Pressure Control Solutions for Upstream Oil & Gas
The world of offshore Oil & Gas is complex, requiring a massive amount of CapEx resources with safety encompassing all aspects of operations. Operational inefficiencies such as product failures, increased startup times, excessive energy consumption, and weight can result in millions of dollars in downtime and production losses.

**Efficiency rules**

More than ever, there is increased pressure to reduce cost - to extract the most value from existing equipment - or if looking at new assets, making sure they significantly outperform existing solutions and provide the highest level of efficiency. You expect a superior solution and require the service, support and training to install and use these products effectively.

Emerson’s TESCOM™ products are engineered to the strictest standards, providing superior performance, reliability and quality. Close collaboration with decision makers like you ensure we have the best pressure control solutions to meet your most demanding application requirements.
Your Technical Support Partner

Knowing the right solution to your application is vital in getting the most from your investment. Cutting corners isn’t an option so it’s important that you get the right support the very first time.

With pressures reaching to 20,000 psig/1380 bar, you can’t leave choosing the right solution to just anyone. And with Emerson’s advanced flow loops with pressure capabilities up to 30,000 psig/2070 bar, you can be confident that any TESCOM product has been thoroughly tested to the strictest standards.

Automation

We understand that automation is a critical component in the design and operation of production offshore facilities. This is particularly true as the industry goes to deeper water, uses longer tiebacks and drills deeper wells. As the industry moves toward increasing automation, Emerson has solutions that allow customers to seamlessly integrate automated pressure or flow control into their hydraulic control and chemical injection systems.

Application experience includes

- Subsea Control Systems
- Wellhead Control Panels
- Hydraulic Power Units
- Blow Out Preventers
- Flushing Skids & Pressure Testing Rigs
- Chemical Injection Systems
- Gas Compressor Monitoring
- Process & Pipeline Instrumentation
- Fuel & Lubrication Systems
- Choke Control Consoles
- Diverter Control Skids
- Hydraulic & Pneumatic Utilities
- Gas Metering Systems
- Actuated Valves & Controls
- Active Fire Suppression Systems
- Emergency Breathing Air
Reduce time to production and maintenance cost

Wellhead Control Systems & Installation Work Over Control Systems Regulators

The combination of deeper wells and the increase in the length and use of subsea tiebacks have pushed technology and equipment to their operational limits. Topside equipment that is critical to the control and safe operation of offshore wells now have to pressurize umbilicals that are up to 100 miles/160 km long with the same equipment that was developed for shallower wells. This can result in poor performance or failures that can have major ramifications on safety, production and the environment.

We engineered a solution that accurately controls high pressure water glycol while decreasing pressurization time and extending the life of the regulator.

The TESCOM 50-4000 Series is designed with an integrated bypass valve which controls large variations in flow rates at pressure up to 15,000 psig/1034 bar.

- Reduced high pressure components and leak paths for increased safety
- Simplified startup procedures
- Improved operations by reducing set up time and less downtime
- Reduced maintenance costs through extended service life and increased regulator performance
- Accurate, repeatable pressure control with both high pressure / high flow pressurization capability

Pressurization rates are 33% faster!

• Increase safety
• Improve operations
• Increase performance
Reduce the risk of serious infrastructure failures and excessive chemical costs

**Chemical Injection Systems Flow Control Valves**

Flow assurance is a critical component in the design and operation of offshore production facilities. With costs of controlling hydrates, corrosion, scale, wax and asphaltenes exceeding 10% of operational costs it has never been more crucial for operators to maintain accurate control of injection rates.

To achieve this, you need precision chemical injection flow control that retains consistency regardless of downstream pressure fluctuations or flow rates.

The TESCOM 56 Series chemical injection flow control device provides:

- Consistent flow of chemicals to your production infrastructure
- Optimization of chemical usage to prevent problems associated with over and under injection
- Reduce operational and maintenance costs while increasing safety
Cement Analyzers

Simulating downhole conditions regardless of pressure temperature or density fluctuations is vital in ensuring the downhole cement will perform as specified. Manually controlling the testing pressure can lead to inconsistencies and human error, resulting in inaccurate cement test results. This could lead to reduced well performance or worse, a complete loss of the well. For applications that require extreme pressure control accuracy and/or remote pressure control, the TESCOM ER5000 Series PID controller offers a closed-loop pressure control solution that incorporates automation and delivers accurate results every time.

- Regardless of changing conditions, flow/no-flow, temperature changes, chemical reactions and other factors, the ER5000 will constantly monitor the actual pressure and maintain pressure within ± 0.1% of feedback
- ER5050 ATEX Explosion Proof is certified to DEKRA/CENELEC and CE, ideal for use in hazardous locations
- ER5000 is compatible with a wide range of TESCOM regulators making it suitable for many types of applications
- Comprehensive ERTune™ software included at no charge

**Accurate pressure control for accurate test results!**
Specifically designed for extended life in high pressure hydraulic applications, TESCOM regulators are ideal for use in wellhead control panels, hydraulic power units (HPUs), chemical injection, cement analyzers and nitrogen emergency relief valve applications.

### Solutions for Chemical Injection Flow Control

<table>
<thead>
<tr>
<th>TESCOM SERIES NAME</th>
<th>FEATURES/BENEFITS</th>
<th>INLET PRESSURE RANGES (MAX)</th>
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<td><strong>56 Series</strong></td>
<td>• Offshore chemical injection regulators&lt;br&gt;• Accurate and consistent setpoint control reduces the risk of flow assurance issues from over and under injections&lt;br&gt;• High quality piston-sensed regulators for longevity in offshore applications reduce maintenance costs and unplanned downtime&lt;br&gt;• Alternative options for full automation of injection rate control with the addition of the ER5000</td>
<td>15,000 psig 1034 bar</td>
<td>200-15,000 psig 13.8-1034 bar (non-adjustable spring bias pressure: 175-200 psig / 12-13.8 bar)</td>
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<td><strong>50-2000</strong></td>
<td>• Rugged design, high pressure applications&lt;br&gt;• Hardened metal to metal seats for heavy duty service&lt;br&gt;• Excellent resolution &amp; repeatability due to tapered poppet design&lt;br&gt;• Meets or exceeds Class IV shutoff at all pressure ranges&lt;br&gt;• Mounting bracket standard&lt;br&gt;• Segregated captured vent&lt;br&gt;• Quick-change repair modules available</td>
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<td><strong>50-2200</strong></td>
<td>• Rugged design, high pressure applications&lt;br&gt;• Hardened metal to metal seats for heavy duty service&lt;br&gt;• Excellent resolution &amp; repeatability due to tapered poppet design&lt;br&gt;• Meets or exceeds Class IV shutoff at all pressure ranges&lt;br&gt;• Mounting holes in body with panel nut included&lt;br&gt;• Quick-change repair modules available</td>
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<td><strong>50-4000</strong></td>
<td>• Compact ergonomic design&lt;br&gt;• Durable wall mounting bracket&lt;br&gt;• Configure with many integrated accessories&lt;br&gt;• POU applications and calibration gases</td>
<td>10,000, 15,000 psig 690, 1034 bar</td>
<td>5500-15,000, 3000-10,000, 3000-6000, 3000-4000, 1100-6000, 1100-4000, 1100-2500 psig 380-1034, 207-690, 207-414, 207-276, 76-414, 76-276, 76-172 bar</td>
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<td><strong>54-2900</strong></td>
<td>• Control pressures up to 10,000 psig&lt;br&gt;• Bottom ported outlet&lt;br&gt;• Hardened metal to metal seats for heavy duty service&lt;br&gt;• Choice of dome loaded, spring loaded or air actuation&lt;br&gt;• Various process connections &amp; sizes</td>
<td>Maximum Control Pressure: 500, 1000, 1500, 3000, 5000, 10,000 psig 5, 69, 103, 207, 345, 690 bar</td>
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Solutions for Mineral & Synthetic Applications

Used extensively by the global oil and gas industry for the past 30 years, our range of products for oil applications are renowned for their performance and reliability.

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| 54-2000 Pressure Reducing Regulator | • Rugged design, high pressure service  
• Hardened metal to metal seats for heavy duty service  
• Panel mount bracket standard  
• Specific model available to control logic pressure  
• NACE compatible model available | 20,000 psig  
1380 bar | 20,000 psig  
1380 bar |
| 54-2200 Pressure Reducing Regulator | • High flow capacity: $C_v = 2.0$  
• Hardened metal to metal seats for heavy duty service  
• Segregated captured vent  
• Air ratio or dome load options available  
• NACE compatible model available | 10,000 psig  
690 bar | 10,000 psig  
690 bar |
| 54-2800 Pressure Reducing Regulator | • Very high flow capacity: $C_v = 8.0$  
• Compact rugged design  
• Hardened seals & poppet provide excellent protection against shock & protection  
• Air ratio or hydraulic dome load options available | 5000 psig  
345 bar | 5000 psig  
345 bar |
| 54-2100 Back Pressure Regulator / Relief Valve | • Setpoint repeatability exceeds that of conventional relief valves  
• Accuracy: ± 1% of pressure range  
• Hardened metal to metal seats for heavy duty service  
• Panel mount bracket standard | Maximum Operating Pressure:  
30,000 psig  
2069 bar |
| 54-2300 Back Pressure Regulator | • Excellent crack to reseat ratio  
• High flow capacity: $C_v = 1.6$  
• Hardened metal to metal seats for heavy duty service  
• Spring, air or dome load options available | Maximum Operating Pressure:  
10,000 psig  
690 bar |
| 54-2700 Back Pressure Regulator | • Very high flow capacity: $C_v = 5.0$  
• Spring, air or dome load options available | Maximum Operating Pressure:  
5500 psig  
380 bar |
Remote Control & Automation

In conjunction with a TESCOM air or dome loaded regulator, the ER5000 Electropneumatic Pressure Controller provides true distributed control of gaseous and hydraulic media.

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| ER5000 Electropneumatic Controller | • Fast, precise pressure control, accurate to ±0.1%  
- Serial or analog setpoints  
- Pressure control from vacuum to 20,000 psig/1380 bar  
- Free TESCOM ERTune™ comprehensive tuning and interface software provided  
- Type 4X / IP 65 enclosure  
- ER5050 for Hazardous Locations  
- Includes SI, SV, FI, FV options  
- Approvals: ATEX, IECEx, CSA, CE and FM |

Spares and Servicing

Servicing at regular intervals extends the working life of your TESCOM regulator and reduces the risk of costly downtime.

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| • Soft goods and/or repair kits are available for all regulator pressure ranges  
• Fast repair modules are available for select models  
- Allows in-field servicing with minimum down time  
• Overhaul and repair facilities in the US and Germany  
- Regulators fully assessed before repair  
- Products cleaned and re-tested prior to return  
- A restored product minimizes risk of downtime and creates peace of mind! |

Offerings vary by world area - check with your local sales office for availability.
The TESCOM™ brand of pressure controls are designed and manufactured in a wide range of standard and custom engineered solutions for a diverse world market. Market application know-how includes Aerospace & Defense, Alternative Fuels, Diving & Life Support, Laboratory & Research, Life Sciences, Medical, Oil & Gas and Microelectronics to name just a few.

Close collaboration between worldwide design and manufacturing groups ensure the usage of state-of-the-art production technologies to provide the innovation and highest quality product that TESCOM customers have come to expect.
TESCOM distributor support centers are located in most major cities worldwide. More than 100 locations provide application assistance and quality TESCOM product.

To find a distributor or sales office location near you, visit www.tescom.com and click on Where to Buy.