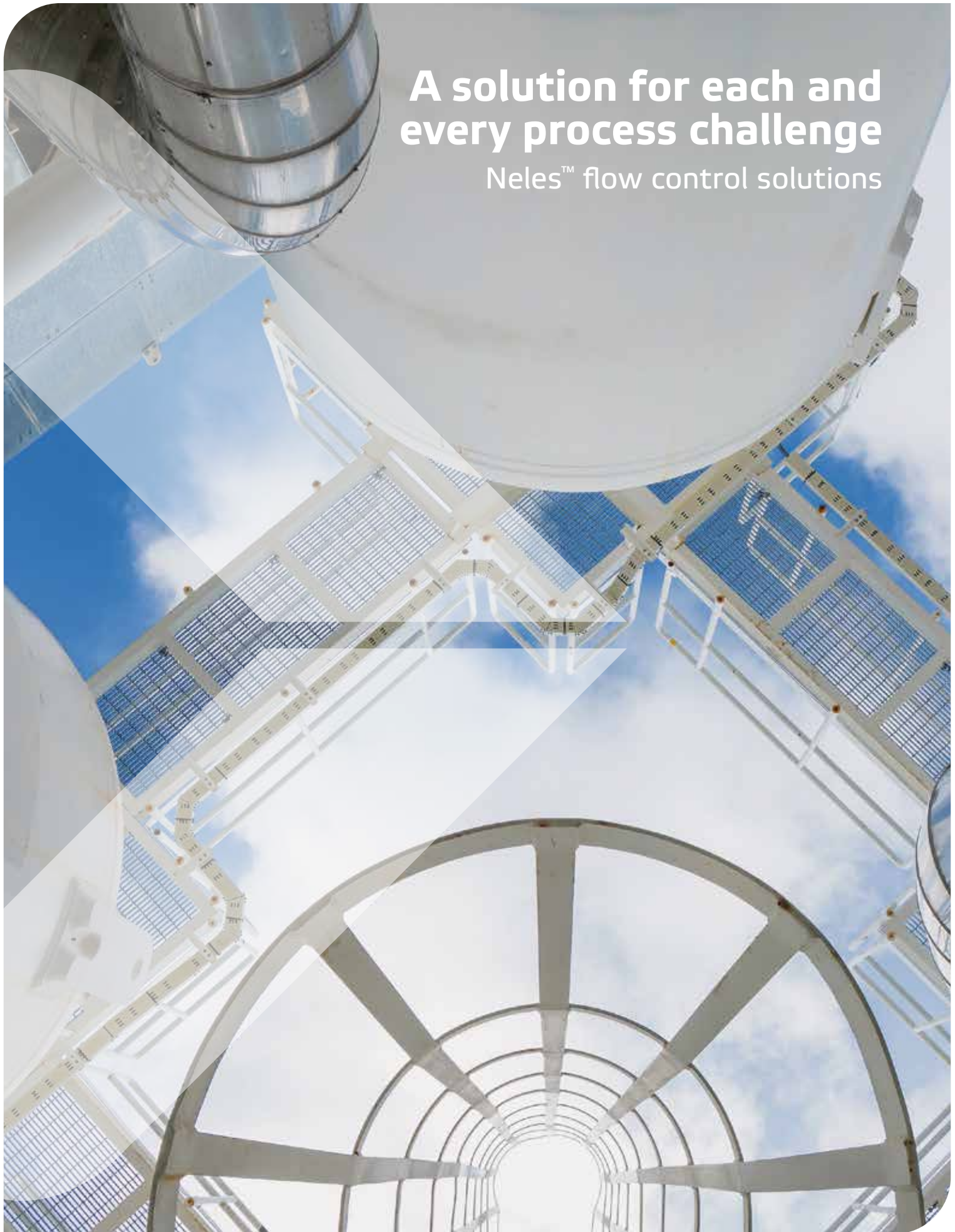


A solution for each and every process challenge

Neles™ flow control solutions





Designed to perform

To help you optimize your process performance and reliability, Valmet approaches each process and application as a specific challenge. Our control, on-off and ESD valves, accessories, intelligent devices and software products are engineered to meet these challenges.



The selection of the right valves and accessories in demanding and often critical applications in oil and gas, pulp and paper or energy industry applications is often a matter of both business performance and the efficiency, safety and reliability of process itself.

Our valves and all related products and services are always created with the customer's process and business in mind. We design and deliver solutions that enhance performance

and ensure process safety and reliability. They provide innovative, fundamentally simple construction, operation and maintenance features to optimize process performance at the lowest cost.

Each Valmet device and solution is based on our extensive industry experience and knowhow. Our dedicated people, from sales to services, are committed to delivering the results our customers expect from us, and more.

Nelprof™

Valve sizing and selection software

- Digital tool for control, on/off and safety valve sizing and selection
- Allows you to select the right valve and valve actuator for your application
- With inbuilt expert system that guides you through the selection process with notes and warnings
- Enables analysis and comparison of control valve performance before installation
- Helps to choose the right valve size and type with optimal actuator to reduce process variability and ensure the best process performance
- On/off module that enables the selection of all intelligent metal and soft-seated on/off and emergency valve assemblies
- The SIL module is the first safety integrity level tool on the market, enabling safety integrity level evaluation for the whole valve assembly, including valve, actuator, positioner and pneumatic components when needed



Ensuring reliable performance

Reliable performance requires more than just high-quality valves. All valve solutions delivered by Valmet are thoroughly tested and supported by dedicated services designed to ensure optimal life cycle performance.



Testing capabilities

We have an extensive quality assurance program covering all manufacturing activities. All components or valve units are tested before delivery. For modulating control valves the testing includes control performance for the verification of every delivered valve unit.

Basic testing includes hydrostatic, seat leakage and functional testing. Advanced computer – based test rigs have been provided for these valve testing activities. A special feature in our test facilities is high-pressure gas test and top-of-range industrial cryogenic laboratory.



Ensuring process safety and reliability

In addition to our robust and reliable valves, we offer a range of products and services designed to ensure the desired performance of critical valves across their entire life cycle. For instance,

the Neles™ ValvGuard™ intelligent safety solenoid and PST system helps monitor and ensure the full functionality of critical, yet often idle, emergency shutdown (ESD) and venting valves.

Simplifying service solutions

We are committed to helping energy and hydrocarbon, and pulp and paper customers improve process performance and reduce operating costs. Our leading edge technological solutions and skilled customer support personnel get the job done with a goal of making your work life easier.

Our services encompass the entire product life cycle, from the time of installation all the way through to planned replacement. At every step, our goal is to reduce your cost of doing business and enhancing your overall profitability.

We apply a vast amount of industry, process, application and product knowledge into every customer relationship. Our technicians work in partnership with you to develop programs and provide services that meet your specific requirements.

Valve controls

We offer a unique range of reliable and easy-to-use solutions to control your valves.

With the help of our products you can fulfill end user requirements for control, emergency shutdown and on/off valve applications. Our products will ensure the best possible valve performance and compliance with environmental regulations.

Our offering ranges from limit switches to high performance intelligent valve controllers such as the Neles™ NDX™ and Neles™ ND9000™, with third generation diagnostics. Our competitive valve control solutions allow you to get the best possible performance from your valves.








Control valves

Control valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles V-port segment valves 	RA, RE-series	Wafer, flanged Options: Reduced Cv trims, Q-Trims	Size: DN 25 – 800 / 1" – 32" Pressure: ASME 150 – 600, PN10 – 100 Temperature: -52 to +425 °C / -60 to +797 °F Body: CF8M, WCB, CG8M Titanium, Hastelloy C, SMO Tightness: Class IV ~ VI 10xISO Rate D, Rate D		General, Demanding/ Erosive, Severe, Fire safe, Low emission	3R21, 3R24
Neles™ Finetrol™ eccentric plug valves 	FC, FG & FL-series	Flanged, eccentric rotary plug valve Options: Reduced Cv trims, Q-Trims, cryogenic	Size: DN 25 – 300 / 1" – 12" Pressure: PN 10 – 100 / ASME 150 – 600 Temperature: -200 to +450 °C / -320 to +842 °F Body: CF8M, WCC Tightness: Class IV ~ VI		General, Severe, SIL, Fire safe, Low emission	5FT20, 5FT22
Neles high performance triple eccentric disc valves 	L12, L6, LW & LG, L1 & L2-series	Wafer, lugged, double flanged Options: Heat traced, flow balancing trim, cryogenic, high flow capacity, great controllability range	Size: DN80 – 2200 (3" – 88") Pressure: ASME 150 – 600 / PN10 – 100 Temperature: -200 to +650 °C / -320 to +1200 °F Body: CF8M, WCB, LCC, 5A, Monel See other body materials from bulletin Tightness: Up to ISO Rate A, API 598 & Class VI		General, Moderate SIL, Fire safe, Low emission	2L121, 2L1220, 2LW20, 2L621
Neles™ RotaryGlobe™ 	ZX-series	Flanged, rotary globe control valve Options: Balanced anti-cavitation and low noise, different CV and LIN/EQ% trims	Size: ½" – 4" / DN 15" – 100" Pressure: ASME 150 – 1500 / PN 10 – 100 Temperature: -80 to +425 °C / -110 to +797 °F Body: CF8M, WCC Tightness: Class III ~ IV		General, severe, Fire safe, Low emission	1RG20
Neles top entry rotary valves 	T5-series	Reduced port, flanged, weldends Options: Q-Trim, Q2-Trim, different Cv-trims, cryogenic	Size: DN 25 – 800 / 1" – 32" Pressure: PN 10 – 100 / ASME 150 – 600 Temperature: -200 to +600 °C / -320 to +1110 °F Body: CF8M, WCB Tightness: Class V ~ VI		Heavy duty	1T520
Neles E-series ceramic valves 	E2 & E6-series	Reduced port, wafer, lugged Options: Different Cv-trims	Size: DN 25 – 200 / 1" – 8" Pressure: PN 10 – 40 / ASME 150 – 300 Temperature: -40 to +425 °C / -40 to +800 °F Body: Stainless steel / Magnesia, partially stabilized Zirconia (Mg – PS2) Metal Matrix Composite (MMC) Tightness: ISO rate D, Class V		Erosive applications	1E220

Globe control valves

Globe control valves				
Product	Series	Design	Specifications	Bulletin
Neles GU-series globe control valves 	GU-series	Globe unbalanced, top guided type Single seated, flanged, butt & socket weld	Size: DN15 – 150 (½" – 6") Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ VI Trim: SS410, SS420, SS316, SS316 + Alloy 6, etc.	4GV21
Neles GB-series globe control valves 	GB-series	Globe balanced, single seated, cage-guided High capacity and heavy duty balanced, flanged, butt & socket weld	Size: DN50 – 600 (2" – 24") Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ V Trim: SS410, SS420, SS316, SS316 + Alloy 6, etc.	4GV25
Neles GM-series globe control valves 	GM-series	Globe Omega trim, multi-stage type Flanged, butt & socket weld	Size: DN50 – 600 (2" – 24") Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ VI Trim: SS420, SS316 + Alloy 6, etc.	4GV20
Neles A-series globe control valves 	AU, AB, AM-series	Angle pattern valves Angle, top-guided, cage-guided, Tendril™, Omega™ trim, flanged, butt & socket weld	Size: DN15 – 1200 (½" – 48") Pressure: ASME 150 – 2500 / PN10 – 320 Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ VI Trim: SS410, SS420, SS316, SS316 + Alloy 6, etc.	4GV23
Neles GW-series globe control valves 	GW-series	Globe 3-Way, diverting/mixing type Flanged, butt & socket weld	Size: DN25 – 250 (1" – 10") Pressure: ASME 150 – 600 / PN10 – 100 Temperature: -29 to +425 °C / -20 to +797 °F Body: WCB, CF8M Tightness: ANSI Class II ~ IV Trim: SS410, SS316, SS316 + Alloy 6, etc.	4GV24



On-off valves

On-off valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles X-series ball valves 	XA, XB, XC, XU, XT-series Seat supported	Full or reduced port, metal and soft seats Options: Steam jacket, Cryogenic and high temperature, Catalyst handling, Coal gasification, Polymer service, Oxygen service, Q-Trim, Q2-Trim	Size:	DN25 – 600 (1" – 24") For larger sizes, see bulletin	General	1X22, 1X23, 1X26, 1X27, 1XH20
	XG, XM, XH-series Trunnion mounted		Pressure: Temperature: Body: Tightness:	ASME 150 – 900 / PN 10 – 160 -200 to +600 °C / -320 to +1110 °F CF8M, WCB See other body materials from bulletin ANSI Class IV ~ VI		
Neles M-series ball valves 	M1, M2-series Seat supported and trunnion mounted	Full bore, Metal and soft seats Options: Black and green liquor applications	Size: Pressure: Temperature: Body: Tightness:	DN 25 – 600 1" – 24" PN 10 – 40 / ASME 150 – 300 -50 to +250 °C / -60 to + 480 °F CF8M, CG8M ISO rate D metal seats, Bubble tight with soft seats	General in P&P industry	1M120, 1M220
Neles D-series ball valve 	D2C, D2D, D1F-series	Full or reduced port, Stemball construction Options: Steam jacket, Cryogenic and high temperature, Catalyst handling, Q-Trim, Q2-Trim	Size: Pressure: Temperature: Body: Tightness:	D1F: DN50 – 600 2" – 28" D2: DN700 – 900 (28" – 36") PN 10 – 100 / ASME 150 – 600 -200 to +600 °C / -320 to +1110 °F CF8M, WCB See other body materials from bulletin Class V ~ VI	Demanding application	1D21
Neles high performance triple eccentric disc valves 	L12, L6, LW & LG, L1 & L2-series	Wafer, lugged, double flanged Options: High tightness, Erosion resistant version, Cryogenic and high temperature, High cycling	Size: Pressure: Temperature: Body: Tightness:	DN80 – 2200 (3" – 88") ASME 150 – 600 / PN10 – 100 -200 to +650 °C / -320 to +1200 °F CF8M, WCB, LCC, 5A, Monel See other body materials from bulletin Up to ISO Rate A, API 598 & Class VI	General, Moderate SIL, Fire safe, Low emission	2L121, 2L1220, 2LW20, 2L621, 2LBF20
Neles E-series ceramic valves 	E2 & E6-series	Reduced port, wafer, lugged Options: Different Cv-trims	Size: Pressure: Temperature: Body: Tightness:	DN 25 – 200 / 1" – 8" PN 10 – 40 / ASME 150 – 300 -40 to +425 °C / -40 to +800 °F Stainless steel / Magnesia, partially stabilized Zirconia (Mg – PS2) Metal Matrix Composite (MMC) ISO rate D, Class V	Erosive applications	1E220

ESD valves

ESD valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles X-series ball valves 	XA, XB, XC, XU, XT -series Seat supported,	Full or reduced bore, Metal seats Options: Cryogenic, high temp.	Size: DN25 – 600 (1" – 24") For larger sizes, see bulletin Pressure: PN10 – 160 /ASME150 – 900 Temperature: -200 to +600 °C / -330 to +1110 °F Body: CF8M, WCB See other body materials from bulletin Tightness: Class IV ~ VI		High MTBF, SIL 3 certified	1X22, 1X23, 1X26, 1X27, 1XH20, 9VG921, CB058
	XG, XM, XH -series Trunnion mounted					
Neles D-series ball valves 	D2C, D2D, D1F -series	Full or reduced port, Stemball construction Options: Cryogenic, high temp.	Size: D1F: DN50 – 700 /2" – 28" D2: DN700 – 900 (28" – 36") Pressure: PN 10 – 100 / ASME 150 – 600 Temperature: -200 to +600 °C / -330 to +1110 °F Body: CF8M, WCB, LCC Tightness: Class V ~ VI		High MTBF, SIL 3 certified	1D21, 9VG921, CB058
Neles top entry rotary valves 	T5-series	Reduced or full port, flanged, weldends Options: Cryogenic, high temp.	Size: DN 25 – 400 / 1" – 16") Pressure: PN 10 – 40 / ASME 150 – 600 Temperature: -200 to +600 °C / -320 to +1110 °F Body: CF8M, WCB See other body materials from bulletin Tightness: Class IV ~ VI		High MTBF, SIL 3 certified	1T520, 9VG921, CB058
Neles high performance triple eccentric disc valves 	L6, LW & LG, L1 & L2 -series	Wafer, lugged, double flanged Options: High tightness, cryogenic, high temp.	Size: DN80 – 2200 (3" – 88") Pressure: ASME 150 – 2500, PN 10 – 400 Temperature: -200 to +650 °C / -320 to +1200 °F Body: CF8M, WCB, LCC, 5A, Monel See other body materials from bulletin Tightness: Up to ISO Rate A, API 598 & Class VI		High MTBF SIL 3 certified	CB058, 2LBF20

Engineered valve solutions

Engineered valve solutions					
Product	Series	Specifications		Service	Bulletin
<div>Neles lever valves</div> <div></div>	BH-series	Pressure:	NPS 8 – NPS 64 / ASME 150 – 300 / (PN10 – 40)	Valve opens at precise pressure differential without use of separate monitoring.	2BH20
		Body:	Carbon steel	Air separation, chemical plants, cement and steel, industry, safety valve	
		Temperature:	-29 to +280 °C / -20 to +536 °F		
<div>Neles cryogenic butterfly valves</div> <div></div>	BWX -series	Pressure:	NPS 4 – NPS 24 / DN 100 – DN 600 / ASME 600 / PN63	Cryogenic and high temperature LNG applications, air separation, nitrogen, helium and hydrogen	2BWX20
		Body:	Stainless steel special material		
		Temperature:	-200 to +470 °C / -320 to +880 °F		

Valve controllers

Valve controllers					
Product	Series	Design	Specifications		Bulletin
Neles NDX Intelligent valve controllers 	NDX1510-series	Compact	Power: Taken from the 4 to 20 mA, control signal Pressure: 1.4 – 8.0 bar / 20 – 115 psi Temperature: -40 to +85 °C / -40 to +185 °F Communication: HART		7NDX21, CB058
	NDX1511/NDX2511-series	Standard			
	NDX1512/NDX2512-series	Explosion proof			
Neles ND9000 Intelligent valve controllers 	ND9100-series	Standard	Power: Taken from the 4 to 20 mA, control signal or fieldbus powered Pressure: 1.4 – 8 bar / 20 – 115 psi Temperature: -53 to + 85 °C / -63 to +185 °F Communication: HART, Profibus PA, Foundation Fieldbus		7ND9021, CB058
	ND9200-series	Explosion proof			
	ND9300-series	Stainless steel enclosure intrinsically safe and explosion proof			
	ND9400-series	Stainless steel intrinsically safe			



Valve controllers

Valve controllers					
Product	Series	Design	Specifications		Bulletin
Neles ValvGuard VG9000 intelligent safety solenoids 	VG9200 -series	Standard epoxy coated anodised aluminium alloy enclosure, intrinsically safe and explosion proof	Input:	Foundation Fieldbus + 0/24 VDC, 4/20 mA, 0/24 VDC with RCI9H2	9VG921, CB058
	VG9300 -series	Full 316 stainless steel enclosure, intrinsically safe and explosion proof	Pressure: Temperature: Communication: Safety:	3.0 – 7.5 bar / 44 – 109 psi -40 to +85 °C / -40 to +185 °F Foundation Fieldbus, HART TÜV SIL 3 approved partial stroke testing system for emergency shutdown valves	
Neles ValvGuard VG9PST partial stroke testing device used with external solenoid valve 	VG9200 -series	Standard epoxy coated anodised aluminium alloy enclosure, intrinsically safe and explosion proof	Input: Pressure: Temperature: Communication:	8-20 mA 3.0 – 7.5 bar / 44 – 109 psi -40 to +85 °C / -40 to +185 °F HART	9VG921, CB058
	VG9300 -series	Full 316 stainless steel enclosure, intrinsically safe and explosion proof			
Neles™ SwitchGuard™ intelligent on/off valve controller 	VG9200 -series	Standard anodised aluminium alloy enclosure, intrinsically safe and explosion proof	Input: Pressure: Temperature: Communication:	0/24 VDC with converter or 4 – 20 mA 3.0 – 8.0 bar / 44 – 115 psi -40 to +85 °C / -40 to +185 °F HART	7SG20, CB058
	VG9300 -series	Stainless steel enclosure, intrinsically safe and explosion proof			




Pneumatic actuators

Pneumatic actuators					
Product	Series	Design	Specifications		Bulletin
Neles B1-series 	B1C & B1J -series	Pneumatic rotary cylinder actuator Options: Manual and hydraulic overdrives, lockout devices, high-cycle, fire protection	Pressure input: 2.8 – 10 bar / 40 – 140 psi Pressure output: Torque: 28 – 100000 Nm / 21 – 73800 ft-lb Temperature: -55 to 120 °C / -67 to +250 °F Action: B1C-double acting, B1J-spring return		6B20, CB058
Neles N1-series scotch yoke actuators 	N1-series	Pneumatic or hydraulic rotary cylinder actuator, scotch yoke type Options: Manual and hydraulic overdrives, fire protection	Pressure input: Design pressure: 12 barg (pressure retaining parts) Pressure output: Torque: 25 Nm- 218765 Nm @ 4 bar, 18 ft-lb- 161353 ft-lb @ 58 psi max up to 516293 Nm / 380798 ft-lb Temperature: -20 to +80 °C normal, -20 to +125 °C high Action: Double acting, spring return		6N120, CB058
Neles VD-series linear diaphragm actuators 	VD-series	Pneumatic diaphragm actuator for linear valves Options: Handwheel for manual operation, volume tank	Pressure input: 3.0 – 4.2 bar / 44 – 60 psi Pressure output: Thrust: 1890 – 22800 N / 424 – 5125 ft-lb Temperature: -55 to +85 °C / -67 to +185 °F Action: Spring return		6VD20, CB058
Neles VB-series linear cylinder actuators 	VBC & VBD/R -series	Pneumatic cylinder actuator for linear valves Options: Handwheel for manual operation, Volume tank or built-in volume chamber	Pressure input: 2.8 – 10 bar / 40 – 140 psi Pressure output: Thrust: 16823 – 78160 N / 3781 – 17571 ft-lb Temperature: -55 to +120 °C / -67 to +250 °F Action: VBC-double acting, VBD/R-spring return		6VB20, CB058
Neles VC-series linear cylinder actuators 	VC-series	Pneumatic cylinder actuator for linear valves Options: Handwheel for manual operation, volume tank or built-in volume chamber	Pressure input: 2.0 – 10 bar / 29- 145 psi Pressure output: Thrust: 27480 – 264860 N / 6177 – 59542 ft-lb Temperature: -30 to +85 °C / -22 to +185 °F Action: Double acting		6CA20, CB058





Analog positioners

Analog positioners					
Product	Series	Design	Specifications		Bulletin
Neles pneumatic positioner 	NP700-series	Pneumatic positioner	Input: 0.2 – 1 bar, 20 – 200 kPa, 3 – 15 psi 3.0 – 7.5 bar / 44 – 109 psi Split: 0.2 – 0.6 bar, 0.6 bar – 1 bar, 3 – 9 psig, 9 – 15 psig Temperature: -40 to +90 °C / -40 to +200 °F Vibration: < 1%		9VG921, CB058
Neles electro-pneumatic positioner 	NE700-series	Electropneumatic positioner	Input: 4 – 20 mA, 0 – 20 mA Split: 4 – 12 mA, 12 – 20 mA Temperature: -25 to +120 °C / -15 to +248 °F Vibration: < 1%		7NENP20, CB058

Application specific products

Application specific products					
Product	Series	Design	Specifications		Service Bulletin
Neles capping valves 	PZ-series	Capping valve Options: Pressure switches for safety interlocks, water flushing for ball surface	Size: DN 500 – 750 / 20" – 30" Pressure: PN 16 & ASME 150 Temperature: Max. +200 °C / +390 °F Body: CF8M	For digester chip fill	8PZ20
NelesACE™ basis weight control valves 	NelesACE	V-port segment valve together with high resolution stepping motor	Size: DN 50 – 500 / 2" – 20" Pressure: PN 25/40, ASME 150/300 Temperature: -40 to +250 °C / -40 to +480 °F Body: CF8M	Basis weight control unit	8ACE21
Neles M-series pocket feeder 	M1, M2-series	Pocket feeder construction	Size: DN 150 – 200 / 6" – 8" Pressure: PN 10 – 40 ASME150, 300 Temperature: -50 to +250 °C / -60 to +480 °F Body: CF8M	For separator service	8PF20

Valve options

Valve options			
Product	Design	Specifications	Bulletin
Q-Ball™ 	Low noise and anti-cavitation trim for ball, segment and eccentric plug valves Options: Q2 trim for extended aerodynamic noise attenuation for gas service diffuser	Size: DN 50 to 900 / 2" to 36" Pressure: ASME 150 – 1500, PN 10 – 100 Body: CF8M, WCB	8Q20, 8Q220
S-Disc™ 	Flow balancing trim for triple eccentric disc valves	Size: DN 80 to 1500 / 3" to 60" Pressure: ASME 150 – 600 PN10 – 100 Cv-range: 150 – 43800 Materials: CF8M, WCB, CG8M, LCC, 254SMO, 5A	2SL120
A-plate 	Noise attenuator plate for noise reduction. Option 1: threaded directly into a Finetrol™ or T5 valve body. Option 2: wafer style. Can be mounted between flanges.	Size: DN 25 – 1000 / 1" – 40" Pressure: ASME 150, 300, 600, PN 10 to 100 Cv-range: 7 – 4480 Materials: CF8M, WCB	8ATT20
Q2-plate 	2 stage noise attenuation plate for gas applications Options: Wafer style. Mounted between flanges.	Size: DN 50 – 600 2" – 24" Pressure: ASME 150, 300, 600, PN 10 to 100 Cv-range: 22 – 13108 Materials: Stainless steel	8Q220



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

Valmet Flow Control Oy

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Comprehensive offering to suit your every need

Valve controls and
actuators product offering





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Valve automation excellence

Valmet offers a unique and complete range of solutions for your valve automation needs. With our actuator and controller products you can fulfill end user requirements for control, emergency shutdown and on/off valve applications.

Our valve automation solutions will ensure the best possible valve performance and compliance to environmental regulations, regardless of valve make, model or manufacturer. Our offering ranges from limit switches to reliable actuators and intelligent valve controllers with third generation diagnostics.

Universal performance

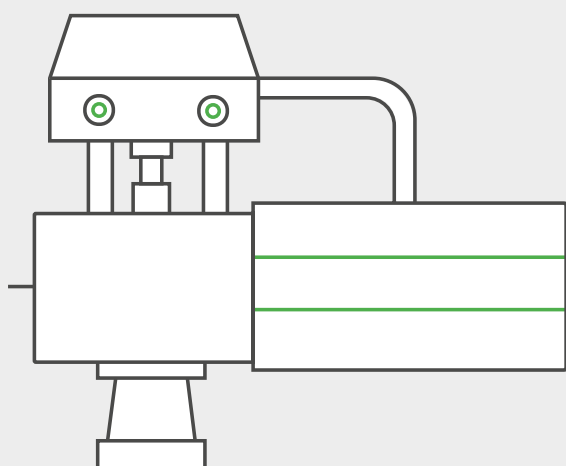
Whatever the valve in your process, our valve automation offering

brings a high level of reliability, ease of use and best in class operational performance to the entire valve assembly. Our valve automation products have been designed to work with all valves by major valve manufacturers, regardless of type or end use application. They are easy to incorporate into all valve assemblies and are based on proven technologies.

Over the past 20 years we have perfected manufacturing quality

to the highest standard and developed features that deliver reliable performance in even the most challenging applications and operating environments. The added level of automation and intelligence delivers a new level of diagnostics capabilities for the planning and execution of effective predictive maintenance.

Valmet's valve automation offering



Valve controllers

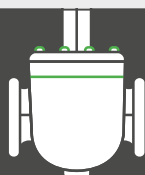
- Neles and Stonel valve controllers (for control and on-off valves)
- Neles intelligent safety solenoids
- Neles Easyflow and Stonel limit switches

Actuators

- Neles, Neles Easyflow and Jamesbury pneumatic actuators (linear and rotary)
- Neles hydraulic actuators
- Valvcon electric actuators
- Neles Easyflow linear cylinders
- Neles Easyflow instrumentation components

Your valve

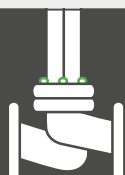
- Any valve (90° – 180°)
- Control or on/off
- Rotary or globe
- Other applications



Ball valves



Butterfly valves



Control valves

Neles B1-series pneumatic cylinder actuators



The double acting and spring return B1-series piston type quarter turn actuators are designed for use in both modulating control and on-off service. These actuators offer an extremely long cycle life and are well suited to operate almost any type of rotary valve.

Key features

- Double acting and spring return version available
- Wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services, from control to demanding ESD
- Vast number of optional features
- Rugged design
- Wide torque range

Benefits

- Long cycle life
- Fast and sensitive response
- Unified design thru the whole product range
- Proven reliable design

Options

- Temperature range options
- High cycle and over sizes pneumatic connections
- Material options
- Manual operators: Hand wheel and hydraulic pump
- Locking devices
- Adjustable operating range

Product reliability

- Designed to operate in harsh environmental conditions
- Certified to be used in safety applications up to and including Safety Integrity Level 3 (SIL 3)
- IP66 enclosure, IP66M and IP67M optional
- Vast installed base

Bulletin reference: 6B20

Technical specifications

General	Materials of construction
<p>Suitable for basically any type of quarter turn rotary valves. Actuator connections in accordance with ISO5211 and VDI/VDE3845.</p> <p>Action: Double or single acting</p> <p>Travel range: -5 to 95°</p> <p>Protection class: IP66</p> <p>Certification: ATEX II 2 GD, SIL 3</p>	<p>Cylinder pipe: Anodized aluminium (steel pipe with hard chrome plating option)</p> <p>Gear box housing & piston: Cast iron (nodular cast iron option)</p> <p>Cylinder ends: Nodular cast iron</p> <p>Painting: Epoxy + polyurethane</p>
Pneumatics	Torque range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 12 barg (174 psi)</p> <p>Supply pressure range: 3.0 – 8.5/10 barg (43–120/145 psi)</p> <p>Maximum supply pressure: 8.5/10 barg (120/145 psi)</p>	<p>Spring return model: Nominal spring 28 – 12200 Nm, 21 – 900 ft-lb. Air (BTO @ 4.0 barg / 58 psi) 91 – 20800 Nm, 67 – 15339 ft-lb.</p> <p>Double acting model: 60 – 82300 Nm, 40 – 54870 ft-lb. (nominal @ 4.0 barg)</p>
Temperature range	
<p>Standard temperature range: -20 to +70 °C / -4 to 158 °F</p> <p>High temperature option: -20 to +120 °C / -4 to 248 °F</p> <p>Low temperature option: -40 to +70 °C / -40 to 158 °F</p> <p>Arctic temperature option: -55 to +70 °C / -67 to 158 °F</p>	

Jamesbury QPX-series spring diaphragm actuators



The spring return QPX-series diaphragm actuators are designed for use in both modulating control and on-off service. These actuators offer an long cycle life and are well suited to operate almost any type of rotary valve.

Key features

- Spring return
- Field reversible fail action by inverting the actuator
- Wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services, from control to on-off
- Vast number of optional features
- Rugged design
- Wide torque range

Benefits

- Long cycle life
- Fast and sensitive response
- Unified design thru the whole product range
- Proven reliable design

Options

- Mechanical lockout option
- Fusible plug
- Manual override
- Adjustable operating range
- Field reversible

Product reliability

- Certified to be used in safety applications up to and including Safety Integrity Level 3 (SIL 3)

Bulletin reference: A110-4

Technical specifications

General	Materials of construction
<p>Suitable for basically any type of quarter turn rotary valves. Actuator connections in accordance with ISO5211 and VDI/VDE3824.</p> <p>Action: Single acting</p> <p>Travel range: -5 to 95°</p> <p>ISO 5211 and Jamesbury mounting standards.</p> <p>Certification: ATEX II 2 GD, SIL 3</p>	<p>Cylinder & Diaphragm Casing: Carbon steel</p> <p>Housing/Cover & driver arm: Gray or Ductile Iron</p> <p>Diaphragm: Nitrile/Polyamide fabric blend</p> <p>Painting: Epoxy + polyurethane</p>
Pneumatics	Torque range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 11 barg (160 psi)</p> <p>Supply pressure range: 1.4 – 7 bar (20 – 100 psi)</p> <p>Maximum supply pressure: 7 bar (100 psi)</p> <p>Supply media: Air, water, mineral-based hydraulic fluid, sweet natural gas, nitrogen</p>	<p>Spring return model: 15 – 796 Nm, 11 – 587 ft-lb.</p>
Temperature range	
<p>Standard temperature range: -20 to +66 °C / -4 to 150 °F</p>	

Neles Easyflow RNP-series rack and pinion actuators



The RNP-series double piston rack and pinion actuators combine the benefits of high cycle life, a rugged construction, and an extremely compact and symmetrical design with a unique range of features and options. They are specifically designed for fast efficient operation of ball, butterfly, and other rotary type valves.

Key features

- Double acting and spring return version available
- Modular designs with same body and end caps for double-acting and spring-return
- Rugged wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services
- Number of optional features
- Wide torque range

Benefits

- Long cycle life
- Fast and sensitive response
- Proven reliable design

Options

- Temperature range options
- High cycle and over sizes pneumatic connections
- Material options
- Adjustable operating range

Product reliability

- Designed to operate in harsh environmental conditions
- Certified to be used in in safety applications up to and including Safety Integrity Level 3 (SIL 3)
- Vast installed base

Bulletin reference: A112-1

Technical specifications

General	Materials of construction
<p>Suitable for basically any type of quarter turn valves. Actuator connections in accordance with ISO5211 and VDI/VDE3845.</p> <p>Action: Double or single acting</p> <p>Travel range: +5° to +95° and -5° to +85°</p> <p>Certification: ATEX II 2 GD, SIL 3</p> <p>Supply media: Air, sweet gas</p>	<p>Frame, cover, end caps: Aluminium alloy</p> <p>Cylinder pipe, spring barrel: Aluminum</p> <p>Springs: Spring steel</p> <p>Painting: Neles Blue end caps with anodysed aluminium</p>
Pneumatics	Torque range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 12 barg</p> <p>Supply pressure range: 2.5 – 8.0 barg (36 – 116 psi)</p> <p>Maximum supply pressure: 8.0 barg (116 psi)</p>	<p>Spring return model:</p> <p>Spring nominal: 4 - 1770 Nm</p> <p>Air break @ 4.0 barg: 6 – 2132 Nm</p> <p>Double acting model:</p> <p>Air break @ 4.0 barg: 14 – 3080 Nm</p>
Temperature range	
<p>Standard: -20 to +80 °C / -4 to 176 °F</p> <p>High: -20 to +125 °C / -4 to 257 °F</p> <p>Arctic: -60 to +80 °C / -76 to 176 °F</p>	

Neles N1-series scotch yoke actuators



The N1-series pneumatic scotch yoke actuator is designed for use with quarter turn valves in both modulating control and on-off service. The high performance heavy duty design offers extremely reliable valve execution even in to most demanding customer service.

Key features

- Double acting and spring return version available
- Wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services, from control to demanding ESD
- Vast number of optional features
- Rugged design
- Wide torque range

Benefits

- Scotch yoke design
- Heavy duty high performance
- Modular design
- Wide torque range
- Proven reliable design

Options

- Temperature range options
- Painting options
- Manual operators: Hand wheel and hydraulic pump

Product reliability

- Designed to operate in harsh enviromental conditions
- Certified to be used in in safety applications up to and including Safety Integrity Level 3 (SIL 3)
- IP67 enclosure

Bulletin reference: 6N120

Technical specifications

General	Materials of construction
<p>Suitable for on/off, modulating and control valve applications in general service, protective service and safety applications eg. ESD or HIPPS. Actuator connections in accordance with ISO5211 and VDI/VDE3824.</p> <p>Action: Double or single acting</p> <p>Travel range: +5 to +95° and -5 to +85°</p> <p>Protection class: IP67</p> <p>Certification: ATEX II 2 GD, SIL 3</p>	<p>Cylinder: Carbon steel (hard chrome plating)</p> <p>Gear box housing & piston: Nodular cast iron</p> <p>Cylinder ends: Nodular cast iron</p> <p>Painting: Epoxy + polyurethane</p>
Pneumatics	Torque range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 12 barg</p> <p>Supply pressure range: 3.0 – 8.0 barg (43 – 116 psi)</p> <p>Maximum supply pressure: 8 barg (116 psi)</p>	<p>Spring return model: Nominal spring: 25 Nm – 147425 Nm, 18 ft-lb. – 108735 ft-lb. Air break @ 4.0 barg / 58 psi: 26 Nm – 218765 Nm, 19 ft-lb. – 161353 ft-lb.</p> <p>Double acting model: Air break @ 4.0 barg / 58 psi: 71 Nm – 311333 Nm, 52 ft-lb. – 229627 ft-lb.</p>
Temperature range	
<p>Standard: -20 to +80 °C / -4 to 176 °F</p> <p>High: -20 to +125 °C / -4 to 257 °F</p> <p>Cold: -30 to +110 °C / -22 to 230 °F</p> <p>Arctic: -60 to +80 °C / -76 to 176 °F</p>	

Neles VD-series linear diaphragm actuators

The spring return VD-series diaphragm type linear actuators are designed for use in both modulating control and on-off service. These actuators offer an extremely long cycle life and are well suited to operate linear valves with small to medium thrust requirements.



Key features

- Multi springs with a rolling diaphragm design
- Wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services
- Rugged design
- Wide thrust range
- Field reversible air fail position

Benefits

- Long cycle life
- Fast and sensitive response
- Unified design thru the whole product range
- Proven reliable design
- Excellent linearity for wide travel range

Options

- Temperature range options
- Hand wheel
- Locking devices
- Min or Max mechanical limit stopper option
- Various spring range option

Product reliability

- Designed to operate in harsh environmental conditions
- Certified to be used in in safety applications up to and including safety Integrity Level 3 (SIL 3)
- Vast installed base

Bulletin reference: 6DA20

Technical specifications

General	Materials of construction
<p>Suitable for linear valves. Actuator connections in accordance with Neles mounting standard or customized design.</p> <p>Action: Single acting</p> <p>Travel range: 0% to 100%</p> <p>Stroke range: up to 80mm</p> <p>Certification: ATEX II 2 GD, SIL 3</p>	<p>Housing and yoke: Carbon steel</p> <p>Diaphragm: EPDM or silicone</p> <p>Painting: Epoxy + Polyurethane</p>
Pneumatics	Spring range
<p>Pneumatic ports: NPT threaded</p> <p>Supply pressure range: 3.2 – 4.2 barg (46 – 60 psi)</p> <p>Maximum supply pressure: 4.2 barg (60 psi)</p>	<p>General spring: 0.8 – 2.6 bar / 11 – 37 psi</p> <p>Strong spring: 1.5 – 3.4 bar / 21 – 48 psi</p>
Temperature range	Thrust range
<p>Standard temperature range: -20 to +85 °C / -4 to 185 °F</p> <p>Low temperature option: -40 to +70 °C / -40 to 158 °F</p> <p>Arctic temperature option: -55 to +70 °C / -67 to 158 °F</p>	<p>1890 – 22800 N / 424 – 5125 ft-lb.</p>

Neles VB-series linear cylinder actuators

The double acting and spring return VB-series piston type linear actuators are designed for use in both modulating control and on-off service. These actuators offer an extremely long cycle life and are well suited to operate linear valves with medium to high thrust requirements.



Key features

- Double acting and spring return version available
- Wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services
- Vast number of optional features
- Rugged design

Benefits

- Long cycle life
- Fast and sensitive response
- Unified design thru the whole product range
- Proven reliable design

Options

- Temperature range options
- High cycle and over sizes pneumatic connections
- Material options
- Hand wheel
- Locking devices
- Min or Max mechanical limit stopper option

Product reliability

- Designed to operate in harsh environmental conditions
- Certified to be used in in safety applications up to and including safety Integrity Level 3 (SIL 3)

Bulletin reference: 6VB20

Technical specifications

General	Materials of construction
<p>Suitable for linear valves. Actuator connections in accordance with Neles mounting standard or customized design.</p> <p>Action: Double or single acting</p> <p>Travel range: 0% to 100%</p> <p>Stroke range: up to 280 mm</p> <p>Certification: ATEX II 2 GD, SIL 3</p>	<p>Cylinder pipe: Anodized aluminium (steel pipe with hard chrome plating option).</p> <p>Piston: Cast iron (nodular cast iron option)</p> <p>Cylinder ends: Nodular cast iron</p> <p>Painting: Epoxy + polyurethane</p>
Pneumatics	Spring range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 11 barg</p> <p>Supply pressure range: 2.0 – 8.5 barg (29 – 145 psi)</p> <p>Maximum supply pressure: 8.5/10 barg (123/145 psi)</p>	<p>Light spring: 1.3 – 1.8 bar / 19 – 25 psi</p> <p>General spring: 1.8 – 2.4 bar / 26 – 35 psi</p> <p>Strong spring: 2.3 – 2.9 bar / 33 – 41 psi</p>
Temperature range	Thrust range
<p>Standard temperature range: -20 to +70 °C / -4 to 158 °F</p> <p>High temperature option: -20 to +120 °C / -4 to 248 °F</p> <p>Low temperature option: -40 to +70 °C / -40 to 158 °F</p> <p>Arctic temperature option: -55 to +70 °C / -67 to 158 °F</p>	<p>13033 – 235406 N / 2930 – 52921 ft-lb.</p>

Neles VC-series linear cylinder actuators



The double acting VC-series piston type linear actuators are designed for use in both modulating control and on-off service. These actuators offer an extremely long cycle life and are well suited to operate linear valves with medium to high thrust requirements.

Key features

- Double acting
- Wear and corrosion resistant design
- Safe and easy maintenance
- Suitable for various services
- Rugged design
- Wide thrust range

Benefits

- Long cycle life
- Fast and sensitive response
- Unified design thru the whole product range
- Proven reliable design

Options

- Temperature range options
- Hand wheel
- Locking devices
- Min or Max mechanical limit stopper option
- Air fail safe by a built-in chamber option

Product reliability

- Designed to operate in harsh environmental conditions
- Certified to be used in in safety applications up to and including safety Integrity Level 3 (SIL 3)

Bulletin reference: 6CA20

Technical specifications

General	Materials of construction
<p>Suitable for linear valves. Actuator connections in accordance with Neles mounting standard or customized design.</p> <p>Action: Double acting</p> <p>Travel range: 0% to 100%</p> <p>Stroke range: up to 280mm</p> <p>Certification: ATEX II 2 GD, SIL 3</p>	<p>Cylinder pipe: Carbon steel (hard chrome plating)</p> <p>Piston: Aluminium</p> <p>Cylinder ends: Carbon steel</p> <p>Painting: Epoxy zinc + polyurethane finish</p>
Pneumatics	Thrust range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 11 barg</p> <p>Supply pressure range: 2.0 – 10 barg (29 – 145 psi)</p> <p>Maximum supply pressure: 10 barg (145 psi)</p>	<p>27480 – 264860 N / 6177 – 59542 ft-lb.</p>
Temperature range	
<p>Standard temperature range: -20 to +85 °C / -4 to 185 °F</p> <p>Low temperature option: -30 to +70 °C / -22 to 158 °F</p>	

Gas over oil actuators

The gas over oil range of actuators are designed for use in pipelines. They use high-pressure gas supplied from the pipeline suspended above a hydraulic fluid to move the mechanics of the actuator. They are ideal for pipeline applications in the most extreme environments.



Key features

- Build over double acting N1 scotch yoke actuator for quarter turn valves
- Storage tank for manual override as well for extra stroke
- Sour gas and sweet gases can be used
- Gas reservoir for operation of actuator on absence of main steam pressure
- Solenoid operated system can be operated remotely
- Double acting version available
- Wear and corrosion resistant design
- Safe and easy maintenance
- Vast number of optional features
- Wide torque range
- Modular design: Enables ease of maintenance and reduced inventory costs

Benefits

- Scotch yoke design
- Heavy duty high performance
- Wide torque range
- Proven product
- Modular and rugged design

Options

- Filter
- Local/remote option
- Handpump
- Control cabinet
- Back up gas tank

Technical specifications

General	Materials of construction
<p>Suitable for valves located on gas pipelines in on-off and modulating heavy-duty service with medium as sweet or sour high-pressure gas, nitrogen or instrument air. Actuator connections in accordance with ISO5211 and VDI/VDE3824</p> <p>Action: Double acting</p> <p>Protection class: IP67 (Actuator)</p> <p>Certification: ATEX II 2 GD, SIL 3 (Actuator)</p>	<p>Cylinder: Carbon steel (hard chrome plating)</p> <p>Central frame and cylinder caps: Nodular cast iron</p> <p>Instrumentation enclosure: Carbon steel / stainless steel</p> <p>Painting: Epoxy + polyurethane</p>
Pneumatics	Torque range
<p>Pneumatic ports: NPT threaded</p> <p>Design pressure: 150 bar</p> <p>Working pressure: 10 to 105 bar</p>	<p>Double acting model: Torque range up to 700 000 Nm</p>
Temperature range	
<p>Temperature range: -20 to +85 °C</p>	

Valvcon ADC-series actuators



The universal ADC-series PC board includes both on/off and modulating functionalities, and accepts both AC and DC power inputs.

Back-up power

The optional back-up power feature incorporates an internal battery pack that plugs right in to the PC board, which includes a built-in charging circuit, all fitting in the standard enclosure. Upon loss of external power the battery automatically activates as the main power supply and can immediately drive the actuator to a designated safe position or continue to respond to a control signal, if present.

ADC-series features at a glance

- Universal input power
 - Actuator accepts 24/115/230 AC and 12/24 DC
- Universal control
 - On/Off or modulating from the same package
- Included heater/thermostat feature
 - Can be enabled for “low-temp” or “humidity control” use
 - Can be disabled to reduce power consumption

- Optional internal Li Ion battery back-up capabilities within standard size actuator enclosure
 - Allow for continued operation during power outages (provided control signal remains)
- Field-settable for “fail clockwise” or “fail counter-clockwise” or “fail” to a mid-travel position
- Two auxiliary limit switches for indication purposes
- Dual conduit openings
 - Easier to wire and keep power and control wiring separate
- Replacement battery available for units equipped with battery back-up
 - Recommended that the battery is replaced every four years
- Two year warranty

Bulletin reference: V201-2

Technical specifications

Temperature range	Output configuration
-40 to 66 °C / -40 to 150 °F; ATEX temperature range: -20 to 66 °C	150 to 600 in-lbs (12 to 50 ft-lb.; 16 to 68 Nm): ISO 5211 F05 and F07 bolt circles, ¾" female square; 14 mm and 17 mm female squares, as well as 15 mm and 20 mm female keyed drives are available. 1000 to 3000 in-lbs (83 to 250 ft-lb.; 113 to 339 Nm): ISO 5211 F07 and F10 bolt circles, 1" female square; 17 mm, 19 mm, and 22 mm female squares, as well as 20 mm and 25 mm female keyed drives are available.
Duty cycle	
Continuous @ 40 °C/104 °F, or below (120 starts/minute); 75% maximum duty cycle @ maximum temperature rating	
Construction details and materials	Voltage
Approximate weight: 17 lbs (8 kg), 31 lbs (14 kg) Enclosure: Die cast A380 aluminum Protection class: IP66 Gear train: Hardened steel spur gears Motor: Brushless DC motor with Class B or better insulation; sub-fractional horsepower Lubrication: Permanently lubricated gear train and bearings Conduit connection: (2) ¾" NPT (¾" to ½" reducing bushings included)	12VDC: 10.8 to 13.2 VDC 24VDC: 21.6 to 26.4 VDC 24VAC: 21.6 to 26.4 VAC, 60 or 50 Hz 115 VAC: 103.5 to 126.5 VAC, 60 or 50 Hz 230 VAC: 207 to 253 VAC, 60 or 50 Hz
Limit switches	Certifications
(4) Single pole, double throw switches rated for ½ HP, 11 amps @ 250 VAC, CSA certified. Two limit switches can be used for end-of-travel control. Two limit switches can be used for end-of-travel indication.	All models: CSA (C US): NEMA 4/4X; CE compliant WX models: CSA (C US): Class I, Div. 1, Gr. C & D; Class II, Div. 1, Gr. E, F & G; Class III ATEX: Ex db IIB T6 Gb IECEx CSA 14.0057X

Valvcon V-series actuators



The V-series is a compact, rugged and reliable electric actuator designed for quarter-turn valve and damper applications.

Modular solution

Available in a variety of control configurations, from on/off to automatic cycling. With a host of other options available, they are extremely well suited to a multitude of demanding process applications.

The innovative Valvcon™ V-series pioneers the concept of plug-in, modular electronics in valve automation, redefining and simplifying the entire valve actuation process. Upgrades and modifications can now be done in the field, in a matter of minutes, with no hard wiring, soldering or factory returns. This technology vastly simplifies set-up and calibration and enhances actuator performance.

V-series features at a glance



- Electronics are simple to use
 - Clearly labeled terminal strip and easy access to user wiring
- Plug-in electronics for simple upgrades and modifications
 - Coded connectors make internal mis-wiring impossible
- Standard extended 75% duty cycle
 - At ambient temperatures up to 40 °C / 104 °F.
- Auxiliary limit switches for indication, heater/thermostat and brake
 - Brake prevents the actuator from being backdriven

Bulletin reference: V200-1

Technical specifications

Temperature range	Output configuration
-40 to 66 °C / -40 to 150 °F; ATEX temperature range: -20 to 66 °C	150 to 600 in-lbs (12 to 50 ft-lb.; 16 to 68 Nm): ISO 5211 F05 and F07 bolt circles, ¾" female square; 14 mm and 17 mm female squares, as well as 15 mm and 20 mm female keyed drives are available. 1000 to 3000 in-lbs (83 to 250 ft-lb.; 113 to 339 Nm): ISO 5211 F07 and F10 bolt circles, 1" female square; 17 mm, 19 mm, and 22 mm female squares, as well as 20 mm and 25 mm female keyed drives are available.
Duty cycle	
75% (between each full cycle), the actuator must rest for ⅓ of the 90 degree cycle time; 30 starts/minute NOTE: At 50 Hz, the duty cycle is ~60% @ 40 °C / 104 °F.	
Construction details and materials	Voltage
Approximate weight: 17 lbs (8 kg), 31 lbs (14 kg) Enclosure: Die cast A380 aluminum Protection class: IP66 Gear train: Hardened steel spur gear Motor: Split phase, capacitor driven motor with Class B or better insulation; sub-fractional horsepower Lubrication: Permanently lubricated gear train and bearings Conduit connection: (2) ¾" NPT (¾" to ½" reducing bushings included)	115 VAC: 103.5 to 126.5 VAC, 60 or 50 Hz 230 VAC: 207 to 253 VAC, 60 or 50 Hz
Limit switches	Certifications
(4) Single pole, double throw switches rated for ½ HP, 11 amps @ 250 VAC, CSA certified. Two standard switches are used for end of travel control, and for pilot or position indication at terminal 5 and terminal 6. Indication outputs are protected by 0.25 AMP permanent auto reset polyfuses – reset time approximately 3 mins. Two standard switches are also included to provide dry contact output position indication.	All models: CSA (C US): NEMA 4/4X; CE compliant WX models: CSA (C US): Class I, Div. 1, Gr. C & D; Class II, Div. 1, Gr. E, F & G; Class III ATEX: Ex db IIB T6 Gb, IECEx CSA 14.0057X

Manual actuators

Manual actuators					
Product	Series	Design	Action	Specifications	Bulletin
Neles Easyflow manual valve gears 	MEG-series	Manual gear operated	Handwheel	Recommended input: 26 – 152 Nm (19 – 112 ft-lb.) Torque output: Up to 6000 Nm (4425 ft-lb.)	A400-1
Jamesbury™ manual valve gears 	MGR-series	Manual gear operated Fully enclosed, weather-proof, all-cast-iron and carbon-steel construction Factory lubricated for lifetime, no future lubrication required Pointer to indicate valve position	Handwheel	Recommended input: 16 – 145 Nm (12 – 170 ft-lb.) Torque output: 150 – 260000 Nm (111 – 19177 ft-lb.)	A100-3

Piston-barrel linear actuators

Linear cylinder actuators					
Product	Series	Design	Version	Specifications	Bulletin
Neles Easyflow linear cylinder actuators 	AC-series	Pneumatic piston-barrel type linear actuator	Double acting For single acting versions contact manufacturer	Max. operation pressure: 10 bar Force range: 453 N to 96220 N Temperature range: -20 to +80 °C (For high & low temp. version, consult factory)	A300-4
Neles Easyflow linear cylinder actuators 	CC-series	Pneumatic piston-barrel type linear actuator	Double acting For single acting versions contact manufacturer	Max. operation pressure: 10 bar Force range: 3016 N to 96220 N Temperature range: -20 to +80 °C (For high & low temp. version, consult factory)	A300-2
Neles Easyflow linear cylinder actuators 	SC-series	Pneumatic piston-barrel type linear actuator	Double acting For single acting versions contact manufacturer	Max. operation pressure: 10 bar Force range: 69 N to 7850 N Temperature range: -20 to +80 °C (For high & low temp. version, consult factory) Mounting interface: ISO 15552 VDMA 24562	A300-3
Neles Easyflow linear cylinder actuators 	SN-series	Pneumatic piston-barrel type linear actuator	Double acting For single acting versions contact manufacturer	Max. operation pressure: 10 bar Force range: 1147 N to 20107 N Temperature range: -20 to +80 °C (For high & low temp. version, consult factory) Mounting interface: ISO 15552 VDMA 24562	A300-1

Neles NDX intelligent valve controller



The NDX™ is the next generation intelligent valve controller working on all type of control valves and in all industry areas. It guarantees end product quality in all operating conditions with incomparable performance, unique diagnostics, and years of reliable service. The NDX is a futureproof investment with lifetime support for asset management.

Key features

- Reliable and robust design
- Industry leading pneumatic capacity
- Benchmark control performance
- Simple and fast installation and commissioning
- Local / remote operation
- Wide language support
- Expandable architecture
- HART 6/7 communication as standard
- Advanced device diagnostics including
 - Self-diagnostics
 - Online diagnostics
 - History trends
 - Performance diagnostics
 - Communication diagnostics
 - Extended off-line tests
 - Performance view
 - Online Valve Signature
- Worldwide support for hazardous area approvals

Easy installation and configuration

- Simple / fast configuration and calibration using one of the following:
 - Standard Local User Interface (LUI) accessible without opening the device cover
 - LUI can be rotated according to mounting position
 - Distributed Control System (DCS) asset management program
- Backwards compatible with retrofit kits for easy
- Replacement of Neles NE700 and ND9000™ positioners
- Easy retro-fit to an extensive list of 3rd party control valves
- Installation to all common control systems

Open solution

- Valmet is committed to delivering products that freely interface with software and hardware from a variety of manufacturers; NDX is no exception. This open architecture allows the NDX to be integrated with other field devices to give an unprecedented level of controllability.
- FDT and EDD based multi-vendor support configuration
- Support files for NDX are available from our internet page, at www.neles.com/NDX

Options

- Internal position transmitter
- Digital configurable outputs
- Gauge block

Product reliability

- Designed to operate in harsh environmental conditions
- Rugged modular design
- Excellent temperature characteristics
- Vibration and impact tolerant
- IP66 enclosure
- Protected against humidity
- Resistant to dirty air
- Wear resistant and sealed components
- Fully contactless and maintenance free position measurement

Minimised process variability

- Linearization of the valve flow characteristics
- Excellent dynamic and static control performance
- Fast response to control signal change
- Accurate valve control

Bulletin reference: 7NDX21

Technical specifications



General	Electronics
<p>Loop powered 4 – 20 mA, no external power supply required. Suitable for linear and rotary valves. Actuator connections in accordance with VDI/VDE 3845 and IEC 60534-6 standards.</p> <p>Action: Single acting or double acting, direct or reverse</p> <p>Travel range: Linear: 5 – 120 mm / 0.2 – 4.7 in > 200 mm / 8 in (pending) Rotary: 30 – 160°</p> <p>Measurement range: 110° with freely rotating feedback shaft</p> <p>Performance with moderate constant-load actuators: Dead band: ≤ 0.2%, Hysteresis: < 0.5%, Linearity error: < 0.5%, Repeatability: < 0.2%</p>	<p>Supply power: Loop powered, 4 – 20 mA, HART Protocol rev. 6/7</p> <p>Min. signal: 3.8 mA</p> <p>Current max: 120 mA</p> <p>Load voltage: 9.7 VDC at 20 mA, 9.0 VDC at 4 mA</p> <p>Impedance at 20mA: 485 Ω</p> <p>Maximum voltage: 30 VDC</p> <p>Rev. polarity protection: -30 VDC</p> <p>Over current protection: Active over 35 mA</p> <p>Wire size: 2.5/0.5 mm² (14/20 awg)</p>
Environmental influence	Position transmitter and digital output (optional)
<p>Standard temperature range: -40 to +85 °C / -40 to +185 °F</p> <p>Influence of temperature on valve position: Rotary: 0.5% / 10 °C Linear: 0.1 mm / 10 °C</p> <p>LUI usable range: -30 to +60 °C</p> <p>Temperature cycling/Dry heat: Acc. to IEC 60068-2-2</p> <p>Humidity limits: Acc. to IEC 61514-2</p> <p>Magnetic fields: Negligible at 30 A/m, Acc. to IEC 61000-4-8</p> <p>Vibration: Tested acc. to ANSI/ISA-75.13.01-2013</p> <p>Influence of vibration on valve position: < 1% under 2 g 5 – 150 Hz, 1 g 150 – 300 Hz, 0.5 g 300 – 2000 Hz</p>	<p>Position transmitter Output signal: 4 – 20 mA (galvanic isolation; 600 VDC) Supply voltage: 12 – 30 VDC Linearity: < 0.05% FS Temperature effect: < 0.35% FS Failsafe output: 3.5 mA or 22.5 mA Maximum external load: 690 Ω for I.S. Ex ia IIC T6 Ui ≤ 28 V</p> <p>Digital output Output signal: < 1.0 mA = state '0', > 2.2 mA = state '1' (NAMUR) Supply voltage: 5 – 16 VDC Ex ia IIC T6 Ui ≤ 16V, Ii ≤ 25 mA, Pi ≤ 100mW DOs can be used like Namur limit switches or configured to be activated based on any device status.</p>
Enclosure	Local User Interface (LUI) functions
<p>Housing material: Epoxy coated anodized aluminum alloy, copper free, Cu content max 0.4%</p> <p>Cover material: Compact - polycarbonate, Standard - polycarbonate, Explosion Proof - same as housing and glass window</p> <p>Magnet holder: Glass fiber reinforced polyamide, PA66GF20</p> <p>Protection class: IP66, NEMA 4X, IP67 for storage and transport</p> <p>Pneumatic ports Supply air: ¼ NPT, G¼ with gauge block Actuator: ¼ NPT, G¼ with gauge block Exhausts: 2 pcs. ¾ NPT, G¾ with gauge block Cable entry: 2 pcs. ½" NPT (M20 with adapter) Weight: 2.0 kg / 4.4 lbs (Compact), 2.8 kg / 6.2 lbs (Standard), 3.8 kg / 8.4 lbs (Explosion proof)</p>	<ul style="list-style-type: none"> • Accessible with the cover installed • PIN code lock to prevent unauthorized / unintended access with the cover installed or permanently (if configured). • Guided startup wizard • Language selection: English, Chinese, Spanish, Italian, French, Korean, German, Turkish, Dutch, Portuguese • Calibration: Automatic / Manual • 3-point measurement linearization • Configuration of the control valve <ul style="list-style-type: none"> - Actuator type & valve type - Valve dead angle - Safety cut-off range - Input signal direction - Positioner fail action • Monitoring of valve position, target position, input signal, temperature, supply and actuator pressure • Manual control of the valve from Local User Interface • HART 6/7 selection
Pneumatics	
<p>Supply pressure: 1.4 – 8 bar / 20 – 116 psi (single acting), 2 – 8 bar / 29 – 116 psi (double acting)</p> <p>Effect of supply pressure on valve position: < 0.1% at 10% difference in inlet pressure</p> <p>Supply media: Air, nitrogen and sweet natural gas</p> <p>Effect of supply pressure on valve position: < 0.1% at 10% difference in inlet pressure</p> <p>Air quality: Acc. to ISO 8573-1</p> <p>Solid particles: Class 7 (40 µm filtration)</p> <p>Humidity: Class 1 (at minimum dew point 10 °C / 18 °F below minimum temperature is required)</p> <p>Oil class: 3 (or < 1 ppm)</p> <p>Air capacity: 80 Nm³/h / 47.1 scfm</p> <p>Air consumption in steady state position: < 0.1 Nm³/h / 0.06 scfm 1 rated at 4 bar / 60 psi supply pressure</p>	

Neles ND9000 intelligent valve controller



The ND9000™ is a top class intelligent valve controller designed to operate on every control valve actuator and in all industry areas. It improves the end product quality in all operating conditions with unique diagnostics and incomparable performance features. The ND9000 is a reliable and future-proof investment.

Key features

- Benchmark control performance on rotary and linear valves
- Reliable and robust design
- Easy commissioning and operation
- Language selection: English, German and French
- Local / remote operation
- Expandable architecture
- HART 6/7 communication as standard
- Third generation diagnostics
 - Performance view
 - Self diagnostics
 - Online diagnostics
 - Performance diagnostics
 - Communication diagnostics
 - Extended off-line tests

Easy installation and configuration

- Same device can be used for linear and rotaryvalves, double and single-acting actuators
- 1-point calibration feature enables mounting without disturbing the process
- Simple fast calibration and configuration
 - Guided start-up using Local User Interface (LUI)
 - Distributed Control System(DCS) asset management tools
- Low power consumption enables installation to all common control systems
- Extensive selection of mounting kits for 3rd party actuators

Open solution

- Valmet is committed to delivering products that freely interface with software and hardware from a variety of manufacturers; ND9000 is no exception.
- This open architecture allows the ND9000 to beintegrated with other field devices to give an unprecedented level of controllability.

- FDT and EDD based multi-vendor support configuration
- Support files for ND9000 are available from our internet page, at www.neles.com/nd9000

Options

- Interchangeable communication options:
 - HART
 - FOUNDATION™ Fieldbus
 - Profibus PA
- Integrated limit switches
- Position transmitter (in HART only)
- Exhaust adapter

Product reliability

- Designed to operate in harsh environmental conditions
- Rugged modular design
- Excellent temperature characteristics
- Vibration and impact tolerant
- IP66 enclosure
- Protected against humidity
- Maintenance free operation
- Resistant to dirty air
- Wear resistant and sealed components
- Contactless position measurement

Minimised process variability

- Linearization of the valve flow characteristics
- Excellent dynamic and static control performance
- Fast response to control signal change
- Accurate valve control

Bulletin reference: 7ND9021

General	Electronics HART
<p>Loop powered, no external power supply required. Suitable for rotary and linear valves. Actuator connections in accordance with VDI/VDE 3845 and IEC 60534-6 standards.</p> <p>Action: Double or single acting Travel range: Linear: 10 – 120 mm / 0.4 – 4.7 Rotary: 45 – 95° Measurement range: 110° with freely rotating feedback shaft Performance with moderate constant-load actuators: Dead band acc. to IEC 61514: ≤ 0.1% Hysteresis acc. to IEC 61514: < 0.5%</p>	<p>Supply power: Loop powered, 4 – 20 mA HART Protocol rev. 6/7 Minimum signal: 3.6 mA Current max : 120 mA Load voltage: Up to 9.7 VDC/20 mA (corresponding 485 Ω) Voltage: Max. 30 VDC Polarity protection: -30 VDC Over current protection: Active over 35 mA</p>
Environmental influence	Profibus PA and FOUNDATION Fieldbus
<p>Standard temperature range: -40 to +85 °C / -40 to +185 °F Artic version temperature range: -53 to +85 °C / -64 to +185 °F Influence of temperature on valve position: 0.5% /10 °K Influence of vibration on valve position: < 1% under 2 g 5 – 150 Hz, 1 g 150 – 300 Hz, 0.5 g 300 – 2000 Hz</p>	<p>Supply power voltage: 9 – 32 VDC, reverse polarity protection Max basic current 17.2 mA Fault current (FDE) 3.9 mA FOUNDATION Fieldbus function block execution times: AO 20 ms, AI 20 ms, PID 25 ms, DO 15 ms, DI 15 ms, IS 15 ms, OS 20 ms</p>
Enclosure	Position transmitter (optional only HART)
<p>ND9100: Anodized aluminum alloy and polymer composite ND9200: Anodised aluminum alloy and tempered glass ND9300: Stainless steel ND9400: Stainless steel and polymer composite</p> <p>Protection class: IP66, Nema 4x Pneumatic ports: G ¼ (ND100) ¼ NPT (ND9200, ND9300 & ND9400) Cable gland thread: M20x1.5, ½ NPT (ND9200E2, ND9100U) Weight: 1.8 kg / 4.0 lbs (ND9100), 3.4 kg / 7.5 lbs (ND9200), 8.6 kg / 19.0 lbs (ND9300), 5.6 kg / 12.4 lbs (ND9400)</p>	<p>Output signal: 4 – 20 mA (galvanic isolation; 600 VDC) Supply voltage: 12 – 30 VDC Resolution: 16 bit / 0.244 µA Linearity: < 0.05% FS Temperature effect: < 0.35% FS External load: Max 0 – 780 Ω Max 0 – 690 Ω for intrinsically safe Ex ia IIC T6 Ui ≤ 28 V Ex d IIC T4/T5/T6 Ui ≤ 30 V</p>
Pneumatics	Local User Interface (LUI) functions
<p>Supply pressure: 1.4 – 8 bar / 20 – 115 psi Effect of supply pressure on valve position: < 0.1% at 10% difference in inlet pressure Air quality: Acc. to ISO 8573-1 Solid particles: Class 5 (3 – 5 µm filtration is recommended) Humidity: Class 1 (dew point 10 °C/ 18 °F below minimum temperature is recommended) Oil class: 3 (or < 1 ppm) Capacity with 4 bar / 60 psi supply: 5.5 Nm³/h / 3.3 scfm low capacity 12 Nm³/h / 7.1 scfm normal capacity 38 Nm³/h / 22.4 scfm high capacity Consumption with 4 bar / 60 psi supply in steady state position: < 0.6 Nm³/h / 0.35 scfm (low or normal capacity) < 1.0 Nm³/h / 0.6 scfm (high capacity)</p>	<ul style="list-style-type: none"> • Local control of the valve • Monitoring of valve position, target position, input signal, temperature, supply and actuator pressure difference • Guided-startup function • LUI may be locked remotely to prevent unauthorized access • Calibration: Automatic / Manual / 1-point calibration / Linearization • Control configuration: aggressive, fast, optimum, stable, maximum stability • Configuration of the control valve <ul style="list-style-type: none"> - Rotation: Valve rotation clockwise or counter-clockwise to close - Dead Angle - Low cut-off, cut-off safety range (default 2%) - Positioner fail action: Open/close - Signal direction: Direct/reverse acting - Actuator type: Double/single acting - Valve type: Rotary/linear • Language selection: English, German and French • HART 6/7 selection

Neles ND7000 digital valve controller



The ND7000™ is a digital valve controller designed to operate on all kind of actuators. The ND7000 is a reliable and future-proof investment.

Key features

- Benchmark control performance on rotary and linear valves
- Reliable and robust design
- The rugged cover protects the unit from environmental hazards and external abuse
- Easy commissioning and operation
- Language selection: English, German and French
- Local / remote operation
- HART 6/7 communication as standard
- Standard control valve diagnostics
 - Self-diagnostics
 - Control deviation trend
 - Counters
 - Extended off-line tests

Easy installation and configuration

- Same device can be used for linear and rotary valves, double and single-acting actuators
- 1-point calibration feature enables mounting without disturbing the process
- Simple fast calibration and configuration
 - Guided start-up using Local User Interface (LUI)
 - Distributed Control System (DCS) asset management tools
- Low power consumption enables installation to all common control systems
- Extensive selection of mounting kits for 3rd party actuators

Open solution

- Valmet is committed to delivering products that freely interface with software and hardware from a variety of manufacturers; ND7000 is no exception. This open architecture allows the ND7000 to be integrated with other field devices to give an unprecedented level of controllability.
- FDT and EDD based multi-vendor support configuration
- Support files for ND7000 are available from our internet page, at www.neles.com/nd7000

Product reliability

- Designed to operate in harsh environmental conditions
- Vibration and impact tolerant
- IP66 enclosure
- Protected against humidity
- Rugged modular design
- Excellent temperature characteristics
- Maintenance free operation
- Resistant to dirty air
- Wear resistant and sealed components
- Contact less position measurement

Minimised process variability

- Linearization of the valve flow characteristics
- Excellent dynamic and static control performance
- Fast response to control signal change
- Accurate valve control

Bulletin reference: 7ND720

Technical specifications



General	Electronics HART
<p>Loop powered, no external power supply required. Suitable for rotary and linear valves. Actuator connections in accordance with VDI/VDE 3845 and IEC 60534-6 standards.</p> <p>Action: Double or single acting Travel range: Linear: 10 – 120 mm / 0.4 – 4.7 Rotary: 45 – 95° Measurement range: 110° with freely rotating feedback shaft Performance with moderate constant-load actuators: Dead band acc. to IEC 61514: ≤ 0.1% Hysteresis acc. to IEC 61514: < 0.5%</p>	<p>Supply power: Loop powered, 4 – 20 mA, HART Protocol rev. 6/7 Minimum signal: 3.6 mA Current max: 120 mA Load voltage: up to 9.7 VDC/20 mA (corresponding 485 Ω) Voltage max: 30 VDC Polarity protection: -30 VDC Over current protection: Active over 35 mA</p>
Environmental influence	Position transmitter (optional)
<p>Standard temperature range: -40 to +85 °C / -40 to +185 °F Influence of temperature on valve position: 0.5% / 10 °K Influence of vibration on valve position: < 1% under 2 g 5 – 150 Hz, 1 g 150 – 300 Hz, 0.5 g 300 – 2000 Hz</p>	<p>Output signal: 4 – 20 mA (galvanic isolation; 600 VDC) Supply voltage: 12 – 30 VDC Resolution: 16 bit / 0.244 µA Linearity: < 0.05% FS Temperature effect: < 0.35% FS External load: Max 0 – 780 Ω Max 0 – 690 Ω for intrinsically safe Ex ia IIC T6 Ui ≤ 28 V Ex d IIC T4/T5/T6 Ui ≤ 30 V</p>
Enclosure	Local User Interface (LUI) functions
<p>Material ND7100: Anodized aluminium alloy and polymer composite Material ND7200: Anodised aluminum alloy and tempered glass</p> <p>Protection class: IP66, Nema 4x Pneumatic ports: G ¼ (ND7100), ¼ NPT (ND7200) Cable gland thread: M20x1.5, ½ NPT (ND7200 E2) Weight: 1.8 kg / 4.0 lbs (ND7100), 3.4 kg / 7.5 lbs (ND7200) Mechanical and digital position indicator visible through main cover.</p>	<ul style="list-style-type: none"> • Local control of the valve • Monitoring of valve position, target position, input signal, temperature, supply and actuator pressure difference • Guided-startup function • LUI may be locked remotely to prevent unauthorized access • Calibration: Automatic / Manual / 1-point calibration / Linearization • Control configuration: aggressive, fast, optimum, stable, maximum stability • Configuration of the control valve <ul style="list-style-type: none"> - Rotation: Valve rotation clockwise or counter-clockwise to close - Dead Angle - Low cut-off, cut-off safety range (default 2%) - Positioner fail action: Open/close - Signal direction: Direct/reverse acting - Actuator type: Double/single acting - Valve type: Rotary/linear • Language selection: English, German and French • HART 6/7 selection
Pneumatics	
<p>Supply pressure: 1.4 – 8 bar / 20 – 115 psi Effect of supply pressure on valve position: < 0.1% at 10% difference in inlet pressure Air quality: Acc. to ISO 8573-1 Solid particles: Class 5 (3 – 5 µm filtration is recommended) Humidity: Class 1 (dew point 10 °C / 18 °F below minimum temperature is recommended) Oil class: 3 (or < 1 ppm) Capacity with 4 bar / 60 psi supply: 5.5 Nm³/h / 3.3 scfm low capacity 12 Nm³/h / 7.1 scfm normal capacity 38 Nm³/h / 22.4 scfm high capacity Consumption with 4 bar / 60 psi supply in steady state position: < 0.6 Nm³/h / 0.35 scfm (low & normal capacity) < 1.0 Nm³/h / 0.6 scfm (high capacity)</p>	

Neles SG9000 intelligent on-off valve controller



Neles™ SwitchGuard™ SG9000 is a top class intelligent on-off valve controller designed to operate on any valve actuator. Unique embedded diagnostic features are integrated into its design enabling predictive maintenance for on-off applications.

The SwitchGuard™ can be easily fitted to the actuator and its controlled pneumatic capacity replaces any solenoid valve providing a simple, reliable interface with the process control system. Diagnostic information is presented in easily understandable way using FDT technology to enable planned maintenance of potentially failing valve assemblies before they have chance to impact on the process.

Key features

- Unique advanced on-off diagnostics including
 - Self-diagnostics
 - Online diagnostics
 - Performance diagnostics
- High pneumatic capacity eliminates the need of additional instrumentation in most cases
- Speed control for switching
 - Stroking time and profile configuration, separately for open and close strokes
- Integrated limit switches simplifying installation
- Reliable and robust design
- Easy of use
- Local / remote operation
- Wide range of hazardous area approvals

Easy installation and configuration

- Same unit for linear and rotary valves, double and single acting actuators
- Simple fast calibration and configuration
 - Guided start-up using Local User Interface (LUI)
 - Distributed Control System (DCS) asset management tools
- Extensive selection of mounting kits for 3rd party actuators

Open solution

- Valmet is committed to delivering products that freely interface with software and hardware from a variety

of manufacturers; and, the Neles SwitchGuard is no exception. This open architecture allows the SwitchGuard to be integrated with other field devices and systems.

- FDT and EDD based multi-vendor support configuration
- Support files for SG9000H are available from our internet page, at www.neles.com/sg9000

Options

- High pneumatic capacity
- Integrated limit switches
- Position transmitter
- U/I converter to support binary control

Product reliability

- Designed to operate in harsh environmental conditions
- Vibration and impact tolerant
- IP66 enclosure
- Protected against humidity
- Rugged modular design
- Excellent temperature characteristics
- Maintenance free operation
- Wear resistant and sealed components
- Contactless position measurement

Designed to switch

- Several pre-selected opening and closing profiles
 - Opening and closing can be configured separately
 - Freely adjustable stroking time
- Minimised pressure impacts in piping
- Excellent speed control performance
- Highly reliable pneumatics unit
- Wide pneumatics capacity

Bulletin reference: 7SG20

Technical specifications



General	Electronics
<p>Loop powered, no external power supply required. Suitable for rotary and linear valves. Actuator connections in accordance with VDI/VDE 3845 and IEC 60534-6 standards.</p> <p>Action: Double or single acting Travel range: Linear: 10 – 120 mm Rotary: 45 – 95° Measurement range 110° with freely rotating feedback shaft</p>	<p>Supply power: Loop powered, 4 – 20 mA Minimum signal: 3.6 mA Current max: 120 mA Load voltage: Up to 9.7 V DC / 20 mA (corresponding 485 Ω.) Voltage: Max. 30 V DC Polarity protection: -30 V DC Over current protection: Active over 35 mA</p>
Environmental influence	Position transmitter (optional)
<p>Standard temperature range: -40 to +85 °C / -40 to +185 °F</p>	<p>Output signal: 4 – 20 mA (galvanic isolation; 600 V DC) Supply voltage: 12 – 30 V DC Resolution: 16 bit / 0.244 µA Linearity: < 0.05% FS Temperature effect: < 0.35% FS External load: Max 0 – 780 Ω, max 0 – 690 Ω for intrinsically safe</p>
Enclosure	
<p>SG9200: Anodised aluminum alloy and tempered glass SG9300: Stainless steel Protection class: IP66 Pneumatic ports: SG921_ ¼ NPT SG9235 ½ NPT, SG9237 1 NPT (½ NPT supply) Conduit entry thread: M20 x 1.5 Weight: SG921_ 3.0 kg / 6.6 lbs, SG9235 4.6 kg / 10.1 lbs, SG9237 5.0 kg / 11 lbs Limit switches +1.0 kg / 2.2 lbs Mechanical and digital position indicator visible through the main cover.</p>	
Pneumatics	
<p>Supply pressure: 3 – 8 bar / 44 – 116 psi Air quality: According to ISO 8573-1:2001 Solid particles: Class 7 Humidity: Class 1 (dew point 10 °C / 18 °F below minimum temperature is recommended) Oil class: 3 (or < 1 ppm) Capacity with 4 bar / 60 psi supply: SG9212 7 Nm³/h / 4.1 scfm (Cv = 0.06) SG9215 90 Nm³/h / 53 scfm (Cv = 0.7) SG9235 380 Nm³/h / 223 scfm (Cv = 3.2) SG9237 feed 380 Nm³/h / 223 scfm (Cv = 3.2) exhaust 700 Nm³/h / 412 scfm (Cv = 6.4) Consumption with 4 bar / 60 psi supply: Actuator pressurized 0.22 Nm³/h / 0.13 scfm Actuator vented 0.25 Nm³/h / 0.15 scfm</p>	

Stonel Axiom



The Axiom™ provides advanced monitoring and control in explosionproof, non-incendive, intrinsically safe and general-purpose applications. It is a discrete on/off valve controller with proximity switches for quarter-turn automated valves. Its rugged construction will withstand the most challenging plant environments.

Advanced performance

The Axiom features a non-contact continuous position sensing system which eliminates shafts, bushings, and wear parts prone to failure. It also has an o-ring sealed pneumatic valve spool with pilot that is tolerant of contaminants found in most process plant air systems. The result is consistent reliable performance over the life of the automated valve system. Valve communication models with AS-Interface and DeviceNet protocols feature optional Wireless Link capabilities reducing setup time, improving plant safety and displaying valve diagnostics. Devices communicate wirelessly via Bluetooth from up to 50 meters to standard iPhone or iPad app.

Wide variety of functions offer exceptional value

Select from standard SST sensors for conventional switching, Namur sensors for intrinsically safe applications or communication options including AS Interface, DeviceNet and FOUNDATION Fieldbus. Maintenance costs may be reduced by using the diagnostic systems available with Wireless Link.

Corrosion-resistant

The intrinsically safe version of Axiom (AN) features an anodized epoxy-coated aluminum housing with a Lexan cover to withstand corrosive process environments. The Lexan cover may also be optionally fusion coated for organic solvents. An aluminum cover may be selected for special highly corrosive applications. Explosion proof version of Axiom (ANX) is available as epoxy coated anodized aluminum enclosure and cover. Axiom (AX) is available in stainless steel enclosure and cover.

Key features

- Corrosion proof, temporarily submersible and suitable for use in hazardous areas
- Designed for non-incendive and intrinsically safe (AN) or explosion proof (AX) areas
- ANX suitable for ingress protection classes IP66, NEMA 4, 4X
- AX suitable for IP66, IP67 or NEMA 4, 4X

- AN suitable for IP66, IP67, NEMA 4, 4X and 6
- High-strength durable enclosure and pneumatic manifold constructed of epoxy coated anodized aluminum or stainless steel
- Impact resistant cover made of high strength Lexan polycarbonate, aluminum or stainless steel
- High visibility mechanical and electronic indication of open/closed position and solenoid status for safety and convenience
- Universal voltage solenoid system operates on less than 0.6 W of power (standard version accepts either 24 VDC, 120 VAC or 250 VAC), reducing stocking requirements
- Electronic components sealed and potted inside function module for residual moisture, vibration and corrosives protection
- High accuracy position sensor system is solid state with no moving wear points for highly reliable position feedback
- Push button set points accurately lock in position settings, remaining locked in when power is removed and reapplied
- Large capacity integral pneumatic valve operates on standard plant air and cycles most actuators in less than two seconds
- Quick and convenient wiring and maintenance access for easy set-up and installation
- Internal manual pneumatic valve override as standard enables local valve operation
- Standard 5/2 (five-way, two-position) valve operates double and single-acting actuators
- Standard 5/2 valve features a re-breather to feed instrument air into actuator to keep out corrosives
- Directly attaches to VDI/VDE 3845 (Namur) actuators using a compact mounting manifold system (sold separately)
- Wireless Link, available in AS-Interface and DeviceNet models, reduces set-up time and provides easy access to monitoring, control and diagnostics from up to 50 meters with standard iPhone/iPad app

Bulletin reference: 7AN20, 7AX21

Technical specifications

General	Materials of construction
<p>Pneumatic valves Valve design: Pilot operated spool valve Pilot operator options: Solenoid coil or piezo</p> <p>Configuration Single pilot: 5-way, 2-position spring return Dual pilot: Shuttle piston, 5-way, 2-position Flow rating: 0.70 Cv or 1.2 Cv Axiom porting: ¼" NPT 0.7 or 0.9 (0.70 Cv); 3/8" (1.2 Cv) Manifold porting: ¼" NPT (0.7, 0.9 and 1.2 Cv) Operating pressure: 40 to 120 psi (2.7 to 7.5 bar), AX 45 psi to 120 psi (3.1 to 8.2 bar), AN Filtration requirements: 40 micron (Piezo, 30 micron), AX 50 micron, AN Operating life: 1 million cycles Manual override: Internal momentary standard External momentary available External latching device available</p>	<p>Housing & mounting manifold: Epoxy coated anodized aluminum or 316 stainless steel Cover: Lexan® polycarbonate, epoxy coated anodized aluminum or 316 stainless steel Visual indicator: Lexan polycarbonate Fasteners & mounting: Stainless steel</p>
Pneumatic valve (AN / ANX)	Pneumatic valve (AX)
<p>Operating temperature: -40 to 80° C (-40 to 176° F) Operating voltage: 35 option: 40 – 250 VAC; 20–55 VDC 45 option: 12 – 24 VDC (output of barrier) 92 and 97 option: 24 VDC Power consumption: 35 option: 20 mA @ 40–250 VAC (1.1 watts typical) 20 mA @ 20–55 VDC (0.5 watts typical @ 24 VDC) 45 option: 0.5 watts @ 12 VDC; 1.0 watt @ 24 VDC 92 and 97 option: 0.5 watts Inrush current: 35 option: 0.14 A @ 24 VDC (typical)</p>	<p>Solenoid pilot Electrical ratings: _H option: 0.6 watt @ 22 to 250 VAC/VDC _D option: 0.5 watt @ 24 VDC _E option: 0.5 watt @ 12 VDC (intrinsically safe) AC current consumption: 18 mA (1H or 2H) 220 VAC Operating temperature: 0.7 Cv: Standard (S) -18 to 50 °C (0 to 122 °F) Extended (T) -40 to 80 °C (-4° to 176 °F) 1.2 Cv: Standard (S) -10 to 50 °C (14 to 122 °F) Extended (T) Consult factory</p> <p>Piezo pilot (bus powered FOUNDATION Fieldbus) Operating temperature: -10 to 60 °C (14 to 140 °F) Electrical ratings: _A option: 2 mA @ 6.5 VDC</p>
Function options (AN/ANX)	Function options (AX)
<p>Switches/Sensors 35S SST Universal; 20 – 250 volt (NO sensor) 45S NAMUR module (EN 60947-5-6; I.S.)</p> <p>Valve Communication Terminal 92S DeviceNet™ 92W DeviceNet™ with Wireless Link 96S AS-Interface 97W AS-Interface with extended addressing and Wireless Link</p>	<p>Switches/Sensors 33S SST NO sensor 35S SST Universal; 20 – 250 volt (NO sensor) 44S NAMUR module (EN 60947-5-6; I.S.)</p> <p>Valve Communication Terminal 71D 4 – 20 mA HART with diagnostics 92S DeviceNet™ 93S FOUNDATION Fieldbus (bus powered; I.S.) 96S AS-Interface 96D AS-Interface with diagnostics 97S AS-Interface with extended addressing</p>

Neles VG9000 intelligent safety solenoid



Neles™ ValvGuard™ VG9000 is an intelligent safety solenoid and partial stroke test device for emergency shutdown (ESD) or emergency venting (ESV) valves.

The ValvGuard™ VG9000's unique and advanced functions and features are specially designed to meet ESD application requirements. Together with HART or FOUNDATION Fieldbus communication it offers unbeatable value for end users with increased efficiency, reliability and safety.

The VG9000 is IEC 61508 compliant up to SIL 3. Based on the automatic partial stroke testing (PST) and other diagnostics data, VG9000 increases safety and plant safety targets can be reached more economically than with traditional solutions. Also, unnecessary and expensive manual testing can be avoided. VG9000 is capable of recording emergency trips with graph and key figures related to it.

The availability of the safety valves is maximized through unique diagnostics features, directly integrated into device functionality. Diagnostic information is presented in easily understandable form by using graphical user interface.

Key features

- Valve and self tests
 - Partial stroke test (automatic or manual)
 - Self test for internal electronics and pneumatics
 - Emergency trip test
- High pneumatic capacity eliminates the need of additional instrumentation in most cases
- Device is powered during the trip and can collect diagnostics information
- Easy of use
- Local / remote operation
- Advanced device diagnostics including
 - Self-diagnostics
 - Online diagnostics
 - Performance diagnostics
- HART (6/7) and FOUNDATION Fieldbus communication options
- Wide range of hazardous area approval

Easy installation and configuration

- Same unit for linear and rotary valves, double and single acting actuators
- Simple fast calibration and configuration
 - guided start-up using Local User Interface (LUI)
 - using Distributed Control System (DCS) asset management tools
- Extensive selection of mounting kits for 3rd party actuators

Open solution

- Valmet is committed to delivering products that freely interface with software and hardware from a variety of manufacturers. This open architecture allows the ValvGuard™ to be integrated with other field devices and systems.
- FDT and EDD based multi-vendor support configuration
- Support files for VG9000 are available from our internet page, at www.neles.com/vg9000

Options

- Full stainless steel enclosure (VG9300)
- High pneumatic capacity (VG923_)
- Integrated limit switches
- SIL 2 certified position transmitter
- External junction box for wiring
- Remote Communication Interface RCI9H2 for 24 VDC retrofit installations
- Local Control Panel (LCP9H), also loop-powered version (LCP9HL)
- TÜV Certificate
- Neles ValvGuard VG9000 is TÜV approved to be used in safety applications up to and including Safety Integrity Level 3 (SIL 3).

Bulletin reference: 9VG921

Technical specifications

General	Electronics (input VG9000 HART)
<p>Suitable for rotary and linear valves. Actuator connections in accordance with VDI/VDE 3845 and IEC 60534-6 standards.</p> <p>Action: Double or single acting Travel range: Linear: 10 – 120 mm Rotary: 45 – 95° Measurement range 110° with freely rotating feedback shaft</p>	<p>Electrical connections: 0.25 – 2.5 mm² Supply power: Loop powered, 4 – 20 mA Signal range: 3.7 – 22 mA Signal details: 0.0 – 3.7 mA (trip state; diagnostics not available) 3.7 – 6.0 mA (trip state; diagnostics available) 6.0 – 16.0 mA (hysteresis range; diagnostics available) 16.0 – 22.0 mA (normal state; diagnostics available) Load voltage: Up to 9.7 V DC / 20 mA corresponding 485 Ω) Voltage: Max 30 V DC Polarity protection: -30 V DC Over current protection: Active over 36 mA</p>
Environmental influence	
<p>Standard temperature range: -40 to +85 °C / -40 to +185 °F Influence of temperature on valve position: < 0,5% / 10 °K Influence of vibration on valve position: No effect when measured impulse 2 g 5 – 150 Hz, 1 g 150 – 300 Hz, 0.5 g 300 – 2000 Hz. No effect on PST if max. response 4 g measured at housing. No unintended valve movements if max. response 15 g measured at housing</p>	
Enclosure	Electronics output (VG9000 HART)
<p>VG9200: Anodised aluminum alloy and tempered glass VG9300: Stainless steel</p> <p>Protection class: IP66, NEMA 4X Mechanical position indicator and LUI visible through the main cover</p> <p>Pneumatic ports: VG9_15 ¼ NPT VG9235 ½ NPT VG9237 1 NPT (½ NPT supply) (single acting only) Conduit entry thread: M20 x 1.5 Weight: VG9215 3.0 kg / 6.6 lb VG9235 4.6 kg / 10.1 lb VG9237 5.0 kg / 11 lb VG92_ with extension housing plus 1.0 kg / 2.2 lb</p>	<p>Usage: Position transmitter (T) / device status output (S) Electrical connections: 0.25 – 2.5 mm² Output signal: Defined by type code option T or S T: 4 – 20 mA = 0 – 100% position S: 4 mA = OK 5 mA = Pneumatics test 6 mA = PST test 7 mA = ETT test 8 mA = Warning 10 mA = Alarm 12 mA = Safety position requested by LCP Fault modes indicated by levels 3.5 and 22 mA Galvanic isolation 600 V DC Supply voltage: 12 – 30 V Resolution: 16 bit / 0.244 µA Linearity: < 0.05% FS Temperature effect: < 0.35% FS</p>
Pneumatics	Safety signal (Binary input of VG9000 FF)
<p>Supply pressure: 3.0 – 7.5 bar / 44 – 109 psi Output pressure: 3.0 – 7.5 bar / 44 – 109 psi Air quality: According to ISO 8573-1:2001 Solid particles: Class 6 Humidity: Class 1 (dew point 10 °C / 18 °F below minimum temperature is recommended) Oil class: 3 (or < 1 ppm) Capacity with 4 bar / 60 psi supply: VG9215 90 Nm³/h / 53 scfm (Cv = 0.7) VG9235 380 Nm³/h / 223 scfm (Cv = 3.2) VG9237 feed 380 Nm³/h / 223 scfm (Cv = 3.2) exhaust 700 Nm³/h / 412 scfm (Cv = 6.4) Consumption with 4 bar/60 psi supply: Actuator pressurized 0.22 Nm³/h / 0.13 scfm Actuator vented 0.25 Nm³/h / 0.15 scfm</p>	<p>Connections: 24 VDC: '+' and '-' Min voltage: 11 V DC Max output resistance: Ro = 285 Ω</p> <p>FOUNDATION Fieldbus function block execution times</p> <p>MDO 15 ms MDI 15 ms AI 20 ms</p> <p>Electronics (FOUNDATION Fieldbus VG9000F)</p> <p>Power supply: Taken from bus Bus voltage: 9 to 32 V DC, reverse polarity protection Max basic current: 14.2 mA Operating current: 20.7 mA Fault current (FDE): 6.3 mA</p>

Neles VG9000_P partial stroke testing device



Neles™ ValvGuard™ VG9000_P is a partial stroke test device for emergency shutdown (ESD) or emergency venting (ESV) valves with HART communication.

The ValvGuard™ VG9000_P's unique and advanced functions and features are specially designed to meet ESD application requirements. Together with HART communication it offers unbeatable value for end users with increased efficiency, reliability and safety.

The ValvGuard VG9000_P is used only for partial stroke testing and an additional solenoid valve is used for controlling the fail-safe action. VG9000_P partial stroke test device provides excellent protection against the spurious trips. Even an electric failure or a cable break does not create an unwanted trip as the valve remains in the normal position even when ValvGuard is de-energized. ValvGuard VG9000_P is available with HART communication and the device is powered by analog 4 to 20 mA signal. VG9000_P will give additional security against unauthorized usage by disabling all the testing, if input signal from the DCS is below 8 mA and also prevents an accidental calibration, if the signal is below 12 mA.

Key features

- Valve and self tests
 - Partial stroke test (automatic or manual)
 - Self test for pneumatics
- High pneumatic capacity eliminates the need of additional instrumentation in most cases
- Device is powered during the trip and can collect diagnostics information
- Easy of use
- Local / remote operation
- Advanced device diagnostics including
 - Self-diagnostics
 - Online diagnostics
 - Performance diagnostics
- HART 6/7 communication
- Wide range of hazardous area approvals

Easy installation and configuration

- Same unit for linear and rotary valves, double and single acting actuators

- Simple fast calibration and configuration
 - guided start-up using Local User Interface (LUI)
 - using Distributed Control System (DCS) asset management tools
- Extensive selection of mounting kits for 3rd party actuators

Open solution

- Valmet is committed to delivering products that freely interface with software and hardware from a variety of manufacturers. This open architecture allows the ValvGuard to be integrated with other field devices and systems.
- FDT and EDD based multi-vendor support configuration
- Support files for VG9000 are available from our internet page, at www.neles.com/vg9000

Options

- Full stainless steel enclosure (VG9300)
- High pneumatic capacity (VG923_)
- Integrated limit switches
- SIL 2 certified position transmitter
- External junction box for wiring
- Local Control Panel (LCP9H), also loop-powered version (LCP9HL)

TÜV Certificate

- The ValvGuard VG9000 is TÜV approved to be used in safety applications up to and including Safety Integrity Level 3 (SIL 3).
- VG9000H_P does not adversely affect the safety function of a connected ESD solenoid valve. It can therefore be used in safety related systems to enable partial stroke testing to improve the diagnostics coverage (DC).

Bulletin reference: 9VG921

Technical specifications

General	Electronics input
<p>Suitable for rotary and linear valves. Actuator connections in accordance with VDI/VDE 3845 and IEC 60534-6 standards.</p> <p>Action: Double or single acting Travel range: Linear: 10 – 120 mm Rotary: 45 – 95° Measurement range 110° with freely rotating feedback shaft</p>	<p>Electrical connections: 0.25 – 2.5 mm² Supply power: Loop powered, 4 – 20 mA Signal range: 3.7 – 22 mA Signal details: 0.0 – 3.7 mA (de-energized state; diagnostics not available) 3.7 – 6.0 mA (normal state; diagnostics available) 6.0 – 8.0 mA (normal state; PST and diagnostics available) 8.0 – 22.0 mA (normal state; PST, calibration and diagnostics available) Load voltage: Up to 9.7 V DC / 20 mA corresponding 485 Ω) Voltage: Max 30 V DC Polarity protection: -30 V DC Over current protection: Active over 36 mA</p>
Environmental influence	
<p>Standard temperature range: -40 to +85 °C / -40 to +185 °F Influence of temperature on valve position: < 0,5% / 10 °K Influence of vibration on valve position: No effect when measured impulse 2 g 5 – 150 Hz, 1 g 150 – 300 Hz, 0.5 g 300 – 2000 Hz. No effect on PST if max. response 4 g measured at housing. No unintended valve movements if max. response 15 g measured at housing</p>	
Enclosure	
<p>VG9200: Anodised aluminum alloy and tempered glass VG9300: Stainless steel</p> <p>Protection class: IP66, NEMA 4X Mechanical position indicator and LUI visible through the main cover</p> <p>Pneumatic ports: VG9_15 ¼ NPT VG9235 ½ NPT Conduit entry thread: M20 x 1.5 Weight: VG9215 3.0 kg / 6.6 lb, VG9235 4.6 kg / 10.1 lb, VG9237 5.0 kg / 11 lb, VG92_ with extension housing plus 1.0 kg / 2.2 lb</p>	<p>Usage: Position transmitter (T) / device status output (S) Electrical connections: 0.25 – 2.5 mm² Output signal: Defined by type code option T or S T: 4 – 20 mA = 0 – 100% position S: 4 mA = OK 5 mA = Pneumatics test 6 mA = PST test 7 mA = ETT test 8 mA = Warning 10 mA = Alarm Fault modes indicated by levels 3.5 and 22 mA Galvanic isolation 600 V DC Supply voltage: 12 – 30 V Resolution: 16 bit / 0.244 µA Linearity: < 0.05% FS Temperature effect: < 0.35% FS</p>
Pneumatics	
<p>Supply pressure: 3.0 – 7.5 bar / 44 – 109 psi Output pressure: 3.0 – 7.5 bar / 44 – 109 psi Air quality: According to ISO 8573-1:2001 Solid particles: Class 6 Humidity: Class 1 (dew point 10 °C / 18 °F below minimum temperature is recommended) Oil class: 3 (or < 1 ppm) Capacity with 4 bar / 60 psi supply: VG9215 90 Nm³/h / 53 scfm (Cv = 0.7) VG9235 380 Nm³/h / 223 scfm (Cv = 3.2) Consumption with 4 bar/60 psi supply: 0.25 Nm³/h / 0.15 scfm</p>	

Stonel Quartz

The Quartz™-series is durable, corrosion resistant, and versatile, making it ideal for most of your process valve monitoring requirements. The Quartz is available in explosionproof (QX), nonincendive, intrinsically safe (QN), low temperature (QC), and general purpose (QG) versions.



Enclosures optimized for environment

The robust epoxy-coated anodized aluminum construction makes this platform extremely durable and well-suited for use in corrosive, heavy washdown environments. A broad range of switching, position transmitter and communication options may be selected to accommodate most applications. This versatile platform adapts to a wide variety of valve systems. Attach the Quartz to quarter-turn actuators, manual operators, linear operators and positioners using readily available mounting systems.



QX: Explosionproof, water tight and corrosion-resistant enclosure is approved for use in Div.1/Zone 1 hazardous areas. Available in epoxy-coated, anodized aluminum or stainless steel.



QN: Nonincendive is approved for Div. 2/Zone 2 hazardous environments with proximity sensors using a clear cover. Intrinsically safe Namur sensors or passive switches are available for Div. 1/Zone 0 applications.



QG: General purpose features a clear Lexan cover with mechanical switches. All enclosures are rated NEMA 4, 4x, and 6.

Key features

- Enclosures optimized for environment
 - Available in three enclosure styles
- Rapid enclosure access
 - Screw-on cover allows quick enclosure access, saving you valuable maintenance and set-up time. The cover provides a vapor tight seal
- Faster wiring
 - Pre-wired and labeled terminal strip enables quick, convenient attachment of field wires
- Wide variety of switching & communication
 - Switching options include dual module sensors and communication, Maxx-Guard proximity switches, and mechanical switches. Continuous signal output is available in a 4 to 20 mA position transmitter.
- Quick set cams are easy to adjust
 - Touch and tune switch settings allow you to make adjustments in seconds without the use of tools
- Dual shaft o-ring seals eliminate corrosion
 - Top inner and bottom outer shaft o-rings seal the drive bushing from both external corrosives and internal contaminants that enter the enclosure
- Special drive bushing assures long cycle life
 - The oil impregnated bronze bushing maintains smooth operation and eliminates the potential for shaft seizure due to actuator shaft eccentricity.
- Space saving visual indication
 - Visual indicator offers excellent viewability without sacrificing accessibility or adding to space requirements. Indicators are also available with continuous percentage or three-way indication.

Bulletin reference: 7QZ22

Technical specifications

Materials of construction		Maxx-Guard proximity switch Single-Pole Single-Throw (SPST)	
Housing & aluminum cover: Epoxycoated anodized marine grade aluminum or stainless steel as option Clear cover & indicator: Lexan® polycarbonate, Elastomer seals Buna-N; optional EPDM Drive shaft: Stainless steel Drive bushing: Bronze, oil impregnated Fasteners: Stainless steel		J switch Configuration: SPST; passive (intrinsically safe) Electrical ratings: 0.10 amp @ 10 to 30 VDC Maximum voltage drop: 0.1 volts @ 10 mA, 0.5 volts @ 100 mA Contact composition: Ruthenium P switch Configuration: SPST NO Electrical ratings: 0.15 amp @ 30 VDC/125 AC Maximum voltage drop: 0.1 volts @10 mA, 0.5 volts @ 100 mA Contact composition: Ruthenium	
Temperature ratings		Maxx-Guard proximity switch Single-Pole Double-Throw (SPDT)	
Mechanical components: -40 to 80 °C Dual modules: -40 to 80 °C Maxx-Guard & SST: -40 to 80 °C QC models: -55 to 80 °C		G switch Configuration: SPDT Electrical ratings: 0.30 amp @ 24 VDC, 0.2 amp @ 120 VAC Maximum voltage drop: 0.1 volts @ 10 mA, 0.5 volts @ 100 mA Contact composition: Rhodium H switch Configuration: SPDT Electrical ratings: 240 VAC max; 3 A max., 100 W max.; 2.0 W min. Maximum voltage drop: 0.1 volts @ 10 mA, 0.5 volts @ 100 mA Contact composition: Tungsten M switch Configuration: SPDT; passive (intrinsically safe) Electrical ratings: 0.10 amp @ 10 to 30 VDC Maximum voltage drop: 0.1 volts @ 10 mA, 0.5 volts @ 100 mA Contact composition: Rhodium S switch Electrical ratings: 0.1 amp @ 24 VDC 0.1 amp @ 120 VAC Maximum voltage drop: 3.5 volts @ 10 mA, 6.5 volts @ 100 mA Contact composition: Rhodium	
Mechanical switch (SPDT), (_V, _W)			
Silver contacts (_V switch) Electrical ratings: 10 amp @ 125/250 VAC 0.5 amp @ 125 VDC Operating life: 400,000 cycles Not recommended for electrical circuits operating at less than 20 mA @ 24 VDC Gold contacts (_W switch) Electrical ratings: 1 amp @ 125 VAC, 0.5 amp @ 30 VDC Operating life: 100,000 cycles			
Mechanical switch (DPDT) (14)			
Electrical ratings: 4.5 amp @ 125/250 VAC, 24 to 125 VAC			
SST switching sensors (35)		Valve Communication Terminal (VCT)	
Configuration: (2) SST solid state sensors Wire terminations for one or two solenoids Operation: Normally open (NO) Maximum current inrush: 1.0 amp @ 125 VAC/VDC Maximum continuous current: 0.1 amp @ 125 VAC/VDC Minimum on current: 0.5 mA Maximum leakage current: 0.25 mA (AC), 0.15 mA (DC) Voltage range: 20 to 250 VAC, 8 to 250 VDC Maximum voltage drop: 6.5 volts @ 10 mA, 7.2 volts @ 100 mA		AS-Interface (96) Configuration (2) discrete sensor inputs (2) auxiliary discrete inputs (2) power outputs (solenoids) AS-Interface with extended addressing (97) Configuration (2) discrete sensor inputs (2) auxiliary discrete inputs (1) power output (solenoid) FOUNDATION Fieldbus, Bus Powered (93) Configuration (2) Discrete Inputs, DI (open and closed), (2) Discrete Outputs, DO (piezo valves) Multiple DI/DO blocks or modified output block DeviceNet (92) Configuration (2) discrete inputs (open and closed) (2) power outputs (solenoids) (1) 4 – 20 mA auxiliary analog input, 10-bit resolution; no additional power source required	
Namur sensors (45)		SST switching sensors (_X)	
Configuration: (2) Namur sensors (EN 60947-5-6) Wire terminations for one or two solenoids Voltage range: 5 to 25 VDC Current ratings: Target on I < 1 mA, Target off I > 3 mA		Operation: NO/NC (cam selectable) Maximum current inrush: 1.0 A @ 125 VAC/VDC Maximum continuous current: 0.1 A @ 125 VAC/VDC Minimum on current: 2.0 mA Leakage current: Less than 0.50 mA Voltage range: 8 to 125 VDC, 24 to 125 VAC Maximum voltage drop: 6.5 volts @ 10 mA, 7.5 volts @ 100 mA	
Position transmitter (5_, 7_, T_)			
Output: Two-wire 4 to 20 mA Supply source: 10 – 40 VDC Span range: (5, 7) 35° to 270° (adjustable); (T) 35° to 320° (adjustable) Maximum loading: 700 ohms @ 24 VDC Linearity error: Standard (5) +/-0.85° maximum High performance (7) and Digital (T) +/-0.35°			

Stonel Eclipse

The Eclipse™ features dual solid state sensors with optional communications neatly integrated into a sealed module. The function module and trigger/ indicator attach quickly and conveniently to standard VDI/ VDE 3845 (Namur) actuator accessory mounting pads.

Safety for hazardous environments



EN: Nonincendive with integral wiretermination area

- Suitable for all hazardous areas
- Rated for NEMA 4, 4X, 6 (intrinsically safe and nonincendive rated: IP67)
- Additional termination points and dual conduit entries eliminate junction boxes for solenoid valve termination
- Convenient wiring compartment and pre-labeled terminal strip enables rapid installation



EG: General purpose with convenient micro-connector wiring

- Available with additional built-in connector for solenoid termination
- Micro-connectors with potted and sealed enclosure eliminate any threat of moisture contamination in wiring
- Electronic module integrated permanently into enclosure

Key features

- No moving mating parts assure long life and trouble-free operation
- Red/green visual indicator boldly displays valve status
- Direct attachment to ISO/Namur mounting pads with simple mounting kit (sold separately)
- High intensity red and green LEDs indicate electronic switch status to confirm electrical operation
- Sensor triggers are adjustable in 3.5 degree increments through 360 degrees for precision and flexibility
- Submersible and capable of high pressure washdown, Eclipse sensors and electronics are fully sealed
- Extremely compact, rugged enclosure integrates position sensors, communication, electronics, and power outputs for solenoids
- All mechanical parts are made of Lexan® or stainless steel for corrosion resistance and durability

Bulletin reference: 7ECL21

Technical specifications

Materials of construction	Switching and sensor specifications
Housing: Lexan® polycarbonate Drum components Lexan® polycarbonate Fasteners: Stainless steel Triggers and coupling: Stainless steel Quick connectors: Stainless steel	SST switching sensors (33, 34) Configuration (2) SST Solid State Sensors (2) Wire terminations for one solenoid Operation: Select either NO (33) or NC (34) Maximum current inrush: 1.0 amp @ 125 VAC/VDC Maximum current continuous: 0.1 amp @ 125 VAC/VDC Minimum on current: 2.0 mA Maximum leakage current: 0.5 mA Voltage range: 8 to 125 VDC, 24 to 125 VAC Maximum voltage drop: 6.5 volts @ 10 mA, 7.5 volts @ 100 mA
Valve communication terminals	
DeviceNet (92) AS-Interface (96) AS-Interface with extended addressing (97)	Namur sensors (44) Configuration (2) Namur sensors (EN 60947-5-6; I.S.) (2) Wire terminations for one solenoid Voltage range: 5 to 25 VDC Current ratings: Target on I < 1 mA, Target off I > 3 mA
Temperature range	
-40 to 80 °C (-40 to 176 °F)	

Neles Easyflow K-series limit switches

The K-series features versatile limit switches for quarter turn actuators and valve assemblies. With the K-series limit switches our customers receive reliable information of the limits of desired rotary travel set by the customer.

Key features

- K-series limit switches can be mounted on top of virtually any rotary actuator - VDI/VDE 3845 mounting face
- Compact size makes K-series easy to fit even in tight spaces
- Suitable even for the most harsh weather conditions with three different housing material options and IP67/IP68 ingress protection class as standard
- Switching elements can be chosen between mechanical, inductive and Reed type switches
- SOV termination provided inside the limit switch box (with mechanical switches)

Bulletin reference: S100-1



Technical specifications

Construction details and materials	Switching and sensor specifications
Enclosure material: <ul style="list-style-type: none"> • Epoxy powder coated, low copper die cast aluminum (LM6) • Stainless steel (CF8M, equivalent to AISI316) • Polycarbonate (LEXAN 3412R) (only for KC-series) Visual indicator dome: Shatterproof polycarbonate Sealings: NBR, Silcon, Flouro silicon and Viton Screws: AISI 304 Shaft: AISI 304/AISI 316 (SS enclosure) Protection class: IP67 and IP68 according to DIN EN 60529 Cable entries: KS-series: 2 x M20 or 2 x ½ NPT KC-series: 3 x M20 or 3 x ½ NPT Weight: KS-series: Die cast aluminum 1.7 kg / 3.8 lbs, stainless steel 4.5 kg / 9.9 lbs KC-series: Die cast aluminum 0.7 kg / 1.6 lbs, stainless steel 2.5 kg / 5.5 lbs, polycarbonate 0.6 kg / 1.3 lbs	Mechanical limit switch (V1) Honeywell V15S05-CZ100A05-01, SPDT type Electrical values: 5 A, 125 V AC or 250 V AC 100 mA, 48 V DC 30 mA, 250 V DC Temperature range: -20 to +80 °C Inductive proximity switch (A1) P+F NJ2-12GM-N 2-wire type, Namur NC Supply voltage: nominal 8 VDC (Ri = approx. 1 kOhm) Output current: Active face free: > 3 mA Active face covered: < 1 mA Nominal sensing range: 2 mm Temperature range: -20 to +80 °C

Stonel Prism

The Prism™, designed for corrosive process environments, attaches directly to sanitary diaphragm and angle valves. This rugged, feature-rich platform offers a full array of communication and switching options, as well as discrete integral pneumatic control for single-acting valve actuator operation.



Key features

- The Prism may be washed down and temporarily submersed with no adverse affects
- Enclosure features high strength polycarbonate with excellent corrosion-resistance and exceptional temperature stability
- Visual electronic and mechanical position indication
- Solid state proximity sensors monitor open and closed
- Integral pneumatic valve is isolated from environmental contamination, offers high tolerance to dirty air and enables rapid valve operation
- Solenoid options available for 120 VAC and 24 VDC
- Self-adjusting triggering system provides consistent open and closed indication even with diaphragm compression. No resetting is required.
- Manual override enables valve operation without electrically energizing
- Dual module system seals all position sensing, communication and control electronics in a compact vibration proof package
- Water proof quick connectors, compression fittings or conduit connections are available for convenient, reliable attachment to plant electrical systems.

Bulletin reference: 7PI21

Technical specifications

General pneumatic	Ratings
Configuration: 3-way, 2-position, spring return Porting: 1/8" NPT all pressurized ports. Flow ratings: Cv -0.20	Nonincendive (Ex n, Zone 2 or Class I and II, Div. 2) Intrinsically safe: Function 45 (Ex ia, Zone 0 or Class I and II, Div. 1) Enclosure protection: NEMA 4, 4X and 6: All models Ingress Protection 66 and 67: All models
Solenoid valve	Switching and sensor specifications
Filtration requirements: 40 micron Operating temperature: -10 to 50 °C	SST switching sensors (33) Configuration: (2) SST solid state sensors (2) Wire terminations for one solenoid Operation: Select NO (33) Maximum current inrush: 1.0 amps @ 125 VAC/VDC Maximum current continuous: 0.1 amps @ 125 VAC/VDC Minimum on current: 2.0 mA Maximum leakage current: 0.5 mA Voltage range: 20 to 125 VAC/VDC Maximum voltage drop: 6.5 volts @ 10 mA, 7.5 volts @ 100 mA
Materials of construction	Namur sensors (45) Configuration: (2) Namur sensors (EN 60947-5-6; I.S.) Voltage range: 7 to 24 VDC Current ratings: Target on I< 1 mA, Target off I> 3 mA
Valve Communication Terminals	
DeviceNet (92) AS-Interface (96) AS-Interface with extended addressing (97)	



Stonel Hawkeye HK

The solid state Hawkeye™ sensor is ideal for point sensing in corrosive and hazardous process environments. The standard red/green LEDs also speed your setup and installation by confirming power up and switch status.



Easy installation

Each pair (red and green) of Hawkeye sensors is tuned to operate independently in either long stroke or short stroke applications down to 6 mm [¼ inch]. The Hawkeye may be triggered by existing valve hardware eliminating costly magnets and triggering systems and cutting installation time.

Key features

- Sensing head triggers on any metal. Inductive sensing technology detects metal targets at distances up to 4 – 6 mm, depending on target material.
- Stainless steel body is rugged and corrosion proof. Hawkeye sensors are machined from 316 stainless steel.

- Stainless steel washers and fasteners secure Hawkeye permanently to mount.
- Circuit is conformally coated and potted. Hawkeye sensor may be temporarily submersed and electronics are shock and vibration tolerant.
- High intensity LED brightly displays switch status. Red and green LEDs may be selected to indicate open or closed.
- ½" conduit entry or mini-connector available. Choose from a direct conduit entry for hazardous areas or a plug-in mini-connector for rapid attachment in general purpose environments.

Bulletin reference: 7HK21

Stonel Hawkeye HX

The explosionproof Hawkeye, with its stainless steel enclosure, is designed for service in harsh process environments. It features a solid state proximity sensor which is encased in a shock absorbent urethane potting material. Outputs for universal switching or NAMUR (EN 60947-5-6; I.S.) are standard options.



Key features

- 316 stainless steel enclosure is extremely durable and corrosion resistant.
- Stainless steel washers and fasteners included with HX enable secure vibration resistant mounting.
- Solid state magnetic sensor detects trigger at distances up to 6 mm (extended sensing range also available).
- Magnetic trigger is embedded and sealed with a wide-temperature, corrosion-resistant urethane in the included stainless steel bolt.
- Sensor electronics are urethane sealed in a module which is additionally sealed within the stainless steel

enclosure assuring high tolerance to shock and vibration.

- All conduit/connector options (½" NPT, M20 and cable gland) are available with standard 6-foot cord lengths allowing flexible wiring options.
- No seal offs are required with explosionproof conduit systems, reducing installation costs.
- Suitable for most hazardous locations explosionproof, flame proof Div 1/Zone 1; intrinsically safe Div 1/Zone 0.

Bulletin reference: 7HX21

Technical specifications

Materials of construction	Switching and sensor specifications (HK)
<p>Housing and fasteners: 316 stainless steel</p> <p>Trigger: 316 stainless steel and urethane (HX models)</p> <p>Sensing head cover: Lexan® polycarbonate (HK models)</p> <p>LED Lens: Polycarbonate (HK models)</p>	<p>SST switching sensors (30, 31) Configuration: (1) SST solid state sensor Operation: Select either NO (30) or NC (31) Maximum current inrush: 1.0 amp Maximum current continuous: 0.1 amp @ 125 VAC/VDC Minimum current: 2.0 mA Maximum leakage current: 0.5 mA Voltage range: 8 to 125 VDC, 24 to 125 VAC Maximum voltage drop: 6.5 volts @ 10 mA, 7.5 volts @ 100 mA</p> <p>NAMUR sensors (40) Configuration: (1) NAMUR sensor (EN 60947-5-6; I.S.) Operation: Normally closed (NC) NAMUR sensor (solid state) Voltage range: 5 to 25 VDC Current ratings: Target on I < 1 mA, Target off I > 3 mA</p>
Other specifications	
<p>Conduit connection: ½"NPT or M20</p> <p>Wiring: 36" (0.9 meter) length, 18 gauge multi-strand (HK) 72" (1.8 meters) length, 18 gauge multi-strand in a single jacket; ITC and PLTC rated (HX)</p> <p>Sensing distance: 4 – 6 mm (sensing distance will vary depending on target material); extended range available</p> <p>Temperature range: -40 to 80 °C (-40 to 176 °F); consult factory for ultra-cold temperature</p>	<p>Sourcing sensor (50) Configuration: (1) PNP (Sourcing) sensor Operation: Normally open (solid state) Maximum current: 200 mA Minimum on current: 2.0 mA Maximum leakage current: Negligible Voltage range: 6 to 28 VDC Maximum voltage drop: 0.65 VDC</p>
Ratings	Switching and sensor specifications (HX)
<p>Nonincendive (Class I and II, Div. 2) Functions 30 and 31</p> <p>Intrinsically safe (Ex ia, Zone 0 or Class I and II, Div. 1) Functions 40 and 45</p> <p>Explosionproof (Ex d, Zone 1 or Class I and II, Div. 1) Functions 35 and 45</p> <p>Enclosure protection NEMA 4, 4X and 6 All models</p> <p>Ingress Protection 67 HK models</p> <p>Ingress Protection 66/68 HX models</p>	<p>SST switching sensors (35) Configuration: (1) SST magnetic solid state sensor Operation: Normally open (NO) Maximum current inrush: 1.0 amp Maximum current continuous: 0.1 amp Maximum leakage current: 0.15 mA (VDC), 0.25 mA (VAC) Voltage range: 8 to 250 VDC, 20 to 250 VAC Maximum voltage drop: 6.5 volts @ 10 mA, 7.2 volts @ 100 mA</p> <p>NAMUR sensors (45) Configuration: (1) NAMUR sensor (EN 60947-5-6; I.S.) Operation: Normally closed NAMUR sensor (solid state) Voltage range: 5 to 29 VDC Current ratings: Target on I < 1 mA, Target off I > 3 mA</p>




Solenoid valves

Spool type solenoid valves							
Product	Design	Model	Orifice	Flow factor (kv)	Port	Specifications	Bulletin
Neles Easyflow 3/2 way spool type solenoid valve 	Single coil, spring return direction control valve	DSQ113	3 mm	4 L / min	1/8"	Operating pressure: 2 – 10 bar Temperature: -20 to +80 °C	S150-7
		DSQ213	4.5 mm	7 L / min	1/4"		
Neles Easyflow 3/2 way spool type solenoid valve 	Double coil, direction control valve	DSQ114	3 mm	4 L / min	1/8"	Operating pressure: 2 – 10 bar Temperature: -20 to +80 °C	
		DSQ214	4.5 mm	7 L / min	1/4"		
Neles Easyflow 5/2 way spool type solenoid valve 	Single coil, spring return direction control valve	VSQ113	3 mm	4 L / min	1/8"	Operating pressure: 2 – 10 bar Temperature: -20 to +80 °C	
		VSQ213	4.5 mm	7 L / min	1/4"		
Neles Easyflow 5/2 way spool type solenoid valve 	Double coil, direction control valve	VSQ114	3 mm	4 L / min	1/8"	Operating pressure: 2 – 10 bar Temperature: -20 to +80 °C	
		VSQ214	4.5 mm	7 L / min	1/4"		

High capacity solenoid valves

High capacity solenoid valves							
Product	Design	Model	Orifice	Flow factor (kv)	Port	Specifications	Bulletin
Neles Easyflow 3/2 way solenoid valves 	Spool design, single coil, spring & air return direction control valve	DAQ213	6.7 mm	15 L / min	¼"	Operating pressure: 3 – 10 bar Temperature: -20 to +80 °C	S150-1
		DAQ313	10 mm	38 L / min	⅜"		
		DAQ413	10 mm	38 L / min	½"		
Neles Easyflow 3/2 way solenoid valves 	Spool design, double coil, direction control valve	DAQ214	6.7 mm	15 L / min	¼"	Operating pressure: 3 – 10 bar Temperature: -20 to +80 °C	
		DAQ314	10 mm	38 L / min	⅜"		
		DAQ414	10 mm	38 L / min	½"		
Neles Easyflow 5/2 way solenoid valves 	Spool design, double coil, direction control valve	VAQ213	6.7 mm	15 L / min	¼"	Operating pressure: 3 – 10 bar Temperature: -20 to +80 °C	
		VAQ313	10 mm	38 L / min	⅜"		
		VAQ413	10 mm	38 L / min	½"		
Neles Easyflow 5/2 way solenoid valves 	Spool design, single coil, spring & air return direction control valve	VAQ214	6.7 mm	15 L / min	¼"	Operating pressure: 3 – 10 bar Temperature: -20 to +80 °C	
		VAQ314	10 mm	38 L / min	⅜"		
		VAQ414	10 mm	38 L / min	½"		

Namur solenoid valves

Namur solenoid valves				
Product	Design	Model	Specifications	Bulletin
Neles Easyflow 5/2 and 3/2 way Namur solenoid valve 	Convertible, single coil spring return direction control valve	VAQNC-213	Port: ¼" Operating pressure: 0 – 10 bar Temperature: -20 to +80 °C	S150-5
	Convertible, double coil direction control valve	VAQNC-214		
Neles Easyflow 5/2 and 3/2 way Namur solenoid valve	Convertible, single coil spring return direction control valve with flow control	VAQNCFC-213	Port: ¼" Operating pressure: 0 – 10 bar Temperature: -20 to +80 °C	S150-8
	Convertible, double coil direction control valve with flow control	VAQNCFC-214		

Air operated spool valves

Air operated spool valves							
Product	Design	Model	Orifice	Flow factor (kv)	Port	Specifications	Bulletin
Neles Easyflow 3/2 way spool valve 	Spool design, single external pilot operated spring return valve	DAQ210	6.7 mm	15 L / min	¼"	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	S150-2
		DAQ310	10 mm	38 L / min	⅜"		
		DAQ410	10 mm	38 L / min	½"		
		DAQ610	16 mm	75 L / min	¾"		
		DAQ810	20 mm	110 L / min	1"		
Neles Easyflow 3/2 way spool valve 	Spool design, dual external pilot operated valve	DAQ211	6.7 mm	15 L / min	¼"	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	
		DAQ311	10 mm	38 L / min	⅜"		
		DAQ414	10 mm	38 L / min	½"		
		DAQ611	16 mm	75 L / min	¾"		
		DAQ811	20 mm	110 L / min	1"		
Neles Easyflow 5/2 way spool valve 	Spool design, single external pilot operated spring return valve	VAQ210	6.7 mm	15 L / min	¼"	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	
		VAQ310	10 mm	38 L / min	⅜"		
		VAQ410	10 mm	38 L / min	½"		
		VAQ610	16 mm	75 L / min	¾"		
		VAQ810	20 mm	110 L / min	1"		
Neles Easyflow 5/2 way spool valve 	Spool design, dual external pilot operated valve	VAQ211	6.7 mm	15 L / min	¼"	Operating pressure: 2 – 10 bar Temperature: -20 to +80 °C	
		VAQ311	10 mm	38 L / min	⅜"		
		VAQ411	10 mm	38 L / min	½"		
		VAQ611	16 mm	75 L / min	¾"		
		VAQ811	20 mm	110 L / min	1"		



Hand operated valves

Hand operated valves						
Product	Design	Model	Orifice	Flow factor (kv)	Specifications	Bulletin
Neles Easyflow 3/2 way hand operated spool valve 	Spool design, hand operated direction control valve, manual return	DAQ204	6.7 mm	15 L / min	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	S150-6
		DAQ404	10 mm	38 L / min		
Neles Easyflow 3/2 way hand operated spool valve 	Spool design, hand operated direction control valve, spring return	DAQ205	6.7 mm	15 L / min	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	
		DAQ405	10 mm	38 L / min		
Neles Easyflow 5/2 way hand operated spool valve 	Spool design, hand operated direction control valve, manual return	VAQ204	6.7 mm	15 L / min	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	
		VAQ404	10 mm	38 L / min		
Neles Easyflow 5/2 way hand operated spool valve 	Spool design, hand operated direction control valve, spring return	VAQ205	6.7 mm	15 L / min	Operating pressure: 0 – 10 bar Temperature: -10 to +70 °C	
		VAQ405	10 mm	38 L / min		

Pneumatic lock relays

Pneumatic lock relays				
Product	Design	Model	Specifications	Bulletin
Neles Easyflow 3/2 way spool valve 	Spool design air lock relay with manual override	ALRQ-3-2	Operating pressure: 0 – 10 bar Pilot pressure: 3 – 10 bar Temperature: -10 to +70 °C	S150-3
		ALRQ-3-4		
Neles Easyflow 5/2 way spool valve 	Spool design air lock relay with manual override	ALRQ-5-2	Operating pressure: 0 – 10 bar Pilot pressure: 3 – 10 bar Temperature: -10 to +70 °C	
		ALRQ-5-4		

Pneumatic pressure switches

Pneumatic pressure switches				
Product	Design	Model	Specifications	Bulletin
Neles Easyflow 3/2 way pressure switch 	Spool design sensitive air lock relay	SENALRQ-3-2	Operating pressure: 0 – 10 bar Pilot pressure: 2 – 10 bar Temperature: -10 to +70 °C	S150-4
		SENALRQ-3-4		
Neles Easyflow 5/2 way pressure switch 	Spool design air lock relay with manual override	SENALRQ-5-2	Operating pressure: 0 – 10 bar Pilot pressure: 2 – 10 bar Tempature: -10 to +70 °C	
		SENALRQ-5-4		

Extreme ruggedness for extreme conditions

Smooth-operating, automated process valves play an important role on offshore platforms. Process valves are often difficult to access and the on-site delivery of spare parts is more challenging than when operating onshore.

Traditionally, process valves on offshore platforms have been controlled by either solenoid valves or by positioners, depending on the application and on local decisions and procedures. The offshore environment also creates its own demands on the enclosures of these devices.

Nowadays, intelligent valve controllers are also available with stainless steel enclosures. Our stainless steel valve controller offering includes Neles ND9300 intelligent valve controllers for control valves, Neles SwitchGuard intelligent on-off valve controllers for demanding on-off applications, Stonel Axiom on-off valve controllers for standard on-off applications and Neles ValvGuard intelligent safety solenoids and partial stroke testing devices for safety valves.

This way the whole network of automated valves on platforms can be controlled by intelligent valve controllers, thereby creating many new opportunities – for example, in the field of condition monitoring and predictive diagnostics. By means of intelligent valve controllers and predictive diagnostics, condition monitoring and maintenance planning can also be performed remotely from an onshore location.

Offshore valve control offering

Control applications

- Neles ND9300 and ND9400

ESD applications

- Neles ValvGuard VG9300

On/off applications

- Stonel Axiom
- Stonel Quartz
- Neles Easyflow K-series
- Neles Easyflow RNP stainless steel version

Critical on/off applications

- Neles SwitchGuard SG9300

Configuration and diagnostics

- FDT and EDD capable for multi-vendor support of remote configuration and diagnostics access

Our offshore valve control offering

Neles ND9300 and ND9400



Neles ND9300 and ND9400, with its stainless steel construction for corrosive environments, are ideal solutions for when top class performance, comprehensive diagnostics and resistance to tough environmental conditions are required. ND9300 and ND9400 operate on every valve, on all field buses and integrates smoothly into all major control systems. It enables financial savings during all life cycle phases of the valve from engineering and commissioning to operations and maintenance.

Neles ValvGuard VG9300



Neles ValvGuard VG9300 is our stainless steel version of the new safety solenoids and partial stroke test device for emergency shutdown and venting valves, completing our successful range of valve controllers. VG9300 is available both for HART and FOUNDATION Fieldbus environments. It is simple to install and use, and is suitable for use with single- and double-acting actuators and rotary and linear valves. It offers extensive safety valve testing capabilities as well as optional internal limit switches.

Neles SwitchGuard SG9300



Neles SwitchGuard SG9300 is the stainless steel version of our innovative intelligent on-off valve controller. Its unique diagnostics features enable remote condition monitoring and predictive maintenance also with on-off valves. It too is simple to install and use and is suitable for use with single- and double-acting actuators and rotary and linear valves. Its highlights include exact valve opening and closing times and speed control with the possibility to set valve stroke profiles. The high pneumatics capacity eliminates the need for additional pneumatic accessories. The product is available with optional internal limit switches.

Stonel Axiom



The stainless steel version of the explosion proof Axiom AX is an optimum solution for standard on-off applications. It is a discrete on-off valve controller that combines a solenoid valve and proximity switches into one integrated package. The advanced position sensing system of Axiom offers reliable long-life performance with convenient push-button settings. The internal pneumatic valve has high tolerance to dirty air and it enables perfect operation in demanding off-shore environment.



Superior offshore performance

Process upsets eliminated

- Detecting performance degrading with online diagnostics before it affects the process
- Enhanced field device availability due to predictive maintenance and reliable product design

Low life cycle costs

- Predictive tooling enables the shutdown work list to be planned in advance
- Unnecessary maintenance work is eliminated
- Longer maintenance cycle due to enhanced product reliability

Simple to install

- The same units can be used for all actuators – small and large, single- and double acting, and for both rotary and linear valves
- Mounting kit designs are available for all our actuators and over 800 3rd party actuators

Optimum process performance

- Automatic tuning of control performance with ND9300
- Advanced control algorithm of ND9300 maintains valve performance in changing conditions



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

Valmet Flow Control Oy

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Critical control performance

Control valve solutions
for oil & gas





The right control valve makes all the difference

Control valves are critical to the overall performance of many oil and gas processes. Ensuring stability and long-lasting process uptime make for safe, reliable and profitable operations.

Control valves are the most important part of any process control loop. They are central to the overall performance of your process – especially when reliability and productivity are your primary goals.

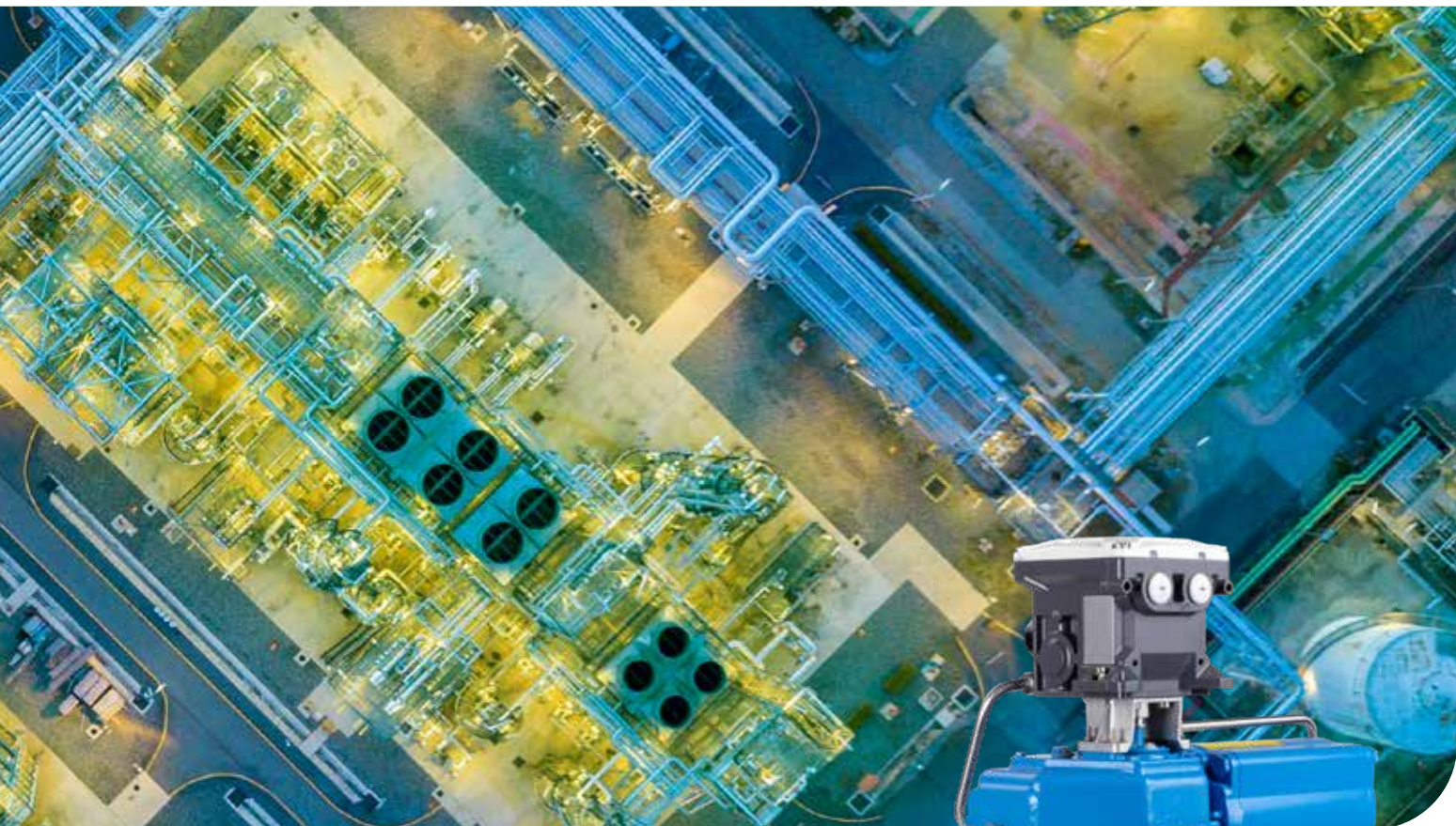
Finding the best control valve solution for your process is not always easy. Some of the key factors to consider include process and fluid dynamics, metallurgy, sealing technology, noise and emissions control and diagnostics. Also, compliance with relevant regulations, standards and certifications.

Ultimately, the right control valve for you is engineered,



manufactured, tested and optimized for your specific application. We offer a full range of

control valve solutions and services that ensure trouble-free operations and peace of mind.



The reliable control valve partner

To complement our high-quality Neles™ and Jamesbury™ valve products, we offer our support and services across all the phases of the product life cycle.

Responsible supplier

As a responsible supplier, we are committed to delivering on our promises and ensuring the best possible performance of our products as a part of your process.

Proven performance

We pride ourselves as being your reliable partner with proven technologies and services based on industry understanding and experience.

We want to see your process improve continuously, ensuring quality, driving down costs and gaining the best possible return on your investment in Valmet valve solutions.

Our comprehensive approach helps ensure your success:

1. We understand your unique application requirements

- Specifications
- Timing and delivery
- Cost parameters

2. We help specify the best solution for your application

- Product sizing and selection tools
- Field-proven products and accessories
- Proactive service programs

3. We implement to the highest standards

- Sophisticated manufacturing and quality control
- Testing
- Installation and start-up
- Warranty

4. We support your maintenance strategy

- Local repair services and technical assistance
- Diagnostics and predictive maintenance



Expert services and support

We offer flow control expert service to our customers around the world through our network of more than 40 service centers and 400 field service experts.

Proactive approach

Our highly skilled technicians are there to ensure you get the support you need, when you need it. Each year we service more than 20,000 valves and conduct in excess of 3,000 site visits to ensure smooth processes and maximized uptime for our customers.

The right tools

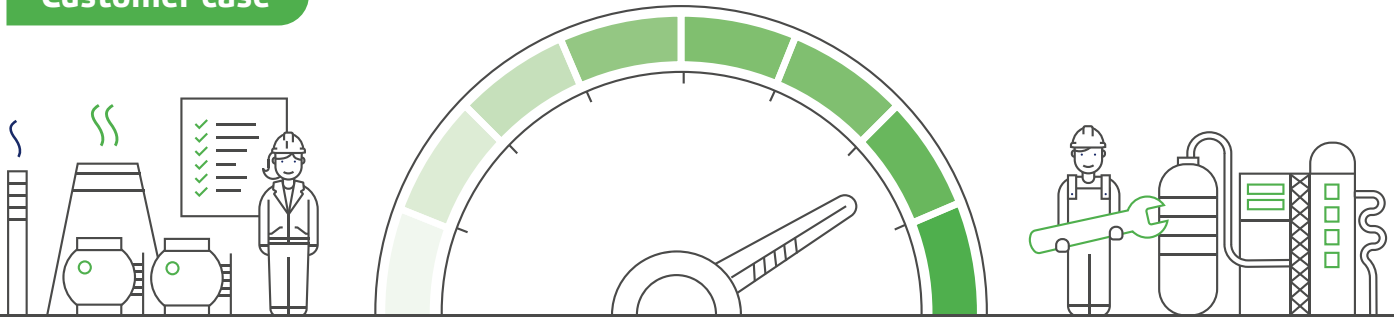
Our service commitment reaches well beyond valve installation. We take a proactive approach to service, continuously supporting your business and process performance. Our comprehensive service offering combined with the latest in digital tools and advanced automation forms a solid platform for continuous process optimisation and predictive maintenance.



Predictive maintenance pays for itself many times over

Planning and executing predictive maintenance based on accurate installed base data helps dial up the cost-efficiency of service operations in many ways.

Customer case



Monitoring of control loops and field devices delivers substantial savings for a European refinery

Year one: Installation and actionable findings

Commissioning and startup

We sent an expert on site to install the servers and software that collect control loop and field device data. The expert and the customer also jointly reviewed the criticality of each device with regards to process, safety and environment and agreed on standard operating procedures to inform of poorly behaving and underperforming loops or devices then optimally act on findings. Finally, we trained key users to ensure smooth implementation and mutual commitment to the long-term success of the project.

Savings and KPIs

We delivered substantial savings early on by addressing underperforming processes and devices predictively. Results, financial benefits and opportunities for improvements were carefully tracked and reviewed in follow-up meetings.

Year two: Targeted maintenance and measurable results

Predictive maintenance

In a year's time the operative model was well understood by both teams and had become an integral part of operation and maintenance. This transformative approach to condition and performance monitoring allowed the customer to fully implement a predictive maintenance strategy for valves and other critical equipment.

More savings


Continuous finetuning of the model and targeted improvements further contributed to us exceeding KPIs and delivering demonstratable savings year after year.

Valmet control valves offering for oil & gas


Globe control valves

Neles globe control valves					
Product	Series	Design	Specifications	Service	Bulletin
Neles top-guided globe valves 	GU-series	Globe unbalanced, single seated, top-guided, flanged, butt & socket welded Options: Low noise and anti-cavitation Tendril™ trim	Size: DN15 – 150 (½" – 6") Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ VI	General, severe, high pressure, cryogenic and high temperature, low emissions, fire safe, SIL	4GV21
Neles cage-guided globe valves 	GB-series	Globe balanced, single seated, cage-guided, flanged, butt & socket welded Options: Low noise and anti-cavitation Tendril™ trims	Size: DN50 – 600 (2" – 24") Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ V	General, severe, high pressure, cryogenic and high temperature, low emissions, fire safe, SIL	4GV23
Neles™ Omega globe valves 	GM-series	Globe Omega, multi-stage, single seated, top- & cage-guided, flanged, butt & socket welded	Size: DN25 – 600 (1" – 24") Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ VI	Severe, high pressure and high temperature, low emissions, fire safe, SIL	4GV20
Neles angle pattern valves 	AU, AB & AM-series	Angle body, single seated, top- & cage-guided, flanged, butt & socket welded Options: Low noise and anti-cavitation trim Tendril™ trim Omega™ trim	Size: DN15 – 1200 (½" – 48") Pressure: ASME 150 – 2500 / PN10 – 320 Temperature: -200 to +593 °C / -320 to +1053 °F Body: WCB, CF8M Tightness: ANSI Class IV ~ VI	General, severe, erosive, high pressure, cryogenic and high temperature, low emissions, fire safe, SIL	4GV23
Neles 3-way globe valves 	GW-series	Globe 3-way, diverting / mixing double seated, flanged, butt & socket welded	Size: DN25 – 250 (1" – 10") Pressure: ASME 150 – 600 / PN10 – 100 Temperature: -29 to +425 °C / -20 to +797 °F Body: WCB, CF8M Tightness: ANSI Class II ~ IV	Diverting, mixing	4GV24


RotaryGlobe valves

Neles™ RotaryGlobe™						
Product	Series	Design	Specifications		Service	Bulletin
Neles RotaryGlobe 	ZX-series	Flanged, rotary globe control valve Options: Balanced anti-cavitation and low noise, different Cv and LIN /EQ% trims	Size: Pressure: Temperature: Body: Tightness:	DN15 – 100 (½" – 4") ASME 150 – 1500 / PN10 – 100 -80 to +425 °C / -110 to +797 °F CF8M, WCC Class III ~ IV	General, severe, fire safe, low emission	1RG20

Segment valves

Neles segment valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles V-port segment valves 	RA & RE-series	Wafer, flanged Options: Reduced Cv trim, low noise and anti-cavitation Q-Trim™	Size: Pressure: Temperature: Body: Tightness:	DN25 – 800 (1" – 32") ASME 150 – 600 / PN10 – 100 -52 to + 425 °C / -60 to +797 °F CF8M, WCB, CG8M, Titanium, Hastelloy C, SMO Class IV ~ VI 10xISO Rate D, Rate D	General, demanding, erosive, severe, fire safe, low emission	3R21 3R24




Plug valves

Neles plug valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles™ Finetrol™ eccentric plug valves 	FC, FG & FL-series	Flanged, eccentric rotary plug valve Options: Reduced Cv trim, low noise and anti-cavitation Q-Trim, cryogenic, globe valve face-to-face	Size: Pressure: Temperature: Body: Tightness:	DN25 – 300 (1" – 12") ASME 150 – 600 / PN10 – 100 -200 to +450 °C / -320 to +842 °F CF8M, WCC Class IV ~ VI	General, severe, SIL, fire safe, low emission	5FT20 5FT22

Ball valves

Neles ball valves							
Product	Series	Design	Specifications		Service	Bulletin	
Neles X-series modular ball valves 	XA, XB, XC, XU & XT -series Seat supported	Full or reduced port, metal and soft seats Options: Steam jacket, cryogenic and high temperature, catalyst handling, coal gasification, polymer service, oxygen service, Q-Trim, Q2-Trim™	Size:	DN25 - 600 (1" – 24") For larger sizes, see bulletin	General, demanding, SIL, fire safe, low emission	1X22 1X23 1X26 1X27 1XH20	
	XG, XM & XH -series Trunnion mounted		Pressure:	ASME 150 – 900 / PN 10 -160 Temperature:			-200 to +600 °C / -320 to +1110 °F Body:
Neles top entry rotary valves 	T5-series	Reduced or full port, flanged, weld-ends Options: Cryogenic, high temperature	Size:	DN25 – 400 (1" – 16")	High MTBF, SIL 3 certified	1T520	
			Pressure:	ASME 150 – 600 / PN10 – 40 Temperature:			-200 to +600 °C / -320 to +1110 °F Body:
Neles D-series ball valves 	D2C, D2D & D1F -series	Full or reduced port, stemball construction Options: Cryogenic, high temperature	Size:	D1F: DN50 – 700 (2" – 28") D2: DN700 – 900 (28" – 36")	High MTBF, SIL 3 certified	1D21	
			Pressure:	ASME 150 – 600 / PN10 – 100 Temperature:			-200 to +600 °C / -320 to +1110 °F Body:
Neles E-series ceramic valves 	E2 & E6 -series	Reduced port, wafer, lugged Options: Different Cv-trims	Size:	DN25 – 200 (1" – 8")	Erosive applications	1E220	
			Pressure:	ASME 150 – 300 / PN10 – 40 Temperature:			-40 to +425 °C / -40 to +800 °F Body:

Ball valves

Jamesbury ball valves						
Product	Series	Design	Specifications		Service	Bulletin
Jamesbury standard port flanged ball valves 	7000-series	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Size: DN15 – 500 (½" – 20") Pressure: ASME 150 & 300 Temperature: Up to +260 °C / +500 °F Materials: Carbon steel, 316SS, Alloy 20, Monel, Hastelloy C		Applications up to 260 °C / 500 °F, high performance Xtreme™ seat materials, low emission stem seals	B107-1 B107-3
Jamesbury full port flanged ball valves 	9000-series	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Size: DN15 – 600 (½" – 24") Pressure: ASME 150 & 300 Temperature: Up to +260 °C / +500 °F Materials: Carbon steel, 316SS, Alloy 20, Monel, Hastelloy C		Applications up to 260 °C / 500 °F, high performance Xtreme seat materials, low emission stem seals	B107-1 B107-3
Jamesbury safety shut-off valves 	4000-series	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Size: Standard port: DN15 – 65 (½" – 2½") Full port: DN15 – 50 (½" – 2") Pressure: ASME 600 or CWP to 2500 psi (172 bar) Temperature: Up to +260 °C / +500 °F Body: Carbon steel, 316SS Ball/stem: Carbon steel, 316SS, Monel, Hastelloy C		Applications up to 260 °C / 500 °F, high performance, Xtreme seat materials, low emission stem seals	B105-1

Butterfly valves

Neles butterfly valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles high performance triple eccentric disc valves 	L12, L6, LW & LG, L1 & L2-series	Wafer, lugged, double flanged Options: High tightness, erosion resistant version, cryogenic and high temperature, high cycling	Size: Pressure: Temperature: Body: Tightness:	DN80 – 2200 (3" – 88") ASME 150 – 600 / PN10 – 100 -200 to +650 °C / -320 to +1200 °F CF8M, WCB, CG8M, LCC, 5A Up to ISO Rate A, API 598 & Class VI	General, Moderate SIL, fire safe, low emission	2L121 2L1220 2LW20 2L621
Neles™ butterfly valves 	BWX-series	Wafer, lugged, double flanged	Size: Pressure: Temperature: Body:	NPS 4 – 24 / DN100 – 600 ASME 600 / PN63 -29 to +470 °C / -20 to +880 °F Stainless steel, special material	Cryogenic LNG applications, high temperature, nitrogen, helium and hydrogen	2BW20
Jamesbury butterfly valves						
Product	Series	Design	Specifications		Service	Bulletin
Jamesbury high performance butterfly valve 	800-series	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Size: Pressure: Temperature: Body/trim: Seat:	Wafer: DN65 – 750 (2½" – 30") Lugged: DN65 – 1500 (2½" – 60") ASME 150 & 300 Up to +260 °C / +500 °F Carbon steel, 316SS, Alloy 20, 254SMO®, Monel, Hastelloy C Teflon®, Xtreme, UHMV, 316SS/PTFE, 316SS/XT	Economical performance for control and shut-off service in all soft seated applications	W101-6 W104-1 W105-1 W130-1

Valve controls

Intelligent valve controllers					
Product	Series	Design	Specifications		Bulletin
Neles™ NDX™ intelligent valve controllers 	NDX1510-series	Compact	Power:	Taken from the 4 to 20 mA, control signal	7NDX21 CB058
	NDX1511 / NDX2511-series	Standard	Pressure:	1.4 – 8.0 bar / 20 – 115 psi	
	NDX1512 / NDX2512-series	Explosion proof	Temperature:	-40 to +85 °C / -40 to +185 °F	
			Communications:	HART	
Neles™ ND9000™ intelligent valve controllers 	ND9100-series	Standard	Power:	Taken from the 4 to 20 mA, control signal or fieldbus powered	7ND9021 CB058
	ND9200-series	Explosion proof	Pressure:	1.4 – 8 bar / 20 – 115 psi	
	ND9300-series	Stainless steel enclosure intrinsically safe and explosion proof	Temperature:	-53 to +85 °C / -63 to +185 °F	
	ND9400-series	Stainless steel intrinsically safe	Communications:	HART, Profibus PA, Foundation Fieldbus	
Analog positioners					
Product	Series	Design	Specifications		Bulletin
Neles pneumatic positioners 	NP700-series	Pneumatic positioner	Input:	0.2 – 1 bar, 20 – 200 kPa, 3 – 15 psi	7NENP20
			Split:	0.2 – 0.6 bar, 0.6 – 1 bar, 3 – 9 psig, 9 – 15 psig	
			Temperature:	-40 to +120 °C / -40 to +250 °F	
Neles electro-pneumatic positioners 	NE700-series	Electropneumatic positioner	Input:	4 – 20 mA, 0 – 20 mA	7NENP20
			Split:	4 – 12 mA, 12 – 20 mA	
			Temperature:	-25 to +120 °C / -15 to +248 °F	



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

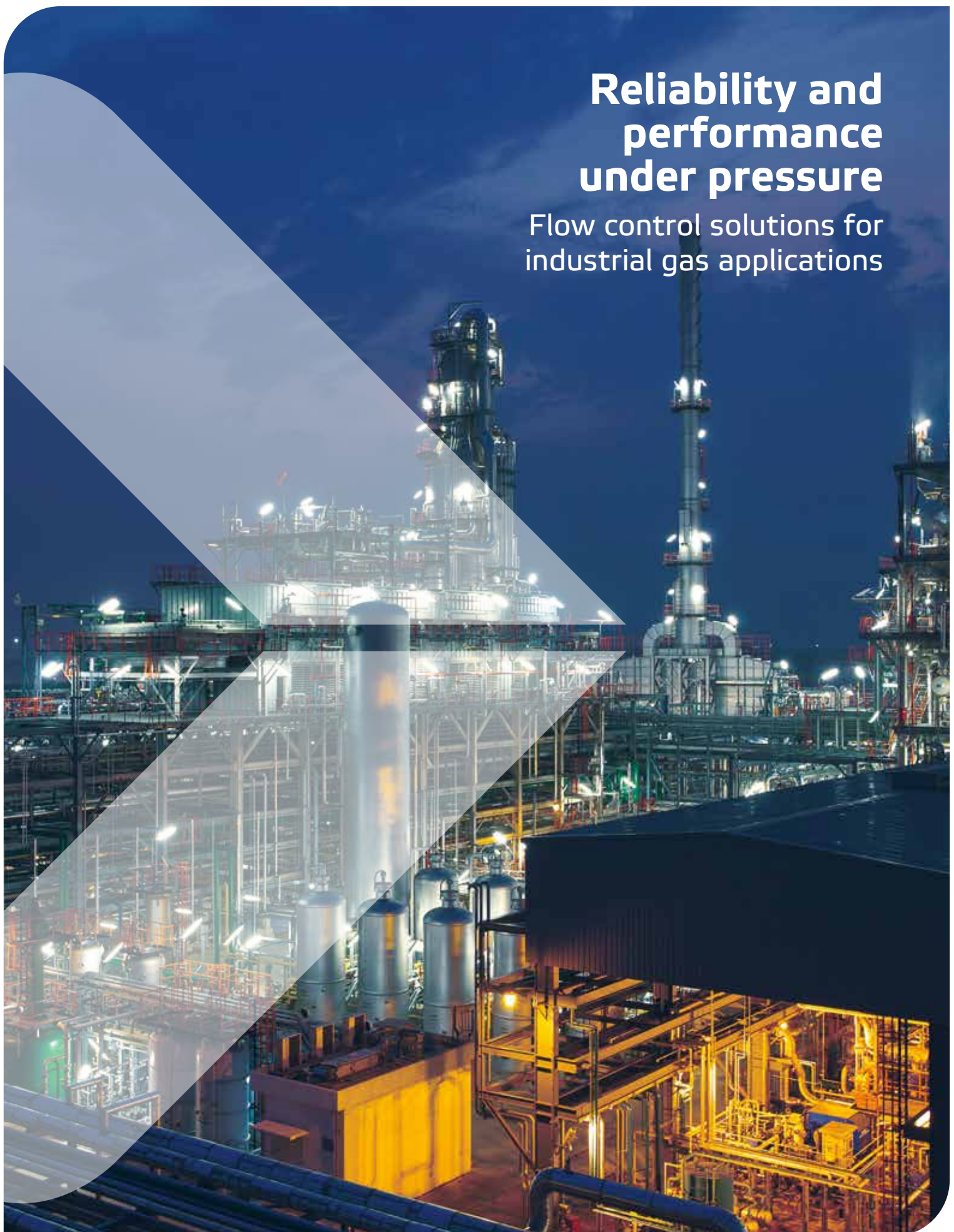
Valmet Flow Control Oy

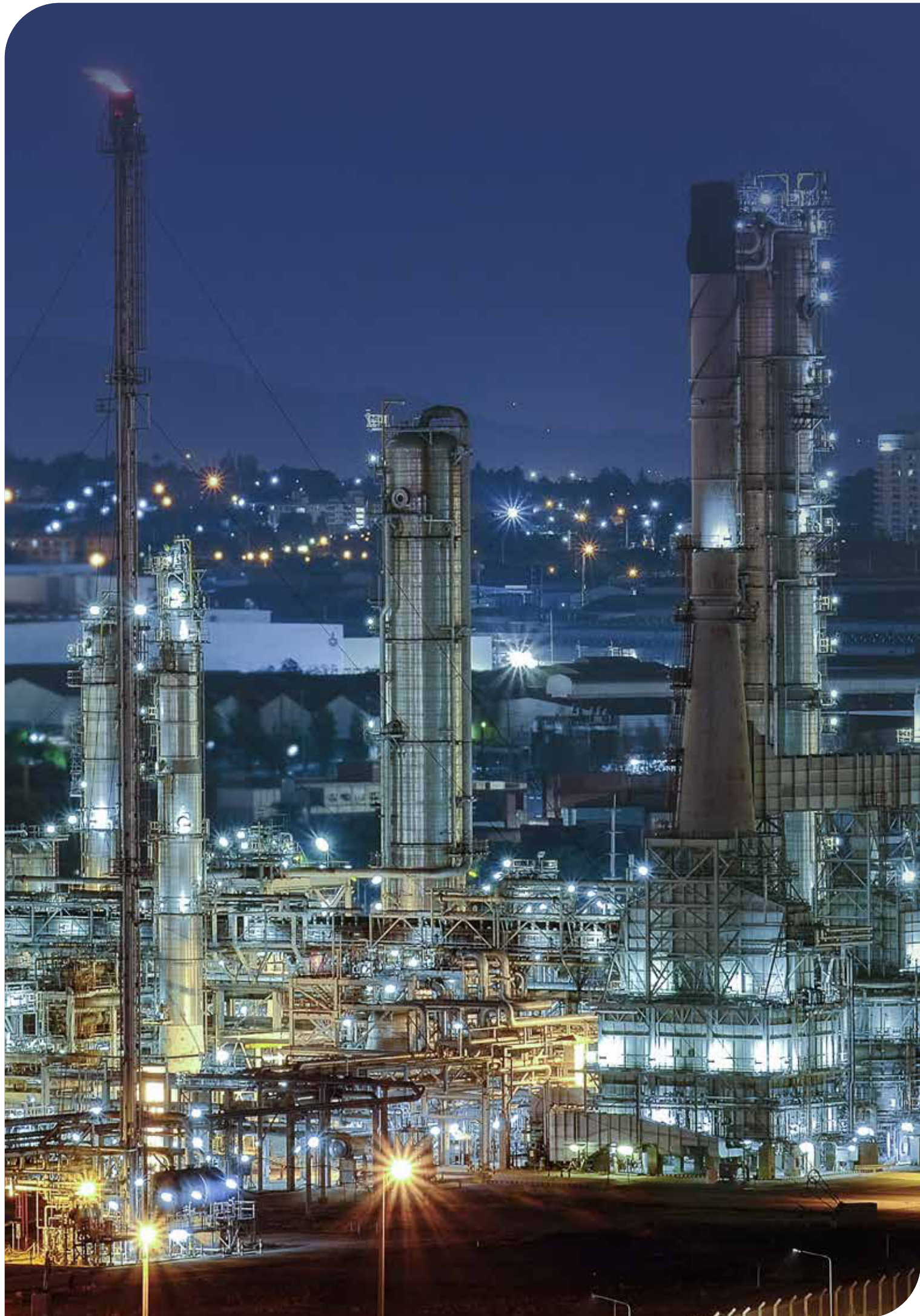
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Reliability and performance under pressure

Flow control solutions for
industrial gas applications





Your partner in industrial gas

We are an industry leader with decades of experience in delivering valves to a wide range of industrial gas applications around the world. We regularly partner with major players in industrial gas. We are committed to providing our customers with a valve portfolio that meets their evolving needs.

Reliable performance

We provide reliable, high-performance industrial gas flow control solutions. Since the 1970s, we have provided valves and accessories that meet the industry's most difficult process challenges across the entire range of industrial gas processes; cryogenic, adsorption, and other technologies.

Our complete range of control, automated on/off and switching valves, and accessories answer the needs for accurate control, tight shut-off, high reliability, and low maintenance.

In-depth understanding

We understand and address the most common methods and separations technologies used in the production of industrial gases. This includes air separation and temperature, pressure and vacuum swing absorption. We also understand the risks involved with unstable compounds such as oxygen and hydrogen, which our products are designed to handle.

Since industrial gases are an important part of the successful production of many industrial products, the most critical challenge regarding the process operation is reliability. An interrupted gas supply will stop production and lead to a plant shutdown or disturb the bulk gas deliveries. This means ensuring maximized uptime and continuous, uninterrupted gas supply.

Global single source responsibility

Operational reliability combined with single source responsibility means that our customers can rest assured that their valves will serve well for many years under the severe conditions of industrial gas applications.

Thanks to our network of global service centers, valves can also be completely rebuilt and brought back into use in as-good-as-new condition. Our service personnel are trained to maintain, diagnose and troubleshoot industrial gas valves and installations.





Air separation processes

Our portfolio is suited for the entire industrial gas range with valves for different process conditions from utilities, general service and specific cryogenic and oxygen applications to extremely demanding high cycling applications.

Demanding conditions

Extreme operational and environmental requirements such as very low temperatures and an oxygen-enriched atmosphere, which require correct material selection and control of fugitive emissions, are the major challenges. Valve designs have to provide long-lasting safe tight shutoff operations to avoid health hazards and production interruptions.

Cryogenic knowhow

Our products and experience cover the entire Air Separation Unit

(ASU) process from the compressor and purification through the cold box to tank loading and distribution. Our industry-leading metal and soft seating technology is ideally fitted for specific cold box requirements – the core of the air separation process. The proven high reliability and a long lifecycle make Neles the world leader in cryogenic valves.

Advanced valve testing

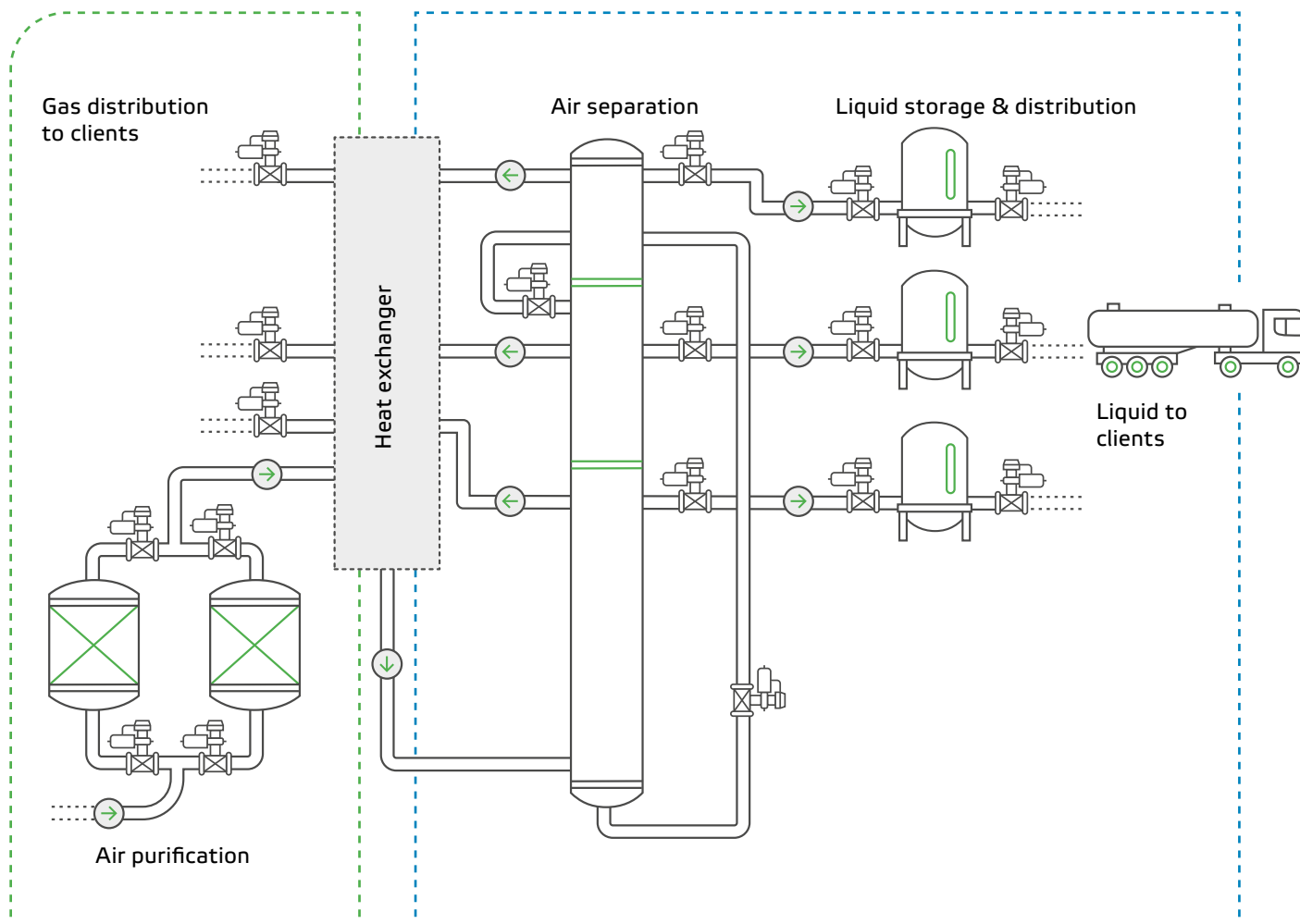
For the valves in the cold area, our cryogenic testing facilities allow a thorough evaluation of the valve.

The performance can be verified accurately in extreme conditions fulfilling the needs of international and customized standards. Our cryogenic testing laboratories located in Finland, Germany and the USA are the largest and most advanced of any dedicated valve test facility in the world. The computer-controlled testing system assures cryogenic valve performance during commissioning and subsequent operation.

Air separation unit diagram

Warm area

Cryogenic area

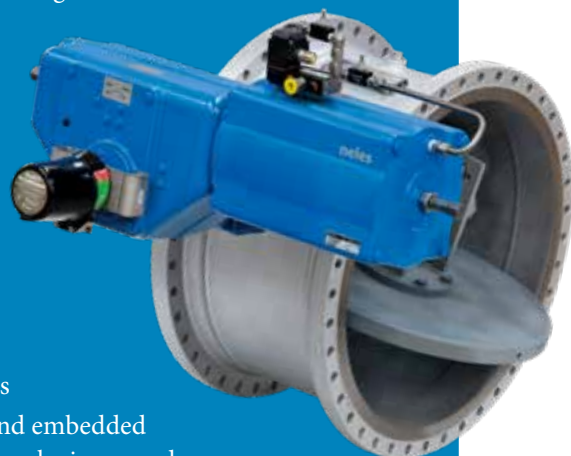


Air purification:

- Challenges include cycling valves, humidity, molecular sieve protection, temperature swings (ambient to 300°C)
- Specifically designed 3-lever valves that only allow opening at low delta pressure (dP) to ensure the protection of the molecular sieve adsorbers

Air separation and liquid storage & distribution:

- Cryogenic valves with extended shaft design and possibility for horizontal shaft mounting installation
- Valves allowing maintenance of internals on welded valves of the cold box
- Valve design providing long-lasting safe tight shutoff and excellent controllability in operation avoiding hazards and production interruptions
- Our portfolio is suited for use in cryogenic environments and complies with oxygen requirements
- With our unique smart products and embedded diagnostics capabilities reliability can be improved even further. They allow us to monitor valve condition.





Swing adsorption processes

Swing adsorption processes are used to separate or purify gases to produce industrial applicable products.



Optimizing performance

Gas flow interruptions that cause high consequential costs call for operational safety and reliable continuous supply. Therefore the speed and ease of service as well as the predictions of problems are of extreme importance.

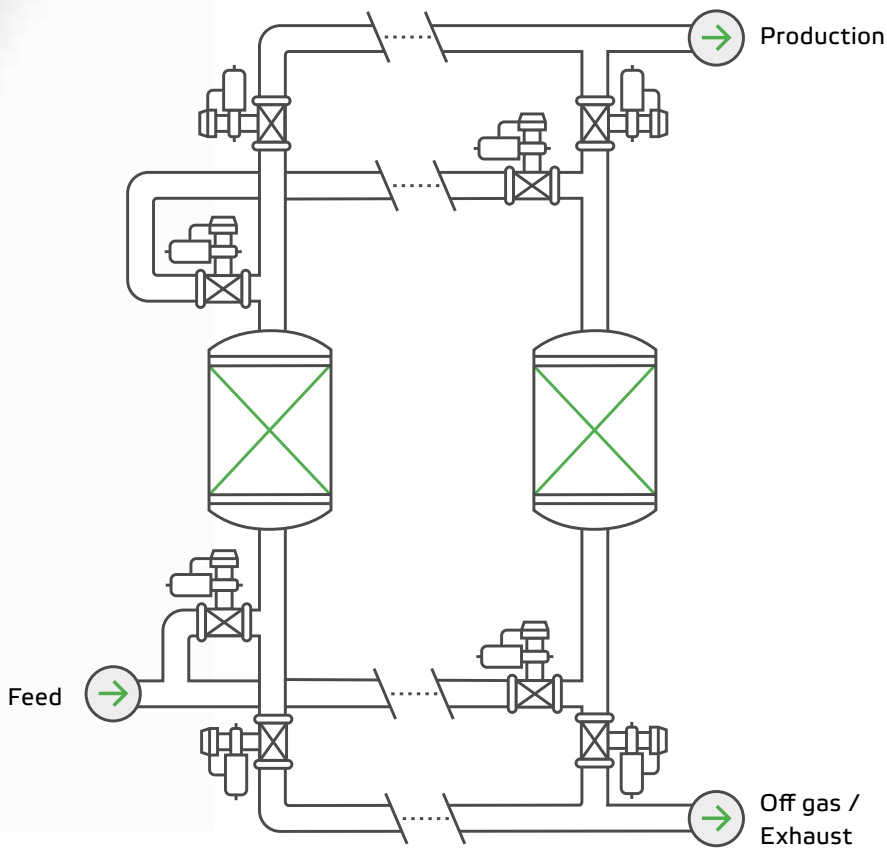
Switching between adsorption and desorption is a very challenging application for valves with a 2-4 cycles per minute and on/off cycle time of less than 1 second for millions of cycles during operational lifetime.

Developing together

In order to meet the expectations of one of the most demanding valve applications, Neles has been working together with industrial gas customers for many years. The result of this cooperation is a unique offering of high-cycle butterfly valves. The valves perform millions of cycles with reliable tight shutoff.

With our unique smart products and embedded diagnostic capabilities, reliability can be even further improved. Online diagnostics enable the implementation of a predictive maintenance strategy.

Swing adsorption process diagram



Pressure Swing Adsorption (PSA) :

- Fast stroking
- Reliable tight shutoff
- High differential pressure
- Hundreds thousands of cycles per year

Vacuum (Pressure) Swing Adsorption (VSA/VP SA):

- Fast stroking
- Large valve diameter
- Reliable tight shutoff
- Million of cycles per year

High-performance portfolio

We offer a unique portfolio of high-cycling butterfly valves from the Neles™ and Jamesbury™ brands. Our valve assemblies have been developed to perform millions of cycles with reliable tight shutoff.

With our unique smart products and embedded diagnostics capabilities reliability can be improved even further. They allow us to monitor valve condition.

Our valves are installed in major PSA and VSA plants all around

the world. Our valves, actuators and controllers are specifically designed for high cycling swing adsorption plants, featuring fast stroking times, repeatability of operations and high cycle capability combined with long-lasting tightness.





Green hydrogen production



Green hydrogen refers to H_2 and O_2 produced from water utilizing renewable energy by the process of electrolysis. Ammonia synthesis is used to produce ammonia from N and H.

Electrolysis

Our valves deliver superior performance in low-pressure electrolyzers as well as in those that are subject to high temperatures reaching up to $700^{\circ}C$. New electrolysis technologies are also creating the need for valves that can ensure both high capacity and low-pressure losses respectively. In addition to our Neles segment valves and the Jamesbury™ Wafer-Sphere™ 800-series butterfly valve, our Neles L-series butterfly

valves with their 2-shaft design are particularly strong performers in this area. We also have a strong offering in place for O_2 service.

Ammonia synthesis

Ammonia synthesis is used to produce ammonia from nitrogen and hydrogen. The produced ammonia can then be used for fertilizer production, as eFuel, or as a hydrogen carrier for transport or energy storage. Alternatively,

it can also be further processed into urea or nitric acid. The role of valves in the ammonia synthesis loop is to control the flow of synthesis gas into the converter and to ensure the recycling of the unreacted synthesis gas. Neles butterfly valves provide the optimal solution for ammonia synthesis loop isolation and control valves. Their wide design options make them suitable for all on-off/control applications in the ammonia synthesis loop.

Global knowhow

Our solutions are always engineered to provide improvements in process performance while reducing costs. But the true added value often stems from our expertise in managing projects in their entirety.

Service solution for industrial gas producers

We have developed service solutions to specifically address the needs and requirements of industrial gas producers. These solutions focus on the monitoring of valve and process performance, defining turnaround scope, reducing downtime during planned outages, eliminating unplanned valve failures, and optimizing inventory coverage.

Based on our 45 years service experience we have learned how to extend the valves lifetime by selecting the right spares and repair actions. Our service personnel receive documented training to ensure adherence to the detailed specifications and technical standards associated with equipment in industrial gas applications such as being certified to handle oxygen valves repair or ATEX

certified equipment. Experienced field technicians offer local support and are equipped with best-in-class tools and service facilities.

We are the valve technology and service partner for many of the major industrial gas companies worldwide, providing tailored solutions for PSA and VSA processes and ASU plants.

We have dedicated relationships with manufacturers and licensors to ensure continuous technological development.

Our highly skilled field service experts are never far away, as they are located in our 40 service centers worldwide. They are available to provide everything from warranty repairs to support during upgrades.



Project knowhow that delivers value

The experience and knowhow our project engineers bring to the table during the project and commissioning phases can help expedite project completion and enable a speedy and fluent process startup.

We help you select the optimal valve solutions for your planned process and provide a clear and defined chain of responsibility from sales to execution and a strong service presence thereafter.

Once the project is handed over to our services, we remain dedicated to offering our expertise in terms of both ensure process performance and ultimately improving it through process optimization, predictive maintenance and updates across the product lifecycle.




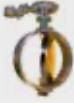




Locations around the world:





● Valve technology centers ● Service centers ● Authorized service partners

Our offering

Butterfly valves

Neles butterfly valves						
Product	Series	Design	Specifications		Service	Bulletin
Neles high performance triple eccentric disc valves	LW & LG-series 	Wafer (WS) or lug (LG)	Size:	DN80 – 1000 / 3" – 24"	General on-off and control applications	2L121 2L1220 2LW20
			Temperature:	-200 to +600 °C / -330 to +1110 °F		
		Pressure:	ASME 150 – 300 / PN 10 – 64			
	L6-series 	Double flanged	Size:	DN100 – 2200 / 4" – 88"		2L621
			Temperature:	-200 to +600 °C / -330 to +1110 °F		
			Pressure:	ASME 150 – 600 / PN 10 – 100		
Neles three lever valve for Air Separation Units (ASU)	BH-series 	Designed to air separation unit air inlet shut-off valve	Size:	DN200 – 1600 / 8" – 64"	Air purification, molsieve 3-lever valves	2BH20
			Temperature:	-29 to +280 °C / -20 to +536 °F		
			Pressure:	PN10 – 40, ASME 150 - 300		
Neles full bore butterfly valve	BN-series 	Flanged, lug or wafer	Size:	DN80 – 1600 / 3" – 64"	For high capacity applications	
			Temperature:	Max. +260 °C / +500 °F		
			Pressure:	PN10 – 40 / ASME 150 – 300		
Neles metal seated double eccentric disc valve	BW-series 	Flanged, lug or wafer, butt weld ends	Size:	DN100 – 1600 / 4" – 64"	Critical applications such as high cycle, high temperature, cryogenic, oxygen and abrasive applications	2BW20
			Temperature:	-200 to +470 °C / -320 to +880 °F		
			Pressure:	PN63 – 400 / ASME 600 – 2500		
Neles high performance butterfly valves	BWX-series 	Wafer, lugged, double flanged	Size:	DN100 – 600 / 4" – 24"	Butterfly metal seated for cryogenic and general application	2BWX20
			Temperature:	-200 to +470 °C / -320 to +880 °F		
			Pressure:	PN63 / ASME 600		
Jamesbury Wafer-Sphere high performance butterfly valves	815/830/835/860-series 	Wafer/ lugged	Size:	DN65 – 750 (2½" – 30")	For high cycle applications and standrad on-off & control valves	W104-1 W105-1 W101-6
			Temperature:	Max +260 °C / +500 °F		
			Pressure:	ANSI 150, 300 & 600		
	K815/ K830/ K860-series 	Wafer/ lugged	Size:	DN80 – 750 (3" – 30")	Soft seated valves for cryogenic services	W130-1
			Temperature:	-196 to 38 °C / -320 to +100 °F		
			Pressure:	ANSI 150, 300 & 600		


Ball valves

Neles ball valves					
Product	Series	Design	Specifications	Service	Bulletin
Neles X-series modular ball valves 	XA, XB, XC, XU & XT-series	Flanged, seat supported, full or reduced port	Size: DN25 – 600 / 1" – 24" Temperature: -200 to +600 °C / -320 to +1110 °F Pressure: PN10 – 160, ASME 150 – 900	Metal seated valves for ESD, on-off and control applications	1X22 1X23 1X26 1X27 1XH20
	XG, XM & XH-series	Flanged, trunnion mounted, full or reduced port			
Jamesbury flanged ball valves 	7000-series	Standard port. Flanged	Size: DN15 – 500 / ½" – 20" Temperature: 260°C / 500°F Pressure: ANSI 150 & 300	Soft seated valves for ESD & on-off applications	B107-1 B107-3
	9000-series	Full port	Size: DN15 – 600 / ½" – 24" Temperature: 260 °C / 500 °F Pressure: ANSI 150 & 300		B107-2 B107-4

Globe control valves

Neles globe control valves					
Product	Series	Design	Specifications	Service	Bulletin
Neles globe valves 	GU-series	Unbalanced, top-guided	Size: DN15 – 150 / ½" – 6" Temperature: -200 to +593 °C / -320 to +1053 °F Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K	General, severe service control valves, cryogenic service	4GV21
	GB-series	Balanced, cage-guided	Size: DN50 – 600 / 2" – 24" Temperature: -200 to +593 °C / -320 to +1053 °F Pressure: ASME 150 – 2500 / PN10 – 320 / JIS 10K – 20K		4GV25
Neles angle pattern valves 	AU-series	Unbalanced, top-guided	Size: DN15 – 150 / ½" – 6" Temperature: -200 to +593 °C / -320 to +1053 °F Pressure: ASME 150 – 2500 / PN10 – 320	General, severe service control valves, cryogenic service	4GV23
	AB-series	Balanced, cage-guided	Size: DN50 – 600 / 2" – 24" Temperature: -196 °C to +593 °C Pressure: ASME 150 – 2500 / PN10 – 320		4GV23

Segment valves

Neles segment valves					
Product	Series	Design	Specifications	Service	Bulletin
Neles segment valves 	R-series	Flanged	Size: DN25 – 800 / 12" – 32" Temperature: -52 to +425 °C / -60 to +797 °F Pressure: ASME 150 – 600 / PN10 – 100	For general control applications	3R21 3R24



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

Valmet Flow Control Oy

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Ensuring control valve reliability

Control valve solutions
for severe service



Control valves are a critical element in achieving reliability and accuracy in process control. A full understanding of how the control valve interacts with the process plays a key role in the enhancement of control performance.



Valmet solutions for severe service

For over 50 years, our control valves have proven to provide optimum performance in severe service valve installations. Today's control valve portfolio includes a variety of rotary and linear valve trims for demanding applications, such as noise, cavitation, flashing and erosive conditions.

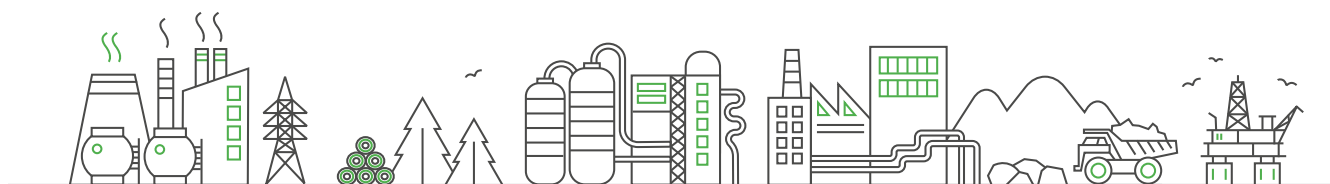
Control valve development

- 1970's**
 - Neles™ Q-Trim™ low-noise anti-cavitation for rotary control ball valves
 - Nelsize sizing program
- 1980's**
 - Segment valves with Neles Q-Trim
 - Neles™ S-Disc™ for butterfly valves
- 1990's**
 - Full ceramic control valve for extreme erosion
 - Neles™ Finetrol™ eccentric plug with Neles Q-Trim
- 2000's**
 - Rotary globe with balanced low-noise anti-cavitation trim
 - Neles globe valve introduced with Tendril™ and Omega™ low-noise anti-cavitation trims
 - Neles™ Q2-Trim™ for enhanced noise attenuation

Operation and maintenance costs make up the bulk of the lifetime cost of a valve. Careful consideration of valve selection based on application challenges increases process and valve uptime, while delivering considerable saving.

Planned maintenance reduces lifecycle costs

It is particularly important in demanding applications to recognize maintenance needs that help extend device lifecycle. Based on process and device criticality, a maintenance plan should always be created to secure the functionality, reliability and safety of the planned process. The maintenance plan along with high-quality execution ensures that the lifecycle cost of valves remains at the desired level.



→ Chemical → Energy → Refining → Industrial gas → Pulp, paper & bioproducts → Gas processing and LNG → Pipeline

Addressing common challenges for valves in severe service

Eliminating cavitation



High noise, heavy vibration, material and mechanical damages are common difficulties

seen in control valves in cavitative conditions. If heavy cavitation is disregarded, severe damages in valve and trim may occur in a fairly short time frame. Controlling the velocity and the pressure in the trim is an effective method to eliminate cavitation and minimize damages. The division of flow into multiple small streams further enhances cavitation resistance and reduces the intensity of noise and vibration.

Managing flashing



Flashing flow may cause erosion and vibration, but unlike cavitation, the reason is the

impingement of high velocity liquid droplets to valve body and trim parts. Flashing phenomenon can not be avoided with the valve selection, but damages can be mitigated by carefully considering the valve design, materials, process conditions and valve installations.

Noise attenuation



Excessive valve noise in gas applications is an indication of high pressure losses. In addition to

health risks, this can cause vibration and mechanical damages in valves, instrumentation or pipeline. Noise abatement by using source treatment methods such as low noise trims are generally preferable as preventing excessive noise generation is the best way to ensure operational reliability. Path treatment methods such as thermal insulation may sometimes provide an alternative method to dampen excessive noise emission from valve to environment but mechanical integrity needs to be confirmed against acoustically induced vibration.

Extending valve lifetime in erosive services



Erosion is largely dependent on flow velocity. It is also strongly related to the properties of the

materials being used. Trim style and material selection should be done carefully in applications where erosive particles with high velocities exist. Typically hardened valve trims and/or hard body materials are used to protect from valve failures in erosive services.

Meeting today's safety and environmental requirements



Certified live-loaded low emission gland packings are standard characteristics for Neles

valves which provides full compliance with the strictest environmental regulations. Long-lasting tight shut-off and fire-tested options are also available in our extensive valve portfolio. These features, rarely available in modulating control valves, have gained the attention of the world's most advanced hydrocarbon processing companies.

Valve service



Our intelligent positioner provides market leading diagnostic features which allows

the creation of the most efficient maintenance strategy. By using the online condition monitoring features overhaul actions can be planned and executed at the correct time. We have a global service team available to support customers with all of their service activities.

Easy selection with Nelprof™

An easy tool designed to help you to select the correct control, automated on/off and emergency valves from our portfolio.

Performance analysis can be used to study valve controllability in a closed control loop. The module also includes multiphase flow sizing as well as noise and cavitation prediction analysis.





Rotary Control Valves

Available with Q-Trim, S-Disc and Q2-Trim for severe service

Intelligent positioner with on line diagnostic capabilities

- Neles™ NDX™
- Neles™ ND9000™

Wide range of valve types

- Easy selection

Robust and reliable actuator

- QP-series diaphragm actuator
- B-series piston actuator

Certified emission performance



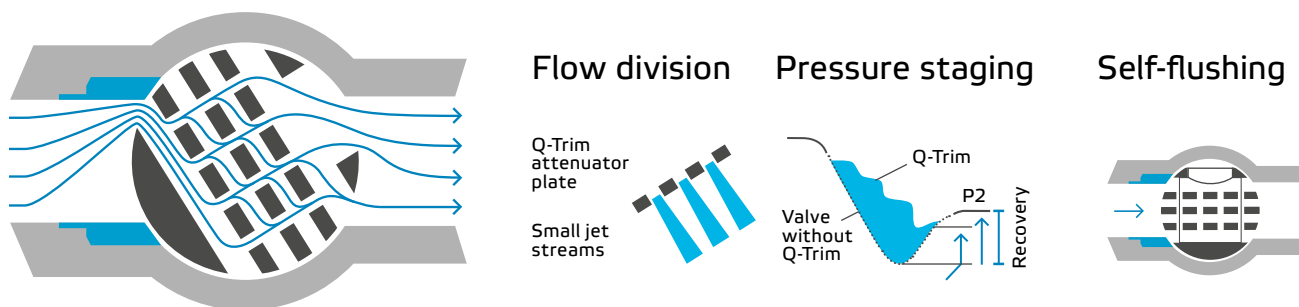
Setting the standard for rotary control valves

- Designed and manufactured by Valmet
- Single source responsibility
- Fully tested performance

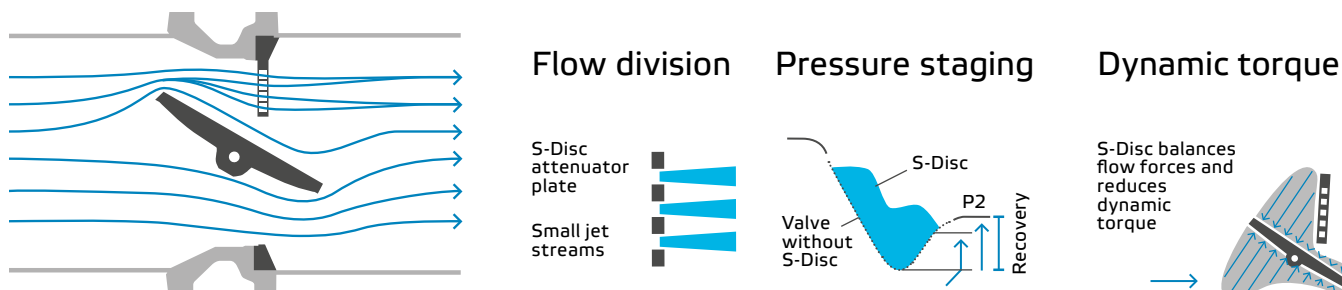
Rotary control valves combine superior controllability and wide rangeability with optional top-notch cavitation and noise abatement. High capacity provides an ideal solution for debottlenecking, and a smaller body size requires less piping support. Versatility in terms of installation direction saves space on site. Our rotary control valves offer excellent long-lasting fugitive emission control and suitability for dirty, erosive and extreme temperatures as standard.

Field proven results in severe applications

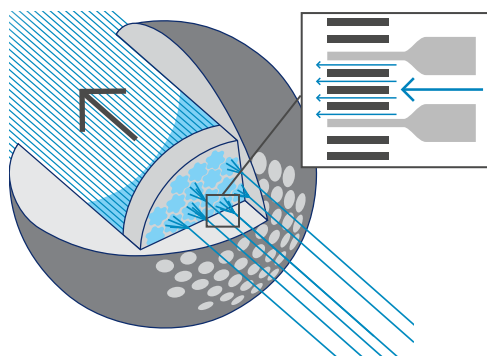
Neles Q-Trim – Multistaged pressure control with wide control range



Neles S-Disc – Enhancing eccentric disc capabilities



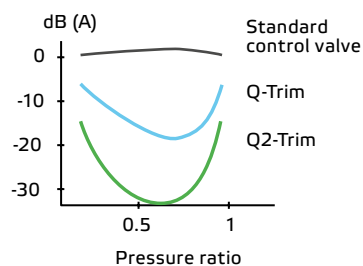
Neles Q2-Trim – Perfecting rotary valve noise reduction



Neles Q2-Trim takes the patented Q-Trim technology to a new level. The technology combines various techniques:

- Pressure staging
- Flow division
- Peak frequency shifting
- Velocity control

Noise reduction



Linear Control Valves

Available with Tendril and Omega trims for severe service

Actuator

- Field reversible diaphragm actuator – VD-series
- Fail safe piston actuator – VC-series
- Piston spring return and double acting actuator – VB-series

Certified emission packing

- Extension bonnet
- Bellows extension bonnet

Intelligent positioner

- Neles NDX
- Neles ND9000

Valve

- Various trim constructions
- Hardened and corrosion resistant trim materials



New generation globe and angle valves

- Innovative and fundamentally simple construction
- Smart technology seamlessly integrated
- Specially designed for process industry needs

Linear control valves combine modern, innovative design to the traditional strong points of the linear control valve construction. Fundamentally simple design makes the valve robust, and integration to the latest generation smart control valve positioners makes it easy to use. It is also easy to adapt the unit to different applications. Even in the toughest process conditions, there are solutions that ensure maximum reliability and performance.

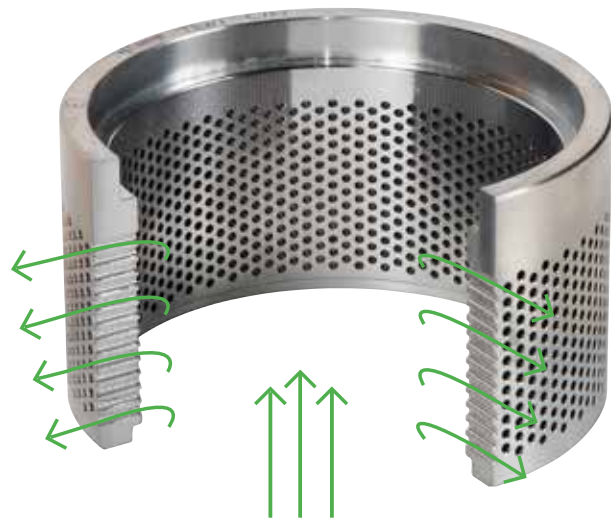


Effective noise and cavitation control for demanding applications

Tendril

Multihole trim

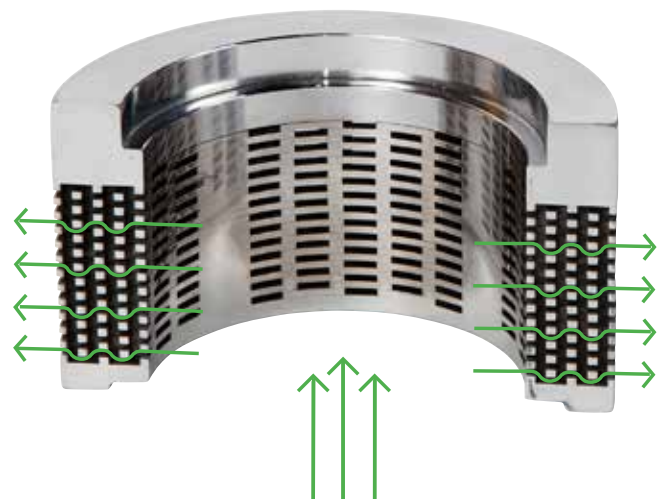
- Multihole for both balanced and unbalanced models
- Flow division by multihole flow channels
- Velocity and pressure control by individual flow paths
- Preventing exit jet interaction



Omega

Multistage, multiturn trim

- Multistage, multiturn construction
- Controlling trim velocity by multistaged, multiturn 2- or 3-dimensional flow passage
- Flow division by multiple flow channels
- Sudden expansion and contraction in individual flow path
- Preventing exit jet interaction
- Enhancing noise and cavitation reduction by optimising the number of turns in the trim








Severe service solutions

Better product designs and speedy design process




Digital simulations in product development enable us to cut down the number of laboratory tests, while increasing performance, safety and reliability without compromising on product quality. We utilize virtual modelling, simulations and tests that are especially helpful during the early design phase, allowing us to quickly identify optimized design combinations.




Noise and cavitation control for rotary valves

Noise and cavitation control for rotary valves						
Product	Design	Available for	Specifications		Service	Bulletin
Neles S-Disc 	Balanced disc	Butterfly valves: L-series	Sizes: 3" – 80" Pressure: ASME 150 – 600 Temperature: -200 to +600 °C		Gas and liquid services, moderate dP and temperature range, large sizes	2 SL1 20
Neles Q-Trim 	Versatile rotary	Ball valves: D, X, T and M -series V-ported segment valves: R-series Eccentric rotary plug valves: FC-series	Sizes: 2" – 36" Pressure: ASME 150 – 600 Temperature: -200 to +600 °C		Gas and liquid services, clean and dirty fluids, wide dP and temperature range	8 Q 20
Neles™ QLM-Trim™ 	Enhanced cavitation elimination	Ball valves: D-series	Sizes: 2" – 36" Pressure: ASME 150 – 1500 Temperature: -200 to +600 °C		Gas and liquid service, clean and dirty fluids, wide dP and temperature range	8 Q 20
Neles Q2-Trim 	Enhanced noise elimination	Ball valves: D, X and T -series	Sizes: 2" – 16" Pressure: ASME 150 – 600 Temperature: -200 to +600 °C		Gas services clean fluids, wide dP and temperature range	8 Q2 20
Neles balanced trim 	Balanced trim for high pressure difference and noise reduction	Rotary globe: ZX-series	Sizes: ½" – 4" Pressure: ASME 150 – 1500 Temperature: -80 to +425 °C		Gas and liquid services, wide temperature and dP range, clean services, small sizes, low Cv	1 RG 20





Noise and cavitation control for linear valves

Noise and cavitation control for linear valves					
Product	Design	Available for	Specifications	Service	Bulletin
Tendril version 1 	Multihole	Globe valves: GU and GB -series	Sizes: ½" – 24" Pressure: ASME 150 – 2500 Temperature: -196 to +593 °C	Gas and liquid services, clean fluids, very wide dP and temperature range	4 GV 21 4 GV 25
		Angle valves: AU and AB -series	Sizes: ½" – 48" Pressure: ASME 150 – 2500 Temperature: -196 to +593 °C	Gas and liquid services, clean fluids, very wide dP and temperature range	4 GV 23
Tendril version 2 	Multihole	Globe valves: GB-series	Sizes: ½" – 48" Pressure: ASME 150 – 2500 Temperature: -196 to +593 °C	Gas and liquid services, clean fluids, very wide dP and temperature range	4 GV 21 4 GV 25
Omega 	Multistage, multiturn	Globe valves: GM-series	Sizes: 1" – 24" Pressure: ASME 150 – 2500 Temperature: -196 to +593 °C	Gas and liquid services, very wide temperature and dP range, clean fluids	4 GV 20
		Angle valves: AM-series	Sizes: 1" – 48" Pressure: ASME 150 – 2500 Temperature: -196 to +593 °C	Gas and liquid services, very wide temperature and dP range, clean fluids	4 GV 23

Noise and cavitation control for rotary/linear valves

Noise and cavitation control for rotary/linear valves					
Product	Design	Available for	Specifications	Service	Bulletin
Fixed resistors 	Multi- and single hole plates, diffusers	All valve types	Sizes: 1" – 36" Pressure: ASME 150 – 600 Temperature: -196 to +593 °C	Gas and liquid services	8 Q 220 8 ATT 20

Erosion and flashing control for valves

Erosion and flashing control for valves					
Product	Design	Available for	Specifications	Service	Bulletin
Flow reverse 	Balanced eccentric plug	Eccentric rotary plug valves: FC-series	Sizes: 1" – 12" Pressure: ASME 150 – 600 Temperature: -200 to +425 °C	Flashing and erosive services, wide temperature and dP range, moderately severe	5 FT 20
Segment 	Non-tight erosive	V-ported segment valves: R-series	Sizes: 1" – 32" Pressure: ASME 150 – 600 Temperature: -80 to +425 °C	Flashing and erosive non-tight service, medium temperature and dP range, moderately severe	3 R 21 3 R 24
Ceramic, HIP* 	Severe erosive	Ball valves: X, D and E-series	Sizes: 1" – 8" / 1" – 16" Pressure: ASME 150 – 600 Temperature: -50 to +450 °C	Very erosive services, wide temperature and dP range	CB075 1 E 220
Linear angle 	Severe angle Flow down	Angle valves: AU, AB and AM -series	Sizes: ½" – 48" Pressure: ASME 150 – 2500 Temperature: -196 to +593 °C	Very erosive and severe flashing services, very wide temperature and dP range	4 GV 23

* Wear and erosion resistant valves manufactured by using Hot Isostatic Pressing technology (HIP)



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

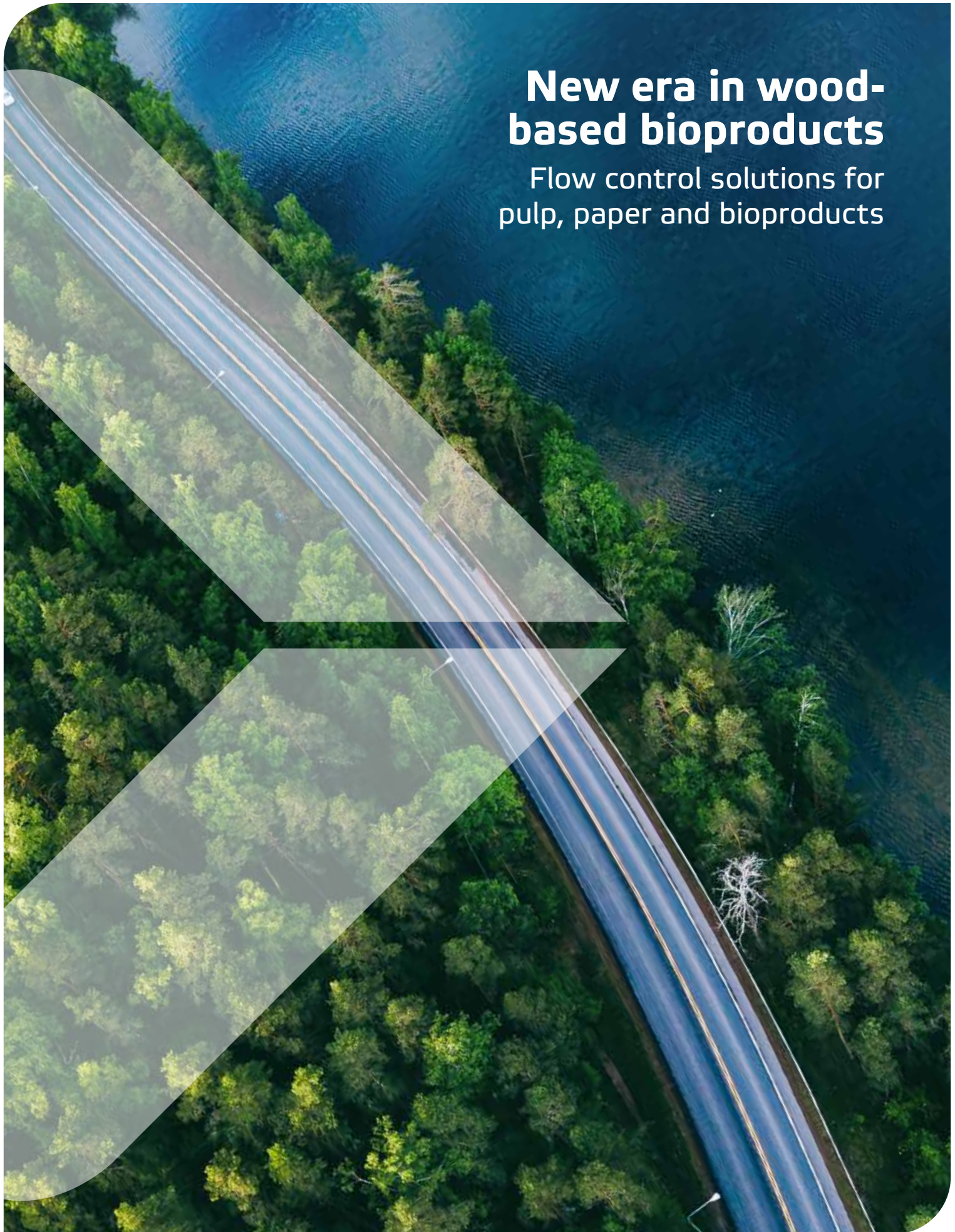
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New era in wood-based bioproducts

Flow control solutions for pulp, paper and bioproducts





Creating something new out of pulp and paper

The rapidly evolving pulp and paper industry is being reinvented to help create profitable and sustainable success. Through progressive thinking, creative design and solid manufacturing expertise, we are helping drive increasingly intelligent processes towards improved efficiency, reliability and environmental performance.

Global megatrends are transforming the pulp and paper industry as we know it. While demand for traditional printing and writing paper may have declined, thanks to steady population growth and the explosion of online shopping and international shipping of packaged commodities, the demand for tissue and board are pushing overall demand up every year.

Concerns over our environment are major drivers for the development of more efficient production processes. They are also one of the reasons behind the emergence of new

ecological wood-based bioproducts, which in many cases are helping replace materials such as single-use plastics.

For an industry that is concentrated on achieving improved efficiency across the board – process performance, product quality, resource efficiency, energy efficiency, environmental performance – we offer a comprehensive portfolio of valves products accompanied by service expertise and the latest digital tools, all aimed at helping customers make more with less.

Megatrends driving renewal

- Globalization, urbanization and population growth
- Resource efficiency
- Energy efficiency
- Sustainability and environmental performance
- Digitalization and IIoT

Partnership for industry renewal

Valmet is committed to helping manufacturers meet growing and changing demands and grab a hold of the opportunities presented by a wide range of new emerging bioproducts.



Renewal requires new approaches and tools

Digitalization didn't kill the pulp and paper industry. In the hands of an experienced partner, it provides the tools needed to make the most of your process. Traditional pulp and paper processes, just like the many new bioproducts processes, can be improved by intelligent valves and real-time data.

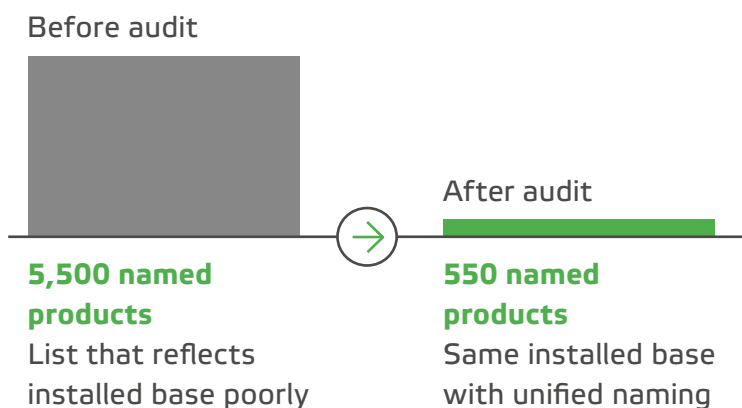
Reducing project time with digital tools

The service and added value we can bring to the table early on in the mill planning phases is based on our expertise and digital tools designed to help collect and utilize accurate data. The right digital tools can help significantly reduce the planning and engineering time required, while ensuring a process running with the best possible valves for the job.



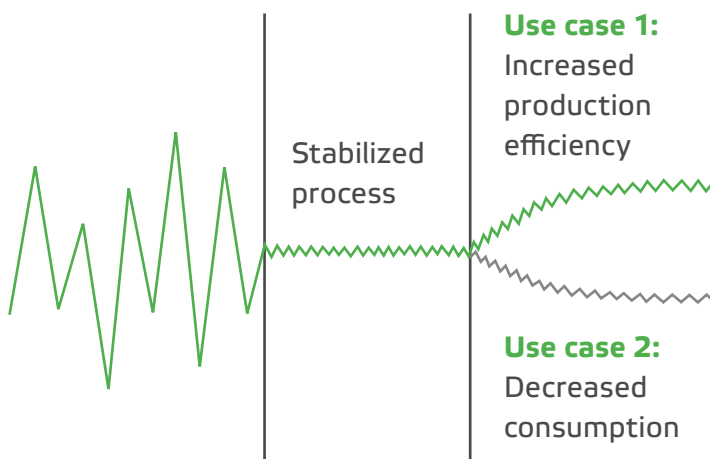
Improving installed assets' data management

Data integrity and streamlined data content for installed assets' data help improve the economical performance of mill maintenance operations. The quality and availability of data translates directly into savings in terms of time and money spent on spare parts and maintenance. The customer's own data and each delivered project's valve data is organized and stored into our installed base database for later utilization.



Improving performance based on real-time data

Over a mill's life cycle, optimizing process performance based on real-time data can yield tangible results in terms of profitability. More stable flow characteristics ensure process efficiency and the even and predictable quality of the output. Accurate process control data also enables the effective planning of predictive maintenance operations, reducing the risks of valve failure and expensive unplanned shutdowns.





Sustainability and profit go hand-in-hand

Paying attention to the details and making the right valve selections can make a difference in terms of business and environmental performance at the same time.

Intelligent control valves help optimize the flow of materials throughout the modern bioproduct mill. A high-quality process consumes less raw materials and optimizes energy consumption. These process attributes achievable with our valves save both money and the environment. Sustainability is not just something that consumers are calling for, it is something we have made a part of our agenda for today and the future.

We also provide high-quality valve solutions for power generation at modern bioproduct mills. To improve environmental performance and save on energy costs, many mills are turning process waste into bioenergy used to run their entire mill operations. These new energy self-sufficient mills are taking the pulp, paper and bioproducts industry a step closer to independence from fossil-based energy.

When it comes to reducing fugitive emissions, the main focus is on safety and sustainability. Ever-tightening regulations are rightfully calling for improved environmental performance, especially when it comes to potentially volatile and harmful gasses. Each of our valve constructions is designed and built for optimal tightness and sealing properties and tested thoroughly before it is shipped out. A reduction in fugitive emissions also means a reduction in lost flow media and energy wastage.

Comprehensive offering

We offer our customers an industry-leading portfolio of valve products designed and proven to work in pulp, paper and bioproduct processes. Our dedicated expert services and digital tools are what make our offering truly unique and complete.



Control valves

Proven designs for rotary and linear control service

- Improving uptime through reliability and serviceability
- Improving process accuracy (variability) and efficiency
- Ensuring a safe working environment
- Tested and certified assemblies through modularity



Modular smart devices

Intelligence for mill operation and maintenance

- Quick setup for easy start and maintenance
- Smart diagnostics for improved performance
- Proven open system interoperability
- Predictive functionalities for service planning and digital networking



On/off valves

High-performance designs for rotary and linear on/off service

- Improving process safety and reliability
- Enabling faster service and maintenance
- Preventing major damage and disruptions
- Tested and certified assemblies through modularity
- Performance verified with full valve assembly testing



Expert services

"Born in pulp and paper" expertise and experience

- Digital engineering reduces wasted time in engineering and erection phases
- Predictive solutions secure high operational process performance
- Spare parts availability with service solutions that help optimize capital spend



Automation and digitalization ensure accurate and efficient service across the solution lifecycle

Industry-leading expertize and digital tools:

- Predictive maintenance
- Performance monitoring
- Installation and commissioning
- Valve selection and sizing
- Spare part inventory
- Planned shutdowns
- Valve replacement and recycling

Application support covers:

- Certification: Documented according to global standards
- HSE features: According to industry requirements
- Interoperability: Work with all common protocols (e.g. HART, FDT, EDD or FDI)
- Engineering: Nelprof valve sizing and selection
- Service: On- and off-line tools, asset management solutions

Flow control solutions for pulp, paper and bioproducts


We offer our customers an industry-leading portfolio of valve products designed and proven to work in pulp, paper and bioproduct processes.

Ball valves


Neles™ ball valves – Flanged ball valves optimized for demanding applications. Build to stand.						
Product	Series	Design	Specifications		Service	Bulletin
Neles ball valves 	M-series Q-elements (noise)	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Size:	DN25 – 600	High capacity design for harsh service in bioproducts manufacturing, including biochemicals and biodiesel	
			Pressure:	ASME 1" – 36" EN, ASME, JIS-ratings Metal and soft seated		
	E-series	Lime slurries, coaters	Size:	DN25 – 200, ceramic		
	PZ-series Capping valve	Chip feed	Size:	DN500 – 750		
	M1-series Pocket valve	Sand, scrap catch	Size:	DN150 – 200	Pulp mill, fibre line	
Jamesbury™ ball valves – Flanged ball valves for high flow capacity and reliability						
Product	Series	Service	Specifications		Design	Bulletin
Jamesbury ball valves 	7000 -series Standard port	Applications up to 260 °C / 500 °F. High performance Xtreme™ seat materials. Low emission stem seals.	Size:	DN15 – 500 (½" – 20")	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	
	9000 -series Full port	High consistency pulp	Pressure:	ASME Class 150 & 300		
Jamesbury ball valves 	4000 -series	Basis weight for paper	Body:	Carbon steel, 316SS, Alloy 20, Monel, Hastelloy C		
			Standard port:	DN15 – 65 (½" – 2½")		
			Full port:	DN15 – 50 (½" – 2")		
			Ball/stem:	Carbon steel, 316 stainless steel, Monel, Hastelloy C		

Butterfly valves


Neles butterfly valves – Triple eccentric disc valves for economical and high performance

Product	Series	Design	Specifications	Service	Bulletin
Neles butterfly valves 	L-series S-discs (noise)	Economical performance for control and shut-off service in bioproduction lines: TM, PM, BM and pulp	Size: DN80 – 1400 Pressure: ASME 1" – 36" EN, ASME, JIS-ratings	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	

Jamesbury butterfly valves – High-performance valve in wafer or single-flanged lugged designs

Product	Series	Design	Specifications	Service	Bulletin
Jamesbury butterfly valves 	800-series	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Pressure: ASME Class 150 & 300 Size: Wafer: DN65 – 750 (2½ – 30") Body: Lugged: DN65 – 1500 (2½ – 60") Seat: Carbon steel, 316SS, Alloy 20, 254SMO®, Monel, Hastelloy C, Teflon®, Xtreme, UHMV, 316SS/PTFE, 316SS/XT	Economical performance for control and shut-off service in all soft seated applications	


Neles™ Easyflow™ butterfly valves – Resilient seated butterfly valves

Product	Series	Design	Specifications	Service	Bulletin
Neles Easyflow butterfly valves 	JA-series	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Pressure: DN50 – 600 (NPS 2 – 24) Size: PN10, PN16, Class 150 Body: GGG40 ductile iron, GG25 cast iron, WCB carbon steel, CF8M stainless steel Seat: Ethylene-Propylene (EPDM), Nitrile (Buna-N, NBR), Fluorocarbon (VitonR, FKM), Silicone (VMQ), White Ethylene-Propylene, Hydrogenated, Nitrile (HNBR)	Economical performance in all soft seated applications Water and waste water Sewage treatment Other water and utility services in mill operations	


Standards and certifications




Segment valves

Neles segment valves – High control performance and wide rangeability					
Product	Series	Design	Specifications	Service	Bulletin
Neles segment valves 	R-series Cv-element Q-elements (noise)	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Size: DN 25 – 800 Pressure: ASME 1" – 32" DIN, ASME, JIS-ratings Metal and soft seated	Benchmark control performance for bio-processes Constant gain over wide control range for industry specific needs	
	R2-series	MC-pumping control	Size: DN25 – 800 (1" – 32")	High consistency pulp	
	NelesAce-series	Quick grade change	Size: DN25 – 500 (1" – 32")	Basis weight for paper	





Wafer-design knife gate valves

Neles wafer-design knife gate valves					
Product	Series	Design	Specifications	Service	Bulletin
Neles wafer-design knife gate valves 	KA-series Uni-directional	Pre-engineered valve types and materials according to industry standards for control, on/off and manual use	Pressure: DN50 – 1400 Size: PN 10 – 16 ASME 150	Knife gate valve with soft sealing is suitable for various process applications Suitable for liquids that contain a maximum of 4% suspended solids Pulp and paper Sewage and water treatment	
	KAB-series Bi-directional		Body: Stainless steel / CF8M		
	KL-series Bi-directional through going				



Globe valves

Neles wafer-design knife gate valves					
Product	Series	Design	Specifications	Service	Bulletin
Neles globe valves 	G-series T pattern globe	Top-guided, cage-guided, anti-cavitation & noise abatement, Tendril™, Omega™ trims and flanged & welded ends	Size: DN10 – DN600 (½" – 24") Pressure: ASME 150 – 2500 (PN10 – AN320) Temperature: -196 to +593 °C	Power and recovery boiler, chemical treatment application	
	A-series Angle pattern globe				
	ZX-series Rotary globe	Very low capacity controls	Size: DN15 – 100 Pressure: ASME ½" – 4"	Rotary trim, trim sets	

Actuators

Neles actuators – Modulating control and on-off service for double and single acting					
Product	Series	Design	Specifications	Service	Bulletin
Neles actuators 	B-series Instrument options Locking	Bioproducts indoor and outdoor usage for control and on/off applications	Action: Double action B1C/ single action B1J DIN and ANSI valves for ISO- and VDE/VDI-interface	Delivers high control performance and double torque peak for rotary valves. Versatile top-works instrumentation	
Neles actuators 	VD-series Single acting	Multi springs with a rolling diaphragm design for precise control application, piston cylinder design for heavy duty application	Thrust: 1890 – 264 860 N, Travel: 20 – 280 mm	Linear motions for modulating control and on-off heavy duty bio, power industry indoor and outdoor usage	
	VB- & VC-series Double acting				
Jamesbury™ Quadra-Powr™ X spring-diaphragm rotary actuator					
Product	Series	Design	Specifications	Service	Bulletin
Jamesbury spring-diaphragm rotary actuator 	QPX-series Quadra-Powr X	Rolling diaphragm design, along with new one-piece diaphragm retainer and UHMW Polyethylene bearing, assures extremely long cycle-life. Low-friction operation provides exceptionally smooth actuation	Action: Spring return	For control and on/off actuation	
Rack and pinion actuators – Compact pneumatic performance					
Product	Series	Design	Specifications	Service	Bulletin
Rack and pinion actuators 	RNP-series VPVL-series	Corrosion treatments: Electroless nickel, hard anodized protection, PTFE coating	Action: Double acting or spring return Input: 2.5 – 7.0 bar Output: 3.2 – 6211 Nm	Economical rotary actuation for ball and butterfly valves	

Valve controls

Neles valve controls – Smart controls and monitoring for optimal valve performance					
Product	Series	Design	Specifications	Service	Bulletin
Neles valve controls 	Neles™ NDX™ Neles™ ND9000™	For control and on/off service, with open integration e.g. FDT, EDD or FDI	Single and double action, linear and rotary operation, HART® 4 – 20 mA smart-functions	Leading control performance for bio-processes Modular design with add on functionalities	
Neles smart on/off monitoring 	Quartz™ Eclipse™	On/off-monitoring	Features according to industry needs	Compact on/off valve position feedback with modular design Many switch sensor types	
	Axiom™ on/off valve controller	On/off-monitoring with integrated solenoid valves	Features according to industry needs	High performance on/off valve control and position feedback Many solenoid valve options	



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

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