



Hydraulic Test Bench

Troubleshooting and testing made easy



Performance Through Innovation

Hydraulic Test Bench

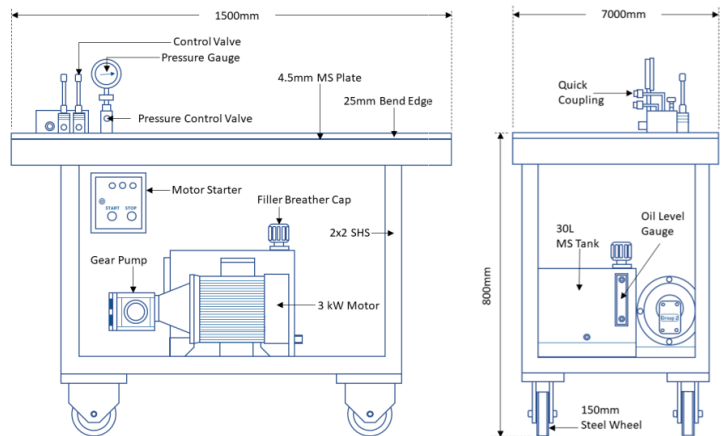
This document highlights the importance of proper maintenance for control valves, relief valves, and actuators in a container spreader. It also aims to guide port technicians using the **RAM Hydraulic Test Bench (RAM HTB)** to test their spreader hydraulic components function and performance.

THE RAM HTB

Providing practicality for testing RAM hydraulic components.

THE BENEFITS

Hydraulic test benches can reduce your troubleshooting time, taking the guesswork out of your diagnostics and letting you thoroughly test new or re-built components and sub-assemblies before you install them into a working hydraulic system.



It allows users to perform comprehensive testing of motors, cylinders, rotary actuators and valves (relief and manually operated).

Internal leaks are easy to find

Detecting actuator leaks and evaluating cylinder condition (i.e. scoring, seals and packing) is a safe and straightforward process with the Hydraulic Test Bench (HTB):

- Cylinders/actuators are tested for leaks at maximum stroke.
- Pressure reducing valves and pressure relief valves can be tested individually.

Pre-setting / inspection of valves

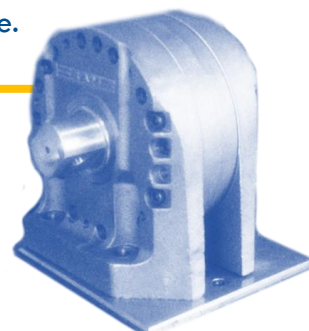
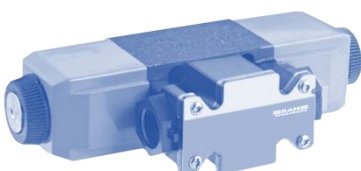
Accurate valve adjustments/settings can be performed before being fixed into the hydraulic circuit.

Reduce the risk and improve safety

HTB allows you to inspect the hydraulic component and identify any malfunctioning individually. This helps avoid the risk and act before it's too late.

Minimize the cost and maximize performance with an improved life cycle

The HTB is designed to prevent the high costs of repairs and maintenance, ultimately allowing you to spend your money wisely. Eventually, proper monitoring and care of hydraulic components will help improve reliability and spreader life cycle.



HOW IT'S DONE

Rotary actuator/hydraulic cylinder test

1. Following the seal overhaul, connect the actuator to HTB ports A & B.
2. Carry out the functional test @ 50-60 bar pressure and operate for 20 cycles to reinvigorate the seal.
3. Once steps 1 & 2 have been completed, set the pressure back to 150 bar and carry out the functional test for a further 20 cycles.
4. Check for operational functions, internal and external leaks and abnormalities.

Valve setting

Pressure Relief Valve

1. Loosen the pressure relief valve adjustment all the way out and mount the valve to the manifold.
2. Start the equipment, activate the hydraulic circuit and set the required system pressure (e.g. Twin PRV setting 50 bar). The pressure reading on the gauge should be close to zero (0).
3. Adjust the relief valve by turning the adjuster clockwise until the reading on the gauge builds to the pressure indicated on the machine drawings. This is known as the valve "cracking" pressure, which is when the relief valve starts to open.
4. Tighten the adjuster lock-nut securely and avoid disturbing the valve setting.

Pressure reducing valve

1. Loosen the pressure reducing valve adjustment all the way out and mount the valve to the manifold.
2. Start the equipment, activate the hydraulic circuit and set the required system pressure (it should be more than the required pressure reducer setting pressure).
3. Connect the pressure gauge to the pressure reducing valve pressure test point and adjust the setting screw until the pressure shown on your gauge reaches the desired level.
4. Tighten the adjuster lock-nut securely, being careful not to disturb the valve setting.

** Training is available for scheduling after the HTB is installed and commissioned.

TECHNICAL DATA

| ELECTRIC DRIVE | |
|---------------------------|--|
| Pump motor | 3 kW / 380VAC to 460VAC 50Hz or 60Hz / 3PH |
| Motor starter | Direct On Line Starter, included with start/shop push button |
| HYDRAULICS | |
| Gear pump | 250 bar / 5cc / rev gear pump |
| Pressure and return ports | 3/8 quick-release coupling |
| Control | Directional control valve - Manual |
| Relief valve | Table-top mounted relief valve – knob adjustment |
| Pressure gauge and range | 2.5" dial face 0-300 bar pressure gauge |
| Reservoir capacity | 30 Litres |
| Filtration | Suction and return line filter |
| OVERALL DIMENSIONS | |
| | MS work bench: W:1500mm x D:700mm x H:800mm |
| PORTABILITY | |
| | Portable with 150mm steel wheels |

ACCESSORIES

Seal Replacement

Rotary Actuator seal repair tool

Testing Valves

- CETOP 3 single station manifold blocks
- CETOP 5 single station manifold blocks

Mounting Bolts

- Various sized valve mounting bolts

Testing hoses

- 1 x complete set of hydraulic hoses
- 1 x complete set of blanking plugs

Tools

- Allen keys
- Valve adjustment wrench
- Portable pressure gauge with hose

Optional bench lighting

- LED bench lighting
- for increased visibility

Note: RAM HTB design is subject to change to accommodate customer's specific requirements

Our Mission

We continue to develop our product range, both in response to customers expectations and in anticipating future developments.

With such a wide range of spreader types and options, we can meet the needs of most terminal operator's but we're always happy to develop bespoke solutions to deliver the most effective and practical container handling solution.

We are proud that we are one of the world's leading independent, dedicated specialist spreader manufacturer, with manufacturing facilities in China; service and repair centres in Singapore, UK and Germany; and sales and after-sales service support throughout Asia, Americas, Europe, Middle East and Africa.

Our products

Hydraulic Spreaders | Single & Twin Lift

Electric Spreaders | Single & Twin Lift

Lightweight Spreaders | Single & Twin Lift | Yard | STS

Twin 40 Headblock | SingFlex™

Mobile Harbour Crane Spreaders | Single & Twin Lift

Overheight Spreaders

Containerised Bulk Handling | Revolver®

Fully Automatic Twistlock Handling Machine | PinSmart™

Pipe Handling Spreader

Tipping Spreader

Bulk Handling Grabs | PEINER

Product Range for:

Ship-to-Shore Cranes

Yard Cranes

Mobile Harbour Cranes

Bridge Cranes (Revolver®)

RAM SMAG Lifting Technologies

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