

Oil Streak

Air-Oil Mixing Unit

Overview

The Air-Oil Mixing system delivers high efficiency lubrication for high-speed spindles and other applications requiring accurate oil deliveries, in combination with air flow. The Air-Oil Mixing Unit is versatile and allows multiple configurations that enable systems to be designed to suit various applications.

Application

The Air-Oil Mixing Unit is ideal for application on smaller equipment where space is a premium, the system allows the lubricator to be remotely positioned on the equipment. It includes everything required to provide for precision lubrication, Air-Oil mixing manifold to inject oil into the air delivery tubing, Air Treatment System (primary 5 micron filter and a secondary 0.01 micron coalescing filter) and an On-off Air Solenoid. The Air-Oil Mixing Unit is fitted with the provision for monitoring the air and oil pressures.

The Air-Oil Mixing Unit is designed to deliver small amounts of lubricant in a uniform and continuous feed basis. The oil is injected periodically into the output air stream every 1~5 minutes and depending on oil viscosity and air pressure, delivers continuous particles of lubricant to the bearing. The goal is to still have lubricant exiting the tubing at the end of the interval, then initiate another oil injection. Spindles with high RPM and DN values over 500,000 benefit the most from the continuous oil delivery, as well as small pitch chain, cam followers and linear bearing subjected to coolant and debris. The ground rule is the Air-Oil systems must be vented and have a flow path to carry the lubricant to the desired surface. Spindles, housings and linear bearings must be vented to work properly.

The Air-Oil Mixing Unit is versatile and allows multiple configurations that enable systems to be designed to suit various applications. The advanced design delivers precise amounts of lubricant and eliminates residual drift of "oil fog" mist during operation. In general terms, Air-Oil can replace an existing Oil Mist or aerosol lubrication system, without modification of the spindle or system. Other machines that were formerly lubricated with grease-pack will require modification to allow air flow. Contact Bijur Delimon for assistance and specific solutions.

Operation

The Air-Oil Mixing Unit utilizes an air/oil Positive Displacement Injector (PDI) block to deliver a precise amount of oil into a controlled air flow. The air propels the oil droplets along the inside wall of the small bore tubing until it reaches the lubrication point. The tubing length stretches out the flow of lubricant so that a continuous flow arrives at the nozzle/lubrication point.

Air expansion at the nozzle outlet generates a controlled spray for efficient bearing lubrication. A wide selection of injector rates combined with individually adjustable air valves provide specific air/oil deliveries to maintain thin lubricant oil films to each high-speed anti-friction bearing or other surfaces.

Operation of the injectors occurs during an alternating pressure and relief cycle controlled by the lubricator operation.



Refer to the following documents:

- + Operators Manual #35718:
Air-Oil Mixing Unit
- + Datasheet #35719:
Oil Streak Sensing Unit
- + Datasheet # 35465:
SureFire PDI Lubricator

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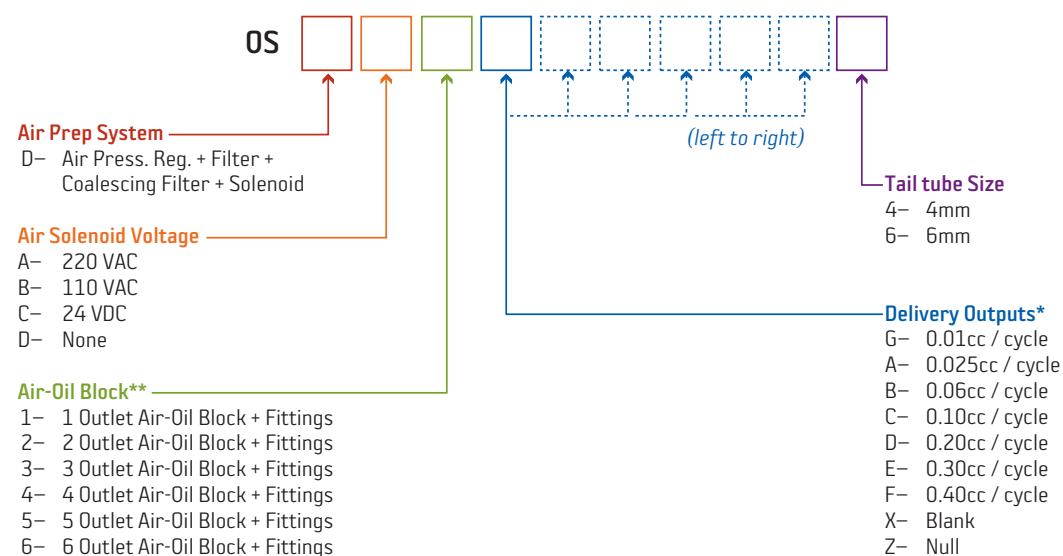
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Technical Data

Minimum Lube Connections		1
Maximum Lube Connections		12
Electrical Connections	Air ON /OFF Solenoid Options	115 VAC, 220 VAC, 24 VDC (2/2 N/C Valve)
	Air Pressure Switch	44 psi (3 bar) rising, N/O, DIN 43650-A
	Oil Pressure Switch	225 psi (15.5 bar), N/O, DIN 43650-A
Inlet Air Connection		8mm - 5/16" Tubing (Push-to-Connect)
Inlet Oil Connection		6mm Tubing (Push-to-Connect)
Lube Point Connection		4mm or 6mm Tubing (Push-to-Connect)
Air Treatment System	Regulator	1/4" Porting, C/W Gauge (psi or bar)
Primary Filtration Rating		5 Micron
Coalescing Filtration Rating		0.01 Micron
Solenoid Valve		N/C, DIN 43650-A
Oil Filtration	Pressure Filter On Panel	5 Micron
Overall Dimension		262mm x 372mm x 190mm
Cover Material		ABS
Weight (With 4 way air-oil block)		15lb (6.7kg)
Relative Humidity		80% at 31°C decreasing linearly to 50% at 40°C

How to Order



ATTENTION

*Dashed boxes are only used with more than 1 outlet.

**If you require more than 6 outlets, please contact Bijur Delimon for a part number.

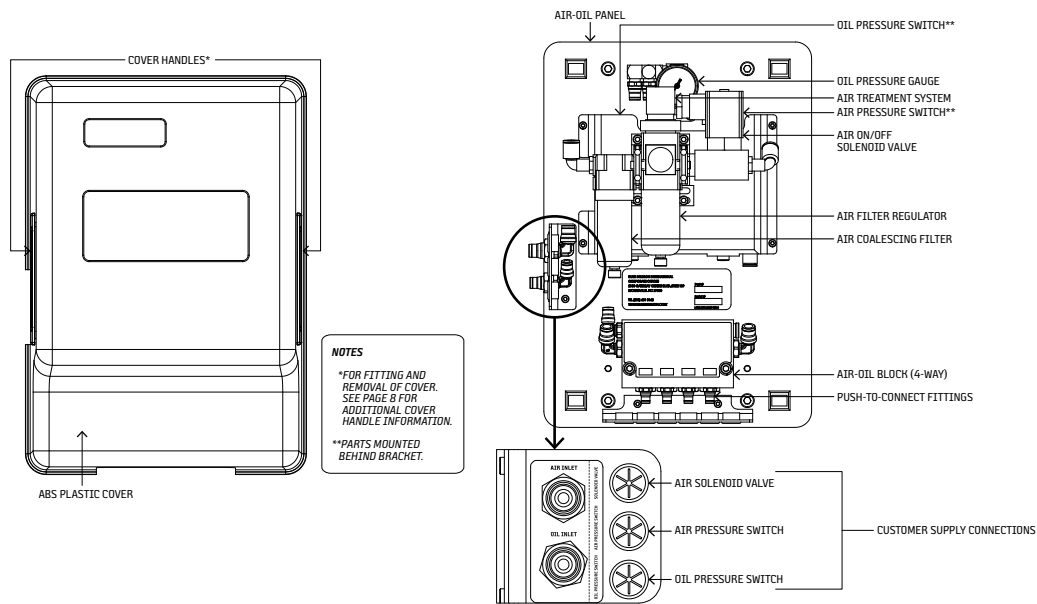
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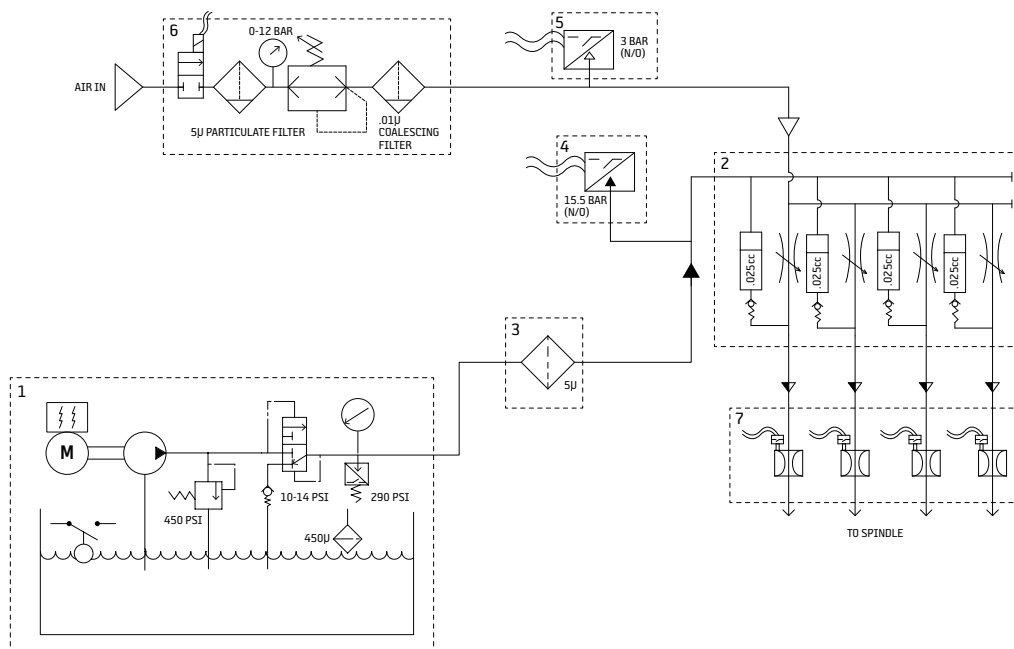
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Oil Streak Mixing Unit At A Glance



Typical Air-Oil Lubrication Schematic



SYSTEM COMPONENTS

- 1 REMOTE LUBRICATOR (NOT INCLUDED) 2 AIR-OIL MIXING BLOCK (4-WAY) 3 OIL FILTER 4 OIL PRESSURE SWITCH
- 5 AIR PRESSURE SWITCH 6 SMC AIR TREATMENT UNIT 7 OIL STREAK SENSOR KIT

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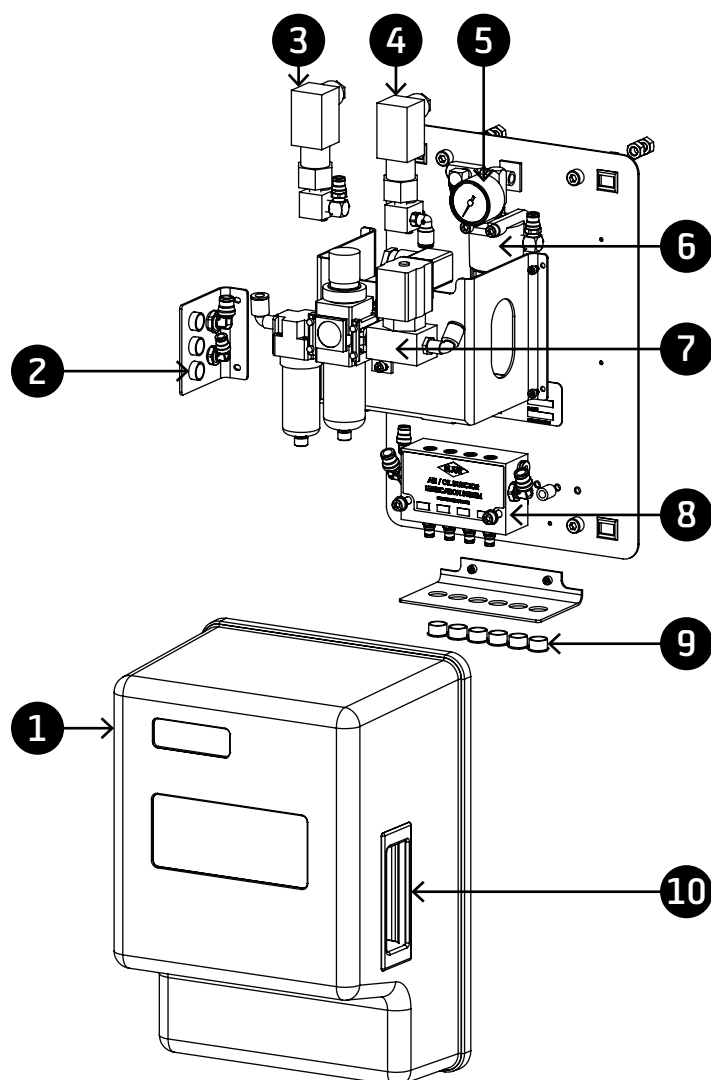
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Service Parts



Replacement Filter Elements:

- + Oil Filter:
43254
- + Air Filter Coalescing:
60200 (0.01 micron)
- + Air Filter:
60201 (5 micron)

Item	Description	Part #	Item	Description	Part #
1	Cover Assembly	60371 ⁴	7	Air Pres Reg/Filter/CF/230VAC Sol.	60195-9 ²
2	Grommets	60254		Air Pres Reg/Filter/CF/24VDC Sol.	60195-7 ³
3	Oil Pressure Switch	26772-2	8	Block air/oil 4-way	AV4AAAA ¹
4	Air Pressure Switch	26641-2	9	Grommets	60254
5	Pressure Gauge	26772-2	10	Handle	60133
6	Oil Filter; 5 micron	43252			
7	Air Pres Reg/Filter/CF/115VAC Sol.	60195-5			

¹ Standard part #'s. For additional part #'s contact Bijur Delimon

² All "-5" & "-9" part numbers have 'psi' scale. For 'MPa' scale change part number to "-2"

³ For 'MPa' scale change part number to "60195-8"

⁴ 60371 includes item#10 (Handles)

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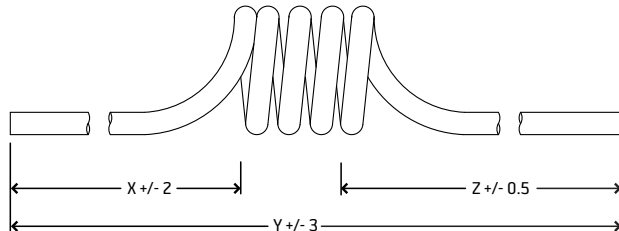
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Accessories

Coiled Tubing

Tubing is normally mounted in the horizontal position or at a slight incline. Coils help to stretch out deliveries in short tubes for continuous lubricant flow.

During shutdown, a small volume of oil collects at the bottom of each loop for faster delivery during start up.



Tubing Specifications:

Part #	No. Of Coils	X (Inches)	Y (Inches)	Z (Inches)
26263-5	5	20	27	6
60877	5	80	100	19

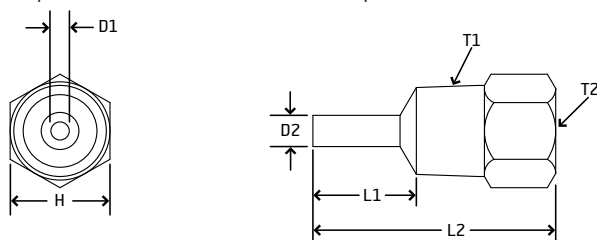
Standard Straight Tubing

Standard Tube For Connecting to Lube Point:

Part #	Outside Diameter	Inside Diameter	Material
4N25W	4mm (5/32")	2.5mm	Clear Polyurethane
8N31T	6mm	4mm	Clear Polyurethane

Nozzles

Offered in various sizes, Nozzles normally produce a round spray pattern. Typically, this nozzle configuration is suitable for anti friction bearings and other applications where precise wetting is required. Nozzle orifice size and air pressure determine the shape and velocity of the air and oil mix.



Nozzle Specifications:

Part #	T1	T2*	L1 (mm)	L2 (mm)	D1 (mm)	D2 (mm)	H (mm)
27107-1	1/8 NPT	5/16-24	4	20	2.5	6	11.1
27107-2	1/8 NPT	5/16-24	4	20	1.5	6	11.1
27107-3	1/8 NPT	5/16-24	10	26	2.0	5	11.1
27107-4	1/8 BSPT	M8X1	4	20	2.5	6	10
27107-5	1/8 BSPT	M8X1	4	20	1.5	6	10
27107-6	1/8 BSPT	M8X1	10	26	2.0	5	10

ATTENTION

Coiled tubing extends tubing length in short line runs to stretch out lubricant deliveries.

Additional Accessories:



Oil Streak Sensing Unit
See Datasheet #35719

ATTENTION

*Required 4mm Tube Connection Fittings for Nozzles:
5/16-24 Female:
B1371 comp bushing + B8272 comp sleeve
M8X1 Female:
15326 comp bushing + B8272 comp sleeve

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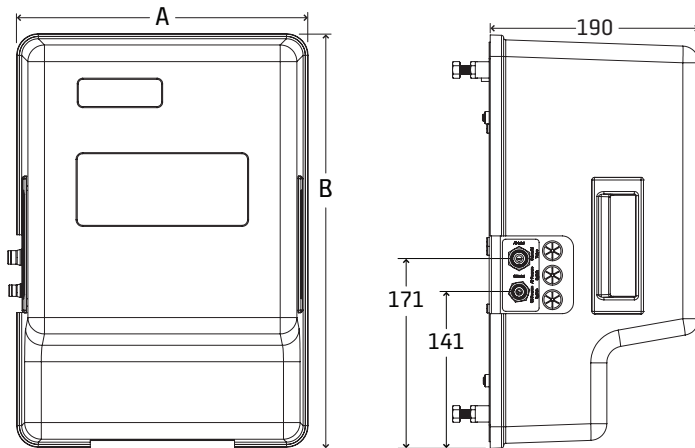
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Dimensional Schematics

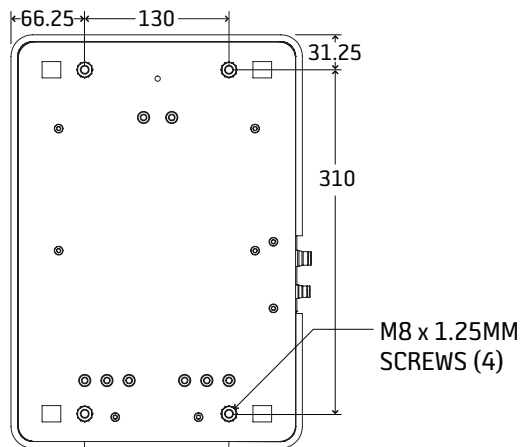
Measurements shown in millimeters.



Overall

	A	B
Cover	262.5mm	372.5mm
Panel (w/o Cover)	250mm	360mm

Mounting



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