The most advanced facility for specialist motor manufacture in the world

“This strategically planned investment will deliver an extended, fit-for-purpose, facility and continuous improvement based environment capable of designing and manufacturing performance-critical motors and pumps for our chosen growth markets.”

Ewan Lloyd-Baker, Chief Executive, Hayward Tyler Group plc
Cutting-edge design, engineering and manufacturing in a custom-built, state of the art facility

→ Ability to double capacity and Takt time
→ F4N / ISO Class 9 nuclear compliant
→ Scenario planning capability
→ Up to 50 stock turns per annum
→ Planned expansion provides ability to test up to 6MW
→ Unique factory transportation system facilitates flow and safe working

The Centre of Excellence (CoE) will be the world’s most advanced facility for specialist fluid-filled motor manufacture, enabling our next generation technology to be delivered with unrivaled quality assurance and even shorter lead times.

Our manufacturing centre is already certified to ISO Class 9 and has been granted both ASME and nuclear accreditation, and we are the only UK provider of industry-specific hotbed testing. With a 40 per cent expansion to 6,300sq.mtrs (approx 68,000sq.ft) the CoE will enable the company to double production capacity as well as becoming certified as Fit for Nuclear (F4N) with single-piece flow lines embedded with lean manufacturing methodologies and dedicated clean assembly areas and test pits.

The CoE provides cutting edge process capabilities for the design and manufacture of our performance-critical motors and pumps.

Increased technical capabilities
The investment is also allowing us to push our technical capabilities. The company is investing heavily in tools and resources to develop its core competencies for the nuclear and subsea markets, focusing on energy-dense and high-efficiency motors, and enhancing its capabilities in Finite Element Analysis (FEA), Rotordynamic Analysis, Thermal Modelling and Computational Fluid Dynamics (CFD) to support cutting edge product development.

We have the capability to simulate and emulate load effect on engineering, supply chain, production, assembly and test resources through our WITNESS simulation software.

Operations and planning
We are constantly driving operating efficiencies both internally and in supply chain partnerships – to generate enhanced quality assurance, exceptional peace of mind and confidence for our customers. Central to Hayward Tyler’s CoE is the continued development of our Sales & Operational Planning (S&OP) award winning information systems.

We have embedded “What-if” scenario planning capability to benefit our strategic partners throughout the entire supply chain using predictive simulation technology, proven to maximise performance, optimise throughput, and resource utilisation, all supported by ergonomic workstation design.

S&OP links our sales function with engineering, manufacturing, supply partners and production departments via an in-house, best-in-class, innovative ‘all-in-one’ Epicor (ERP) contract management system.

“Combined, we can now offer the subsea oil and gas segment the absolute latest technology – and then deliver it with best-in-class manufacturing capability. This critical step ensures our customers receive the most reliable subsea boosting solutions available while enhancing the economics for subsea reservoir development.”

Jim Pribble, President and General Manager
FMC Technologies, Direct Drive Systems
Customers Units will be Assembled & Tested within our access controlled ISO Class 9 Clean Assembly & Test Area

Clean Build
- Positive pressure environment
- ISO Class 9 nuclear clean room specification
- Shop wide vacuum system (*Particulate removal and vacuum pack*)
- Ultrasonic cleaning capability
- Clean segregated storage facility prevents cross-contamination

Winding, Moulding & Connection
- Dedicated clean winding facility
- Multiple wind configurations
- Capability for single and multi-strand winding
- Proprietary qualified injection moulded jointing process
- In-house high voltage flash test capability
- In-house radiographic test capability

Product Assembly & Test
- Dedicated product build pits
- Net Positive Suction Head (NPSH) required performance
- Auxiliary flow performance
- Indian Boiler Regulations (IBR) hot test capability
- No-load test
- Load performance test
- Maximum pump flow of 4200m³/h (1.1million gph US) and maximum head of 15.5 Bar (225psi)
- 11kV 2.4MW 3600rpm / 6MW 6000rpm
- Cooling capacity 2MW
- Hydrostatic pressure testing to 400 Bar rated

One Process Flow
- Single process flow drives all business operations
- Flow line system designed and dedicated to each product application
- Uni-directional
- Core process capability for all products in-house
- ERP controlled
- Unique factory transportation system facilitates flow and safe working
ASSEMBLY CLEAN AREA

Our clean assembly area has been designed to comply with the highest standards, being a positive pressure controlled environment to ISO Class 100 clean room specification.

IDEOLOGIC DEVELOPMENT FACILITY

The design and development of our core components is carried out in a negative pressure controlled environment.

KITTING

Finalised components will be remanufactured for delivery on a customer’s order for delivery to the relevant customer or internal procedures.

Low Particulate Manufacturing Facility

All parts will be delivered in sub-assemblies and checked and labelled per customer’s request before being vacuum packed for shipping.

For Customer Needs

The operating software allows us to restrict access to certain shelves or users, keeping critical customer components safely locked away until required.

PROCESS CAPABLE MACHINES

In a world where enhanced cost-capability and lean manufacturing processes will enable our next generation technology to be delivered with unrivalled quality assurance and even shorter lead times.

Engineering

Hayward Tyler has a multi-disciplinary team of engineers including mechanical design, hydraulic and electrical engineering skill sets. This ensures that the customer’s in-house electrical supply specification will be translated into customised design solutions. These solutions will then be evaluated with a high-speed rotor test rig. For combined pump / motor products, the design process begins with hydraulic engineering to define pump capability to meet the relevant customer’s on-site electrical supply specification. Finally, the mechanical design is developed to produce the manufacturing and auxiliary processes previously defined.

The Machining and Balancing cell will be used for highly accurate high speed motor developments. This cell will also be used for high performance motor developments. These motors will then be evaluated with a high-speed rotor test rig.

Auxiliary Processes

Processes supporting the flow lines such as impellers and high precision boundary components are analysed and validated for compliance to relevant design codes, eg ASME and PED. New bearing design, coded welding and fabrication processes supporting the flow lines such as hydro testing, high precision bearing and shaft manufacture, coded welding and fabrication are external to the flow lines.

AUXILIARY PROCESSES

For combined pump / motor products, the design process begins with hydraulic engineering to define pump capability to meet the relevant customer’s on-site electrical supply specification. Finally, the mechanical design is developed to produce the manufacturing and auxiliary processes previously defined.

A number of simulation tools are utilised to verify the performance of the motor. These simulation tools include Maxwell electrical simulation. ANSYS Finite Elements Analysis (FEA) for structural analysis and Computational Fluid Dynamics (CFD) for hydraulic flow simulations, Computational Fluid Dynamics (CFD) for hydraulic flow simulations, Computational Fluid Dynamics (CFD) for hydraulic flow simulations, Computational Fluid Dynamics (CFD) for hydraulic flow simulations. ANSYS Fluids Analysis for structural analysis and Computational Fluid Dynamics (CFD) for hydraulic flow simulations. These tools are used to verify the performance of the motor. These simulation tools include Maxwell electrical simulation. ANSYS Finite Elements Analysis (FEA) for structural analysis and Computational Fluid Dynamics (CFD) for hydraulic flow simulations. These tools are used to verify the performance of the motor. These simulation tools include Maxwell electrical simulation. ANSYS Finite Elements Analysis (FEA) for structural analysis and Computational Fluid Dynamics (CFD) for hydraulic flow simulations.

Verification

Facilities for specialist motor manufacture

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We are global experts in electric motors and we have the most advanced Centre of Excellence for specialist motor manufacture, worldwide.

We are always striving to maintain and grow our position as the energy industry's first choice for performance-critical motors and pumps, and we are achieving this through an ambitious programme of Continuous Improvement. Across our facilities in the UK, USA, China and India, we have put in place a strategy that focuses fully on our company-wide ‘People, Processes, Products’ philosophy and links back to our 200-year heritage.

For further information about how to harness the benefits of our durability, our agility, our innovation and excellence in design and manufacture and our investment in our world-leading Centre of Excellence to deliver the next generation of performance-critical motors and pumps call 01582 731144 or visit www.haywardtyler.com

Engineered solutions for the global energy sector

People
Our people are at the very heart of everything we do. We have a highly skilled global workforce passionate about our business, and we have created the right workplace environment for them to grow. As part of our ongoing commitment to their development, we have rolled out lean foundation training for all staff and offer universal access to both in-house and external learning opportunities, including MBAs for our senior managers.

Processes
Reduced lead times, superior test capability, lean manufacturing and Six Sigma methodologies delivered from our Centre of Excellence all contribute to giving our customers exceptional peace of mind and confidence. We constantly drive operating efficiencies – both internally and in supply chain partnerships – to generate enhanced quality assurance, and our Continuous Improvement programme is fully focused on eliminating sub-optimal processes across our business.

Products
We have a reputation for reliability and the long-term durability of our fluid-filled motors and pumps and their ability to perform in complex applications and challenging environments. All our products and services are designed to give our customers a competitive advantage and enhanced ROI through excellent lifetime cost of ownership. We invest heavily in world-class research and innovation to ensure our offer remains the best available.

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