

dh **DELTA HYDRAULICS (Thailand) Ltd** **MANUFACTURING HYDRAULIC ENGINEERS**



Hemaraj Industrial Land, Rayong



Thailand Manufacturing Facility

- Hemaraj Industrial Land, Rayong, 110 miles south of Bangkok
- Next door to Caterpillar Underground Mining, opposite Caterpillar Tractor & Earthmoving
- 2 Buildings - constructed new
- 9,000 square metre (96,875 square feet) facility
- Owned by Delta Hydraulics (Thailand) Ltd a subsidiary of Delta Hydraulics Australia
- Building 1 completed in March 2013, Building 2 completed March 2015

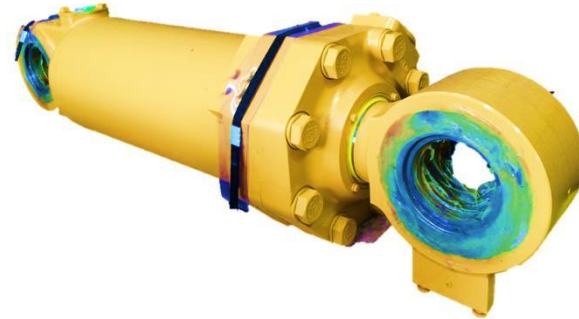




Products

- Single-Acting and Double- Acting single stage rod cylinders for Caterpillar Underground Mining loaders and trucks - lift, steer and eject cylinders

Model	Description
R1300	UGM Load-Haul-Dump Loader
R1600	UGM Load-Haul-Dump Loader
R1700	UGM Load-Haul-Dump Loader
R2900	UGM Load-Haul-Dump Loader
AD30	UGM Truck
AD45	UGM Truck

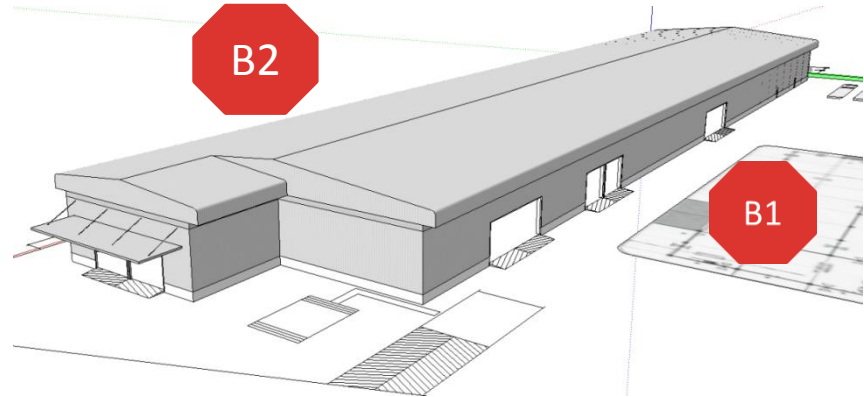


- Delta Thailand also makes various hydraulic cylinder components for it's parent company Delta Hydraulics Australia



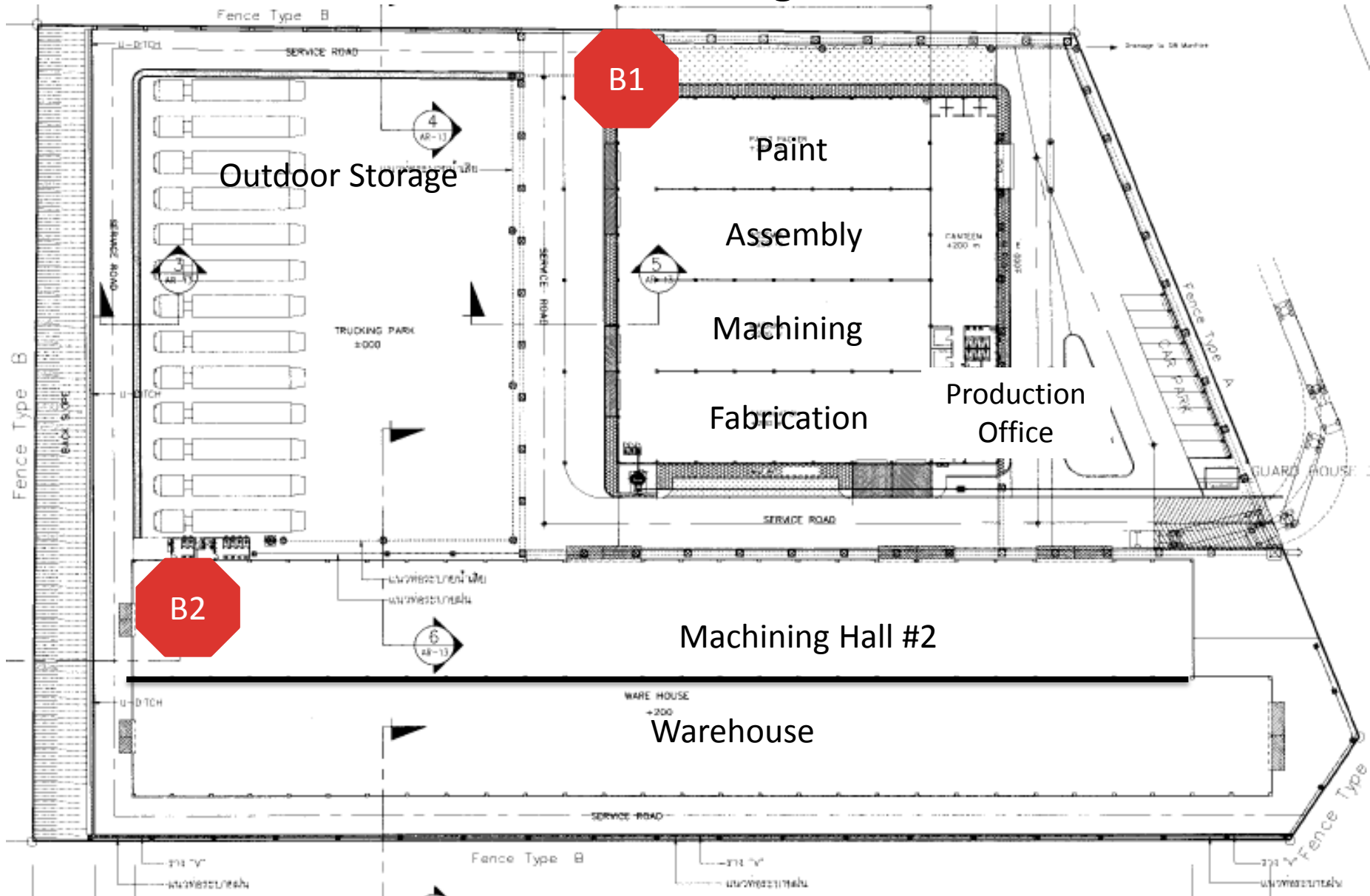
Manufacturing Facility

- Building 1
 1. Fabrication Hall
 2. Machining Hall
 3. Assembly Hall
 4. Painting Hall
 5. Production Office
 6. Outdoor Storage
- Building 2
 1. Machining Hall #2
 2. Warehouse





Manufacturing Floor Plan





Fabrication Hall

- Waterjet cutter
- 2 x mig welders
- Welding rotator
- H560 Bandsaw
- Heat treatment furnace for normalizing castings





Machining Hall

- Okuma MA50HB Horizontal Machining Centre
- Mazak H1000 Horizontal Machining Centre
- 2 x Macturn 50 Multi-axis Turning Centres
- Okuma MC60VAE Vertical Machining Centre
- Okuma LH55N CNC Lathe





Assembly Hall

- 60 tonne hydraulic press
- Parts Cleaner
- Tuxco Hydraulic Cylinder Cleaning Machine
- Tuxco Hydraulic Cylinder Assembly Machine
- Vickers Hydraulic Cylinder Testing Power Pack with magnetic particle counter
- 10 tonne and 3 tonne forklifts





Paint Hall

- Manual preparation
- Spray booth with water wall
- 2 x air compressors
- 1 x Air dryer
- Quarantine area



Outdoor Storage

- 6 roundstock storage racks
- Line of plate storage



Production Office

- Brown and Sharpe Global Performance Coordinate Measuring Machine
- Manudyn - cloud based Enterprise Resource Planning system



Measuring Range (in mm)		
X	Y	Z
500	500 - 700	500
700	700 - 1000	500 - 660
900	1200 - 1500 - 2000	800
1200	1500 - 2200 - 3000	1000
Accuracy: $MPE_E = \text{from } 1.5 + L/333 \mu\text{m}$		



Thailand Plans and Machining Hall #2

- Machining Hall # 2 is not currently utilised
- Rods and cylinders for the UGM range will continue to be manufactured in Australia and shipped to Thailand for assembly
- Plans to install Skiving & Burnishing machine in Machining Hall #2 and by the end of 2015, transition Thailand operations to the manufacture of pistons, glands, flanges and tube ends
- With additional Caterpillar business, it is anticipated that Thailand will grow to 30 people by June 2016
- Thailand has the capacity to assemble 30,000 cylinders per annum
- Thailand is also gearing up to provide hydraulic hoses and fluid lines and looking to additional product offerings such as fabrication



Thailand Management

- General Manager – Ross Healy
 - 27 years manufacturing management experience gained in the international automotive component industry.
 - Experienced in Lean Manufacturing principles and has significant practical experience in tool design, the manufacture of tooling and trouble shooting.
 - Has managed manufacturing projects in Australia China, the United States, India and Thailand
 - Managed the start-up of an automatic paint line in China to meet the OEM quality system demands of large OEMs including FAW-Audi, Volkswagen Group, General Motors, Nissan and SAIC Motor
- Supported by
 - John White, Managing Director / CEO of parent company
 - Nigel Harris, Training and Process Improvement Manager
 - Trains machining and assembly technicians
 - Implements process and quality improvements
 - Jason Bresnehan, COO of parent company



Ross Healy

*General Manager
Delta Hydraulics Thailand Ltd*