

Gurit



Red Maple
the Tooling Business of Gurit



RED MAPLE

Gurit

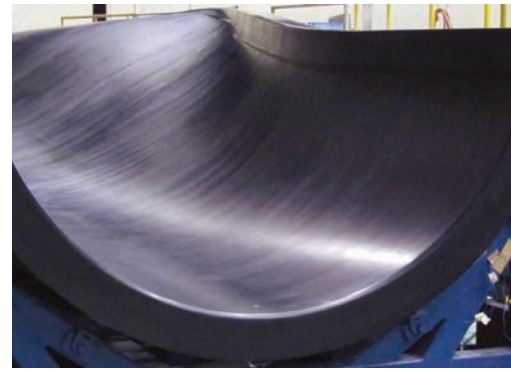
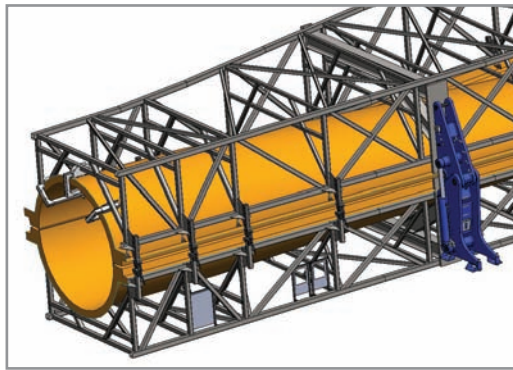
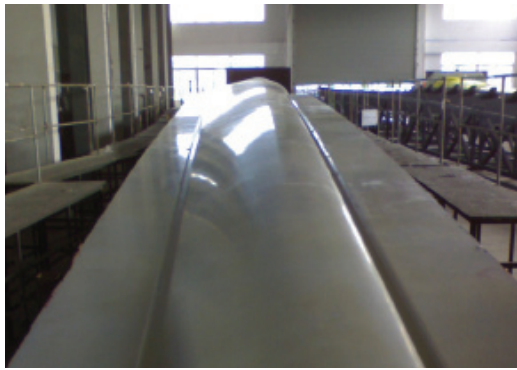
Red Maple, the Tooling Business of Gurit

Established in 2007, Red Maple is the largest wind blade mould manufacturer worldwide, producing over 40 mould sets a year. Red Maple's ISO9001 facility is situated in Taicang, China, and has over 600 skilled employees dedicated to the design and manufacture of high quality tooling, using innovative technology. With complete vertical integration of the mould production process, Red Maple sets the new benchmark for tooling system cost and delivery time.

- Wind blade Master Plugs
- Wind blade Moulds
- Hydraulic Mould Closing Systems
- Hydraulic Mould Clamping Systems
- Mould Heating Systems
- Jigs & Fixtures



Quality, Manufacturing and Engineering



Red Maple can offer a variety of high quality moulds appropriate for any production process at an affordable price.

Available technology:

- Mould produced with or without gelcoat, depending on customer manufacturing process
- Epoxy resin with Tg of 90°C, 100°C, 130°C or 160°C can be used, or alternatively vinylester
- Mould main shell produced by infusion or hand lamination at customer's request
- Mould strengthened by composite core materials based on customer requirements
- Electric, liquid or air heating options
- PC based heating control, monitoring software
- Mould frame is designed using FEA software
- Welded steel frame, for long life and stable support of the shell
- Patented mould shape adjustment system



Mould Innovation



Master Plug

Red Maple has two of Asia's largest 5-axis CNC machines, operating continuously to enable Red Maple to build master plugs with extreme accuracy and speed unattainable by other methods.

The CNC machines can produce plugs up to 65m in length in one piece. This operational envelope in combination with the high level of speed and precision allows rapid plug manufacture and ensures that all components; shear webs, spar caps, root inserts fit first time without costly adjustments or the use of fillers.

Red Maple can offer the following features:

- ↪ Small 5 axis CNC with working envelope 36mx8.2mx4.5m
- ↪ Large 5 axis CNC with working envelope 65mx7.2mx5.8m
- ↪ Red Maple exclusive all-steel construction guarantees long life and moisture resistance
- ↪ Section accuracy +/-0.5mm
- ↪ Linear runout +/-0.5mm
- ↪ Overbite tolerance at leading edge of blade mould achieved < +/-1mm
- ↪ Epoxy machining paste with Tg of 60-65°C
- ↪ Tg of epoxy paste verified by in-house DSC machine
- ↪ An alternative EPS foam base is available for small plugs and moulds
- ↪ Solid frame, suitable for international shipping and easy lifting
- ↪ Perfectly smooth finish to ensure excellent mould surface is obtained
- ↪ Guarantee a glossy polished finish in the as-delivered condition
- ↪ Tested to guarantee no vacuum leaking, suited for resin infusion of the mould
- ↪ Special weatherproof surface protection coating for shipment
- ↪ Red Maple have used single plugs to produce up to 14 blade moulds without major repair or loss of accuracy

Turnover System

Red Maple is the market leader for opening and closing large wind turbine blade moulds. Red Maple has sold 150 sets of mould closing systems since production began in 2007, totaling more than 200 turnover arms. Many international blade producers use Red Maple closing systems.

The closing system is produced in China, using the best imported parts for critical hydraulic and electric systems. This is the cost effective closing system that can offer a robust design, high quality and excellent reliability. The design is very popular globally, and is now installed on approximately 40% of all wind turbine blade moulds in use.

Currently the turnover system is available in several different configurations based on mould size and manufacturing requirements. The largest turnover system is designed for moulds 75m in length.



Equipment

Red Maple has invested more than 4 million USD in fixed assets to obtain the state of the art production equipment required for a leading mould production facility:

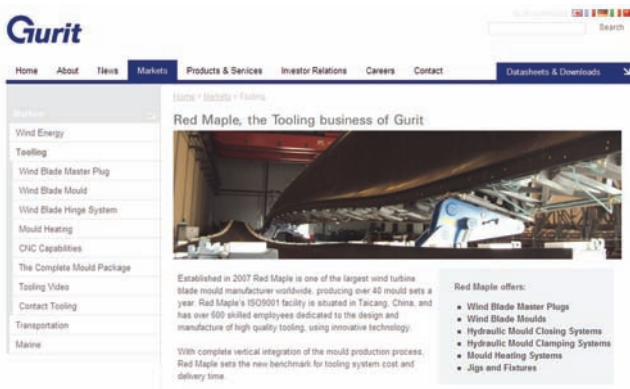
- ↪ CMS high speed 5 axis CNC router with working envelope 36mx8mx4m
- ↪ Bermaq high speed 5 axis CNC router with working envelope 65mx7.2mx5.8m
- ↪ Dopac resin and paste mix machines
- ↪ More than 30 overhead cranes with capacity of 10 or 20 tons for mould handling

Red Maple has also invested heavily in testing and quality control equipment:

- ↪ 4 Laser trackers
- ↪ 3 Thermal cameras, each 240x320 (high resolution model)
- ↪ Netszh DSC analyzer
- ↪ Mechanical universal test machine, including fatigue test from -20°C to +150°C
- ↪ Thermal cycling oven
- ↪ Salt spray corrosion test chamber
- ↪ Surface roughness tester
- ↪ Glossmeter
- ↪ Hydraulic gelcoat pulloff tester
- ↪ Resin content burnoff furnace
- ↪ Fabric moisture tester
- ↪ Balsa moisture tester
- ↪ Resin rheometer



Red Maple, the tooling business of Gurit
Intersection of Changshen Road
and Beijing Road, Taicang
Jiangsu, China, 215400
T +86 512 5335 9132
F +86 512 5335 9134
tooling@gurit.com
www.gurit.com/tooling



Please go to www.gurit.com for further information
and to download the following:

- Product Data Sheets
- 'How to' Videos
- News/Case Studies
- Composite Guides
- Events Schedules
- Contact Details

