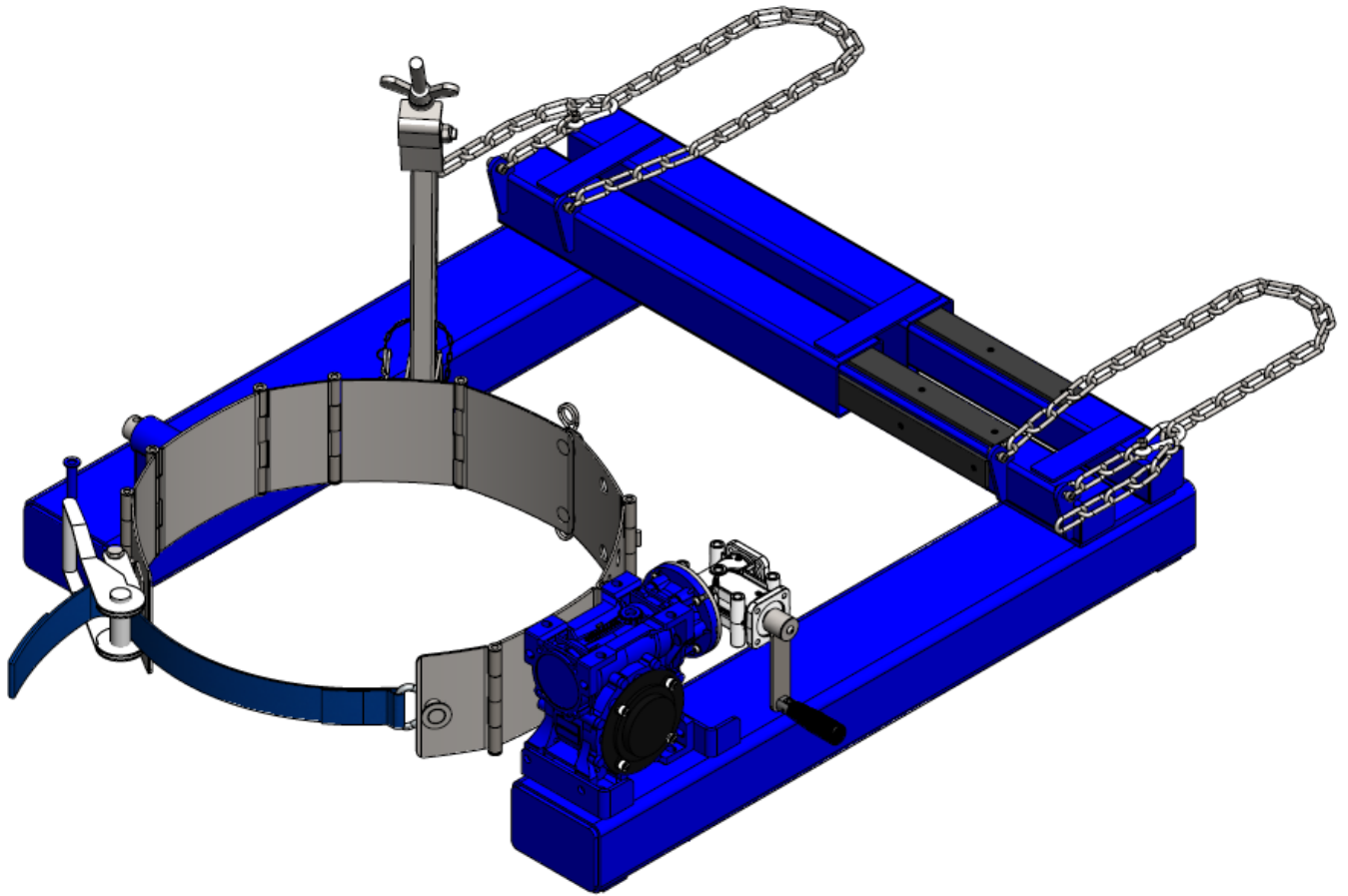


Operating Instructions



DRU04

Forklift Drum Tipper Attachment

Bespoke Handling Equipment Ltd.
Leedstown
Hayle
Cornwall
United Kingdom
TR27 6DS

E-mail: sales@sts-trolleys.co.uk
Tel: +44 (0)1736 851050
Website: www.sts-trolleys.co.uk

Section I – Correct Use and Application	2
General	2
Foreseeable Misuse of the Unit	2
Approved Application Conditions	2
Proprietor Responsibilities	3
Adding Attachments and/or Accessories	3
Safety Regulations for the Operation of the Unit	3
Consumables and Parts	5
Ex Certified Units (if applicable)	5
Lifting the Unit	6
Unit Overview	7
Section II – Unit Description	8
Section III – Unit Operation	9
Pre-start Inspections	9
Securing to Forks	9
Clamping a Drum	10
Tipping a Drum	11
Maximum Offset Load for Rotating a Load	12
Section IV – Unit Maintenance, Troubleshooting and Consumables	13
Maintenance Checklist	13
Troubleshooting	14
Consumables	15
Ratchet Strap Replacement	15
Section V - Technical Specification	16
General Arrangement	16
Section VI - Decommissioning the Unit	17
Prior to Decommissioning	17
Final Decommissioning and Disposal	17
Recommissioning	17
Safety Tests to be Performed at Intervals and After Unusual Incidents	17

Section I – Correct Use and Application

Only operation manuals written in English are the original instructions, versions provided in any other language then become a translation of the original instructions.

General

The unit described in the present operating instructions must be used, operated and serviced in accordance with the present instructions. Any other type of use is beyond the scope of application and can result in damage or injury to personnel, the unit or property. The unit described in the present operating instructions complies with BS EN ISO 17050-1:2010 and the EC Machinery Directive 2006/42/EC.

Foreseeable Misuse of the Unit

Personnel must take care when operating the unit. The following actions must be adhered to:

- The maximum safe working load (SWL) must not be exceeded.
- Do not travel with a raised load 500mm above the ground unless necessary.
- When manoeuvring the unit, do not exceed a speed of 1m/s (3.6km/h).
- When manoeuvring a raised load above 500mm, do not exceed a speed of 0.1m/s (0.36km/h).
- If applicable, do not over lower the head of the unit onto a platform, such as a mezzanine floor.
- Do not carry or lift other personnel.
- Do not stand or ride on the unit.
- Loads must be undamaged.
- Do not negotiate inclines unless otherwise stated.
- Do not stand underneath a raised load or within the confines of the unit during operation.
- The load must be lifted and/or mixed by the attachment provided.
- Do not alter the unit specification from original supply.
- Do not disable, remove or adjust safety mechanisms or switches.
- Observe all instruction decals applied to the unit.
- Do not leave the unit in direct sunlight.
- The manufacturer shall not be held liable in case of faults or accidents due to negligence, incapacity, installation by unqualified personnel or improper use.

Approved Application Conditions

- Operation in dry industrial and commercial environments.
- Permissible temperature range 5°C to 40°C.
- Lighting of at least 300 Lux.
- Altitudes not exceeding 2000m.
- Operation only on secure, level surfaces with sufficient capacity.
- Operation only on routes that are visible and approved by the proprietor.
- Operation in accordance with guidance stated within the operating instructions.
- The unit must be maintained in accordance with the maintenance schedule stated within the operating instructions.
- Appropriate personal protective equipment, PPE, must be worn at all times.

Proprietor Responsibilities

For the purposes of the present operating instructions the "proprietor" is defined as any natural or legal person who either uses the unit themselves, or on whose behalf it is used. In special cases (e.g. leasing or renting) the proprietor is considered the person who, in accordance with existing contractual agreements between the owner and user of the unit, is charged with operational duties. The proprietor must ensure that the unit is used only for the purpose for which it is intended and that there is no danger to life or limb of the user and third parties. Furthermore, accident prevention regulations, safety regulations and operating, maintenance and repair guidelines must be followed. The proprietor must ensure that all users have read and understood these operating instructions. The proprietor must perform an onsite risk assessment before the unit is put in to service.

IMPORTANT

Failure to comply with the operating instructions shall invalidate the warranty. The same applies if improper work is carried out on the unit by the proprietor or third parties without the permission of the manufacturer.

Adding Attachments and/or Accessories

The mounting or installation of additional equipment which affects or enhances the performance of the unit requires written permission of the manufacturer. Local authority approval may also need to be obtained. Local authority approval does not however constitute the manufacturer's approval. An onsite risk assessment must then be carried out.

WARNING - ANY UNAUTHORISED MODIFICATIONS OR ADDITIONS TO THE UNIT SHALL INVALIDATE THE WARRANTY AND STS SHALL NOT BE LIABLE.

Safety Regulations for the Operation of the Unit

Operator authorisation

The unit may only be used by suitably trained personnel, who have demonstrated to the proprietor, or their representative that they can operate the unit safely and in accordance with the operating instructions.

Operator's rights, obligations and responsibilities

The operator must be informed of their duties and responsibilities and be instructed in the operation of the unit and shall be familiar with the operating instructions. Operators must be provided the appropriate PPE as mentioned in the 'Approved Application Conditions' section of this manual.

Unauthorised use of unit

The operator is responsible for the unit during the time it is in use. The operator must prevent unauthorised persons from operating the unit.

Damage and faults

The proprietor must be immediately informed of any damage or faults to the unit or attachment. Units which are unsafe for operation must be quarantined until faults have been rectified and the unit deemed safe for operation.

Servicing and repairs

All unit parts and consumables are available from STS. The unit must be fitted with original STS parts and consumables unless otherwise stated. Any deviation from non-original parts and consumables may result in injury to personnel or damage to the unit and will invalidate the warranty. The operator must never disable, remove or adjust safety mechanisms or switches. The unit should only be serviced and repaired by a competent individual as selected by the company the equipment is intended for use with.

Safety devices and warning decals

Safety devices, warning decals and warning instructions in the operating instructions and on the unit must be strictly observed.

Travel routes and operational areas

Only use lanes and routes specifically designated for unit traffic. Unauthorised third parties must stay away from operational areas. The unit must only be operated in operational areas with sufficient lighting to avoid damage or injury to personnel, the unit or property. Additional equipment is necessary to operate the unit in areas of insufficient lighting.

Hazardous area of the unit

The hazardous area is defined as the area in which a person is at risk due to the unit itself or movement of the unit and/or load. This also includes areas which can be reached by falling loads. The operator must:

- Instruct unauthorised personnel to leave the hazardous area.
- Give a warning signal with plenty of time for personnel to leave.
- Stop all operations if unauthorised personnel are within or enter the hazardous area.

Travel conduct

The operator must adapt the travel speed to local conditions. The unit must be driven at slow speed when negotiating bends or narrow passageways, when passing through swing doors and at blind spots. Abrupt stopping (except in emergencies), rapid U turns and overtaking at dangerous or blind spots are not permitted. When not in use, the equipment should be parked in a safe location with the brakes engaged.

Travel visibility

The operator must look in the direction of travel and must always have a clear view of the route ahead. When transporting loads that affect visibility, a second person must safely assist the operator to observe the travel route.

Type of loads

The operator must make sure that the load is in a satisfactory condition. Loads must always be positioned safely and carefully. Use suitable precautions to prevent parts of the load and/or their contents from falling or spilling.

Cleaning

Cleaning of the unit depends on the environment that the unit is used in. It is recommended that the unit be cleaned daily if the unit comes into contact with aggressive substances such as chemicals, fertilizers, salt, etc. It is recommended to use detergent and a damp cloth to clean the body of the unit. Do not use flammable liquids to clean the unit. Do not clean the unit with pressurised water. If the unit is rated for Ex environments, the unit must be kept clean and dust free.

Personal protective equipment (PPE)

PPE must be worn at all times. A minimum of safety shoes must be worn while operating the unit. Safety shoes, safety glasses, protective gloves, hearing protection and protective overalls are to be worn when carrying out servicing, repairs and maintenance. When operating overhead loads, a hard hat must be worn. End user health and safety procedures and best practices should be followed in addition to the above recommendations.

Consumables and Parts

Environmental hazards

Parts and oils must be disposed of in accordance with the relevant environmental protection regulations.

Hydraulic hoses (if applicable)

Brittle hydraulic hose lines cause accidents. Hairline cracks in the hydraulic lines can cause injury and infection. The hydraulic hoses should only be serviced or replaced by a competent individual as selected by the company the equipment is intended for use with. It is the responsibility of the proprietor to maintain the hydraulic hoses.

Lift chains (if applicable)

Incorrectly cleaned chains can cause accidents. Lift chains are safety-critical parts. They must not contain any serious contamination. Lift chains and pivot pins must always be clean. Never clean chains with high pressure steam jet cleaners, cold or chemical cleaning agents. It is recommended to clean the chains and pivot pins in an unloaded state with a citrus cleaner to remove dirt and grime followed by the application of a PTFE based industrial grade chain lubrication spray or food grade lubrication spray.

NOTE: For more consumable information refer to 'Section IV – Unit Maintenance, Troubleshooting and Consumables'.

Ex Certified Units (if applicable)

Operational hazards

Processing of liquids or suspensions (mixing or stirring, filling or draining) can give rise to ignition risks due to static electricity including the risk of propagating brush discharges. The processing of liquids or suspensions is the responsibility of the end user.

Environmental hazards

Care should be taken by the end user to ensure collisions do not occur between the unit and its surrounding environments which may create a potential ignition source.

Earthing chains

Ensure earthing chains are securely fitted and are in contact with the ground at all times, wheels should be kept clean and free from debris.

Electrically powered units

Care should be taken by the end user to ensure any electrical cables to and/or from the unit are kept away from travel areas where they may become entangled, damaged or be a trip hazard. Electrical cables must be kept dry, clean and be routinely checked as stated in the maintenance procedures. Any cracked or damaged electrical cables must be reported immediately and the unit be put out of service until resolved.

Lifting the Unit

Lifting the unit safely

In order to raise the unit safely, including off a pallet, proceed as follows:

- The unit must be on a level surface to prevent it from moving accidentally.
- The lifting gear must only be secured to the points designated for this purpose.
- Always use lifting gear with sufficient capacity.
- The unit should only be handled by qualified personnel who are trained in using lifting slings and tools.
- Do not walk into or stand under a raised unit.
- If necessary, secure the unit with guide ropes to aid when lifting the unit.

Jacking the unit safely

In order to jack up the unit safely, proceed as follows:

- The unit must be on a level surface to prevent it from moving accidentally.
- Always use a jack with sufficient capacity.
- The unit should only be handled by qualified personnel who are trained in using lifting slings and tools.
- When jacking up the unit, take appropriate measures to prevent it from moving, slipping or tipping over (e.g. wedges, wooden blocks, stops)

WARNING - IMPROPER LIFTING CAN RESULT IN SERIOUS ACCIDENTS

Securing the unit for transport

In order to transport the unit safely, proceed as follows:

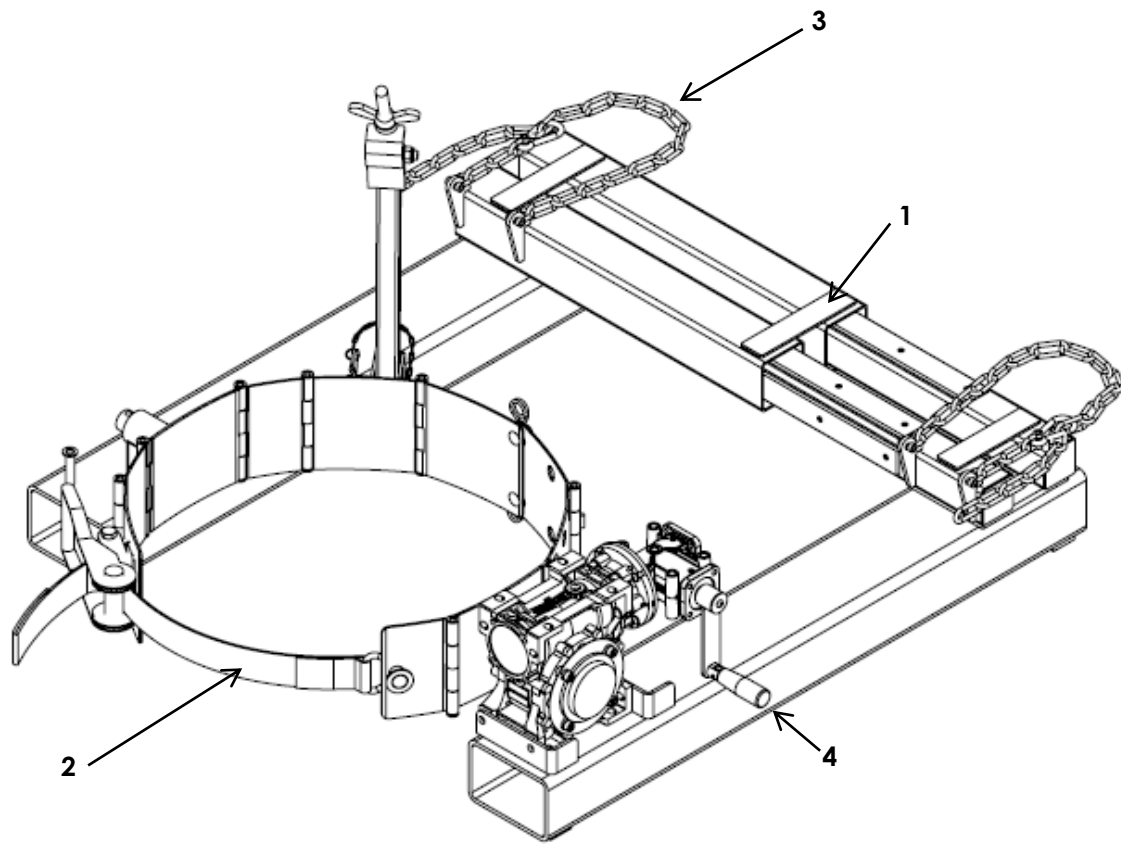
- The unit must be securely fastened when transported on a lorry/trailer.
- The lorry/trailer must have fastening rings.
- Use wedges to prevent the unit from moving.
- Use only tension belts or tie-down straps with sufficient strength.

WARNING - IMPROPER FASTENING OF THE UNIT DURING TRANSPORT CAN RESULT IN SERIOUS ACCIDENTS

IMPORTANT

After use, remove supplied lifting strop(s) and/or dee shackles and dispose.

Unit Overview



Note: Generic unit shown

No.	Function
1	Frame
2	Clamping Band
3	Forklift Fork Securing Chain
4	Gearbox Rotation

Section II – Unit Description

The DRU04 is an overhead drum rotator designed to be used with a forklift. It is designed to support and rotate drums. The unit uses a manually rotated gearbox.

It is designed for use on level surfaces for use with drums ranging from 50 - 220 litres, steel or plastic drums with a diameter of between 350mm - 600mm.

The drum should be stood vertical; the unit can then approach the drum and straddle either side. The band is pushed flush to the drum and then fastened around the drum using the ratchet and strap. Once the rim clamp is adjusted and fastened to the top lip of the drum, it can then be lifted, transported and rotated.

The unit incorporates enclosed, smooth geometry with rounded edges to ensure safe handling of the unit.

Section III – Unit Operation

IMPORTANT

Before using this unit, operators must read and understand this instruction manual. Failure to observe the instructions in this manual will invalidate the warranty.

NOTE: Personal Protective Equipment (PPE) must be worn at all times, see 'Section I – Correct Use and Application' for more information.

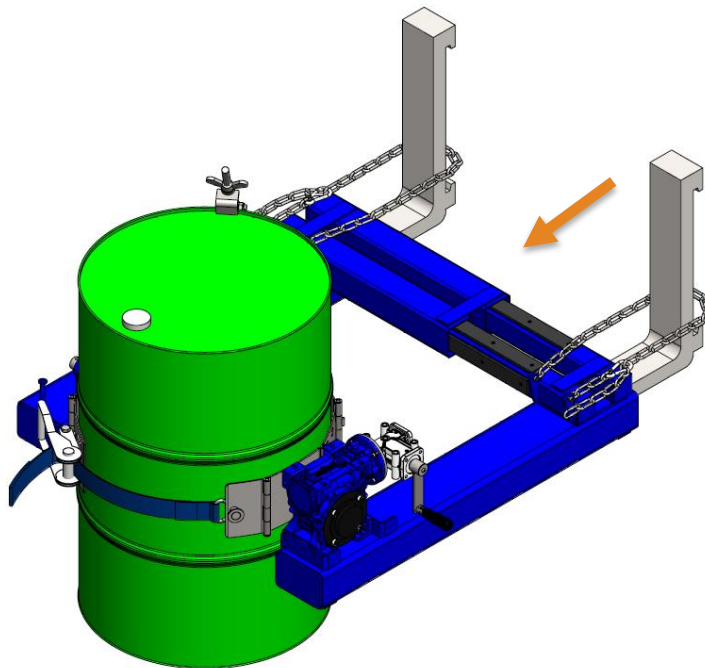
Pre-start Inspections

Procedure

- Check the unit for visible signs of damage such as cracks, bent or severely worn parts.
- Check that the markings and labels are present, clean and legible.
- Inspect the clamping mechanism for wear and damage.

OPERATORS SHOULD REPORT ANY DEFECTS ON THE UNIT TO THE APPROPRIATE PERSON. IF IN ANY DOUBT, OR SHOULD REPLACEMENT PARTS BE NEEDED, PLEASE CONTACT THE STS TECHNICAL SUPPORT LINE.

Securing to Forks



Procedure

- Insert the forks as far as possible into the fork pockets of the DRU04.
- Wrap each chain around the back of it's respective fork.
- Secure in place by inserting the carabiner through one of the links of the chain.

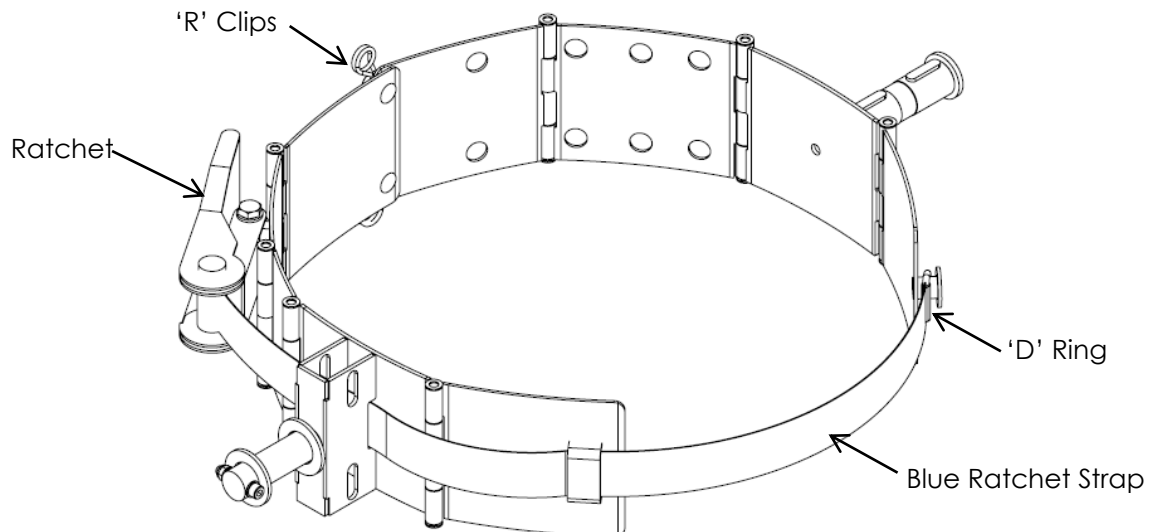
Clamping a Drum

Requirements

- If loaded, the load must not exceed the unit's capacity.
- If loaded, load undamaged.

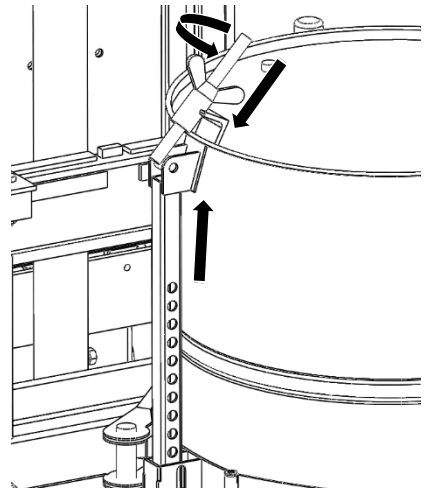
Procedure

- The drum should be sitting on the floor or a pallet vertically.
- Move the fork pockets wide enough on the rotator to allow the rotator band to go around the drum.
- There are two pivot points, one on each arm. These should be positioned at the middle of the drum. Manoeuvre the unit until the pivots are in the middle of the drum.
- Push the two fork pockets in so that the two pivot band sections touch the drum.
- Adjust the height of the clamping band by raising or lowering the carriage until the clamping band is in the middle of the drum (this means top to bottom middle).
- Adjust the back section of the clamping band to suit the diameter of the drum by removing the two locking 'R' clips from the rear of the clamping band then adjusting the band to the correct diameter of the drum before refitting the two 'R' clips. The rear section of the band should be complete from the two pivot points.
- Fold the two front sections of the drum clamp band around the front so that they touch the drum.



- Hook the 'D' ring that is on the end of the blue ratchet strap onto the securing pin, which is on the last band section on the left-hand arm and pull on the tail of the blue ratchet strap to take out the slack. Then use the ratchet to tension the clamping band, this should be tightened until the drum starts to show signs of deflection.

- The rim clamp must be connected to the top lip of the drum. The height can be set by removing the 'R' clip, which is close to the right-hand pivot, and removing the pin. The rim clamp arm can now be set to the correct height to suit the drum size. Ensure that the top of the drum rim clamp arm is positioned under the top rim of the drum. Whilst this is being held in place the top swivelling clamp can be positioned over the rim of the drum. You can now clamp the two together by screwing down the butterfly nut. You should check that the top drum lip is securely clamped between the two sections of the drum rim clamp.



- Replace the clamping arm adjustment pin through the body of the rotator bracket and replace the locking 'R' clips.
- **IMPORTANT** – Check the above steps have been completed correctly before you lift the drum off the floor. If you are in any doubt then contact the STS technical support line.

WARNING - DO NOT ATTEMPT TO LIFT A LOAD WITHOUT THE LOCKING 'R' CLIPS FITTED TO THE BAND.

Tipping a Drum

Requirements

- If loaded, the load must not exceed the unit's capacity.
- If loaded, load undamaged.
- If loaded, load clamped correctly.

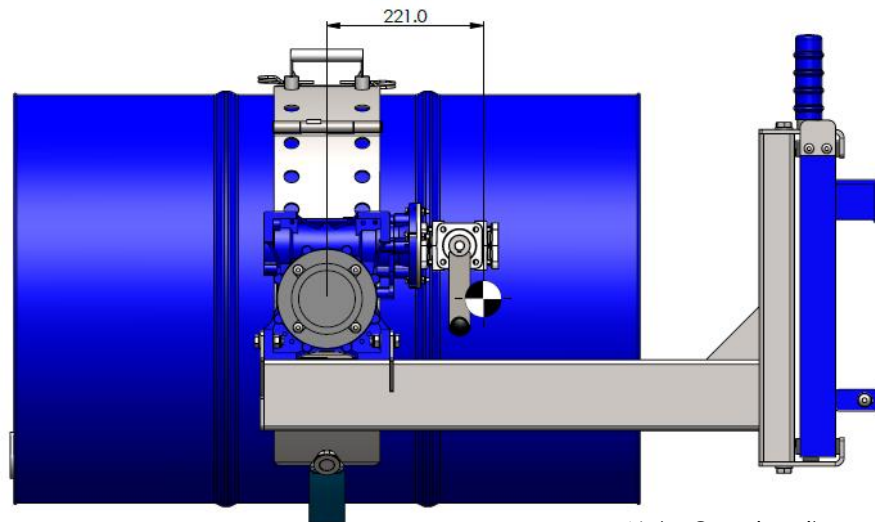
Procedure

- The operator simply rotates the fold-out rotation handle to tip the drum forwards and backwards. If the drum is tipped and the handle is released, the drum will stay in its current position.

Maximum Offset Load for Rotating a Load

The maximum allowable torque through the gearbox for rotating an offset load is 320Nm.

The loading scenario shown below is equivalent to the maximum allowable torque. The example shows a half-filled drum of extremely viscous contents, weighing 147kg, where the centre of mass of the load is offset by a distance of 221mm.



Note: Generic unit shown

WARNING - ROTATING A DRUM WITH A HIGHER OFFSET LOAD IS TREATED AS MISUSE AND MAY DAMAGE THE UNIT.

Section IV – Unit Maintenance, Troubleshooting and Consumables

Maintenance Checklist

The follow servicing checklist indicates the operations to be performed and the respective intervals to be observed. Maintenance intervals are defined as:

- W = Every 50 service hours, at least weekly
- A = Every 1000 service hours, at least annually
- = Standard maintenance interval

NOTE: Personal Protective Equipment (PPE) must be worn at all times, see 'Section I – Correct Use and Application' for more information.

NOTE: Maintenance must only be performed by a suitably competent individual as decided by the company the equipment is intended for use with. All electrical maintenance must only be performed by qualified personnel.

Chassis and Superstructure		W	A
1	Check doors and/or covers for damage	•	•
2	Check labels are legible and complete	•	•
3	Check chassis and fixing connections for damage		•
4	If applicable, check clamping pads for wear and/or damage, replace if necessary (see 'Consumables' for instructions)	•	•
5	If applicable, check the blue ratchet strap for wear and/or damage, replace if necessary (see 'Consumables' for instructions)	•	•

OPERATORS SHOULD REPORT ANY DEFECTS ON THE UNIT TO THE APPROPRIATE PERSON. IF IN ANY DOUBT, OR SHOULD REPLACEMENT PARTS BE NEEDED, PLEASE CONTACT THE STS TECHNICAL SUPPORT LINE.

Troubleshooting

When trying to locate a fault, proceed in the order shown in the table.

NOTE: Troubleshooting must only be performed by a suitably competent individual as decided by the company the equipment is intended for use with.

If, after carrying out the following remedial actions, the unit cannot be restored to operation, contact the manufacturer's technical helpline. In order for customer services to react quickly and specifically to the fault, the following information is essential:

- Unit serial number
- Description of error
- Unit product name
- Current location / Company

Load cannot be rotated

Possible Cause	Action
The load exceeds the SWL	Reduce mass of load
Off-centre load too high	Reduce off-centre load

Load cannot be clamped

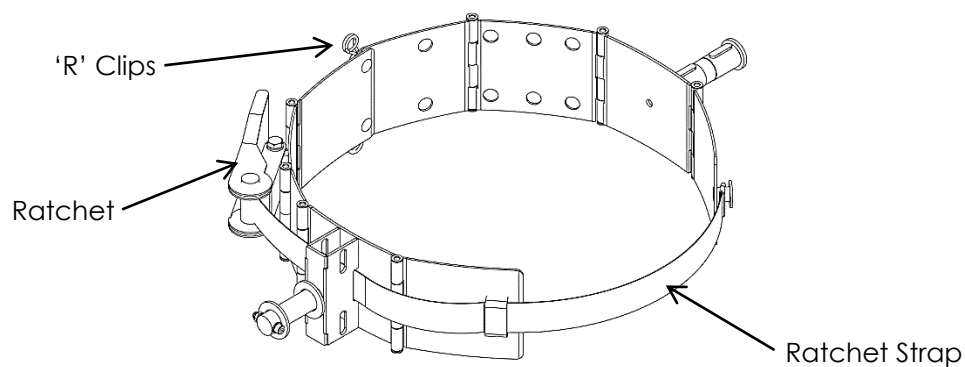
Possible Cause	Action
Drum outside useable size range	Refer to specification stated in 'Unit Description'

Consumables

All unit consumables are available from STS. The unit must be fitted with original STS consumables unless otherwise stated. Any deviation from original consumables may result in injury to personnel or damage to the unit and will invalidate the warranty.

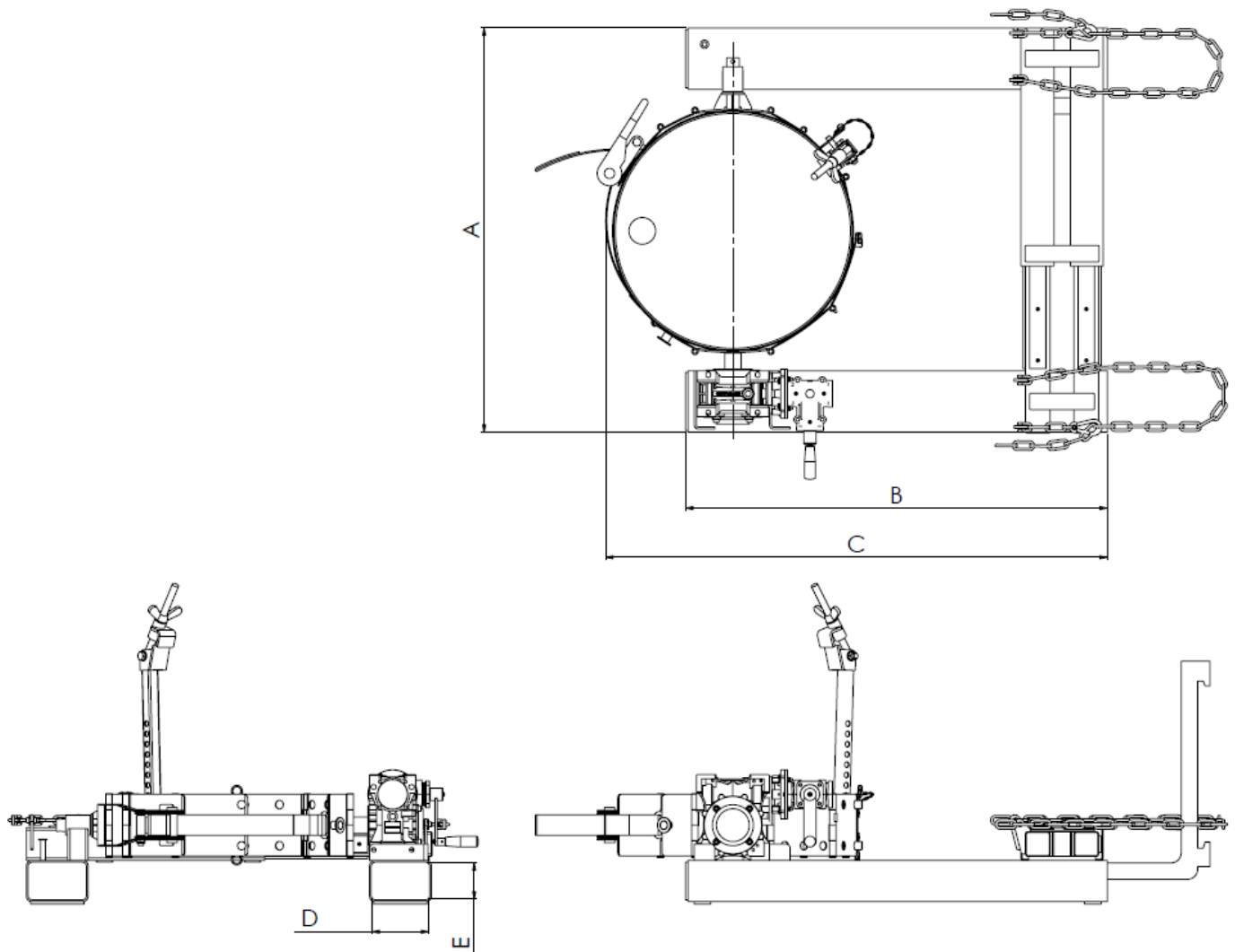
Ratchet Strap Replacement

The blue ratchet strap should be replaced if any damage, discolouration or stranding of webbing is visible. These are available from STS along with the stainless-steel ratchet and 'R' clips.



Section V - Technical Specification

General Arrangement



NOTE: ALL DIMENSIONS +/- 5MM.

Designation	Description	Dimension (mm)
A	Unit Width	985
B	Unit Length	1026
C	Unit Length with Drum	1221
D	Max Fork Width	136
E	Max Fork Height	86

SWL 350kg

Max Noise Level 79dBa

Net Mass 54kg

Section VI - Decommissioning the Unit

If the unit is to be out of service for more than a month, e.g. for commercial reasons, it must be stored in a frost-free and dry room. All necessary measures must be taken before, during and after decommissioning as described hereafter. Decommissioning and recommissioning must only be performed by a suitably competent individual as decided by the company the equipment is intended for use with.

NOTE: Personal Protective Equipment (PPE) must be worn at all times, see 'Section I – Correct Use and Application' for more information.

Prior to Decommissioning

- Thoroughly clean the unit.
- Test the brakes (if applicable).
- Check the hydraulic oil and replenish if necessary (if applicable).
- Fully charge then disconnect the battery. Charge the battery every 2 months to protect from long term "non-use" damage (if applicable).
- Apply a thin layer of oil or grease to any non-painted mechanical components.

Final Decommissioning and Disposal

Final decommissioning or disposal of the unit must be performed in accordance with the regulations of the country of use. In particular, regulations governing the disposal of batteries, fuels and electronic and electrical systems must be observed. The unit must only be disassembled by trained personnel.

Recommissioning

- Reconnect the battery, first ensuring that the battery undamaged (if applicable).
- Follow the annual servicing check list located in 'Maintenance Checklist'.
- Follow the pre-start checklist located in 'Pre-start Inspections'.

Safety Tests to be Performed at Intervals and After Unusual Incidents.

Perform a safety check in accordance with national regulations. The unit must be inspected at least annually or after any unusual event by a qualified inspector. The inspector shall assess the condition of the unit from purely a safety viewpoint, without regard to operational or economic circumstances.

For further help contact STS:

Technical Support Line: +44 (0) 1736 851050

In the interest of all concerned it is essential that equipment of our manufacture is used only for the purposes for which it has been designed and it must be used in accordance with the instructions which are supplied.