Filter/Regulator & Lubrication Systems… A simple guide.

What are they? Where are they installed? Why would you spend the $ to buy them?

First off, air leaving a compressor is hot, dirty and wet … All elements that can damage and WILL shorten the life of expensive equipment and tools. That is why it is essential to protect your investments. Let's talk FILTERS first- Water vapor is the MORTAL enemy within a pneumatic system. The airline filter cleans this compressed air in two important stages:

First Stage - Air entering the filter is directed downward and with the resulting vortex action, liquids and particles are forced to the bowl wall and then extracted.

Second Stage - Air flows inward through the filter element where additional contaminants (as small as 4 microns) are removed with little pressure loss.

PRESSURE REGULATOR component. These reduce as well as control the air pressure in compressed air systems….maintaining an optimal and constant output pressure no matter the input pressure variations. Some of the applications include air tools, blow guns and aerosol lubrication systems.

Why is this important?

1) Allows for precise downstream pressure control.

2) Built-In safety piston diaphragm assembly automatically vents excess air in the event the downstream pressure exceeds the desired regulator setting.

This prevents excessive pressure from reaching your tools. Excessive pressure causes tools and seals to overwork which can cause over-speeding of the tools' internal mechanisms. Both will decrease the life of your tools.

LUBRICATION element. Truly a key factor in ensuring consistent operation of the tools. It adds a set quantity of oil into the compressed air system reducing moving component friction. How? Pressurized air is introduced and guided through the body where it turns into a smooth aerosol providing the needed lubrication to the working tools. This is critical to air tool life extension.

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Additional Value-Add FRL Options

The Piggyback Regulator and Filter System

All in one. Modular design provides extra space while reducing the overall weight load and saving time.

Coalescing Filter System

Designed for applications that require air free of oil, water and foreign particles. It is best to locate these as close as possible to the actual tool. This is recommended for precision tools and actuators.

Desiccant Dryer System

Primarily for more heavy duty operations where any amount of moisture may cause an issue, or operations where extremely dry air is necessary.

More commonly found in a wide range of industrial and commercial facilities.

Desiccant dryers are placed after both Micro Filters and Coalescing Filters, in order to allow the desiccant pellets to absorb effectively.

Note - These cannot be used with a lubricating system. Perfect for spray painting applications, or applications where small amounts of moisture may cause issues.

FRL Fun Facts

Air Compressor Compatibility: Big or small, our FRL systems will work with whatever pressure your air compressor provides.

Component Size

Mini - To be used closer to machinery or tool/application

Standard - For traditional use in home garage, small workshop or DIY application.

Heavy Duty - High flow system that is placed closer to compressor… for larger shop applications

SCFM - Standard Cubic Feet Per Minute

Regarding your FRL selection, SCFM only matters when it comes to the application. The SCFM rating of your air compressor is only the speed at which air enters a storage tank. Most pneumatic tools use air much faster than most air compressors can produce it.

EXAMPLE:

- Actual air tool usage is 4 to 5 times the "average SCFM rating" because you aren't using a tool all the time. However, to get the most out of the tools, it's best to have the air system capability CFM higher than the tools you plan to use. For example a ½" impact wrench can use as much as 35 SCFM, so make sure all the components upstream of that tool flow an amount of air greater than the tool. 2x if you plan to run two tools.

  140 CFM (Auto shop, large workshop or an area that utilizes multiple locations)

  247 CFM (Auto shop, large workshop or an area that utilizes multiple locations)

Applications

- **Filter -** Critical for every application to ensure the elimination of water and particulates from your airline, machinery and tools

- **Pressure Regulator -** The pressure regulator provides uniform controlled pressure to the system and ultimately the tools. The pressure in the air compressor tank rises and falls with usage and pump cycling. The air pressure regulator isolates the system from this and delivers air at a consistent pressure.

- **Lubricator -** In-line lubrication takes the human element out of lubricating air tools. The tool is automatically lubricated to ensure long life from the tool. Lubricated air lines and hoses should be segregated to prevent cross contamination. General use air lines, for inflation, cleaning or painting should never have in-line lubrication.

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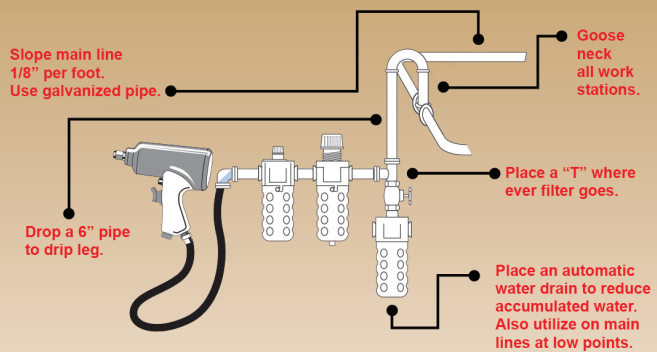SERVICE GAGES

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TECH TIPS
Building An Efficient Air System

Compressed air powered equipment and machinery are critical elements in the productivity, efficiency, and economy of today's industry and quality air is the essential element. Water and dirt cause more problems in compressed air lines than anything else. High speed pneumatic production lines operate efficiently because of air dryers and filters that remove moisture and impurities from the air, which results in eliminating downtime. Regulators and lubricators can be added to control and lubricate downstream equipment. A good air system is the key to saving time, money and to operating at maximum efficiency.
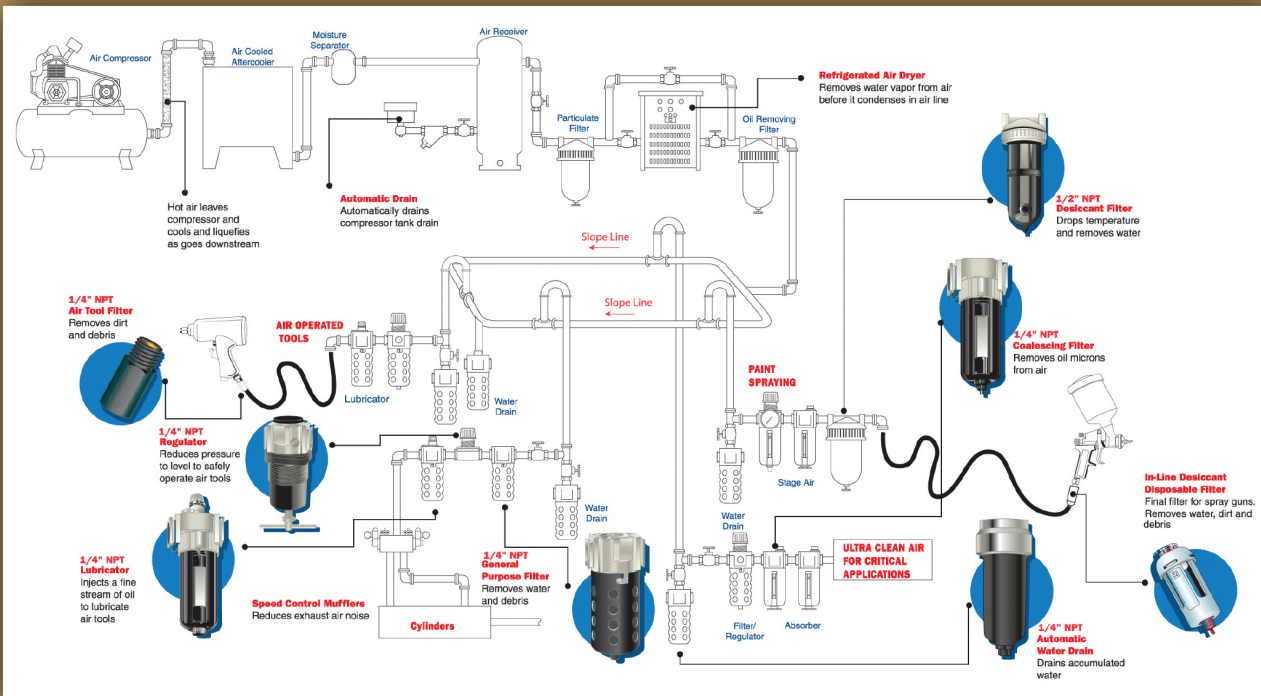
5 Important Steps to an Air System Set-Up

1 Main line filter and regulator should be placed at least 20 feet from the compressor. The air will cool down, allowing much of the water vapor to condense naturally for removal by filtration.

2 Main line piping should slope down from point of origin by 1/8" per foot. Any water in the line will flow down to the lowest point for draining.

3 All line drops (work stations) should be taken from the top of the main line. This prevents water from flowing into branch lines.

4 Galvanized pipe is recommended when building an air system.

5 Follow illustration to the right when building a work station drop.

Slope main line 1/8" per foot. Use galvanized pipe.

Goose neck all work stations.

Drop a 6" pipe to drip leg.

Place a "T" where ever filter goes.

Place an automatic water drain to reduce accumulated water. Also utilize on main lines at low points.

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MICRO FILTERS

- All filters supplied with pre-assembled automatic overnight drains
- 3 stage baffle system for exceptional moisture removal
- 40 micron bronze sintered elements allow less pressure drop, longer cleaning intervals, and are cleanable
- Light weight aluminum die-cast housing
- Micro filters remove harmful oil-water condensate, pipe scale, dirt and rust from compressed air systems
- Install micro filters upstream from regulators to protect against valve and diaphragm failure
- Micro filters are used as pre-filters to coalescing filters to insure high efficiency and long element life in applications such as spray painting, instrumentation and pharmaceuticals

Mini Filters

Ideal for use in compact low air flow applications such as small pneumatic equipment, miniature valving and instruments

s-1144

1144M
1144-2

Part No.	1144-2	1144M	s-1144
NPT	1/8"	1/4"	
Bowl Type	Metal Bowl		Poly Bowl
Bowl Capacity	1 oz		
Maximum Air Pressure	250 PSI		150 PSI
Maximum Air Flow	27 SCFM		
Operating Temp Range	40°F to 160°F		40°F to 120°F
Included Filter	20 Micron Bronze Sintered		
Replacement Filters	See Below		
Sight Glass	No		N/A
Drain Type	Manual Petcock		Overnight
Mounting Bracket	s-1163-22 (sold separately, pg 51)		

Polycarbonate Bowl Filters w/ Metal Bowl Guard

1018

Part No.	1018	1019	1020
NPT	1/4"	3/8"	1/2"
Bowl Type	Polycarbonate Bowl		
Bowl Capacity	5 oz		
Maximum Air Pressure	150 PSI		
Maximum Air Flow	48 SCFM	75 SCFM	100 SCFM
Operating Temp Range	40°F to 125°F		
Included Filter	20 Micron Bronze Sintered		
Sight Glass	N/A		
Drain Type	Auto Overnight		
Mounting Bracket	s-1163-1 (sold separately, pg 51)		

Heavy Duty Metal Bowl Filters w/ Sight Glass

1019-6

Part No.	1018-6	1019-6	1020-6	1120-6
NPT	1/4"	3/8"	1/2"	
Bowl Type	Metal Bowl			
Bowl Capacity	6 oz			9 oz
Maximum Air Pressure	250 PSI			
Maximum Air Flow	48 SCFM	75 SCFM	100 SCFM	115 SCFM
Operating Temp Range	40°F to 160°F			
Included Filter	40 Micron Bronze Sintered			
Sight Glass	YES			
Drain Type	Auto Overnight			
Mounting Bracket	s-1163-1 (sold separately, pg 51)			

Heavy Duty Metal Bowl Filters

1019-8   1120-8

Part No.	1018-8	1019-8	1020-8	1120-8
NPT	1/4"	3/8"	1/2"	
Bowl Type	Metal Bowl			
Bowl Capacity	6 oz			9 oz
Maximum Air Pressure	250 PSI			
Maximum Air Flow	48 SCFM	75 SCFM	100 SCFM	115 SCFM
Operating Temp Range	40°F to 160°F			
Included Filter	40 Micron Bronze Sintered			
Sight Glass	No			
Drain Type	Auto Overnight			
Mounting Bracket	s-1163-1 (sold separately, pg 51)			

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