Aluminum	3					3 ÷ 35	B6				24Vac	2	Bracket with sensor	2		
6 l	C	Metal	5	Minimu + prealarm	7			6 ÷ 60			●	4	115Vac	5				
10 l	D	AISI	7					Material AISI					230Vac	6				
16 l	E																	See page 16

*GEN = pulse generator
*EV = solenoid valve

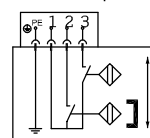
Level switch characteristics

-max. operating voltage..... 230 VUC
-max. consumption..... 0,5 A
-power breakdown..... 30 W
-connector..... DIN43650 Form A

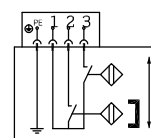
Minimum level



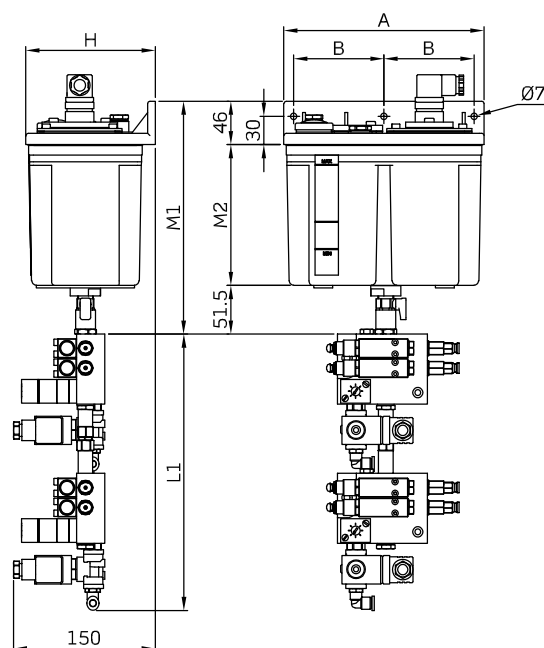
Minimum + prealarm



Maximum + minimum

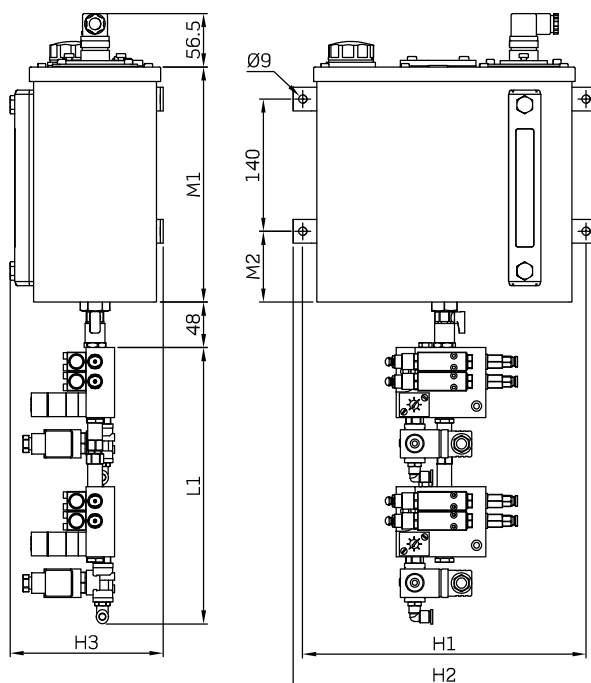


PN02/B1



3-4,5-6 litres plastic tanks

Capacity	A	B	H	M1	M2
3 L	212	96	137	252	148
4,5 L	212	96	137	354	250
6 L	275	122	145	301	200



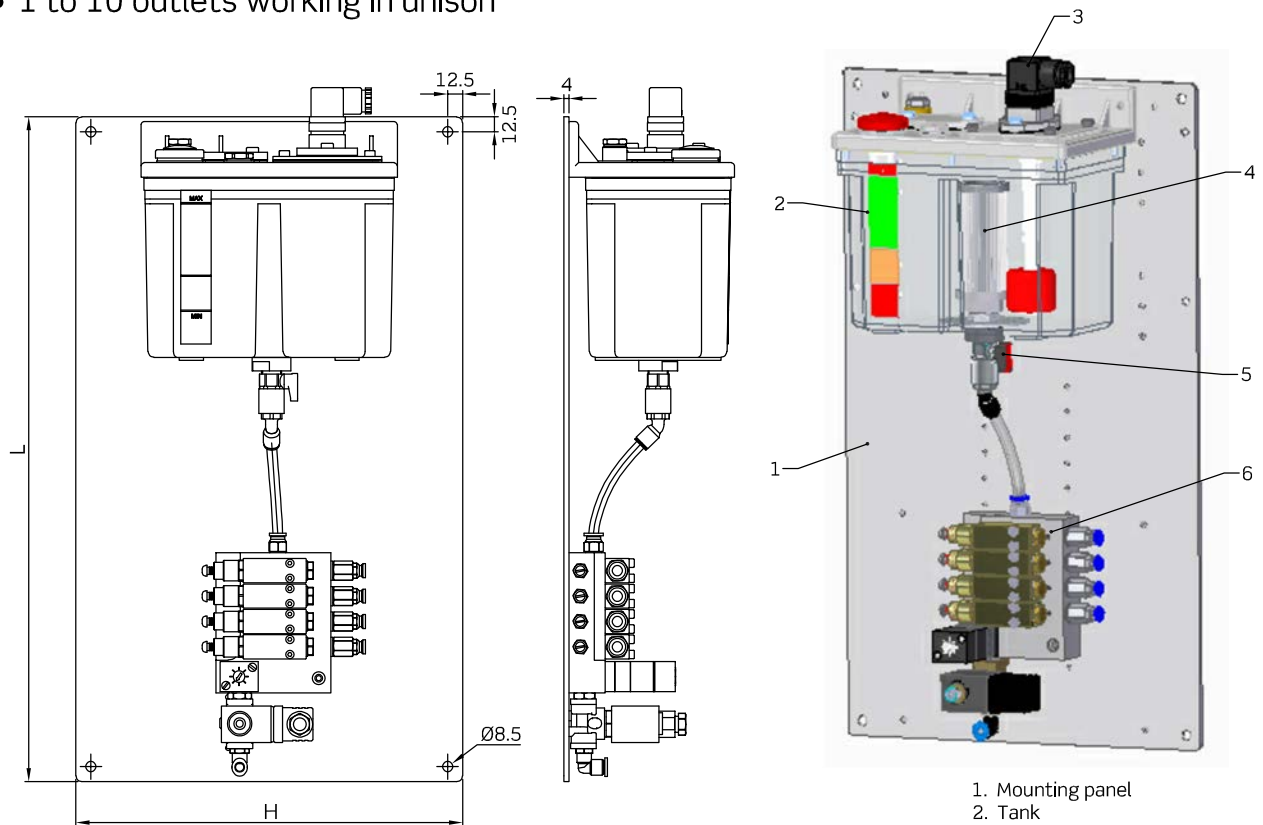
6-10-16 litres metallic tanks

Capacity	H1	H2	H3	M1	M2
6 L	300	320	162	249	75
10 L	405	425	187	249	75
16 L	405	425	187	329	155

N° of outlets	L1
1	257
2	293
3	335
4	377
5	419
6	461

- Unit mounted on a base plate
- 1 to 10 outlets working in unison

PN02/C



1. Mounting panel
2. Tank
3. Level switch
4. Lubricant feed filter
5. Shut-off valve
6. Pump unit

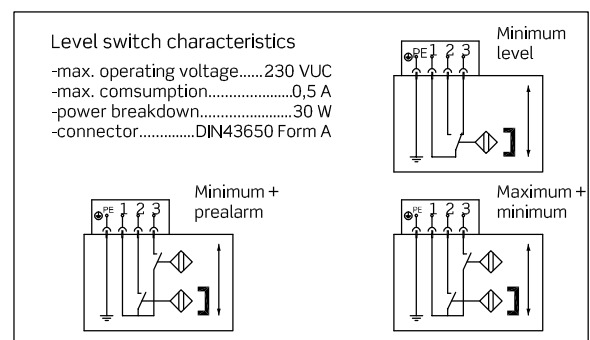
PN02 / C - 1 / X X X / X X - X X X / X

Tank capacity	X	Reservoir material	X	Level switch	X	N° of outlets	X	Flow x out. mm3/stroke	X	GEN*	EV*	X	EV voltage	X	Cycle monitoring	X	Coaxial connection*	X
3 l	B	Transp.	4	Without	0	1	1	3 ÷ 35	A	●		2	Without	0	Without	0	For plastic pipe	2
6 l	C	Nylon	6	Minimum	5	2	2	6 ÷ 60	B				24Vdc	1	Only bracket without sensor	1	For hose with reinforced protection	4
4 l	H	Nylon	6	Minimum + maximum	6	3	3	Material brass					24Vac	2	Bracket with sensor	2		
3 l	B	Aluminum	3	Minimu + prealarm	7	4	4	3 ÷ 35	A6	●	●	3	115Vac	5				
6 l	C	Metal	5			5	5	6 ÷ 60	B6			4	230Vac	6				
10 l	D	AISI	7			6	6											
16 l	E					7	7											
						8	8											
						9	9											
						10	10											

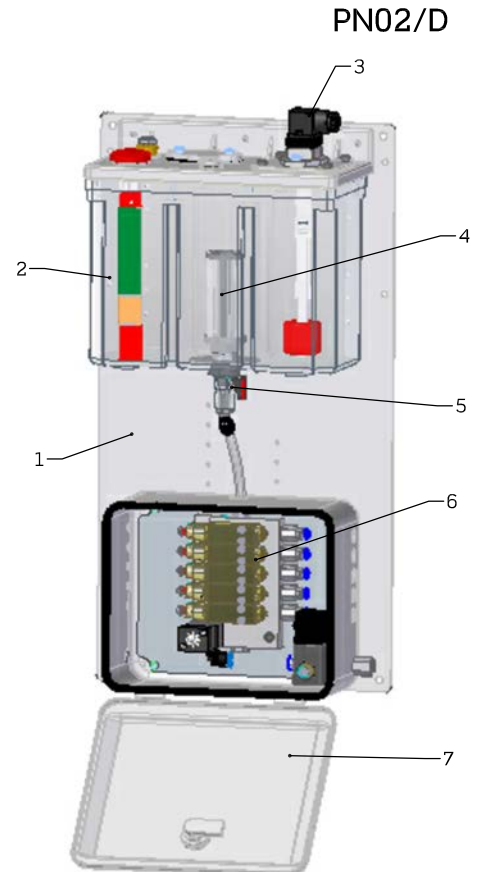
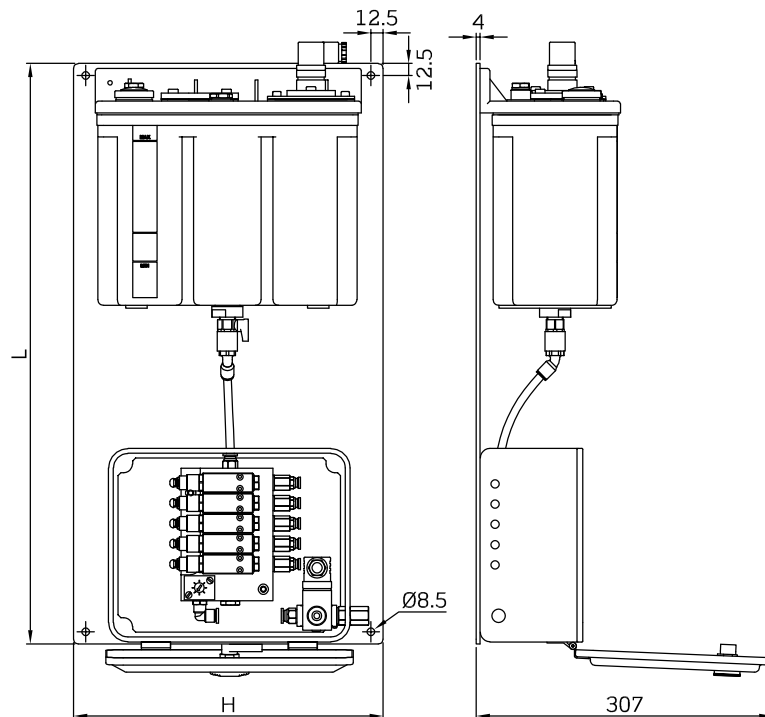
*GEN = pulse generator
*EV = solenoid valve

Dimensions of the panel

Tank	N° of outlets	L x H
3L	1-2-3-4	550 x 320
	5-6	600 x 320
	7-8-9-10	700 x 320
6L	1-2-3-4-5	600 x 320
	6-7-8-9-10	700 x 320
10L	1-2-3-4	625 x 430
	5-6-7-8-9-10	700 x 430
16L	1-2-3-4	700 x 430
	5-6-7-8-9-10	850 x 430



- Unit mounted on a base plate
- Micropumps protected into a cabinet
- 1 to 8 outlets working in unison



1. Mounting panel
2. Tank
3. Level switch
4. Lubricant feed filter
5. Shut-off valve
6. Pump unit
7. Protection cabinet

PN02 / X - 1 / X X X / X X - X X X / X																					6. Pump unit 7. Protection cabinet	
Modelo	X	Tank capacity	X	Reservoir material	X	Level switch	X	N° of outlets	X	Flow x out. mm3/stroke	X	GEN*	EV*	X	EV voltage	X	Cycle monitoring	X	Coaxial connection*	X		
1...5 salidas	D	3 l	B	Transp.	4	Without	0	1	1	3 ÷ 35 6 ÷ 60 Material brass	A	●		2	Without	0	Without Only bracket without sensor	0	For plastic pipe	2		
		6 l	C	Nylon	6		Minimum	5	2		2					B		1			1	
		4 l	H	Nylon	6	Minimum +maximum	6	3	3	A6	●	●	3	24Vdc 24Vac	1	Bracket with sensor	1	For hose with reinforced protection	4			
		3 l	B	Aluminum	3		5	5	3 ÷ 35 6 ÷ 60 Material AISI						B6		2			2	2	
6...8 salidas	D1	6 l	C	Metal AISI	5	Minimum +prealarm	7	6	6				●	4	115Vac 230Vac	5	Bracket with sensor	2				
		10 l	D		7		7	7	6							6		5			5	
		16 l	E		7		8	8	7							7		8			8	6
																					*See page 16	

*GEN = pulse generator

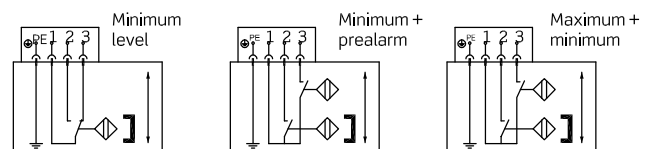
*EV = solenoid valve

Dimensions of the panel

Tank	N° of outlets	L x H
3L	1-2-3-4-5	550 x 320
	6-7-8	650 x 320
6L	1-2-3-4-5	600 x 320
	6-7-8	700 x 320
10L	1-2-3-4-5	625 x 430
	6-7-8	700 x 430
16L	1-2-3-4-5	700 x 430
	6-7-8	850 x 430

Level switch characteristics

-max. operating voltage.....230 VUC
-max. consumption.....0,5 A
-power breakdown.....30 W
-connector.....DIN43650 Form A



PN02/C1

- Unit mounted on a base plate
- 2 groups of pumps (1 to 6 outlets each group)
- With common or independent drive

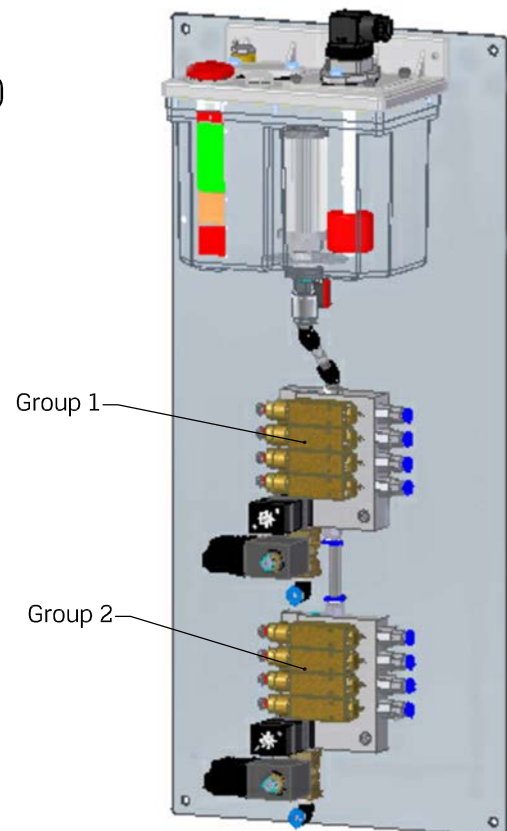
For units with common drive:

- in "Group 1" it must be option "1"
(without pulse generator neither solenoid valve)
- in "Group 2" choose control system (2-3-4)

For units with independent drive:

the control system (2-3-4) must be chosen in both groups "1" and "2", so they will be able to work independently.

Consult dimensions of the base plate



PN02

/

C1

-

1

/

X

X

X

/

1

X

X

X

X

X

X

/

2

X

X

X

X

X

X

Group 1

Group 2

Tank capacity	X	Reservoir material	X	Level switch	X	N° of outlets	X	Flow x out. mm3/stroke	X	GEN*	EV*	X	EV voltage	X	Cycle monitoring	X	Coaxial connection*	X
3 l	B	Transp.	4	Without	0	1	1	3 ÷ 35	A	Sin	Sin	1	Without	0	Without	0	For plastic pipe	2
6 l	C	Nylon	6	Minimum	5	2	2	6 ÷ 60	B	●		2	24Vdc	1	Only bracket without sensor	1	For hose with reinforced protection	4
4 l	H	Nylon	6	Minimum + maximum	6	3	3	Material brass										
3 l	B	Aluminum	3	Minimum + maximum	6	4	4	3 ÷ 35	A6	●	●	3	24Vac	2	Bracket with sensor	2		
6 l	C	Metal AISI	5	Minimum + prealarm	7	5	5	6 ÷ 60	B6				115Vac	5				
10 l	D		6			6	Material AISI			●	4	230Vac	6					
16 l	E																	

*See page 16

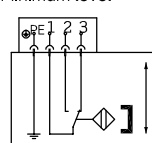
*GEN = pulse generator

*EV = solenoid valve

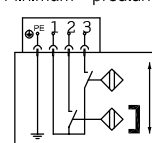
Level switch characteristics

- max. operating voltage.....230 VUC
- max. consumption.....0,5 A
- power breakdown.....30 W
- connector.....DIN43650 Form A

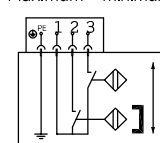
Minimum level



Minimum + prealarm



Maximum + minimum

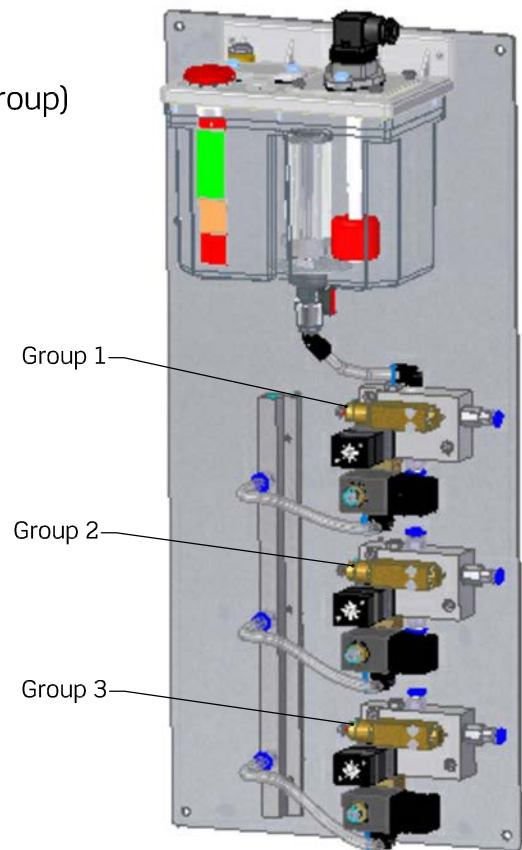


PN02/G

- Unit mounted on a base plate
- 3-4-5 groups of pumps (1 to 6 outlets each group)
- With independent drive

The control system (2-3-4) must be chosen in all groups, so they will be able to work independently.

Consult dimensions of the base plate



PN02 / G - 1 / X X X / X / 1 X X X X X X / 2 X... / 3 X... / 4 X... / 5 X...																														
Tank capacity		X	Reservoir material		X	Level switch		X	N° of groups		X	N° of outlets		X	Flow x out. mm3/stroke		X	GEN*		EV*	X	EV voltage		X	Cycle monitoring		X	Coaxial connection*		X
3 l	B	Transp.	4	Without Minimum Maximum	0	3	3	1	1	3 ÷ 35 6 ÷ 60 Material brass	A	●		2	Without	0	Without Only bracket without sensor	0	For plastic pipe	2										
6 l	C	Nylon	6		5	4	4	2	2		B																			
4 l	H	Nylon	6		6	5	5	3	3			●	●	3	24Vdc	1		1		For hose with reinforced protection	4									
3 l	B	Alumin.	3	Minimum +prealarm	7			4	4	3 ÷ 35 6 ÷ 60 Material AISI	A6 B6				115Vac 230Vac	5 6	Bracket with sensor	2												
6 l	C	Metal	5																											
10 l	D	AISI	7																											
16 l	E												●	4																
																					*See page 16									

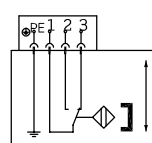
*GEN = pulse generator

*EV = solenoid valve

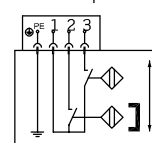
Level switch characteristics

-max. operating voltage.....230 VUC
-max. consumption.....0,5 A
-power breakdown.....30 W
-connector.....DIN43650 Form A

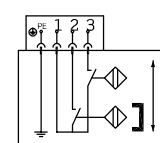
Minimum level



Minimum + prealarm

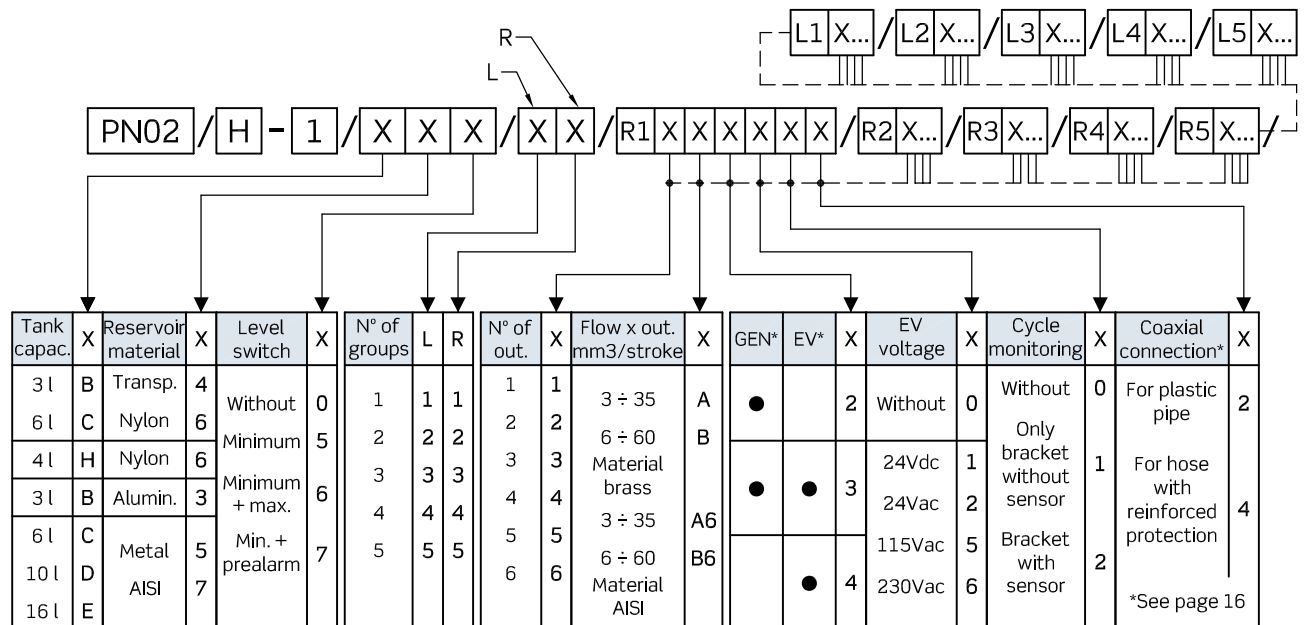
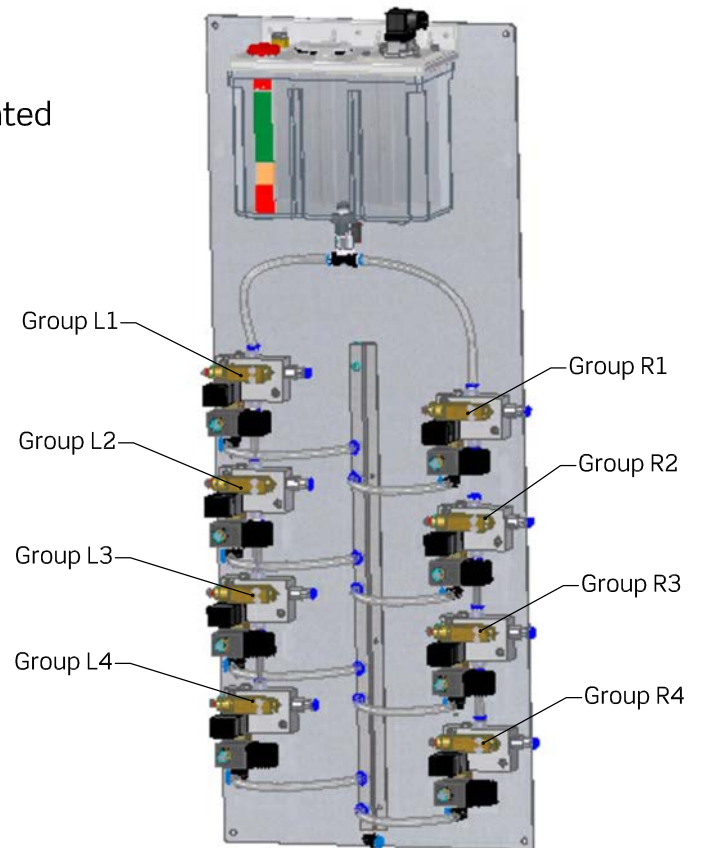


Maximum + minimum



- Unit mounted on a base plate
- 2...10 groups of pumps parallel-mounted
- 1 to 5 outlets each group
- With independent drive

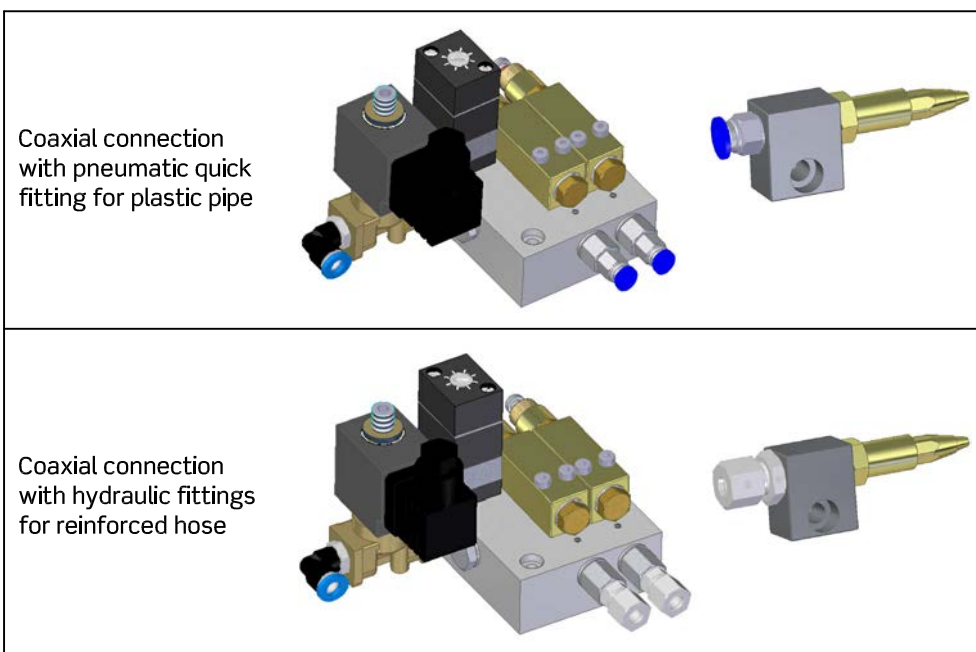
Consult dimensions of the base plate



Coaxial connection

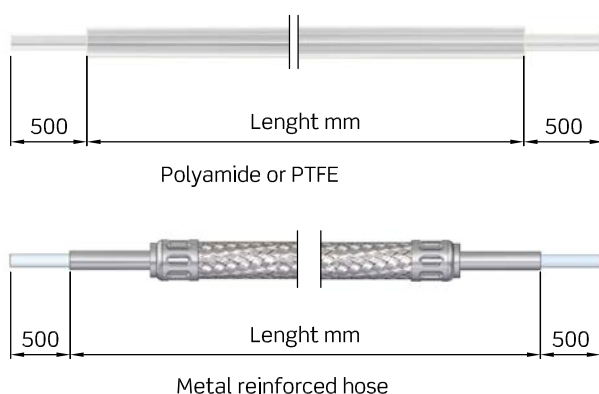
Same connection has to be selected at the two extremes of the coaxial pipe (on the base plate of micropumps and on the side with nozzles):

- for plastic pipes use connection type "2" with pneumatic quick fittings
- for reinforced hose use connection type "4" with hydraulic fittings



Coaxial pipes

TU01



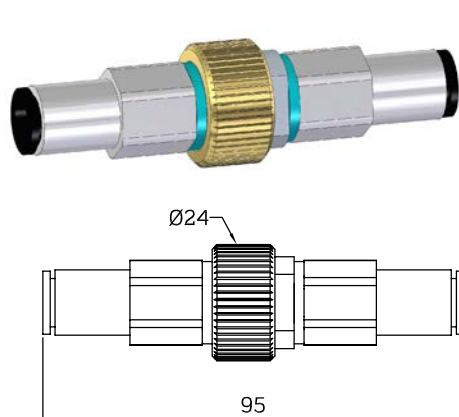
TU01 / B - X / L =mm

Type	X
Standard application (polyamide)	1
Metal reinforced hose	2
Temperature up to 250° (PTFE)	3

Indicate lenght "L" in millimeters
(maximum 12000 mm)

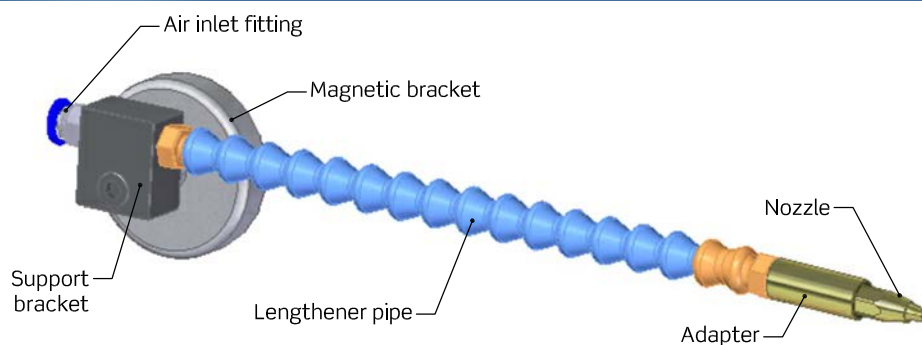
Coaxial pipe joint coupling

TU10



TU10 / A-1 / X

Material	X
Plastic pipe (polyamide, PTFE)	1
Metal reinforced hose	3



Lengthener pipes with projection nozzle by coaxial connection

- MQL application
- Fixed mounting

The lubricant is metered from a micropump and transported through a capillary tube, inside a coaxial tube, to the nozzle. The low pressure air inside the coaxial tube joins the lubricant in the nozzle and is projected outwards in the form of droplets. This catalog shows different variants of the lengthener pipe and fixing brackets that facilitate the optimal orientation of the nozzle towards the friction surface. A good placement of the nozzle becomes an important factor for the effectiveness of lubrication and cooling: the fluid must reach the tool before it comes into contact with the part to be machined.

Projection nozzles



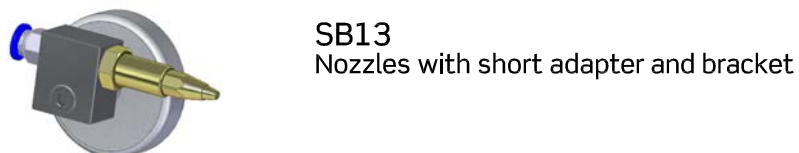
Projection nozzles with adapter or lengthener pipes



SB11
Nozzles with adapter



SB12
Fixed nozzle with adapter



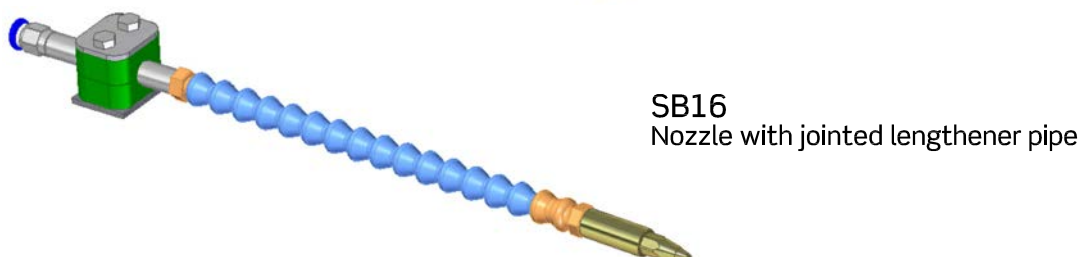
SB13
Nozzles with short adapter and bracket



SB14
Nozzle with rigid lengthener pipe and bracket



SB15
Nozzle with jointed lengthener pipe and bracket

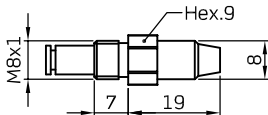
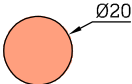
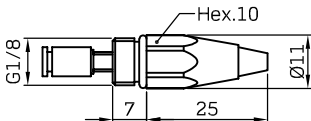
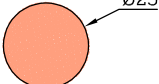
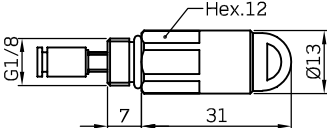
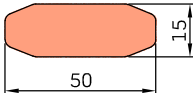
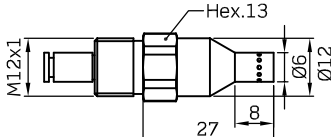
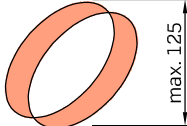
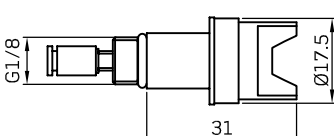
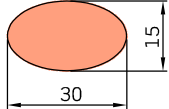


SB16
Nozzle with jointed lengthener pipe

Projection nozzles for coaxial pipe

410.105.000

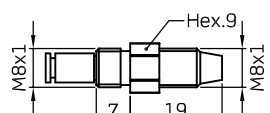
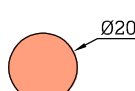
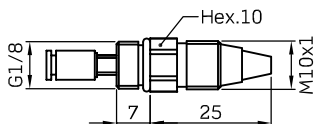
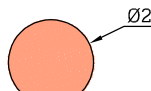
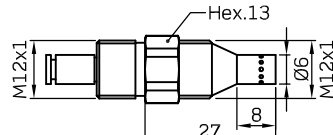
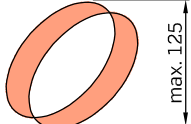
SB10 / X - 1 / 1 2

Nozzle		X	Pattern**	
 410.120.000		Brass	A	
		Aisi	A6	
 410.140.000		Brass	C	
		Aisi	C6	
 410.160.000		Brass	J	
		Aisi	J6	
 410.180.000		Brass	H	
		Aisi	H6	
 410.200.000		Brass	K	
		Aisi	K6	

Threaded fixed nozzles

410.240.000

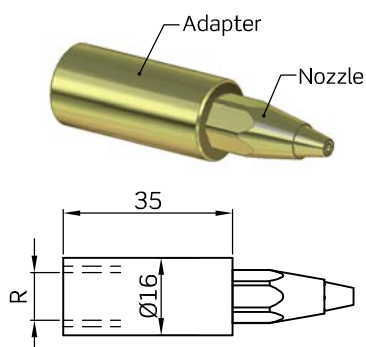
SB10 / X - 1 / 1 2

Nozzle		X	Pattern**	
 410.260.000		Brass	B	
		Aisi	B6	
 410.280.000		Brass	D	
		Aisi	D6	
 410.290.000		Brass	L	
		Aisi	L6	

**These projection patterns were got using 105 mm²/s viscosity oil at 22 °C with the nozzle placed at 50 mm distance.
Air pressure 0,5 bar - Pump flow 10 mm³/stroke

Nozzles with female adapter

SB11
412.010.000

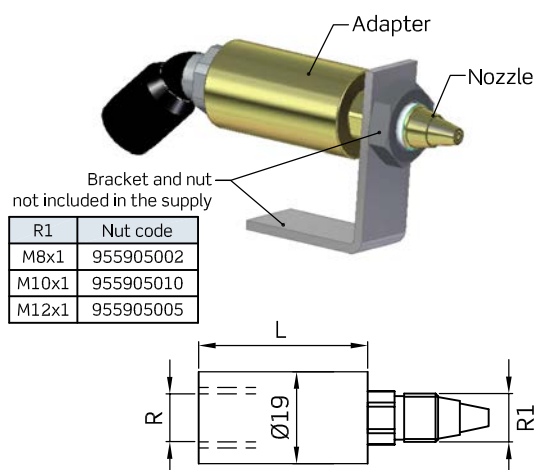


SB11 / X - 1 / X / X 1 / X 2									
R	X	Adapter material	X	Nozzle type	Nozzle material	X	Fitting (R)	X	
M8x1	A	Brass	3		Brass	A	Without	0	
			6		Aisi	A6			
G1/8	B	AISI 316	6		Brass	C	Without fitting (G1/8 female)	0	
					Aisi	C6			
					Brass	J	Straight Ø8	5	
					Aisi	J6			
					Brass	H	Elbow 45° Ø8	6	
					Aisi	H6			
					Brass	K	Straight 8LL for reinforced hose	7	
					Aisi	K6			

Projection patterns on page 18

Fixed nozzles with adapter and direct bracket

SB12
412.050.000

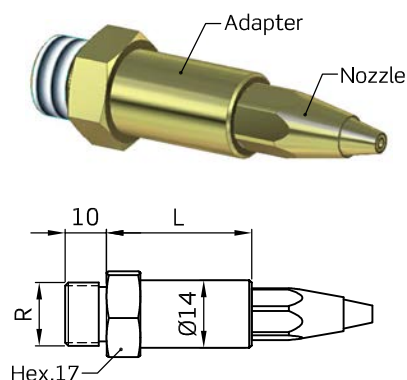


SB12 / X - 1 / X / X 1 / X 2 / X									
R	X	Adapter material	X	Nozzle type	Nozzle material	X	Fitting (R)	X	L
G1/4	A	Brass	3		Brass	B	Without fitting (G1/4 female)	0	35
			6	R1 = M8x1	Aisi	B6			50
			6		Brass	D	Straight Ø8	5	75
				R1 = M10x1	Aisi	D6			
					Brass	L	Elbow 45° Ø8	6	
				R1 = M12x1	Aisi	L6			
							Straight 8LL for reinforced hose	7	

Projection patterns on page 18

Nozzles with male adapter

SB13
412.110.000



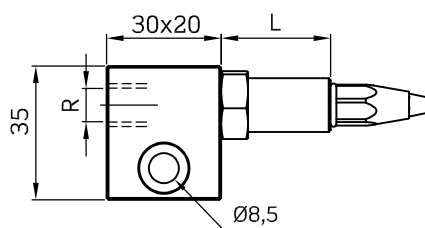
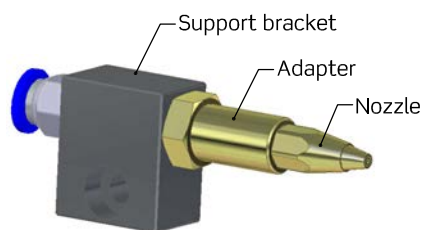
SB13 / X - 1 / X / X 1 / 0 2 / X									
R	X	Adapter material	X	Nozzle type	Nozzle material	X	L		
G1/4	B	Brass	3		Brass	A	30		
			6		Aisi	A6			
		AISI 316	6		Brass	C	50		
					Aisi	C6			
					Brass	J	70		
					Aisi	J6			
					Brass	H			
					Aisi	H6			
					Brass	K			
					Aisi	K6			

Projection patterns on page 18

Nozzles with short adapter and bracket

SB13

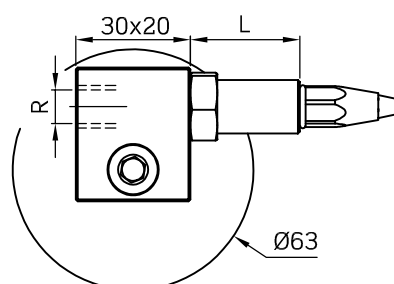
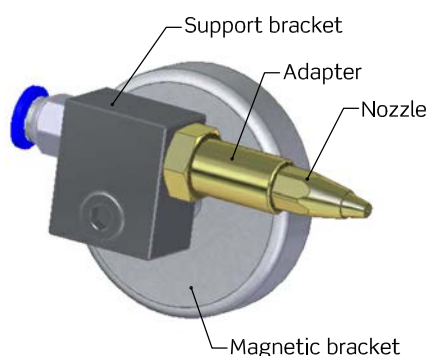
412.100.000



SB13/C

412.140.000

Support by block bracket



SB13/D

412.170.000

Support by block bracket
+ magnetic bracket

SB13 / X - 1 / X / X 1 / X 2 / X

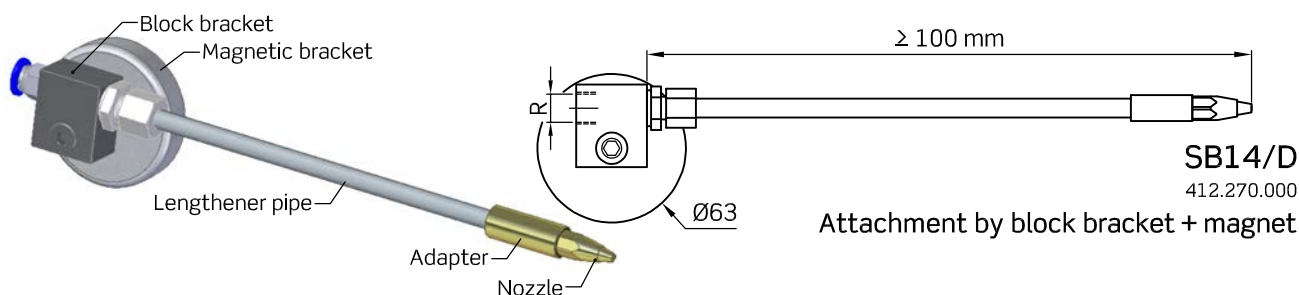
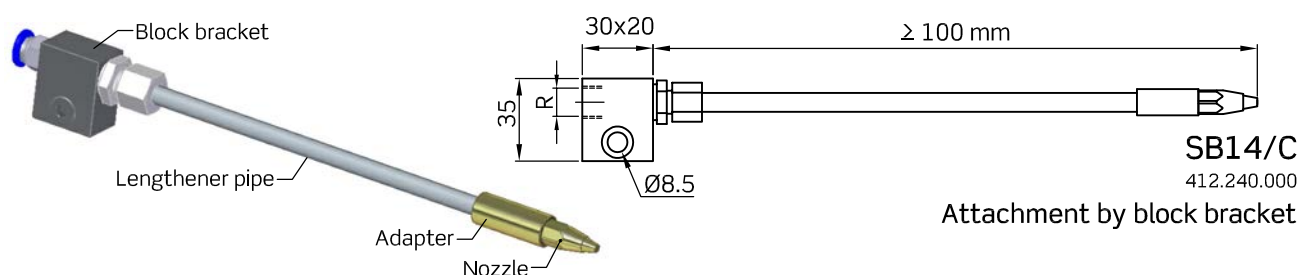
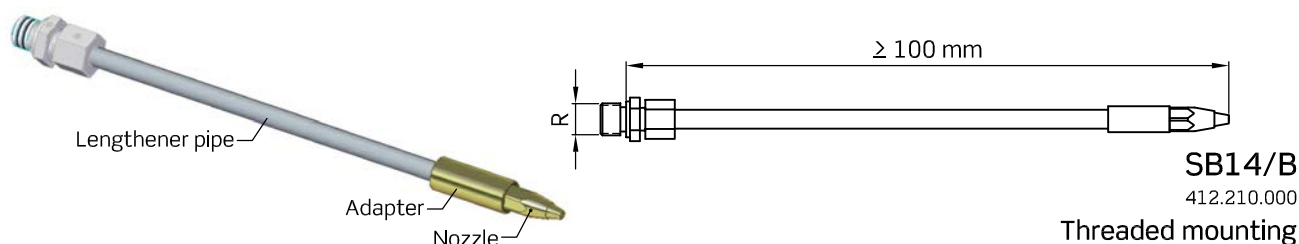
Type	X	Materials	X	Nozzle type	Nozzle material	X	Fitting (R)	X	L
Support by block bracket	C	Brass adapter Steel block bracket Steel magnet	3		Brass	A	Without fitting (G1/4 female)	0	30
					Aisi	A6			50
Support by block bracket + magnetic bracket	D	AISI adapter AISI block bracket Steel magnet	6		Brass	C	Straight Ø8 for plastic pipe	5	70
					Aisi	C6			
					Brass	J	Elbow 45° Ø8 for plastic pipe	6	
					Aisi	J6			
					Brass	H	Straight 8LL for reinforced hose	7	
					Aisi	H6			
					Brass	K			
					Aisi	K6			

Projection patterns on page 18

Nozzles with rigid lengthener pipe

SB14

412.200.000



SB14 / X - 1 / X / X 1 / X 2 / X

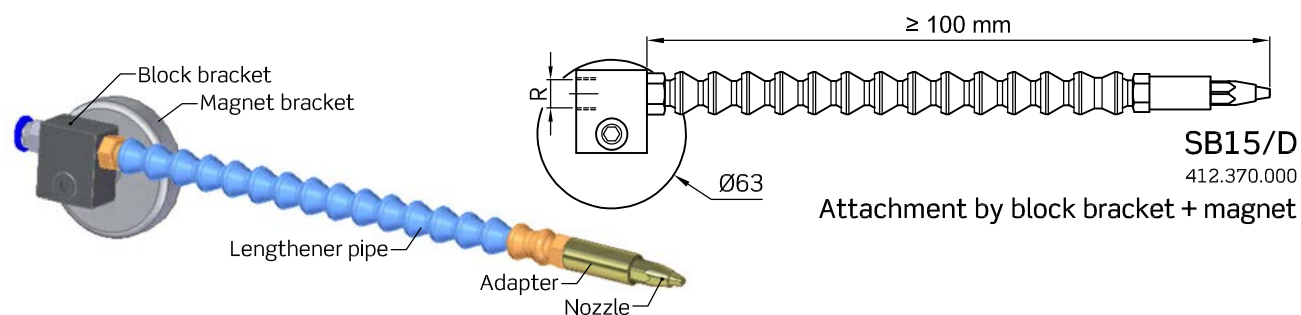
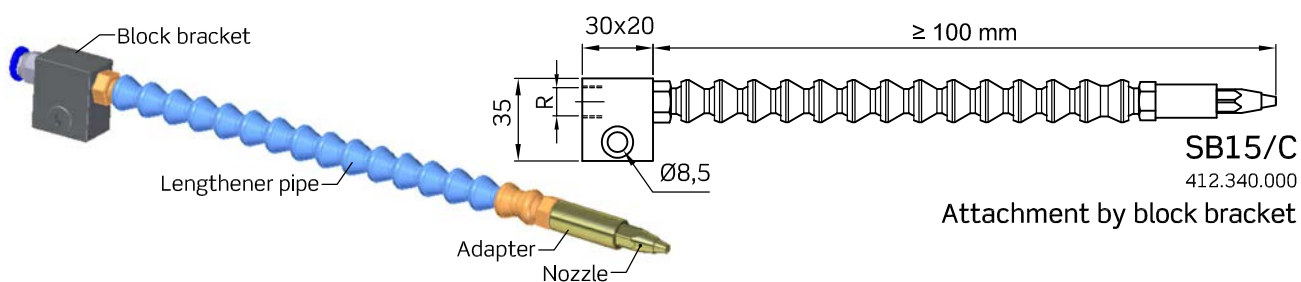
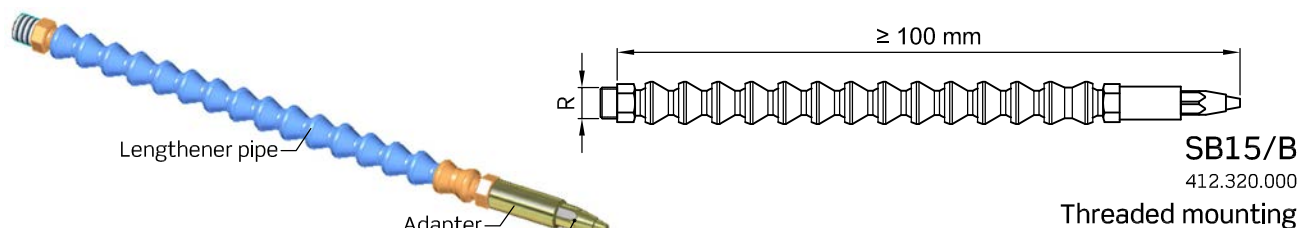
Construction type	X	Materials	X	Nozzle type	Nozzle material	X	R fitting	X	L
Threaded	B	Brass adapter Steel lengthener pipe Steel block bracket Steel magnet	3		Brass	A	G1/4 male	0	≥ 100 mm
With block bracket	C	AISI adapter AISI lengthener pipe AISI block bracket Steel magnet	6		Aisi	A6	G1/4 female thread	0	Standard 300 mm
With block bracket + magnet	D				Brass	C	Straight Ø8 for plastic pipe	5	
					Aisi	C6	Elbow 45° Ø8 for plastic pipe	6	
					Brass	J	Straight 8LL for reinforced hose	7	
					Aisi	J6			
					Brass	H			
					Aisi	H6			
					Brass	K			
					Aisi	K6			

Projection patterns on page 18

Nozzles with jointed lengthener pipe

SB15

412.300.000



SB15 / X - 1 / X / X 1 / X 2 / X

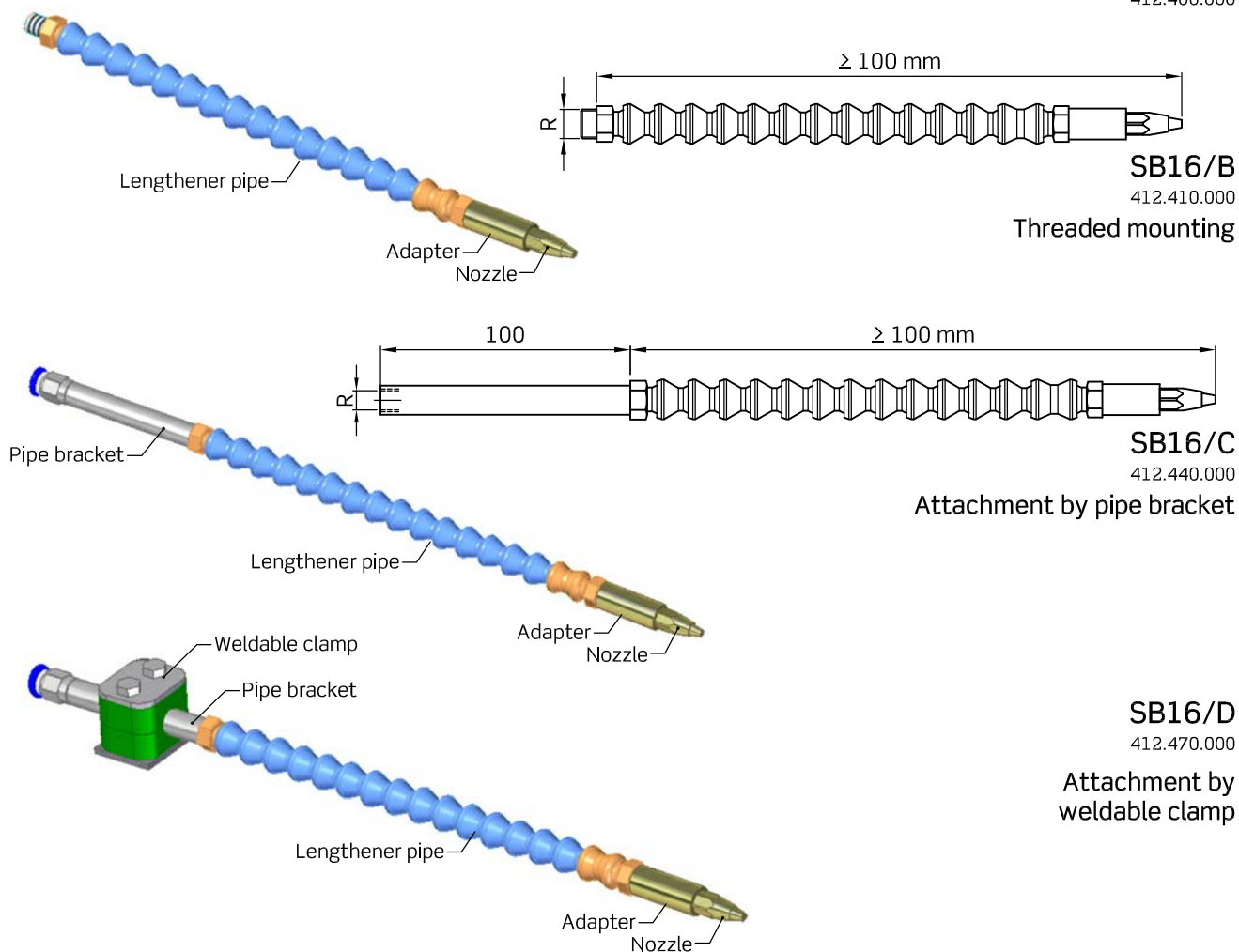
Construction type	X	Materials	X	Nozzle type	Nozzle material	X	R fitting	X	L
Threaded	B	Brass adapter Plastic lengthener pipe Steel block bracket Steel magnet	3		Brass	A	G1/4 male	0	≥ 100 mm
With block bracket	C				Brass	C	G1/4 female thread	0	
With block bracket + magnet	D	AISI adapter Plastic lengthener pipe AISI block bracket Steel magnet	6		Brass	J	Straight Ø8 for plastic pipe	5	Standard 300 mm
					Aisi	J6	Elbow 45° Ø8 for plastic pipe	6	
					Brass	H			
					Aisi	H6			
					Brass	K	Straight 8LL for reinforced hose	7	
					Aisi	K6			

Projection patterns on page 18

Nozzles with jointed lengthener pipe

SB16

412.400.000

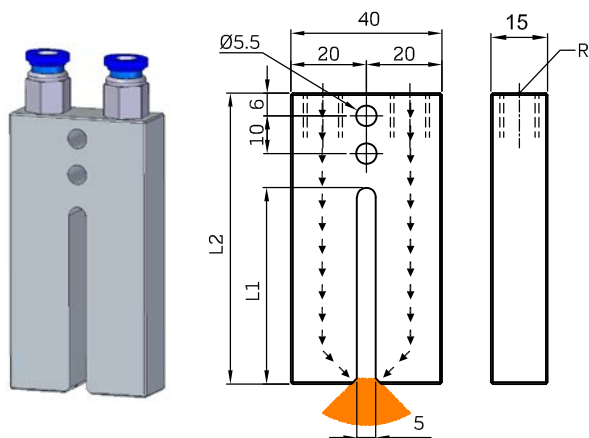


SB16 / X - 1 / X / X 1 / X 2 / X									
Construction type	X	Materials	X	Nozzle type	Nozzle material	X	R fitting	X	L
Threaded	B	Brass adapter Plastic lengthener pipe AISI pipe bracket	3		Brass Aisi	A A6	G1/8 male	0	≥ 100 mm
With block bracket	C	AISI adapter Plastic lengthener pipe AISI pipe bracket	6		Brass Aisi	C C6	G1/8 female thread	0	Standard 300 mm
With weldable clamp	D				Brass Aisi	J J6	Straight Ø8 for plastic pipe	5	
					Brass Aisi	H H6	Elbow 45° Ø8 for plastic pipe	6	
					Brass Aisi	K K6	Straight 8LL for reinforced hose	7	

Projection patterns on page 18

U-shaped projectors for horizontal cutting band saw
2 inlets - 2 outlets

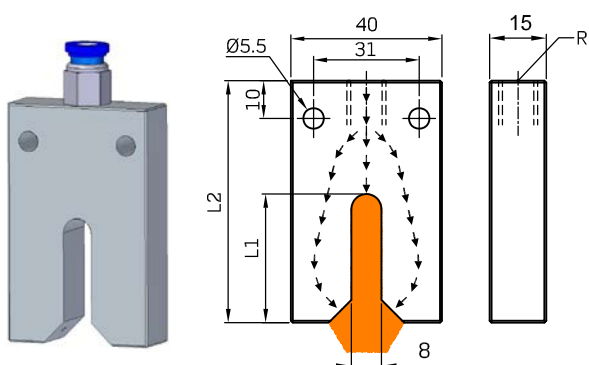
SB21/B
414.050.000



L1	L2	X	R connection	X
47	70	1	G1/8 female thread	0
60	85	2	Straight fitting for plastic pipe	5
			45° elbow fitting for plastic pipe	6
85	110	4	8LL straight fitting for reinforced hose	7

U-shaped projectors for horizontal cutting band saw
1 inlet - 3 outlets

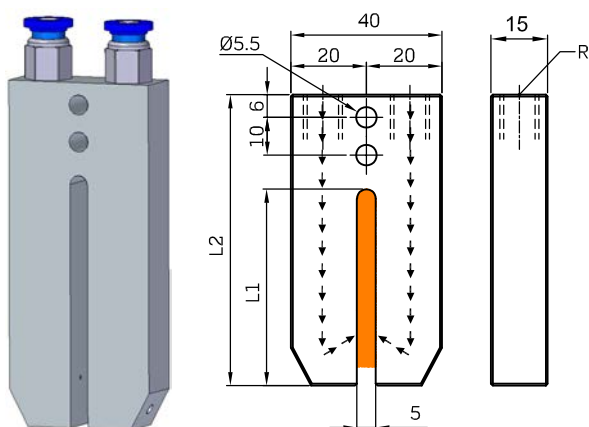
SB21/C
414.200.000



L1	L2	X	R connection	X
30	60	1	G1/8 female thread	0
55	85	2	Straight fitting for plastic pipe	5
			45° elbow fitting for plastic pipe	6
			8LL straight fitting for reinforced hose	7

U-shaped projectors for vertical cutting band saw
2 inlets - 2 outlets

SB22/B
414.350.000

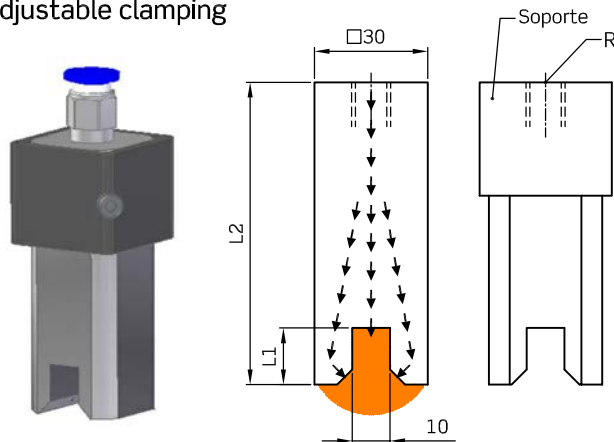


L1	L2	X	R connection	X
47	72	1	G1/8 female thread	0
62	87	2	Straight fitting for plastic pipe	5
			45° elbow fitting for plastic pipe	6
85	110	4	8LL straight fitting for reinforced hose	7

U-shaped projectors for saw blade discs

1 inlet - 3 outlets

Adjustable clamping



SB23/A

414.510.000

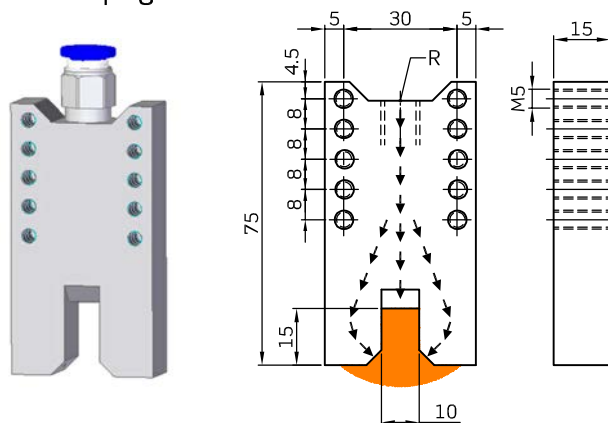
SB23 / A - 1 / X / 1 X

L1	L2	X	R connection	X
10	55	1	G1/8 female thread	0
15	80	2	Straight fitting for plastic pipe	5
			45° elbow fitting for plastic pipe	6
			8LL straight fitting for reinforced hose	7

U-shaped projectors for saw blade discs

1 inlet - 3 outlets

Fixed clamping



SB23/B

414.515.000

SB23 / B - 1 / X / 1 X

L1	L2	X	R connection	X
15	75	1	G1/8 female thread	0
			Straight fitting for plastic pipe	5
			45° elbow fitting for plastic pipe	6
			8LL straight fitting for reinforced hose	7