



SOLENOID CONTROLS & FULL GUARDS

OPERATORS MANUAL



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CONTENTS

INTRODUCTION

CONTENTS	2
CONTENTS CONTINUED	3
SAFETY PRECAUTIONS	4
PRODUCT DESCRIPTION	5

INSTALLATION

HANDLING	6
MACHINE INSTALLATION	7
GUARD INSTALLATION	8
CONNECTION	9

OPERATION

PRE-USE & START UP PROCEDURE	10
OPERATORS MANUAL	11

MAINTENANCE

MAINTENANCE SCEDULE	12
LUBRICATION	13
OIL CHANGE PROCEDURE	14
OIL CHANGE PROCEDURE CONTINUED	15

TECHNICAL

LIGHT BARRIER	16
FLOW DIVERTER VALVE	17



CONTENTS

CONTINUED

COMPONENTS	
PUMP ASSEMBLY	18
PUMP ASSEMBLY (INTERNAL)	19
VALVE ASSEMBLY	20
TABLE ROLLERS	21
FLOW DIVERTER VALVE	22
TURNOVER RAM	23
CLAMP RAM	24

SPECIFICATIONS

SPECIFICATION	25
OIL DATA SHEET	26
OIL DATA SHEET CONTINUED	27
GREASE DATA SHEET	28
GREASE DATA SHEET CONTINUED	29

ATTACHED DOCUMENTS

DRAWINGS, EC CONFORMITY



SAFETY PRECAUTIONS

SAFETY: THE MACHINE IS TO BE USED ONLY IN ACCORDANCE WITH SAFTEY GUIDELINES AND IS NOT TO BE USED FOR ANY OTHER PURPOSE THAN ORIGINALLY INTENDED.

The machine is fitted with a stop button, which <u>MUST</u> be activated in all possible emergency situations, disabling the machine.

The following guidelines <u>MUST</u> be obeyed and the machine operated in strict accordance with the operators manual:

- Only fully authorised personnel may operate this machine.
- Only fully authorised, suitably qualified personnel may carry out maintenance operations on this machine.
- The machine <u>MUST</u> only be operated when the area within the fixed guards is clear. Nobody may enter this area with the machine in operation.
- At no point may any person/persons enter the area under the machine body.
- The machine <u>MUST</u> only be operated within the maximum load capacity for which it was designed.
- All loads <u>MUST</u> be located securely in the machine, with the leading corner placed against the fixed rear/side wall.
- The electrical supply <u>MUST</u> be isolated and suitably locked off, when carrying out any maintenance tasks.
- When performing maintenance on or near the body, suitable chocks should be put in place to prevent the body moving.
- Do **<u>NOT</u>** tamper with or alter the machine in any way.
- Correct personal protective and safety equipment <u>MUST</u> be used at all times and in accordance with government health and safety and site specific guidelines.



PRODUCT DESCRIPTION

SOLENOID CONTROLS

The Retriever is designed for the efficient exchanging of pallets from a load.

The machine is loaded at a floor level, with either fork or pallet truck. It then tips the load through 95 degrees, enabling the pallet to be easily exchanged. The load is then returned to its original orientation and removed from the machine.





This retriever has a control panel fitted to the guard caging, this ensures the machine can be operated from a position of safety, there is also a stop button fitted to the control panel. The guards are fitted with light barriers which shut down the machine if anyone enters the guarded area with the machine in operation.

The machine is fitted with a unique identification plate attached to the frame. On this plate is stamped the model type, machine serial number, year of manufacture and maximum permissible machine load. This information should be quoted in every communication with us, enabling us to deal with your queries as effectively as possible.



NOTE: THE MACHINE SHOULD NOT BE USED FOR ANY OTHER PURPOSE THAN ORIGINALLY INTENDED.



HANDLING

The machine **MUST** only be unloaded and loaded with the use of a suitably rated fork lift truck and a competent, qualified driver.

There are two fork tine receiving slots on the machine frame. Machine must be moved with the table tilted fully back as shown in picture below. If required a designated lookout person should be assigned if the drivers visibility is reduced by the load. Ensure the forklift tines are completely through the receiving slots before lifting the machine.



SAFETY: CARE MUST BE TAKEN WHILST MANOEUVRING THE EQUIPMENT AROUND OBJECTS AND PEOPLE TO AVOID DAMAGE/INJURY.



MACHINE INSTALLATION

Tools Required:	Fasteners (supplied):
13mm spanner	M8 fixings
19mm spanner	M12 fixings
30mm spanner	M12 floor bolts
Suitable mallet	M20 floor bolts
12mm/20mm SDS drill bits	

Before installation, ensure the following items are made available:

- A suitably rated forklift
- A flat area of suitable size (see plans).

Also ensure the presence of:

- A fully qualified electrician
- A fully qualified forklift driver
- Suitable floor space for the machine
- Correct electrical supply

NOTE: AT THIS POINT THE FLOOR SHOULD BE CHECKED TO A DEPTH OF AT LEAST 200mm FOR UNDERGROUND OBSTRUCTIONS, WHICH COULD HINDER INSTALLATION.

- Ensure the floor is free of obstructions or debris which could hinder the placement of the machine.
- Place the machine on a level ground or pit, in its intended final position, ensuring there is enough space to access the electrical panel door.
- With the machine located. use a suitable drill and 20mm drill bit to drill the floor at each of the floor attachment points of the frame to a depth of 160mm.
- Using a suitable mallet, locate the M20 floor anchor bolts securely into place. Using a 30mm spanner or ratchet, secure the machine to the floor bolts using the appropriate fixings.



GUARD INSTALLATION

- Once the Original Retriever is correctly bolted to the floor. Roughly place the Isolator panel in it's place (be careful not to trap any cables while assembling the guards).
- Lay out the panels and posts as the layout drawing in the back of this manual with all the two holes on the feet on the outside of the guarded area.

NOTE: ENSURE THE GUARDS ARE IN THE CORRECT ORIENTATION BEFORE COMMENCING ASSEMBLY.



- Start the guard assembly at the rear of the machine with the isolator panel guard. Loosely assessable the guard until they are self standing and are in roughly the correct position. Check the 1st isolator panel fits evenly around the isolator box. Further instruction for assembly of the guards are on the page 10.
- Fix the control box to the front panel with the 4 x M6 bolts supplied.



NOTE: DO NOT TIGHTEN THE GUARD PANELS DOWN AT THIS POINT.

- Then fit the cable trays to the guards at both ends of the machine (this will help with alignment).
- Fix the L bracket to the bottom of the guards, start 150 mm from the corner of the guard and the rest about 582 mm apart after that Fix the L bracket with M6 x 20 blots so the square washer touches the bottom of the guard.



L bracket bolt assembly



Square washer touching bottom of guard



150mm first gap

then 582mm



GUARD INSTALLATION CONTINUED

• Place the cable tray on the L bracket and loosely fasten to the L bracket check the alignment and then tighten the tray to the bracket.





- Fix the light barrier brackets to both front guards using M8 x 55 bolts, make sure the bracket are the correct way up and the with the 'T' at the top.
- Check the guards are in the correct positions.
- Tighten all the guards, Then fix the control panel in the control box recess by removing the bottom of the control box, fixing the Panel to the Box and replacing the bottom of the box.
- Attached the upright cable tray to the front guard under the control panel.
- Attached the light barriers to the brackets on the central position and attached the light barrier cables.
- Turn on the Inverter and align the light barriers (see Page 18) once aligned turn off the inverter at the isolator and lock off.



Upright electrical tray.

SAFETY: ENSURE THE MACHINE ELECTRICAL ISOLATOR ON THE MAIN ISOLATOR PANEL IS SWITCHED OFF AND LOCKED

- Mark out and drill the floor for each attachment position of the guard feet (8mm x 100mm in depth). Locate the M8 floor bolts for the fixed guarding securely into the ground. Once the guards are aligned, tighten all guard panel fasteners (once the holes are marked the cable tray can be removed to help with access and replaced when guards are bolted to the floor).
- •
- Bolt the Isolator stand to the floor checking there is an even gap around the panel.
- Secure all the cables to the cable tray using the clips and ties provided any excess cable should be wound up and cable tied near the rear of the machine.
- Turn on the inverter and check alignment of the light barriers, small adjustment can be done on the light barrier fixings if necessary.



GUARD INSTALLATION Continued

Mounting the foot



1 2) 0 0 0 0

Mounting the panels (Linear wall)

1) Screw, Hex Head M8x90 2) Nut, Flanged, M8

Mounting the angle joint

- 5) Screw Hex Head M8x60

Mounting the panels (Angle wall)





1) Screw, Hex Head M8x70 2) Nut, Flanged, M8

1) Screw, Hex Head M8x55 2) Nut, Flanged, M8



CONNECTION

SAFETY: THE FOLLOWING SHOULD ONLY BE CARRIED OUT BY A FULLY QUALIFIED ELECTRICIAN.

- Connect the machine to an adjacent suitably rated electrical supply.
- Ensure the stop button on the control panel is released.
- Switch the electrical isolator on, at the electrical box (location depends on specification and layout plan drawings, see attached).
- Check the guards and light barriers for correct alignment and functionality.
- Press the **START** Button on the control panel, this will reset the light barriers and start the pump motor.
- Check for the correct clockwise rotation of the motor. If necessary, change the motor connections to reverse the polarity.



PRE-USE & START UP PROCEDURE

Pre-use Inspection:

- Visually inspect the machine for any obvious deformities or irregularities.
- Ensure there are no oil leaks and the hydraulic oil level is correct on the tank sight glass.
- Ensure the area under the body is free from debris using a long handled broom, never enter the area under the body at any time.
- Ensure any load placed in the machine is correctly located against the fixed rear wall and sliding side table.

SAFETY: ALWAYS ENSURE THERE ARE NO PERSONS PRESENT WITHIN THE GUARDED AREA PRIOR TO STARTING!

SAFETY: NEVER START UP THE MACHINE IF ANY OF THE ABOVE CRITERIA ARE NOT MET

Start up Procedure:

- Turn the electrical isolator on (located on the rear panel).
- Press the **START** button, until the light barriers reset and the pump motor runs.
- Confirm that the motor stops when the top most beam on the light barrier is physically interrupted.
- Confirm when all remaining beams are broken, that the motor again stops.
- Check the clamping operation of the machine, by pressing the clamp and unclamp buttons at the control panel.
- Check the machine inverts and returns when the corresponding buttons are pressed at the machine control panel.
- Check functionality of the stop button.
- Follow the operating instructions given on the following page.



OPERATORS MANUAL

• Ensure any load placed in the machine is correctly located against the fixed rear wall and sliding side table.

SAFETY: ALWAYS ENSURE THERE ARE NO PERSONS PRESENT WITHIN THE GUARDED AREA PRIOR TO STARTING!



- Press the **START** button.
- Press and Hold the **CLAMP** button until the load is fully clamped.
- Once the load is fully clamped, press and hold the **INVERT** button to turn the load through 95 degrees.
- Once the load reaches the limit of travel, press the unclamp button until there is sufficient room to remove the pallet. Replace the original pallet from the load. Ensure the guarded area is free from all personnel and foreign objects before proceeding to the next steps.
- Press the **START** button to reset the light barriers.
- Press and Hold the **CLAMP** button until the load is fully clamped.
- Press and Hold the **RETURN** button until the load is fully inverted.
- Once the load is in the upright position, press and hold the **UNCLAMP** button, to enable removal of the load.



MAINTENANCE SCHEDULE

SAFETY: BEFORE CARRYING OUT ANY MAINTENANCE OPERATION ENSURE THE MACHINE IS IN ITS DEFAULT (AT REST) POSITION AND THAT THE ELECTRICAL ISOLATOR ON THE MAIN CONTROL PANEL IS SWITCHED OFF AND LOCKED.

Weekly:

- Check all lubrication points & grease if required, including,
 - i. Combination Bearings (Page 15)
 - ii. Body centre pin (Page 15)

Monthly:

• Check the hydraulic oil level at the tank sight glass, replenish with correct grade oil if necessary (See specifications page)

Bi-Annually:

- Visually examine the machine for obvious deformities, paying particular attention to:
 - i. Frame, body and tables (cracks and deformation)
 - ii. Hoses, valves and manifolds (leaks or perishing)
 - iii. Electrical panel, including latches and hinges
 - iv. Electrical cables, insulation, conduit and clamps
 - v. Rubber buffers (wear and perishing)
 - vi. Light barriers (if present)
 - vii. Sliding table rollers
- Ensure all guard panels are secure and free from damage
- Clean the motor casing and fins
- Renew the hydraulic oil and suction filter (see pages 16 & 17)

SAFETY: IN THE UNLIKLEY EVENT OF ANY MACHINE MALFUNCTION, STOP AND REPORT IMMEDIATELY.

SAFETY: REPLACE ALL GUARD PANELS REMOVED DURING ANY MAINTENANCE OPERATIONS & ENSURE ALL SAFTEY DEVICES ARE RE-INSTATED.



LUBRICATION GREASING POINTS

Lubricate all grease points shown below in accordance with the maintenance schedule on the previous page.

NOTE: It is important to use the correct grade of grease (see specification page).



COMBINATION BEARINGS

This machine is fitted with precision Combination bearings, these bearings come pre lubricated and do not require greasing. However it is worth checking the condition of the bearings in accordance with the maintenance schedule and if required <u>lightly</u> grease.



SAFETY: SUITABLE CHOCKS SHOULD BE PUT IN PLACE TO PREVENT THE BODY FROM MOVING, WHILST LUBRICATION OF THE MACHINE IS CARRIED OUT.

SAFETY: DISPOSE OF WASTE OIL AND SOILED RAGS CORRECTLY AND IN ACCORDANCE WITH LOCAL AUTHORITY GUIDELINES.



OIL CHANGE PROCEDURE

Tools Required:	Materials Required:	Part No.
13mm spanner	Oil suction filter	H-F-SE1320
24mm spanner	Return filter element	H-F-2012
Oil transfer pump	Qualube Hydraulic HM 10	A/R
60 litre container	Oil absorbent pads	A/R

- Place a suitable empty container, sufficient to hold approx. 60 litres of oil.
- Using a 24mm spanner or ratchet, unscrew the top of the return filter and carefully remove the filter element.
- Remove the oil from the tank into the container through the return filter socket, using a suitable oil transfer pump.

NOTE: ALTHOUGH THE WHOLE HYDRAULIC SYSTEM CONTAINS 60 LITRES OF OIL ONLY 40 LITRES WILL BE IN THE TANK ITSELF.

- Renew the filter element and refit the top of the return filter.
- Remove the M8 screws from the tank top lid and lift off carefully. The strainer filter will be found attached to the pump assembly.



- Remove the strainer filter by turning it anti-clockwise.
- Replace the strainer filter with the new filter component.



OIL CHANGE PROCEDURE

CONTINUED

- Examine the tank lid seal for deterioration, signs of perishing or damage and replace the seal if necessary. At this point drain any excess oil from the motor/pump assembly.
- Carefully refit the complete tank top lid assembly.
- Refill the hydraulic tank through the filler breather with Qualube Hydraulic HM 10 grade oil until it reaches the top mark on the sight glass. Fill the tank carefully, to prevent a build up of air in the system.

NOTE: THE OIL LEVEL MAY DROP A SMALL AMOUNT AFTER THE MACHINE HAS BEEN RUN FOR THE FIRST TIME, THIS IS NORMAL AS THE OIL HAS TO FILL THE HYDRAULIC SYSTEM.

- Re-fit the tank filler/breather cap.
- Run the machine for approximately 5 minutes to circulate the oil and remove any air that may have entered the system during the oil change procedure.
- Re-check the hydraulic oil level and examine the machine for any oil leaks.
- Top up the machine if the oil level has dropped.

SAFETY: DISPOSE OF WASTE OIL CORRECTLY, WITH AN AUTHORISED COMPANY IN ACCORDANCE WITH LOCAL AUTHORITY GUIDELINES.



TECHNICAL INFORMATION

LIGHT BARRIERS

NOTE: NO ADJUSTMENT OF THE LIGHT BARRIERS MUST BE MADE, UNLESS DIRECTLY INSTRUCTED TO DO SO BY THE MANUFACTURER.

The light barriers operate by projecting a beam from an emitter, which is then picked up by the adjacent receiver, if this beam is broken the machine will automatically shut down. The barriers are a vital safety feature and must not be tampered with.

- The barriers are checked and aligned at factory and if erected accurately and in accordance with the floor plan, should be correctly aligned. No other adjustments need to be carried out.
- If however the floor is uneven, the barriers may not align correctly and adjustments may need to be made. In this case, the M6 mounting screws (top & bottom) may be loosened. This will allow the mounting brackets to be adjusted. Shims may also be required to gain accurate alignment.

Alignment:

- The Emitter will show a constant green indicator.
- When moving the emitter up and down or side to side with respect to the receiver, a red indicator will be shown on the receiver, this indicates that the barrier is not aligned. As the emitter starts to align with the second amber receiver а indicator is shown at the receiver. When full alignment is gained the red and amber lights extinguish at the receiver and are replaced by a single green indicator. When full alignment is achieved both the emitter and receiver will indicate green.



SAFETY: BEFORE CARRYING OUT ANY ADJUSTMENTS, ENSURE THAT THE ELECTRICAL ISOLATOR ON THE MAIN CONTROL PANEL IS SWITCHED OFF AND LOCKED.



TECHNICAL FLOW DIVERTER VALVE

NOTE: NO ADDITIONAL ADJUSTMENT TO THE FLOW DIVERTER VALVE SHOULD BE REQUIRED.

- 1. The flow diverter valve acts only on the return operation of the machine. It is a 2 position valve with no neutral. It operates by switching flow from the turnover ram back to the hydraulic reservoir tank.
 - When the body is reaching the end of travel the plunger is depress by means of an adjustable buffer (located on side of body).

NOTE: This buffer should not be adjusted as it may cause the machine to malfunction.

• The plunger operates the valve which in turn diverts the feed from the turnover ram back into the hydraulic tank, thus disabling the ram.





COMPONENTS

PUMP ASSEMBLY



ltem	Component	Part No.
1	Motor/pump assembly	E-EMA-4KW
2	Pressure gauge	H-PG-4000 BTM



COMPONENTS PUMP ASSEMBLY (INTERNAL)



Item	Component	Part Number
1	11cc hydraulic pump	H-P-11CC
2	Strainer filter ()inside tank)	H-F-SE1320
3	Filler filter ()inside tank)	H-F-1163.40
4	LS252 motor bell housing	H-EM-B/HOUS
5	Return filter replacement element ()inside tank)	H-F-2012
6	Flexible coupling (inside bell housing)	H-EM-P/COUP



COMPONENTS SPOOL VALVE ASSEMBLY



Item	Component	Part No.
1	Valve Manifold Assembly	H-V-GM-STD



COMPONENTS TABLE ROLLERS



ltem	Component	Part No.
1	Sprung roller 6"	R-SR-6X1.5



COMPONENTS



ltem	Component	Part No.
1	Plunger operated flow diverter	H-V-SV80



COMPONENTS TURNOVER RAM & HYDRO TANK



ltem	Component	Part No.
1	Turnover Ram	H-RAM-PR0007-REV4
2	Ram seal kit (turnover ram)	H-RS-GM-90/50
3	Speed control valves (turnover ram)	H-V-SCV-06S
4	Return filter pressure indicator	H-F-RFI
5	Return filter assembly	H-F-1211.341
6	Filler/filter	H-F-1163.40
7	Tank sight glass	H-SG-FLT-221



COMPONENTS

CLAMP RAM



ltem	Component	Part No.
1	Clamp Ram	HIRAM-NSSR-C
2	Replacement seal kit	H-RS-GM-50/30



SPECIFICATION

Туре

Pallet retriever 95 degree

Solenoid control c/w full guards

Manufactured

2022

Beeston Kings Lynn, Norfolk, UK

General data

Minimum operating temperature (č)	0
Maximum noise level (Db)	<74.8
Finish	Ral 9010 Machine, black/Yellow guards

Mechanical data

Oil capacity (litre)	60
Oil pump capacity (cc)	11
Hydraulic system pressure (psi)	2000
Load capacity (kg)	1500

Electrics

Power supply (V)	415
Motor (kw)	4

Lubrication type

Oil	Qualube HM 32
Grease	Proteus 2ep

CECK



OIL DATA SHEET

QUALUBE HYDRAULIC HM FLUIDS

Qualube Hydraulic HM Fluids incorporate characteristics that give:

- 1. protection against oxidation, anti-wear properties to reduce the wear occurring in all moving parts.
- 2. rust inhibitor treatment to help reduce the detrimental effects of water contamination.
- 3. low foaming to prevent inadequate lubrication and potential damage to pumps.
- 4. good demulsibility characteristics allowing quick separation from water helping to prevent rust.
- 5. excellent hydrolytic stability to protect equipment from corrosion in the presence of water.
- **Qualube** Hydraulic HM Fluids offer superior wet filterability as measured by the AFNOR 48-691 performance test providing protection against fine filtration blockage due to the presence of water. This allows the product to meet the stringent requirements of increasingly fine filters being built into many modern hydraulic systems.
- The advanced chemistry that enhances the formulation's filterability affords it extreme thermal stability. As a result of this combination of characteristics, Qualube Hydraulic HM Fluids helps reduce the formation of sludge and varnish which can lead to unexpected downtime.
- For end users of hydraulic equipment this high standard of performance means protection of their equipment against the damaging effects of water, contamination, and longer service between filter and fluid replacement, excellent anti-wear, anti-rust performance and a more reliable system in operation.

Health and Safety:

These grades are mineral oil based lubricants and should be handled according to good standards of industrial hygiene. Further detailed information is available on request.

Storage:

Drums should be stored in a clean dry place and protected from extremes of temperature, store >5°c.

The information given is correct to the best of our knowledge. It is offered in good faith but without guarantee as the conditions and methods of use of our products are beyond our control.



OIL DATA SHEET CONTINUED

QUALUBE HYDRAULIC HM FLUIDS

Performance Specifications:

Qualube Hydraulic HM Fluids meet or exceed the requirements for industrial and mobile hydraulic systems which call for

Parker Denison HF-0 (formerly Denison HF-1, HF-2, HF-0)Vickers Product, Eaton Brochure 694 (formerly Vickers I-286-S and M-2950-S)MAG IAS, LLC (formerly Cincinnati MilacronP-68, P-69 and P-70)US Steel 127, 136DIN 51524, Part 2RexrothGeneral Motors LH-04-1, LH-06-1, LH-15-1Sauer DanfossBosch, variable vane pumpsISO 11158 (replaced ANFOR specs)Commercial Hydraulics*Hermiter State St

*except for PM-500 series silver containing pumps which require R&O additive systems

PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Oil
Odour:	None
Specific Gravity @ 20°C:	>0.98
pH:	N/A
Solubility:	Insoluble in water
Flash Point (closed cup) ^o C:	>200
Flammability Limit (in air % by volume) LEL:	N/E
UEL:	N/E
Vapour Pressure @ 20°C:	<0.1mm Hg.
Vapour Density (air = 1):	N/E
Boiling Point (^o C):	310 min.
Pour/Melting Point (^o C):	140 min.
Kinematic Viscosity @ 40 ⁰ C (mm ² S ⁻¹):	N/A

THESE PROPERTIES DO NOT CONSTITUTE A SPECIFICATION



GREASE DATA SHEET

Proteus 000EP, 00EP, 0EP, 1EP, 2, 2EP, 2M, 3

Lithium Soap Greases:

A range of premium quality multi purpose greases, manufactured from Lithium-12-Hydroxyl Separate Soap dispersed in solvent refined mineral base stocks, fortified with selected compounds to inhibit corrosion and oxidation. The grades highlighted with EP signifies the inclusion of specially selected soluble extreme pressure additives, and in the case of Proteus 2M the addition of improvised Molybdenum Disulphide has been added to enhance its operational characteristics.

This highly versatile range of greases are recommended for a variety of applications including automotive, industrial and off-highway plant for bearings, steering and chassis fittings, grease cups, water pump bearings and grease lubricated universal joints.

These grades may also be used to advantage over a wide range of other industrial applications from small high speed bearings operating under high unit pressure and load, as well as centralised lubricating systems. As well as the ability to provide continuous pump ability over wide temperature ranges, they exhibit excellent load carrying properties, high resistance to shock loading, coupled with exceptional, resistance to water washing.

Performance Benefits:

Long service life in a wide range of operational applications

RP/LB/20 November/1:

Excellent resistance to water washing and protection against rust and corrosion Reduced wear on heavily loaded bearing applications Controlled pump ability makes them ideally suitable for use in centralised lubrication systems Prolonged life due to high resistance to oxidation at high operating temperatures Extended bearing life in environments where water ingress could be a problem.

Health and Safety:

These grades are mineral oil based and should be handled according to good standards of industrial hygiene. Further detailed information is available on request.

Storage:

Containers should be stored in a clean, dry place and protected from extremes of temperature.

The information given is correct to the best of our knowledge. It is offered in good faith but without guarantee as the conditions and methods of use of our products are beyond our control.



GREASE DATA SHEET

Proteus 2EP

Lithium Soap Grease:

Typical Physical Characteristics:

	2EP
Appearance	Medium fibred grease
Colour	Bottle Green
Worked Penetration (IP50)	265/295
NLGI Classification	2
Dropping Point (IP132)	180EC min.
Operating Temperature Range	-20/+130EC
Oil Separation (IP121)	5% max
Oxidation Stability (IP142) 160 hours at 99EC - Pressure Drop psi	4
Water wash out ASTM D1264 at 38EC at 79EC	3% 4%
Timken OK Load (IP326) Kg	20
4 Ball Weld Load (IP239) Kg	315