

Atlas Copco Oil-condensate separators

OSC35 - 95 - 145 - 355 - 600 - 825 - 1200 - 2400

Operating and installation instructions – Parts list

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This instruction book meets the requirements for instructions specified by the machinery directive 98/37/EC and is valid for CE as well as non-CE labelled machines.

No. 2920 1541 01

Replaces 2920 1541 00

Registration code: APC FIL/ANC / 38 / 985

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1 Description

Compressed air leaving oil-injected compressors contains oil. During cooling of this air, oil-containing condensate is formed. OSC are designed to separate the major part of this oil from the condensate and absorb it in filters. OSC are insensitive to shocks and vibration because of the use of filters and can be used with all types of drains. The condensate meets the requirements of the environmental codes.

The number in the model designation is the air capacity of the compressor in litres per second (see section 7).

OSC35 up to -145 have two towers and are called two-step units.

OSC355 up to -1200 have three towers and called three-step units.

OSC2400 have six towers. They comprise two units with three steps.

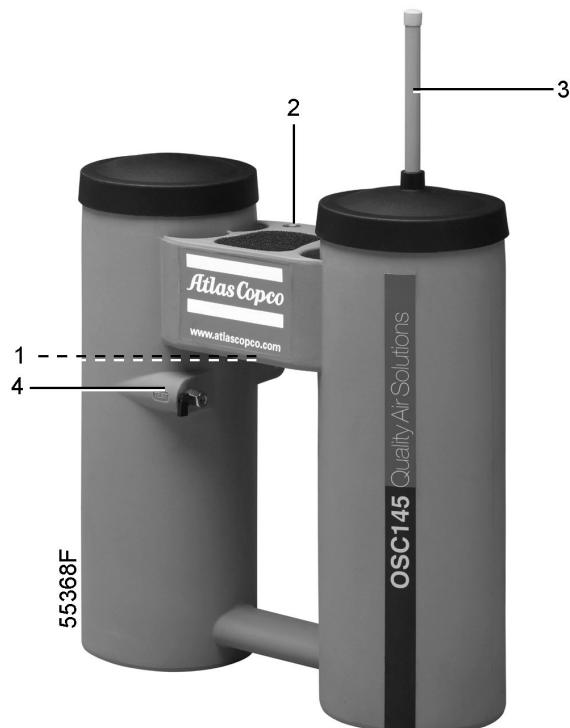
2 Operation (Fig. 1.2)

The condensate containing fine oil droplets enters the unit through mufflers (3) and is depressurised. The condensate flows to the first tower (5) and seeps through an oleophilic filter (4), which absorbs the larger part of the oil. The filter floats on the water and absorbs more oil. The more oil the filter absorbs, the deeper it will sink, and service indicator (2) will move downwards with the filter. The filter must be replaced when the service indicator is down.

On OSC35-145: The water in the first tower, containing a small part of oil, gradually flows to a second tower (8), where an activated carbon filter (7) is fitted. This filter absorbs almost all of the remaining oil.

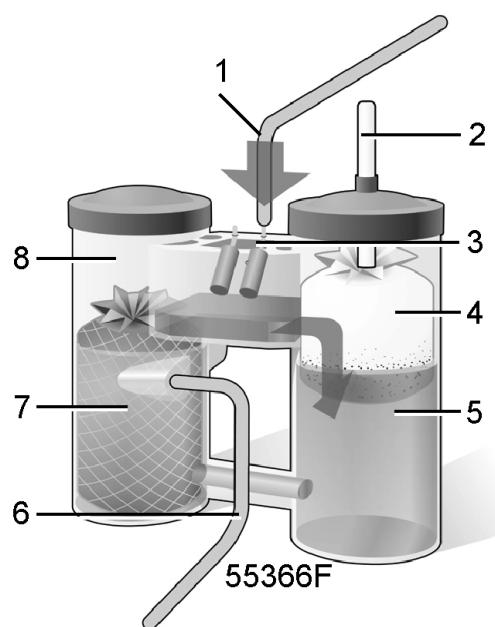
On OSC355-2400 (Fig 1.3): The water in the first tower, containing a small part of oil, gradually flows to a second tower (9), where two filters are fitted: a small oleophilic filter (6), which absorbs some more oil from the condensate, and an activated carbon filter (7). The activated carbon filter starts to absorb remaining oil in the condensate. The condensate gradually flows to a third tower (10), where another activated carbon filter is fitted, which absorbs almost all of the remaining oil.

The clean condensate is drained to the condensate outlet.



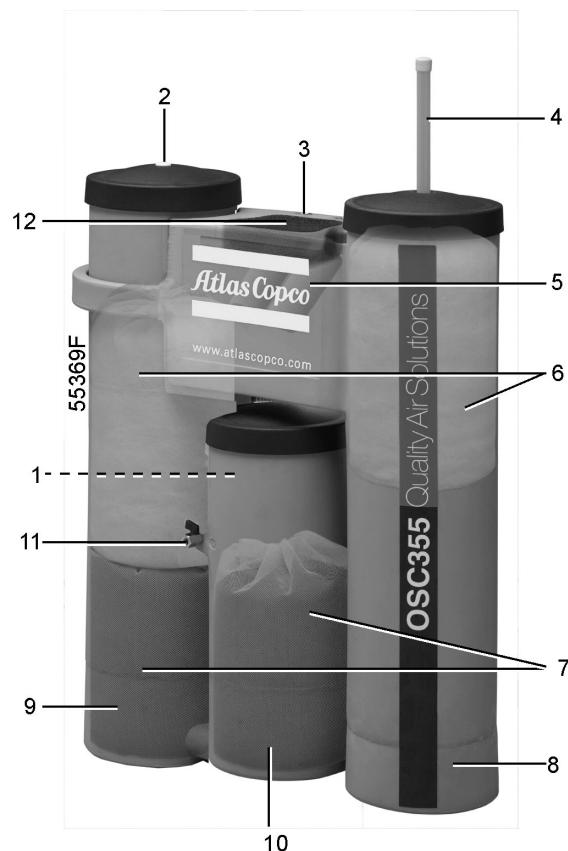
1	Condensate outlet
2	Condensate inlet
3	Service indicator
4	Test outlet

Fig. 1.1 View of OSC145



1	Condensate inlet
2	Service indicator
3	Mufflers
4	Oleophilic filter
5	First tower
6	Condensate outlet
7	Activated carbon filter
8	Second tower

Fig. 1.2 Flow diagram of the OSC35-145



1	Condensate outlet
2	Service indicator
3	Condensate inlet
4	Service indicator
5	Mufflers
6	Oleophilic filters
7	Activated carbon filters
8	First tower
9	Second tower
10	Third tower
11	Test outlet
12	Diffuser

Fig. 1.3 View of OSC355

3 Installation

Warning

Check the filters regularly as explained in section 5 in order to prevent untreated condensate from entering the sewer.

3.1 Dimension drawing (Fig 1.4)

Model	Dimensions				
	A	B	C	Shipping weight	Operating weight
	mm	mm	mm	kg	kg
OSC35	470	165	600	4	16
OSC95	680	255	750	13	51
OSC145	680	255	750	15	53
OSC355	750	546	900	25	80
OSC600	750	546	1030	26	103
OSC825	945	650	1100	28	151
OSC1200	945	695	1100	30	164
OSC2400	945	1185	1100	60	324

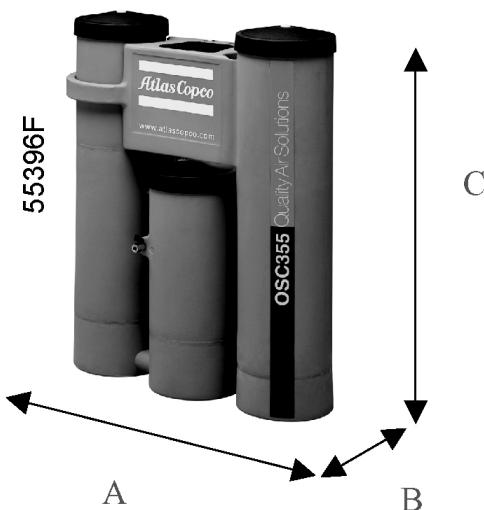


Fig. 1.4 Dimension drawing

3.2 Installation recommendations

The size of the connections on the unit:

Model	Connections	
	Inlet	Outlet
	inches BSP/NPT	inches BSP/NPT
OSC35	1 x 1/2	1 x 1/2
OSC95	2 x 1/2	1 x 1/2
OSC145	2 x 1/2	1 x 1/2
OSC355	2 x 3/4	1 x 3/4
OSC600	2 x 3/4	1 x 3/4
OSC825	2 x 3/4	1 x 3/4
OSC1200	2 x 3/4	1 x 3/4
OSC2400	2 x 3/4	1 x 3/4

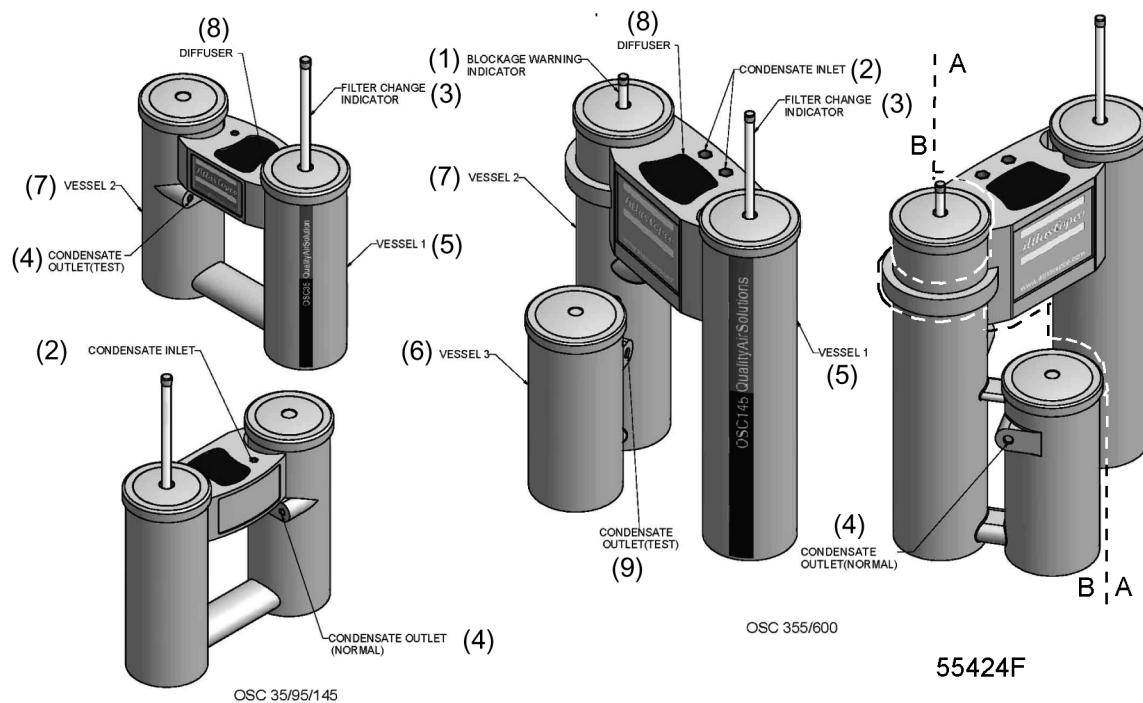


Fig. 1.5 OSC35-600

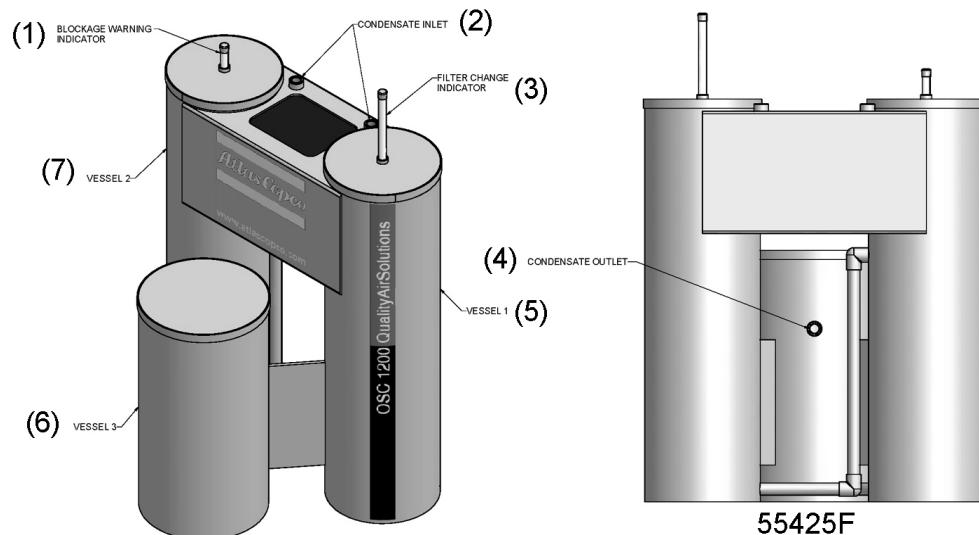


Fig. 1.6 OSC825-1200

Text on Fig. 1.6

- 1 Blockage service indicator
- 2 Condensate inlet
- 3 Service indicator
- 4 Condensate outlet
- 5 Tower 1
- 6 Tower 3
- 7 Tower 2
- 8 Diffuser
- 9 Condensate test outlet
- A Housing part 1
- B Housing part 2

- 1 **On OSC355 up to -600** if the three towers stand in one line (Fig. 1.3), rotate the third tower forward (Fig. 1.5).

Note: It is possible to operate the unit with the three towers in line. However, it is recommended to rotate the third tower as described above for easy change of the activated carbon filter in the third tower (10-Fig. 1.3). When the unit is operated with the towers in line, they have to be rotated in order to change the filter. Keep in mind that the unit in operation can be heavy (see the beginning of section 3.1).

- 2 Install the OSC on a level floor.

Note: Install the OSC in such a way that it remains accessible for easy filter change.

- 3 Stop the compressor and close the air outlet valve. Switch off the voltage. Depressurise the outlet piping by opening the manual condensate drain.
- 4 Connect the automatic drain of the compressor condensate trap to the condensate inlet (2-Fig. 1.5/1.6) of the OSC (see table, section 3.2). The connection can be made using one or both condensate inlets. The piping diameter must be at least 6 mm. The flexible must be laid out in such a way that no pockets are formed where condensate can collect. The feed line must never be laid out at floor level.
- 5 Connect the outlet of the OSC to the sewer. For OSC35 up to -145, use a pipe diameter of at least $\frac{1}{2}$ ". For OSC355 up to -2400, use a pipe diameter of at least $\frac{3}{4}$ ".

Important: The OSC must be positioned higher than the sewer and the OSC outlet piping must be installed with a slight downward slope to the sewer.

4 Putting into operation

Important:

- The plastic bag of the filters must be removed. Do not remove the net around the filters.
- The activated carbon filter in the second tower must be placed on the flow plate. **On OSC355-600**, do not remove the flow plate. On all other models, the flow plate is not removable.
- If the filters are not installed properly, oil-containing condensate can leave the OSC.
- Check that the activated carbon filters do not float. If necessary, hold them submerged until they remain down.
- When placing new activated carbon filters, the outgoing water may initially look black (carbon dust). The carbon water is not harmful.

4.1 OSC35-145

- 1 Remove the lid of the first tower. Take out the oleophilic filter and remove its bag.
- 2 Remove the lid and take the activated carbon filter out of the second tower. Put it back and check that the top of the filter is just below the condensate outlet. If not, check that the filter is resting on the flow plate.
- 3 Pour clean water into the unit until the water comes out of the condensate outlet.
- 4 Put the oleophilic filter on the water surface of the first tower. **Do not push the filter down.**
- 5 Put back the lids.

4.2 OSC355-1200

- 1 Remove the lids. Take the oleophilic filter out of the first tower and remove its bag.
- 2 Remove the bag from the activated carbon filter in the third tower. Put it back and check that the top of the filter is just below the condensate outlet. If not, check that the filter is placed at the bottom.
- 3 Take the small oleophilic filter and the activated carbon filter out of the second tower. Remove their bags. First put the activated carbon filter back, then the small oleophilic filter. Fit the lid and check that the service indicator is free to move.
- 4 Pour clean water into the unit until the water comes out of the condensate outlet.
- 5 Put the oleophilic filter back on the water surface of the first tower. **Do not push the filter down.**
- 6 Refit the lids.

4.3 OSC2400

The steps in section 4.2 must be done for the left side of the OSC and for the right side.

5 Maintenance

The filters should be checked daily (see sections 5.1 and 5.2).

Important:

- The activated carbon filter in the second tower must be placed on the flow plate. **On OSC355-600**, do not remove the flow plate. On all other models, the flow plate is not removable.
- If the filters are not installed properly, oil-containing condensate can leave the OSC.
- Check that the activated carbon filters do not float. If necessary, hold them submerged until they remain down.
- When placing new activated carbon filters, the outgoing water may look black (carbon dust). The carbon water is not harmful.
- All filters must be disposed of according to local regulations.
- Each new filter is provided with a label. Oleophilic filters have white labels. Activated carbon filters have black labels. The correct position of the filter is marked on the label.

5.1 Oleophilic filter(s)

The filter must be replaced when the service indicator (3-Fig. 1.1 and 4-Fig. 1.3) approaches the lid. The lifetime of the filter depends on the amount of oil in the condensate.

Note:

- Used filters can be heavy.
- When replacing the oleophilic filter, the mufflers and diffuser should be replaced as well.

- 1 Stop the compressor and close the air outlet valve. Switch off the voltage. Depressurise the outlet piping by opening the manual condensate drain.
- 2 Remove the lid of the first tower. Take out the oleophilic filter (4-Fig. 1.2 and 6-Fig. 1.3) and put it directly in its bucket. **On OSC355-1200**, remove the lid of the second tower. Remove the small oleophilic filter (6-Fig 1.3) and place it in its bucket.
- 3 Fit the correct new filter. Check the label. It is not necessary to clean the inside of the unit. **Do not push the filter below the water surface**. **On OSC355-1200**, if the activated carbon filter has to be replaced, do this first (see section 5.2). **Do not push the filter below the water surface**.
- 4 Fit the lid(s).
- 5 Remove the diffuser (12-Fig. 1.3) and pull out the mufflers (5-Fig. 1.3).
- 6 Fit the new mufflers and diffuser.

On OSC2400: Repeat the instructions for OSC355-1200 once for the left side of the unit and once for the right side of the unit.

5.2 Activated carbon filter(s)

The activated carbon filters must be replaced when:

- The oleophilic filters are changed for the second time.
- The water from test outlet (11-Fig. 1.3) (if provided) shows dark (carbon dust).
- The filter floats. **On OSC355-2400**, replace the filters when the service indicator (2-Fig. 1.3) is rising.

Note: If there is no test outlet, check the condensate outlet.

- 1 Stop the compressor and close the air outlet valve. Switch off the voltage. Depressurise the compressor by opening the manual condensate drain.
- 2 Remove the lid of the second tower. Take out the activated carbon filter (7-Fig. 1.2). **On OSC355-1200**, take out the small oleophilic filter and replace the activated carbon filter. Let the activated carbon filter drain and put it in its bucket.

Note: The dirty water in the tower should be removed and the tower should be cleaned before the filters are fitted.

- 3 Check the label and fit the correct new filter in the tower. Check the label. **On OSC355-1200**, put a new small oleophilic filter on top of the activated carbon filter. (See also section 5.1).
- 4 **On OSC355-1200**, remove the lid of the third tower. Remove the filter (7-Fig. 1.3) and fit a new one. Check the label on the filter.

Note: The dirty water in the tower should be removed and the tower should be cleaned before the filters are fitted.

- 5 Refill with clean water until it comes out of the condensate outlet.

On OSC2400: Repeat the instructions for OSC355-1200 once for the left side of the unit and once for the right side of the unit.

5.3 Faults and remedies

1	Due to malfunctioning of the compressor, a lot of lubricant entered the OSC
	Replace all filters. Clean the second and third towers thoroughly. If the first tower contains oil, it should be cleaned too. Check the compressor.

2	Condition	Fault	Remedy
	The service indicator (3-Fig. 1.1 and 4-Fig. 1.3) rises	Too much condensate flows into the OSC.	Check the compressor FAD (see section 7).
		The unit is clogged.	Replace carbon filters. Check the flexible between the first and the second tower.

6 Service kits (Fig. 1.7)

Your Atlas Copco Customer Centre will be glad to provide you with a wide range of service kits. Service kits comprise all parts needed for servicing components and offer the benefits of genuine Atlas Copco parts while keeping the maintenance budget low. See section 8.

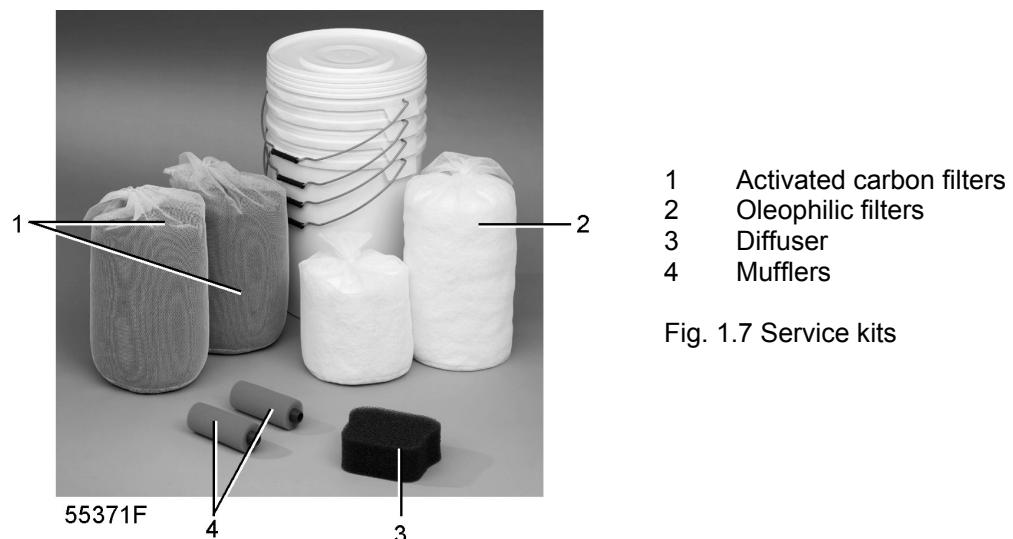


Fig. 1.7 Service kits

For each type of OSC, three service kits are available:

- Service kit A comprises the material to change the oleophilic filter(s) once. It is a kit for the first service after installation when the condensate is in normal condition. After this, service kit B can be used.
- Service kit B comprises the material to change the oleophilic filter(s) twice and the activated carbon filter(s) once. This kit should be used when the condensate is in normal condition. The lifetime of the carbon filter is twice as long as that of the oleophilic filter.
- Service kit C comprises the material to change the oleophilic filter(s) as well as the activated carbon filter(s) once. This kit should be used when the condensate contains a lot of oil, so that all the filters will be saturated at the same time.

Note: The service kits are delivered with diffuser, mufflers, buckets, gloves and coverall.

7 Technical data

7.1 Reference conditions

- The compressor runs at 7 bar(e) / 100 psig for 12 hours per day.
- All the condensate from the compressor, air receiver, filters and dryer (if provided) is piped to the unit.
- All capacities are based on an outlet oil content of 15 mg/l.
- Climate types:
 - Cold climate: ambient temperature of 15°C and relative humidity of 60%
 - Mild climate: ambient temperature of 25°C and relative humidity of 60%
 - Hot climate: ambient temperature of 35°C and relative humidity of 70%
- For poly-glycol based condensates, the capacity of each unit should be halved.

7.2 Installation with compressors, air receivers, filters and dryers

Model	Cold climate		Mild climate		Hot climate	
	Compressor FAD (l/s)	(cfm)	Compressor FAD (l/s)	(cfm)	Compressor FAD (l/s)	(cfm)
OSC35	65	138	35	75	17	36
OSC95	180	382	95	201	45	95
OSC145	270	572	145	307	70	148
OSC355	665	1410	355	753	170	360
OSC600	1150	2438	605	1283	290	615
OSC825	1550	3286	825	1749	400	848
OSC1200	2220	4706	1180	2502	570	1208
OSC2400	4440	9413	2360	5003	1145	2427

7.3 Installation with compressors, air receivers and filters

Model	Cold climate		Mild climate		Hot climate	
	Compressor FAD (l/s)	(cfm)	Compressor FAD (l/s)	(cfm)	Compressor FAD (l/s)	(cfm)
OSC35	105	223	45	95	20	42
OSC95	280	594	118	250	50	105
OSC145	415	880	175	371	75	160
OSC355	1035	2194	435	922	190	403
OSC600	1800	3816	760	1611	330	700
OSC825	2410	5110	1020	2162	440	933
OSC1200	3450	7315	1455	3085	630	1336
OSC2400	6895	14620	2910	6170	1260	2671

7.4 Correction factors

7.4.1 Running hours

If the running hours differ from 12 hours a day, take the appropriate correction factor and multiply it by the compressor capacity (FAD).

Hours run per day	8	10	12	14	16	18	20	22	24
Correction Factor	1.5	1.2	1	0.86	0.75	0.67	0.6	0.55	0.5

7.4.2 Separation performance

For an outlet oil carry-over of 10 mg/l instead of 15 mg/l, multiply the unit capacity by 2/3.

8 Spare parts

8.1 Service kits

8.1.1 OSC35

	Part Number
Service kit A	2901 1400 00
Service kit B	2901 1400 01
Service kit C	2901 1400 02

8.1.2 OSC95

	Part Number
Service kit A	2901 1401 00
Service kit B	2901 1401 01
Service kit C	2901 1401 02

8.1.3 OSC145

	Part Number
Service kit A	2901 1402 00
Service kit B	2901 1402 01
Service kit C	2901 1402 02

The service kits for OSC35 up to -145 comprise:

	Quantity, service kit A	Quantity, service kit B	Quantity, service kit C
Oleophilic filter	1	2	1
Activated carbon filter	0	1	1
Diffuser	1	2	1
Mufflers	1	2	1
Gloves	1	2	1
Buckets	1	3	2
Coverall	1	2	1

8.1.4 OSC355

	Part Number
Service kit A	2901 1403 00
Service kit B	2901 1403 01
Service kit C	2901 1403 02

8.1.5 OSC600

	Part Number
Service kit A	2901 1404 00
Service kit B	2901 1404 01
Service kit C	2901 1404 02

8.1.6 OSC825

	Part Number
Service kit A	2901 1408 00
Service kit B	2901 1408 01
Service kit C	2901 1408 02

8.1.7 OSC1200

	Part Number
Service kit A	2901 1409 00
Service kit B	2901 1409 01
Service kit C	2901 1409 02

The service kits for OSC355 up to -1200 comprise:

	Quantity, service kit A	Quantity, service kit B	Quantity, service kit C
Oleophilic filter	1	2	1
Small oleophilic filter	1	2	1
Activated carbon filter	0	2	2
Diffuser	1	2	1
Mufflers	1	2	1
Gloves	1	2	1
Buckets	2	6	4
Coverall	1	2	1

8.1.8 OSC2400

	Part Number
Service kit A	2901 1410 00
Service kit B	2901 1410 01
Service kit C	2901 1410 02

The service kits for OSC2400 comprise:

	Quantity, service kit A	Quantity, service kit B	Quantity, service kit C
Oleophilic filter	2	4	2
Small oleophilic filter	2	4	2
Activated carbon filter	0	4	4
Diffuser	1	2	1
Mufflers	1	2	1
Gloves	1	2	1
Buckets	4	12	8
Coverall	1	2	1

8.2 Spare parts

8.2.1 OSC35

Part	Part Number
Lid of the first tower (5-Fig. 1.2)	1622 2923 00
Second tower (8-Fig. 1.2)	1622 2924 00
Diffuser (12-Fig. 1.3)	1622 2926 00
Mufflers (3-Fig. 1.2)	1622 2925 00
Housing (unit without filers, lids, diffuser, mufflers and service indicator)	1622 2910 00

8.2.2 OSC95

Part	Part Number
Lid of the first tower (5-Fig. 1.2)	1622 2935 00
Second tower (8-Fig. 1.2)	1622 2936 00
Diffuser (12-Fig. 1.3)	1622 2938 00
Mufflers (3-Fig. 1.2)	1622 2937 00
Housing (unit without filters, lids, diffuser, mufflers and service indicator)	1622 2911 00

8.2.3 OSC145

Part	Part Number
Lid of the first tower (5-Fig. 1.2)	1622 2935 00
Second tower (8-Fig. 1.2)	1622 2936 00
Diffuser (12-Fig. 1.3)	1622 2938 00
Mufflers (3-Fig. 1.2)	1622 2937 00
Housing (unit without filters, lids, diffuser, mufflers and service indicator)	1622 2912 00

8.2.4 OSC355

Part	Part Number
Lid of the first and second tower (8 and 9-Fig. 1.3)	1622 2954 00
Lid of the third tower (10-Fig. 1.3)	1622 2955 00
Diffuser (12-Fig. 1.3)	1622 2957 00
Mufflers (3-Fig. 1.2)	1622 2956 00
Housing part 1 (only tower one of the unit without filter, diffuser, mufflers, lid and service indicator) (A-Fig. 1.5)	1622 2913 00
Housing part 2 (towers two and three of the unit without filters, lids and service indicators) (B-Fig. 1.5)	1622 2913 20
Flexible between first and second tower	1622 2953 01

8.2.5 OSC600

Part	Part Number
Lid of the first and second tower (8 and 9-Fig. 1.3)	1622 2954 00
Lid of the third tower (10-Fig. 1.3)	1622 2955 00
Diffuser (12-Fig. 1.3)	1622 2957 00
Mufflers (3-Fig. 1.2)	1622 2956 00
Housing part 1 (only tower one of the unit without filter, diffuser, mufflers, lid and service indicator) (A-Fig. 1.5)	1622 2914 00
Housing part 2 (towers two and three of the unit without filters, lids and service indicators) (B-Fig. 1.5)	1622 2914 20
Flexible between first and second tower	1622 2953 02

OWNERSHIP DATA

Compressor type:
Air dryer type:
Motor type:
Delivery date:
Service Plan:

Selected lubricants
Compressor:
Bearing grease type, electric motor:
Dryer gearbox:

Printed Matter Nos.
Atlas Copco compressor instruction book:
Atlas Copco compressor parts list:
Atlas Copco logbook:

Local Atlas Copco Representative
Name:
Address:
Telephone: Contact persons: Service:
Telex: Parts:
E-mail:
Unit serial No. compressor:
Unit serial No. dryer:
Motor serial No.:
First start-up date:
Owner's machine No.:

Capacity:

Capacity

Atlas Copco air dryer instruction book:

Atlas Copco air dryer parts list:

SAFETY PRECAUTIONS

To be read attentively and acted accordingly before installing, operating or repairing the unit.

These recommendations apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

In addition to normal safety rules which should be observed with stationary air compressors and equipment, the following safety directions and precautions are of special importance.

When operating this unit, the operator must employ safe working practices and observe all related local work safety requirements and ordinances.

The owner is responsible for maintaining the unit in a safe operating condition. Parts and accessories shall be replaced if unsuitable for safe operation.

Installation, operation, maintenance and repair shall only be performed by authorized, trained, competent personnel.

Normal ratings (pressures, temperatures, time settings, etc.) shall be durably marked.

Any modification on the compressor or air dryer shall only be performed in agreement with Atlas Copco and under supervision of authorized, competent personnel.

If any statement in this book, especially with regard to safety, does not comply with local legislation, the stricter of the two shall apply.

These precautions are general and cover several machine types and equipment; hence some statements may not apply to the unit(s) described in this book.

Installation

Apart from general engineering practice in conformity with the local safety regulations, the following directives are specially stressed:

1. A compressor or air dryer shall be lifted only with adequate equipment in conformity with local safety rules.

Loose or pivoting parts shall be securely fastened before lifting. It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Lifting acceleration and retardation shall be kept within safe limits.

Wear a safety helmet when working in the area of overhead or lifting equipment.

2. Any blanking flanges, plugs, caps and desiccant bags shall be removed before connecting up the pipes. Distribution pipes and connections shall be of correct size and suitable for the working pressure.

3. Place the unit where the ambient air is as cool and clean as possible.

If necessary, install a suction duct. Never obstruct the air inlet. Care shall be taken to minimize the entry of moisture with the inlet air.

4. The aspirated air shall be free from flammable fumes or vapours, e.g. paint solvents, that can lead to internal fire or explosion.
5. Air-cooled units shall be installed in such a way that an adequate flow of cooling air is available and that the exhausted air does not recirculate to the inlet.
6. Arrange the air intake so that loose clothing of people cannot be sucked in.
7. Ensure that the discharge pipe from the compressor to the aftercooler, air dryer or air net is free to expand under heat and that it is not in contact with or close to flammable material.
8. No external force may be exerted on the air outlet valve; the connected pipe must be free of strain.
9. If remote control is installed, the unit shall bear an obvious sign reading:

DANGER: This machine is remotely controlled and may start without warning.

As a further safeguard, persons switching on remotely controlled units shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the start equipment.

10. On units with automatic start-stop system, a sign stating "This machine may start without warning" shall be attached near the instrument panel.
11. In multiple compressor systems manual valves shall be installed to isolate each compressor. Non-return valves (check valves) shall not be relied upon for isolating pressure systems.
12. Never remove or tamper with the safety devices, guards or insulations fitted on the unit. Every pressure vessel or auxiliary installed outside the unit to contain air above atmospheric pressure shall be protected by a pressure-relieving device or devices as required.
13. Pipework or other parts with a temperature in excess of 80 degrees celsius and which may be accidentally touched by personnel in normal operation shall be guarded or insulated. Other high-temperature pipework shall be clearly marked.

SAFETY PRECAUTIONS (continued)

14. If the ground is not level or can be subject to variable inclination, consult *Atlas Copco*.
15. The electrical connections shall correspond to the local codes. The units shall be grounded and protected against short circuits by fuses.

Operation

1. Air hoses shall be of correct size and suitable for the working pressure. Never use frayed, damaged or deteriorated hoses. Use only the correct type and size of hose end fittings and connections. When blowing through a hose or air line, ensure that the open end is held securely. A free end will whip and may cause injury. Make sure that a hose is fully depressurized before disconnecting it.

Never play with compressed air. Do not apply it to your skin or direct an air stream at people. Never use it to clean dirt from your clothes. When using it to clean equipment, do so with extreme caution and use eye protection.

2. The compressor is not considered as capable of producing air of breathing quality. For breathing air quality, the compressed air must be adequately purified according to local legislation and standards.
3. Never operate the units when there is a possibility of taking in flammable or toxic fumes.
4. Never operate the units at pressures below or in excess of their limit ratings as indicated on the Principal Data sheet.
5. Keep all bodywork doors shut during operation. The doors may be opened for short periods only, e.g. to carry out checks. Wear ear protectors when opening a door.
6. People staying in environments or rooms where the sound pressure level reaches or exceeds 90 dB(A) shall wear ear protectors.
7. Periodically check that:
 - a All guards are in place and securely fastened
 - b All hoses and/or pipes inside the unit are in good condition, secure and not rubbing
 - c There are no leaks
 - d All fasteners are tight
 - e All electrical leads are secure and in good order
 - f Safety valves and other pressure-relief devices are not obstructed by dirt or paint
 - g Air outlet valve and air net, i.e. pipes, couplings, manifolds, valves, hoses, etc. are in good repair, free of wear or abuse
8. If warm cooling air from compressors is used in air heating systems, e.g. to warm up a workshop, take precautions against air pollution and possible contamination of the breathing air.
9. Do not remove any of, or tamper with, the sound-damping material.

Maintenance

Maintenance and repair work shall only be carried out under supervision of someone qualified for the job.

1. Use only the correct tools for maintenance and repair work.
2. Use only genuine spare parts.
3. All maintenance work, other than routine attention, shall only be undertaken when the unit is stopped, the main power supply is switched off and the machine has cooled down. Take positive precaution to ensure that the unit cannot be started inadvertently.

In addition, a warning sign bearing a legend such as "work in progress; do not start" shall be attached to the starting equipment.

4. Before removing any pressurized component, effectively isolate the unit from all sources of pressure and relieve the entire system of pressure.

5. Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapours of cleaning liquids.

6. Scrupulously observe cleanliness during maintenance and repair. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.

7. Never weld or perform any operation involving heat near the oil system. Oil tanks must be completely purged, e.g. by steam-cleaning, before carrying out such operations.

Never weld on, or in any way modify, pressure vessels.

Whenever there is an indication or any suspicion that an internal part of a machine is overheated, the machine shall be stopped but no inspection covers shall be opened before sufficient cooling time has elapsed; this to avoid the risk of spontaneous ignition of the oil vapour when air is admitted.

Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.

8. Make sure that no tools, loose parts or rags are left in or on the unit.

9. Before clearing the unit for use after maintenance or overhaul, check that operating pressures, temperatures and time settings are correct and that the control and shut-down devices function correctly. If removed, check that the coupling guard of the compressor drive shaft has been reinstalled.

10. Every time the separator element is renewed, examine the discharge pipe and the inside of the oil separator vessel for carbon deposits; if excessive, the deposits should be removed.

11. Protect the motor, air filter, electrical and regulating components, etc. to prevent moisture from entering them, e.g. when steam-cleaning.

12. Make sure that all sound-damping material, e.g. on the bodywork and in the air inlet and outlet systems of the compressor, is in good condition. If damaged, replace it by genuine *Atlas Copco* material to prevent the sound pressure level from increasing.

13. Never use caustic solvents which can damage materials of the air net, e.g. polycarbonate bowls.

14. The following safety precautions are stressed when handling refrigerant:
 - a Never inhale refrigerant vapours. Check that the working area is adequately ventilated; if required, use breathing protection.

- b Always wear special gloves. In case of refrigerant contact with the skin, rinse the skin with water. If liquid refrigerant contacts the skin through clothing, never tear off or remove the latter; flush abundantly with fresh water over the clothing until all refrigerant is flushed away; then seek medical first aid.
 - c Always wear safety glasses.

15. Protect hands to avoid injury from hot machine parts, e.g. during draining of oil.

Note: With stationary machine units driven by an internal combustion engine, allowance has to be made for extra safety precautions, e.g. spark arrestors, fuelling care, etc. Consult *Atlas Copco*.

All responsibility for any damage or injury resulting from neglecting these precautions, or by non-observance of ordinary caution and due care required in handling, operating, maintenance or repair, even if not expressly mentioned in this book, will be disclaimed by *Atlas Copco*.