

Neles
Flow control solutions



A solution
for each and
every process
challenge





To help you optimize

your process performance and reliability, Metso approaches each process and application as a specific challenge. Neles control, on-off and ESD valves, accessories, intelligent devices and software products are engineered to meet these challenges. They provide innovative, fundamentally simple construction, operation and maintenance features to optimize process performance at the lowest cost.

Testing capabilities

Metso has 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 verification 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 Metso test facilities is our high pressure gas test and top-of-range industrial cryogenic laboratory.

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 technologies and customer support personnel get the job done with a goal of making your work life easier.

We know it takes more than highly reliable products to keep your process running smoothly; it also takes reliable service and technical support. 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.

Metso applies a vast amount of industry, process, application and product knowledge to every customer relationship. Using the most sophisticated tools, our technicians work with you in partnership to develop programs and provide services that meet your specific requirements.

Nelprof®

Nelprof control-, on/off- and safety valve sizing and selection software allows you to select the right valve for your application. Nelprof has an inbuilt expert system that guides you through the selection process with the notes and warnings. You can analyze and compare control valve performance before installation and choose the right valve

size and type to reduce process variability and ensure the best process performance. On/off module enables the selection of all intelligent Metso metal- and soft-seated on/off- and emergency valves. SIL module is the first safety integrity level tool on the market. It enables the safety integrity level evaluation for the whole valve assembly, including valve, actuator, positioner and one to several pneumatic components when needed.

Neles ValvGuard™

-intelligent safety solenoid and Partial Stroke Testing (PST) system

Our Neles ValvGuard VG9000 is a new generation safety valve controlling and partial stroke testing device that helps to ensure your safety valves will always perform the safety action when needed. VG9000 is available for both HART and FOUNDATION fieldbus Networks. Emergency shutdown (ESD) and venting (ESV) valves are the process industry's front line defense against the threat to personnel and equipment posed by fires and explosions. Because many of these valves spend the majority of their time idle, traditional safety systems may not recognize a potential valve failure until it's too late. With Neles ValvGuard you can easily monitor and test valve performance for maximum availability while simultaneously reducing overall operating costs.

Bulletin reference: 9VG9F20, 9VG9H20, CB044



Systems and software

Metso FieldCare™

- device and asset management

Metso FieldCare is a totally open solution based on FDT technology to provide an accurate information flow during the commissioning, operation or maintenance of a production process.

It provides a single tool with which to manage any device, in any communication protocol, and its web-enabled interfaces allow for the information to be distributed anywhere across the user's network in real time. Its ability to show both standard configuration parameters and device-specific functions eliminates the need for vendor-specific tools.

Online data flow from all devices is visualised through an innovative colour-coded alert system and a series of selective alarms which provides a clear view of process performance and allows easy and early problem recognition.

FieldCare provides real time information under operational process conditions, and its ability to browse and store data makes prediction of device condition extremely accurate. The information it provides supports predictive maintenance and can be used to plan regular maintenance activities, ensuring sufficient time to order spare parts and plan for service operations.

FieldCare lowers the cost of ownership as it can manage any device, any communication protocol, helps plan maintenance activities and, as part of the process control system, will be a valuable addition whatever developments may be introduced in the future.

DTMs allow full device functionality to operate within a wide range of process control systems, whether from Metso, or a third party-provided system.

Through collecting these performance trends, it will warn of deterioration to permit planned maintenance and cost effective decision-making, its condition monitoring providing a colour-coded identification of device faults.

Bulletin reference: 9FC20.

Neles ND9000®

-intelligent valve controller

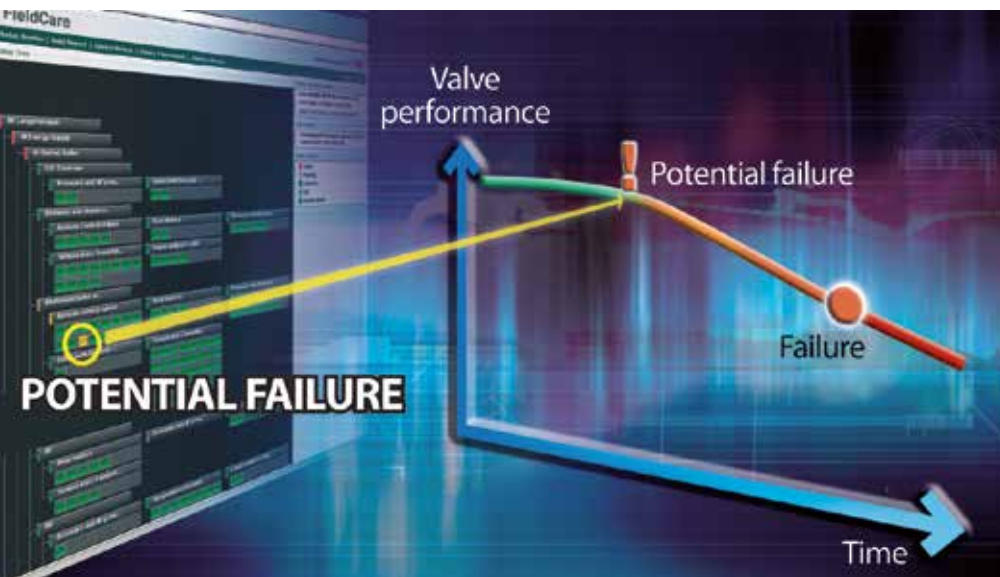
FieldCare's partner, the Neles ND9000 intelligent valve controller, records and stores data for the lifetime of the device. It helps with smooth and reliable process operation by supporting all process buses and communication processes through comprehensive diagnostics provided by its rugged and reliable design with an easy set-up, smooth cable entry and local user interface.

The key advantage of the new, 'best in class' positioner is its ability to be applied to new or existing control valve packages in all industry areas, regardless of the application.

Its design features and unique diagnostic ability, provide superior performance to anything else on the process control diagnostics market, allowing a profound basis for performance optimisation and predictive maintenance. ND9000's advanced online and offline diagnostics help correct, prevent and predict potential problems, allowing optimum performance levels to be achieved.

Advanced online diagnostics confirm essential information on valve and instrument performance in a clear and easily-understood way, a fact confirmed by offline tests which complement the online diagnostics. In addition, user-friendly and well-guided start-up procedures, combined with Local User Interface, make the commissioning of the process fast and simple.

Bulletin reference: 7ND9021, CB043



Neles SwitchGuard™

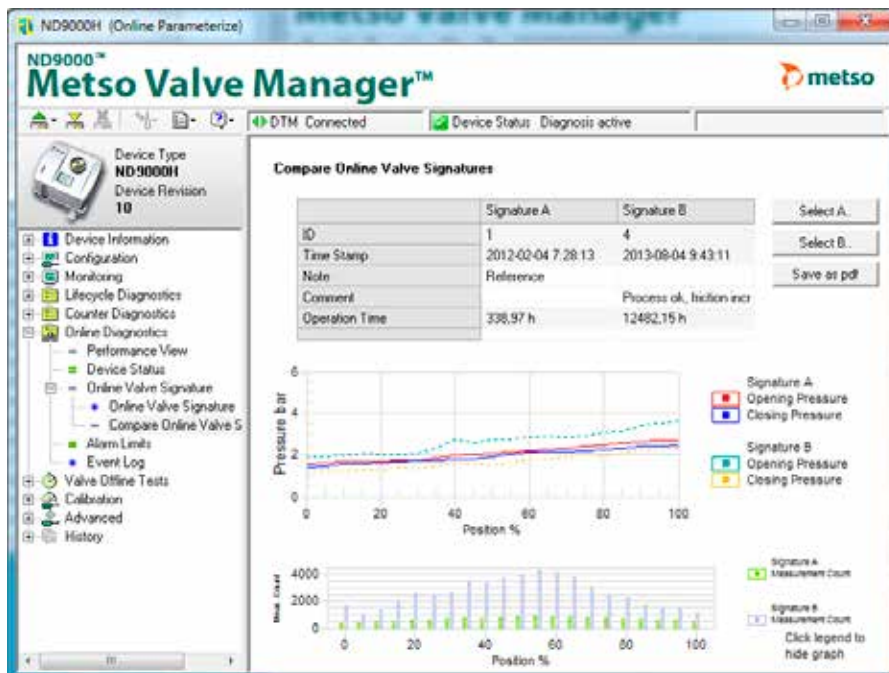
- suitable for all critical and high-cycle switching applications

Neles SwitchGuard™ is our new intelligent controller for pneumatic on/off valves. SwitchGuard replaces separate solenoid valve and limit switches, enabling also stroking time and profile configuration. Featuring unique on/off valve diagnostic, it enables you to predict failures in process critical and high-cycle switching applications and check valve condition remotely without visiting the field. With this unprecedented visibility to valves you can plan your maintenance

actions well before problems have a major impact on the process.

SwitchGuard analyzes the operation of an automated on/off valve online and stores this diagnostics data for further use. With open communication technology, such as FDT, and with our FieldCare field device configuration and condition monitoring tool you can use this valuable information to plan your maintenance activities better. This, in turn, ensures high availability in switching applications and high reliability in valves.

Bulletin reference: CB036, 7SG20.







Valve Online Signature feature shows friction of the control valve online, under normal process conditions when ever the valve is changing position.


Control Valves


	Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)	Bulletin reference
V-port segment valves											
	RA, RE	Wafer, flanged	DN 25 - 700 / 1" - 28"	PN 10 - 40 / ASME 150 - 300	-50 to +260 °C / -58 to +500 °F	CF8M, WCB, CG8M Titanium, Hastelloy C	10x ISO Rate D/class IV, optionally ISO rate D/class V (min. 20 bar Δp)	0.5 - 25300	General	Reduced Cv trims, Q-Trims	3R21, 3R24, 7ND9021
Finetrol eccentric plug valves											
	FC, FG	Flanged, eccentric rotary plug valve	DN 25 - 250 / 1" - 10"	PN 10 - 100 / ASME 150 - 600	-200 to +425 °C / -320 to +800 °F	CF8M, WCC	Class IV Class VI	7.9 - 1540	General, severe	Reduced Cv trims, Q-Trims, Cryogenic	5FT20, 7ND9021
High performance triple eccentric disc valves											
	L12, L6, LW & LG, L1 & L2 BW	Wafer, lugged, double flanged	DN 80 - 2000 / 3" - 80"	ASME 150 - 2500, PN 10 - 400	-200 to +1400 °C / -320 to +2500 °F	CF8M, WCB, CG8M, LCC, 254SMO, 5A	Class III - VI	110 - 185000	General, severe	Heat traced, S-Disc, Cryogenic, live-loaded packing	2L121, 2L1220, 2LW20, 2L621, 6B20, 7ND9021
Neles RotaryGlobe											
	ZX	Flanged, Rotary globe control valve	1/2" - 4" / DN 15 - 100	ASME 150 - 1500 / PN 10 - 100	-80 to +425 °C / -110 to +800 °F	CF8M, WCC	Class III - IV	0.1 - 115	General, severe	Balanced anti-cavitation and low noise, different CV and LIN/EQ% trims	1RG20, CB037, 7ND9021
Top 5 top entry rotary valves											
	T5	Reduced port, flanged, weldends	DN 25 - 400 / 1" - 16"	PN 10 - 100 / ASME 150 - 600	-200 to +600 °C / -320 to +1110 °F	CF8M, WCB	Class V - VI	0.5 - 15200	Heavy duty	Q-Trim, different Cv-trims, Cryogenic	1T520, 6B20, 7ND9021
E series ceramic valves											
	E2 & E6	Reduced port, wafer, lugged	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)	ISO rate D, Class V	5 - 2200	Erosive applications	Different Cv-trims	1E220, 6B20, 7ND9021


Globe control valves


	Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Trim material	Bulletin reference
Series GU, Globe Unbalanced, Top guided type									
	GU	Single seated, Top guided- Flanged, Butt & Socket weld	1" (1/2") to 4"	ASME Class 150 to 600	-196 - 593 °C / -320,8 – 1052,67 °F	A216 gr. WCB, A217 gr. WC6, WC9, A351 gr. CF8M, CF8, Forged steel and Alloy steel	ANSI Class IV ~ VI	410 SS, 316 SS, 630 SS, Alloy steel, Hard facing	4GV21, CB051
Series GB, Globe Balanced, Cage guided type									
	GB	High capacity and heavy duty balanced, cage guided Flanged, Butt & Socket weld	2" (3/4") to 20"	ASME Class 150 to 2500	-196 - 593 °C / -320,8 – 1052,67 °F	A216 gr. WCB, A217 gr. WC6, WC9, A351 gr. CF8M, CF8, Forged steel and Alloy steel	ANSI Class III ~ VI	410 SS, 316 SS, 630 SS, Alloy steel, Hard facing	4GV25, CB051
Series GM, Globe Omega trim, Multi-stage type									
	GM	Flanged, Butt weld & Socket weld	1" to 20"	ASME Class 150 to 4500	-196 - 593 °C / -320,8 – 1052,67 °F	A216 gr. WCB, A217 gr. WC6, WC9, A351 gr. CF8M, CF8, Forged steel and Alloy steel	ANSI Class III ~ VI	420 SS, 630 SS, Solid Carbide Tungsten, Inconel, Alloy steel, Hard facing	4GV20
Series AU / AB / AM, Angle pattern valves									
	A	Flanged, Butt & Socket weld	1" (1/2") to 48"	ASME Class 150 to 4500	-196 - 593 °C / -320,8 – 1052,67 °F	A216 gr. WCB, A217 gr. WC6, WC9, A351 gr. CF8M, CF8, Forged steel and Alloy steel	ANSI Class IV ~ VI	410 SS, 316 SS, 630 SS, Alloy steel, Hard facing	4GV23, CB051
Series GD, Globe Double seated, Top & Bottom guided type									
	GD	Flanged, Butt weld	2" to 16"	ASME Class 150 to 600	-196 - 593 °C / -320,8 – 1052,67 °F	A216 gr. WCB, A217 gr. WC6, WC9, A351 gr. CF8M, CF8, Forged steel and Alloy steel	ANSI Class II ~ V	410 SS, 316 SS, 630 SS, Alloy steel, Hard facing	4GV22, CB051
Series GW, Globe 3-Way, Diverting / Mixing type									
	GW	Flanged, Butt & Socket weld	1" to 10"	ASME Class 150 to 600	-196 - 593 °C / -320,8 – 1052,67 °F	A216 gr. WCB, A217 gr. WC6, WC9, A351 gr. CF8M, CF8, Forged steel and Alloy steel	ANSI Class II ~ V	410 SS, 316 SS, 630 SS, Alloy steel, Hard facing	4GV24, CB051

On-off Valves


Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)	
X series ball valves										
	XA, XB, XC, XU, XT - seat supported, XG, XM - trunnion mounted	Full or reduced bore, Metal and soft seats	DN 25 - 400 / 1" - 16"	PN 10 - 100 / ASME 150 - 600	-200 to +600 °C / -330 to +1110 °F	CF8M, WCB, C5	Class V or VI	105 - 9300	General	Steam jacket, Cryogenic & high temperature, Catalyst handling
Bulletin reference: 1X22, 1X23, 1X26, 1X27, 6B20, 7SOL20, 7QZ21, 7ECL20										


Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)	
M series ball valves										
	M1, M2 - seat supported and trunnion mounted	Full bore, Metal and soft seats	DN 25 - 400 / 1" - 16"	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	105 - 22400	General in P&P industry	
Bulletin reference: 1M120, 1M220, 6B20, 7SOL20, 7QZ21, 7ECL20										


Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)	
D series ball valve										
	D2C, D2D, D1F	Full or reduced port, Stemball construction	D1F: DN50 - 600 2" - 24" D2: DN100 - 900 4" - 36"	PN 10 - 100 / ASME 150 - 600	-200 to +600 °C / -320 to +1110 °F	CF8M, WCB, LCC	Class V - VI	4800 - 192000	Demanding application	Steam jacket, Cryogenic & high temperature, Catalyst handling, live-loaded gland packing
Bulletin reference: 1D20, 6B20, 7ECL20, 7SOL20, 7QZ21										


Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)	
High performance triple eccentric disc valves										
	L12, L6, LW & LG, L1 & L2, BW, BK	Wafer, lugged, double flanged, weld-end	DN 80 - 2000 / 3" - 80"	ASME 150 - 2500, PN 10 - 400	-200 to +1000 °C / -320 to +1800 °F	CF8M, WCB, CG8M, LCC, 254SMO, 5A	ISO Rate B, API 598	110 - 185000	General, moderate	High tightness, Erosion resistant version, Cryogenic & high temperature, High cycling, Top entry
Bulletin reference: 2L121, 2L1220, 2LW20, 2L621, 2L9B20, 6B20, 7ECL20, 7SOL20, 7QZ21, 2BW20, 2BK20										

ESD Valves


	Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)
X series ball valves										
	XA, XB, XC, XU, XT - seat supported, XG, XM - trunnion mounted	Full or reduced bore, Metal seats	DN 25 - 400 / 1" - 16"	PN 10 - 100 / ASME 150 - 600	-200 to +600 °C / -330 to +1110 °F	CF8M, WCB, C5	Class V - VI	105 - 9300	High MTBF, SIL 3 certified	Cryogenic, high temperature
	Bulletin reference: 1X22, 1X23, 1X26, 1X27, 9VG9F20, 9VG9H20, CB044									


	Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)
D series ball valves										
	D2C, D2D, D1F	Full or reduced port, Stemball construction	D1F DN 50 - 600 / 2" - 24", D2 DN 100 - 900 / 4" - 36"	PN 10 - 100 / ASME 150 - 600	-196 to +600 °C / -320 to +1110 °F	CF8M, WCB, LCC	Class V - VI	480 - 192000	High MTBF, SIL 3 certified	Cryogenic, high temperature
	Bulletin reference: 1D20, 9VG9F20, 9VG9H20, CB044									


	Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)
Top entry rotary valves										
	T5	Reduced or full port, flanged, weldends	DN 25 - 400 / 1" - 16"	PN 10 - 40 / ASME 150 - 600	-200 to +600 °C / -320 to +1110 °F	CF8M, WCB	Class V - VI	0.5 - 15200	High MTBF, SIL 3 certified	Cryogenic, high temperature
	Bulletin reference: 1T520, 9VG9F20, 9VG9H20, CB044									


	Series	Design	Size range	Pressure classes	Temperature range	Standard body materials *)	Leakage rate	Cv-range	Service	Options**)
High performance triple eccentric disc valves										
	L6, LW & LG, L1 & L2 BW	Wafer, lugged, double flanged	DN 80 - 2000 / 3" - 80"	ASME 150 - 2500, PN 10 - 400	-200 to +1000 °C / -320 to +1800 °F	CF8M, WCB, CG8M, LCC, 254SMO, 5A	ISO Rate B, API 598	110 - 185000	High MTBF L6, LG SIL 3 certified	High tightness, Cryogenic, high temp.
	Bulletin reference: 2L121, 2L621, 2LW20, 9VG9F20, 9VG9H20, 2BW20, CB044									


Smart products

Series	Type	Input	Supply Power	Supply pressure	Temperature range	Communication
Neles ND9100 & ND9400						
	ND9100 - standard, intrinsically safe ND9400 - stainless steel housing	Intelligent valve controller	4 - 20 mA or 0 - 100 %	Taken from the 4...20 mA, control signal or fieldbus powered	1.4 - 8 bar / 20 - 115 psi	-40 to +85 °C / -40 to +185 °F HART, Profibus PA, FOUNDATION fieldbus
Bulletin reference: 7ND9021, CB043						



Series	Type	Input	Supply Power	Supply pressure	Temperature range	Communication
Neles ND9200 & ND9300						
	ND9200 - explosion proof ND9300 - stainless steel enclosure, intrinsically safe and explosion proof	Intelligent valve controller	4 - 20 mA or 0 - 100 %	Taken from the 4...20 mA, control signal or fieldbus powered	1.4 - 8 bar / 20 - 115 psi	-53 to +85 °C / -64 to +185 °F HART, Profibus PA, FOUNDATION fieldbus
Bulletin reference: 7ND9021, CB043						

Series	Type	Input	Supply pressure	Temperature range	Communication
Neles ValvGuard™ VG9000					
	VG9200 - standard anodised aluminium alloy enclosure, intrinsically safe and explosion proof VG9300 - stainless steel enclosure, intrinsically safe and explosion proof	Intelligent safety solenoid for FOUNDATION fieldbus and HART. TÜV SIL 3 approved partial stroke testing system for emergency shutdown valves.	FOUNDATION fieldbus: FF + 0/24 VDC HART: 0/24 VDC with RC19H or 4 - 20 mA	3.0-7.5 bar / 44-109 psi	-40 to +85 °C / -40 to +185 °F FOUNDATION fieldbus, HART
Bulletin reference: 9VG9F20, 9VG9H20, CB044					




Series	Type	Input	Supply pressure	Temperature range	Communication
Neles SwitchGuard™					
	SG9200 - standard anodised aluminium alloy enclosure, intrinsically safe and explosion proof SG9300 - stainless steel enclosure, intrinsically safe and explosion proof	Intelligent on/off valve controller	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
Bulletin reference: 7SG20, CB036					

Series	Service	Switch Type	Temperature range	Communication
Axiom™				
	AMI - Intrinsically safe, general purpose with integrated solenoid AX - Explosion proof, with integrated solenoid	Inductive proximity, VCT	-40 to +80 °C / -40 to +176 °F	FOUNDATION fieldbus, AS-i, HART
Bulletin reference: 7AMI20				



Actuators

	Series	Type	Action	Pressure input	Torque output	Temperature range	Options	Bulletin reference
B series								
	B1C & B1J	Pneumatic rotary cylinder, actuator	B1C - double action, B1J - spring return	2.8 - 10 bar / 40 - 140 psi	28 - 100000Nm, 21 - 73800 ft-lbs	-55 to +120 °C / -67 to +250 °F	Manual and hydraulic overdrives, lockout devices, high-cycle, Fire protection	6B20, 6B21
Quadra-Powr X								
	Quadra-Powr	Spring-diaphragm rotary, actuator	Spring return	1.3 - 7 bar / 20 - 100 psi	15 - 1000 Nm, 11 - 750 ft-lbs	-30 to +70 °C / -20 to +150 °F		6QPX20



Application based products

	Series	Design	Size range	Pressure classes	Temperature range	Body materials	Service	Options	Bulletin reference
Capping valve									
	PZ	Capping valve	DN 500 -750 / 20" - 30"	PN 16 & ASME 150	max. +200 °C / +390 °F	CF8M	For digester chip fill	Pressure switches for safety interlocks, Water flushing for ball surface	8PZ20
nelesACE basis weight control valve									
		V-port segment valve together with, high resolution stepping motor	DN 50-500 / 2"-20"	PN 25/40, ASME 150/300	-40 to +250 °C / -40 to +480 °F	CF8M	Basis weight control unit		8ACE21
Pocket feeder valve									
	M1, M2	Pocket feeder construction	DN 150 - 200 / 6" - 8"	PN 10 - 40 ASME 150, 300	-50 to +250 °C / -60 to +480 °F	CF8M	For separator service		8PF20


Analog positioners


	Series	Type	Input	Split range	Ambient temperature	Vibration effect	Bulletin reference
Pneumatic positioner							
	NP 700	Pneumatic positioner	0.2 - 1 bar, 20 - 200 kPa, 3 - 15 psi	0.2 - 0.6 bar, 0.6 bar - 1 bar, 3 - 9 psig, 9 - 15 psig	-40 to +90 °C / -40 to +200 °F	< 1%	7NENP20
Electropneumatic positioner							
	NE 700	Electropneumatic positioner	4 - 20 mA, 0 - 20 mA	4 - 12 mA, 12 - 20 mA	-25 to +85 °C / -15 to +185 °F	< 1%	7NENP20


Limit Switches

	Series	Service	Switch Type	Temperature range	Communication	Bulletin reference
Quartz™						
	QX, QN, QG	Explosion proof, intrinsically safe, general purpose	Inductive proximity, reed, mechanical micro, VCT	-40 to +82 °C / -40 to +176 °F	FOUNDATION fieldbus, AS-I	7QZ21
Eclipse™						
	EN, EG	Intrinsically safe, general purpose	Inductive proximity, VCT	-40 to +80 °C / -40 to +176 °F	DeviceNet, Modbus, AS-I	7ECL20

Valve options

Type	Size range	Pressure classes	Materials	Options
Q-Ball				
 <p>Low noise and anti-cavitation trim for ball, segment and eccentric plug valves</p>	DN 50... 900 / 2" ... 36"	ASME 150 - 1500, PN 10 - 100	CF8M, WCB	Q2 trim for high aerodynamic noise attenuation Diffuser
Bulletin reference: 8Q20, CB050				

Type	Size range	Pressure classes	Cv-range	Materials
S-Disc				
 <p>Flow balancing trim for triple eccentric disc valves</p>	DN 80... 1500 / 3" ... 60"	ASME 150 - 600 PN10 - 100	150 - 43800	CF8M, WCB, CG8M, LCC, 254SMO, 5A
Bulletin reference : 2S-L120				

Type	Size range	Pressure classes	Cv-range	Materials	Options
A-plate					
 <p>Noise attenuator plate for noise reduction.</p>	DN 25 - 1000 / 1" - 40"	ASME 150, 300, 600, PN 10 ... 100	7 - 4480	CF8M, WCB	Option 1 threaded directly into a Finetrol® or T5 valve body. Option 2 wafer style. Can be mounted between flanges.
Bulletin reference: 8ATT20					

