

Defence Capability



Devonport, Tasmania, Australia



Delta Hydraulics

- Established in 1975. Founder, owner and Managing Director - John White
- Largest independent hydraulics manufacturer in Australia. 140 Employees
- 8,500 square metre manufacturing facility in Devonport, Tasmania
- Leading manufacturer and innovator of telescopic cylinders and hydraulic rams
- ISO9001:2015 Certified

Defence Experience

- ASC – Collins Class submarine fleet
- Australian Department of Defence – F18 Hornet aircraft jacking cylinders
- Singapore Ministry of Defence – Surface to Air missile launch pad





Hydraulic Cylinder Products

- Single-Acting and Double-Acting Multi-Stage Telescopic Cylinders – over 300 models plus a wide range of customised cylinders
- Rod hydraulic cylinders / hydraulic rams
 - 30 Caterpillar underground mining models supplied to Caterpillar Distribution Centres in Melbourne and Morton Illinois
 - 9 Australian Submarine Corp models
 - Wide specification range of customised cylinders for the waste, materials handling, marine, energy, oil and gas sectors.
- Smart position and velocity sensing cylinders
- Annular Ported telescopic (tube wall) and rod cylinders
- Hydraulic manifolds, pin and elbow assemblies





Collins Class Submarine Fleet

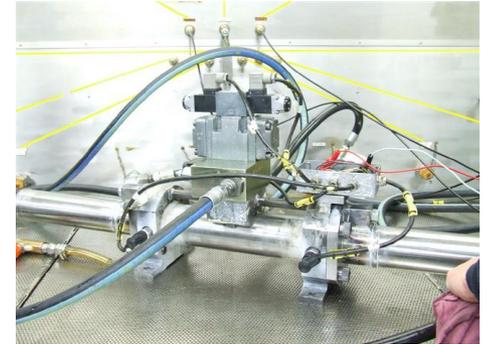
- Production build and sustainment for 9 hydraulic cylinder models for the Collins Class Submarine Fleet
~30- year relationship with ASC~

HYDRAULIC CYLINDERS

- Aft Control
- Air Valve Cylinder
- Exhaust Valve
- Frame Lock
- Upper Stowage
- Bulkhead Door
- Garbage Compactor
- Scissor Lift
- Embarkation Guide

HYDRAULIC MANIFOLDS

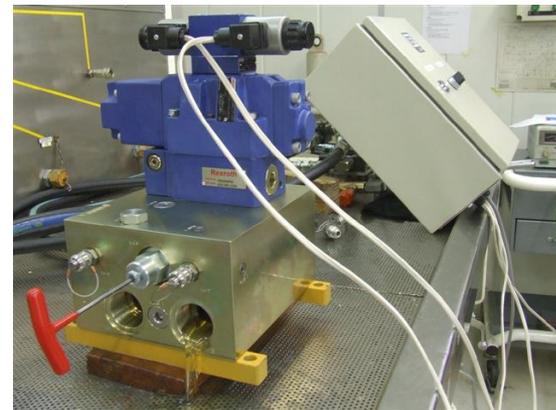
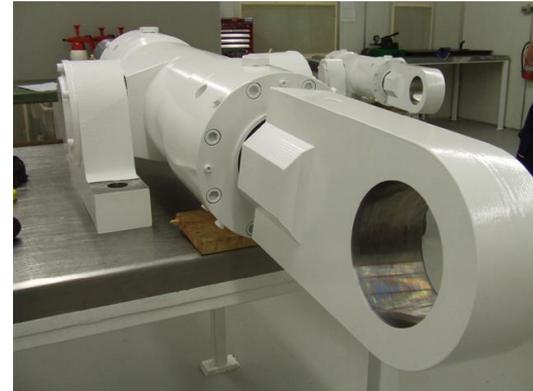
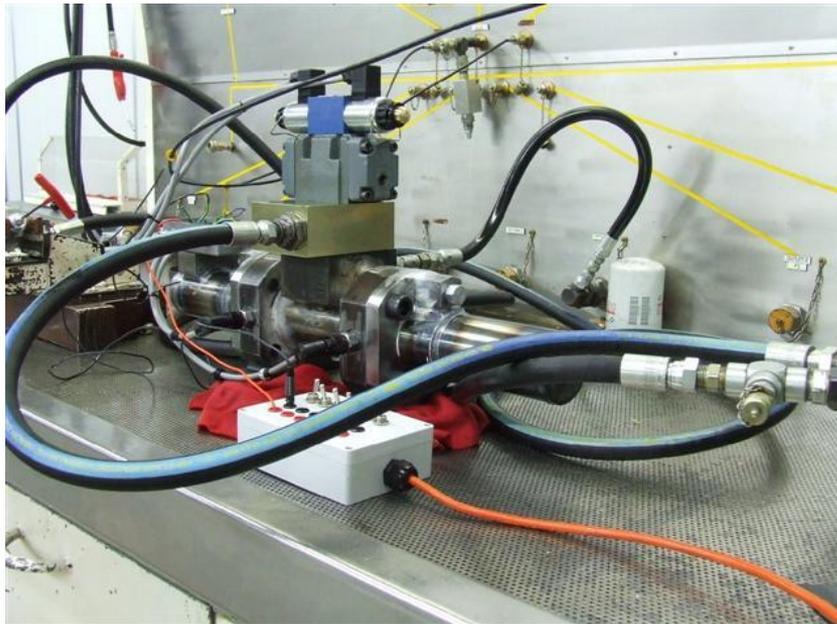
- 45 hydraulic manifold designs – Delta manufacture the subplate and fit flow, check and directional valves, and test





Clean Room

- 120 square metre temperature and contamination controlled room
- All Collins Class Submarine cylinders and manifolds are assembled and tested in the clean room
- Subject to ASC audits every two years





Royal Australian Air Force

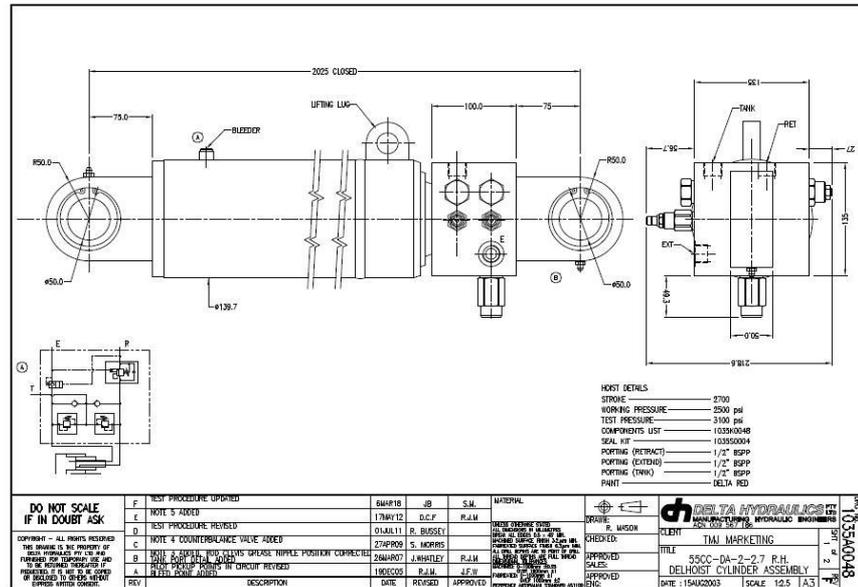
- Hydraulic jacking cylinders for the RAAF's F18 Hornet ground maintenance engineers
- The cylinder jacks F18s off the ground so ground maintenance can remove the undercarriage





Singapore Ministry of Defence

- Telescopic Lift & Tilt cylinders for surface-to-air missile launch pads





Harsh Environments – Underground Mining Vehicles

- For 30 years Delta has been supplying 30 Caterpillar hydraulic cylinder models for use in Caterpillar's underground hard rock mining vehicles with very low PPM defect rates
- The underground hard rock mining environment is harsh - rock damage, dust contamination, heavy payloads, varying temperatures and acidic surfaces



R Series – Wheel Loaders



AD Series – Dump Trucks

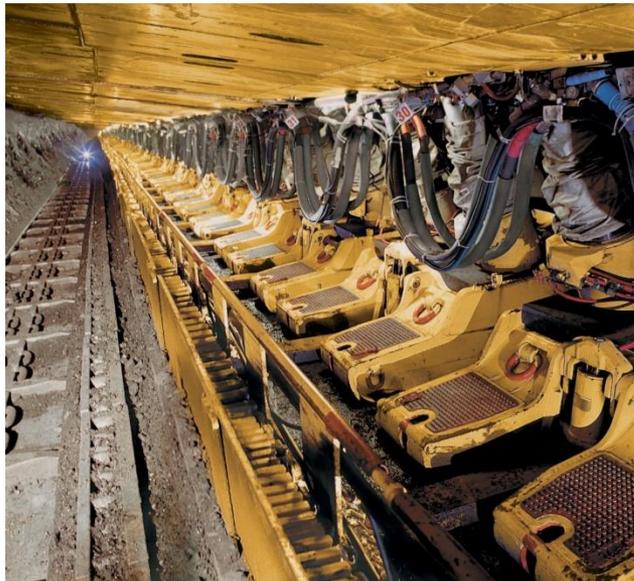
- Delta's cylinders utilise rod assemblies that are friction welded to the clevis (strong) and are used by Caterpillar in the following applications:
 - Bucket lift
 - Bucket tilt
 - Bucket eject
 - Loader steer
 - Truck body lift
 - Truck body eject
 - Truck cab tilt
 - Truck steer
 - Truck suspension

Delta can apply its experience in developing products for underground hard rock mining vehicles to defence vehicles, equipment and ships



Harsh Environments – Underground Mining Equipment

- Delta supplies underground long wall roof support base jacking cylinders to Caterpillar.
 - Delta design utilising friction welded components for additional strength
 - Treated with Delta's proprietary ceramic densifying hard chrome treatment for unparalleled corrosion resistance
- Delta supplies long wall underground mining roof support/bolting cylinders to Komatsu Mining



Delta can apply its experience in manufacturing long-wall underground mining cylinders to defence vehicles, equipment and ships



Harsh Environments – Waste Management

- For 30 years Delta has been supplying double-acting telescopic cylinders to the Australian and New Zealand waste management sector for use in refuse truck waste compactors
- Waste is a harsh environment for telescopic cylinders to operate in, however Delhoist cylinders have met the challenge for 30 years

BUCHER
municipal

SUPERIOR
PAK™

J.J. Richards
& Sons Pty Ltd



Delta can apply its experience in manufacturing telescopic cylinders for the waste management sector to defence vehicles, equipment and ships



Harsh Environments – Marine

- Delta has experience in designing and manufacturing marinised hydraulic cylinders featuring
 - Friction welded rod assemblies using 2205 Duplex Stainless steel & hard-chromed-plated
 - Stainless steel treated glands
- Our experience in developing marinised cylinders includes:
 - Snubbing and jacking cylinders for capping wells in off-shore oil and gas exploration
 - Cylinders used in hydro electric energy generation
 - Trim-tab control cylinders for high speed aluminium vessels (Austal)
 - Keel control cylinders for yachts
 - Luffing cylinders for large floating storage ships

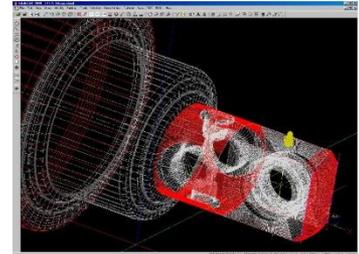
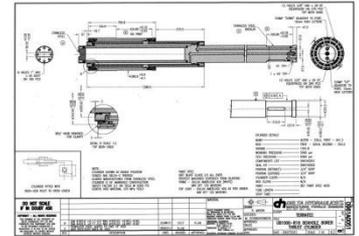


Delta can apply its experience in manufacturing marinised hydraulic cylinders to defence vehicles, equipment and ships



Design, Engineering & Manufacturing Capability

- Sophisticated in-house design, engineering and end-to-end manufacturing capability which enables Delta to rapidly respond to our customers with flexibility and meet their customised product requirements
 - Design Team- 2D and 3D CAD design experience (1,000+ cylinder designs over 45 years)
 - Engineering Team – FEA, NPI quality control & documentation experience
 - Friction Welder – 650 tonne
 - CNC Lathes
 - CNC Machining Centres
 - CNC Grinders
 - CNC Skiving and Burnishing Machines
 - Manual Mills
 - Manual Lathes
 - Induction hardening and stress relieving heat treatments
 - Vertical in-solution hard chrome plating
 - Horizontal reciprocating in-solution hard chrome plating
 - Ceramic treatment of chrome plating
 - Skilled Tradespeople and Operators





Manufacturing Innovation

- 650t Friction Welder - friction welded rod assemblies with superior strength and reduce New Product Introduction (NPI) timelines compared to forged designs
- DeltaC - ceramic treatment of chrome plating for un-matched corrosion prevention and extension of cylinder life in harsh environments
- Gun drilling – annular ported cylinder designs to eliminate hydraulic hoses or line tube
- Transducer Designs – position and velocity sensing cylinders
- Stainless Steel – cylinders with stainless steel rod and tube assemblies





Contact Us

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 **DELTA HYDRAULICS** PTY LTD
A.C.N. 009 524 172 A.B.N. 12 009 524 172
MANUFACTURING HYDRAULIC ENGINEERS

End-to-End Design-Manufacture

- Skilled & experienced hydraulic cylinder designers and drafters
- Full cycle 100% telescopic and rod cylinder manufacture in Devonport
- Experienced in New Product Introductions with global companies

Harsh Environments Credentials

- Marine – Collins Class Submarines, Austal Ships, oil & gas exploration
- Mining – Caterpillar underground mining, Komatsu long wall mining
- Waste – Bucher Municipal, JJ Richards, Superior Pak

Manufacturing Innovation

- Friction welded rod assemblies, for superior strength
- Ceramic treatment of chrome plating for un-matched corrosion prevention
- Annular ported, constant velocity, smart sensing and stainless designs

Defence Segment Experience

- ASC – Supply Collins Class submarines with 9 models for 30 years
- RAAF – Hydraulic jacking cylinders for F18 Hornet ground crew
- Singapore Defence – Lift cylinders for surface-to-air missile launch pads