

# NELES

## Mission-critical valves and valve automation development

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# Mission-critical valves and valve automation development



Well-positioned  
in valves and  
valve automation



Leading position in  
valve automation



Service excellence  
supported by  
digitalization



History and focus  
in innovation

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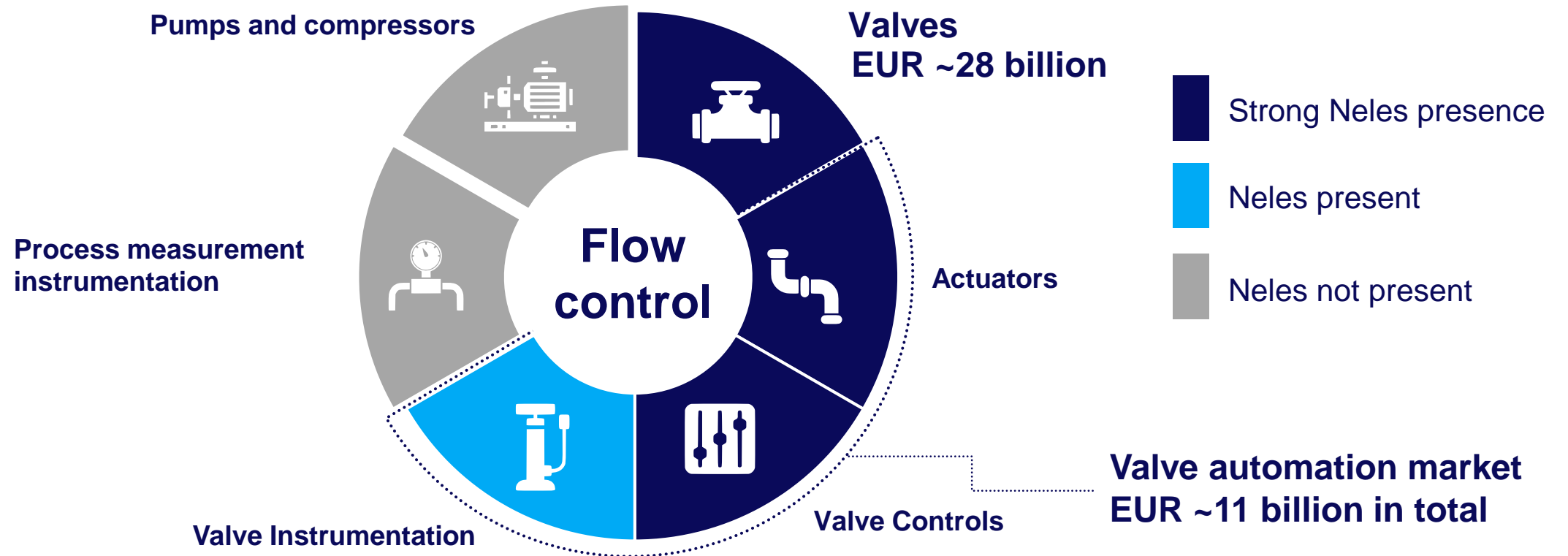
Service excellence  
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# Neles has a leading market position in valves and valve automation

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Source: McKinsey

# Products serve numerous processes and industries

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Gas

Air

Steam

Chemicals

Petrochemicals

High viscous

Solids

Water

Slurry

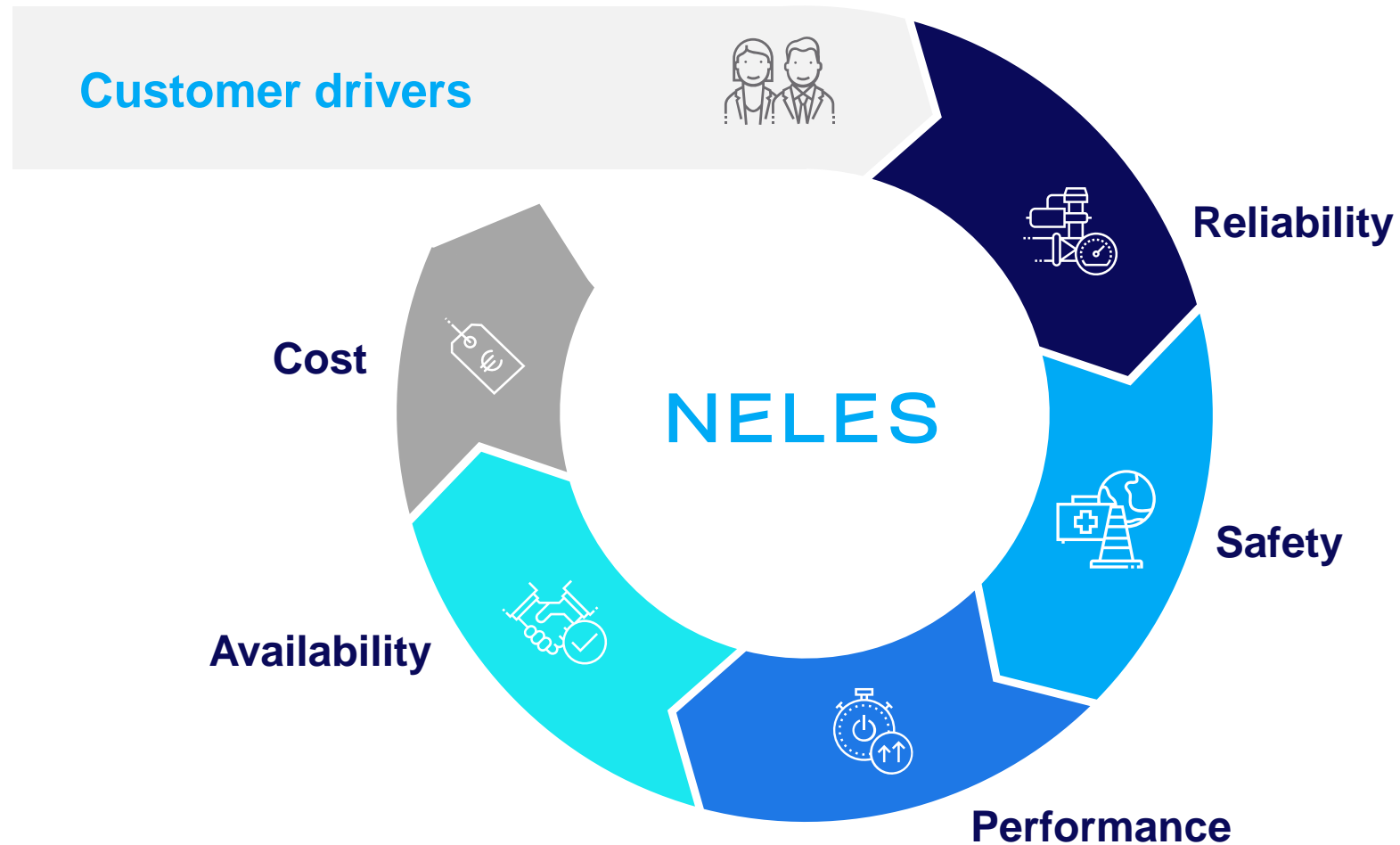
Powder

Oxygen

Ethanol

# Key customer drivers in process industry

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# Strong valve brands covering engineered high-performance and standard applications

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## Neles valve solutions

### Neles™

Premium engineered metal-seated valve solutions

### Jamesbury™

Premium performance soft-seated valve solutions

### Easyflow by Neles™

High-performance soft-seated valve solutions





# Valves are mission critical equipment in adjusting and managing flows in process industries



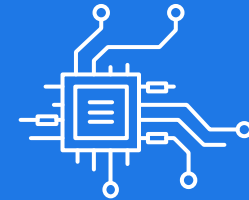
## MISSION CRITICAL

- Failure or disruption of mission critical factors will result in serious impact on business operations, e.g.,
  - Health & safety
  - Plant downtime
  - Loss of production far beyond equipment value
  - Costly surprise repairs and/or replacement



## HIGH STANDARD

- Valves are governed by strict international standards and approvals
  - PED, ATEX
  - ISO, ASME, ANSI, API
  - IEC, EN, DIN
  - GOST, JIS
- Customer approval and certification as pre-requisite for valve supplier engagement



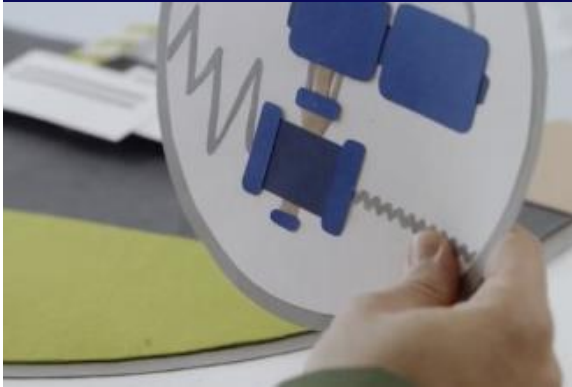
## TECHNICAL KNOW-HOW

- Strong customer reliance on supplier know-how
- Strong technical understanding is required to ensure appropriate valve selection
  - Industries
  - Customers
  - Processes and applications
  - Products
  - Plant design and process flows

**Neles has been proven reliable in all aspects**

# Research and development for valves

## PROACTIVE R&D APPROACH



- Valve platforms maintained and developed to meet latest standards and customers' specifications
- Systematic product renewal
- Offering extension
- New manufacturing methods

## LEADING TECHNOLOGY PORTFOLIO



- 281 certificates
- 79 patents (2019: 7)
- Functioning innovation process, not limited to R&D

## COMMITTED RESOURCES



- Increased attention to R&D and engineering
- Over 150 persons in valves R&D and engineering
- R&D hubs in Finland, China, India, USA, Germany and Korea

## FOCUS AREAS



- Materials technologies, e.g. 3D printing, HIP
- Modularization and product renewal
- Digitalization and process development: simulation, design automation
- Design for manufacturing
- Design for service

# Reinventing reliability in flow control

NELES



## Customer approvals

- Leading supplier and development partner in fast growing industrial gas market
- Approved vendor for major oil & gas companies globally
- Approved products for major processes in process industries



## Technology leadership

- Jamesbury Extreme™ seated valves, with laboratory-grade cleanliness, improved lifetime by 10x at polysilica plant
- Neles Wearblock™ extends lifetime 5x in an Italian refinery
- Metal seated valves operating in Russia, in -55-degree Celsius temperatures

## Continuous innovation

- 88" butterfly valve to turbine test unit in China
- 3D printed Q-ball™ a unique solution for severe cavitation
- Neles valves in char filter to handle continuous 600,000 cycle high pressure jet pulse application



## Market leadership

#1 supplier for Pulp & Bio mills

Top 10 Pulp & Bio mills in the world rely on Neles valves

#1 supplier for North American oil rail transport valves

Extremely regulated products and quality requirements to meet stringent safety standards



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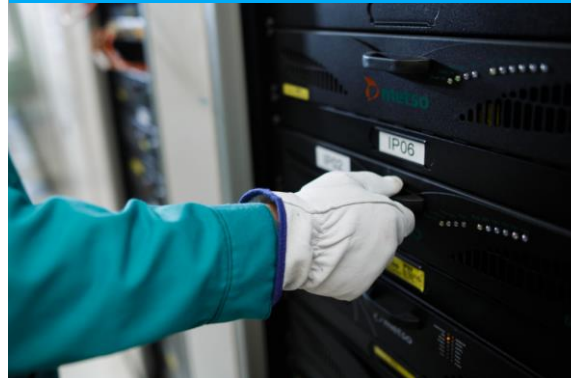
# Controllers and actuators represent attractive new opportunities

## CUSTOMER BASE



- End users
- OEMs
- Distributors
- Other valve manufacturers

## VALVE AND SYSTEM COMPATIBILITY



- Compatible with virtually all valve types
- Interoperability certified with all major process control systems and industry protocols
- Field net devices for various network protocols to enable communication

## APPLICATIONS AND MARKETS



- Sold across broad set of process industries and applications – also ones where Neles valves are not present

## SALES CHANNEL FIT


















- Suitable for all sales channels
- Very competitive availability models due to modular design and late configuration model
- Design for service

**Underpinned by digitalization connecting customers and processes**

# Neles brands in valve controllers and actuation for any need or budget

Leveraging well-known brands to win market share in valve controlling and actuation

- Neles™
- Jamesbury™
- Easyflow by Neles™

Valve controllers						Actuators	
Pneumatic						Pneumatic	Electric
<b>CONTROL</b>		<b>SAFETY</b>	<b>ON/OFF</b>		<b>ON/OFF CONTROL</b>	<b>ON/OFF CONTROL</b>	
Control with advanced diagnostics	Control with standard diagnostics		ESD & ESV	Integrated valve controller std On/Off (Stonel)			Limit switch valve monitoring (Stonel)
							
ND9000	ND7000	VG9000	Axiom	Quartz	SwitchGuard	Valvcon	B-Series
							
	NDX			Hawkeye	K-series	N-Series	VPVL
							
						RNP	QPX

# Research and development for valve controllers and actuation

## CONNECTIVITY



- Digitalization in the core to improve data integration and knowledge management
- Wireless communication
- Connectivity will open up new business possibilities and improve profitability

## DATA ANALYTICS



- 251 certificates
- 36 patents (2019: 20)
- Remote monitoring
- Remote diagnostics
- Predictive maintenance
- Data integration and knowledge management

## USER INTERFACE



- Diagnostics concept for easy to understand graphics for fast decision making

## EFFICIENT MANUFACTURING



- Platform based products enabling late configuration and efficient manufacturing
- Price competitive and high margin

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# Worldwide service capabilities

NELES



- Worldwide presence of Neles' own service centers
- Extended network through local partners
- Global installed base knowledge supported by regular monitoring through digitalized equipment

# Full suite of parts and service offering

NELES

## VALVE PARTS



- All product families across core brands
- Globally harmonized processes and quality and safety standards
- 50,000+ valve sets deliveries annually
- Parts available in all continents

## VALVE REPAIRS AND MAINTENANCE



- 400+ field service experts and certified smart products service experts
- Profound valve knowledge from ground breaking research to maintenance
- Globally harmonized digitalized service processes ensure quality
- 20,000 serviced valves & 3,000 site visits annually

## MAINTENANCE PLANNING AND LIFE CYCLE SERVICES



- Plant lifecycle services
- Availability and performance services
- Device management and maintenance services
- Shutdown service

## PID TUNING AND PROCESS CONTROL SERVICES



- Measure and report on performance and profitability
- Support root cause analysis
- Prioritize corrective actions
- Sustain performance

## Digitalization at heart

Comprehensive product portfolio

VALVES FOR PULP APPLICATIONS

	Segment RA-series wafer	Segment RE-series flanged	Butterfly LI-series wafer	Butterfly LV-series wafer	Ball, full bore BT-series flanged	Other ball valves D-, T-, E-, X-, PZ-series	RotaryGlobe ZX-series flanged
Models	3R21	3R24	2L12 20	2LV 20	1M120	D120	1R120
Size range	DN 25 - 250	DN 25 - 700	DN 80 - 1100	DN 80 - 400	DN 25 - 400	DN 50 - 900	DN B - 500
Pressure range	PN 40 ASME 50-300	PN 10 - 40 ASME 50-300	PN 10 - 20 ASME 50	PN 25 - 40 ASME 50 - 300	PN 10 - 40 ASME (M2) 50 - 200	PN 10 - 64 ASME 50 - 600	PN 10 - 50 ASME 50 - 500
Temperature range	-40 C ... +280 C	-40 C ... +280 C	-40 C ... +250 C	200 C ... +600 C (+500 C)	-50 C ... +250 C	200 C ... +450 C (+500 C)	-80 C ... +125 C
Materials	316 SS, hastelloy C, SMO 254	316 SS, 317 SS, VCB	316 SS	316 SS, 317 SS, VCB	316 SS, 317 SS, SMO 254	316 SS, VCB	316 SS, VCB, CFB, hastelloy C, VCB
Seat materials	Metal / 2SR	Metal / 2SR	Metal	Metal	Metal / 2SR	Metal / 2SR	Nitril

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	Value						
Air	ADA	RAA_AS	RE_A_AJUST	LI2_AA	-	MI_A_AM (1)	-
Black liquor displacement batch	HLB	-	-	-	LVI_BA_AAACAT (8)	ML_A_AP (1)	-
Black liquor, strong, solid content < 60 %	HST	RAA_AS	RE_A_AJUST	-	-	ML_A_AP	-
Black liquor, weak, solid content < 60 %	HVB	RAA_AS	RE_A_AJUST	LI2_AA	LVI_BA_AAAT (7)	ML_A_AP	-
Capping valve (2)	HSD	RAA_AS	RE_A_AJUST	LI2_AA	LVI_BA_AAAT	ML_A_AM	PZE_AR
Caustic soda (1)	GCD	RI_A_TTUT	-	-	-	MI_A_VY (1, 1)	-
Chlorine dioxide liq	-	RAA_AS	RE_A_AJUST	-	-	ML_A_AS	-
Consistency control	-	-	-	-	-	ML_A_AS (2)	-
Digester filter (2)	PST	-	-	-	-	ML_A_AP (2)	TS_B_AAA (1)
Digester pressure (2)	-	RAA_AS (1)	RE_A_AJUST (1)	-	-	-	-



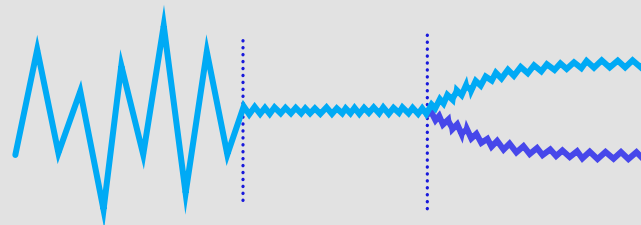
Value-adding services

State-of-the-art digital tools

Reducing project time with digital tools



Plant life cycle management



Designed to improve and ensure process performance

- Optimized performance
- Reliable operations
- Improved safety
- Sustainability

# Global supply network to meet customer needs

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## Factory footprint close to customers

- Finland
- Germany
- USA
- China
- India

## Key material supply strategically in

- China
- India
- Europe

Factories quality certified

Customer specific approvals and certification



All manufacturing units revamped or new



## Approvals are required

- Designs
- Products
- Sub-suppliers
- Factories

Takes a decade or two to achieve creating high barrier of entry

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History and focus  
in innovation

# History of innovation and growth – with a renewed focus to reinvent reliability

World-class  
brand  
recognition

Mission-  
critical  
equipment

Frontrunner  
in services  
and MRO

Continuous  
innovation

Global platform  
for sales &  
service

Growing  
& profitable

Transformation from P&P specialist to diversified process industries technology provider starting early 1990s

Valve automation and digitalization development since 1995

Expansion to global reach starting 1999

Services development and globalization since 2006

Control valve expansion from 2010 onwards

Further expansion and focus in automation and controls

# NELES

Reinventing  
reliability