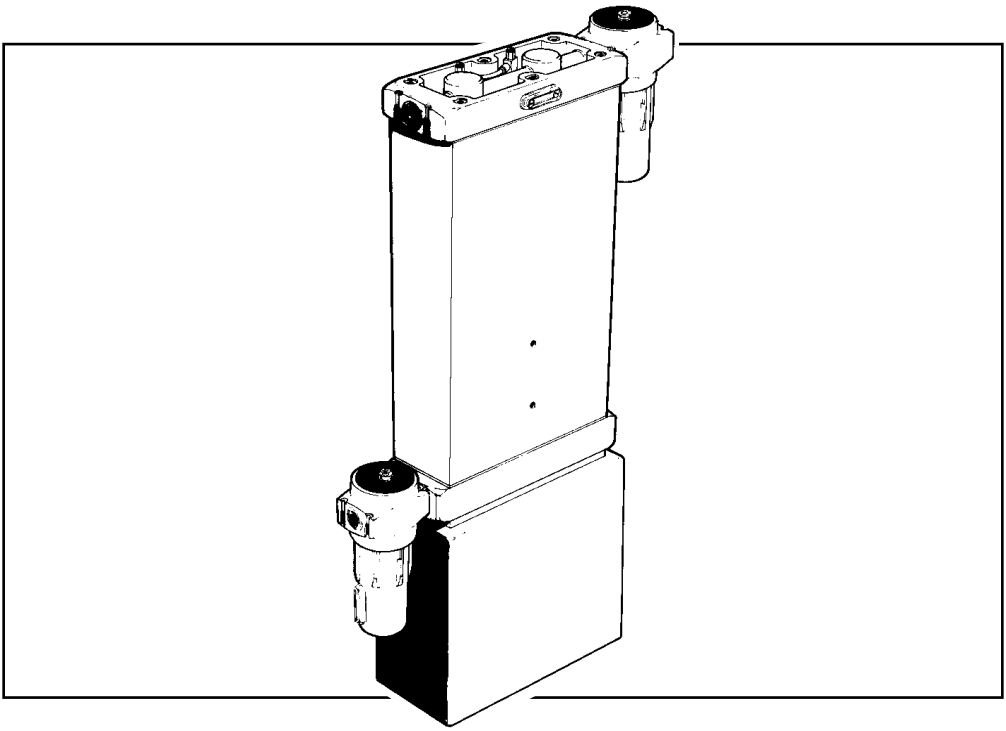


SAR024(P) TO SAR175(P)

HIGH EFFICIENCY
COMPRESSED AIR DRYERS

USER GUIDE

SAFETY WARNING!

Do not operate the dryer until the instructions in this manual have been read and understood by all personnel concerned.

When handling, installing or operating, personnel must employ safe engineering practices and observe all related regulations, health and safety procedures, and legal requirements for safety.

Most accidents that occur during the operation and maintenance of machinery are the result of failure to observe basic safety rules and procedures. Accidents can be avoided by recognising that any machinery is potentially hazardous.

Sullair can not anticipate every possible circumstance which may represent a potential hazard. The **WARNINGS** in this manual cover the most known potential hazards, but by definition cannot be all inclusive. If the dryer user employs an operating procedure, item of equipment or a method of working which is not specifically recommended by **Sullair** the user must ensure that the dryer will not be damaged or made a potential hazard to persons or property.

IMPORTANT

Caution: Power Risk of Electric Shock

Attention

PLEASE NOTE THAT YOUR WARRANTY MAY BE INVALIDATED IF THE EQUIPMENT HAS NOT BEEN INSTALLED, COMMISSIONED OR MAINTAINED BY Sullair OR A Sullair APPROVED AGENT.

1. UNPACKING

Although **Sullair** takes every precaution with packaging, it is advisable after carefully removing the **SAR** dryer from it's box and packing material to carry out a thorough visual inspection for any sign of transit damage incurred after leaving our factory.

Any damage should be reported immediately to the carrier and Sullair and/or the Distributor from whom it was purchased.

Installation (Refer to Figure 1)
Care **must** be taken to ensure that the dryer is not subject to flows, (even peaks) in excess of the dryer's rated capacity, e.g. dryers downstream of an air receiver have increased potential to be overflowed.

The **SAR** can be installed either free standing or wall mounted.

The black control enclosure (A) must be at the bottom and the **SAR** must be installed vertical and level.

Two inlet connections are available at the bottom of the **SAR** to enable connection from either left or right. The unused connection (B) **must** be sealed with the threaded plug provided. Suitably rated pipe and connections must be used for the installation.

Two outlet connections are available at the top of the SAR to enable connection from either left or right. The unused connection (C) **must** be sealed with the threaded plug provided. Suitably rated pipe and connections must be used for the installation.

The purge flow is factory set to 6 barg (85 psig) minimum operating pressure. Should your minimum pressure requirement be different, the purge flow must be reset by a Sullair approved Engineer.

1. Filtration

Sullair inlet and outlet filtration **must** be fitted to the dryer, e.g. **MPF (recommended),** an **MPH** grade pre-filter (D) and an **Outlet filter** (E) **-** are included with the dryer. All filtration must be installed using the practices described in the User Guide supplied with the filters.

2. By-Pass line (F)

A By-pass line (F) ensures complete safety during maintenance and enables a continuous supply of compressed air to be maintained if required. It should be remembered that air by-passing the dryer is dirty, untreated air.

3. Valves (G,H & J)

Isolation valves are recommended on the inlet (G), outlet (H) and by-pass (J) lines at the positions indicated in Figure 1.

2. OPERATING THE SAR RANGE OF DYERS

Start-Up Procedure

Ensure a suitable supply of compressed air between 4 and 10.5 bar (58 and 152.25 psi g) pressure is available and check that the dryer cannot be overflowed.

NB - All valves must be opened and closed *gradually*.

Proceed as follows:

Using the By-Pass Line (F)

With the inlet (G) and outlet (H) valves closed and the by-pass (J) valve open, introduce air to the **SAR** by gradually turning the inlet valve until fully open.

Allow the **SAR** to fully pressurise, then open the outlet valve whilst simultaneously closing the by-pass valve. The **SAR** is now on stream.

Without By-Pass Line (F)

Close inlet (G) and outlet (H) valves.

Introduce air to the **SAR** by gradually turning the inlet valve until fully open.

Allow the **SAR** to fully pressurise, then gradually open the outlet valve. The SAR is now on stream.

During Operation

Following the 'start-up' procedure, operation of the SAR is fully automatic and requires no further attention until 'shut-down'.

The dryer column contains two chambers of desiccant material. Whilst one is drying the compressed air (adsorption), the other is simultaneously undergoing regeneration (desorption). Approximately every 2 minutes, the adsorption and desorption chambers are automatically reversed in function. At this point, both pressure gauges (K) will indicate line pressure immediately prior to changeover. At changeover, the air in the desorption column is vented to atmosphere, characterised by a small hissing noise.

One of the gauge readings will be seen to fall to virtually zero pressure indicating that this chamber is undergoing regeneration whilst the other chamber is now drying the incoming air.

The crystals in the moisture indicator (L) should be blue for correct operation, however, if these change colour to mauve, pink or white the **SAR** is achieving a 'wetter' pressure dewpoint and the cause must be investigated (refer to fault diagnosis table).

Shut-down Procedure

Using By-Pass Line (F)

Close the outlet valve (H) whilst simultaneously opening by-pass (J) valve.

Close the inlet valve (G).

The air will now by-pass the **SAR** which will automatically depressurise.

Without By-Pass Line (F)

Close the outlet valve (H). Close the inlet valve (G). The **SAR** will automatically depressurise.

NB - The by-pass valve (J) should only be opened if the dryer is undergoing maintenance.

3. MAINTENANCE RECOMMENDATIONS

WEEKLY

1. Ensure drain function/operation on all upstream drains is satisfactory.

2. Ensure that changeover occurs approximately every 2 minutes.

3. Check all gaskets, control valves, pipes and fittings for air leaks.

4. Ensure moisture indicator crystals are blue.

The desiccant material used has a finite life but would typically exceed 10,000 hours. Desiccant replacement should be undertaken at this interval or when it has become contaminated.

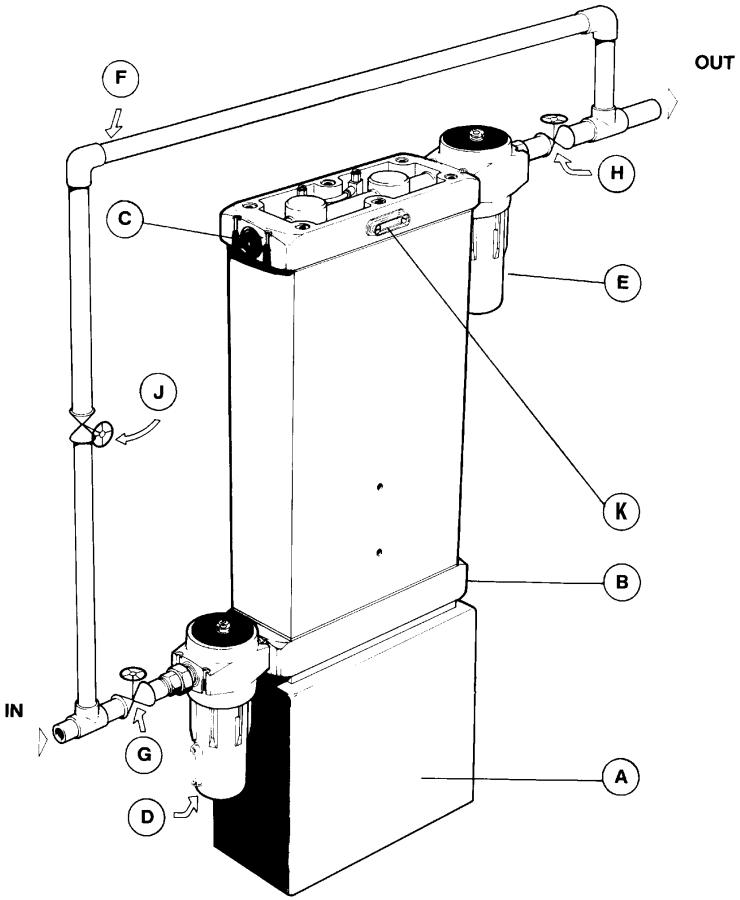
The filter elements also have a finite life typically lasting 6,000 to 8,000 hours.

For desiccant changes or any other maintenance operation, service kits are available.

FAULT DIAGNOSTICS TABLE

Problem	Indication	Probable Cause	Remedy
Poor Dewpoint	Moisture Content Indicator (Mauve)	Entrained water Insufficient purge Inlet pressure too low Air Flow demand too high Inlet temperature too high Contaminated desiccant	Check pre-filter/drain Check & reset purge rate Check inlet pressure Check for recent additions to compressed air systems Check and rectify inlet temperature Check and replace desiccant and trace source of contamination
High $\triangle$ p In/Out	Pressure Gauges	Excessive outlet flow Saturated inlet elements or blocked outlet elements	Check and regulate outlet flow Replace filter elements
Failure to Changeover	Poor Dewpoint	Cam Timer not rotating	Adjust screw on air motor
Failure to Purge	No depressurisation Loss of dewpoint	Purge orifice closed	Reset purge orifice

Figure 1



KEY

A	Control Box
B	Inlet Plug
C	Outlet Plug
D	SULLAIR Grade MPF Inlet Filter
E	SULLAIR Grade MPF Outlet Filter
F	By-Pass Line
G	Inlet Valve
H	Outlet Valve
J	By-Pass Valve
K	Moisture Indicator

Delivered Air Quality	Particulate removal down to 0.1 micron*
	Oil mist less than 0.01 mg/m^{3*}
Pressure Dewpoint	-40^{o}C (for -70^{o}C PDP derate by 30%)
Purge	Set for 6 bar g min operating pressure
Finish	Anti corrosion/abrasion resistant epoxy paint
Minimum Working Pressure	4 bar g (58 psi g)$^{+}$
Maximum Working Pressure	10.5 bar g (152 psi g)$^{+}$
Minimum Inlet Temperature	5^{o}C (41^{o}F)$^{+}$
Maximum Inlet Temperature	50^{o}C (122^{o}F)$^{+}$

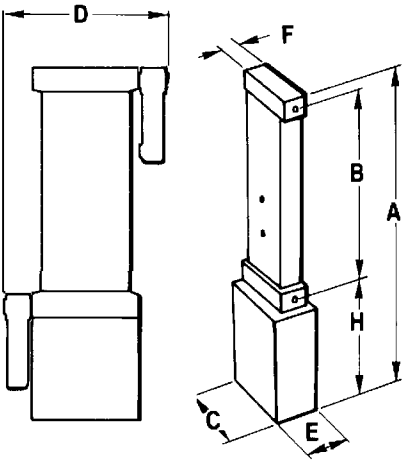
* IMPORTANT NOTE
To achieve the performance level stated, the **SAR** must be protected immediately upstream by a Sullair grade MPH filter (included). Installation of a Sullair Outlet filter (included) downstream will in addition remove any traces of desiccant dust carryover.

** Flow rates @ 35^{o}C (95^{o}F) approach temp.

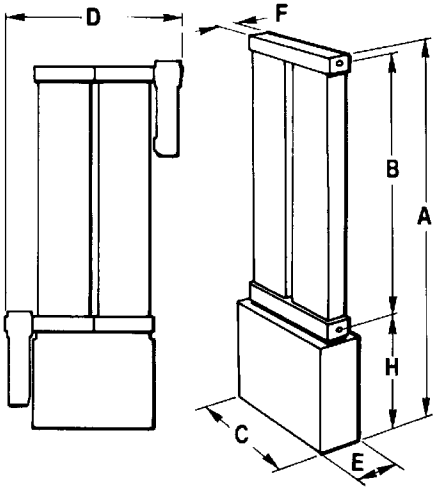
*** In adverse conditions ie. extremely dirty compressed air a General Purpose grade MPF filter is also recommended.

$^{+}$ These figures are design limits. Please note that for minimum operating pressures other than 7 bar g (100 psig) and approach temperature other than 35^{o}C (95^{o}F), correction factors must apply.

SAR024 (P) - SAR088 (P)



SAR106 (P) - SAR175 (P)



Model	Flow Rate**		Dimensions in mm							Pipe size	Weight. kg	Weight lbs
	scfm@ 100 psig	Nm³/h 7 barg	A	B	C	D	E	F	H			
SAR024(P)	24	41	690	370	248	426	150	106	298	1/2"	24.7	54.3
SAR032(P)	32	54	856	536	248	426	150	106	298	1/2"	30.2	66.4
SAR042(P)	42	71	1021	701	248	426	150	106	298	1/2"	35.7	78.5
SAR053(P)	53	90	1186	886	248	426	150	106	298	1/2"	41.2	90.6
SAR065(P)	65	110	1515	1079	265	500	200	106	401	3/4"	51.7	113.7
SAR088(P)	88	149	1763	1327	265	500	200	106	401	3/4"	60.0	132
SAR106(P)	106	180	1400	918	526	760	200	106	451	1”	88.4	194.5
SAR129(P)	129	220	1566	1084	526	760	200	106	451	1”	101.4	223.1
SAR175(P)	175	298	1814	1332	526	760	200	106	451	1 1/4”	118.0	259.6

NOTES

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