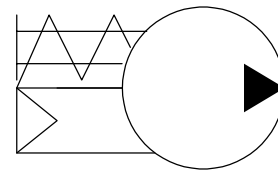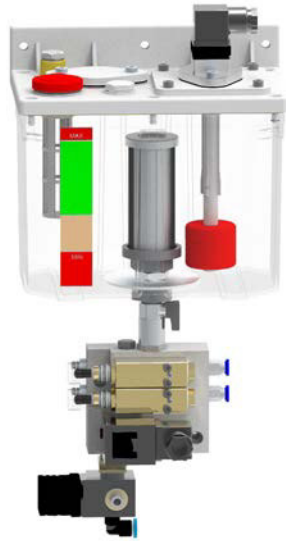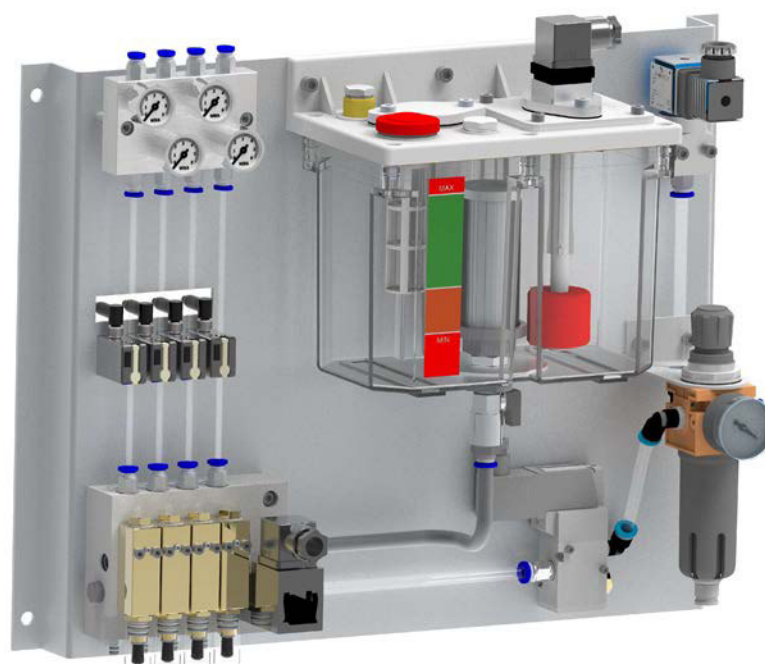**INTZA**
LUBRICATION SYSTEMS
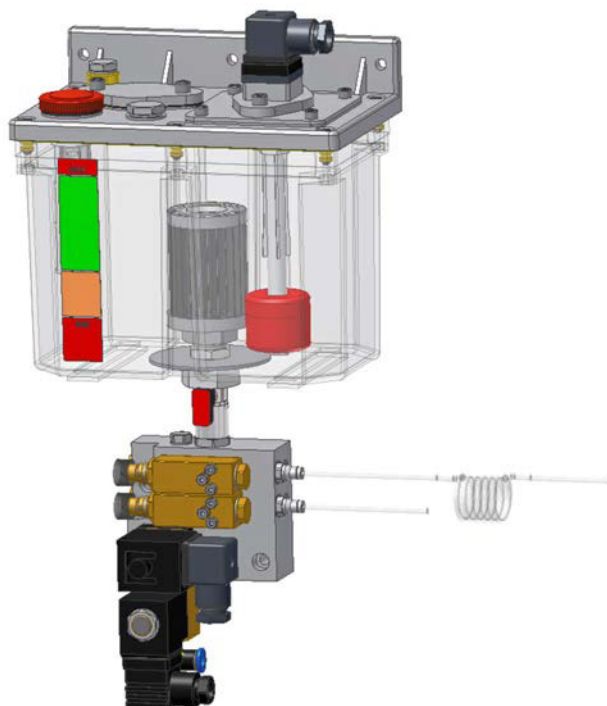
Air-oil lubrication systems

with pneumatic micropumps

For the lubrication of:
-high speed spindles
-electric spindles
-ball screws
-linear roller skates
-etc...

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Air-oil lubrication technology

Super-lean system through microinjection for minimum quantities and high frequency

High speed roller lubrication (electric spindles), gear mechanisms.

The lubrication unit supplies a constant flow of air-oil in quantity as well as in frequency.
Its high operation repeatability (up to 2 pulses/second) provides a constant input of minimum flow with very little variation in volume and time.

AIR-OIL lubrication principles

By placing a drop of liquid on a plate and blowing over it we can observe how it widens up following the air passage direction: the liquid is carried over by the airflow and the wet surface increases, in other words, we have stretched the drop.
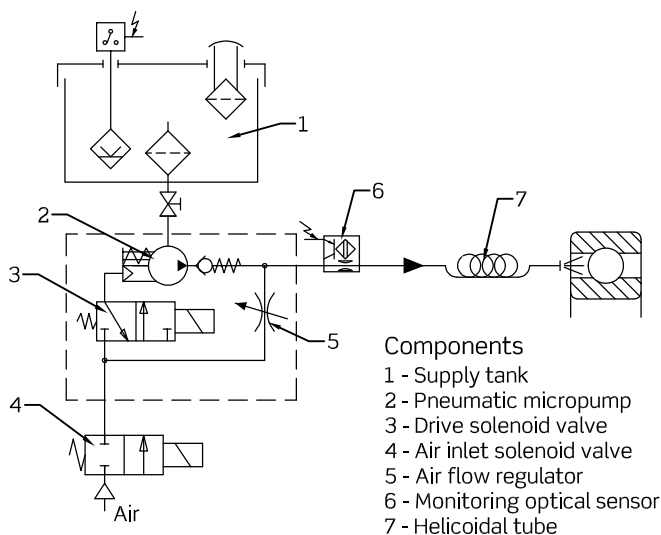
Same principle is applied in air-oil lubrication: the dosing meter leads the oil to a tube with airflow (fig.1). The drops are carried over and stretched along the tube walls and towards the lubrication point that is reached in the form of a fine and continuous flow (fig.2).

This process can be observed very clearly through a transparetn tube: at the tube inlet the drops are thick, as they pass through the tube they are transformed into fine and uniform drops and at approximately 40cm no variation in flow will be observed.

Very fine oil drops are continuously drizzled at the end of the tube on the lubrication point. No mist is created.

Fig.1: at dosing meter outlet

Fig.2: at 1m from dosing meter
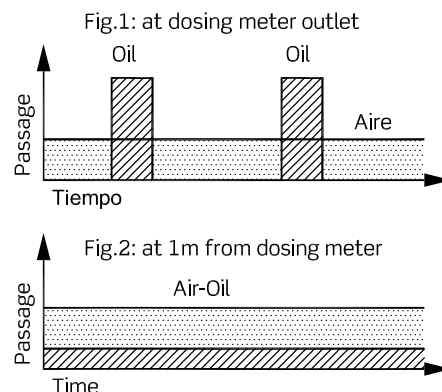
Oil supply is intermittent whilst air supply is continuous as long as the machine is operating. Likewise the compressed air projected continuously on the lubrication point acts as a barrier against dirt particles.

Components
1 - Supply tank
2 - Pneumatic micropump
3 - Drive solenoid valve
4 - Air inlet solenoid valve
5 - Air flow regulator
6 - Monitoring optical sensor
7 - Helicoidal tube

Other related products

Group to suck accumulated and excess oil from installation mechanisms with minimum lubrication (heads...).

5
3
2
P1
P2
1
7
6
4
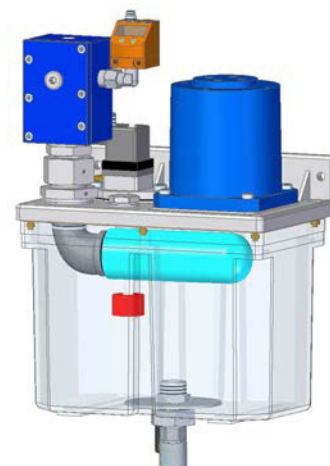
Pneumatic drive micropumps for air-oil lubrication system
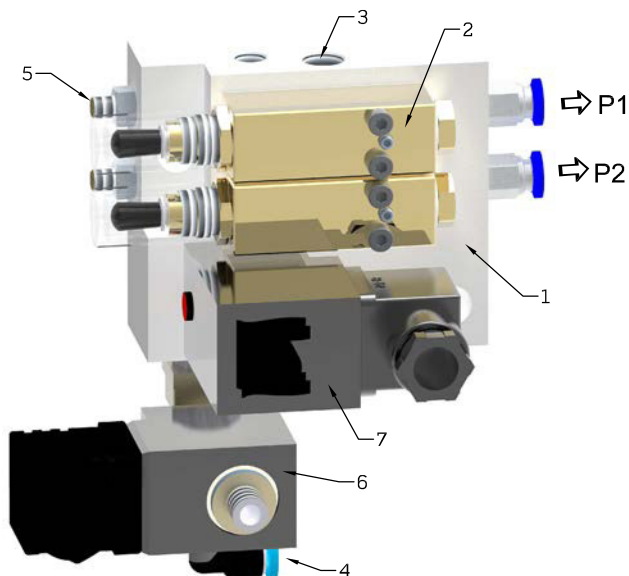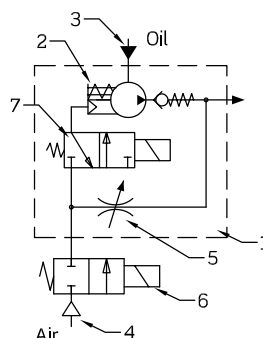
PN05/A-1
210.210.000

- Gravity-fed from tank
- From 1 to 6 outlets
- Optional fixed or adjustable oil flow
- Adjustable air flow rate per outlet
- Ø4 or Ø6 pipe outlets

3 Oil
2
7
5
1
6
Air 4

1. Base plate
2. Dosing element
3. Oil inlet G1/4
4. Air inlet
5. Air flow regulator
6. Air inlet solenoid valve
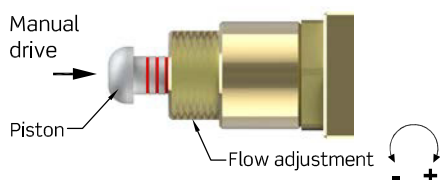7. Drive solenoid valve

Lubricant intermittent
Continuous air

Technical data
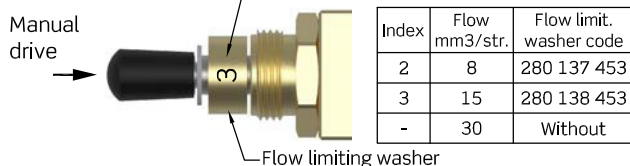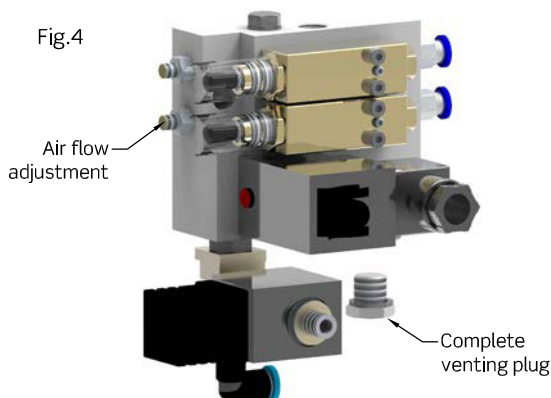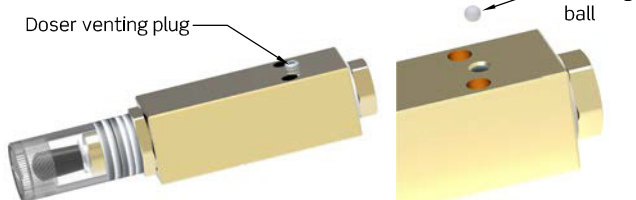
Dosing meter, optional....................... Fixed 8-15-35 mm3/stroke
Adjustable 3 ÷ 35 mm3/stroke
Operation air pressure.. 4 ÷ 8 bar
Ambient temperature.. -10°C...+80°C
Air consumption per outlet........................... maximum 90 Nl/min
Lubricant viscosity.. 10 ÷ 150 cSt
Suction maximum pressure..1,5 bar

Air inlet solenoid valve
Function / Voltage .... 2/2 NC 24Vdc (+-10%)
Consumption / Service mode................................ 8W / 100% ED

Drive solenoid valve
Function / Voltage ....3/2 NC 24Vdc (+-10%)
Consumption / Service mode................................ 9W / 100% ED

Oil flow adjustment

The piston stroke determines the amount of lubricant delivered in each cycle.
The movement of the piston gives a visual monitoring of the dosing.
Manual drive of the dosers is possible at any time.

Flow adjustable dosers are regulated by means its setting device (fig.2).

Fixed dosing of 8 and 15 mm3 are adjusted by means flow limiting washers of different thicknesses (fig.3).
35 mm3 dosing doesn't have washer.

To modify the dosing release the manual drive's protecting caps and extract the washer. Insert the washer and reassembly the parts.

Air flow adjustment (fig.4)

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

Venting the micropumps (figs. 5-6)

Generally it is enough venting the circuit by means the plug located at the bottom of the base plate: with the air flow regulator closed, remove the plug and run the micropumps until the oil comes out without air bubbles.
On certain occasions individual venting may be necessary. To do this, remove the individual venting plug and the ball, operating the micropumps until the oil comes out without air bubbles.

Fig.2

Manual drive
Piston
Flow adjustment
- +

Fig.3

Manual drive
Index
Flow limiting washer

Index	Flow mm3/str.	Flow limit. washer code
2	8	280 137 453
3	15	280 138 453
-	30	Without

Fig.4

Air flow adjustment
Complete venting plug

Fig.5

Doser venting plug

Fig.6

Venting plug
Venting ball

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Dimensions (mm)

Oil G1/4

⇨P Outlet 1
⇨P Outlet 2

G1/4
⇦ Air

G1/4
⇧ Air
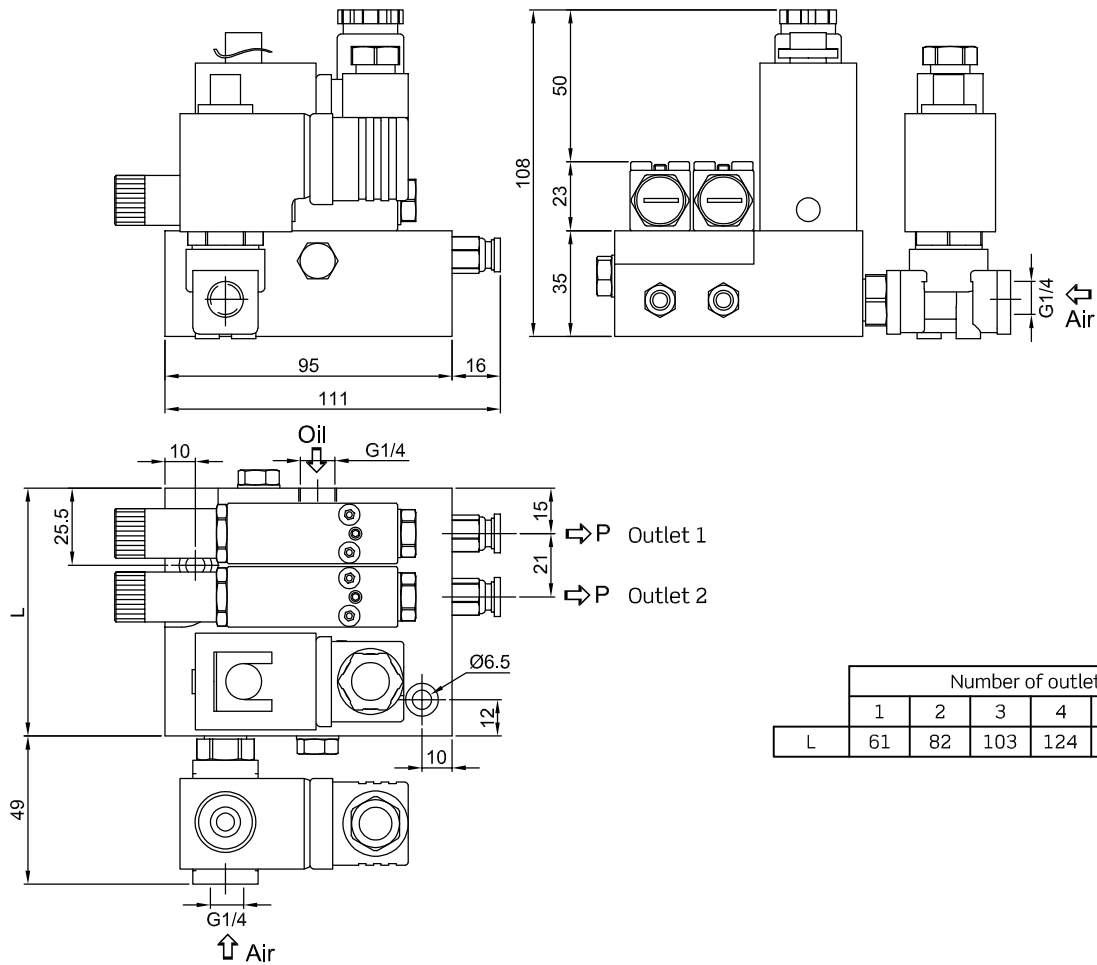
Number of outlets					
1	2	3	4	5	6
L	61	82	103	124	145	166

- All outlets with the same flow : just indicate one flow.
- With different flow in some output: indicate the flow corresponding to all outputs

References

| PN05 | / | A-1 | / | X | X | / | 2 | X | / | 0 | / | X | / | 1 |

N° of outlets	Flow x outlet		X	Air inlet solen. valve	X	Outlet pipe fitting	X
	Type	mm³/str.					
1	Fixed flow	8	2	Without	0	Ø4 quick fitting	4
2		15	3	With	1	Ø6 quick fitting	6
3		35	5			G1/8	0
4							
5	Adjustable flow	3 ÷ 35	A				
6							

| DN03 | / | X | Fixed dosing micropump spare. Indicate index:
2 = 8mm3
3 = 15mm3
5 = 35mm3 |

| DN04 | / | A | Adjustable flow micropump spare |

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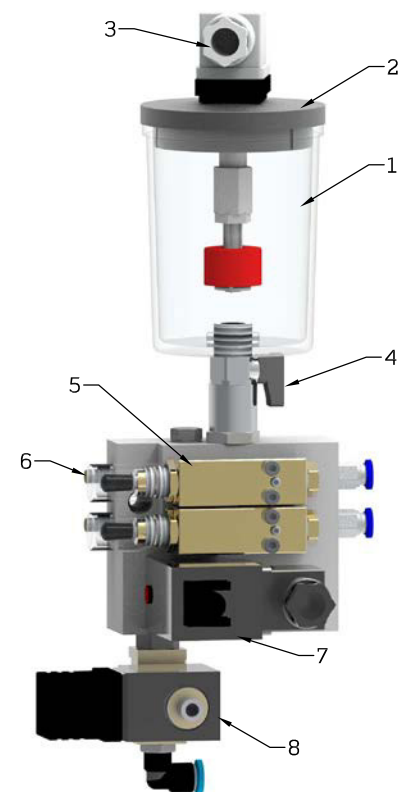20720 Azkoitia -Spain-
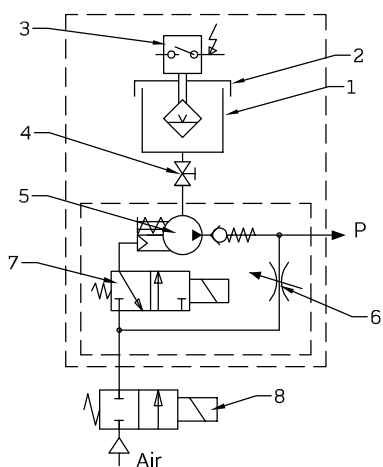☏ +34 943 852 600
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INTZA
LUBRICATION SYSTEMS

Pneumatic drive micropump units for Air-Oil lubrication systems
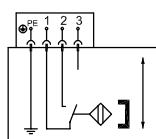
PN05/B-5
404.010.000

- 0,25 litres reservoir and filling plug in nylon
- With level switch and shut-off valve
- From 1 to 6 outlets
- Optional fixed or adjustable flow
- Air flow adjustable per outlet
- Ø4 or Ø6 piep outlets

1. Tank
2. Filling plug
3. Level switch
4. Shut-off valve
5. Micropump
6. Air flow regulator
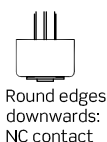7. Drive solenoid valve
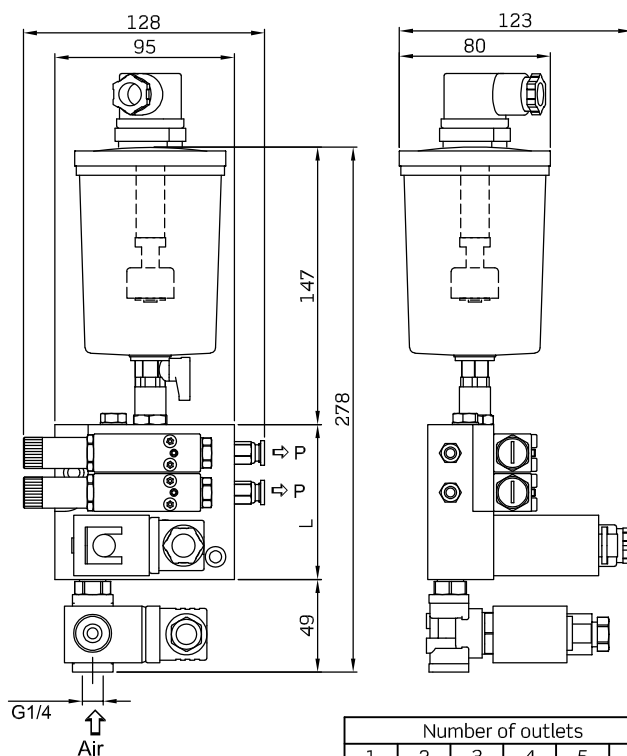8. Air inlet solenoid valve

Electric schema

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

Number of outlets						
	1	2	3	4	5	6
L	64	82	103	124	145	166
L1	260	278	299	320	341	362

References

PN05 / B-5 / J 6 5 / X X / 2 X / 0 / X / 1

N° of outlets	Flow x outlet		X	Air inlet solen.valve	X	Outlet pipe fitting	X
	Type	mm³/str.					
1	Fixed flow	8	2	Without	0	Ø4 quick fitting	4
2		15	3	With	1	Ø6 quick fitting	6
3		35	5			G1/8	0
4	Adjustable flow	3 ÷ 35	A				
5							
6							

- All outlets with the same flow : just indicate one flow.
- With different flow in some output: indicate the flow corresponding to all outputs

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LUBRICATION SYSTEMS

Pneumatic drive micropump units for Air-Oil lubrication systems

PN05/B-4
404.050.000
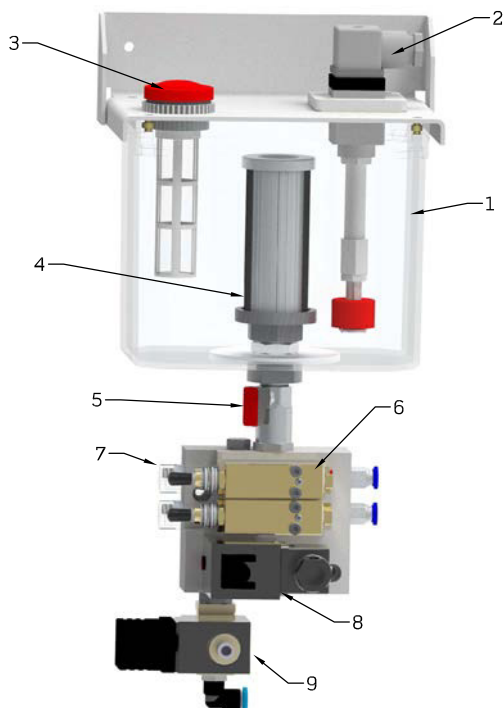
- 2 litres reservoir in transparent plastic or nylon
- Metalic tank lid
- With level switch and shut-off valve
- From 1 to 6 outlets
- Optional fixed or adjustable flow
- Air flow adjustable per outlet
- Ø4 or Ø6 piep outlets
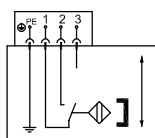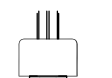

1. Tank
2. Level switch
3. Filling plug and filter
4. Feeding filter
5. Shut-off valve
6. Micropump
7. Air flow regulator
8. Drive solenoid valve
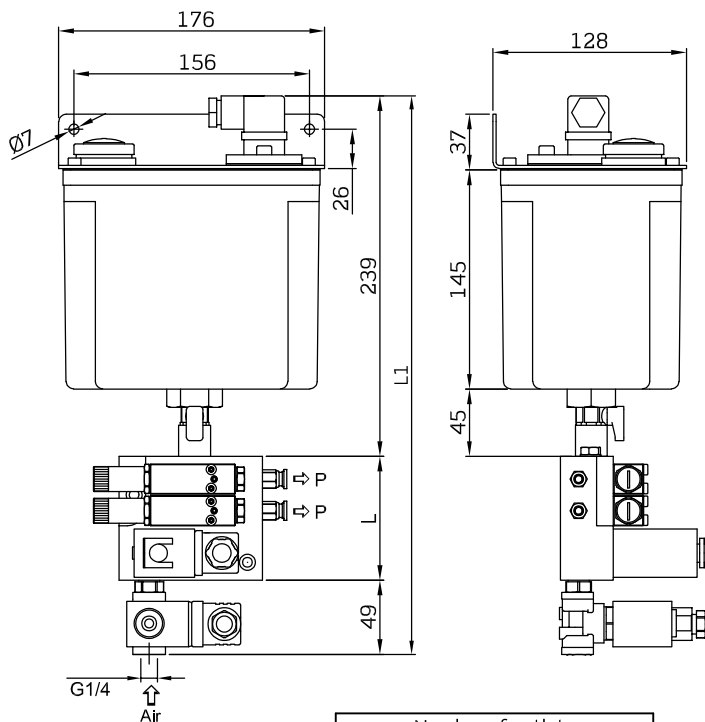9. Air inlet solenoid valve

Electric schema

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

Number of outlets						
	1	2	3	4	5	6
L	64	82	103	124	145	166
L1	352	370	301	412	433	650

References

PN05 / B-4 / A X 5 / X X / 2 X / 0 / X / 1

Reservoir material	X	N° out.	Flow x outlet		X	Air inlet sol.valve	X	Outlet pipe fitting	X
			Type	mm³/str.					
Transp. plastic	4	1 2 3 4	Fixed flow	8	2	Without	0	Ø4 quick fitting	4
				15	3	With	1	Ø6 quick fitting	6
Nylon	6	5 6		35	5				
			Adjustable flow	3 ÷ 35	A			G1/8	0

- All outlets with the same flow : just indicate one flow.
- With different flow in some output: indicate the flow corresponding to all outputs

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LUBRICATION SYSTEMS

Pneumatic drive micropump units for Air-Oil lubrication systems

PN05/B-1
404.100.000
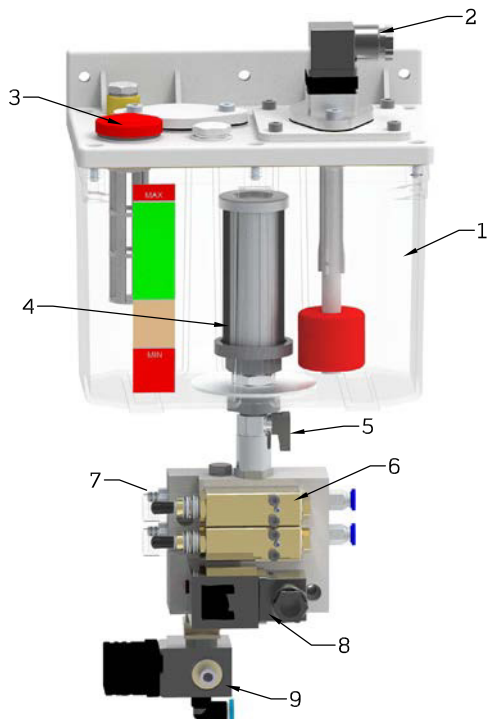
- 2 and 3 litres reservoir in transparent plastic or nylon
- Nylon tank lid
- With level switch and shut-off valve
- From 1 to 6 outlets
- Optional fixed or adjustable flow
- Air flow adjustable per outlet
- Ø4 or Ø6 piep outlets

1. Tank
2. Level switch
3. Filling plug and filter
4. Feeding filter
5. Shut-off valve
6. Micropump
7. Air flow regulator
8. Drive solenoid valve
9. Air inlet solenoid valve

G1/4 ⇧ Air

	Number of outlets					
	1	2	3	4	5	6
A	64	82	103	124	145	166

Capac.	B	C	H	L	L1	L2
3 L	212	96	137	252	239	148
6 L	275	122	145	301	288	200

Referencias

| PN05 | / | B-1 | / | X | X | 5 | / | X | X | / | 2 | X | / | 0 | / | X | / | 1 |

Level switch electric schema

Minimum level

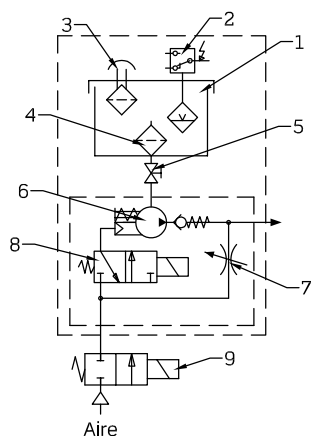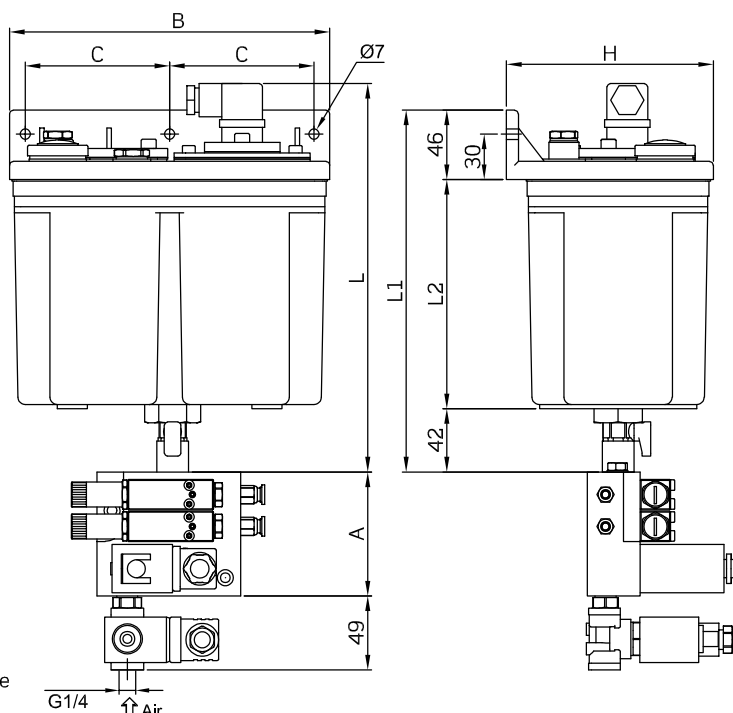| Tank capacity	X	Reservoir material	X	N° of out.	Flow x outlet		X	Air inlet sol.valve	X	Outlet pipe fitting	X
					Type	mm³/str.					
3 litres	B	Transp. plastic	4	1 2 3 4 5 6	Fixed flow	8	2	Without	0	Ø4 quick fitting	4
						15	3	With	1	Ø6 quick fitting	6
6 litres	C	Nylon	6			35	5				
					Adjustable flow	3 ÷ 35	A			G1/8	0

- All outlets with the same flow : just indicate one flow.
- With different flow in some output: indicate the flow corresponding to all outputs

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1. Panel
2. Base plate
3. Dosing element
4. Air inlet G1/8
5. Oil inlet G1/4
6. Air flow regulator
7. Drive solenoid valve
8. Optic-electronic sensor
9. Visual monitoring block

Panel with pneumatic drive micropumps for Air-Oil lubrication systems

PN05/D
405.000.000

- Gravity-fed from tank
- From 1 to 6 outlets
- Optional fixed or adjustable oil flow
- Adjustable air flow rate per outlet
- Ø4 or Ø6 pipe outlets
- Monitoring by optic-electronic sensor
- Visual monitoring

Modular panel, suitable for mounting separately from the tank and as close as possible to the lubrication points, and in those multiple installations with a single pump or centralized tank.

Pneumatic micropumps
Dosing meter, optional............Fixed 8-15-35 mm3/stroke
                                    Adjustable 3 ÷ 35 mm3/stroke
Operation air pressure...4 ÷ 8 bar
Ambient temperature.. -10°C...+80°C
Air consumption per outlet.................maximum 90 Nl/min
Lubricant viscosity...10 ÷ 150 cSt
Suction maximum pressure...1,5 bar

Drive solenoid valve
Function / Voltage ....3/2 NC 24Vdc (+-10%)
Consumption / Service mode.....................9W / 100% ED

Indications for the regulation of oil and air flows, as well as for venting the micropumps on page 3.

KOF01/A optic-electronic monitoring sensor
The sensor detects the oil volume passage within the tube that carries over the air-oil mix.
Flow variations are shown through a led:
-Air-oil mix passage illuminates the green led.
-In the event of a breakdown or lubricant reduction the red led illuminates.

These signals can also be transmitted through a PNP output connection with NC contact.

Monitoring is programmed through the PLC so following each pumping cycle the sensors provide an oil passage signal and green led is switched on.

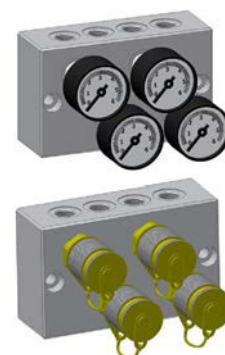See more technical data on page 12

Conex. M8
Sensor
Led
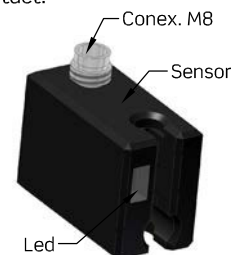
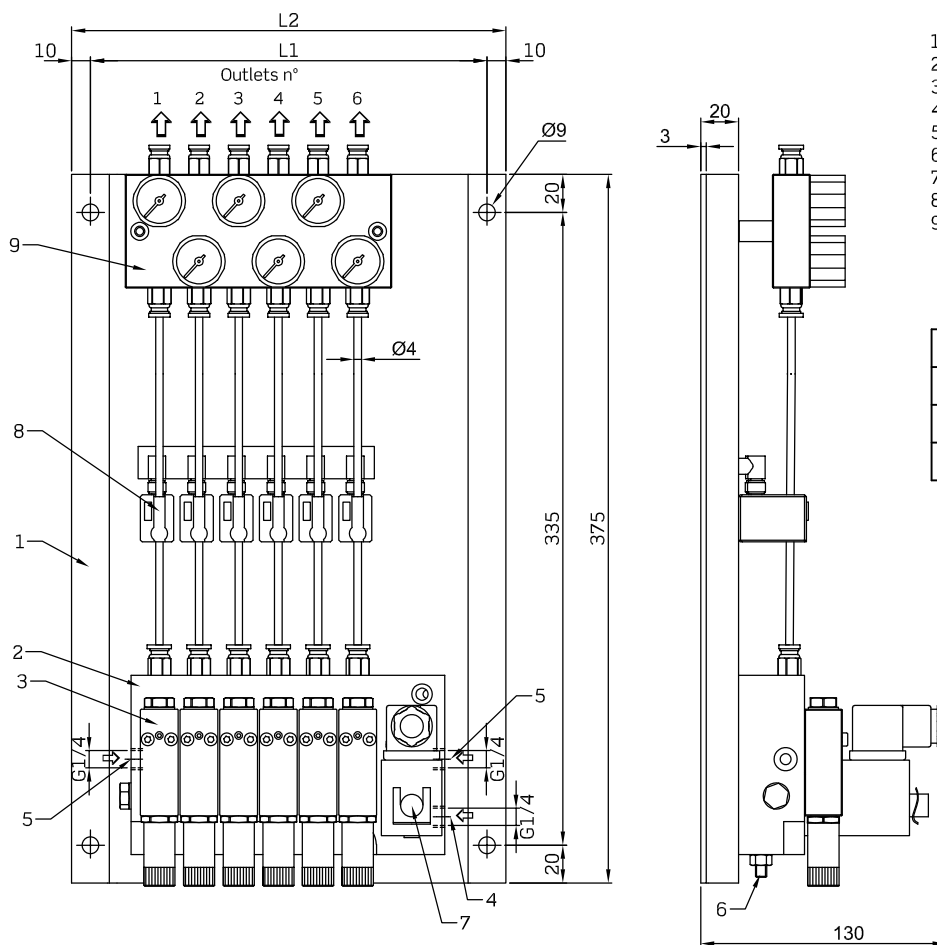## AF02/A-1 control block
For pressure control of secondary lines.
That pressure depends on the air flow adjusted from the micropump's regulator.

The control is carried out by means of the elements mounted on the block which, optionally, can be pressure gauges or pressure ports.

See more technical data on page 13

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Dimensions (mm)

1. Panel
2. Base plate
3. Dosing element
4. Air inlet G1/8
5. Oil inlet G1/4
6. Air flow regulator
7. Drive solenoid valve
8. Optic-electronic sensor
9. Visual monitoring block

N° of outlets	L1	L2
1-2	126	146
3-4	168	188
5-6	230	210

- All outlets with the same flow : just indicate one flow.
- With different flow in some output: indicate the flow corresponding to all outputs

References

PN05 / D-1 / X X 2 / X / 0 0 X X 1

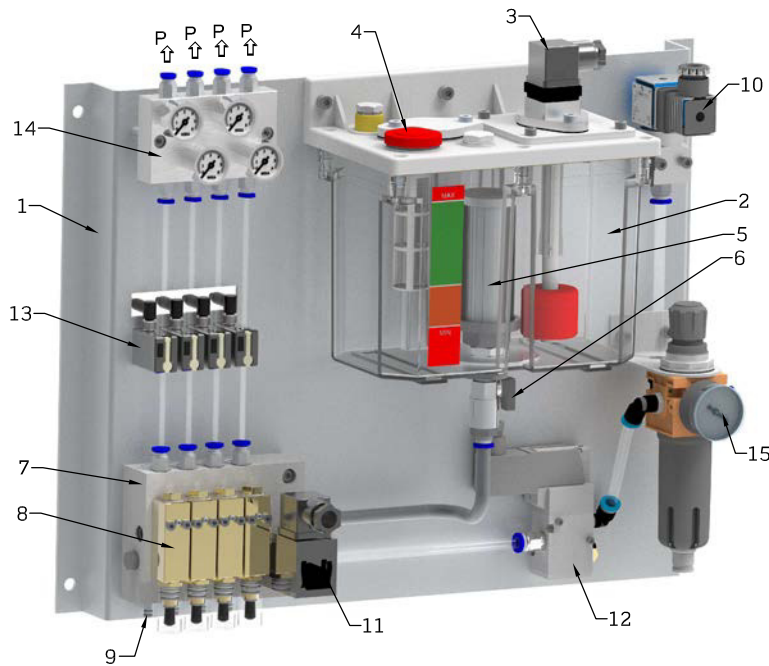| N° of outlets	Flow x outlet		X	Optic-electronic sensor	X	Visual control block	X	Outlet pipe fitting	X
	Type	mm³/str.							
1	Fixed flow	8	2	Without	0	With pressure gauges	1	Ø4 quick fitting	4
2		15	3						
3		35	5	With	1			Ø6 quick fitting	6
4						With pressure ports	2		
5	Adjustable flow	3 ÷ 35	A					G1/8	0
6									

DN03 / X   Fixed dosing micropump spare. Indicate index:
2 = 8mm3
3 = 15mm3
5 = 35mm3

DN04 / A   Adjustable flow micropump spare

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LUBRICATION SYSTEMS

Panel with pneumatic drive PN05/C micropumps for Air-Oil lubrication systems

406.010.000

- Compact unit mounted on panel
- 3 or 6 litres tank capacity
- With filter, shut-off valve and level switch
- From 1 to 8 outlets
- Optional fixed or adjustable oil flow
- Adjustable air flow rate per outlet
- Ø4 or Ø6 pipe outlets
- Monitoring by optic-electronic sensor
- Visual monitoring
- Air monitoring by pressure switch

Pneumatic micropumps
Dosing meter, optional........Fixed 8-15-35 mm3/stroke
Adjustable 3 ÷ 35 mm3/stroke
Operation air pressure... 4 ÷ 8 bar
Ambient temperature................................. -10°C...+80°C
Air consumption per outlet.............maximum 90 Nl/min
Lubricant viscosity... 10 ÷ 150 cSt
Suction maximum pressure.................................... 1,5 bar

Indications for the regulation of oil and air flows, as well as for venting the micropumps on page 3.
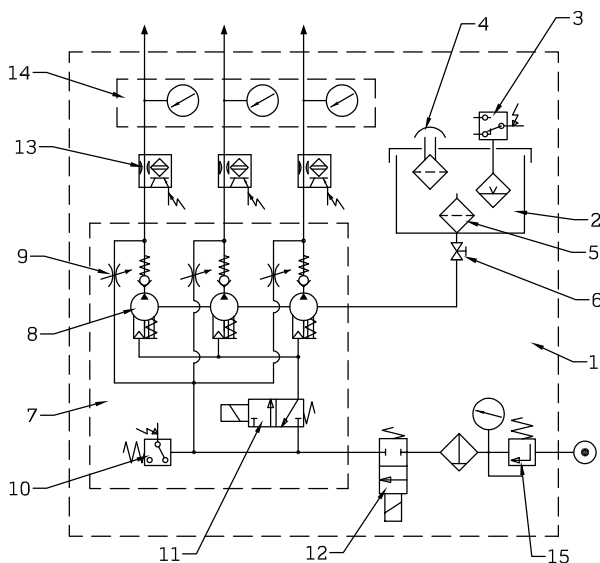
1. Panel
2. Tank
3. Level switch
4. Filling plug and filter
5. Feeding filter
6. Shut-off valve
7. Base plate
8. Dosing element
9. Air flow regulator
10. Air pressure switch
11. Drive solenoid valve
12. air inlet solenoid valve
13. Optic-electronic sensor
14. Visual monitoring block
15. Air regulator with filter and pressure gauge

Solenoid valves
Drive solenoid valve
Function / Voltage .... 3/2 NC 24Vdc (+-10%)
Consumption / Service mode................. 9W / 100% ED

Air inlet solenoid valve
Function / Voltage .... 2/2 NC 24Vdc (+-10%)
Consumption / Service mode................. 2W / 100% ED

Air pressure switch
Maximum switched voltage....................................... 250Vac
Maximum switched current....... 5(1)A
Mechanical working life.................................. 10^5 maniobras
Setting range......................... 1-10 bar

Schema without pressure
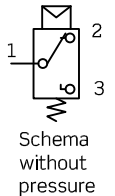
Aire regulator with filter and pressure gauge
Connection... G1/4
Pressure setting range.. 0 ÷ 8 bar
Filtration... 20 microns
Flow at 6 bar Δp 1 bar......................................850 Nl/min
Condensing capacity.. 28 cm3
Condensation release............ manual / semiautomatic

Optic-electronic monitoring sensor
Type........................Image sensor with triple photodiode
Connection.. M8x1 - 4 poles
Supply..12-24VDC
Maximum consumption..25mA
Standard connection... PNP
Standard contact........................... NC (Normally Closed)

Visual control block
Visual control options:
-by pressure gauge................... 0-6 bar Ø23 dorsal G1/8
-by pressur ports...M16x2 G1/8
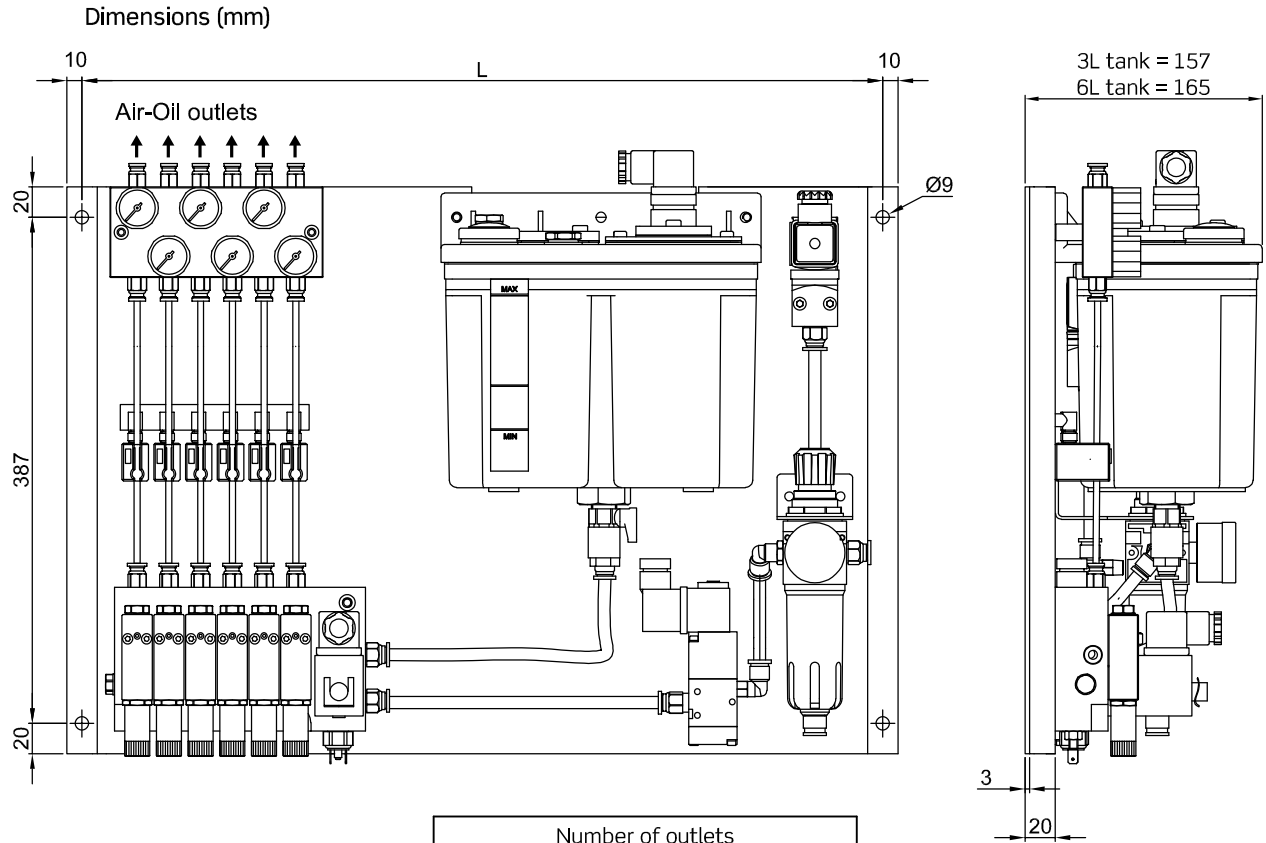
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Dimensions (mm)

3L tank = 157
6L tank = 165

Air-Oil outlets

Ø9

| Number of outlets			
	1-2	3-4	5-6	7-8
L	473	515	557	599

- All outlets with the same flow : just indicate one flow.
- With different flow in some output: indicate the flow corresponding to all outputs

References

PN05 / C-1 / X X 5 / X X 2 / X / 1 2 1 X X 1

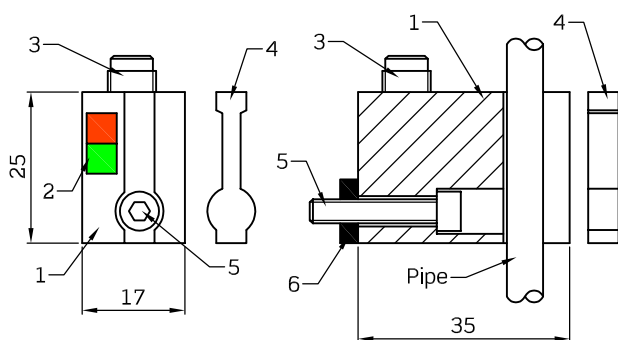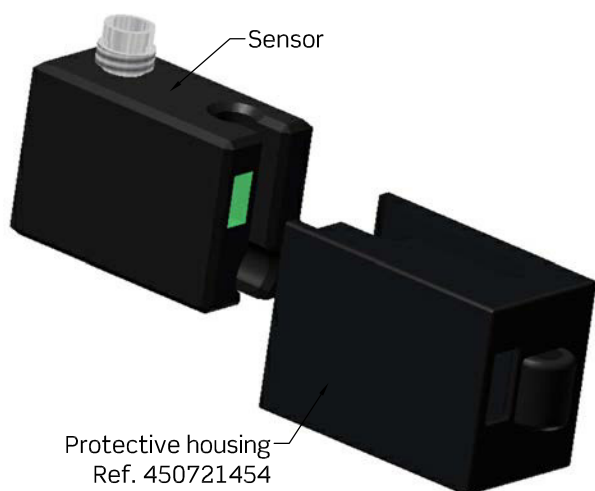| Tank capacity	X	Reservoir material	X	N° of outlets	Flow x outlet		X	Optic-electr. sensor	X	Control block	X	Outlet pipe fitting	X
					Type	mm³/str.							
3 litres	B	Transp. plastic	4	1	Fixed flow	8	2	Without	0	With pressure gauges	1	Ø4 quick fitting	4
				2		15	3						
6 litres	C	Nylon	6	3		35	5	With	1	With pressure ports	2	Ø6 quick fitting	6
				4									
				5	Adjustable flow	3 ÷ 35	A					G1/8	0
				6									

Level switch schema
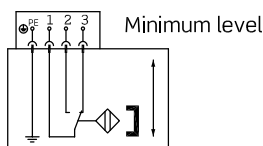
Minimum level

DN03 / X   Fixed dosing micropump spare. Indicate index:
2 = 8mm3
3 = 15mm3
5 = 35mm3

DN04 / A   Adjustable flow micropump spare

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INTZA
LUBRICATION SYSTEMS

Sensor
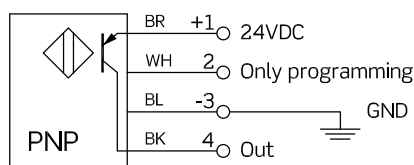
Protective housing
Ref. 450721454

1. Optic-electronico sensor
2. Leds for visual inspection
3. Connection M8x1 4 poles
4. Sealing cover N860061
5. Fixation screw M4x25
6. Stop washer (required for the installation
   and removal of the protective housing)

Pipe
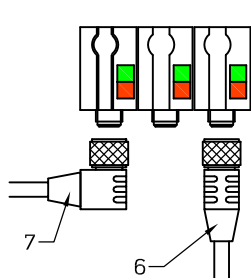
Accesories:
6 - Stright connector M8x1 4 Poles
     cable 3m............913806105/3m
     cable 5m............913806105/5m
7 - 90° connector M8x1 4 Polos
     cable 2m............913806107/3m
     cable 5m............913806107/5m

Electrical connection:

BR	+1	24VDC
WH	2	Only programming
BL	-3	GND
BK	4	Out

PNP

MWM Optical and electronic monitoring device for air-oil lubrication systems

KOF01/A
450.755.000

Operation
The sensor detects the oil volume passage within the tube that carries over the air-oil mix.
Flow variations are shown through a led:
-Air-oil mix passage illuminates the green led.
-In the event of a breakdown or lubricant reduction the red led illuminates.
These signals can also be transmitted through a PNP output connection with NC contact.

Lubrication cycle monitoring
Monitoring is programmed through the PLC so following each pumping cycle the sensors provide an oil passage signal (green led), which keeps some time depending on the speed of the air and the cycle frequency
If the metered oil flow is not proportional to the cycle time the Red led can be activated, but following pumping impulse has to activate the Green led.

Installation of transparent tube
The sensors are manufactured in two different versions depending on the Ø application tube: Ø4 and Ø6.
  -IFX-C04: sensor to be applied with tube Ø4
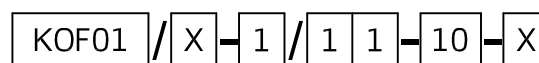 -IFX-C06: sensor to be applied with tube Ø6

Insert the tube into its housing when the sensor is activated: check that the green led switches on and the red led switches off. Fit the sealing cover so that external variations in light don't interfere with the operation of photodiodes.

In installations where there is a risk of removal of the sealing cover (by vibrations from the machine, by force by the tube curved tube, etc.,) it is highly recommended the use of the protective housings.

Technical characteristics
Type..Image sensor with triple photodiode
Tube Ø to be monitored...Ø4 - Ø6
Connection...M8x1 - 4 poles
Supply.. 12-24VDC
Maximum consumption...25mA
Connection ....PNP
Standard contact.. NC (Normally closed)
Protection type... IP67

References

KOF01 / X - 1 / 1 1 - 10 - X

Pipe Ø	X
Ø4	A
Ø6	B

Protective housing	X
Without	0
With	5

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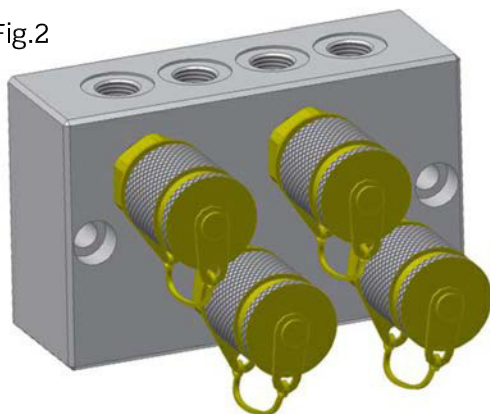
Fig.1
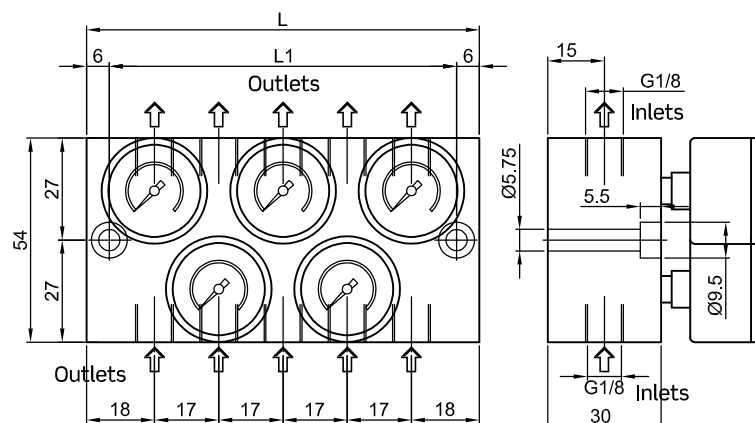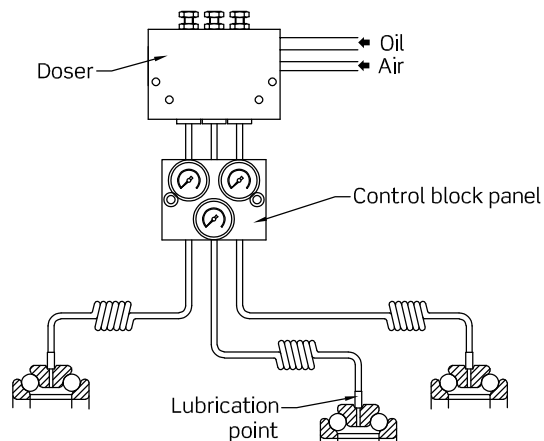
Fig.2

Control block panel

AF02/A-1
505.300.000

- From1 to 6 control points
- with pressure gauges (fig.1)
- with pressure ports (fig.2)

Application

Control of pressure within secondary lines in lubrication installations, especially air-oil installations.
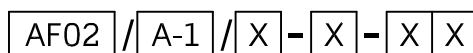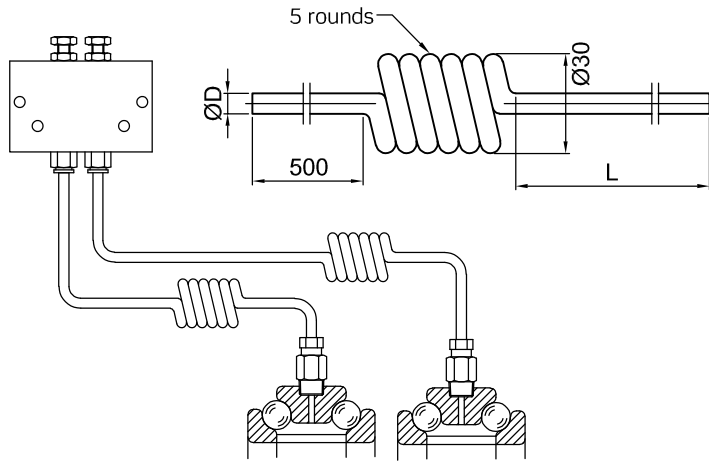
Mounting

Between doser and lubrication points

Doser

Oil
Air

Control block panel

Lubrication point

Dimensions

N° of outlets	L	L1
1	36	24
2	53	41
3	70	58
4	87	75
5	104	92
6	121	109

References

AF02 / A-1 / X – X – X X

N° of outlets	X	Control element	X	Inlet connections	X	Outlet connections	X
1	1	Without	0	Ø4 quick fitting	4	Ø4 quick fitting	4
2	2	Pressure gauge	1	Ø6 quick fitting	6	Ø6 quick fitting	6
3	3	Pressure port	2	G1/8	0	G1/8	0
4	4						
5	5						
6	6						

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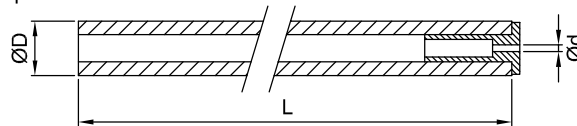
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LUBRICATION SYSTEMS

Helical pipe

For the connection between the distributor and the lubrication points.

It is placed as close as possible to the lubrication point to build up oil at stops between cycles and the lubrication point can be fed immediately at the next start up.
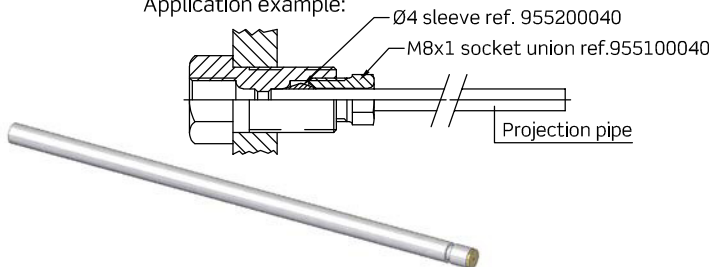
Reference	ØD	L
910001001	Ø4x2	2000
910001001/2	Ø4x2	13000
910001001/3	Ø4x2	3000
910001001/4	Ø4x2	4500
910001001/5	Ø4x2	5000
910001001/6	Ø4x2	5500
910001002	Ø6x4	2000
910001002/2	Ø6x4	3000
910001002/3	Ø6x4	4500
910001003	Ø4x2,7	2000
910001003/4	Ø4x2,7	4500
910001003/6	Ø4x2,7	5500

Nozzles

Projection pipe

Application example:
Ø4 sleeve ref. 955200040
M8x1 socket union ref.955100040
Projection pipe

SA02 / A-1 / X X / L (mm)

Ø d	X
Ø 0,5	5
Ø 1	1
Ø 1,5	2

Ø D	X
Ø 4	4
Ø 6	6

-Ask for other dimensions-

Projection fitting

Hex.11
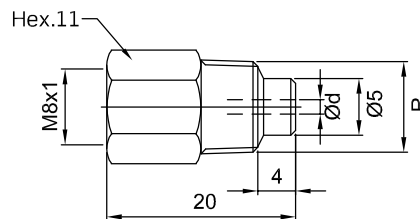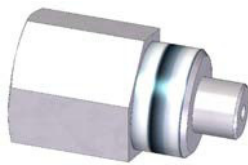
R	Ød	Reference
M6x1	Ø1,5	SB03/B-2-1
M8x1	Ø1,5	SB03/B-2-2
M10x1	Ø1,5	SB03/B-2-3
G1/8	Ø1,5	SB03/B-2-4

-Ask for other thread or dimensions-

Projection fitting
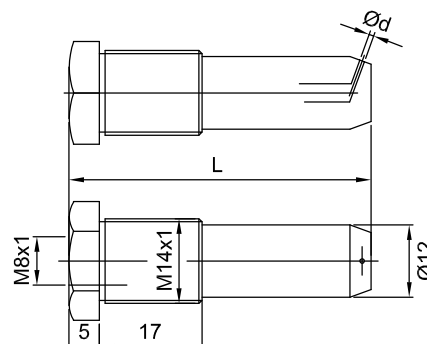
L	Ød	Reference
45	Ø0,8	SB03/B-1-1
50	Ø0,8	SB03/B-1-2
55	Ø0,8	SB03/B-1-3

-Ask for other thread or dimensions-

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LUBRICATION SYSTEMS

Oil-air lubrication compact units

PN05/H
407.000.000

- Super Lean system
- Compact unit with programmer
- Minimum oil flows
- From 1 to 6 outlets
- Continuous and adjustable air by outlet
- Optionally monitored by optical sensors

Description

Micro-injection system for minimum oil quantities and high frequency, for high speed roller lubrication (electric spindles), gear mechanisms....

Technical characteristics

Working air pressure.. 4 ÷ 8 bar
Ambient temperature.. -10°C...+50°C
Air consumption per outlet............................maximum 90 Nl/min
Lubricant maximum viscosity... 400 cSt

Solenoid valves

Function..NC
Standard voltage....................................... 24Vdc (+-10%)
Consumption.. 9W
Service type.. 100% ED

Micropumps

Fixed flow rate... 8-15-35 mm³/stroke
Adjustable flow rate........................ adjustable 4÷30 mm³/stroke

Air-oil monitoring (optional by sensors)

Type...................................... Image sensor with triple photodiode
Supply...12-24VDC
Maximum consumption...25mA
Connection / Standard contact..PNP NC

Hydraulic schema

PN05/H-1
Unit without optic-electronic sensors
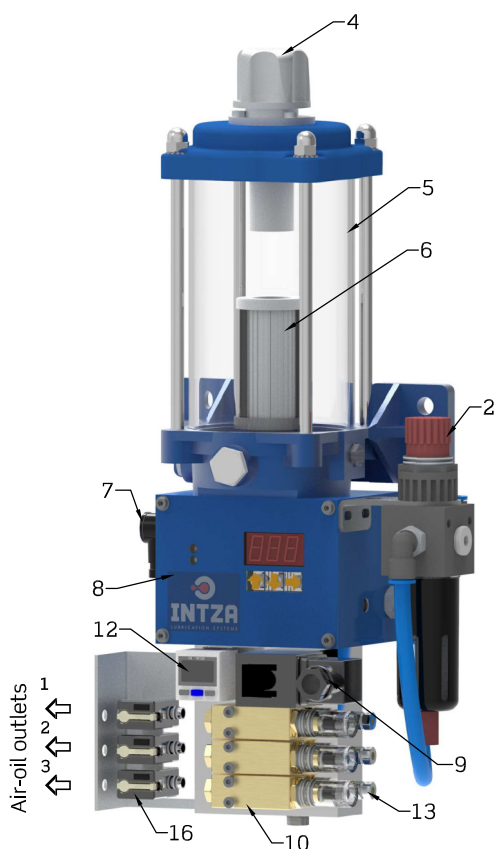
PN05/H-2
Unit with optic-electronic sensors

Air-oil outlets
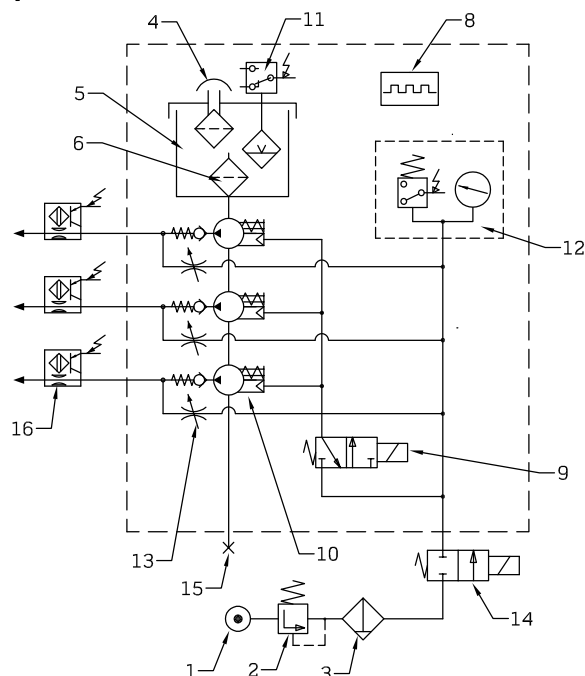
1-Air inlet (Ø10)	10-Micropumps
2-Air pressure regulator	11-Level switch
3-Air filter	12-Air pressure switch with display
4-Filling cap and filter	13-Air flow adjustment
5-Transparent tank	14-Air inlet solenoid valve
6-Oil feed filter	15-Draining plug
7-Electric connector	Optionally:
8-Programmer with display	16-Optic electronic sensor
9-Drive solenoid valve	

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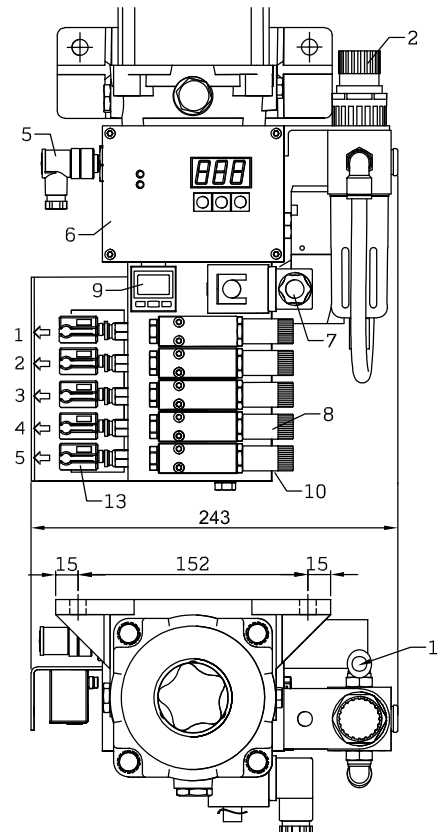20720 Azkoitia
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Dimensions (mm)

Fig.1: standard unit

		1 litre tank			2 litres tank		
		L	L1	L2	L	L1	L2
N° of outlets	1	419	216	203	586	383	203
	2	440	216	224	607	383	224
	3	461	216	245	628	383	245
	4	482	216	266	649	383	266
	5	503	216	287	670	383	287
	6	524	216	308	691	383	308

Fig.2
Unit with sensors at outlets (optional)
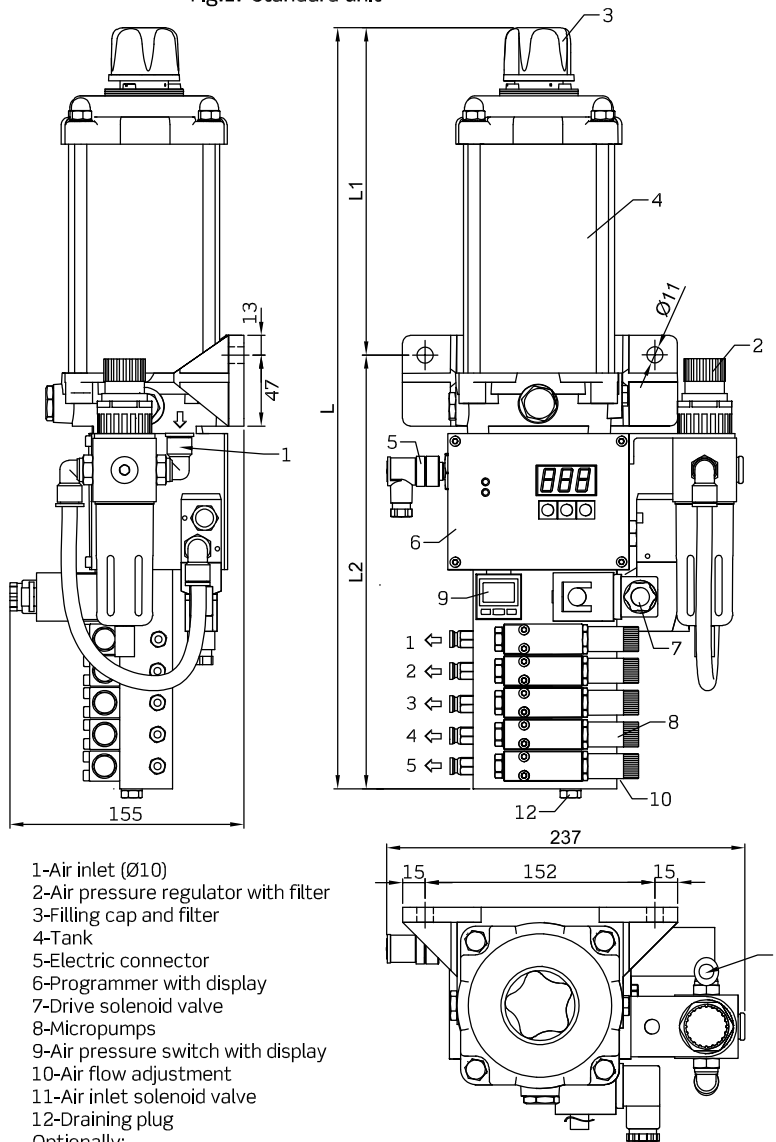
1-Air inlet (Ø10)
2-Air pressure regulator with filter
3-Filling cap and filter
4-Tank
5-Electric connector
6-Programmer with display
7-Drive solenoid valve
8-Micropumps
9-Air pressure switch with display
10-Air flow adjustment
11-Air inlet solenoid valve
12-Draining plug
Optionally:
13-Optic electronic sensor

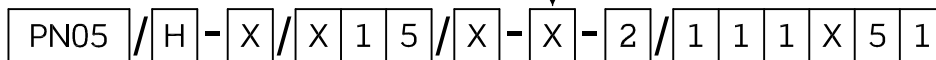- All outlets with the same flow : just indicate one flow.
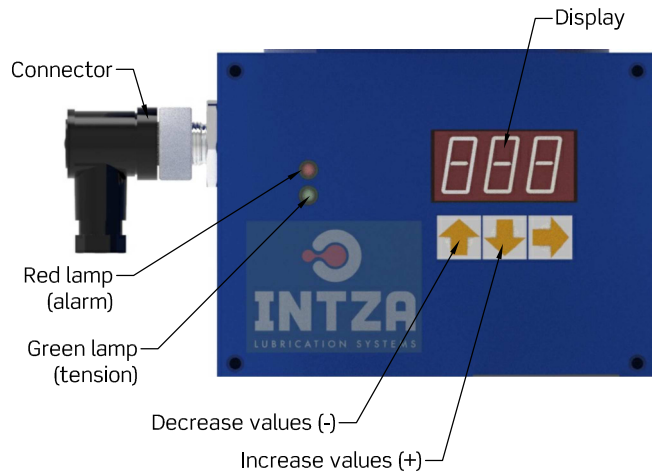- With different flow in some output: indicate the flow corresponding to all outputs

References

PN05 /H - X / X 1 5 / X - X - 2 / 1 1 1 X 5 1

Optical sensors	X	Tank capacity	X	N° of outlets	Flow x outlet		X	Outlet pipe Ø	X
					Type	mm³/str.			
Without	1	1 Litre	1	1	Fixed flow	8	2	Ø4	4
				2		15	3		
				3		35	5	Ø6	6
With	2	2 Litres	2	4					
				5	Adjustable flow	3 ÷ 35	A		
				6					

INTZA
LUBRICATION SYSTEMS

Control and monitoring device

EN01/A
452.600.000

-TIME-
For air-oil lubrication systems with pneumatic micropumps

Configurable parameters

tPC
Cycle PAUSE time, adjustable between 1...255 seconds.

nCP
Number of prelubricating cycles (pipe filling, etc...).
Programable between 0...255 cycles
(fixed rate: a cycle every 2 seconds)

nCF
Number of alarms received from optical sensors before considere that the system has failed.
Adjustable between 0...255 alarms

Connector
Display
Red lamp (alarm)
Green lamp (tension)
Decrease values (-)
Increase values (+)

Parameter setting

1	Press "Programming Menu" (right button) for over 1 second
2	Green and red lights will flick and "tPC" parameter and its numeric value will be shown on the display.
3	Briefly pressing the "Programming Menu" button we shift from one digit to the other (units-tens-hundreds). With "decrease / increase" buttons we modify the value of that digit.
4	Save the value by pressing "Programming Menu" button for over 1 second. Then the display moves to next parameter.
5	After saving the last value, and pressing the button "Programming Menu" for over 1 second, we quit the adjustment mode.

The value of the set parametters can't be over 255. If a higher value is configured, the programm will save 255
For units without sensors set "000" in nCF
If prelubrication is not required, change the parameter to "000"
After a power failure there is no need to reset the operating parameters (the program keeps memory).

Alarm messages

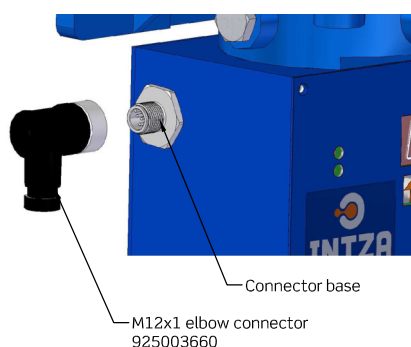| nPr	Pre-alarm for air lacking
AL1	Alarm for air lacking
AL2	Alarm of tank empty
AL3	Alarm of optical sensors

Intermittent fluctuations or interruptions in the air supply generate the pre-alarm.
If the lack of air persists for over 10 seconds, the alarm is triggered
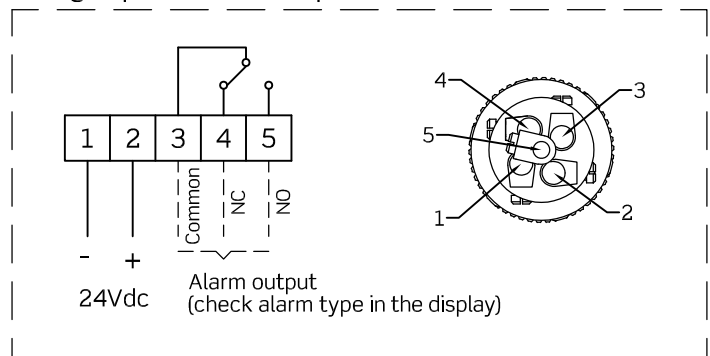
Reset after alarm:
Solve the problem that generated the warning and reset the device by pressing all 3 buttons at the same time, or switch off and on the unit.

Messages during the working cycle

Pre	Pump in operation during the prelubrication
tPC	Pump in pause according on configured value
trb	Pump in operation

Voltage input and alarm output

1	2	3	4	5
-	+	Common	NC	NO

24Vdc

Alarm output
(check alarm type in the display)

Connector base

M12x1 elbow connector
925003660

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Installation of the unit

Connect the unit to the power supply (24Vdc) and to the air system (4-8 bar)

After the device detects the input of the voltage
1. It checks the correct status of the monitorings (air, oil...)
2. It starts prelubricating (depending on then value configured in nCP)
3. After the prelubrication is finished, the unit works in regular values (configured in tPC) , until a failure occurs or the unit is switched off.

- If there is not air in the system, the display will shown AL1
- If there is not oil in the tank, the display will shown AL2

How get to run the unit, with both types of alarm:
1. Solve the problem (missing air or oil)
2. Reset the unit or switch-off it
3. After to reconnect, it will run according on the configured options

### Disassembling the connector
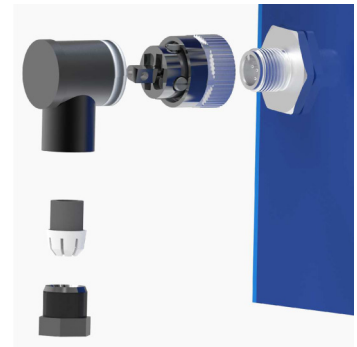
Adjusting oil flow

The piston stroke determines the amount of lubricant supplied at each cycle.
Piston's mouvement can be used as visual monitoring of the doser's working.
Manual activation of the dosers is possible at any moment.

For adjustable flow dosers the amount is regulated through the adjustment device.

Manual actuation

Piston

Oil flow adjustment device   - +
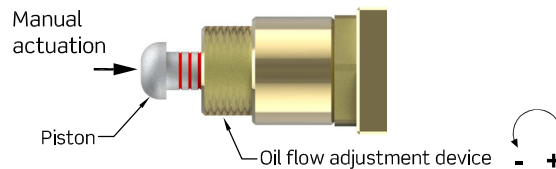
The oil flow rate for 8 and 15 mm3 fixed flow dosers is regulated by stop washers with different thickness.
35 mm3 flow doesn't have stop washer.

Index	Flow mm3/str	Stop washer code
2	8	280 137 453
3	15	280 138 453

Protective transparent cap
Protective of the manual actuation
Stop washer
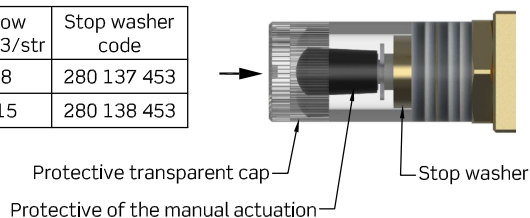
To modify the oil flow remove the transparent cap, the protective of the manual activation and the lock washer. Then insert the stop washer and reassemble all the parts.
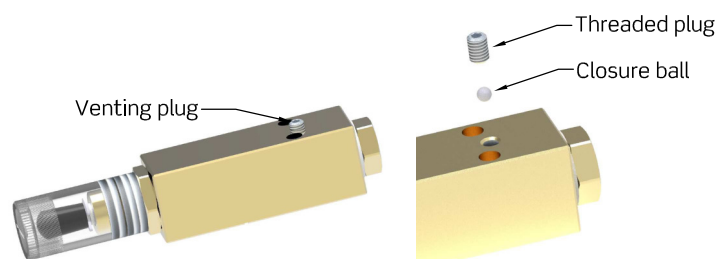

Protective of the manual actuation
Protective transparent cap
Lock washer
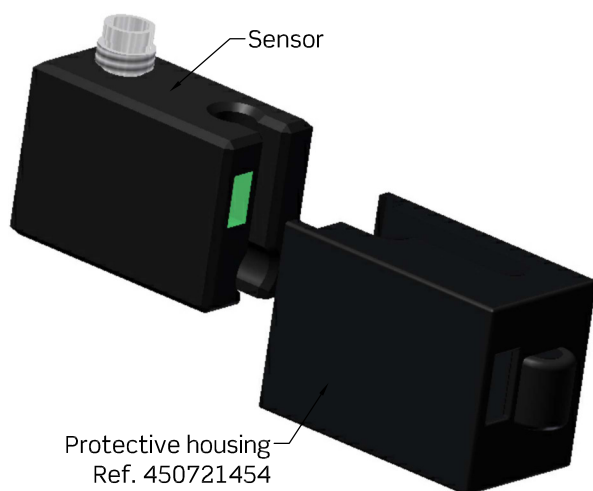Stop washer
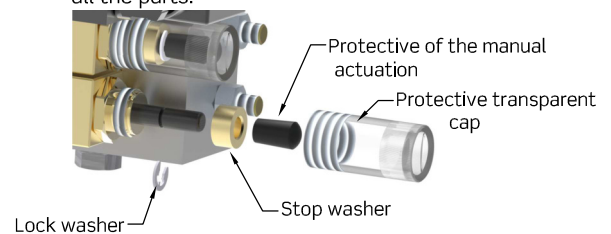
Adjusting air flow

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.
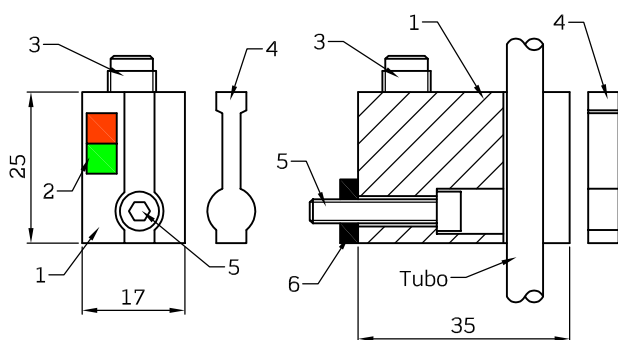

Air flow regulator

Air flow regulator
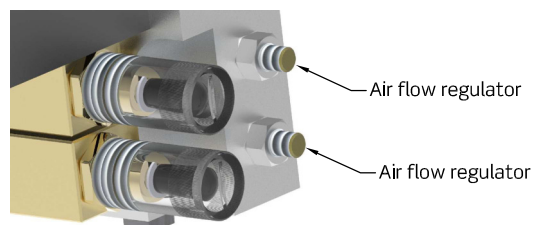
Venting the micropumps

Generally it is enough if the unit is vent through the drain plug at the lower part of the base plate, but it may sometimes be necessary to vent individually per outlet: remove the drain plug and run the micropumps until the oil comes out without air bubbles


Threaded plug
Closure ball
Venting plug

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Sensor

Protective housing
Ref. 450721454

3
25
2
1
17

4

5

3
1
5
6
Tubo
4
35

1 - Sensor
2 - Led for visual inspection
3 - Connection M8x1 4 poles
4 - Sealing cover N860061
5 - Fixation screw M4x25
6 - Stop washer (required for the installation
and removal of the protective housing)
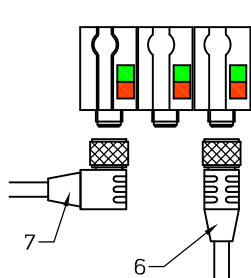
Accesories:
6 - Straight connector M8x1 4 Poles
    cable 3m............913806105/3m
    cable 5m............913806105/5m
7 - 90° connector M8x1 4 Poles
    cable 3m............913806107/3m
    cable 5m............913806107/5m

7

6

Electrical connection:

BR   +1 24VDC
WH   2 Only programming
BL   -3   GND
BK   4 Outlet

PNP

Optical and electronic monitoring device for air-oil lubrication systems

KOF01/A
450.755.000

Operation
The sensor detects the oil volume passage within the tube that carries over the air-oil mix.
Flow variations are shown through a led:
-Air-oil mix passage illuminates the green led.
-In the event of a breakdown or lubricant reduction the red led illuminates.
These signals can also be transmitted through a PNP output connection with NC contact.

Lubrication cycle monitoring
Monitoring is programmed through the PLC so following each pumping cycle the sensors provide an oil passage signal (green led), which keeps some time depending on the speed of the air and the cycle frequency
If the metered oil flow is not proportional to the cycle time the Red led can be activated, but following pumping impulse has to activate the Green led.

Installation of transparent pipe
The sensors are manufactured in two different versions depending on the Ø application tube: Ø4 and Ø6.
  -IFX-C04: sensor to be applied with tube Ø4
  -IFX-C06: sensor to be applied with tube Ø6

Insert the tube into its housing when the sensor is activated: check that the green led switches on and the red led switches off. Fit the sealing cover so that external variations in light don't interfere with the operation of photodiodes.

In installations where there is a risk of removal of the sealing cover (by vibrations from the machine, by force by the tube curved tube, etc.,) it is highly recommended the use of the protective housings.
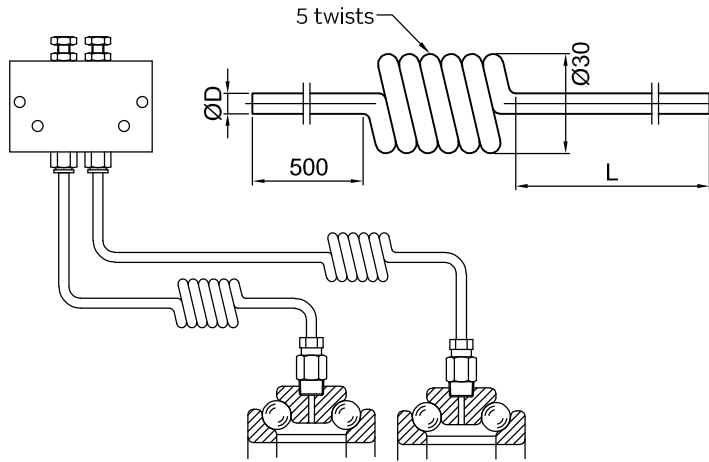
Technical characteristics
Type.......................................Image sensor with triple photodiode
Tube Ø to be monitored.. Ø4 - Ø6
Connection... M8x1 - 4 poles
Supply.. 12-24VDC
Maximum consumption...25mA
Connection .... PNP
Standard contact... NC (Normally closed)
Protection type...IP67

References

KOF01 / X – 1 / X X – X – X

Ø pipe	X	Connect. type	X	Contact type	X	Sensibility	X	Protective housing	X
Ø4	A	PNP	1	NC	1	Standard	10	Without	0
Ø6	B			NA	2	Indicate other		With	5

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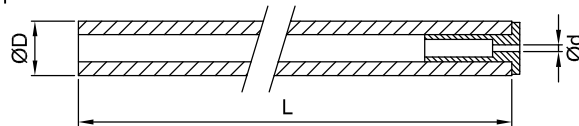✎ intza@intza.com

INTZA
LUBRICATION SYSTEMS

Helical pipe

To connect the distributor and the lubrication points.

It is placed as close as possible to the lubrication point to be able to build up oil at stops between the cycles and the lubrication point can be fed immediately at the next start up.
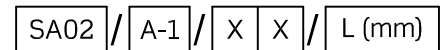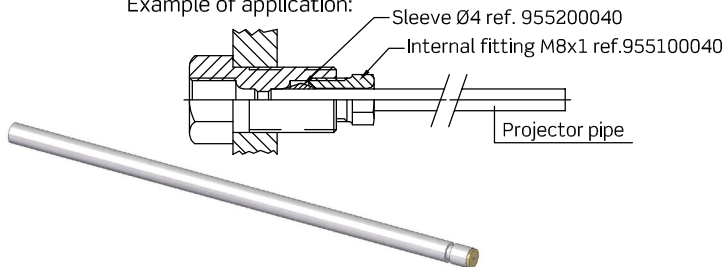
5 twists

Referencia	ØD	L
910001001	Ø4x2	2000
910001001/2	Ø4x2	13000
910001001/3	Ø4x2	3000
910001001/4	Ø4x2	4500
910001001/5	Ø4x2	5000
910001001/6	Ø4x2	5500
910001002	Ø6x4	2000
910001002/2	Ø6x4	3000
910001002/3	Ø6x4	4500
910001003	Ø4x2,7	2000
910001003/4	Ø4x2,7	4500
910001003/6	Ø4x2,7	5500

Projectors

Projector pipe

Example of application:
Sleeve Ø4 ref. 955200040
Internal fitting M8x1 ref.955100040
Projector pipe

SA02 / A-1 / X X / L (mm)

Ød	X
Ø 0,5	5
Ø 1	1
Ø 1,5	2

Ø D	X
Ø 4	4
Ø 6	6

-Consult for other dimensions-

Projector fitting

Hex.11
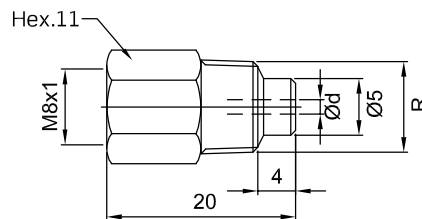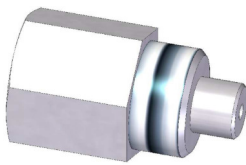
R	Ød	Reference
M6x1	Ø1,5	SB03/B-2-1
M8x1	Ø1,5	SB03/B-2-2
M10x1	Ø1,5	SB03/B-2-3
G1/8	Ø1,5	SB03/B-2-4

-Consult for other fittings or dimensions-

Projector fitting
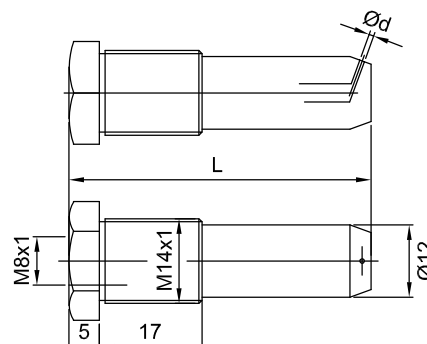
L	Ød	Reference
45	Ø0,8	SB03/B-1-1
50	Ø0,8	SB03/B-1-2
55	Ø0,8	SB03/B-1-3

-Consult for other fittings or dimensions-