KLAUS UNION

OUR QUALITY IS YOUR SUCCESS

PRODUCT RANGE VALVES

KLAUS UNION VALVES

Founded in 1946 in Bochum, Germany, Klaus Union is today a market leader for the production and supply of pump systems and valves. Since many of the global operators of Klaus Union Pump Systems & Valves are from the oil & gas, chemical and petrochemical industry, particularly high requirements are placed on all related products.

Continuous development, essential competence in design, a modern machine park as well as a centralized quality control management makes Klaus Union a recommended manufacturer of highly engineered valve products.

Besides a center of competence for mechanical machining in Pune, India, a foundry for sand and investment casting including a design team in Combiatore, India, belongs to the Klaus Union Group.

Worldwide subsidiaries and representatives complete the international Klaus Union business.

In addition to this, Klaus Union works together with business partners from the valve industry for more than 20 years, to provide the full range of high quality valve products.

Benefits for the customer:

- Technical Consulting
- Valve Engineering
- Production Planning
- Manufacturing
- Coordination of several manufacturers
- Project Processing
- Progress Monitoring / Expediting
- Quality Controls and Inspections
- Logistics
- After Sales, Valve Services

Quality Assurance

A major component of the Klaus Union ethos is to ensure highest product quality. Existing quality assurance procedures with Klaus Union suppliers are constantly monitored from order placement to goods receipt and final assembly. This quality assurance system, developed on latest techno- logies, complies with the requirements of international re- gulations.

All products comply with the latest version of the European Pressure Equipment Directive and AD 2000 rules including AD 2000 HP0 and AD2000 W0 for DIN EN Products.

For supplies to the US-Market and for plant constructions acc. to American Standards the relevant API, ASME, MSS Standards will be considered.

For deliveries to the Eurasian Economic Union, valves will be delivered under consideration of the TR/CU 032-2013 and TR/CU 010-2011 with the standardized EAC sign.

Klaus Union is a DIN EN ISO 9001 certified company

TÜV NORD CERT GmbH ISO 9001

In accordance with
TÜV NORD CERT
procedures,

KLAUS UNION GmbH & Co. KG
Blumenfeldstraße 18, 44795 Bochum
&
KLAUS UNION Service GmbH & Co. KG
Blumenfeldstraße 18, 44795 Bochum

are certified according to
DIN EN ISO 9001

GATE VALVES EN / DIN

Gate Valves acc. to EN 1984 / DIN 3352

Nom. Size Range:	DN 50 - DN 1200
Nom. Pressure Range:	PN 10 - PN 160
Temperature Range:	-200°C - +550°C
Standards:	
Test Pressure:	
	EN 12266-1 / -2
Face to face:	PN 10 - PN 25 EN 558 / 15 PN 40 - PN 100 EN 558 / 26 PN 160 EN 558 / 99
Flanges:	EN 1092-1
Facings:	Form B1 (PN 10 - PN 40) Form B2 (PN 63 - PN 160) Other flange designs available (e.g. Type D, Type F)
Butt Weld:	EN 12627 Other designs available
Face to face:	PN 10 - PN 25 EN 12982 / 15 PN 40 - PN 100 EN 12982 / 26 PN 160 EN 12982 / 90 Extended face to face dimension by using optional pup pieces
Materials:	List of standard materials see page 24 Other materials on request

Design:

01 E **Body of Cast Materials**

02 E **Bolted Bonnet**

03 E **Outside Screw & Yoke**

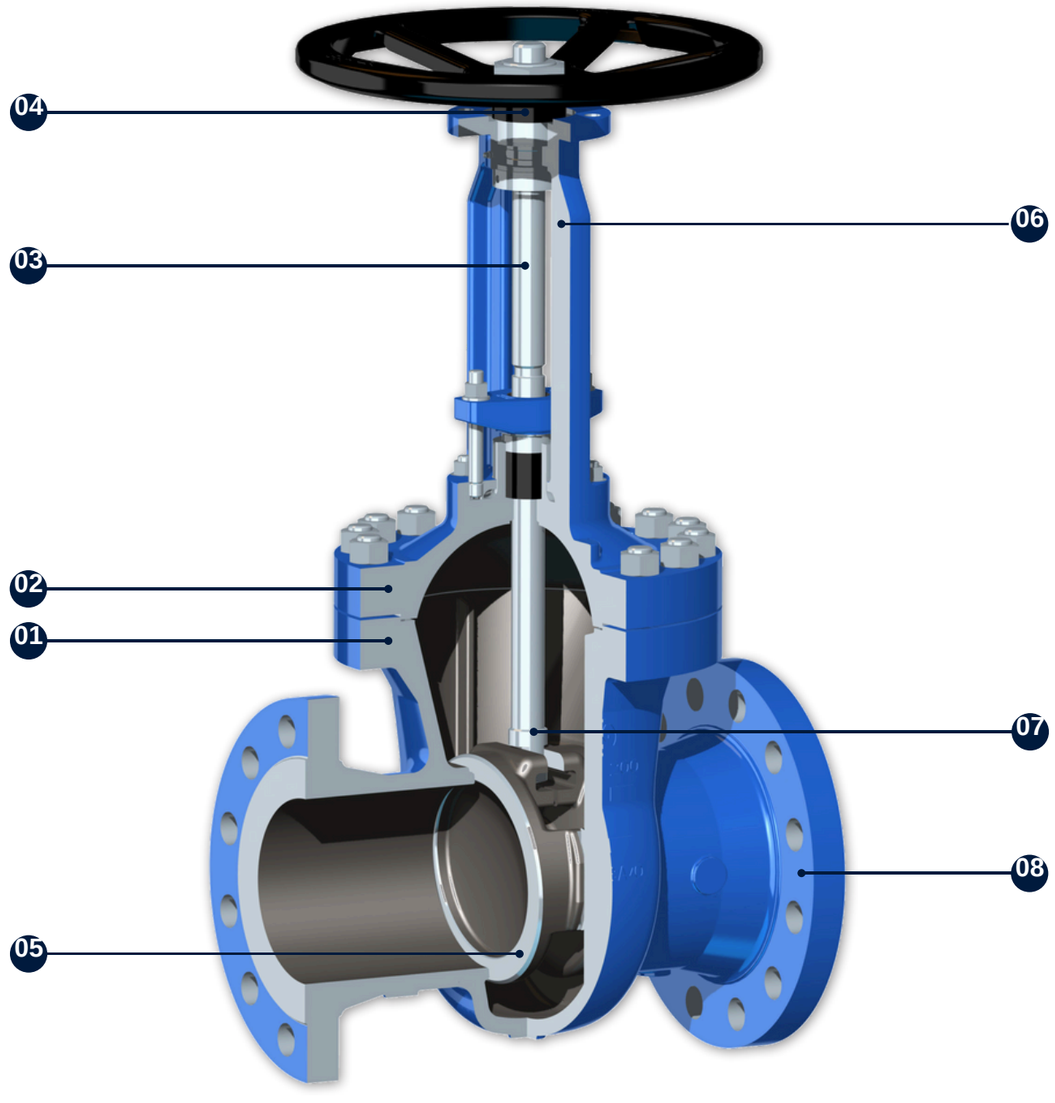
04 E **Non Rising Handwheel / Rising Spindle**

05 E **Flexible Wedge or Double Disc Type**

06 E **Standard Yoke DN 150 to DN 1200 prepared for mounting of electric actuator ISO 5210**

07 E **Blow Out Proof Spindle by backseat**

08 E **Flanged / Butt Weld Ends**



GATE VALVES OPTIONS

Gearbox with Handwheel

Handwheel

Actuator Connection Flange (ISO 5210)

Extended Stem

Mechanical Position Indicator

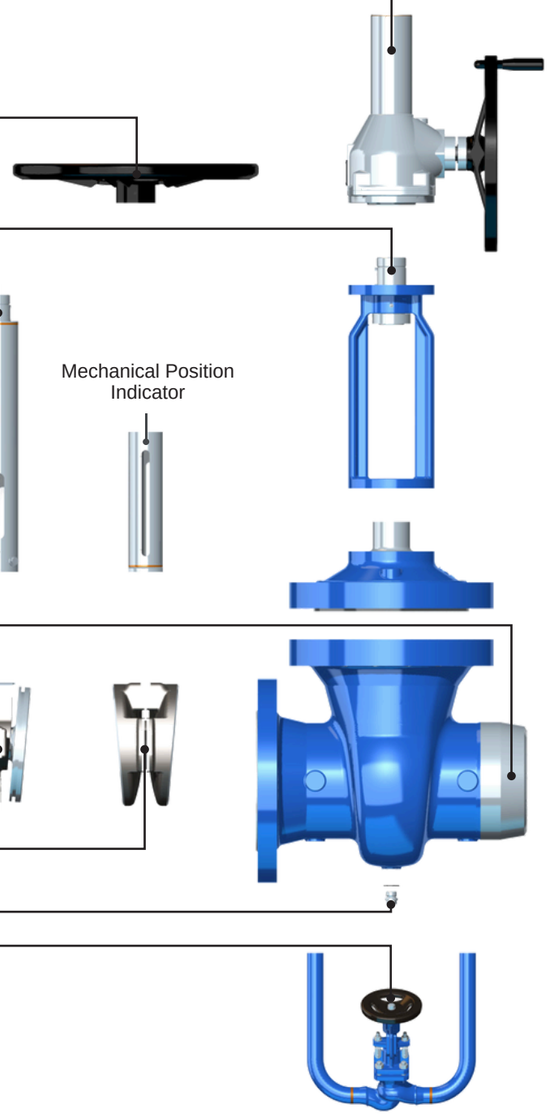
Butt Weld Ends

Double Disc Wedge

Flexible Wedge

Drain Plug

Bypass with Globe Valve



Electric Actuator

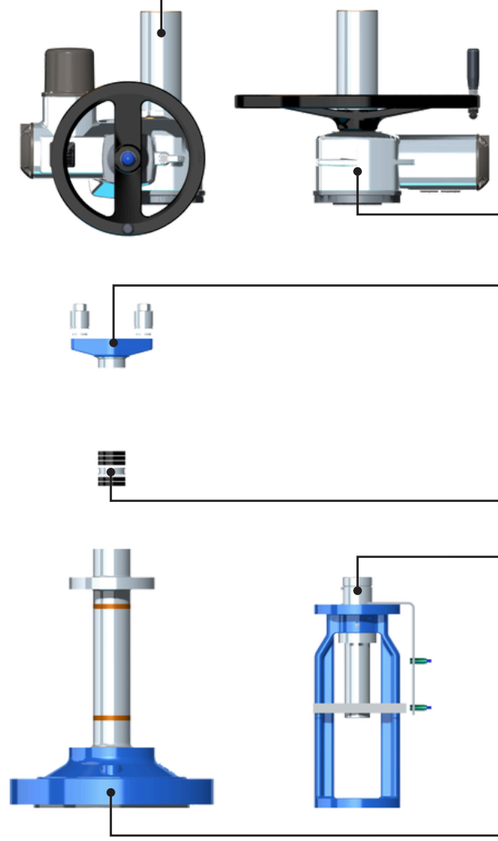
Limit Switching

Live-Loading Packing

Packing with Lantern Ring

Inductive Limit Switches

Extended Bonnet (Cryogenic)



GLOBE VALVES T- / Y-PATTERN EN / DIN

Globe Valves acc. to EN 13709 / DIN 3356

Nom. Size Range:	DN 15 - DN 300
Nom. Pressure Range:	PN 10 - PN 160
Temperature Range:	-200°C - +550°C
Standards:	
Test Pressure:	
	EN 12266-1 / -2
Face to face:	PN 10 - PN 40 EN 558 / 1 PN 63 - PN 160 EN 558 / 2
Flanges:	EN 1092-1
Facings:	Form B1 (PN 10 - PN 40) Form B2 (PN 63 - PN 160) Other flange designs available (e.g. Type D, Type F)
Butt Weld:	EN 12627 Other designs available
Face to face:	PN 10 - PN 40 EN 12982 / 1 PN 63 - PN 160 EN 12982 / 2 Extended face to face dimension by using optional pup pieces
Materials:	List of standard materials see page 24 Other materials on request

Design:

01 E **Body of Cast Materials**

02 E **Bolted Bonnet**

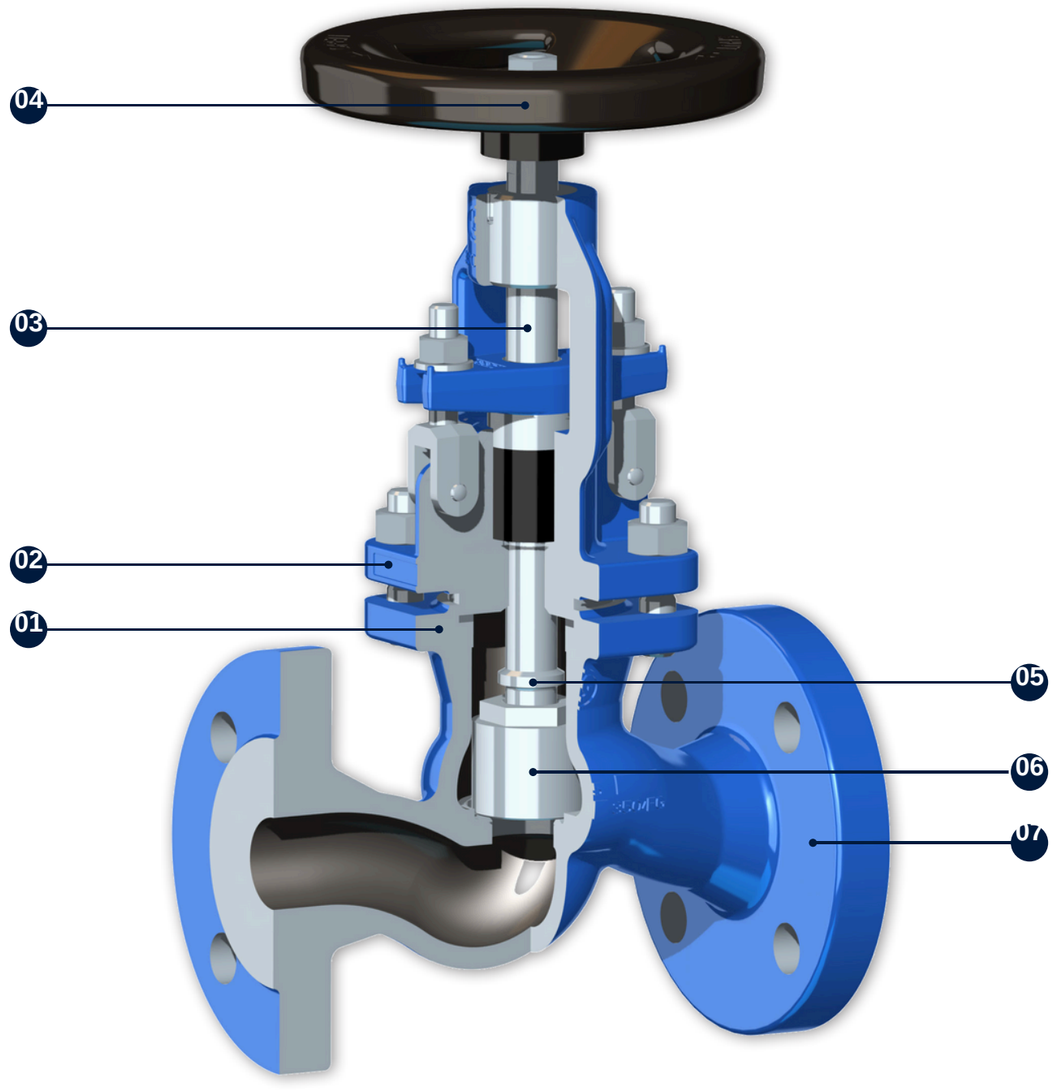
03 E **Outside Screw & Yoke**

04 E **Rising Handwheel / Rotating Stem**

05 E **Plug Type Disc (for high differential pressures balancing disc necessary, flow direction over disc)**

06 E **Blow Out Proof Spindle by backseat**

07 E **Flanged / Butt Weld Ends**



GLOBE VALVES OPTIONS

Gearbox with Handwheel

Handwheel

Pressure Balancing Disc

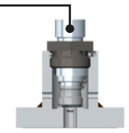
Soft Sealed Disc

Knife Edge Disc

Conical Disc

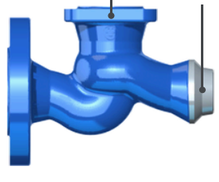
Throttle Disc

Standard Disc

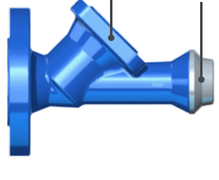


Bonnet

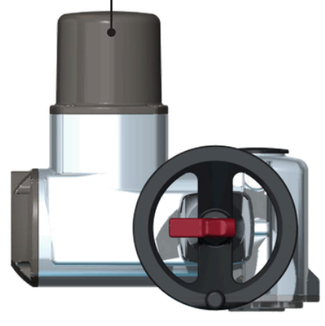
T-Type Butt Weld Ends



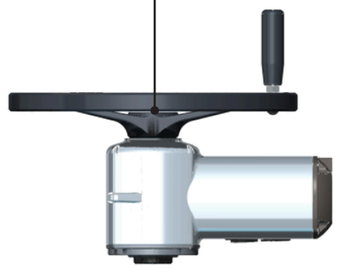
Y-Type Butt Weld Ends



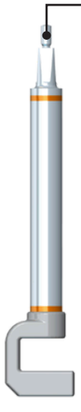
Electric Actuator



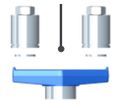
Limit Switching



Extended Stem



Live-Loading Packing



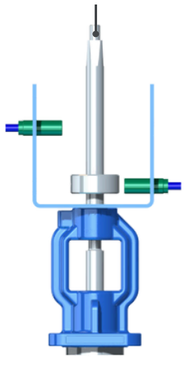
Extended Bonnet (Crygenic)

Packing with Lantern Ring

Actuator Connection Flange (ISO 5210)

Mechanical Position Indicator

Inductive Limit Switches



SWING CHECK VALVES EN / DIN

Swing Check Valves acc. to EN / DIN

Nom. Size Range: DN 50 - DN 600
Nom. Pressure Range: PN 10 - PN 160
Temperature Range: -200°C - +550°C
Standards:

Test Pressure:
EN 12266-1 / -2

Face to face:
PN 10 - PN 16 EN 558 / 48
PN 10 - PN 40 EN 558 / 1
PN 63 - PN 160 EN 558 / 2

Flanges: EN1092-1

Facings:
Form B1 (PN 10 - PN 40)
Form B2 (PN 63 - PN 160)
Other flange designs available
(e.g. Type D, Type F)

Butt Weld: EN 12627
Other designs available

Face to face:
PN 10 - PN 160 EN 12982 / 48
PN 10 - PN 160 EN 12982 / 1
Extended face to face dimension
by using optional pup pieces

Materials: List of standard materials see page 24
Other materials on request

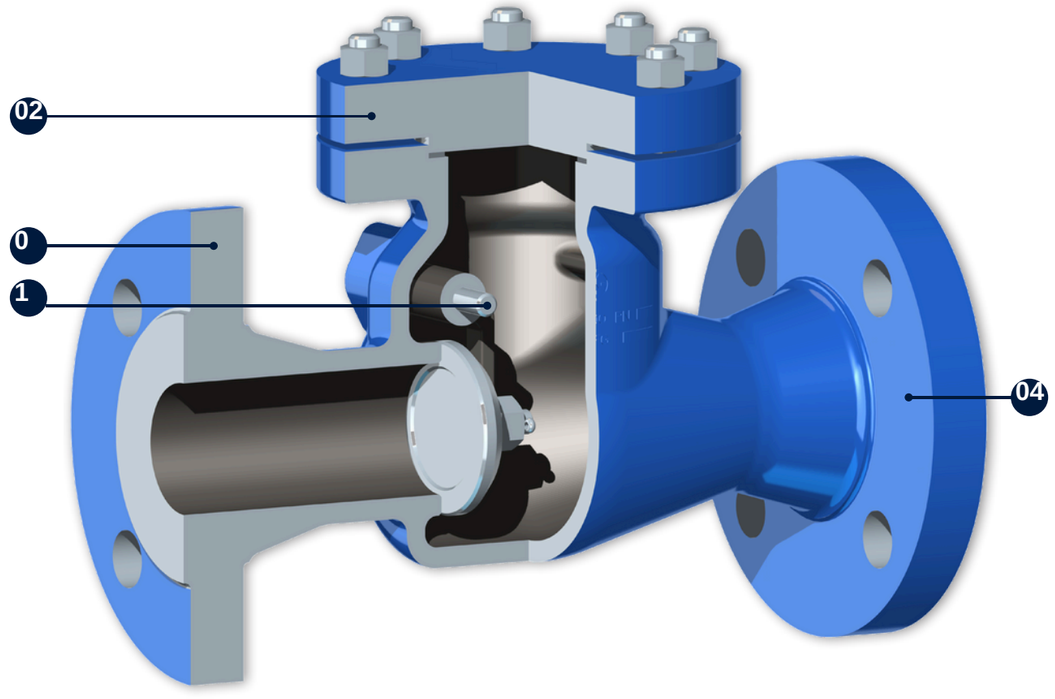
Design:

01 E **Body of Cast Materials**

02 E **Bolted Cover**

03 E **Inside Shaft Design**

04 E **Flanged / Butt Weld Ends**

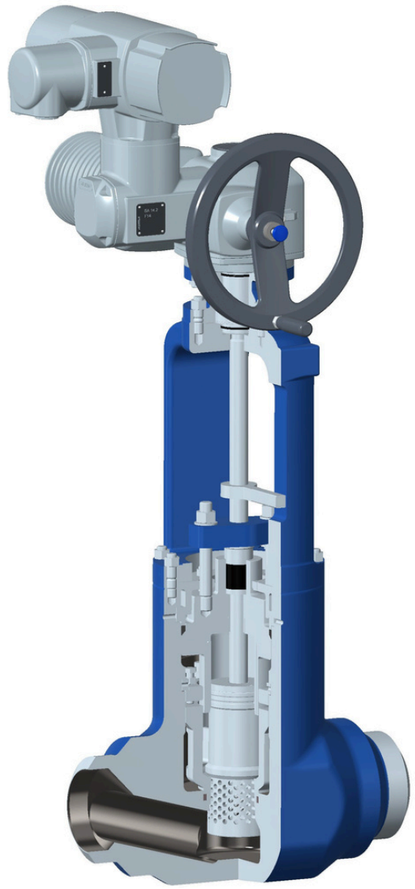


HIGH PRESSURE CONTROL VALVES ASME | EN / DIN

Pressure Seal Type / Forged Steel

Control Valves for water and steam cycle of conventional power plants and process applications in chemical and petro-chemical industries Design:
E Body Forged Steel Material E Pressure Seal Bonnet E Outside Screw & Yoke E Rising Spindle E Parabolic Disc / Perforated Disc E Standard Yoke prepared for mounting of electric actuator ISO 5210
E Mechanical Position Indicator

Nom. Size Range:	DN 80 - DN 600 / 3“- 24“
Nom. Pressure Range:	up to 600 bar
Temperature Range:	up to +650°C / +1,202°F



Individual sizing and design acc. to customer requirements

Test Pressure:	API 598 | FCI 70-2 | EN 12266-1 / -2 EN (IEC) 60534
Face to face: Butt Weld:	Manufacturer Standard acc. to customer specification under consideration of dimensions of forged body
Materials:	List of standard materials see page 24
Options:	Flanged Ends Pup Pieces Pneumatic Actuator Electric Actuator Hydraulic Actuator Limit Switches / Positioner Locking Device Live Loaded Packing System

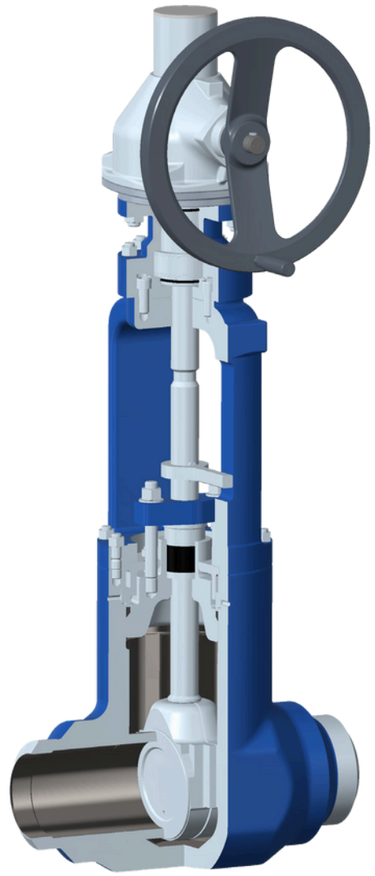
HIGH PRESSURE GATE VALVES ASME | EN / DIN

Pressure Seal Type / Forged Steel

Design:

E Body Forged Steel Material E Pressure Seal Bonnet E Outside Screw & Yoke E Non Rising Handwheel / Rising Spinde E Double Disc Type (hardfaced) E Larger Seat / Disc contact area in comparison to API Standard
E Standard Yoke prepared for mounting of electric actuator ISO 5210
E Mechanical Position Indicator

Nom. Size Range:	DN 80 - DN 600 / 3“- 24“
Nom. Pressure Range:	up to 600 bar
Temperature Range:	up to +650°C / +1,202°F



Individual sizing and design acc. to customer requirements

Test Pressure:	API 598 | EN 12266-1 / -2
Face to face: Butt Weld:	Manufacturer Standard acc. to customer specification under consideration of dimensions of forged body
Materials:	List of standard materials see page 24
Options:	Flanged Ends Pup Pieces Overpressure Protection Devices Pressure Relief Hole in Seat Pressure Relief Hole in Wedge Pressure Relief Valve Bypass Limit Switches Locking Device Live Loaded Packing System

HIGH PRESSURE GLOBE VALVES ASME | EN / DIN

Pressure Seal Type / Forged Steel

Design:

E Body Forged Steel Material E Pressure Seal Bonnet E Outside Screw & Yoke E Non Rising Handwheel / Rising Spindle E Parabolic Disc / Perforated Disc E Standard Yoke prepared for mounting of electric

actuator ISO 5210
E Mechanical Position Indicator

Individual sizing and design acc. to customer requirements

Test Pressure:	API 598 | EN 12266-1 / -2
Face to face: Butt Weld:	Manufacturer Standard acc. to customer specification under consideration of dimensions of forged body
Materials:	List of standard materials see page 24
Options:	Flanged Ends Pup Pieces Angle Type Parabolic Disc Stop-Check Valve Bypass Limit Switches / Positioner Locking Device Live Loaded Packing System

Nom. Size Range:	DN 80 - DN 300 / 3“- 12“
Nom. Pressure Range:	up to 600 bar
Temperature Range:	up to +650°C / +1,202°F

HIGH PRESSURE SWING CHECK VALVES ASME | EN / DIN

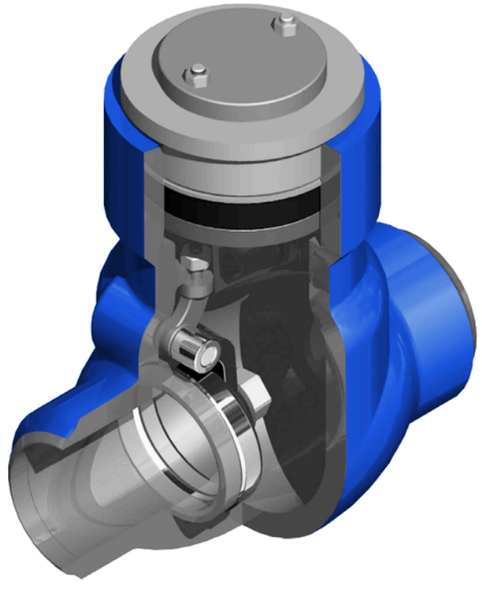
Pressure Seal Type / Forged Steel

Nom. Size Range:	DN 80 - DN 600 / 3“- 24“
Nom. Pressure Range:	up to 600 bar
Temperature Range:	up to +650°C / +1,202°F
Design:	

E Body Forged Steel Material
E Pressure Seal Bonnet

Individual sizing and design acc. to customer requirements

Test Pressure:	API 598 | EN 12266-1 / -2
Face to face: Butt Weld:	Manufacturer Standard acc. to customer specification under consideration of dimensions of forged body
Materials:	List of standard materials see page 24
Options:	Flanged Ends Pup Pieces



PISTON CHECK VALVES
T- / Y-PATTERN
EN / DIN

Piston Check Valve T-Pattern / Y-Pattern

Nom. Size Range: DN 15 - DN 200
Nom. Pressure Range: PN 10 - PN 160
Temperature Range: -200°C - +550°C
Design:

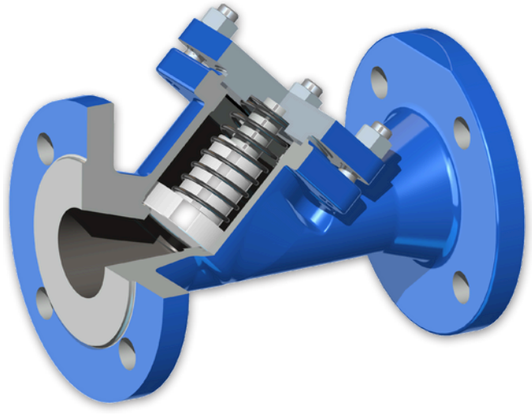
- E Body of Cast Materials
- E Bolted Cover
- E Spring Loaded Disc
- E Flanged / Butt Weld Ends

Standards:
Test Pressure: EN 12266-1 / -2

Face to face: PN 10 - PN 40 EN 558 / 1
PN 63 - PN 160 EN 558 / 2
Flanges: EN 1092-1
Facings: Form B1 (PN 10 - PN 40)
Form B2 (PN 63 - PN 160)
Other flange designs available
(e.g. Type D, Type F)

Butt Weld: EN 12627
Other designs available
Face to face: PN 10 - PN 40 EN 12982 / 1
PN 63 - PN 160 EN 12982 / 2
Extended face to face dimension
by using optional pup pieces

Materials: List of standard materials see page 24
Other materials on request



STRAINERS
Y-TYPE
EN / DIN

Strainer Y-Type

Nom. Size Range: DN 15 - DN 300
Nom. Pressure Range: PN 10 - PN 40
Temperature Range: -200°C - +450°C
Design:

- E Body of Cast Materials
- E Bolted Cover
- E Screen Stainless Steel
- E Flanged | Butt Weld Ends
- E Standard Meshsizes:
  DN 15 - DN 50 / 0,5 mm
  DN 65 - DN 150 / 1,0 mm
  DN 200 / 1,6 mm
  Gasket Stainless / Graphite

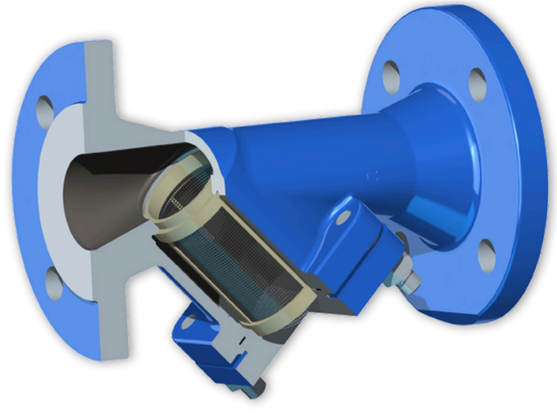
Standards:
Test Pressure: EN 12266-1 / -2

Face to face: PN 10 - PN 40 EN 558 / 1
Flanges: EN 1092-1
Facings: Form B1 (PN 10 - PN 40)
Other flange designs available
(e.g. Type D, Type F)

Butt Weld: EN 12627
Other designs available
Face to face: PN 10 - PN 40 EN 558 / 1
Extended face to face dimension by
using optional pup pieces

Materials: 1.4408, 1.4308, 1.4581, 1.0619
Other materials on request

Options: Drain Screw
Other Mesh Sizes
Different Gasket Materials available



V-AXX®
LATEST TECHNOLOGY IN BUTTERFLY VALVES DESIGN

Latest technology in Butterfly Valve Design: Five Offset Butterfly Valve, patent pending

The same designer who invented and patented the four offset butterfly valve in 2008 is introducing now the newest evolution in butterfly valve design. The first butterfly valve in the world which is not using a regular cone for it´s seat design.

In the newly designed V-AXX® valve, the seat shape can be changed around the whole seat without restrictions. If necessary, the angle of the seat, even in the shaft area, can be 25° or more, without changing the angle in other areas.

This is only possible due to the unique seat design, which is not formed by a simple cone but by a much more complex figure, not yet named in geometry.

In previous designs, the seat shape never changed along its 3D figure, but in the newly invented design, the lines forming the outside shape do not cross in the same point as in a cone.

Basically, this means the designer is free to design the seat angle all the way around the seat. If necessary, the shaft offset from the pipe centerline could be brought to zero and still produce a friction-free valve.

V-AXX® Kryogen

The research conducted in the Dr. Gaida R&D Institute has provided an initial evaluation of the real shrinkage rates in cryogenic temperatures as a function of the wall section and allowed the seat to be formed accordingly making the valve zero leakage from -270°C up to 1400°C, from vacuum up to 160bar, from liquid nitrogen up to liquid sodium.

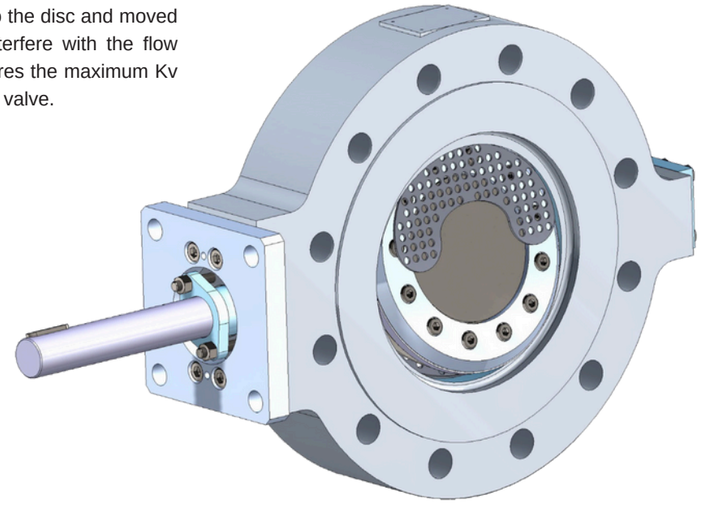
ORCA®
ELIMINATING THE RISK OF CAVITATION

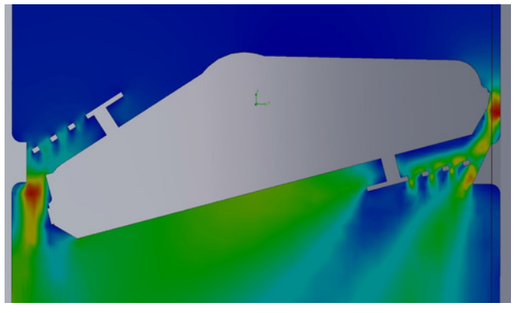
ORCA®

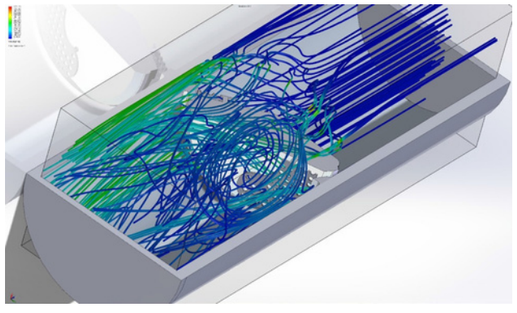
The new ORCA® trim provides huge advantages against other solutions. Plates mounted on both sides of the disc allow the pressure to drop in several stages and prevent supersonic speed in gases and prevent the cavitation in liquids. One or more sets of plates can be mounted in accordance to the customer needs, allowing an excellent flow control when the valve is partially open.

- Better flow control
- No cavitation
- No supersonic speed
- Lower noise level

Since the plates are mounted parallel to the disc and moved together with the disc, they do not interfere with the flow when the valve is fully open. This ensures the maximum Kv / Cv value remains as this of a standard valve.







V-AXX® MAXIMIZING KV / CV VALUES

V-AXX®

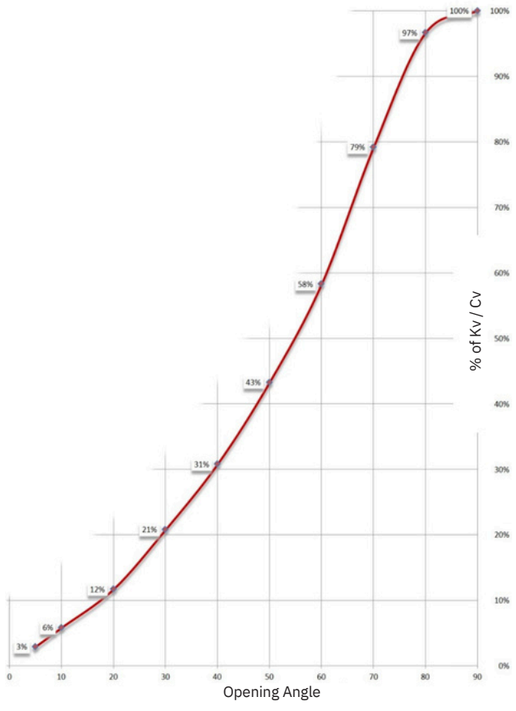
The V-AXX® valve has the highest Kv / Cv of any comparable torque-seated butterfly valve. Not only the valve can be sized smaller. Even the actuator, the piping as well as the entire construction supporting the piping can be sized smaller. Consequently, the costs can be reduced significantly.

With regards to day to day valve replacement where the pipe size and infrastructure have already been determined, the higher flow coefficients with the V-AXX® valve can improve the process performance and lower pumping costs due to the lower pressure drop across the valve.

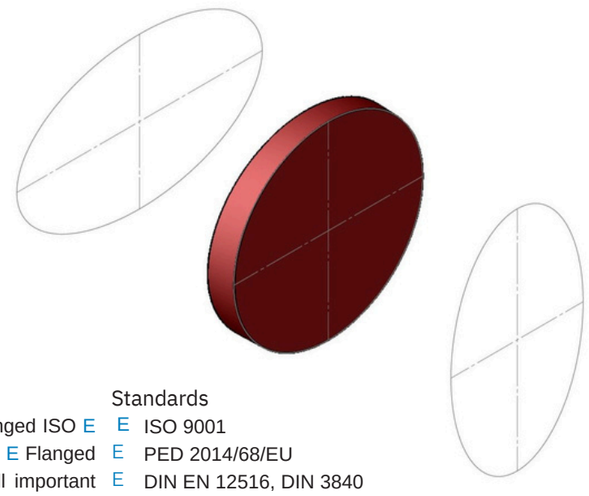
Kv / Cv Values

DN	Size	Kv Max	Cv Max
50	2“	39	45
80	3“	125	145
100	4“	273	316
125	5“	443	512
150	6“	693	801
200	8“	1532	1771
250	10“	2598	3003
300	12“	3933	4547
350	14“	5427	6274
400	16“	7760	8971
450	18“	10585	12237
500	20“	12845	14850
600	24“	20408	23593

Values for full rated ANSI 300 / PN 40 bidirectionally tight valve



PRODUCT RANGE 5-OFFSET BUTTERFLY VALVES



DN 50 to DN 2100 2” to 84” PN 10, 16, 25, 40, 63, 100, 160 ANSI 150, 300, 600, 900 Fully rated Delta P in both directions Temperature -270 °C up to 1.800 °C

-454 °F up to 3,272 °F

Body Versions

ELUG DIN 3202 K3 E LUG API 609 short E Flanged ISO E Flanged DIN 3202 F4 E Weld ends DIN 3202 S4 E Flanged B 16.10 All valves use stainless materials in all important areas. As a standard seat, seal, bearings, shaft, all screws, clamp ring, cover, gland follower all stainless.

Special Materials Available

- E Duplex, superduplex
- E Inconel
- E Monel
- E Bronze
- E Specials, like titanium

StrongSolutionsforSpecial Applications

- E Sealed bearing design
- E Monitoring port
- E Shaft extensions
- E Steam jacket

Standards

- E ISO 9001
- E PED 2014/68/EU
- E DIN EN 12516, DIN 3840
- E ASME B 16.34
- E AD 2000
- E AD W10
- E BAM Oxygen Approval
- E TA Luft
- E NACE MR 0175, NACE MR 0103
- E 94/9 EG ATEX

Zero Leakage, Fully Rated

- E EN 12266 Leakage rate A
- E DIN 3230 BA/BO/BN Leakage rate A
- E API 598 Resilient / API-6D
- E BS 6364

FireSafeinBoth Directions

- E ISO 10497
- E API 607
- E BS 6755

Actuator

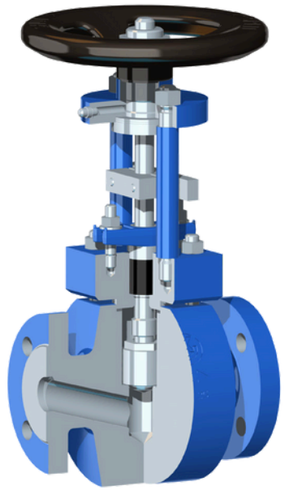
- E Manual gear box
- E Pneumatic NC / NO / DA
- E Hydraulic NC / NO / DA
- E Electric

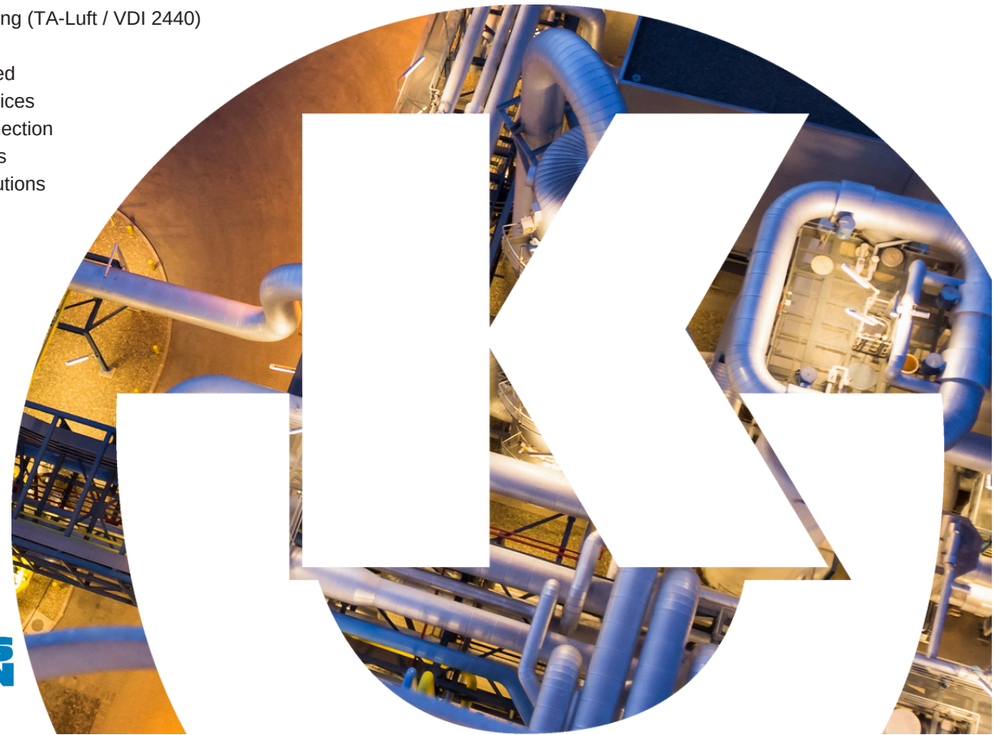
TAILOR-MADE VALVES BY KLAUS UNION

Klaus Union offers their complete valve range in special executions based on customer´s needs.
Engineering, manufacturing, assembling and testing. All in one company: Klaus Union.

Special executions, Special materials, Special applications? Klaus Union has the technical valve solution:

E Valves made from bar stock material
E Special materials
(Titanium, Monel®, Inconel®, Hastelloy®,...)
E Cryogenic Valves
E Sour Gas Service (NACE)
E Valves for molten salt applications
E Valves for oxygen services
E Flushing devices
E Remote Control Units
E Fire Safe DIN EN ISO 10497 and API 607, 6th Edition
E Low Emission Packing (TA-Luft / VDI 2440)
E Stem Protections
E Double Block & Bleed
E Pressure Relief Devices
E Sealing Water Connection
E Interlocking Systems
E Resilient Disc Executions
E Heating Jacket





STANDARD MATERIALS CASTED / FORGED

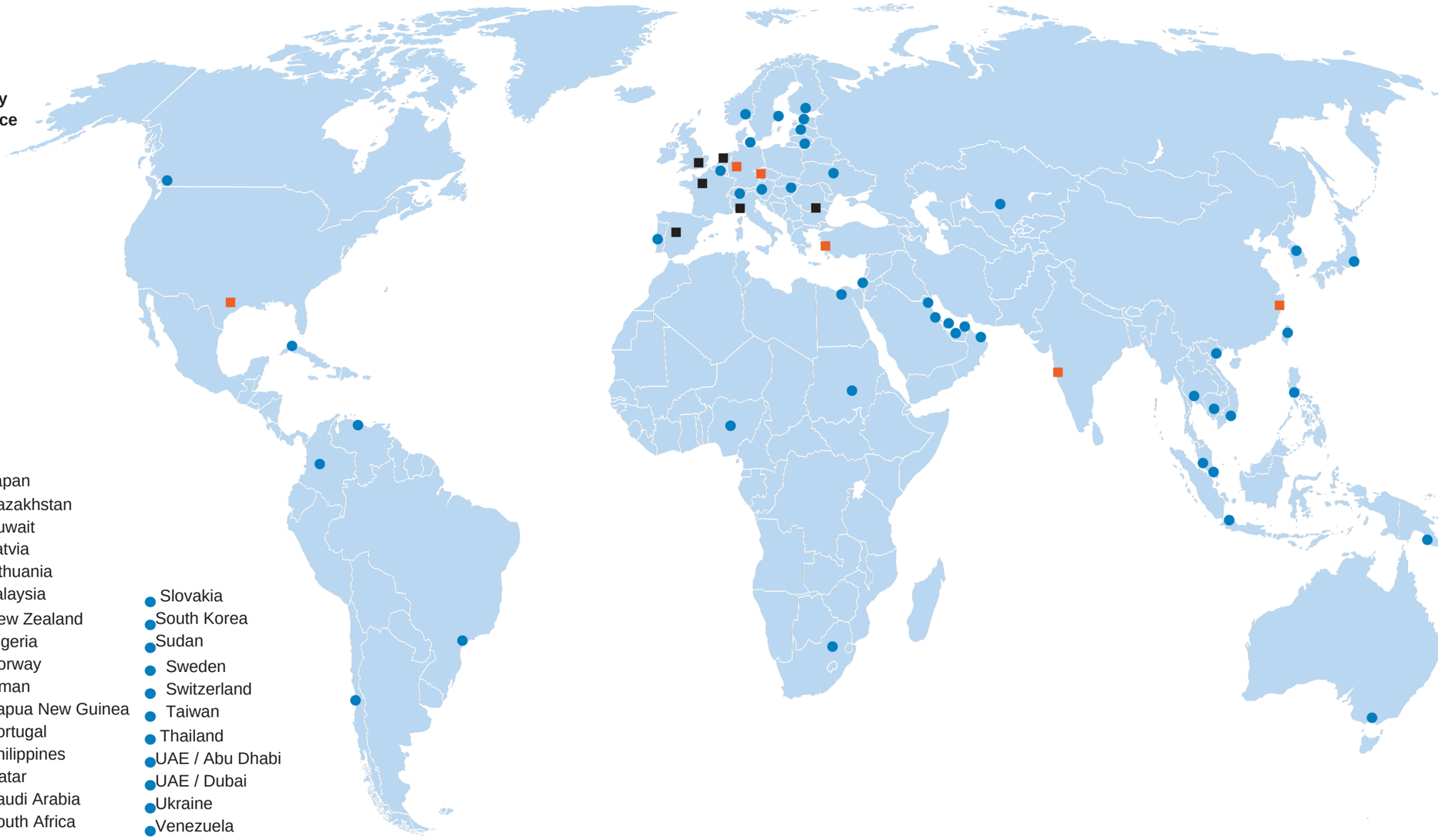
Materials		Materials ASTM
EN	GX5CrNi19-10	A351 CF8
1.4308 1.4552	GX5CrNiNb19-11	A351 CF8C
1.4408 1.4581	GX5CrNiMo19-11-2	A351 CF8M
1.4470 9.4439	GX5CrNiMoNb19-11-2	A351 CF8MC
1.4536 1.6902	GX2CrNiMoN22-5-3	A995 4A
	GX2CrNiMoN17-13-5	
	GX2NiCrMoCuN25-20	
	GX6CrNi18-10	
1.061	GP240GH	A216 WCB
9	G20Mo5	A217 WC1
1.541	G17CrMo5-5	A217 WC6
9	GS-12 CrMo 19	A217 C5
1.735	5 GS-12 CrMo 9	A217 WC9
7	10 G20Mn5	A352 LCB
1.736	G26CrMo4	
3	G21Mn5	
1.738		
1.0460 0	P250GH	A105
1.5415 1.622	16Mo3	
1.7335 0	13CrMo4-5	A182 F11 /
1.7380 1.722	10CrMo9-10	F12 A182 F22
1.4903 1	X10CrMoVNb9-1	A182 F91
1.113		
8		

Further Materials upon Request

KLAUS UNION GLOBAL PRESENCE

Centers of Competence & Sales Offices **Worldwide**

- **Klaus Union Center of Competence**
- **Klaus Union Subsidiary**
- **Klaus Union Sales Office**



- Germany/ Bochum
- China/ Ningbo
- Czech Republic/ Krnov
- India/ Pune
- Turkey/ Izmir
- USA/ Houston
- England
- France
- Italy
- The Netherlands
- Romania
- Spain
- Australia
- Austria
- Belgium
- Brazil
- Cambodia
- Canada
- Chile
- Colombia
- Cuba
- Denmark
- Egypt
- Estonia
- Finland
- Hungary
- Indonesia
- Iraq
- Israel
- Japan
- Kazakhstan
- Kuwait
- Latvia
- Lithuania
- Malaysia
- New Zealand
- Nigeria
- Norway
- Oman
- Papua New Guinea
- Portugal
- Philippines
- Qatar
- Saudi Arabia
- South Africa
- Singapore
- Slovakia
- South Korea
- Sudan
- Sweden
- Switzerland
- Taiwan
- Thailand
- UAE / Abu Dhabi
- UAE / Dubai
- Ukraine
- Venezuela
- Vietnam

Product Range Pumps:

Magnet Drive Pumps

- Centrifugal Pumps according to DIN EN ISO 2858 & DIN EN ISO 15783
- Centrifugal Pumps according to ASME B73.3
- Centrifugal Pumps according to API 685
- Multi-Stage Centrifugal Pumps (Barrel/Ring-Section Design)
- Side Channel Pumps following DIN EN ISO 15783
- Twin Screw Pumps, Single Volute, according to API 676 and DIN EN ISO 14847
- Pumps in Close-Coupled Design
- Pumps for High Pressure Applications
- Pumps for High Temperature Applications
- Self-Priming Pumps
- Vertically Suspended (Sump) Pumps, Single- / Multi-Stage and Twin Screw Design
- Vertical Inline Pumps

Mechanically Sealed Pumps

- Centrifugal Pumps according to DIN EN ISO 2858 & DIN EN ISO 5199
- Centrifugal Pumps following API 610 & ISO 13709
- Multi-Stage Centrifugal Pumps (Barrel/Ring-Section Design)
- Propeller Pumps, Horizontal / Vertical / Bottom-Flange
- Side Channel Pumps
- Twin Screw Pumps, Single / Double Volute, according to API 676 and DIN EN ISO 14847
- Pumps for High Pressure Applications
- Pumps for High Temperature Applications
- Self-Priming Pumps
- Vertically Suspended (Sump) Pumps, Single- / Multi-Stage and Twin Screw Design
- Vertical Inline Pumps

Product Range Valves:

- Globe Valves, T-Pattern
- Globe Valves, Y-Pattern
- Control Valves
- Gate Valves, Isomorphous Construction Series
- Gate Valves, Wedge or Wedge Plates
- Check Valves
- Butterfly Valves, Metal Seated
- Control Butterfly Valves, Metal Seated

Klaus Union Service Performance:

- Workshop / On-Site Repairs
- Genuine Spare Part Delivery Worldwide
- Spare Parts Storage
- Customized Spare Parts Management
- On-Site Maintenance
- Installation
- Retrofitting
- On-Site Testing / Monitoring
- Customer Advisory Service
- Start Up & Commissioning
- Individual 24 / 7 Service
- Trouble-Shooting
- In-House & On-Site Training
- On-Site Assembly and Disassembly
- Long-Term Maintenance Contracts
- Maintenance Planning and Consulting
- Diagnostics

Klaus Union GmbH & Co. KG
Blumenfeldstraße 18 | 44795 Bochum | Germany
Phone: +49 (0) 234 4595-0 | Fax: +49 (0) 234 4595-7000 | E-Mail: info@klaus-union.com
www.klaus-union.com

KU_PRV_2022/04