



ENGINEERED SERVICE SOLUTIONS

OPTIMIZING YOUR FLOW CONTROL & TURBOMACHINERY ASSETS

Trillium are a **trusted partner** through the lifetime of your project. From initial selection through to life extension we'll **maximise your profitability.**

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Your Trusted Partner

Trillium Flow Technologies is an established pioneer of flow control technology across many industries worldwide.

Our OEM knowledge and project management skills enable our delivery of a complete service. This covers the conceptual support, equipment supply and through life repair, overhaul and optimisation of both Trillium and non-Trillium pumps, valves and other critical equipment.

We're here to support you through the lifetime of your product and project lifecycle.



Our Value Proposition

Trillium have conducted thousands of repairs for clients globally. We're **trusted** because

- We provide a total service offering your one-stop shop
- All work is supported by our skilled electrical, hydraulic
 & mechanical engineering teams this multi-disciplinary approach means you get more than a repair, rather a full root cause analysis
- Our test capability is world class we can prove all repairs prior to despatch
- We service Trillium, legacy Trillium and other brands with the same quality first approach

Trillium Fundamentals



Health & Safety First



Integrity & Customer Care



Success Through Collaboration



Embedded Quality



Environmentally Responsible



Focused on Your Profitability

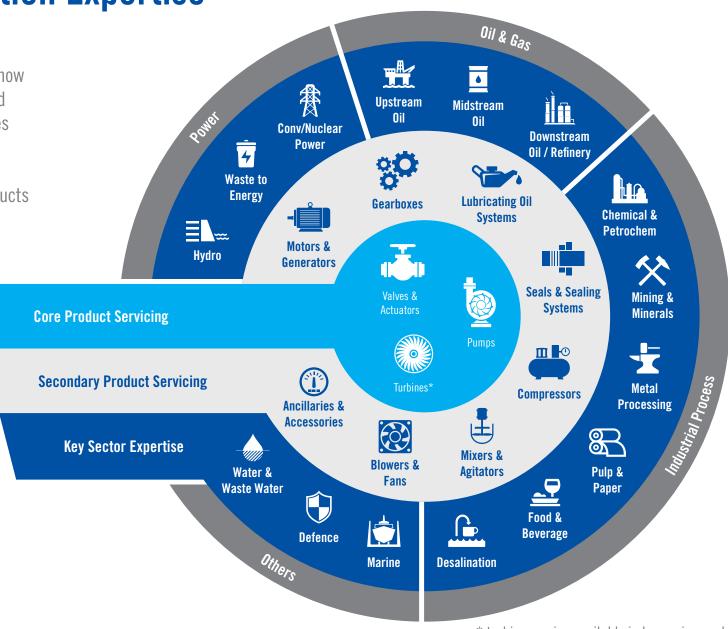


Product & Application Expertise

Trillium Flow Technologies always start with the end application in mind. We know our customers processes intimately and can offer the best products and services aligned to your specific needs.

Our core offerings are flow control products but our service team are experienced across most other types of rotating equipment and ancillaries too.

From the most complex mechanical items to electrical machines our team are qualified to optimize your process.



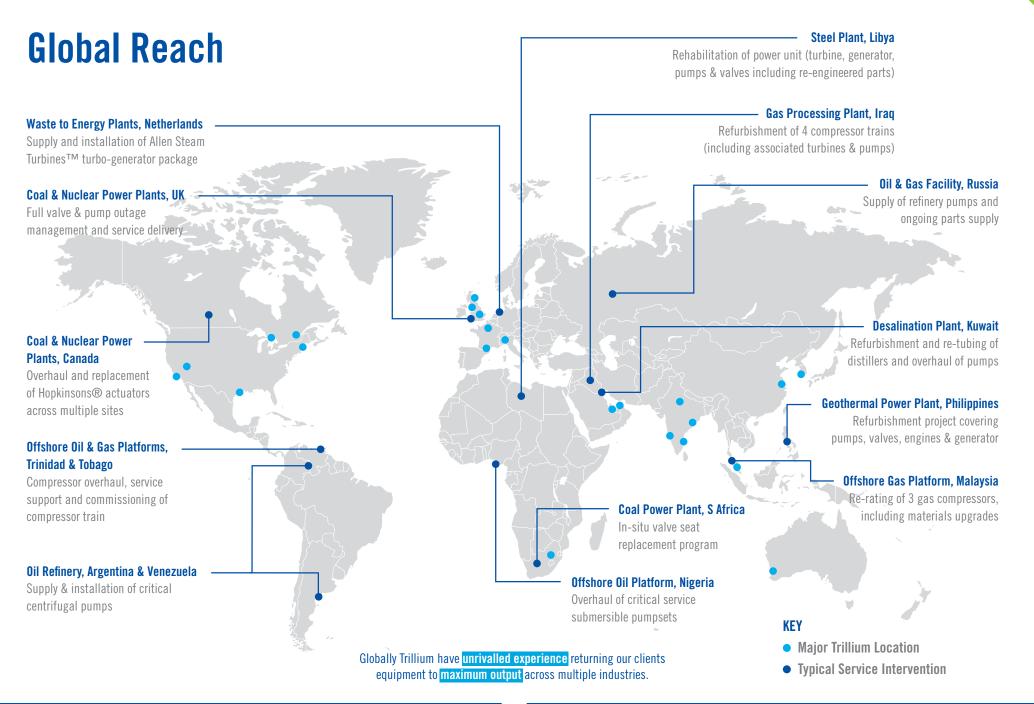
* turbine service available in key regions only



Trillium's core product expertise in pumps, valves & actuators and turbines extends to a comprehensive range of rotating equipment & ancillaries servicing.

We apply our **OEM expertise and our deep applications knowledge** across a broad range of industries.

With Trillium you have the **experts on your team.**





Technology Leadership

Trillium Flow Technologies are leaders in the utilisation of Industry 4.0 approaches and other advanced technologies. Our focus is on developing applications for this technology which offer tangible product and service improvement. Our customers benefit from this development through improved performance, longer service life or reduced lead time.

Smart & Connected Products



Example Project

Air Operated Valve Diagnostics

Trillium are championing smart products across our portfolio. One example of this is through the provision of accurate condition intelligence on AOVs. This sensor technology supports robust technical decision making for future maintenance requirements and spare part procurement.

Your Advantage

- + More efficient, intelligence driven maintenance and repair
- + Enables optimisation of product to variable operating parameters
- + Provides enhanced performance checking prior to return to service

Additive Manufacturing



Example Project

- Selective Laser Melting

Trillium utilizes additive manufacturing technologies to create complex shapes such as our X-Stream® disc stack, our advanced cavitation and noise attenuation technology for ultimate control.

We have engineers trained and certified in 'design for additive' to ensure we further maximise the benefits of this exciting technology.

- + Products available on vastly reduced lead times
- + Parts can be manufactured to more detailed profiles offering performance improvement
- + Easier to produce retrofit items to upgrade existing third party installations

Advanced Simulation



Example Project

Pump Cavitation Test Simulation
 By utilising the latest CFD software and high resolution 3D scanning our trained engineers can simulate real life performance conditions.

We utilise highly accurate models of as built components ensuring pump performance matches the desired design characteristics without the need for a costly physical test.

Your Advantage

- + Cost effective and efficient method of system verification
- + Multiple scenarios can be ran simultaneously to optimise designs
- + Ensures smooth operation in service and maximum component life

Industrial Digitisation



Example Project

Feed Pump Predictive Analytics

In partnership with leading academic institutions and end users Trillium Flow Technologies are developing novel performance assessment models for main boiler feed pump performance.

This provides early indication of component degradation and operational issues without intrusive inspection.

Your Advantage

- + Early indication of failure modes through continuous monitoring
- + Customisable automated alerts and performance reporting
- + Alignment of contracting models to end user performance metrics

Big Data Analytics & Al



Example Project

- Predictive Parts Usage

Using data accumulated from 40 years of products sold our process pump brand Gabbioneta[™] uses Al to predict with a high degree of reliability future parts usage. This allows optimal stocking levels to be held.

- + Best in class lead times for spares
- + Improved understanding of failure modes by application to continuously improve product and service offering

Our Brands & Heritage

Trillium are an **innovative OEM with strong** brands. We have the agility to service our own and most third party brands too.



Other Brands

ALLEN STEAM TURBINES™



Pump Brands

BEGEMANN®

Centrifugal Process Pumps

FLOWAY® PUMPS

Vertical Turbine Pumps

GABBIONETA™

Heavy Duty Process Pumps

ROTO-JET®

High Pressure Pitot Tube Pumps

WEMCO®

Vortex & Screw Centrifugal Pumps

WSP™

Chop Flow, Non Clog & Self Primer Pumps

Value & Actuator Brands

ATWOOD & MORRILL®

Engineered Isolation & Check Valves

AUTOTORK™

Flow Control Actuators

BATLEY VALVE®

High Performance Butterfly Valves

BLAKEBOROUGH®

Control & Severe Service Valves

BDK™

Industrial Valves

HOPKINSONS®

Parallel Slide Gate & Globe Valves

SARASIN-RSBD®

Pressure Safety Devices

SEBIM®

Nuclear Valves

TRICENTRIC®

Triple Offset Butterfly Valves















innovation spanning over 190 years. We have continually

Trillium Flow Technologies have a long heritage of

added new products and services to

make our customers processes more efficient and



Development of the Varidiff control butterfly valve - eliminating cavitation

2004

Trillium introduce sophisticated software tool for pump selection to improve customer responsiveness

2005

Patent for valve thermal compensation device (preventing catastrophic failure of stem in high temp applications)

2009-12

Trillium TRICENTRIC® win major awards for nuclear valves in latest generation Chinese nuclear stations

2016

Gabbioneta[™] opens new state of the art pump facility in Milan with enhanced test capability

2017

Roto-Jet® develop a new API 610 compliant pitottube pump for the oil & gas industry



2019

Upgrades to test

capability at our Alloa

facility



productive.



Trillium supplies specially designed pumps and valves to successfully extract oil from the newly developed offshore N Sea fields

1968

SEBIM® develop an autonomous pilot safety valve which is critical to French nuclear power stations

1956

Supply of specialist valves to the world's first commercial nuclear reactor - Calder Hall, UK

1954

World first - Atwood & Morrill® develop valves for the US navy nuclear fleet

1934

Floway® Pumps established as Fiese & Firstenberger an innovator in vertical turbine pumps

1926

Largest regulating valve ever made supplied to Shongweni Waterworks. S Africa

1881

Hopkinsons® patented globally

1828

Oldest of our flow control brands Blakeborough established

1970 to Present

the first parallel slide valve - the backbone of almost every power tion

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Pre-Purchase Support

Trillium offer in depth front end engineering and proposals support to help your project plans get off to the very best start. This can range from simple technical or commercial information to offering our extensive engineering expertise to help you co-develop the best system solution.

Front End Engineering



Trillium Offering

- Site surveys / FEED studies
- Project timeline preparation
- Detailed cost estimates
- Material selection advice
- System design & drawings
- Access to product & service based supply chain
- Tender specification creation & support
- Necessary standards & compliance support

Trillium Value Add

- 70 years+ applications specific experience
- Full in-house engineering team (mechanical, electrical, hydraulic, C&I etc.)
- Experienced site engineers

Your Advantage

- + Optimal flow solution for your application
- + Minimise system risks
- + Establish accurate CAPEX costs & achievable timelines up front

Proposals Support



Trillium Offering

- Full technical & commercial tenders
- Offering of configured product or engineered to order solutions
- In many cases supply of full technical package inclusive of provisional/final drawings
- Full references to provide peace of mind

Trillium Value Add

- Main solution to RFQ specification & options provided in many cases to reduced cost or improved timeline
- Experienced tendering teams available to provide detailed bid clarification & dedicated to meet your tender process deadlines
- Access for key customers to configuration tool on standard products

- + On time & competitive proposal support
- + Fully packaged & comprehensive solutions minimising multiple vendor purchases



Equipment Supply

Trillium supply a wide range of quality flow control equipment designed specifically to your application. We frequently package this into a turnkey solution and can offer comprehensive testing too.

Design & Manufacture



Trillium Offering

- Butterfly, gate, globe, check, safety & control valves + actuators
- Vertical turbine pumps
- API process pumps
- Specialist vortex, screw & pitot-tube pumps
- Electro submersible pumps
- Single & multi stage steam turbines

Trillium Value Add

- Advanced material options
- Broad range to meet your exact duty conditions

Your Advantage

- + Quality product delivered on time
- + Latest technology offering
- + Efficient products that reduce your operating cost
- + Full warranty & service back-up

Unit Packaging



Trillium Offering

- Full pump skids with all ancillaries
- Project management from basic to the most complex of packages
- Engineered drop in replacement units
- Capability to offer multiple manufacturing locations & localised content where required

Trillium Value Add

- Complete packaged solutions
- Best in class product design life

Your Advantage

- + One stop shop for purchase
- + On time & to budget project delivery
- + Single point of contact for support
- + Package components already fully optimised to work most efficiently
- + Reduced training requirements

Full Test



Trillium Offering

- Full pump, valve, turbine & motor performance testing
- Pumpset string & endurance testing
- Submergence, hydro & NPSH tests
- Field testing
- Condition monitoring on test or in-situ
- CFD analysis

Trillium Value Add

- Modern & flexible test facilities providing best in class lead time
- Testing to multiple standards

- + Proven pumpset, valve or turbine performance
- + Equipment delivered ready to go reduces startup lead time

Full-Range Transactional Services

From installation & commissioning all the way through to upgrade and re-rate, Trillium are here to support your equipment. Our services are always delivered by equipment and process specialists to extend the life of your process.

Installation & Commissioning

Trillium Offering

 Engagement of qualified installation and commissioning services providing confidence of operability with experience from an extensive installed product base backed by product and system design application knowledge.

Trillium Value Add

- A single point of contact throughout the entire installation phase
- Reliability & safety guaranteed by experienced operators

Your Advantage

- + Right first time start-up
- + Team trained to optimise flow control equipment & overall system

Training Solutions



 Collaboration with our product application engineers and your equipment operators providing a knowledge base and skills to optimize equipment and plant performance. Courses tailored to combine training and technical requirements supporting your operations.

Trillium Value Add

- Experienced trainers
- Bespoke packages to your exact needs
- Quality multimedia learning materials
- Training based on solving real world problems
- Caters for Trillium & third party brands

Your Advantage

- + Skills your workforce to troubleshoot real operating issues
- + Increase safety whilst reducing costs

Rapid Spares

Trillium Offering

 Development and application of spare parts inventory programs through managed contract maintenance systems. Utilization of OEM and engineered parts, supported by OEM product engineers ensuring operability and maximized equipment life.

Trillium Value Add

- Parts produced with performance & material upgrades
- Manufacture or sourcing of parts no longer available

- + Enhanced security of supply of critical components
- + Superior lead times
- + Quality parts to maximise operating life





Upgrade & Re-Rate



Trillium Offering

 Maximize equipment operating life and uptime with experienced field teams or workshop based repairs. Operations backed by safety management, equipment application engineers, quality resources, with qualified supply chain capability. Repairs can be assured by performance testing.

Trillium Value Add

- Fully qualified technicians with huge applications experience
- Rapid & long-lasting repairs
- Root cause analysis to avoid future failure modes
- Experience & equipment to expertly handle Trillium and third party machines
- In-situ testing & valve seat replacement
- Statutory inspection services
- Pump mechanical seal refurbishment
- Specialist coatings for repair, efficiency & corrosion protection

Your Advantage

- + Minimal system disruption during outages
- + Long operational life / longer service intervals
- + Return to service with improved performance

Trillium Offering

 Our core engineering design and application teams working synergistically with your operational teams developing solutions for remodeling equipment, expansion or upgrades. Intention is to secure maximum operability within optimum design whilst minimizing OPEX.

Trillium Value Add

- Increased equipment efficiency & life
- Greater ROI from existing machines with extension of operable life
- Equipment re-certified to same or superior standards

Your Advantage

- + Reduced equipment running costs
- + Reduced CAPEX spend
- + Minimised system disruption

Inspection and Auditing

Trillium Offering

 Regular inspection by qualified service engineers optimizes operability and minimum downtime providing operational cost savings. Adopted as part of a Maintenance Contract can provide you the service without the direct headcount and associated cost.

Asset Management / Total Service

Trillium are frequently called upon to provide total service solutions for our clients. We can deliver a full package of service tailored to your site and frequently embed our engineers in your process. This ensures maximum uptime for your equipment and optimizes your profitability.

Spares & Unit Storage



Trillium Offering

 Adoption our flexible range of operation and maintenance models allows your focus on core business. Provision of embedded engineers and teams through to full operational workshop management including headcount responsibility and asset management.

Trillium Value Add

- Storage in environmentally controlled conditions

 heat, vibration, humidity
- Regular inspection by specialised engineers
- OEM levels of care
- Aggregated storage of critical parts across operators reducing inventory holding

Your Advantage

- + Removal of start-up risk of critical spares units
- + Guaranteed availability to tight deadlines
- + Potential reduction in stock inventory

Condition Monitoring & Diagnostics



Trillium Offering

 Our ranges of operating models with extensive multiple industry experience provides a flexibility ensuring your requirements are met. Preventative maintenance and operational support for outages are the core of our operation, backed by engineering and project management teams.

Trillium Value Add

- Services delivered by engineers with deep product & application knowledge
- All condition monitoring & diagnostics options fully supported by our core service and equipment supply offerings
- Shared learning from our vast operating experience

- + Unique contracting models such as 'hot swap', 'contract for availability' or 'power by the hour'
- + Pro-active approach to maintaining critical equipment reducing unplanned trips, downtime & overstock of spares







Trillium Offering

• Our Engineers perform Reliability, Availability and Maintainability studies (RAM) covering the range of pumps/valves/turbines within systems adopted. Benefits from RAM studies provide deeper understanding of most critical equipment and systems. Optimizing spares holding and proactive maintenance.

Trillium Value Add

- Expert Trillium staff dedicated to maintaining your equipment - capability to maintain staff fully on your site if required
- Experienced in moving you from a reactive to a predictive maintenance model — reduced interventions with improved impact
- No one size fits all various different solutions offered tailored to your application and budget

Your Advantage

- + Maximum pump & system availability
- + Predictable & minimised OPEX spend profile
- + Extended equipment lifespan
- + Reduced capital caught up in spares holding / in-house service infrastructure
- + Trillium are part of your team without the full overhead costs
- + Improved health & safety

Life Extension



Trillium Offering

- Engineering team review & provision of upgrades and re-rates
- Service plans and framework agreements
- Implementation & operation computerised maintenance management system
- Dedicated teams supporting planned outages including SQEP personnel for site work
- Access to extensive product supply chain
- Global network of product material specialists
- Embedded engineering programs
- Failure mode & effect analysis

Trillium Value Add

- Optimise equipment design characteristics to system requirements
- Central engineering team experienced across broad range of operating sites & equipment
- 25 years plus in execution of asset management contracts
- Back up to service facilities and processes fully accredited to the latest ISO 45001, 9001 & 14001 standards for HSEQ management

- + Increased equipment reliability, availability, efficiency & performance
- + Reduction in total cost of ownership
- + Dedicated operational support & instantly available technical knowledge & experience
- + Access to workshops & test facilities
- + Focus on core value add activity with management service provision

Critical New Pump Supplied in Record Time

Customer / Site:

Maersk / Gorm B Platform, Danish North Sea

Applications:

Firewater Pumps

Trillium Offering:

Equipment Supply

Customer Challenge

- Mærsk required a running fire water pump to satisfy the safety case for the Gorm Platform
- Without this unit they would have to de-man two entire oil field operations
- A new unit would typically take 40 weeks to manufacture

Trillium Solution

- Utilising the full in-house capabilities of the Trillium submersible team, two units deemed beyond economic repair were sourced. After a thorough inspection of these the best components across the two units were selected, fully repaired and supplemented with rapidly re-engineered new parts to assemble a complete unit
- Trillium were able to complete the engineering and pump build in under 11 weeks. This was inclusive of a full quality checks, re-balance and test to the normal compliance standards

Customer Benefit

- The rapid delivery of this safety critical pump avoided the shut down of Gorm B and sister fields
- Maersk saved millions in lost revenue

"Trillium did a very great job in getting a usable emergency pump put together using very worn parts from 2 pieces. The pump passed the performance test... just like a new fabricated pump."

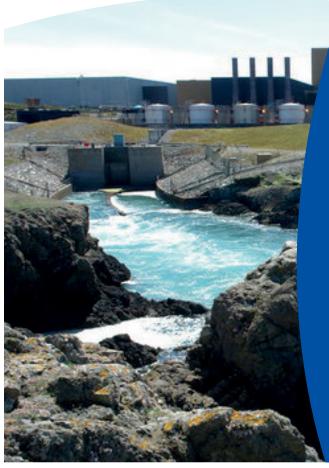
- Tommi Jessen Benjaminsen, Maintenance Coordinator, Gorm-Tyra Asset







Impeller Upgrade Improves
Performance of Critical Pump
at Nuclear Plant



Customer / Site: Magnox / Wylfa Nuclear Power Station, UK

Applications: Main Boiler Feed Pump

Trillium Offering: Performance Diagnosis & Pump Upgrade

Customer Challenge

- The main boiler feed pump at the Wylfa nuclear power plant was suffering impeller erosion damage
- This was leading to premature wear and expense for overhaul and parts

Trillium Solution

- Trillium conducted a detailed diagnosis and identified the 1st stage impeller was suffering from suction recirculation
- Trillium scanned the existing impeller, computer modelled it and through a detailed engineering simulation designed a replacement
- The new impeller was installed and resulted in reduced power consumption and recirculation

Customer Benefit

- The critical station main boiler feed pump's excessive impeller wear was resolved without the requirement for a major pump redesign and associated disruption
- This significantly reduced the client's spend on a repair and reduced their spare parts requirement

Rapid problem diagnosis and rectification saved this customer unnecessary downtime and repair costs

Customer / Site: Oil Major / North Slope, Alaska, USA

Applications: Water Injection Pump

Trillium Offering: Material Upgrades

Customer Challenge

- The customer's multistage pump was pumping produced water with sand and particles present
- This was leading to rapid wear of critical components with some units only lasting 8 weeks in service but typically 6-8 months
- Planned maintenance could not be adopted due to rapid unit failures

Trillium Solution

- Trillium stripped down the unit and conducted a detailed analysis of all wear parts mainly impellers, diffusers, seals and balance drum bush
- Seals were upgraded to stellite and impellers upgraded to a special grade of duplex SS with Boart/tungsten carbide wear surfaces
- Balance drum bush was also coated with Boart S6 to increase wear rate
- Pump was reassembled and put back into operation. Wear rates on previously worn parts were checked after 9 months with minimal damage seen

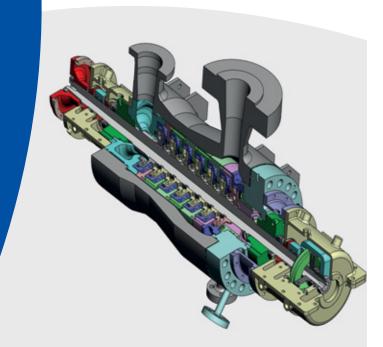
Customer Benefit

- After the Trillium upgrades service life was increased to 4 years between overhaul typically a factor of 10 over previous average lifespan
- Planned maintenance could be implemented to avoid sudden failures and associated loss of revenue

Material upgrades matched to duty conditions can frequently offer significant wear life extension

Case Study

Material Upgrades
Increase Pump Service
Life by a Factor of Ten



"Pleasing for me was that the Trillium guys listened, and took on-board all the safety messages we gave them, delivering a safe, incident free job."

- Maintenance Coordinator, Major UK Refinery

Oil Refinery Asset Management Backed by Full Trillium Engineering Team

Customer / Site:

Major UK Refinery

Applications:

Refinery Pumps

Trillium Offering:

Asset Management

Customer Challenge

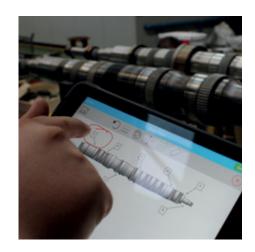
- Customer recognised a skill shortage in regards to the maintenance and overhaul of pumps in their existing workforce
- This lead to a lack of preventative maintenance and long lead times on repairs

Trillium Solution

- Trillium provided skilled fully qualified, experienced personnel on a permanent full time basis. These were based within the customers facility working under the supervision of the customer
- Trillium staff can be used to carry out preventative maintenance and repair activities. Strip downs can be carried out on site, where the customer can witness the condition of the pump & authorise the relevant repair
- Trillium site staff are backed by office staff with regards to design engineers, HSEQ, logistics and purchasing when required
- Trillium carry out regular training on-site to ensure skill levels are maintained & HSEQ procedures are at least in line with Trillium standards
- Customer personnel integrated within the Trillium team ensure a skills transfer takes place

Customer Benefit

- Equipment repairs carried out quickly & efficiently with complete transparency between Trillium and the customer
- Customer skill base is growing quickly, with skills transfer through integrated working & enhanced training provided by Trillium





Complete Pump & Valve Restoration for Plant Conversion

Customer Challenge

Customer / Site:

Trillium Offering:

Applications:

- Aged coal fired power plant required conversion to biomass fuelling
- To minimise conversion time and cost a turnkey contractor was sought

Trillium Solution

• Trillium tendered a comprehensive conversion solution for all major flow control equipment and ancillaries

Biomass Power Plant, North East England

Complete plant flow equipment overhaul

Broad range of valves & pumps

- Trillium successfully repaired 11 butterfly valves and gearboxes, 42 turbine relief valves, 3 lid assemblies, 3 in-situ sear replacements, 48 on-site valve overhauls as well as 2 main boiler feed pumps, 2 cooling water pumps, 7 condensate pumps and 7 booster pumps
- Solution included for service work across Trillium and multiple third party brands of equipment - all handled by Trillium's experienced team
- Recommissioning of key units
- Lifetime asset support package offered to ensure future operational efficiency

Customer Benefit

- One stop shop solution for repair/upgrade of all critical flow control equipment
- Increased revenues due to return to operation on time and budget
- Plant now successfully generation up to 420 MW of low carbon electricity

Trillium's capability to offer a comprehensive offering across their own and third party valves, pumps and ancillaries was a key factor in them being awarded the contract



Advanced Training
Offering for Nuclear
Power Station Valves



Customer / Site: Power Utilities / USA

Applications: Nuclear Power Station Valves

Trillium Offering: Training

Customer Challenge

- US power utilities operating BWR and PWR reactors required a safe way of efficiently overhauling their valve fleet
- They required an easy to understand process based on classroom and practical training

Trillium Solution

- Trillium along with partners developed a classroom and hands-on valve training program that could be delivered at Trillium facilities or customer site
- This offering was tailored to each utility based on the individual needs of each plant and the equipment requiring service

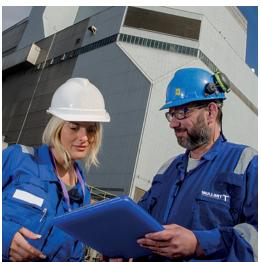
Customer Benefit

- The utility service teams developed a deep understanding of the valve overhaul process
- Overhaul costs are now minimized with minimum system disruption
- Safety is optimised

A specially developed training program was developed and delivered to optimize overhaul safety

Strategic Partnership as Tier 1 Supplier





Customer Challenge

- Client required a reliable partner for full aftermarket support across their pump and valve assets
- The supplier had to offer a full line solution and have sufficient resource to manage large quantities of Trillium equipment across 8 different UK locations
- All of this had to be delivered by a supplier with a strong nuclear safety culture

Trillium Solution

- Trillium have been supporting the critical clients nuclear power station facilities for years and have recently re-signed frameworks out to late 2020s
- Scope of supply includes installation & commissioning, full line engineering services and off site and on site support
- Trillium have delivered various value add services inclusive of Trillium Mechatronics (advanced condition monitoring utilising cloud computing and big data machine learning); optimal spares stockholding programs; embedded engineer programs and many more

Customer Benefit

- Partnership between clients and Trillium has ensured maximum plant availability whilst maintaining the highest levels of safety
- Aftermarket provision has also increased reliability whilst reducing costs and optimising outages
- As an example of the levels of service offered in 2017 there were zero return to service issues, zero feed pump losses and zero quality log issues recorded for all the Trillium work. This was also done with zero recorded injuries — a huge achievement given the large scope of work carried out

Customer / Site:

Nuclear Power Generation Major UK / 8 x Nuclear Power Stations, UK

Applications:

Full Scope Pumps & Valves

Trillium Offering:

Strategic Partnership

"The Trillium on-site performance was considered to be of the highest standard"

- Client Senior Site Engineer



Testimonials

Trillium Flow Technologies pride themselves on a job well done but don't just take our word for it. Below are samples of our customer's feedback:

"Trillium are setting the standard on this outage among the contract partners"

- 1.25 MWE Nuclear Power Generator UK

"The Trillium team ... are working to an exemplary standard"

"Trillium's safety practice is one which we now intends to adopt due to observing our use of the system"

- Major Refinery Scotland

"Thanks to Trillium for their fast response and quality work in support of urgently required valve overhauls"

Summary of Technical Capabilities

Trillium have some of the best equipped service teams in the flow control industry. Our key capabilities are summarized below.

Norkshop

Workshop

- Lifting capacity: 70 tonnes, 10m hook lift
- Machine balancing up to 18 tonnes, 2.55m max dia, 5m max length
- Heavy engineering fitting & machine shops
- High integrity pump workshop
- Electro submersible pump workshop
- Integrated valve & actuator Workshop
- Turbine production & overhaul

Specialist Services

- Advanced coatings repair, high efficiency & anti-corrosion
- Critical part solutions re-engineering & part manufacturing
- Workshop and on-site hydro power expertise
- Mechanical seal overhaul workshop
- Non-destructive testing & condition monitoring
- Grit blasting & painting

Heavy Machining

- Lifting capacity: 70 tonnes; 10m hook lift
- Turning capacity: 7.62m length; 1.2m swing dia over saddle
- Horizontal boring: 3m x 7.3m table; 2m spindle height
- Vertical boring: 6.7m table with 7.3m swing
- Hydraulic press: 100 tonnes vertical
- Drilling: 125mm hole dia; 1.2m 1.5m arm radius; 1.5m height

Light Machining

- Lifting capacity: 15 tonnes; 7.6m hook lift
- Conventional turning capacity: 4.6m length 0.64m swing
- CNC Turning: 2m length, 300mm swing (600mm at chuck)
- Vertical boring: 1.5m chuck
- Conventional Milling: 1.2m x 0.3m Table 0.4m height
- CNC Milling: 1.6m x 0.762m table—0.635m height
- Slotter: 75mm key slot width x 1.4m length
- Grinding: 3m length, 0.3m swing

Pumps

- Up to 10,150m³/hr / 37,000GPM
- Up to 40bar / 580psi (higher test pressures by arrangement)
- Up to 4,250kW / 5,700BHP
- Power supply 50Hz up to 11kV / 60Hz up to 6.6kV
- Variable speed drive <2MW

Valves & Actuators

- All Types/makes of valve overhauls carried out, up to 72" (Safety / control / butterfly / pilot assisted safety / gate etc)
- General valve testing up to 640bar / 9,280psi
- Actuator torque ranges 0-500Nm and 0-2,000Nm
- Torsion bar hysteresis testing



Test

Machining

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