OPERATOR INSTRUCTION MANUAL

EQUALIZER™
AN ENERPAC BRAND

HP350SMINEX
HP350DMINEX
HP550SMINEX
HP550DMINEX
HP1000SMINEX
HP1000DMINEX

HYDRAULIC SEALED HAND PUMPS

EQUALIZER INTERNATIONAL LTD

www.equalizerinternational.com

CONTENTS

03/02/2022

1.

INTRODUCTION

The Equalizer™ HP-S hydraulic single-port sealed hand pump and HP-D hydraulic twin-port sealed hand pump replace the Equalizer P142 hydraulic hand pump.

The HP350SMINEX, HP550SMINEX, HP1000SMINEX and HP350DMINEX, HP550DMINEX and HP1000DMINEX are tailored for use with Equalizer International Ltd hydraulic equipment. Their output is regulated to 700 bar (10 000psi) and is delivered from an output port threaded ⅝" NPT.

The HP350SMINEX and HP350DMINEX can be used with any 700 bar (10 000 psi) rated hydraulic equipment with an oil capacity of 350 cc (21.4 in3) or less.
The HP550SMINEX and HP550DMINEX can be used with any 700 bar (10 000 psi) rated hydraulic equipment with an oil capacity of 550 cc (33.6 in3) or less.
The HP1000SMINEX and HP1000DMINEX can be used with any 700 bar (10 000 psi) rated hydraulic equipment with an oil capacity of 1000 cc (61.0 in3) or less.

The diaphragm oil reservoir means that, unlike conventional hand pump units, the HP-S and HP-D pump ranges are operable at all angles and are highly resistant to accidental spillage of hydraulic fluid.

PRESSURE RATING:

- **1st stage:** 13.8 bar (197 psi)
- **2nd stage:** 700 bar (10 000 psi)

The tools can be used in potentially explosive atmospheres and conform with the EU directive 2014/34/EU.

This manual contains information for the following tools:

- HP350SMINEX hydraulic single-port sealed hand pump, marked Ⓔx II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db, -5°C ≤ T_a ≤ 40°C
- HP350DMINEX hydraulic twin-port sealed hand pump, marked Ⓔx II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db, -5°C ≤ T_a ≤ 40°C
- HP550SMINEX hydraulic single-port sealed hand pump, marked Ⓔx II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db, -5°C ≤ T_a ≤ 40°C
- HP550DMINEX hydraulic twin-port sealed hand pump, marked Ⓔx II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db, -5°C ≤ T_a ≤ 40°C
- HP1000SMINEX hydraulic single-port sealed hand pump, marked Ⓔx II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db, -5°C ≤ T_a ≤ 40°C
- HP1000DMINEX hydraulic twin-port sealed hand pump, marked Ⓔx II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db, -5°C ≤ T_a ≤ 40°C

The units are designed for use in areas where explosion hazard zones 1 or 21 occur and meet the requirements for equipment group II category 2G and 2D (EPL Gb and Db). As required for category 2 equipment, all possible sources of ignition have been assessed that may occur during normal operation and possible malfunction.

Gases and vapours of Group IIB flammable liquids - ethylene group, temperature class T5. Group IIIC dust with a flash point of dust layer T90°C.

These tools have been designed and manufactured in accordance with the following transposed harmonised Europeran standards:

- EN 1127-1:2011 Explosive atmospheres. Explosion prevention and protection. Basic concepts and methodology;
- EN ISO 80079-36:2016 Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements
- EN ISO 80079-37:2016 Explosive atmospheres – Part 37: Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

2.

TOOL SAFETY

2.1
GENERAL SAFETY

These instructions cover the safe operation and maintenance of THE EQUALIZER **HP350SMINEX, HP550SMINEX, HP1000SMINEX, HP350DMINEX, HP550DMINEX** and **HP1000DMINEX** HYDRAULIC SEALED HAND PUMPS. The use of these tools should be as part of a broader task-based risk assessment, which should be carried out by the operation supervisor or other competent person.

Failure to comply with the safety information contained within this manual could result in personal injury or equipment damage. Read all instructions, warnings and cautions carefully, and follow all safety precautions.

The safety of the operator, any assisting personnel and the general public is of paramount importance. Always work in accordance with applicable national, local, site & company-wide safety procedures.

2.2
PERSONNEL COMPETENCY

Only personnel deemed competent in the use of mechanical and hydraulic equipment should use these tools.

2.3
DISCLAIMER

Equalizer cannot be held responsible for injury or damage resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. If in doubt as to the safety precautions and applications, contact Equalizer using the contact details at the back of this manual.

2.4
DEFINITION OF TERMS

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.

DO: an illustration showing how the tool should be used.

DON'T: an illustration showing an incorrect way to use a tool.

2.5
HAZARDS

IMPORTANT: Operator must be competent in the use of hydraulic equipment. The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the Equalizer equipment.

WARNING: To avoid personal injury and possible equipment damage, make sure all hydraulic components are rated to a safe working pressure of 700 bar (10,000 psi)

WARNING: Do not overload equipment. Overloading causes equipment failure and possible personal injury.

CAUTION: Make sure that all system components are protected from external sources of damage, such as excessive heat, flame, moving machine parts, sharp edges and corrosive chemicals.

CAUTION: Avoid sharp bends and kinks that will cause severe back-up pressure in hoses. Bends and kinks lead to premature hose failure.
Do not drop heavy objects onto hoses. A sharp impact may cause internal damage to hose wire strands; applying pressure to a damaged hose may cause it to rupture. Do not place heavy weights on the hoses, or allow vehicles to roll over the hoses; crush damage will lead to premature hose failure.

WARNING: Applying pressure to a damaged hose may cause it to rupture.

WARNING: Immediately replace worn or damaged parts with genuine Equalizer parts. Equalizer parts are designed to fit properly and withstand rated loads. For repair or maintenance service contact your Equalizer distributor or service centre.

WARNING: Periodic inspections and maintenance of ATEX certified equipment are essential in order to comply with legal requirements and avoid unsafe operation.

WARNING: Repairs and reconditioning of these tools may only be carried out by Equalizer or an approved distributor or service centre.

DANGER: To avoid personal injury keep hands and feet away from the tool and workpiece during operation.

WARNING: Always wear suitable clothing and Personal Protective Equipment (PPE).

DANGER: Do not handle pressurised hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, seek medical attention immediately.

WARNING: Never pressurize unconnected couplers. Only use hydraulic equipment in a connected system.

IMPORTANT: Do not lift hydraulic equipment by the hoses or couplers. Use the carrying handle or other means of safe transport.

CAUTION: Do not operate the equipment without lubricating all moving parts. Use only high pressure molybdenum disulphide grease.

CAUTION: Lubricate tools as directed in this manual prior to operation. Use only approved lubricants of high quality, following the lubricant manufacturer's instructions.

CAUTION: Electric charges could be caused by fast air movement while case remains open. Keep case closed during work

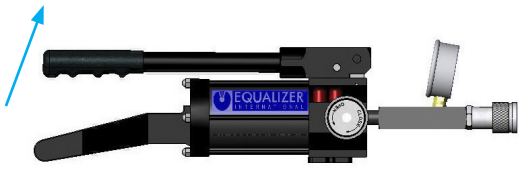
3.

GENERAL HAND PUMP OPERATION

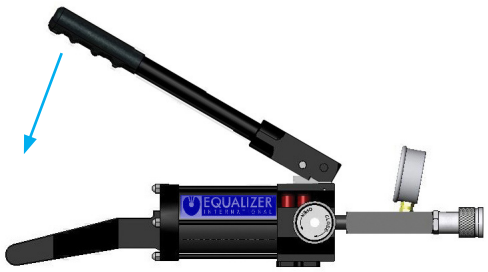
3.1
GENERAL GUIDANCE

The release valve is closed fully by rotating clockwise until hand tight

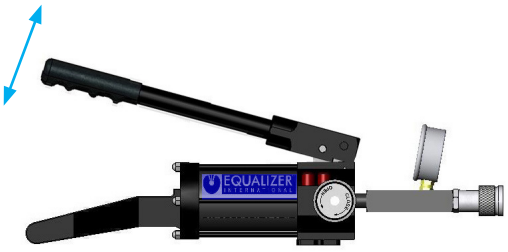
The pump handle is raised, which creates a vacuum in the piston chamber which sucks oil from the reservoir into the chamber



The pump handle is depressed, which pumps the oil from the chamber through the outlet port and into the system to which the pump is connected



Steps 2 & 3 are repeated, which will pump oil into the system until the maximum pressure of 700 bar (10 000 psi) is achieved, at which point the safety release valve will open and the oil will cycle back to the reservoir

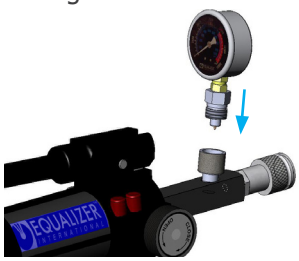


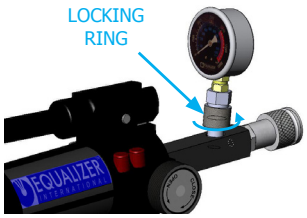
3.2
HP350SMINEX, HP550SMINEX & HP1000SMINEX INSTALLATION AND OPERATION

WARNING: Never attempt to pressurise the pump when the pressure gauge is not connected or the pump is not connected to a system.

DANGER: Always check the hydraulic system in which the pump is to be used, is rated for 700 bar (10 000 psi). Over pressurizing a hydraulic system will result in component failure and personal injury.

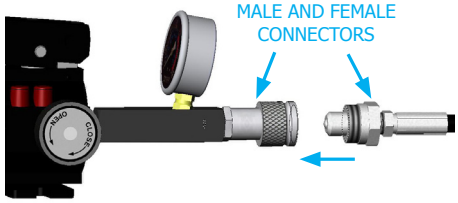
1. Prior to using the pump the hydraulic gauge must be fitted. Push the male connector on the gauge fully into the female connector on the gauge adaptor and rotate the locking ring counterclockwise until fully tight.

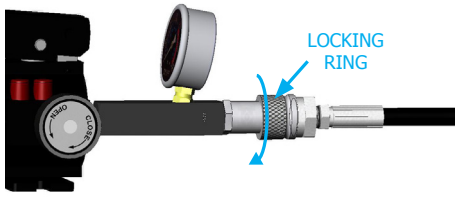




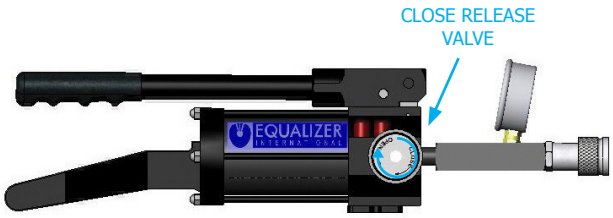
2. Ensure the hydraulic system you wish to pressurise has been bled and is free from air and leaks. Connect the pump into the system using the screw connector supplied with the pump, push the male and female connectors together fully and rotate the locking ring clockwise until fully tight.

WARNING: Never disconnect the pump or other components when the system is pressurised.





3. Close the release valve fully by rotating clockwise until hand tight.



4. Pressurise the system by raising and depressing the pump handle until the desired pressure is indicated on the pressure gauge. N.B. max. pressure 700 bar (10 000 psi).

5. To depressurise the system, gently open the release valve by rotating the release knob anti-clockwise

6. Once the system has been fully depressurised, the pump can be disconnected by unscrewing the connectors.

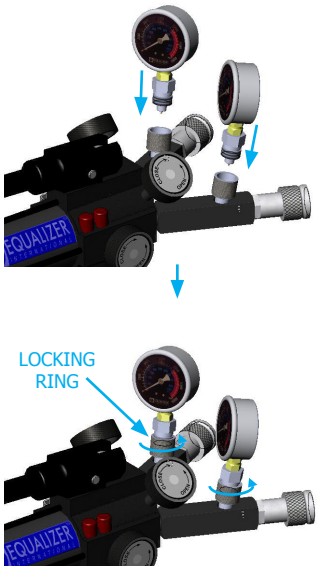
3.3
HP350DMINEX, HP550DMINEX & HP1000DMINEX INSTALLATION AND OPERATION

The HP350DMINEX, HP550DMINEX and HP1000DMINEX pumps have been designed for use with Equalizer maxi kit systems; however the HP350DMINEX, HP550DMINEX and HP1000DMINEX can be used in any situations where two separate hydraulic systems require to be pressurised and controlled independently by the same operator.

WARNING: Never attempt to pressurise the pump when the pressure gauge is not connected or the pump is not connected to a system.

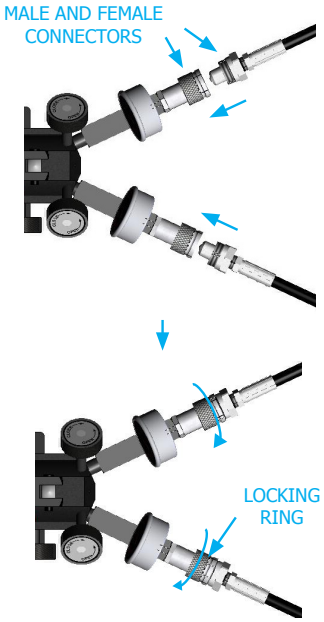
DANGER: Always check the hydraulic system in which the pump is to be used, is rated for 700 bar (10 000 psi). Over pressurizing a hydraulic system will result in component failure and personal injury.

1. Prior to using the pump, the hydraulic gauge must be fitted. Push the male connector on the gauges fully into the female connector on the gauge adaptors and rotate the locking ring counterclockwise until fully tight.

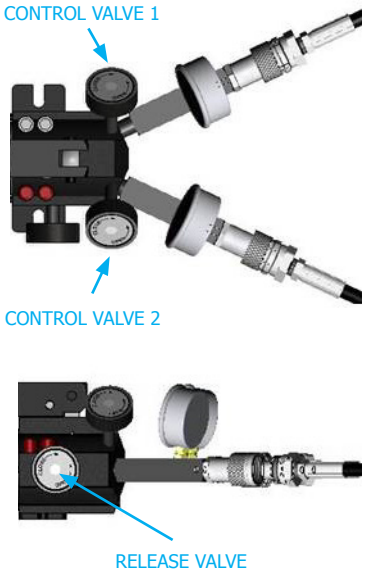


2. Ensure the hydraulic systems you wish to pressurise have been bled and are free from air and leaks. Connect the pump into the systems using the screw connectors supplied with the pump, push the male and female connectors together fully and rotate the locking rings clockwise unti fully tight.

WARNING: Never disconnect the pump or other componnents when the system is pressurised.



3. The HP-D pumps are fitted with two control valves and a release valve. This enables the operator to adjust the pressure on both hydraulic systems independently or simultaneously.



a. If control valves 1 and 2 are set to the fully open position and the release valve is screwed fully home, when the pump handle is raised and lowered both hydraulic systems will be pressurised to an equal pressure (max. 700 bar (10 000 psi)).

b. If control valve 1 is open and control valve 2 is closed with the release valve screwed fully home, when the pump handle is raised and lowered only the system connected to control valve 1 will be pressurised (max. 700 bar (10 000 psi)).

c. If control valve 2 is open and control valve 1 is closed with the release valve screwed fully home, when the pump handle is raised and lowered only the system connected to control valve 2 will be pressurised (max. 700 bar (10 000 psi)).

d. If after pressurising one system the control valve for the unpressurised system is opened then the pressure in both systems will adjust until they are equal.

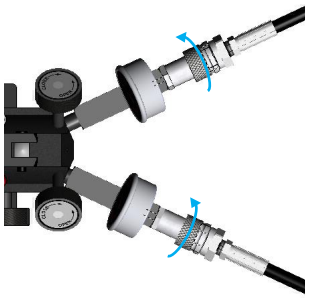
4.

a. To depressurise both systems simultaneously, open both control valves and gently open the release valve by rotating the release knob anti-clockwise.

b. To depressurise only one system, open only the control valve for that system and gently open the release valve by rotating the release knob anti-clockwise.

5. At any time, during pressurisation of the systems, the appropriate control can be closed to hold one system at a fixed pressure while the pressure in the other system can be increased by raising and lowering the pump handle or decreased by opening the release valve.

6. Once both systems have been fully depressurized the pump can be disconnected by unscrewing the couplers



4.

HAND PUMP MAINTENANCE

4.1 INSPECTION

A thorough inspection should be carried out prior to usage, storage or transportation to ensure the completeness and condition of the hand pump.

Inspection should include:

- visual inspection of the outer parts of the hand pump, checking for obvious damage, degradation or missing parts.
- visual inspection of the couplers and gauges, checking for obvious damage and degradation.

WARNING: Periodic inspections and maintenance of ATEX certified equipment are essential in order to comply with legal requirements and avoid unsafe operation.

4.2 CLEANING

To lightly clean the pump, wipe gently with a damp cloth.

If more thorough cleaning is required (for example following immersion in water) carry out the following cleaning procedure:

- strip the tool down, observing the schematics in section 8
- clean the components using detergent, following the manufacturer's guidelines
- rinse the components to remove traces of detergent
- dry the component thoroughly

Inspect, service and lubricate the tool immediately after the cleaning process.

4.3 MAINTENANCE

Replace missing, worn or damaged parts. Use only genuine Equalizer parts from approved distributors or service centres. Equalizer parts have been engineered and manufactured to be fit for purpose.

Lubricate all moving parts with light machine oil.

If topping or replacing hydraulic oil as part of a service, use only premium quality hydraulic oil of the grade 15 cSt.

4.4 STORAGE & TRANSPORTATION

Equalizer Hand Pumps should be stored in a cool, dry place. Tools should always be cleaned, serviced and lubricated prior to storage. Ensure that tools are stored in their designated packing cases.

4.5 SUB-SEA USAGE

The Equalizer range of HP hydraulic hand pumps are fitted with a sealed-bladder type reservoir system that allows for sub-sea operation.

4.6

LONG-TERM STORAGE - MAINTENANCE PLAN

1. Rub components down with a dry cloth to remove moisture.
2. Coat EVERY surface and contact point with a corrosion inhibitor. Where necessary, coat inside and outside of component e.g. VC10
3. Nuts and threads must also be coated with a corrosion inhibitor.
4. Once surfaces have been coated, seal individual components in clear plastic bags or clear vacuum bags or clear shrink wrap.
   NOTE: bags/shrink wrap must be clear for visibility. Take care when using shrink wrap that the tool is/ components are still easy to see.
5. Remove all or, where not vacuum sealed, as much air from bags as possible.
6. Once bags have been closed and sealed DO NOT re-open. Any visual inspections must be done with closed and sealed bags. If bags are opened the components will have to be dried, re-coated and re-sealed in bags/ shrink wrap.
7. Replace silica gel (100g) EVERY TIME the case is opened.
   NOTE: depending on moisture content of air, silica gel should be changed weekly.
8. Visually inspect kits after 30-days and every 30-days thereafter. Remember to replace silica gel before closing case.

5.

TECHNICAL SPECIFICATIONS

5.1
TECHNICAL DATA

	STAGE	HP350SMINEX	HP550SMINEX	HP1000SMINEX
PUMP TYPE		TWO SPEED	TWO SPEED	TWO SPEED
PRESSURE RATING	1st	13.8 bar (197 psi)	13.8 bar (197 psi)	13.8 bar (197 psi)
	2nd	700 bar (10 000 psi)	700 bar (10 000 psi)	700 bar (10 000 psi)
NOMINAL OIL CAPACITY		350 cc (21.4 in^3)	550 cc (33.6 in^3)	1000 cc (61.0 in^3)
USABLE OIL CAPACITY		300 cc (18.3 in^3)	580 cc (35.4 in^3)	1110 cc (67.7 in^3)
OIL VOLUME PER STROKE	1st	3.62 cc (0.221 in^3)	3.62 cc (0.221 in^3)	3.62 cc (0.221 in^3)
	2nd	0.77 cc (0.047 in^3)	0.77 cc (0.047 in^3)	0.77 cc (0.047 in^3)
MAX HANDLE EFFORT		33 kgf (72.75 lbf)	25 kgf (55.12 lbf)	21 kgf (46.30 lbf)
PISTON STROKE		18 mm (0.71″)	18 mm (0.71″)	18 mm (0.71″)
HYDRAULIC OIL		Grade 15 cSt	Grade 15 cSt	Grade 15 cSt

	STAGE	HP350DMINEX	HP550DMINEX	HP1000DMINEX
PUMP TYPE		TWO SPEED	TWO SPEED	TWO SPEED
PRESSURE RATING	1st	13.8 bar (197 psi)	13.8 bar (197 psi)	13.8 bar (197 psi)
	2nd	700 bar (10 000 psi)	700 bar (10 000 psi)	700 bar (10 000 psi)
NOMINAL OIL CAPACITY		350 cc (21.4 in^3)	550 cc (33.6 in^3)	1000 cc (61.0 in^3)
USABLE OIL CAPACITY		300 cc (18.3 in^3)	580 cc (35.4 in^3)	1110 cc (67.7 in^3)
OIL VOLUME PER STROKE	1st	3.62 cc (0.221 in^3)	3.62 cc (0.221 in^3)	3.62 cc (0.221 in^3)
	2nd	0.77 cc (0.047 in^3)	0.77 cc (0.047 in^3)	0.77 cc (0.047 in^3)
MAX HANDLE EFFORT		33 kgf (72.75 lbf)	25 kgf (55.12 lbf)	21 kgf (46.30 lbf)
PISTON STROKE		18 mm (0.71″)	18 mm (0.71″)	18 mm (0.71″)
HYDRAULIC OIL		Grade 15 cSt	Grade 15 cSt	Grade 15 cSt

5.2
KIT CONTENTS

HP350SMINEX KIT CONTENTS

Product Code: HP350SMINEX

1 x HP350SMINEX Pump Unit
1 x 700 bar (10 000 psi) Gauge
1 x ⅜" Port Gauge Adaptor
1 x Instruction Manual
1 x Cardboard Packaging

Packaging Dimensions:

250 mm x 180 mm x 600 mm
(9.84" x 7.09" x 23.62")

HP350DMINEX KIT CONTENTS

Product Code: HP350DMINEX

1 x HP350DMINEX Pump Unit
2 x 700 bar (10 000 psi) Gauges
2 x ⅜" Port Gauge Adaptors
1 x Instruction Manual
1 x Cardboard Packaging

Packaging Dimensions:

250 mm x 180 mm x 600 mm
(9.84" x 7.09" x 23.62")

HP550SMINEX KIT CONTENTS

Product Code: HP550SMINEX

1 x HP550SMINEX Pump Unit
1 x 700 bar (10 000 psi) Gauge
1 x ⅜" Port Gauge Adaptor
1 x Instruction Manual
1 x Cardboard Packaging

Packaging Dimensions:

250 mm x 180 mm x 700 mm
(9.84" x 7.09" x 27.56")

HP550DMINEX KIT CONTENTS

Product Code: HP550DMINEX

1 x HP550DMINEX Pump Unit
2 x 700 bar (10 000 psi) Gauges
2 x ⅜" Port Gauge Adaptors
1 x Instruction Manual
1 x Cardboard Packaging

Packaging Dimensions:

250 mm x 180 mm x 700 mm
(9.84" x 7.09" x 27.56")

HP1000SMINEX KIT CONTENTS

Product Code: HP1000SMINEX

1 x HP1000SMINEX Pump Unit
1 x 700 bar (10 000 psi) Gauge
1 x ⅜" Port Gauge Adaptor
1 x Instruction Manual
1 x Cardboard Packaging

Packaging Dimensions:

250 mm x 180 mm x 900 mm
(9.84" x 7.09" x 35.43")

HP1000DMINEX KIT CONTENTS

Product Code: HP1000DMINEX

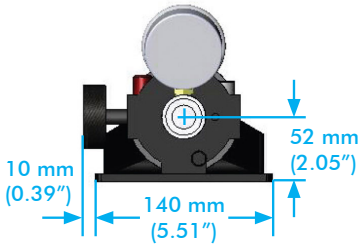
1 x HP1000DMINEX Pump Unit
2 x 700 bar (10 000 psi) Gauges
2 x ⅜" Port Gauge Adaptors
1 x Instruction Manual
1 x Cardboard Packaging

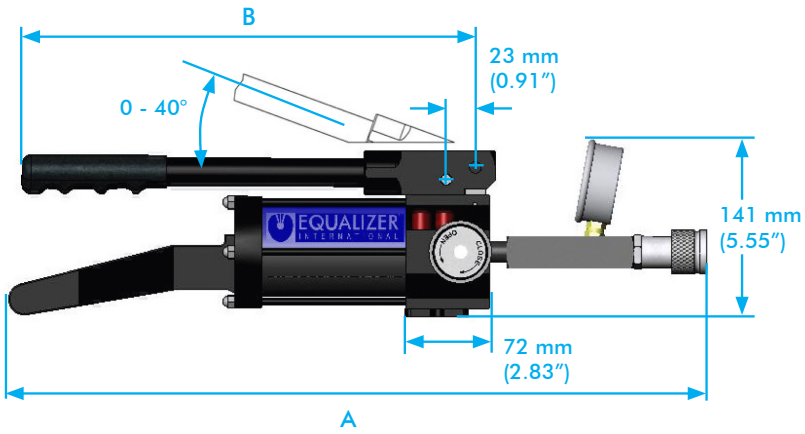
Packaging Dimensions:

250 mm x 180 mm x 900 mm
(9.84" x 7.09" x 35.43")

5.3

HP350SMINEX, HP550SMINEX & HP1000SMINEX WEIGHTS AND DIMENSIONS

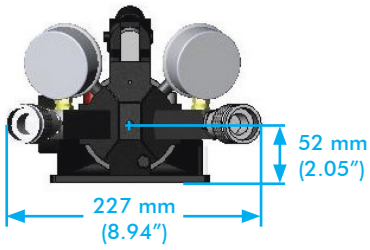


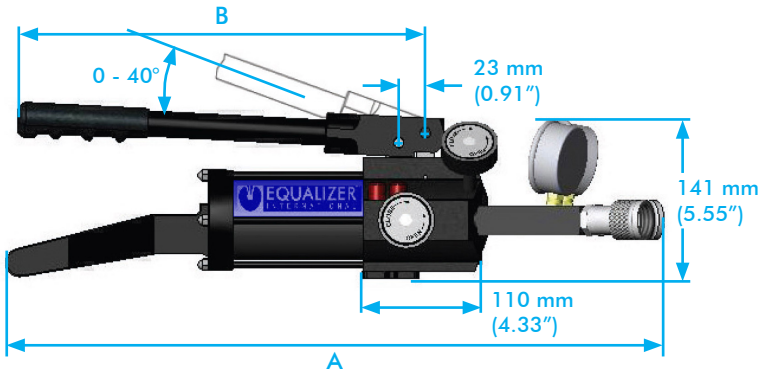


	HP350SMINEX	HP550SMINEX	HP1000SMINEX
OVERALL LENGTH (A)	554 mm (21.81")	643 mm (25.31")	867 mm (34.13")
HANDLE LENGTH (B)	360 mm (14.17")	490 mm (19.29")	537 mm (21.14")
PUMP WEIGHT	4.4 kg (9.7 lb)	5.0 kg (11.2 lb)	6.1 kg (13.4 lb)
GROSS KIT WEIGHT	4.9 kg (10.8 lb)	5.9 kg (13.0 lb)	7.1 kg (15.7 lb)

5.4

HP350DMINEX, HP550DMINEX & HP1000SMINEX WEIGHTS AND DIMENSIONS





	HP350DMINEX	HP550DMINEX	HP1000DMINEX
OVERALL LENGTH (A)	580 mm (22.83")	669 mm (26.34")	893 mm (35.16")
HANDLE LENGTH (B)	360 mm (14.17")	490 mm (19.29")	537 mm (21.14")
PUMP WEIGHT	6.5 kg (14.3 lb)	7.2 kg (15.9 lb)	7.1 kg (15.7 lb)
GROSS KIT WEIGHT	7.2 kg (15.9 lb)	8.1 kg (17.9 lb)	9.3 kg (20.5 lb)

6.

TROUBLESHOOTING

6.1 HP350SMINEX/HP550SMINEX/ HP1000SMINEX/HP350DMINEX/ HP550DMINEX/HP1000DMINEX TROUBLESHOOTING

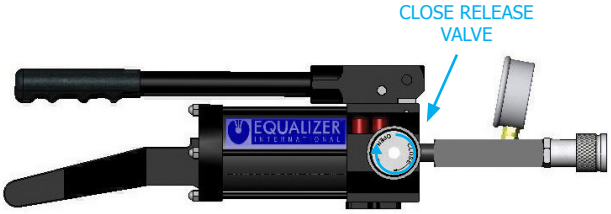
HOSES ARE CONNECTED BUT THE TOOL DOES NOT ADVANCE. THE PRESSURE ON THE PUMP HANDLE IS MINIMAL

POSSIBLE CAUSE:

The Release valve is in the retract (open) position (and the control valves are open on the HP-D).

RECOMMENDED ACTION:

Close the release valve (and the control valves on the HP-D).



HOSES ARE CONNECTED AND THE PUMP QUICKLY REACHES MAXIMUM PRESSURE BUT THE TOOL HAS NOT ADVANCED

POSSIBLE CAUSE:

One or more of the connectors are not fully tightened and the hydraulic oil cannot pass through from the pump to the cylinder.

RECOMMENDED ACTION:

Check all connectors are fully tightened and the release valve is in the fully closed position.

HOSES ARE CONNECTED AND THE TOOL ADVANCES BUT THERE IS MINIMAL PRESSURE ON THE PUMP HANDLE; THE HANDLE IS RISING BACK OF ITS OWN ACCORD

POSSIBLE CAUSE:

There is dirt or a damaged valve seat within the pump unit.

RECOMMENDED ACTION:

The pump should be sent to an authorised Equalizer distributor for repair.

THE TOOL THE HAND PUMP IS DRIVING IS ADVANCING BUT DOES NOT REACH FULL PRESSURE.

POSSIBLE CAUSE:

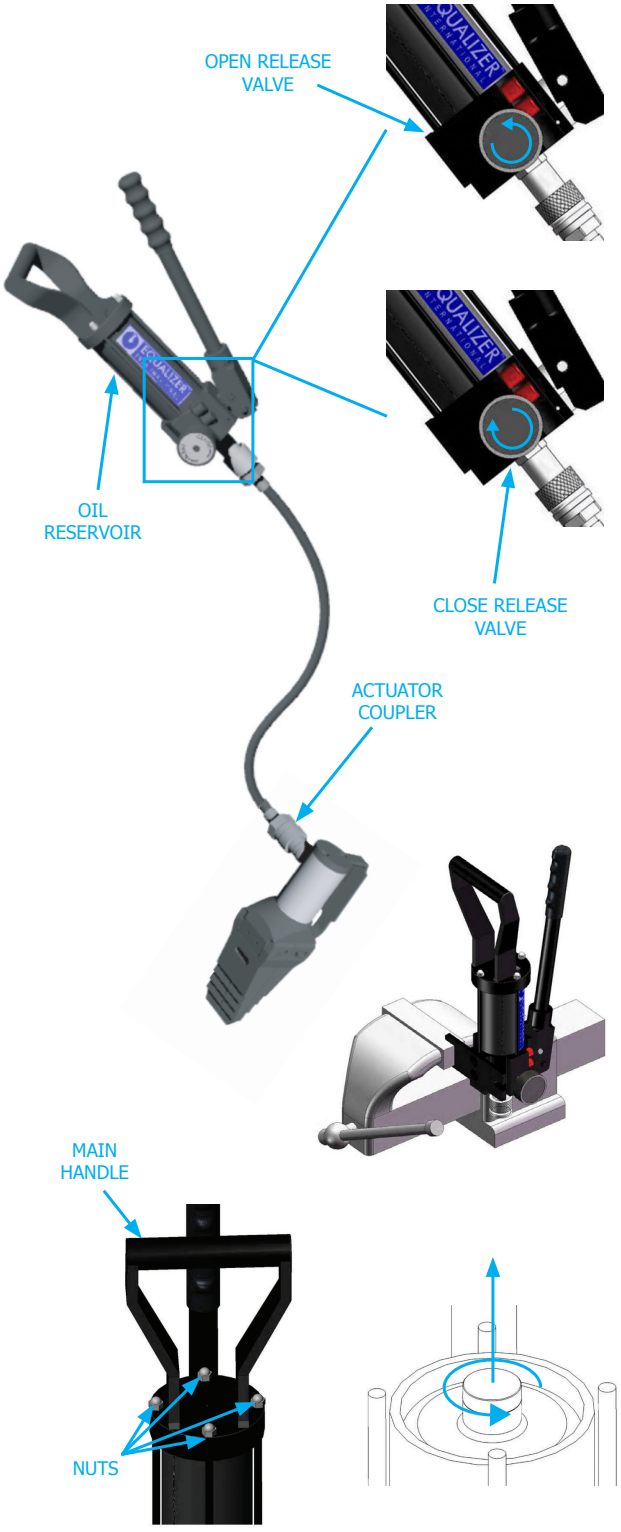
Air could be present in the hydraulic system.

RECOMMENDED ACTION:

Follow the airlock removal procedure:

1. Connect the hand pump to the tool with the hydraulic hose.
2. Close the release valve on the pump, and prime the pump until the hydraulic cylinder is fully extended and a small pressure is achieved.
3. With the hand pump held above the tool and the tool held in an upright position, open the release valve. Any air that is within the system will be forced up through the pump and vented into the oil reservoir.
4. Repeat steps 1 - 3 three or four times to ensure that all air is removed from the system and the tool reaches full working pressure.
5. Disconnect the hand pump from the hydraulic hose, grip the baseplate of the hand pump body in a vice with the pump body vertical and the main body at the top.
6. Remove the four nuts holding the main handle and lift off.
7. Grip the refilling plug with pliers and extract it by pulling and twisting simultaneously. Ensure the reservoir body is held down when removing the refilling plug as pulling up on the reservoir body will release the bladder within, and oil will spill out.
8. Fill the reservoir to the top with a good quality hydraulic oil of the grade 15 cSt.
9. Reinsert the refilling plug, wipe away any oil and reassemble by reversing the disassembly process.

AIRLOCK REMOVAL PROCEDURE:



7.

REGULATORY INFORMATION

7.1
REGISTERED HEAD OFFICE

EQUALIZER INTERNATIONAL LTD.
Equalizer House
Claymore Drive
Aberdeen
Scotland
AB23 8GD

7.2
APPLICABLE ATEX STANDARDS

These tools comply with Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.

The following harmonised European standards are applicable to these tools:

- EN 1127-1:2011 Explosive atmospheres. Explosion prevention and protection. Basic concepts and methodology;
- EN ISO 80079-36:2016 Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements
- EN ISO 80079-37:2016 Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

8.

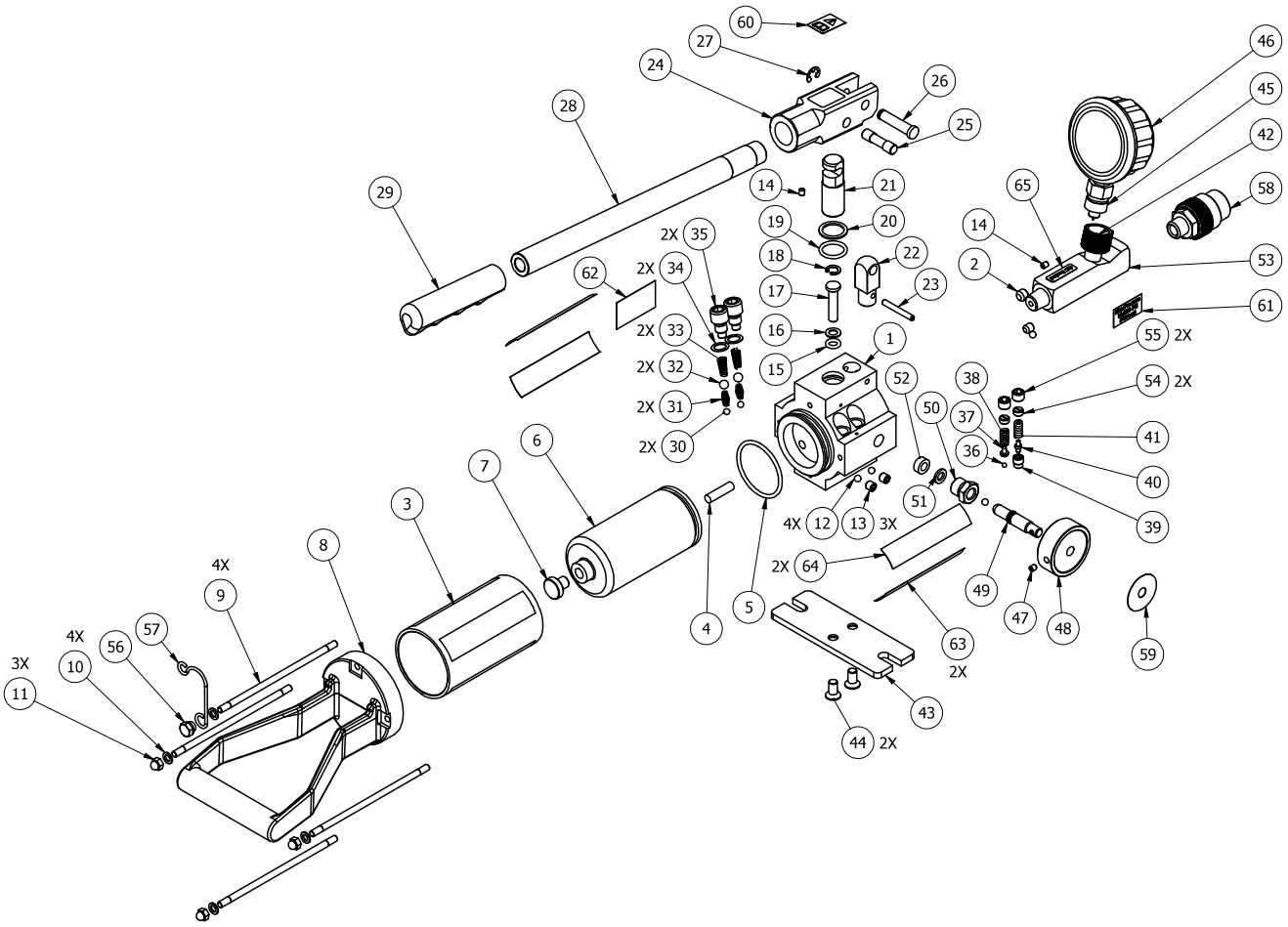
PARTS LISTS & SERVICE KITS

PUMPS KIT MATRIX

KITS	350S	350D	350SD	550S	550D	550SD	1000S	1000D	1000SD
BLADDER SERVICE KIT A 715100-01	X	X							
TAIL BASE SERVICE KIT B 725200-01	X	X							
PISTON SERVICE KIT C 715300-01	X	X	X	X	X	X	X	X	X
HANDLE SERVICE KIT D 715400-01	X	X	X						
YOKE SERVICE KIT E 715500-01	X	X	X	X	X	X	X	X	X
RELEASE KNOB SERVICE KIT F 715600-01	X	X		X	X		X	X	
VALVE SERVICE KIT G 715700-01	X	X	X	X	X	X	X	X	X
VALVE SERVICE KIT H 715800-01	X	X	X	X	X	X	X	X	X
BASEPLATE SERVICE KIT I 715900-01	X	X	X	X	X	X	X	X	X
RELEASE KNOB SERVICE KIT J 726000-01		X			X			X	
HOUSING SERVICE KIT K 716100-01	X	X	X	X	X	X	X	X	X
GAUGE SERVICE KIT L 716200-01	X	X	X	X	X	X	X	X	X
GAUGE ADAPTOR SERVICE KIT M 716300-01	X	X		X	X		X	X	X
BLADDER SERVICE KIT N 735100-01				X	X	X			
HANDLE SERVICE KIT O 735300-01				X	X	X	X	X	X
TAIL BASE SERVICE KIT P 735200-01				X	X	X			
BLADDER SERVICE KIT Q 540014-01-01							X	X	X
VALVE SERVICE KIT R 707200-01			X			X			X
VALVE SERVICE KIT S 707300-01			X			X			X
TAIL BASE SERVICE KIT T 540015-01									X

ATEX APPROVED HP350S HYDRAULIC SINGLE PORT PUMP C/W GAUGE

Refer to pump kit matrix on pg.18 for kit part numbers

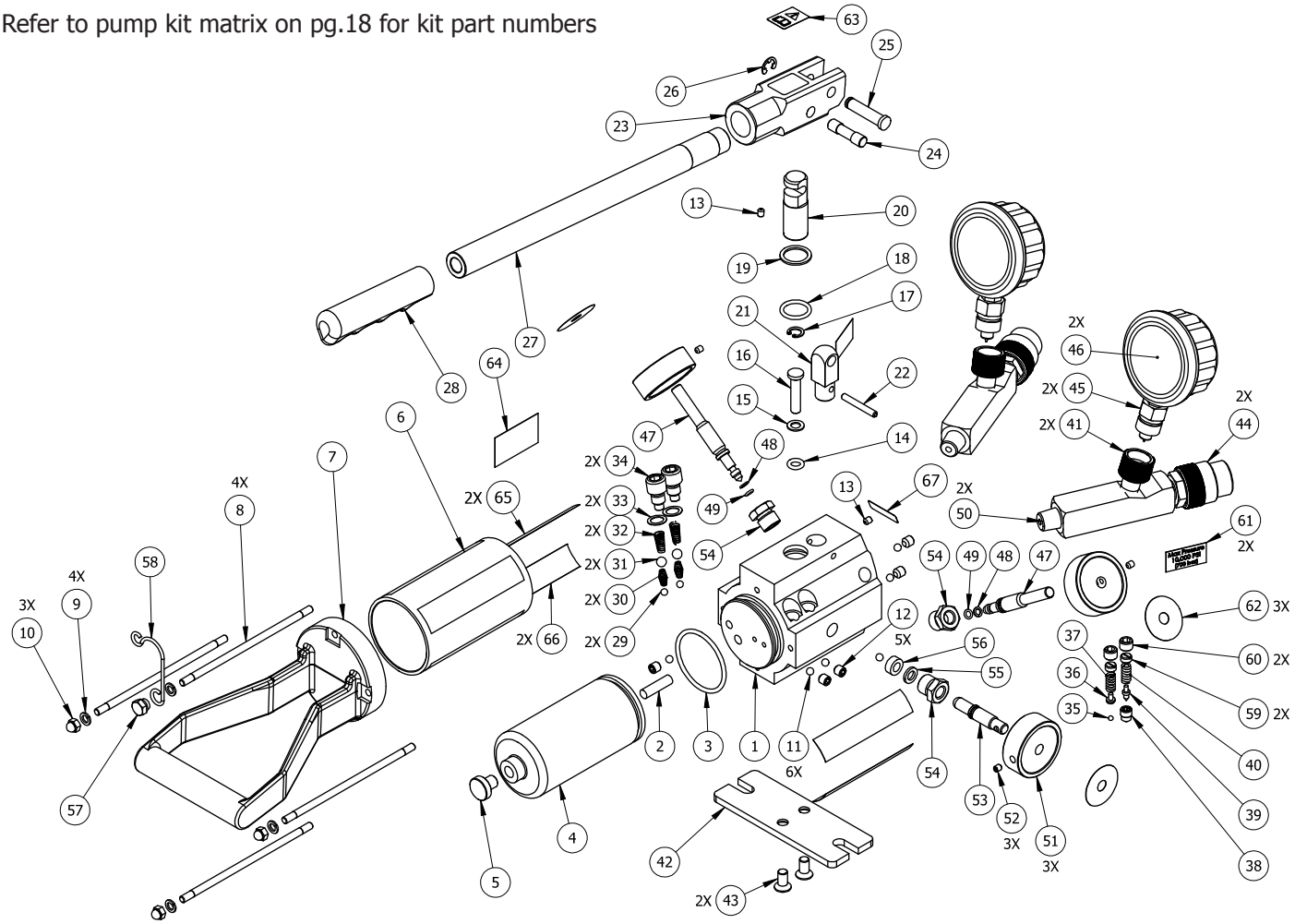


ITEM NO.	KIT/PART NO.	DESCRIPTION	QTY
1	710101-01	PUMP HOUSING	1
2	707067-01	SCREW	1
3	710601-01	RESERVOIR	1
4	A/N/Q	OIL FILTER	1
5	A/N/Q	O-RING	1
6	A	RESERVOIR BLADDER	1
7	A/N/Q	REFILLING PLUG	1
8	B/P/T	TAIL BASE	1
9	B	SCREW	4
10	B/P/T	SPRING WASHER	4
11	B/P/T	NUT	3
12	F/K/S	CHECK BALL	4
13	K	SCREW	3
14	D/O	SCREW	2
15	C	O-RING	1
16	C	BACK-UP RING	1
17	C	H.P. PISTON	1
18	C	SNAP RING	1
19	C	O-RING	1
20	C	BACK-UP RING	1
21	C	L.P. PISTON	1
22	E	YOKE BASE	1
23	E	SPRING PIN	1
24	D/O	YOKE	1
25	D/O	PISTON PIN	1
26	D/O	YOKE PIN	1
27	D/O	RETAINING RING	1
28	D	HANDLE	1
29	D/O	HANDLE GRIP	1
30	G	STEEL BALL	2
31	G	SPRING	2
32	G	STEEL BALL	2
33	G	OUTLET BALL SPRING	2
34	G	COPPER WASHER	2
35	G	VALVE COVER SCREW	2

ITEM NO.	KIT/PART NO.	DESCRIPTION	QTY
36	H	STEEL BALL	1
37	H	SPRING END CAP	1
38	H	L.P. SPRING	1
39	H	CONE SEAT	1
40	H	CONE	1
41	H	LONG SEPARATOR SPRING	1
42	M	GAUGE COUPLER FEMALE	1
43	I	BASE PLATE	1
44	I	SCREW	2
45	L	GAUGE COUPLER MALE	1
46	L	GAUGE	1
47	F/J	M5 SCKT SET SCREW	1
48	F/J	RELEASE KNOB	1
49	F	RELEASE VALVE SCREW	1
50	F/J	ADAPTOR	1
51	F	WASHER	1
52	F	SPACER	1
53	M	PORT GAUGE ADAPTOR	1
54	H	SCREW	2
55	H	SET SCREW	2
56	B/P	PUMP RETAINING CLIP NUT	1
57	B/P	PUMP RETAINING CLIP	1
58	M	COUPLER	1
59	070059-01	OPEN-CLOSE STICKER	1
60	070001-01	WARNING READ INSTRUCTION STICKER	1
61	070260-01	MAX PRESSURE STICKER	1
62	ON REQUEST	HP350S STICKER (ATEX)	1
63	1440010-01	HP EQUALIZER ADDRESS STICKER FOR RESERVOIR (ATEX)	2
64	1440003-01	EQUALIZER LOGO RESERVOIR STICKER (ATEX)	2
65	070013-01	QC SEALED RECTANGULAR STICKER	1

ATEX APPROVED HP350D TWIN PORT SEALED HAND PUMP C/W GAUGE

Refer to pump kit matrix on pg.18 for kit part numbers

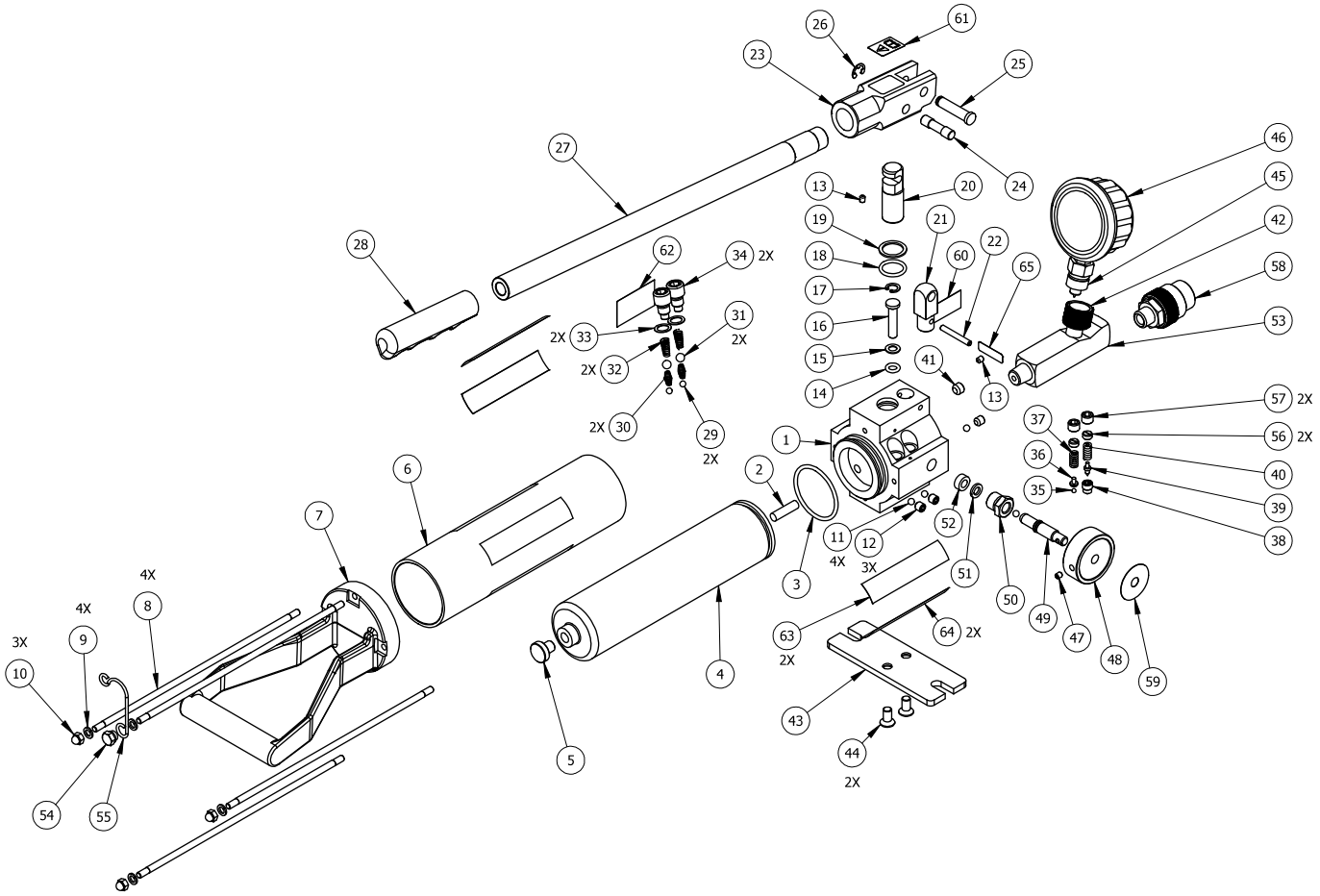


ITEM	KIT/PART NO.	DESCRIPTION	QTY
1	720101-01	PUMP HOUSING	1
2	A/N/Q	OIL FILTER	1
3	A/N/Q	O-RING	1
4	A	RESERVOIR BLADDER	1
5	A/N/Q	REFILLING PLUG	1
6	710601-01	RESERVOIR	1
7	B/P/T	TAIL BASE	1
8	B	SCREW	4
9	B/P/T	SPRING WASHER	4
10	B/P/T	NUT	3
11	F/K/S	CHECK BALL	6
12	K	SCREW	5
13	D/O	SCREW	2
14	C	O-RING	1
15	C	BACK-UP RING	1
16	C	H.P. PISTON	1
17	C	SNAP RING	1
18	C	O-RING	1
19	C	BACK-UP RING	1
20	C	L.P. PISTON	1
21	E	YOKE BASE	1
22	E	SPRING PIN	1
23	D/O	YOKE	1
24	D/O	PISTON PIN	1
25	D/O	YOKE PIN	1
26	D/O	RETAINING RING	1
27	D	HANDLE	1
28	D/O	HANDLE GRIP	1
29	G	STEEL BALL	2
30	G	SPRING	2
31	G	STEEL BALL	2
32	G	OUTLET BALL SPRING	2
33	G	COPPER WASHER	2
34	G	VALVE COVER SCREW	2
35	H	STEEL BALL	1

ITEM	KIT/PART NO.	DESCRIPTION	QTY
36	H	SPRING END CAP	1
37	H	L.P. SPRING	1
38	H	CONE SEAT	1
39	H	CONE	1
40	H	LONG SEPARATOR SPRING	1
41	M	GAUGE COUPLER FEMALE	2
42	I	BASE PLATE	1
43	I	SCREW	2
44	M	COUPLER	2
45	L	GAUGE COUPLER MALE	2
46	L	GAUGE	2
47	J	VALVE SCREW	2
48	J	BACK-UP RING	2
49	J	O-RING	2
50	M	PORT GAUGE ADAPTOR	2
51	F/J	RELEASE KNOB	3
52	F/J	M5 SCKT SET SCREW	3
53	F	RELEASE VALVE SCREW	1
54	F/J	ADAPTOR	3
55	F	WASHER	1
56	F	SPACER	1
57	B/P	PUMP RETAINING CLIP NUT	1
58	B/P	PUMP RETAINING CLIP	1
59	H	SCREW	2
60	H	SET SCREW	2
61	070260-01	MAX PRESSURE STICKER	2
62	070059-01	OPEN-CLOSE STICKER	3
63	070001-01	WARNING READ INSTRUCTION STICKER	1
64	ON REQUEST	HP350D STICKER (ATEX)	1
65	1440003-01	EQUALIZER LOGO RESERVOIR STICKER (ATEX)	2
66	1440010-01	HP EQUALIZER ADDRESS STICKER FOR RESERVOIR (ATEX)	2
67	070013-01	QC SEALED RECTANGULAR STICKER	1

ATEX APPROVED HP550S SINGLE PORT SEALED HAND PUMP

Refer to pump kit matrix on pg.18 for kit part numbers

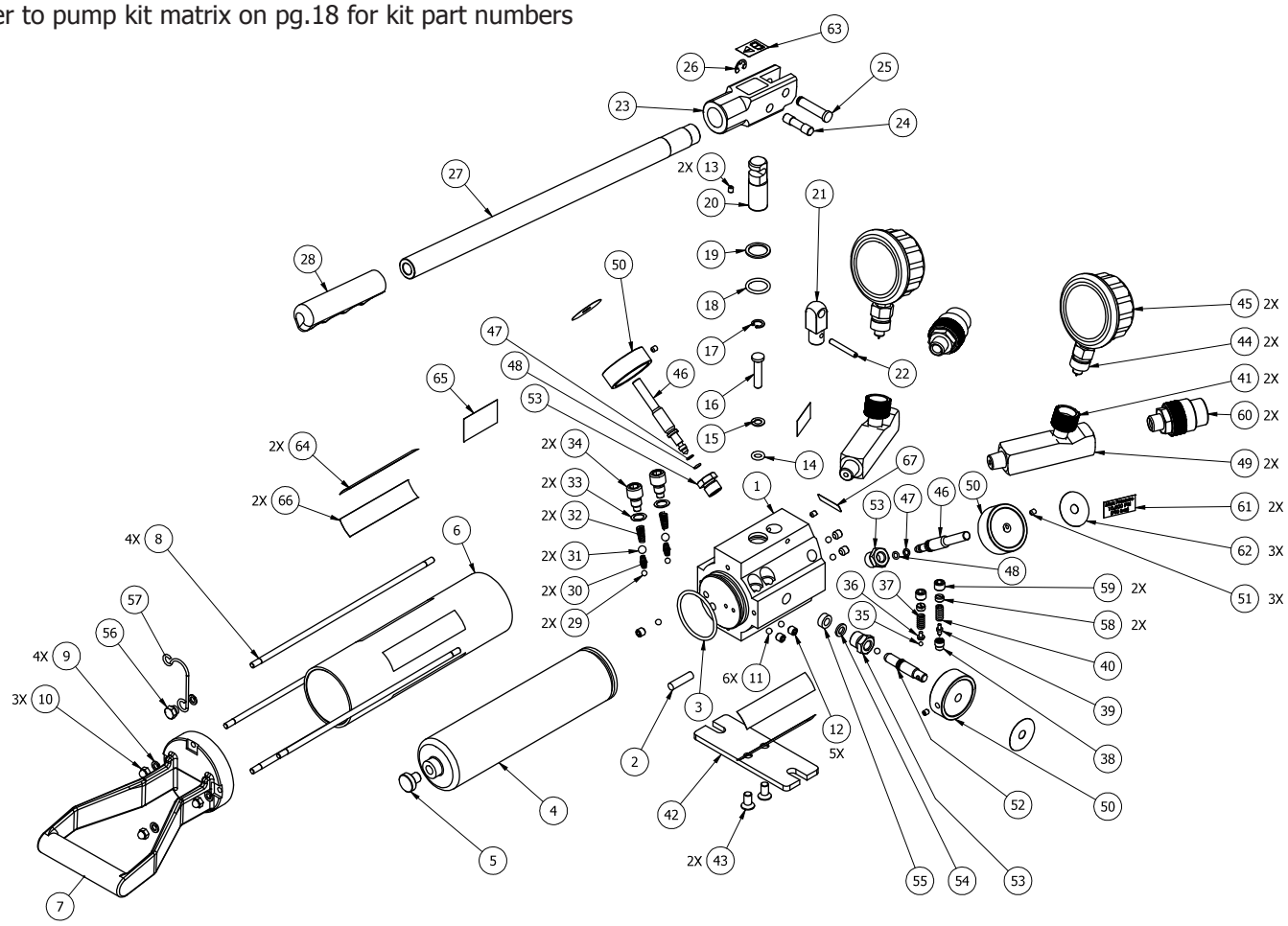


ITEM	KIT/PART NO.	DESCRIPTION	QTY.
1	710101-01	PUMP HOUSING	1
2	A/N/Q	OIL FILTER	1
3	A/N/Q	O-RING	1
4	N	RESERVOIR BLADDER	1
5	A/N/Q	REFILLING PLUG	1
6	708002-01	RESERVOIR	1
7	B/P/T	TAIL BASE	1
8	P	SCREW	4
9	B/P/T	SPRING WASHER	4
10	B/P/T	NUT	3
11	F/K/S	CHECK BALL	4
12	K	SCREW	3
13	D/O	SCREW	2
14	C	O-RING	1
15	C	BACK-UP RING	1
16	C	H.P. PISTON	1
17	C	SNAP RING	1
18	C	O-RING	1
19	C	BACK-UP RING	1
20	C	L.P. PISTON	1
21	E	YOKE BASE	1
22	E	SPRING PIN	1
23	D/O	YOKE	1
24	D/O	PISTON PIN	1
25	D/O	YOKE PIN	1
26	D/O	RETAINING RING	1
27	O	HANDLE	1
28	D/O	HANDLE GRIP	1
29	G	STEEL BALL	2
30	G	SPRING	2
31	G	STEEL BALL	2
32	G	OUTLET BALL SPRING	2

ITEM	KIT/PART NO.	DESCRIPTION	QTY.
33	G	COPPER WASHER	2
34	G	VALVE COVER SCREW	2
35	H	STEEL BALL	1
36	H	SPRING END CAP	1
37	H	L.P. SPRING	1
38	H	CONE SEAT	1
39	H	CONE	1
40	H	LONG SEPARATOR SPRING	1
41	707067-01	SCREW	1
42	M	GAUGE COUPLER FEMALE	1
43	I	BASE PLATE	1
44	I	SCREW	2
45	L	GAUGE COUPLER MALE	1
46	L	GAUGE	1
47	F/J	M5 SCKT SET SCREW	1
48	F/J	RELEASE KNOB	1
49	F	RELEASE VALVE SCREW	1
50	F/J	ADAPTOR	1
51	F	WASHER	1
52	F	SPACER	1
53	M	PORT GAUGE ADAPTOR	1
54	B/P	PUMP RETAINING CLIP NUT	1
55	B/P	PUMP RETAINING CLIP	1
56	H	SCREW	2
57	H	SET SCREW	2
58	M	COUPLER	1
59	070059-01	OPEN-CLOSE STICKER	1
60	070260-01	MAX PRESSURE STICKER	1
61	070001-01	WARNING READ INSTRUCTION STICKER	1
62	ON REQUEST	HP550S STICKER (ATEX)	1
63	1440003-01	EQUALIZER LOGO RESERVOIR STICKER (ATEX)	2
64	1440010-01	HP EQUALIZER ADDRESS STICKER FOR RESERVOIR (ATEX)	2
65	NOT REPLACEABLE	QC SEALED RECTANGULAR STICKER	1

ATEX APPROVED HP550D TWIN PORT SEALED HAND PUMP C/W GAUGE

Refer to pump kit matrix on pg.18 for kit part numbers

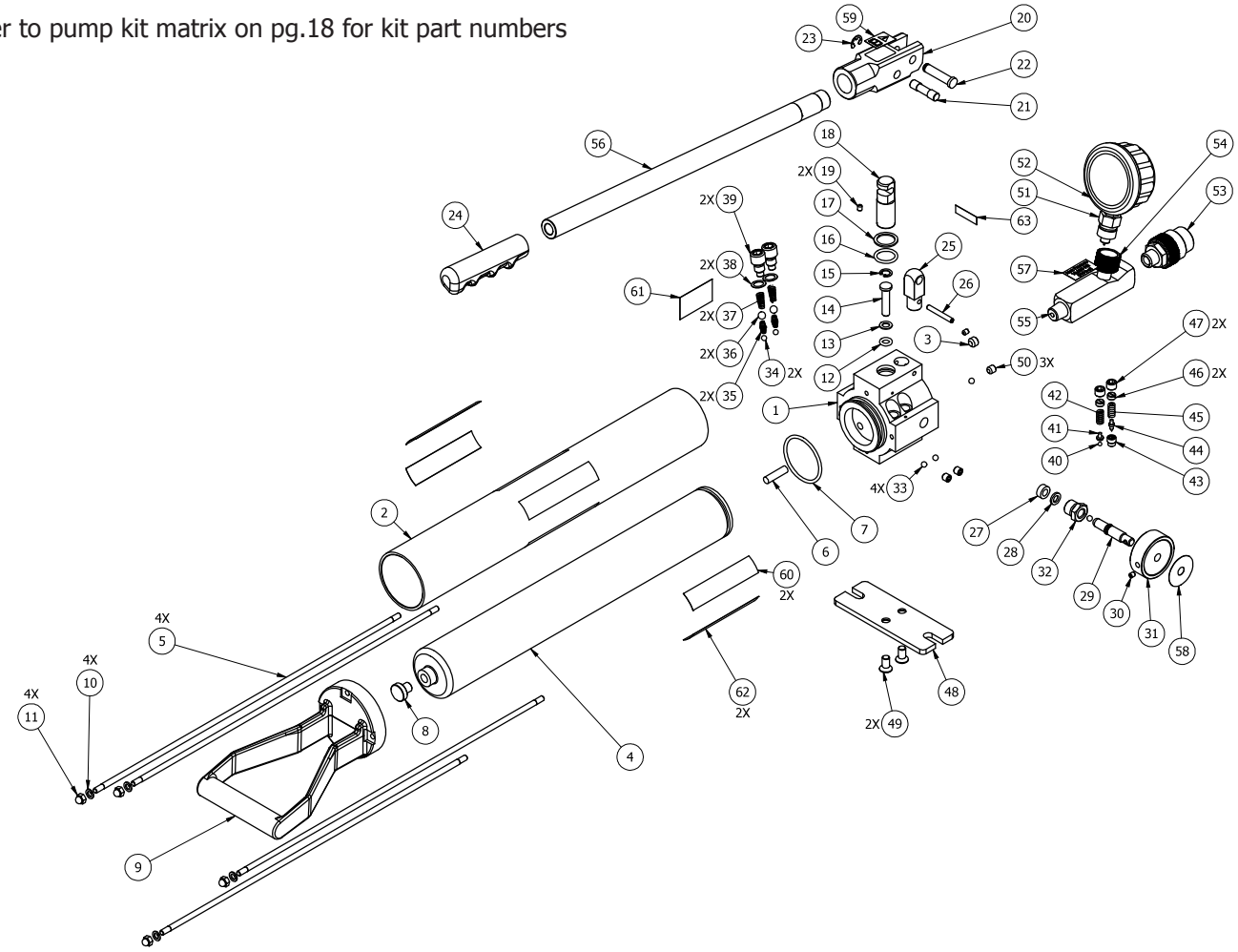


ITEM	KIT/PART NO.	DESCRIPTION	QTY.
1	720101-01	PUMP HOUSING	1
2	A/N/Q	OIL FILTER	1
3	A/N/Q	O-RING	1
4	N	RESERVOIR BLADDER	1
5	A/N/Q	REFILLING PLUG	1
6	N	RESERVOIR	1
7	B/P/T	TAIL BASE	1
8	P	SCREW	4
9	B/P/T	SPRING WASHER	4
10	B/P/T	NUT	3
11	F/K/S	CHECK BALL	6
12	K	SCREW	5
13	D/O	SCREW	2
14	C	O-RING	1
15	C	BACK-UP RING	1
16	C	H.P. PISTON	1
17	C	SNAP RING	1
18	C	O-RING	1
19	C	BACK-UP RING	1
20	C	L.P. PISTON	1
21	E	YOKE BASE	1
22	E	SPRING PIN	1
23	D/O	YOKE	1
24	D/O	PISTON PIN	1
25	D/O	YOKE PIN	1
26	D/O	RETAINING RING	1
27	O	HANDLE	1
28	D/O	HANDLE GRIP	1
29	G	STEEL BALL	2
30	G	SPRING	2
31	G	STEEL BALL	2
32	G	OUTLET BALL SPRING	2
33	G	COPPER WASHER	2
34	G	VALVE COVER SCREW	2

ITEM	KIT/PART NO.	DESCRIPTION	QTY.
35	H	STEEL BALL	1
36	H	SPRING END CAP	1
37	H	L.P. SPRING	1
38	H	CONE SEAT	1
39	H	CONE	1
40	H	LONG SEPARATOR SPRING	1
41	M	GAUGE COUPLER FEMALE	2
42	I	BASE PLATE	1
43	I	SCREW	2
44	L	GAUGE COUPLER MALE	2
45	L	GAUGE / SERVICE KIT L	1
46	J	VALVE SCREW	2
47	J	BACK-UP RING	2
48	J	O-RING	2
49	M	PORT GAUGE ADAPTOR	2
50	F/J	RELEASE KNOB E1604	3
51	F/J	M5 X 6MM SOCKET SETSCREW PLAIN CUP HT GD14.9 SC	3
52	F	RELEASE VALVE SCREW	1
53	F/J	ADAPTOR	3
54	F	WASHER	1
55	F	SPACER	1
56	B/P	PUMP RETAINING CLIP NUT	1
57	B/P	PUMP RETAINING CLIP	1
58	H	SCREW	2
59	H	SET SCREW	2
60	M	COUPLER	2
61	070260-01	MAX PRESSURE STICKER	2
62	070059-01	OPEN-CLOSE STICKER	3
63	070001-01	WARNING READ INSTRUCTION STICKER	1
64	1440003-01	EQUALIZER LOGO RESERVOIR STICKER (ATEX)	2
65	ON REQUEST	HP550D STICKER (ATEX)	1
66	1440010-01	HP EQUALIZER ADDRESS STICKER FOR RESERVOIR (ATEX)	2
67	NOT REPLACEABLE	QC SEALED STICKER	1

ATEX APPROVED HP1000S SINGLE PORT SEALED HAND PUMP

Refer to pump kit matrix on pg.18 for kit part numbers

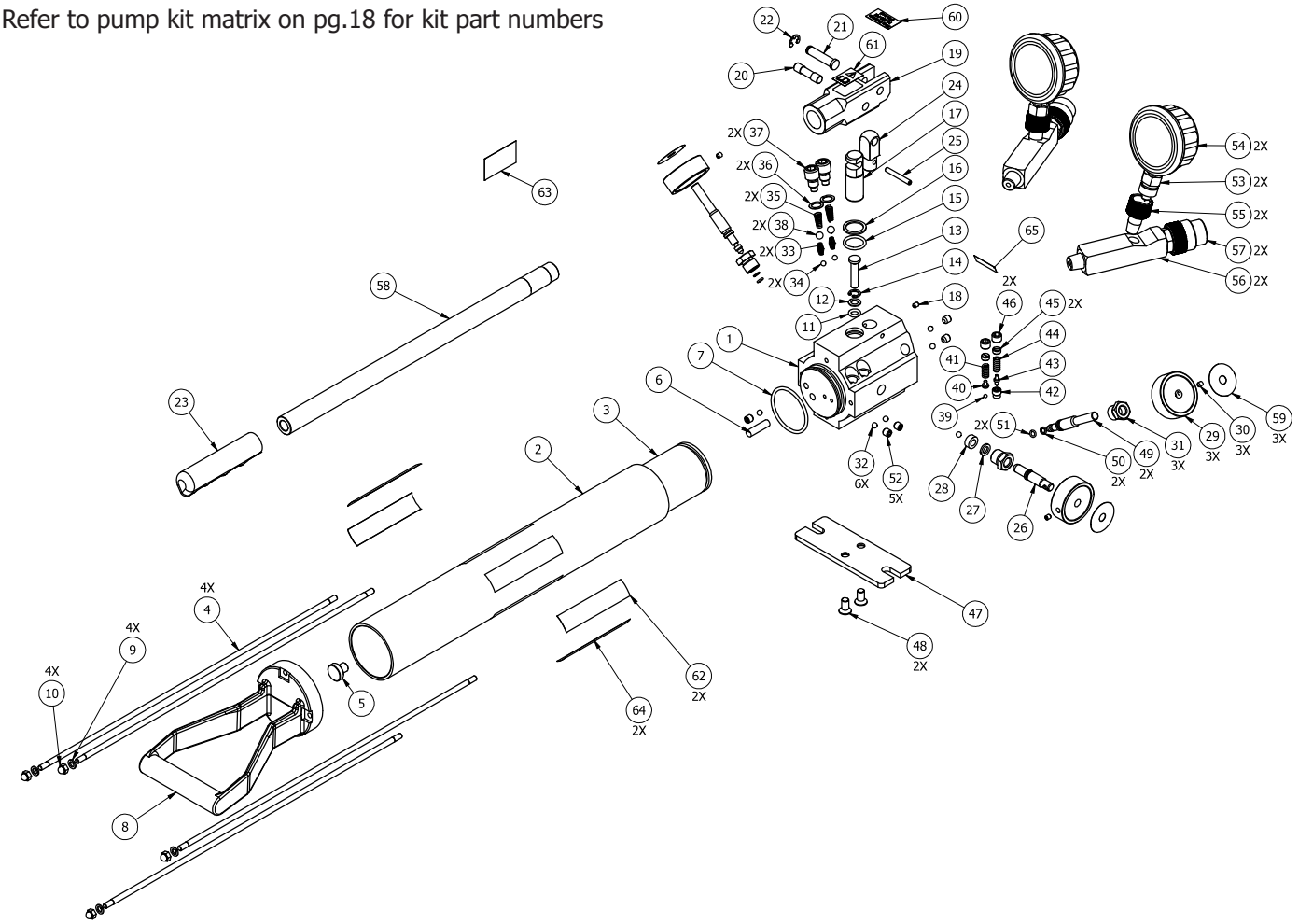


ITEM NO.	KIT/PART No.	DESCRIPTION	QTY
1	710101-01	PUMP HOUSING	1
2	520002-01	RESERVOIR 1000	1
3	707067-01	SCREW	1
4	Q	RESERVOIR BLADDER 1000	1
5	T	SCREW	4
6	A/N/Q	OIL FILTER	1
7	A/N/Q	O-RING	1
8	A/N/Q	REFILLING PLUG	1
9	B/P/T	TAIL BASE	1
10	B/P/T	SPRING WASHER	4
11	B/P/T	NUT	4
12	C	O-RING	1
13	C	BACK-UP RING	1
14	C	H.P. PISTON	1
15	C	SNAP RING	1
16	C	O-RING	1
17	C	BACK-UP RING	1
18	C	L.P. PISTON	1
19	D/O	SCREW	2
20	D/O	YOKE	1
21	D/O	PISTON PIN	1
22	D/O	YOKE PIN	1
23	D/O	RETAINING RING	1
24	D/O	HANDLE GRIP	1
25	E	YOKE BASE	1
26	E	SPRING PIN	1
27	F	SPACER	1
28	F	WASHER	1
29	F	RELEASE VALVE SCREW	1
30	F/J	M5 SCKT SET SCREW	1
31	F/J	RELEASE KNOB	1
32	F/J	ADAPTOR	1

ITEM NO.	KIT/PART No.	DESCRIPTION	QTY
33	F/K/S	CHECK BALL	4
34	G	STEEL BALL	2
35	G	SPRING	2
36	G	STEEL BALL	2
37	G	OUTLET BALL SPRING	2
38	G	COPPER WASHER	2
39	G	VALVE COVER SCREW	2
40	H	STEEL BALL	1
41	H	SPRING END CAP	1
42	H	L.P. SPRING	1
43	H	CONE SEAT	1
44	H	CONE	1
45	H	LONG SEPARATOR SPRING	1
46	H	SCREW	2
47	H	SET SCREW	2
48	I	BASE PLATE	1
49	I	SCREW	2
50	K	SCREW	3
51	L	GAUGE COUPLER MALE	1
52	L	GAUGE	1
53	M	COUPLER	1
54	M	GAUGE COUPLER FEMALE	1
55	M	PORT GAUGE ADAPTOR	1
56	O	HANDLE	1
57	070260-01	MAX PRESSURE STICKER	1
58	070059-01	OPEN-CLOSE STICKER	1
59	070001-01	WARNING READ INSTRUCTION STICKER	1
60	1440003-01	EQUALIZER LOGO RESERVOIR STICKER (ATEX)	2
61	ON REQUEST	HP1000S STICKER (ATEX)	1
62	1440010-01	HP EQUALIZER ADDRESS STICKER FOR RESERVOIR (ATEX)	2
63	NOT REPLACEABLE	QC SEALED STICKER	1

ATEX APPROVED HP1000D TWIN PORT SEALED HAND PUMP

Refer to pump kit matrix on pg.18 for kit part numbers



ITEM NO.	KIT/PART No.	DESCRIPTION	QTY
1	720101-01	PUMP HOUSING	1
2	520002-01	RESERVOIR 1000	1
3	Q	RESERVOIR BLADDER 1000	1
4	T	SCREW	4
5	A/N/Q	REFILLING PLUG	1
6	A/N/Q	OIL FILTER	1
7	A/N/Q	O-RING	1
8	B/P/T	TAIL BASE	1
9	B/P/T	SPRING WASHER	4
10	B/P/T	NUT	4
11	C	O-RING	1
12	C	BACK-UP RING	1
13	C	H.P. PISTON	1
14	C	SNAP RING	1
15	C	O-RING	1
16	C	BACK-UP RING	1
17	C	L.P. PISTON	1
18	D/O	SCREW	1
19	D/O	YOKE	1
20	D/O	PISTON PIN	1
21	D/O	YOKE PIN	1
22	D/O	RETAINING RING	1
23	D/O	HANDLE GRIP	1
24	E	YOKE BASE	1
25	E	SPRING PIN	1
26	F	RELEASE VALVE SCREW	1
27	F	WASHER	1
28	F	SPACER	1
29	F/J	RELEASE KNOB	3
30	F/J	M5 SCKT SET SCREW	3
31	F/J	ADAPTOR	3
32	F/K/S	CHECK BALL	6
33	G	SPRING	2

ITEM NO.	KIT/PART No.	DESCRIPTION	QTY
34	G	STEEL BALL	2
35	G	OUTLET BALL SPRING	2
36	G	COPPER WASHER	2
37	G	VALVE COVER SCREW	2
38	G	STEEL BALL	2
39	H	STEEL BALL	1
40	H	SPRING END CAP	1
41	H	L.P. SPRING	1
42	H	CONE SEAT	1
43	H	CONE	1
44	H	LONG SEPARATOR SPRING	1
45	H	SCREW	2
46	H	SET SCREW	2
47	I	BASE PLATE	1
48	I	SCREW	2
49	J	VALVE SCREW	2
50	J	BACK-UP RING	2
51	J	O-RING	2
52	K	SCREW	5
53	L	GAUGE COUPLER MALE	2
54	L	GAUGE	2
55	M	GAUGE COUPLER FEMALE	2
56	M	PORT GAUGE ADAPTOR	2
57	M	COUPLER	2
58	O	HANDLE	1
59	070059-01	OPEN-CLOSE STICKER	3
60	070260-01	MAX PRESSURE STICKER	1
61	070001-01	WARNING READ INSTRUCTION STICKER	1
62	1440003-01	EQUALIZER LOGO RESERVOIR STICKER (ATEX)	2
63	ON REQUEST	HP1000D STICKER (ATEX)	1
64	1440010-01	HP EQUALIZER ADDRESS STICKER FOR RESERVOIR (ATEX)	2
65	NOT REPLACEABLE	QC SEALED STICKER	1

NOTES

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