

Oil Streak

Air-Oil Generating Unit

Overview

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

Application

The Air-Oil Generating Unit is a self contained lubricating system pre assembled and ready for installation. The unit contains the following elements: an electric SureFire II Lubricator with precision gear oil pump, proprietary electronic controller to operate and monitor all functions, Air Treatment System (primary 5 micron filter and a secondary 0.01 micron coalescing filter), On-off Air Solenoid and an Air-Oil mixing manifold to inject oil into the air delivery tubing. The Air-Oil Generating system monitors and includes oil level warning, oil low level cut-out and two pressure monitoring devices. The proprietary control works in conjunction with optional "OSS" Oil Streak Sensing Units to monitor downstream oil particles flowing to critical bearings. The SureFire II Controller operates in real time and has 2 internal relay outputs which can be connected to a host computer/PLC to monitor the system status and fault type if any. The control can be reset at the SureFire II Lubricator.

The Air-Oil Generating 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 Generating 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 Generating 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 #35717:
Air-Oil Generating Unit
- + Datasheet #35719:
Oil Streak Sensing Unit
- + Datasheet # 36410:
SureFire II PDI Lubricator
- + Operators Manual #36412
SureFire II Controller

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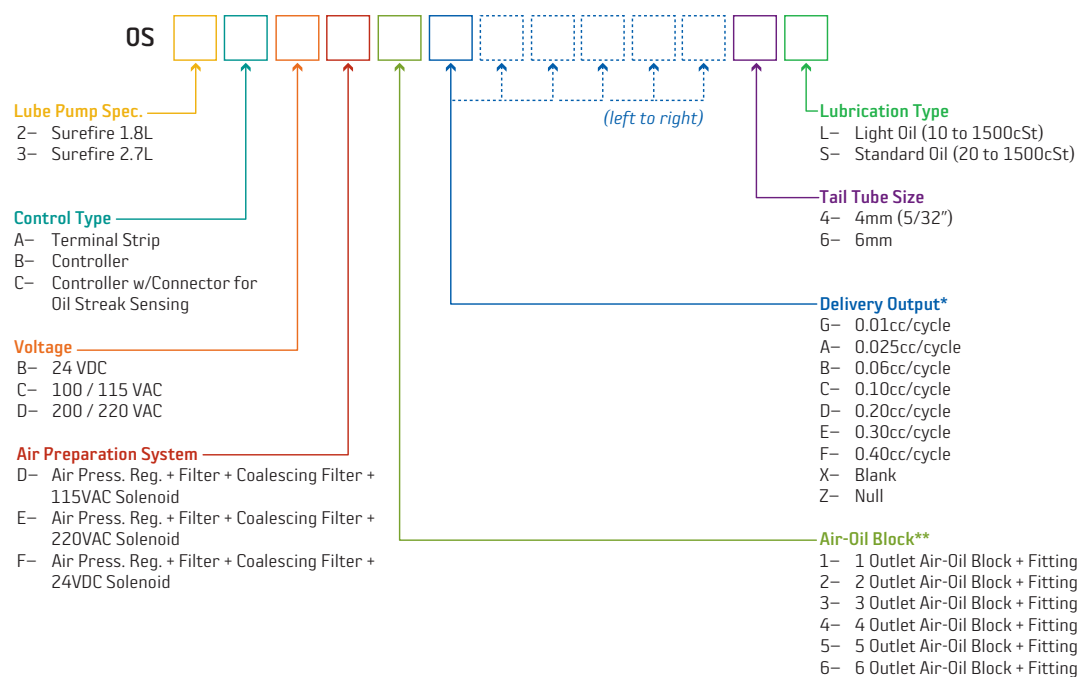
Technical Data

Reservoir Capacity		1.8 Liter, 2.7 Liter
Lubricant		Refer to Operators Manual # 36412
Lube Connections		1 Minimum / 12 Maximum
Electrical Connections	SureFire II Lubricator Options	100/115 VAC, 200/220 VAC & 24 VDC
	Air ON/OFF Solenoid Options	115VAC, 220VAC, 24VDC (2/2 N/C Valve)
	SureFire II Fault Options	2 programmable Fault Relays
Inlet Air Connection		8mm - 5/16" 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	Inlet Filter on Pump	450 Micron Strainer
	Pressure Filter On Panel	5 Micron
Air Pressure Switch On Panel		44 psi (3bar) rising, N/O, DIN 43650-A (wired to SureFire II)
Oil Pressure Switch On Panel		225 psi (15.5bar), N/O, DIN 43650-A (wired to SureFire II)
Overall Dimension		522mm x 372mm x 190mm
Cover Material		ABS
Dry Weight (2.7L SureFire II with 4 way air-oil block)		30lb (13.5kg)
Relative Humidity		80% at 31°C decreasing linearly to 50% at 40°C

ATTENTION

The Oil Streak Air-Oil Generating unit is for indoor use only.

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.

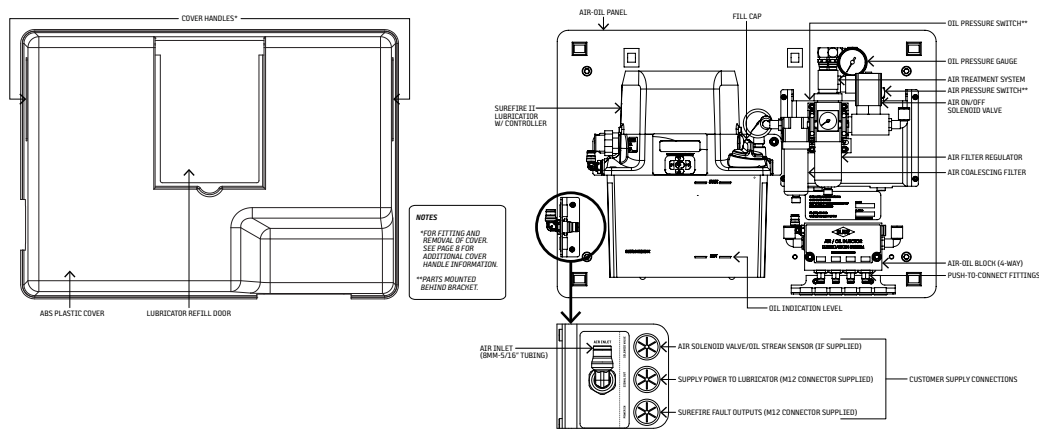
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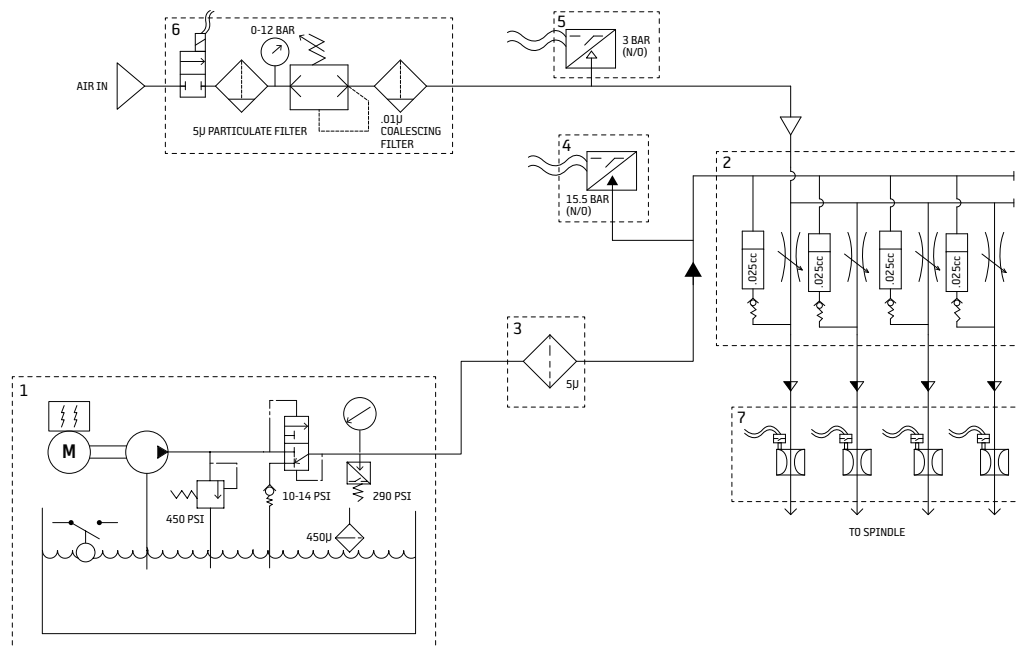
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Oil Streak Generating Unit At A Glance



Typical Air-Oil Lubrication Schematic



SYSTEM COMPONENTS

- | | | | |
|-----------------------|--------------------------------|-------------------------|-----------------------|
| 1 SUREFIRE LUBRICATOR | 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 | |

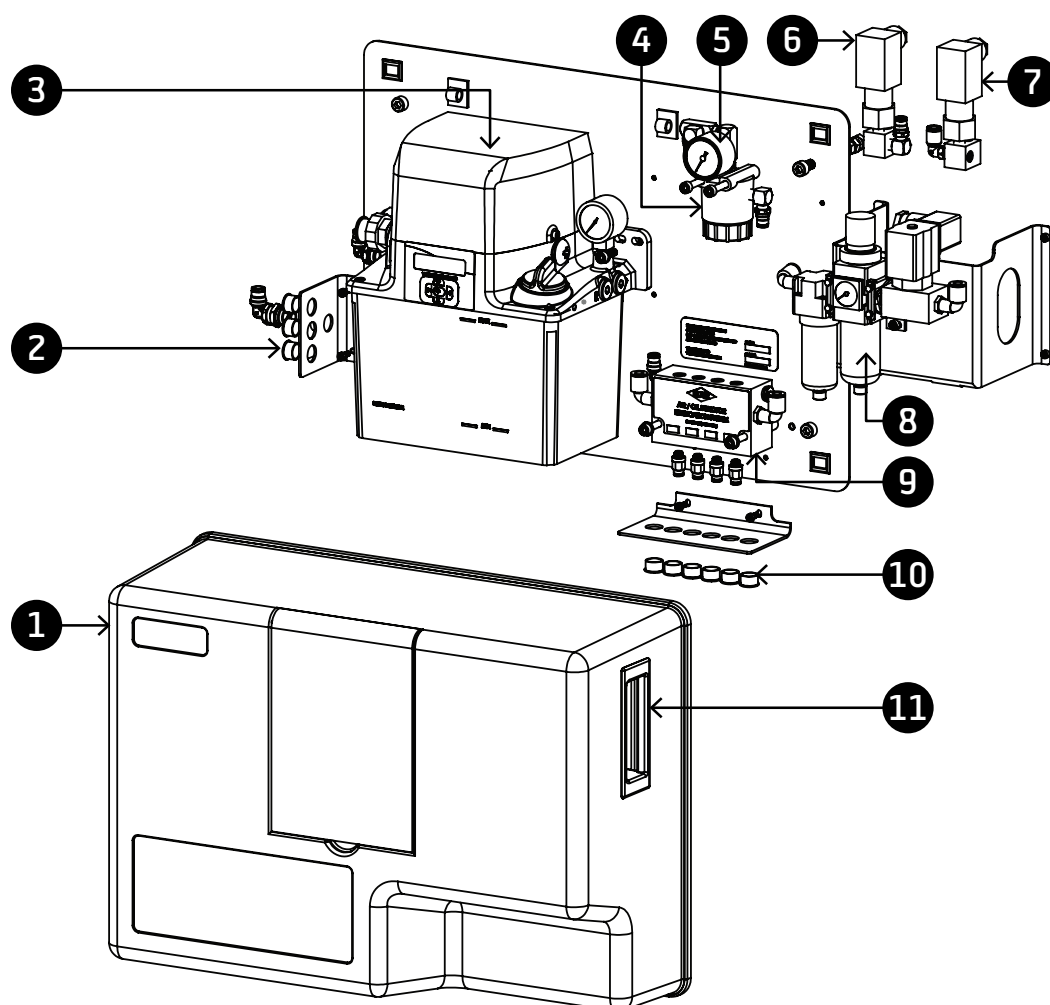
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Service Parts



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	60370 ⁴	10	Grommets	60254
2	Grommets	60254	11	Handle	60133
3	SureFire II Lubricator 115VAC W/Controller; 3L	SFX71101-115*			
4	Oil Filter; 5 micron	43252			
5	Pressure Gauge	24541			
6	Oil Pressure Switch	26772-2			
7	Air Pressure Switch	26641-2			
8	Air Pres Reg/Filter/CF/115VAC Sol.	60195-5*			
9	Block Air/Oil 4-way	AVE4AAAA*			

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

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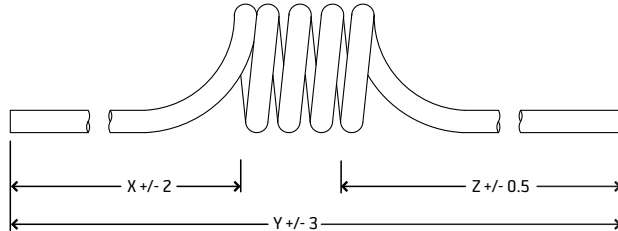
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Accessories

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

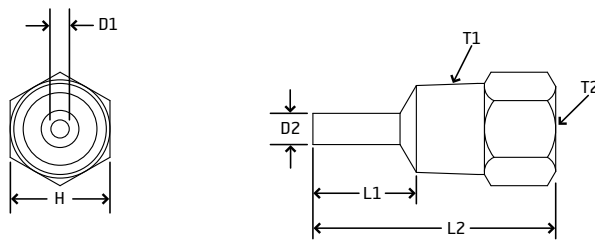
Standard Straight Tubing

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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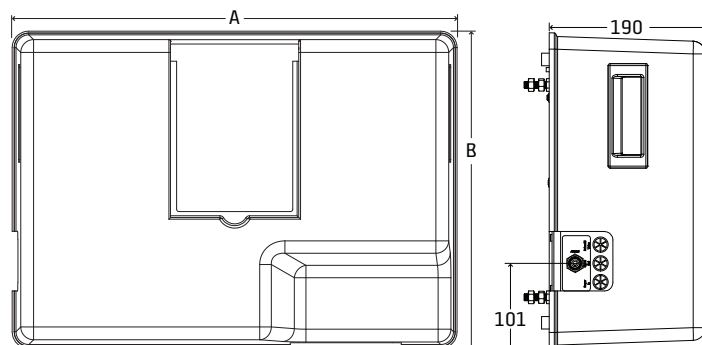
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Dimensional Schematics

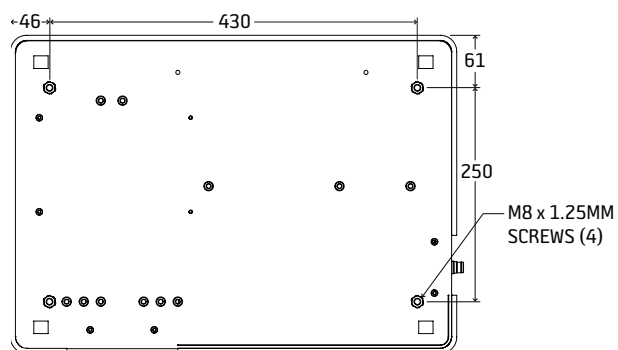
Measurements shown in millimeters.



Overall

	A	B
Cover	522mm	372mm
Panel (w/o Cover)	510mm	360mm

Mounting



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