



Micropac® 316 Two Speed Hand Pump for Potentially Explosive Atmospheres

2 SPEED HAND PUMP FOR RESERVOIR/ REMOTE MOUNTING

SEE OVERLEAF FOR SUITABILITY TO ENVIRONMENT

316 STAINLESS STEEL CLEVIS LOCKING FACILITY FOR CARRYING

450/625mm DETACHABLE OPERATING HANDLE

G1/4 OUTLET FITTING OPTIONAL HOSES AND COUPLINGS

G1/2 FILLER BREATHER & AUXILIARY RETURN PORT

G1/4 PRESSURE GAUGE PORT 63 mm PRESSURE GAUGE OPTIONAL, RANGE TO ORDER

INLET HOSE ADAPTOR FOR SUCTION TUBE & STRAINER OPTIONAL STANDPIPE/ NPT ADAPTOR

MANUAL CHANGEOVER BUTTON

ADJUSTABLE RELIEF VALVE (WHERE FITTED)

PRESSURE HOLD/ RELEASE VALVE (WHERE FITTED)

MICROPAC®

PUMP SHOWN MOUNTED ON 'ERGO' PORTABLE 316 RESERVOIR

Serviceable for sustainability

Made in England

TYPICAL APPLICATIONS: HYDROSTATIC & LEAK TESTING, PRESSURE TEST RIGS, HYDRAULIC TEST STANDS, FILLING & CHARGING, HYDRAULIC CYLINDER ACTUATION, MANUAL OVER-RIDE/ SHUTDOWN SYSTEMS. LOW TEMPERATURE SEALING OPTIONS TO -50°C

UKEX, ATEX and IEC Ex certified FEATURES

- Two speed operation for rapid pre-fill facility
- Simple manual changeover push-button
- 316 stainless steel/ bronze construction
- Three models cover max. pressures 400-1000 bar
- Compatible with water, oil and other liquids
- Reliable- British design & manufacture
- Sturdy construction- for extreme environments
- Long life hard chromed stainless piston rod
- Dirt excluder and PTFE low friction sealing
- Optional bellows for added piston rod protection
- Soft-seat check valve for positive sealing
- Pressure gauge, release & relief valve options
- User serviceable sealing & seating components
- Detachable 450mm or 625mm operating handle
- Nitrile seals standard - optional EPDM/ Viton®
- Universal mounting orientation
- Optional portable reservoir for complete versatility
- Fixed mounting 'MR' reservoirs also available
- Hoses and 316 fittings also available to order
- Factory support for product and application

SUITABILITY FOR THE OPERATING ENVIRONMENT

Atmosphere

All equipment intended for use in potentially explosive atmospheres is marked in accordance with the requirements of the Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016, the ATEX Directive 2014/34/EU, and BS EN ISO 80079-36:2016 .

The product nameplate shows

- the manufacturer (Sarum Hydraulics Ltd.)
- the product type identification
- the UKCA marking, denoting conformity with the Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016
- the CE marking, denoting conformity with all the essential requirements of the ATEX Directive 2014/34/EU
- marking as detailed below, denoting the compatibility of the equipment within the operating environment, firstly as defined by the Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 and the ATEX Directive 2014/34/EU and then as defined by the requirements of BS EN ISO 80079-36:2016
- serial number
- certificate issuer and reference in the defined form

UK
CA

CE

Ex

II 2 G Ex h IIC T6 Gb

Ex

II 2 D Ex h IIIC T85°C Db

According to the Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 and the ATEX Directive 2014/34/EU, the marking denotes that the equipment is non-electrical intended to be used in Surface Industry classified as both Gas Explosive Atmosphere - Zone 1 and Explosive Atmosphere of Combustible Dust - Zone 21.

According to BS EN ISO 80079-36:2016, the marking denotes that the equipment is non-electrical conforming to this standard both for EPL Gb for use in explosive gas atmospheres of Group IIC and ignition temperature greater than 85 °C, and for EPL Db for explosive dust atmospheres containing dusts of Group IIIC and maximum surface temperature less than 85 °C.

Media

Subject to suitability of materials of construction, the unit is compatible for operation with group 1 liquids up to 500 bar and group 2 liquids up to 1000 bar according to the classification of liquids under the Pressure Equipment Directive 2014/68/EU, which cross refers to the Classification, Labelling and Packaging (CLP) Directive 1272/2008. These may be summarised as follows, but the text of the Directive Article 13 paragraph 1 fully defines those substances categorised as groups 1 and 2.

Group 1: explosive, extremely flammable, highly flammable, flammable (where the maximum allowable temperature is above flashpoint), toxic, serious health hazards, oxidising

Group 2: all other liquids

Elastomer sealing options are nitrile, fluorocarbon and ethylene propylene, specified at the time of ordering.

Please consult with the factory if in doubt.

Certification

This equipment is supplied with a Declaration of Conformity in accordance with the requirements of either the Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016, or the ATEX Directive 2014/34/EU, or BS EN ISO 80079-36:2016. Any modification to the equipment by a third party may invalidate the certification.

INSTALLATION & MAINTENANCE

APPLICATION

Please refer to page 1 when determining suitability for operation in a potentially explosive atmosphere.

The hydraulic hand pump provides manual hydraulic power for a range of applications such as manual back up systems and hydrostatic testing. It is fitted with a soft seat outlet check valve and is thus ideal for leak testing. Pumping operation is single acting and fluid is displaced through the outlet port on the down stroke. The two speed pump operation allows rapid pre-filling at 32cc/45cc per stroke to approximately 50 bar, followed by high pressure operation to 450, 700 or 1000 bar depending upon the model. There is a manual changeover valve between the low to high pressure stages. The 450mm or 625mm operating handle is detachable.

Please refer to page 1 for compatibility with group 1 and group 2 liquids, and check materials of construction are compatible with the operating media. Sealing options are nitrile, fluorocarbon and ethylene propylene elastomers, specified at time of ordering.

Depending on specification, the pump may be fitted with a soft seat pressure hold/ release needle valve, an adjustable pressure relief valve, and a pressure gauge.

Fixed application reservoirs are designed for mounting onto a firm flat surface. The surface and fixings (not supplied) must be capable of withstanding handle loads at maximum desired pumping pressure (see pump datasheet for details). Reservoirs for portable applications are suitable for use on even terrain. All reservoirs vent to atmosphere and as such are not classified as pressure vessels.

MATERIALS

The materials of construction are 316 stainless steel, aluminium bronze, UHMWP, PTFE, Polyurethane and elastomeric sealing.

SAFETY

Refer to front page 'Product Marking' and assess whether the equipment can be used safely in the intended area under the expected operating conditions.

This unit is a component forming part of a hydraulic pressure system. If forming part of a permanent installation, the system should be designed, operated and maintained in accordance with statutory requirements and other relevant instructions. A risk assessment covering safe installation, operation and maintenance should always be carried out prior to use.

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INSTALLATION- PUMP ONLY

Reservoir mounting: the reservoir top plate has cut outs for the pump barrel, relief and release drain ports and four M8 tapped holes for pump mounting.

If reservoir is to be manufactured by others, refer to pump dimensions section for mounting interface detail.

Cut the pump dip tube and filter assembly so that the filter end touches the reservoir base. The inlet hose connector is designed to accept 12mm i.d. nylon tube. Push the tube onto the barbed pump inlet. Locate the mounting gasket supplied with the pump onto the reservoir top plate such that the release/relief valve drain holes align. No jointing compound should be used. Lower the pump into position and secure using the 4 x M8 x 65 long socket head cap screws supplied, tightening evenly to effect a good seal.

INSTALLATION- RESERVOIRS

Fixed reservoirs; refer to reservoir dimensions section. Mounting surface to be smooth and flat and able to withstand pump operating loads. Also consider ergonomics of pump handle operation; refer to pump dimensions.

Mount the reservoir using the mounting holes provided, fixing size to suit hole diameter. Fixing holes can be pre-drilled & tapped according to dimensions provided, or the reservoir may be used as a template if being mounted in-situ.

Portable reservoirs; ensure that the ground is level and flat, in order that there is no danger of the unit tipping over or slipping.

CONNECTIONS

The outlet connection is a 9/16" UNF SAE female port; a G1/4 male 60° coned adaptor is fitted as standard. Make connection to system using suitable swivel nut or adaptor fitting.

The pressure gauge port is G1/4 flat bottomed and is plugged where a pressure gauge is not supplied.

COMMISSIONING

The reservoir may be filled by unscrewing the filler cap and topping up to desired level with clean fluid; do not over fill. Where fitted, use the dipstick to determine fluid level. Always refit filler cap after top up.

Fit operating handle to handle spigot.

If fitted, close the soft seat release/ hold valve by screwing knob in fully clockwise; do not overtighten.

With changeover knob pulled out, operate the handle by moving up and down until maximum low pressure is achieved; push knob in and continue to operate handle until required pressure is achieved. Check for leaks in the system.

To release pressure, unscrew release/ hold valve knob, slowly for a controlled release.

To set relief valve, remove cap, adjust set screw whilst operating hand pump to achieve maximum pressure requirement, then refit cap.

MAINTENANCE

Maintenance operations should only be carried out by a competent service engineer.

The inlet and outlet check valves are serviceable and employ replaceable seats. Service kits are available comprising all seals, seats, balls and springs.

The pump inlet strainer should be checked periodically for fouling. To do this, the pump should be removed from the reservoir; ensure that the mounting gasket is in good condition when refitting, and that the pump mounting screws are sufficiently tightened to effect a seal between the pump and reservoir.

To drain the reservoir, remove the hexagon plug at the reservoir base (where fitted). A new copper sealing washer should be used when refitting plug.

The reservoir may also be drained and cleaned out by removing the pump, allowing access through the pump barrel hole.

If using aqueous media, ensure that the reservoir is protected from low temperatures to prevent against risk of freezing.

Sarum Hydraulics Ltd also offer a servicing facility; please advise before returning the unit to us.

IMPORTANT NOTE

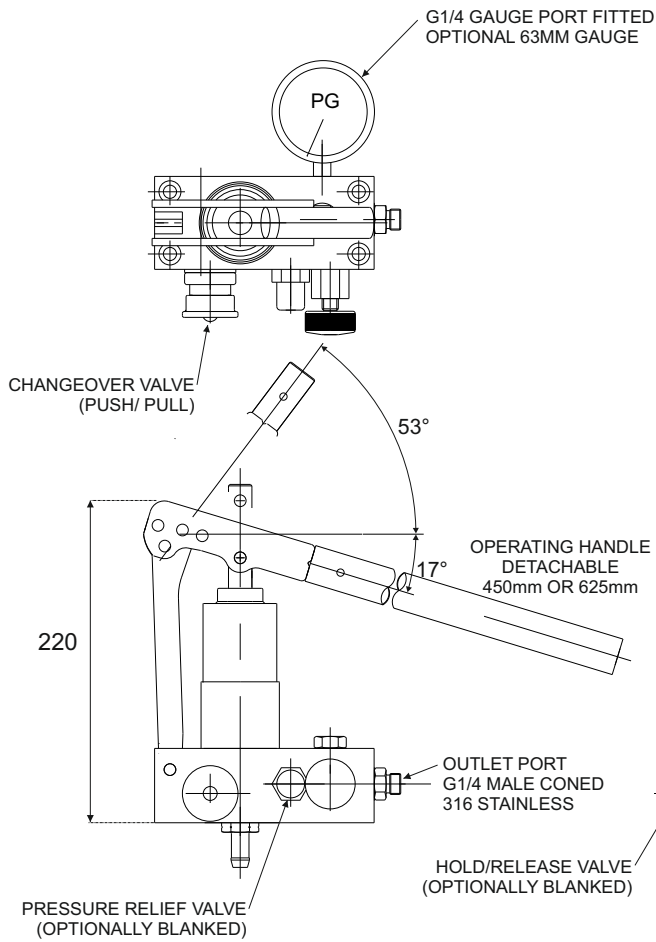
This equipment must not be modified in any way by a third party; to do so may invalidate the certification.

SPECIFICATION

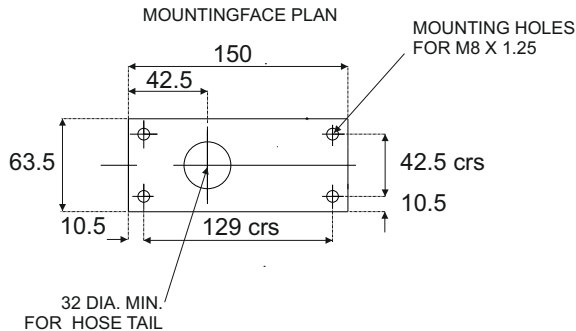
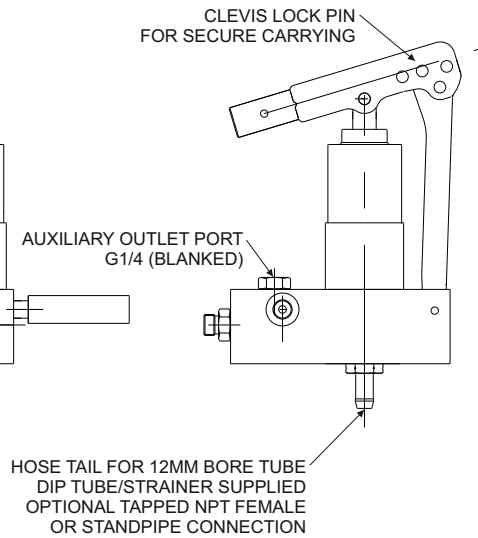
Displacement per stroke/ max. pressure
 MD-6-45: LP 45cc to 50 bar, HP 4.7cc to 450 bar
 MD-6-70: LP 45cc to 50 bar, HP 3.8cc to 700 bar
 MD-6-10: LP 32cc to 50 bar, HP 2.6cc to 1000 bar
 Max. flow (typical)
 Low pressure operation: 1.8L/ min (MD-6-10 1.3L/min)
 High pressure operation: MD-6-45: 0.19L/min
 MD-6-70: 0.15L/min
 MD-6-10: 0.10L/min

Max. operating hand load (625mm handle): approx. 490N
 Compatibility: group 1 and group 2 liquids- see page 1 for full details. Typical applications; water, water-glycol, mineral oil (nitrile seals) Fluorocarbon and EPDM sealing options- check compatibility first; if in doubt, consult factory.
 Ambient operating temperature range: -20 to 40°C
 Media operating temperature range:
 Nitrile: -35 to 80°C
 Fluorocarbon: -26 to 80°C
 EPDM: -50 to 80°C

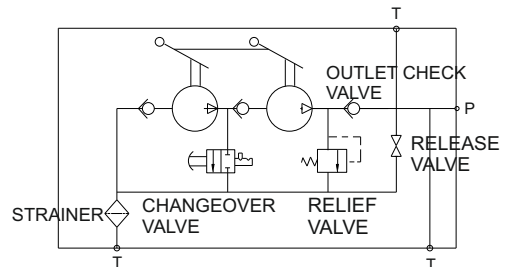
DIMENSIONS - PUMP



ALL DIMENSIONS ARE IN mm
 WEIGHT= 7kg
 MOUNTING ORIENTATION: UNIVERSAL



HYDRAULIC CIRCUIT DIAGRAM



DIMENSIONS - RESERVOIRS

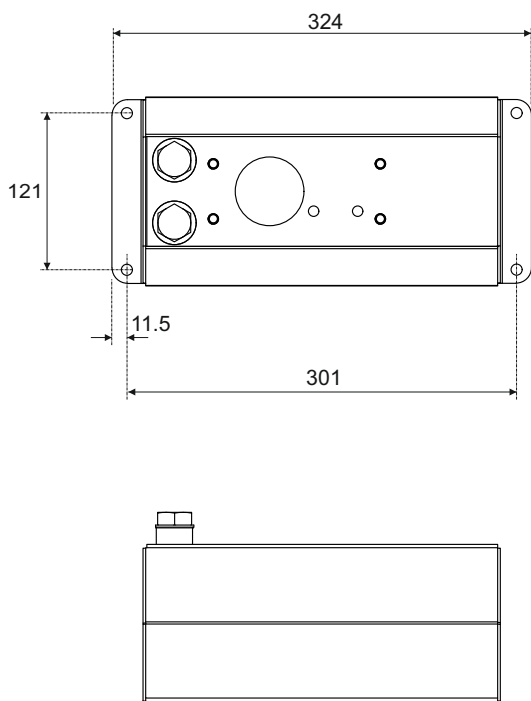
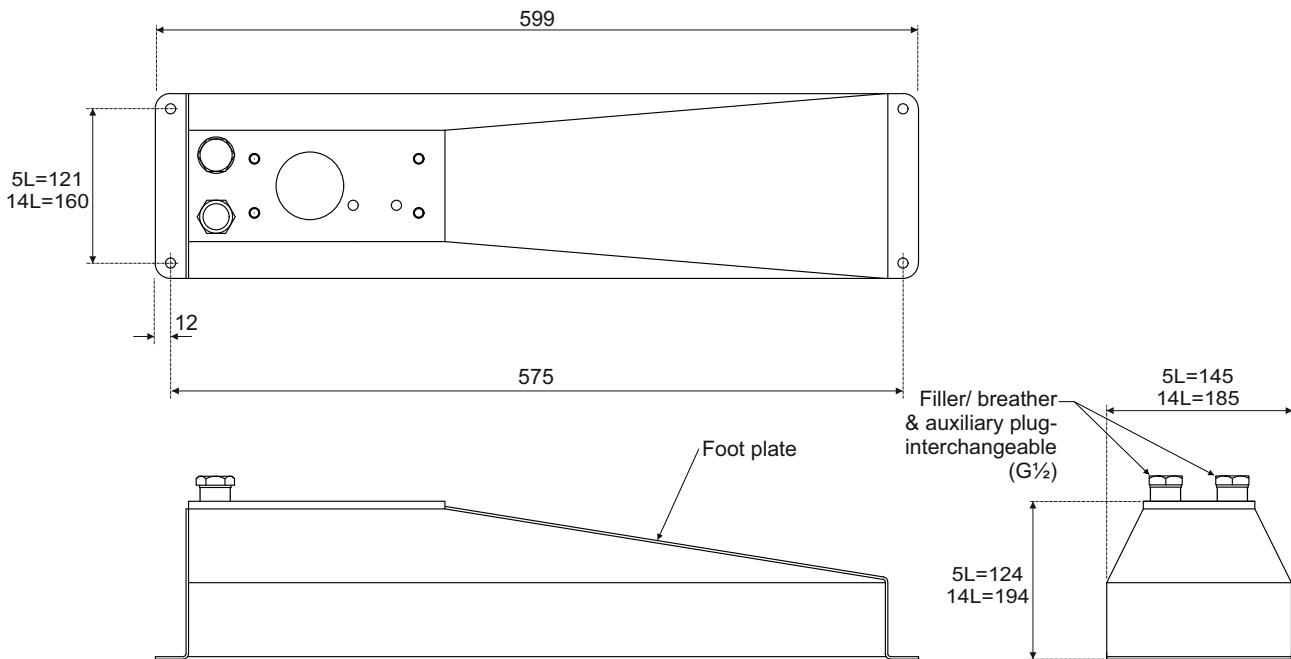
5 LITRE & 14 LITRE 'ERGO' PORTABLE AND FIXED MOUNTING 316 STAINLESS STEEL

Suitable for horizontal mounting (as shown)

Use 8mm dia. fixing screws

All dimensions in mm - not to scale

Weight (empty): 5L=5kg
14L=8kg



4 LITRE 'ERGO' FIXED MOUNTING 316 STAINLESS STEEL

Suitable for vertical and horizontal mounting

Use 8mm dia. fixing screws

All dimensions in mm - not to scale

Weight (empty): 5kg

