elcometer

User Guide

Elcometer Air Distribution Manifold (ADM) - 15 bar (217 psi)

⚠ WARNING

Read and understand this use guide before using this machine.

Failure to follow operating instructions could result in death, serious injury or damage to equipment.

Elcometer Air Distribution Manifolds have been designed to be safe when properly used and are designed, manufactured and tested in accordance with both the Pressure Equipment Directive (PED) and CE 2014/68/EU. It is imperative that all users of this machine read and fully understand this user guide BEFORE using or servicing any portable air distribution manifold.

CONTENTS

For the avoidance of doubt, please refer to the original English language version of this user guide. The most recent version is available to download via the blasting section of the Elcometer website, www.elcometer.com/blasting.

Please ensure that all product packaging is disposed of in an environmentally sensitive manner. Consult your local Environmental Authority for further guidance.

1 DECLARATION OF CONFORMITY

We, Elcometer Limited, declare that the supplied equipment when installed and used in accordance with these operating instructions, complies with the requirements of the EU Directives listed within this declaration by meeting the following standards:		
UNITS WITH SERIAL NUMBERS 06309 AND EARLIER		
2014/68/EU	Pressure Equipment Directive	
To the Intent of PD 5500:2015+A3:2017 Category 3	Specification for unfired fusion welded pressure vessels	
Conformity assessment module:	Module B (examination type) & Module D	
Name and address of the notified body:	ZURICH ENGINEERING Zurich Engineering Technical Centre, Unit 3, Steelpark, Wednesfield, WV11 3BF	
Identification number:	0037	
Certificate number:	ADM75 ADM150	PS18-1106 / 001 PS18-1106 / 002
UNITS WITH SERIAL NUMBERS FROM 06310 ONWARDS		
2014/68/EU	Pressure Equipment Directive	
To the Intent of PD 5500:2018+A2:2019 Category 3	Specification for unfired fusion welded pressure vessels	
Conformity assessment module:	Module B (production type) & Module D	
Name and address of the notified body:	Lloyd's Register Verification Ltd 71 Fenchurch Street, London, EC3M 4BS	
Identification number:	0038	
Certificate number:	O-37260	

2 PRODUCT IDENTIFICATION

There is a product identification plate rivetted to the front of the machine stating the following information:

- Model and Serial Number;
- Maximum Working Pressure (bar / psi);
- Operating Temperature (°C/°F);
- Capacity (litre / cu ft);
- Test Pressure (bar / psi);
- Date of test (d/m/y);
- Year of Construction;
- Pressure Directive

3 WARNINGS & SAFETY PRECAUTIONS

The warnings and safety precautions included within this user guide are for the health and safety of both the operator and any person within the immediate vicinity.

1 This air distribution manifold has been designed to be safe when used in the proper manner, any person intending to operate or service this machine or any person intending to be in the vicinity of this machine MUST receive proper training from a fully trained and competent supervisor, employer, or supplier BEFORE use.

2 Any person intending to operate this machine or any person intending to be in the vicinity of this machine who is unable to read and fully understand these operating instructions must be made fully aware of all dangers, warnings and safety notices within this instruction manual and its safe operation, BEFORE use, by a fully trained and competent supervisor, employer, or supplier.

3 Never use damaged or malfunctioning equipment. Inspect the air distribution manifold, abrasive blast machine and any personal protective equipment to ensure that it is in good working order before each use.

4 Do not operate this air distribution manifold unless there is an appropriate safety pressure relief valve within the pressurised system as a whole. The maximum working pressure for this air distribution manifold is 15bar (217psi). Once fitted, the safety pressure relief valve will vent the pressurized system should the pressure within the system exceed the maximum rating of the safety pressure relief valve. If one is not located within the system already, this machine has a 1.27cm (½”) port which can be used to fit an appropriate safety pressure relief valve - see Section 5 ‘Product Overview’ on page en-10 for the connection point, see Section 10 ‘Pressure Relief Valves’ on page en-19 for part numbers. Contact Elcometer for more information.

5 Do not use this machine in areas that could be considered to be a hazardous location. Ensure that the machine is positioned on flat horizontal ground to avoid accidental tip over.

6 Do not operate or be in the vicinity of this machine without appropriate personal protective equipment including, but not limited to, protective clothing, approved breathe air respirators/ filters, abrasive blast helmets, foot, eye and ear protection.

3 WARNINGS & SAFETY PRECAUTIONS (continued)

7 Appropriate warning signs should be positioned around the blasting area of operation and measures must be taken to ensure that only permitted personnel, wearing appropriate personal protection equipment enter the area of operation.

8 Should any person enter the area of operation who is not wearing sufficient personal protection equipment, the Abrasive Blast Machine Tender (Pot Tender) must immediately shut down the abrasive blast machine by opening the safety petcock valve (red handle) situated on the Elcometer RCV4000 remote control valve and/or the abrasive blaster must release the lever of the remote control handle.

9 This air distribution manifold contains a pressurised vessel which will contain a large amount of stored energy which can cause serious injury or death if safety procedures are not followed. DO NOT carry out any maintenance or attempt to open any connection ports of this pressure vessel for any reason without first de-pressurising the system and disconnecting the compressed air hose (sometimes referred to as a bull hose) from the machine.

10 This machine or any other pressurised vessel MUST be depressurised and disconnected from the air supply BEFORE any maintenance is carried out.

11 Do not modify, re-configure, weld, grind or blast this machine, or its control system without written confirmation from Elcometer or an Elcometer authorized blasting distributor. Doing so will void your certification and may damage your air distribution manifold.

12 Do not use this machine for anything other than in the manner that it is intended.

13 The repair or replacement of any part of this air distribution manifold must only be carried out using Elcometer authorized replacement parts. Use of non-Elcometer approved parts may result in equipment failure which may result in serious injury or death. Use of non-Elcometer authorized parts will void all warranties. For a complete list of repair/replacement items, see Section 9 on page en-16.

14 Only use compressed air in this machine which is free from debris. Failure to do so can cause an unsafe situation. Do not supply compressed air to this machine which exceeds 15bar / 217psi.

3 WARNINGS & SAFETY PRECAUTIONS (continued)

15 Appropriate warning signs should be positioned around the blasting area of operation and measures must be taken to ensure that only permitted personnel, wearing appropriate personal protection equipment enter the area of operation.

16 Compressed air can be dangerous. Ensure that all precautions relating to the use of compressed air and compressors are carried out.

17 This machine is heavy. Do not attempt to lift without the use of appropriate lifting facilities.

18 Only lift this unit using the appropriate lifting lugs and do not exceed the maximum lifting weight – see Section 6 ‘Technical Specification’ on page en-11 for further information.

19 Do not use this machine if tired or under the influence of drugs or alcohol. Please read any prescription drug information to determine if your judgment or reflexes may be impaired. If in doubt do not operate this machine.

20 Fully drain the air distribution manifold periodically during use and ensure the drain valve is set to permanently “spit”. Closing the drain valve will cause the risk of water/moisture surging into the machine and will cause a shut down.

21 Valves, pipework, hose, gaskets and couplings are all subject to wear and should be checked daily to ensure that they are in safe working order at all times.

22 Temperature can affect the properties of the steel, and as the air distribution manifold is under pressure, this machine MUST NOT be used outside of the machine's allowable surface temperature range which is displayed on the pressure plate (0-60ºC / 32-140ºF). Failure to do so could result in the rupture of the pressure vessel which could cause serious injury or death. Please note that the machine temperature may be higher than the ambient temperature due to solar heating.

23 To avoid accidental disconnection, ensure that all hose is correctly connected and fastened with appropriate coupling safety pins and whip checks are installed at each connection.

24 Do not point or aim the hose at any person or any loose object.

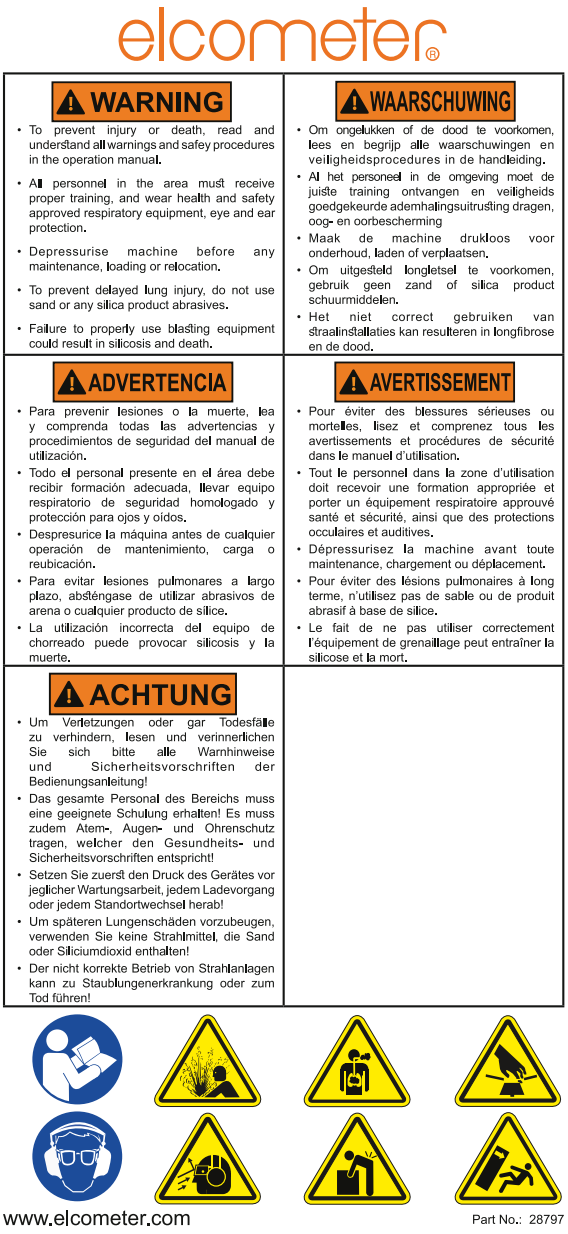
25 Remove all water from the machine before transporting or tipping the machine on its back.

3 WARNINGS & SAFETY PRECAUTIONS (continued)

26 Ensure that all warning labels are attached, in the correct locations and are clearly visible at all times. Warning labels must never be covered. For correct placement see Section 4 ‘Safety Symbols and Safety Label Information’ on page en-7.

4 SAFETY SYMBOLS & SAFETY LABEL INFORMATION

4.1 ELCOMETER AIR DISTRIBUTION MANIFOLD LABEL



Part Number: MT28797
Quantity: 1
Location(s): 1

To prevent injury or death, read and understand all warnings and safety procedures in the user guide.

All personnel in the area must receive proper training and wear health and safety approved respiratory equipment, eye and ear protection.

Depressurise machine before any maintenance, loading or relocation.

To prevent delayed lung injury, do not use sand or any silica product abrasives.

Failure to properly use blasting equipment could result in silicosis and death.

	Read and understand the user guide before using this machine. Failure to follow the operating instructions could result in death, serious injury or damage to equipment.
	Pressurised vessel. Propelled objects will cause serious injury or death. Depressurise vessel before performing any maintenance. cont...

4 SAFETY SYMBOLS & SAFETY LABEL INFORMATION (cont.)

	Incorrect or damaged handway / manway cover components can result in failure. Servicing whilst pressurised can cause severe injury. LOCK OUT source and RELIEVE PRESSURE before servicing. Consult this user guide for instructions.
	This product and associated equipment are not under any circumstances to be used with sand or silica products of any type and use of such materials will void any warranty.
	Pinch point. Keep hands and fingers clear.
	Loud noise and flying debris hazards. Ear and eye protection must be worn. The manufacturer, distributor or reseller assume no responsibility arising from the failure to use proper safety equipment or the failure to properly train employees in the use of products and equipment.
	Loud noise and flying debris hazards. Ear and eye protection must be worn. The manufacturer, distributor or reseller assume no responsibility arising from the failure to use proper safety equipment or the failure to properly train employees in the use of products and equipment.
	Lifting hazard. Single person lift could cause injury. Get help or use lifting machinery when lifting.

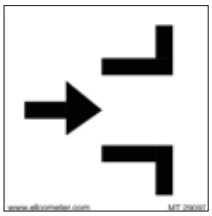
4 SAFETY SYMBOLS & SAFETY LABEL INFORMATION (cont.)

	Crush hazard. This machine and heavy objects being blasted can tip causing serious injury or death. This machine and any objects being blasted must be on level ground.

4.2 PRESSURE RELIEF DEVICE IN THIS AREA

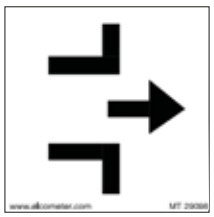
Part Number: MT29028
Quantity: 3
Location(s): 3

4.3 AIR INLET POINT



Part Number: MT29097
Quantity: 1
Location(s): 1

4.4 AIR OUTLET POINT



Part Number: MT29098
Quantity: 1
Location(s): 1

5 PRODUCT OVERVIEW

a) Product Identification Plate
b) Air Outlet Points - x5 or x6 depending on model[1]
c) Lifting Lugs
d) Pressure Relief Valve Connection Point[2]
e) Air Inlet Point[1](on the rear) - x1
f) Drain Valve
g) Earthing Point (uncoated area on underside of front leg)
h) Securing Hole (for fastening to the floor or a structure)

[1] See Section 6 ‘Technical Specification’ on page en-11 for further details.
[2] See Section 10 ‘Pressure Relief Valves’ on page en-19 for further details.

6 TECHNICAL SPECIFICATION

Model	ADM75	ADM150	ADM300
Maximum Working Pressure	15 bar (217 psi)		
Operating Temperature	0 - 60ºC (32 - 140ºF)		
Air Inlet Point(s)	1 x 2" BSP		1 x 3" BSP[3]
Air Outlet Point(s)	1 x 2" BSP[4] 4 x 1¼” BSP		2 x 2" BSP[4] 4 x 1¼" BSP
Pressure Relief Valve Outlet	1 x 1" BSP[5]		
Drain Outlet	1 x 3/4" BSP Ball Value		
Volume (approximate)	75L (2.6 cu ft)	150L (5.3 cu ft)	300L (10.6 cu ft)
Vessel Diameter (nominal)	353mm (13.9”)	492mm (19.4”)	604mm (23.8")
Height (maximum)	1155mm (45.5”)	1155mm (45.5”)	1365mm (53.8”)
Width (maximum)	663mm (26.1")	762.3mm (30")	846mm (33.3")
Weight (empty)	90kg (198.4lb)	125kg (275.6lb)	205kg (452lb)
Lifting Lug Weight (maximum)	1500kg (3300 lb)		

[3] With 3" to 2" removable reducing bush fitted.
[4] With 2" to 1½" removable reducing bush fitted.
[5] To fit Elcometer PRV, a ½” reducing bush is required.

7 INSTALLATION CHECKLIST

7.1 LOCATING THE ADM

- Whilst portable ADM's can be wheeled to the blast location, ADM's must only be lifted using the lifting lugs located at the top of the pressure vessel.
- When lifting the ADM, only use the lifting lugs, never attempt to strap to any other part of the ADM. Disconnect the air supply prior to lifting.
- Ensure that the ADM is located in a stable position, is level and in an upright position and upwind of the abrasive blast machine. The compressor should not be located within the blast area.
- A securing hole is located on the front leg plate should the ADM need to be fastened to the floor or a structure.
- Position the ADM so that there is easy access to all parts of the ADM.

7.2 EARTHING THE ADM

- All Elcometer ADM's have an uncoated area on the underside of the front leg plate which is designed to earth the machine during use.
- DO NOT connect an earthing wire to the ADM's chassis as this will not guarantee an electrical connection.

7.3 COMPRESSED AIR SUPPLY LINE

- DO NOT exceed the maximum working pressure of the ADM at any time. This is clearly marked on the product identification plate on the front of the machine and referenced in Section 6 'Technical Specification' on page en-11.
- Only use components that are rated to this working pressure. Elcometer approved components are rated to work safely with all Elcometer ADMs.

7 INSTALLATION CHECKLIST (continued)

7.4 PERSONAL PROTECTION EQUIPMENT (PPE)

- Suitable and approved PPE should be used by all personnel within the blast area which should include, but not limited to: protective clothing, gloves, eye and ear protection, air filtration and respirators and air quality monitors such as a carbon dioxide monitor. A range of PPE is available to purchase from Elcometer or your local Elcometer supplier, see www.elcometer.com/blasting for further details.
- To ensure clear communication between the person blasting (Blaster) and the Abrasive Blast Machine Tender (Pot Tender) at all times, either a form of signalling should be agreed between both parties, or a communications system, such as an in helmet communication device, should be used.

7.5 PRESSURE RELIEF VALVE (PRV)

- A pressure relief valve (PRV) is a safety valve used to limit the pressure within the system and is designed to protect the abrasive blast machine from exceeding its maximum working pressure.
- A PRV is used in the blast system for safety and it is the owner's responsibility to ensure that a PRV is fitted which meets the local regulations where the ABM is to be used.
- If the compressed air system does not already have a suitable location, Elcometer ABMs have a PRV location on the air manifold below the Elcometer Remote Control Valve (RCV4000). Alternatively, all Elcometer ADMs can be fitted with the appropriately rated PRV for the entire system, see Section 5 'Product Overview' on page en-10 for the connection point, see Section 10 'Pressure Relief Valves' on page en-19 for part numbers.

Note: Whilst the ADM has a maximum working pressure of 15 bar (217 psi), other components within the blast system, such as the abrasive blast machine, may have a lower maximum working pressure. Always select a PRV for the lowest maximum working pressure within the system.

8 USING THE ELCOMETER ADM

Read and understand the user guide before using this machine.

Failure to follow the operating instructions could result in death, serious injury or damage to equipment.

This section should be read alongside the Elcometer ADM drawings in Section 9 on page en-16.

8.1 SWITCHING ON THE COMPRESSED AIR SUPPLY

1 Referring to the air compressor manufacturer's instructions, ensure that the air compressor is regulated so that the pressure does not exceed the maximum working pressure of the blast system.
Note: Whilst the ADM has a maximum working pressure of 15 bar (217 psi), other components within the blast system, such as the abrasive blast machine, may have a lower maximum working pressure.

2 Check that the air supply hose is securely connected and appropriate locking pins and whip checks are attached correctly. Ensure that the ABM's safety petcock (red tap handle) located on the remote control valve (RCV4000) is open. The valve is open when the red tap handle is in line with the silver tap body.

3 Switch on the air compressor and open the outlet valve to allow compressed air to flow to the ADM.

4 Adjust the drain valve, located on the bottom of the ADM so as to give a constant but slight bleed of the air/water vapor.

5 Switch on the air supply to the air fed helmet respirator and check that the correct amount of air is entering into the helmet. Refer to the helmet manufacturer's instructions as required.

6 Check that all personnel within the blast area are wearing appropriate PPE and, if safe to do so, close the red safety petcock valve (red tap handle) located on the remote control valve (RCV4000). The valve is closed when the red tap handle is at 90 degrees to the silver tap body.

In an emergency, opening the red safety petcock valve will depressurise the ABM and ADM.

8 USING THE ELCOMETER ADM (continued)

8.2 SHUTDOWN PROCEDURE

1 Isolate the air supply from the compressor by either shutting down the compressor or closing the valve on the compressor supply hose.

2 Fully depressurise the ABM following the instructions in the ABM user guide.

3 Depressurise the ADM by opening the drain valve at the bottom of the machine and / or the valve(s) on the air outlet point(s).

4 Making sure that the system has been fully depressurised and the air supply isolated, it is now safe to disconnect the air hose to the compressor and ABM.

9 SPARE PARTS

9.1 ELCOMETER 75L AIR DISTRIBUTION MANIFOLD

Item	Part Number	Description
1	MT30181	2" - 1½" BSP Reducing Bush
2	MT30183	2" BSPT Plain Plug Solid
3	MT30182	1½" BSPT Plain Plug Solid
4	MT30184	1¼" BSPT Plain Plug Solid (x4)
5	MT29681	1" BSPT Plain Plug Solid
6	MT30095	¾" (19mm) Ball Valve Handle
7	MT28610	¾" (19mm) Ball Valve Assembly (includes MT30095 Ball Valve Handle)
8	MT28636	250mm (9.8") Diameter Wheel
9	MT29697	Flat Washer - Pack of 8
10	MT29698	Split Cotter Pin - Pack of 4
11	MT29601	Protective Edging Strip (2.7m / 8.9ft)
-	MT29180	Elcometer Air Distribution Manifold Safety Label Kit

9 SPARE PARTS (continued)

9.2 ELCOMETER 150L AIR DISTRIBUTION MANIFOLD

Item	Part Number	Description
1	MT30181	2" - 1½" BSP Reducing Bush
2	MT30183	2" BSPT Plain Plug Solid
3	MT30182	1½" BSPT Plain Plug Solid
4	MT30184	1¼" BSPT Plain Plug Solid (x4)
5	MT29681	1" BSPT Plain Plug Solid
6	MT30095	¾" (19mm) Ball Valve Handle
7	MT28610	¾" (19mm) Ball Valve Assembly (includes MT30095 Ball Valve Handle)
8	MT28636	250mm (9.8") Diameter Wheel
9	MT29697	Flat Washer - Pack of 8
10	MT29698	Split Cotter Pin - Pack of 4
11	MT29601	Protective Edging Strip (2.7m / 8.9ft)
-	MT29180	Elcometer Air Distribution Manifold Safety Label Kit

9 SPARE PARTS (continued)

9.3 ELCOMETER 300L AIR DISTRIBUTION MANIFOLD

Item	Part Number	Description
1	MT30180	3" - 2" BSP Reducing Bush
2	MT30181	2" - 1½" BSP Reducing Bush
3	MT30183	2" BSPT Plain Plug Solid
4	MT30182	1½" BSPT Plain Plug Solid
5	MT30184	1¼" BSPT Plain Plug Solid (x4)
6	MT29681	1" BSPT Plain Plug Solid
7	MT30095	¾" (19mm) Ball Valve Handle
8	MT28610	¾" (19mm) Ball Valve Assembly (includes MT30095 Ball Valve Handle)
9	MT28636	250mm (9.8") Diameter Wheel
10	MT29697	Flat Washer - Pack of 8
11	MT29698	Split Cotter Pin - Pack of 4
12	MT29601	Protective Edging Strip (2.7m / 8.9ft)
-	MT29180	Elcometer Air Distribution Manifold Safety Label Kit

10 PRESSURE RELIEF VALVES

Pressure relief valves must be incorporated into the system to meet global safety standards and are designed to discharge the compressed air in the blast machine upon reaching the crack pressure.

Available to purchase from Elcometer or your local Elcometer supplier, Elcometer's certified pressure relief valves can be easily fitted to an Elcometer Air Distribution Manifold which is fitted to the RCV4000+ remote control valve.

Description	**Part Number**
½" (13mm) Certified Pressure Relief Valve; 12bar / 174psi, BSP	MT28606
½" (13mm) Certified Pressure Relief Valve; 15bar / 217psi, BSP	MT28607
1" - ½" (25mm - 13mm) Male-Female Reducing Bush, BSP (required for pressure relief valve)	MT30199
Pressure Gauge	MT30537
Pressure Gauge Connection Assembly (includes Pressure Gauge, T Piece, Bush, Nipple & Plug)	MT30539

11 CARE & MAINTENANCE

This air distribution manifold has been designed to be safe when used in the proper manner, any person intending to operate or service this machine or any person intending to be in the vicinity of this machine MUST receive proper training from a fully trained and competent supervisor, employer, or supplier BEFORE use.

Never use damaged or malfunctioning equipment. It is the responsibility of the owner and / or the user to ensure that this ADM is in good working order at all times and is pressure tested either by hydrostatic or pneumatic proofing methods, at intervals defined by Region, Country, County, Province or State Laws.

A preventative maintenance and inspection schedule should be in place to ensure that this ADM and any personal protective equipment is in good and safe working order at all times and before each use.

The ADM is a pressurised vessel containing a large amount of stored energy which can cause serious injury or death if safety procedures are not followed. DO NOT carry out any maintenance or attempt to open the pressure vessel for any reason without first de-pressuirising the system and disconnecting the compressed air hose (sometimes referred to as a bull hose) from the abrasive blast machine.

Note: This section should be read in conjunction with all other sections of these operating instructions.

MAINTENANCE TASK	FREQUENCY
Vessel integrity pressure testing via pneumatic or hydrostatic testing methods *Note: The ADM must be clean and dry before re-assembly as moisture and / or debris can cause equipment failure.*	As defined by your Region, Country, County, Province or State Laws
Exterior Damage Inspection Damage caused by dents, bumps, corrosion, etc. can make the ADM unsafe to use. If more than cosmetic damage, the ADM should be removed from service immediately and inspected by a qualified individual, and repaired or replaced as required.	Weekly

11 CARE & MAINTENANCE (continued)

MAINTENANCE TASK	FREQUENCY
Air Hose & External Pipework Inspect all air hose for weak or soft spots and abrasion, replace as needed. Check all external pipework for leaks, cracks, holes or other damage and repair or replace as required.	8 hourly

12 TRANSPORTATION & STORAGE

- Never attempt to wheel the machine over rough or uneven ground.
- This machine is heavy. DO NOT try to lift without the use of appropriate lifting facilities. Only lift using the lifting lugs and do not exceed the maximum lifting weight – see Section 6 ‘Technical Specification’ on page en-11 for further information.
- Always disconnect all air hoses from the ADM before moving.
- Always ensure the machine is covered when left unattended to prevent the ingress of rainwater and other foreign objects.
- For long term storage, Elcometer recommends turning the machine upside down to prevent condensation from settling in the base of the vessel.

13 WARRANTY STATEMENT

Elcometer Air Distribution Manifolds are covered by warranty for 12 months from the date of sale as long as they are fitted with Elcometer approved spares.

Except for fair wear and tear, Elcometer warrants products against defects caused by faulty design, materials or workmanship. At the company's discretion faulty equipment will be replaced or repaired, free of charge, if a fault develops within the warranty period. This warranty does not apply to consumable items.

Using non Elcometer approved spares and accessories will not only invalidate your warranty but, could result in death, serious injury or damage to equipment.