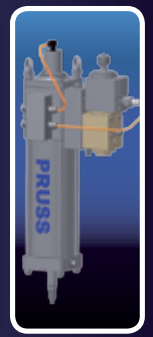
pruss

INDUSTRIAL VALVES

Experience and Quality since 1889



Company

PRUSS ARMATUREN AG

After more than 10,000 successfully realised projects in many different sectors, we know exactly what matters.

125 years of experience

We have been working successfully for our customers for 125 years. We offer experience, expertise, tradition, development and progress.

Our solutions

We deliver customised solutions and meet the highest requirements and quality standards.

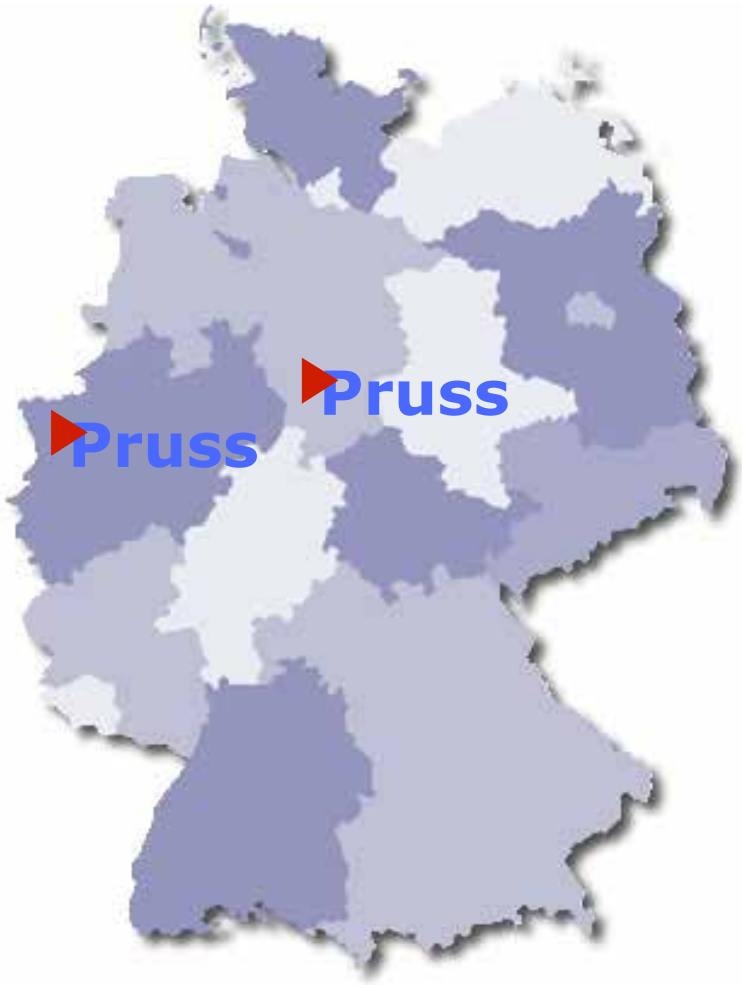
pruss

HANNEMANN pruss

HANNEMANN&PRUSS GmbH

Kraftwerks- und Industriearmaturen

- Core business: Precision control valves
- Year of inception: 1889 / 1905
- Location: Hanover, Germany / Solingen, Germany
- Site: 13,000 sq.m
- Production area: 10,000 sq.m
- Export share: 60%



Expertise and know-how

Your specialist for power plants

Main technology partner
for power plant systems
manufacturers

Your specialist in the field of oil + gas

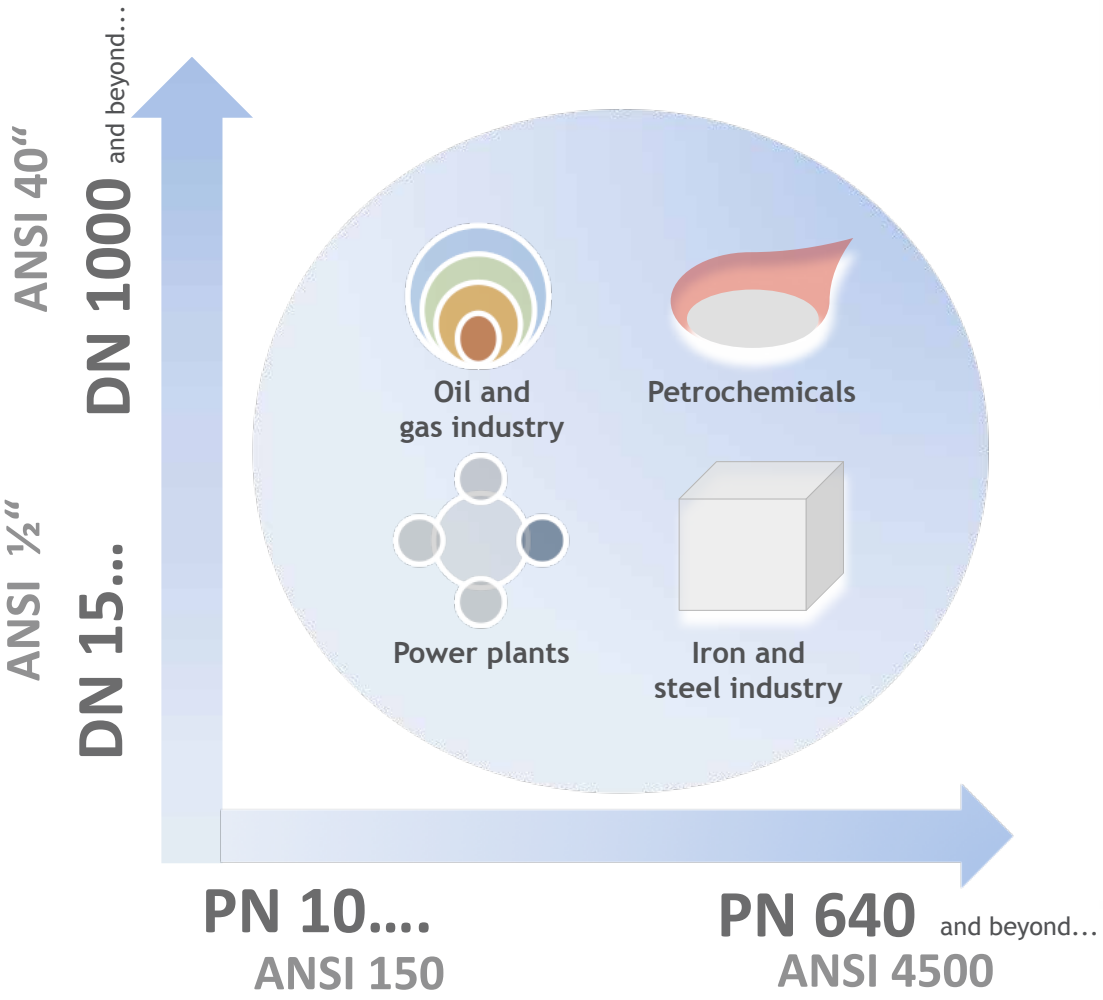
Technology partner
for valves in petro-
chemical plants and
off-shore

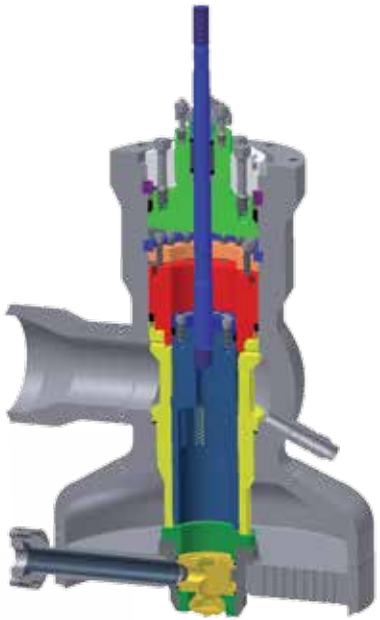
Product areas and market segments

Branch	Power plants	Oil and gas industry	Iron and steel industry	Petrochemicals
Products	Oil and gas control valves Feed water control valves Steam reduction valves Steam converting valves Water injection valves Condensation discharge regulator valves	Valves for oxygen, nitrogen Gas pressure regulators Storage valves and discharge valves Regulator valves	Cooling valves Valves for O_2, N_2 and argon	Valves for chemical applications Bypass valves
Applications	Fuel regulation Feed water treatment Steam turbine Condenser Gas turbine Pipeline system	Gas separation system Caverns Gas compressors	Furnace Reduction systems Continuous casting systems	Cracker regenerators Chemical plants

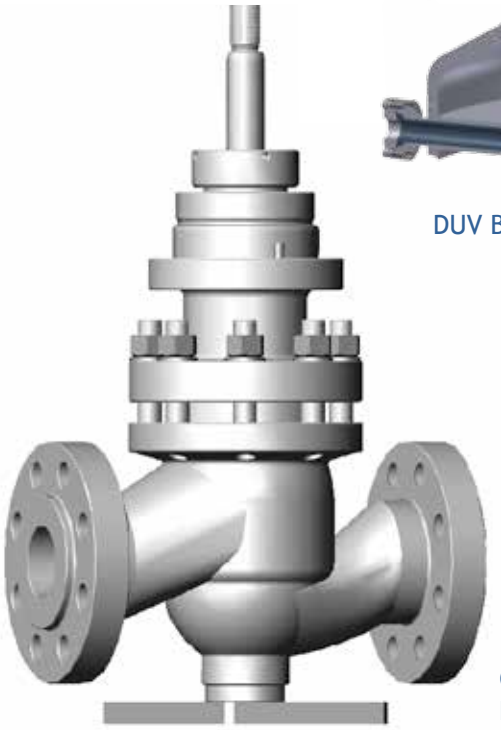
Portfolio

A broad spectrum of applications





DUV BR 450L DN 200 / 700



Control valve
BR 300 DN 250 PN 40

Customised solutions based on our product lines

Pipeline control valves with detached control blocks

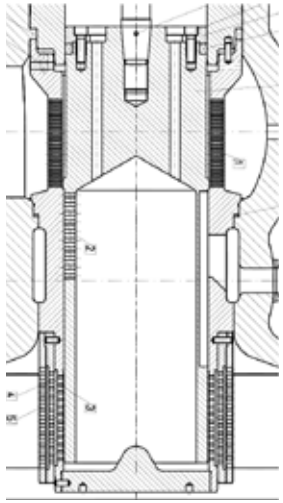
Steam conversion station as complete package

PRDS as controlled safety valve incl. component-tested steam rod

Stainless steel compressor control valves

"Whispering" HP bypass

HP boiler control valves



7-stage "whispering" turbine bypass

Compressor CV with floor pedestal

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References

Power plants

SIEMENS
ALSTOM
MAN
AnsaldoEnergia
RWE
e·on
EnBW
FOSTER WHEELER
VATTENFALL
EDF ENERGY
Valmet

Oil and gas industry

STATOIL
Shell
MAN
Sabah Methanol Company L.L.C. (SFZ)
STATOIL HYDRO
Sinopec
EXXON
Atlas Copco
SIEMENS
Eni
bp
AIR LIQUIDE
Technip
OMV
Linde

Iron and steel industry

HKM Hüttenwerke Krupp Mannesmann
SALZGITTER FLACHSTAHL
ArcelorMittal
sabic
ThyssenKrupp

Petrochemicals

bp
SAMSUNG
BAYER
sanofi aventis
Shell
BASF The Chemical Company

Segment suppliers

Rexroth Bosch Group
VOITH TURBO POWER TRANSMISSION
CHEMOVALVE B.V.
V-LINE EUROPE
DRESSER-RAND
KSB
SAG

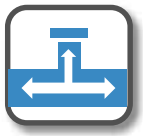
Quality characteristics

High performance materials

The choice of exact fitting, high-quality raw materials guarantees a long life and reliability even in the most extreme conditions.

Leakage rates

As a result of constant refinement, we are able to offer our products permanently leakage-tight even under extreme operating conditions.



Design and construction

Decades of experience enable us to choose the exact right design for every application. We are using, for example sperical shaped forged bodies. The wallthickness of those are almost equal over the hole body, which has the advantage of avoiding tensions caused by accumulation of material. As a result, they can withstand fast heat-up rates.

Characteristic curves / turndown ratio

Any characteristic curve is achievable, sometimes in conjunction with very extreme turndown ratios (250:1). If desired, we are able to aprove this on our fully automated, PTB certified Kvs test bench.

Noise emissions

The prevention of noise emissions through multi-stage, fully controled inner parts and downstream silence packs, enables us to meet even the most demanding noise requirements.

Interfaces

We supply flange connections in accordance with all known standards, incl. counter-flanges, seals and connecting pieces. We adapt the material of the weld ends, if required, to avoid mixed weldings or adapters on site.

Ambient conditions

Individual designs can also cope with the most extreme ambient conditions, e.g.: spindle protection for use in desert climates or low temperature designs down to -60°C for pipeline applications.

Ex protection

Explosive and flammable substances require special measures. Pruss valves and its actuators can be supplied in all Ex protection classes.

Drives

Whether pneumatic, hydraulic or electrical, whether from PRUSS or from well-known manufacturers, all drives are selected, adapted and adjusted to fit our valves, and subjected to a test run. We are able to document this process for you by our fully automated test bench.

Low maintenance design

As a result of many years of experience, constant refinement and modular design, we can offer you valves which are almost maintenance-free. Long shutdowns for complicated and time-consuming repairs is a thing of the past with Pruss.

Our valves























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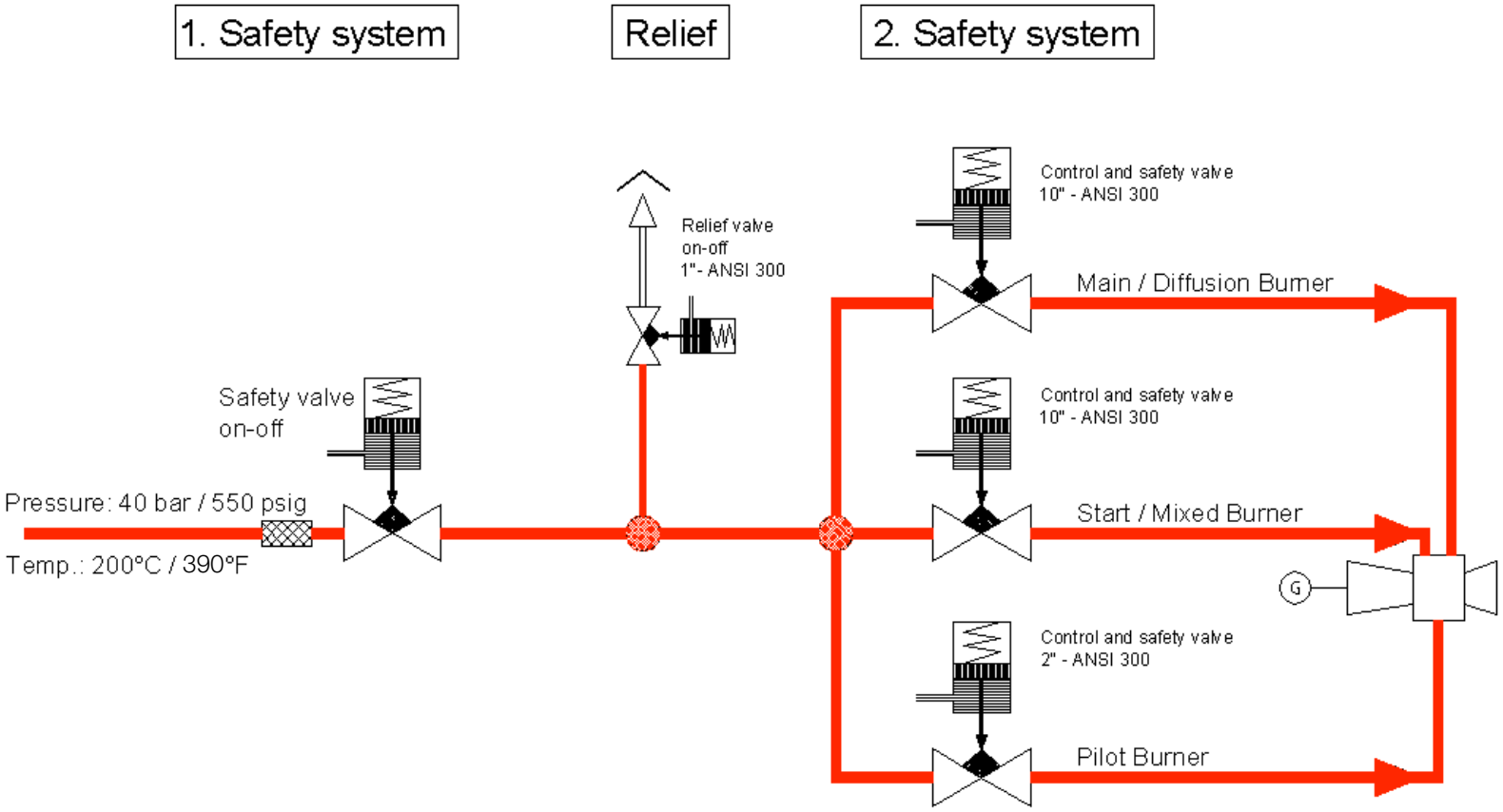
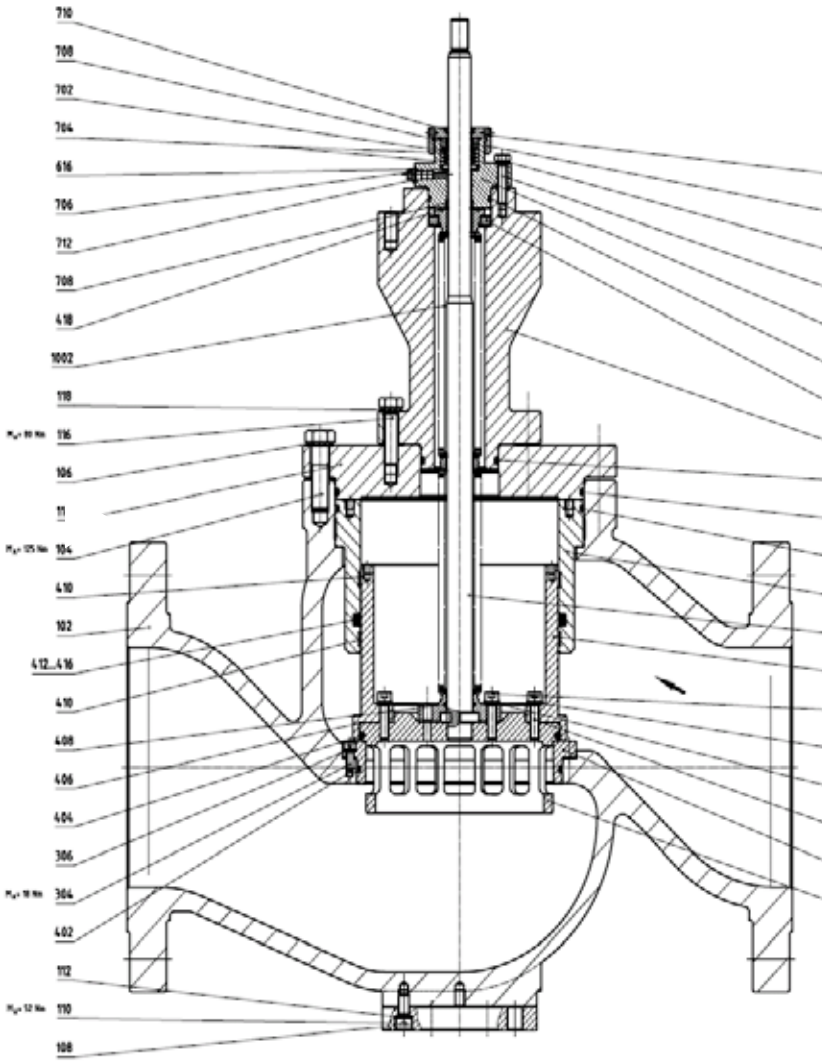
Power plants: Gas and steam power plant

Gas turbine

Gas Package
Siemens/ Westinghouse GT V94.3A (V84.3)
Ring-Burner

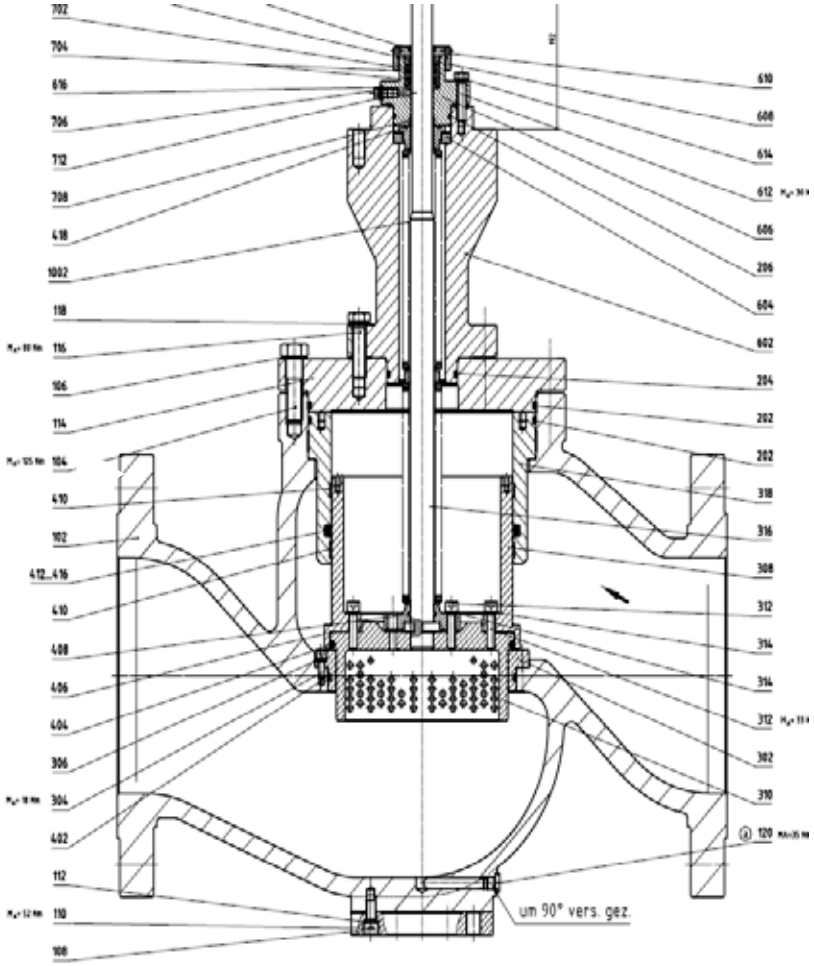


Quick-action gas valve



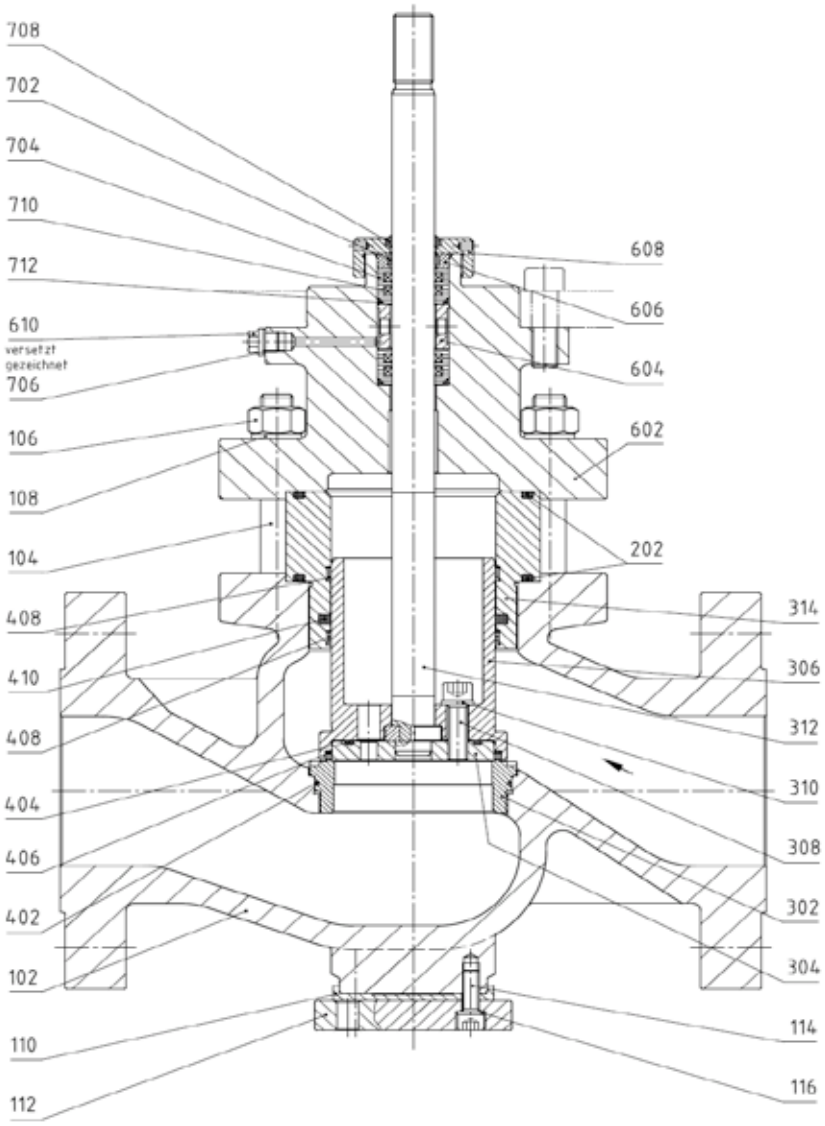
Application:	Gas-fired power plants
Product:	Gas turbine fuel valve, quick-action valve
Design:	Straight
Housing material:	Austenitic cast steel
Pipe connection:	Flanges
Valve plug type:	Slot plug
Valve seat seal:	Soft sealing
Spindle seal:	Bellow seal with additional safety gland packing
Drive type:	Hydraulic actuator
Control function and/or Safety function:	Fuel feed to gas burner in gas turbine, fast closing in < 0.25 sec if turbine trips, valve forms gas lock together with gas regulator valve
Highlights:	Tightly sealed even after 20,000 cycles, fully balanced

Gas control valve with quick-action function



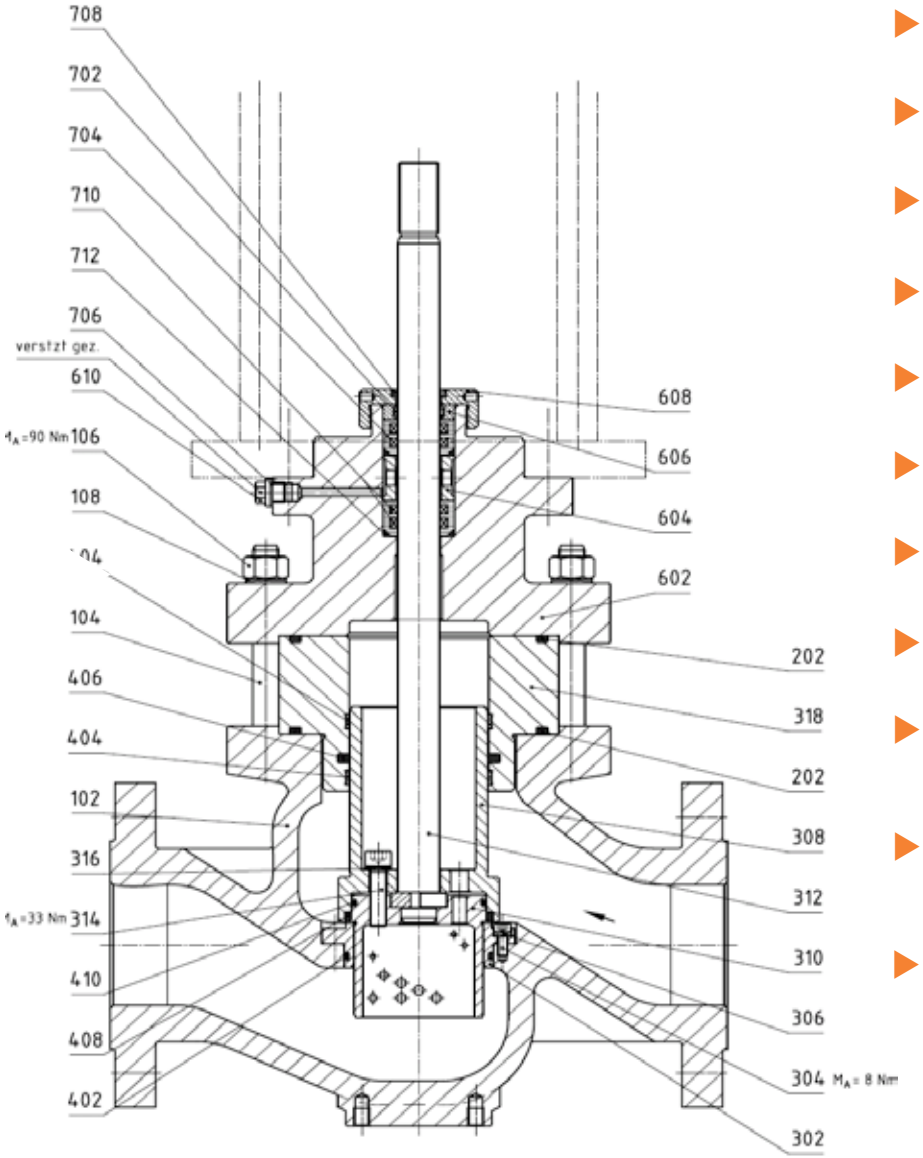
Application:	Gas-fired power plants
Product:	Gas turbine fuel valve, control valve with quick-action function
Design:	Straight
Housing material:	Austenitic cast steel
Pipe connection:	Flanges
Valve plug type:	Perforated plug
Valve seat seal:	Soft sealing
Spindle seal:	Bellow seal with additional safety gland packing
Drive type:	Hydraulic actuator
Control function and/or Safety function:	Fuel feed to gas burner in gas turbine, fast closing in < 0.25 sec if turbine trips, valve forms gas lock together with gas regulator valve
Highlights:	Tightly sealed, turndown ratio of 1 : 200, fully balanced

Quick-action oil valve



Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Oil on – off valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Flat plug
Valve seat seal:	Soft sealing
Spindle seal:	Soft sleeve
Drive type:	Electrical, pneumatic or hydraulic
Control function and/or Safety function:	Oil feed in oil system
Highlights:	Tightly sealed even after 20,000 cycles, fully balanced

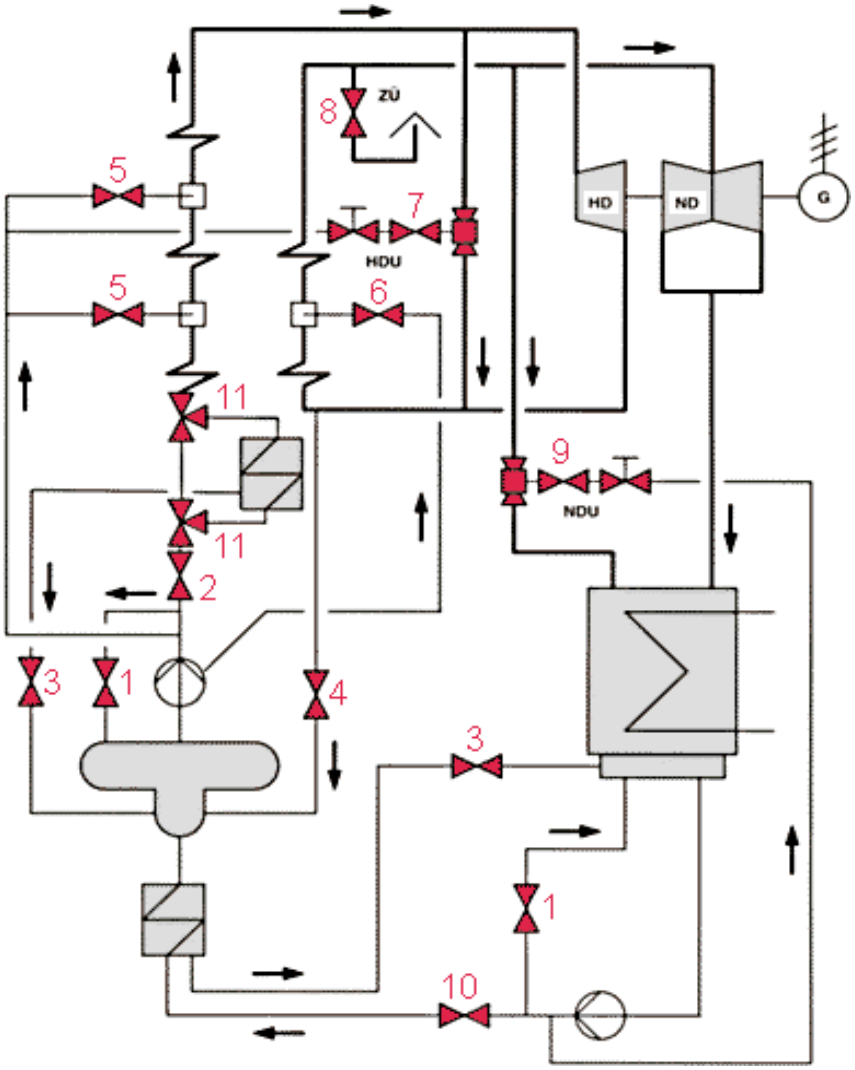
Oil control valve with quick-action function



Application:	Gas-fired power plants
Product:	Oil control valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Perforated plug
Valve seat seal:	Soft sealing
Spindle seal:	Soft sleeve
Drive type:	Electrical, pneumatic or hydraulic
Control function and/or Safety function:	Oil feed in oil system
Highlights:	Tightly sealed even after 20,000 cycles, fully balanced

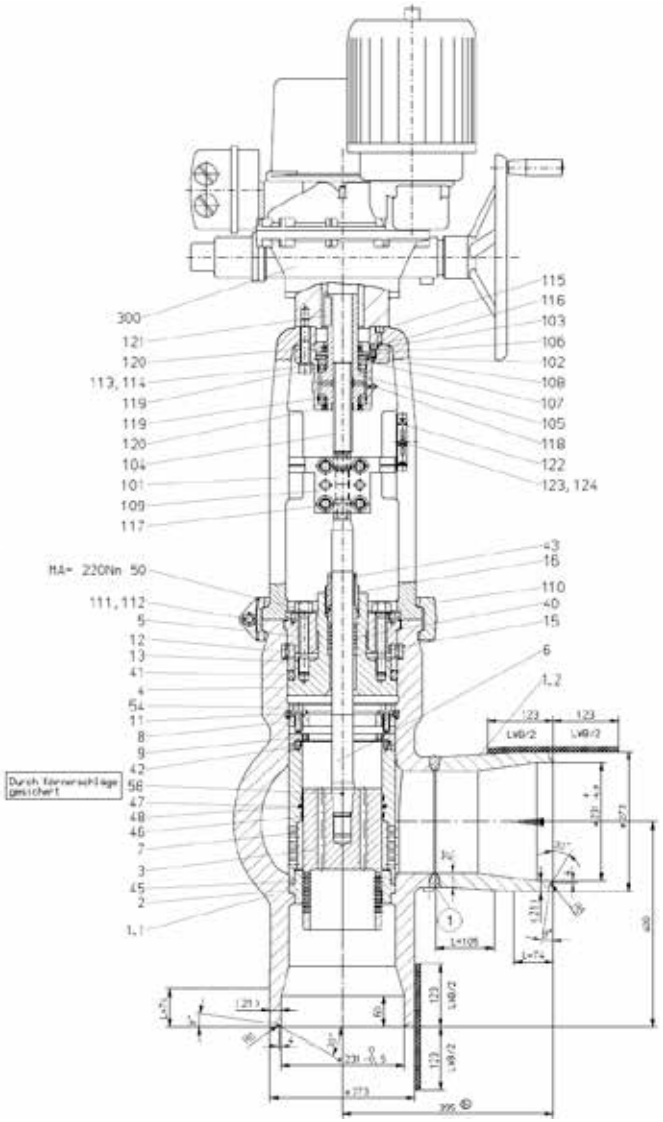
Thermal power stations

One supplier for the whole process



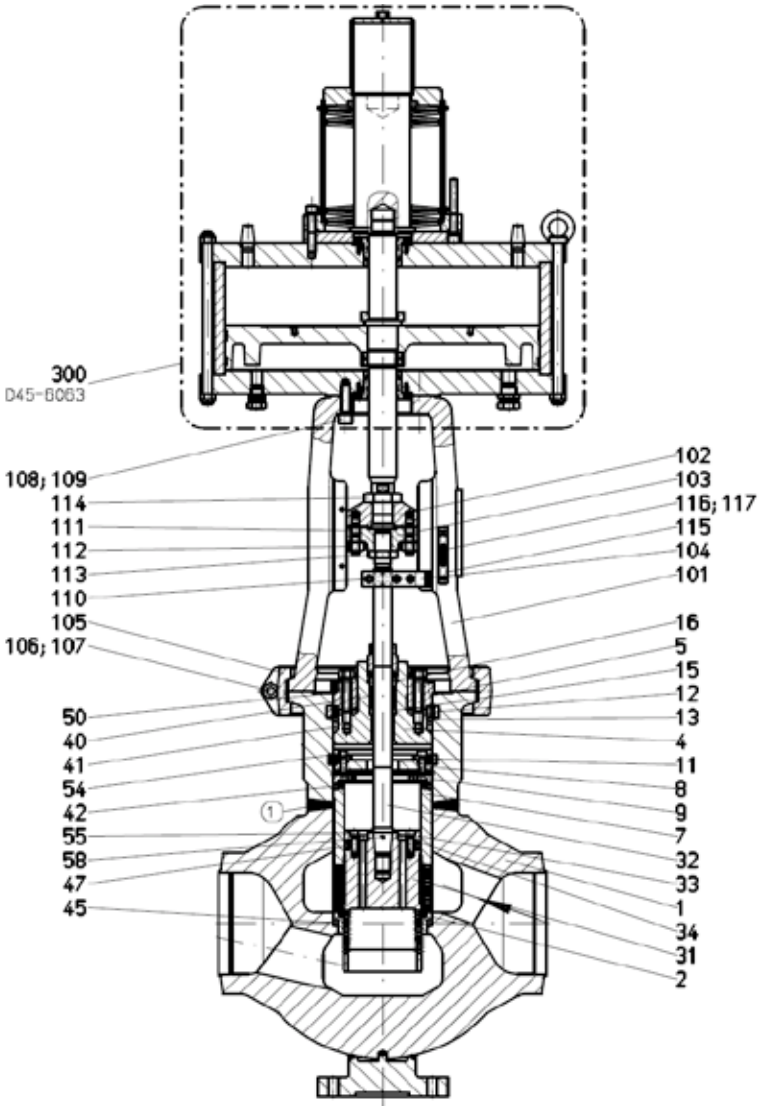
- 1 Minimum volume control valves
- 2 Feed water control valves
- 3 Level control valves
- 4 Steam reduction stations
- 5 Injection control valves
- 6 Injection control valves
- 7 HP bypass stations
- 8 Reheater safety valve
- 9 LP bypass stations
- 10 Condenser level control valves
- 11 Preheater protection

Feed water control valve



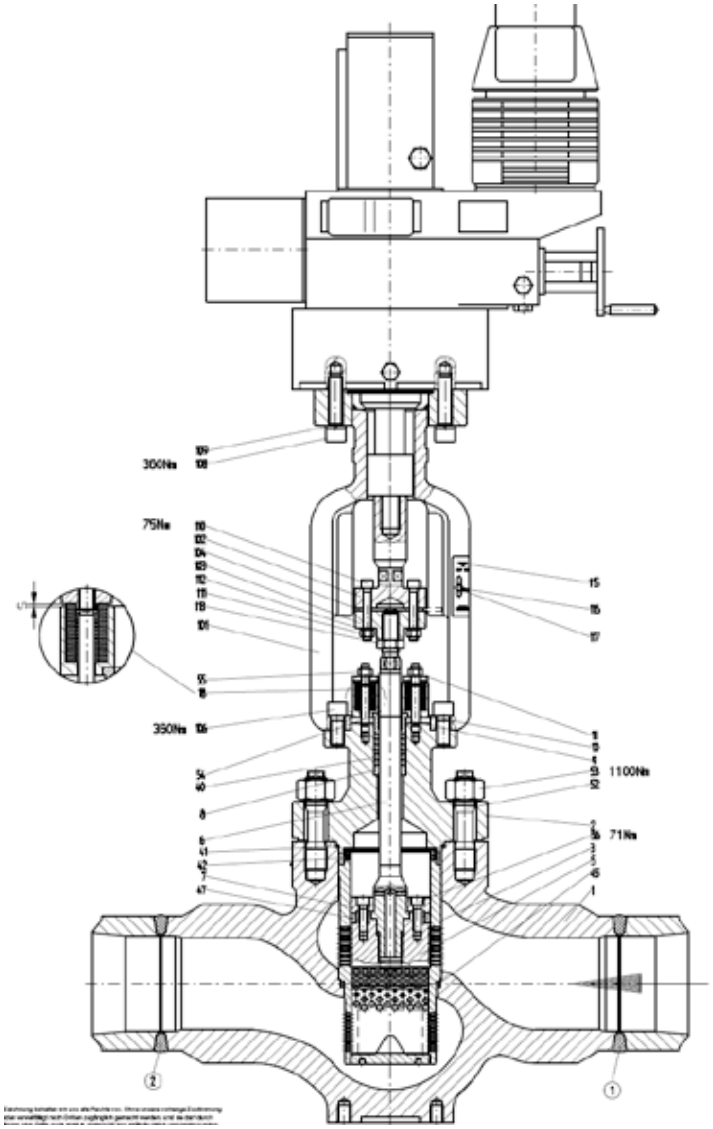
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	100% feed water control valve
Design:	Angular form
Housing material:	Forged steel
Pipe connection:	Weld ends
Valve plug type:	Perforated plug
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Electrical actuator
Control function and/or Safety function:	Regulating the feed water flow
Highlights:	Balanced, leakage rate A, inner parts inserted

Feed water control valve



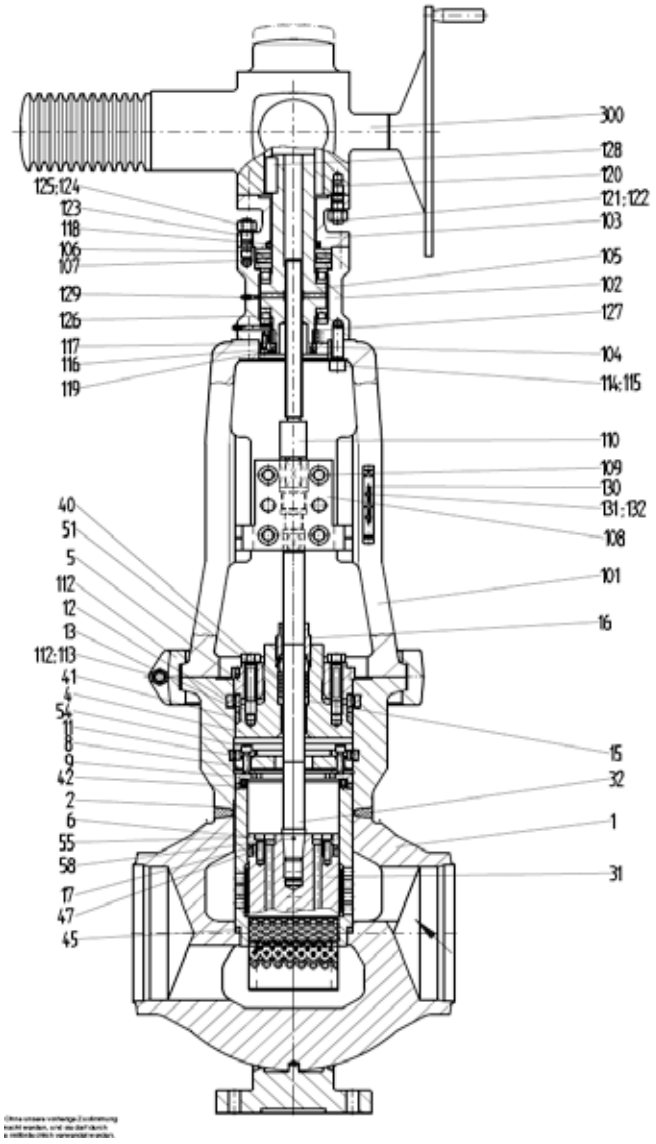
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** 100% feed water control valve
- **Design:** Straight
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Two-stage throttle system consisting of perforated cage and perforated plug
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Pneumatic piston drive
- **Control function and/or Safety function:** Regulating the feed water flow
- **Highlights:** Balanced, leakage rate A, inner parts inserted

Feed water start-up control valve



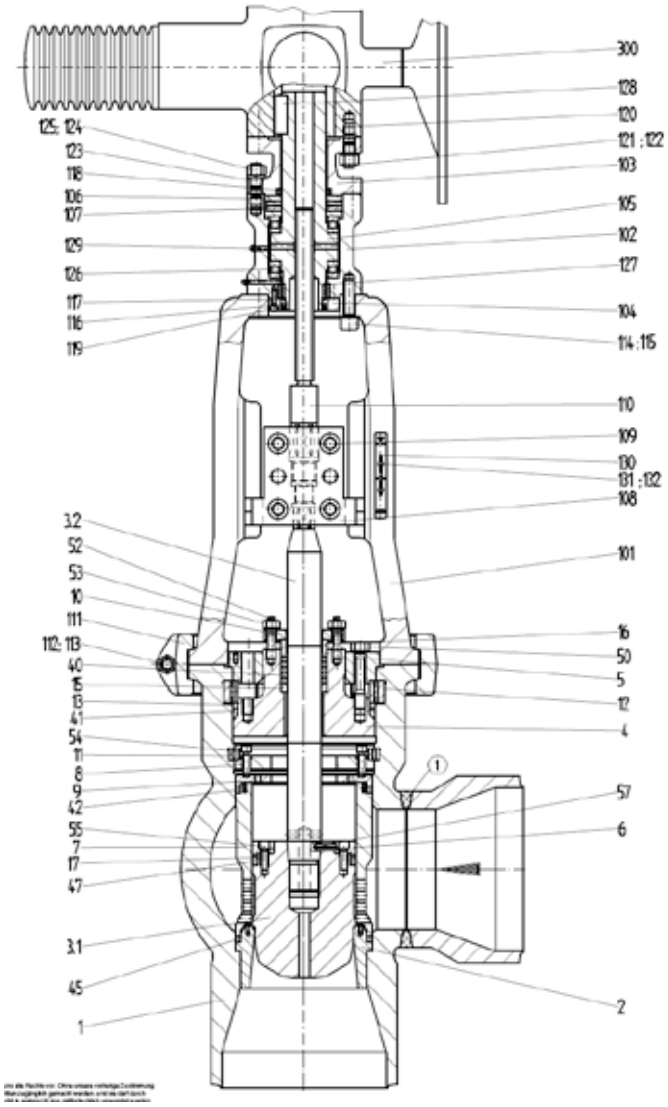
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Feed water start-up control valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Weld ends
Valve plug type:	Multi-stage throttle system consisting of perforated cage and labyrinth plug and seat
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing in "life-loading design"
Drive type:	Electric actuator
Control function and/or Safety function:	Regulating feed water volume during start-up
Highlights:	Leakage rate A, economical cast housing

Comb. start-up / full load feed water valve



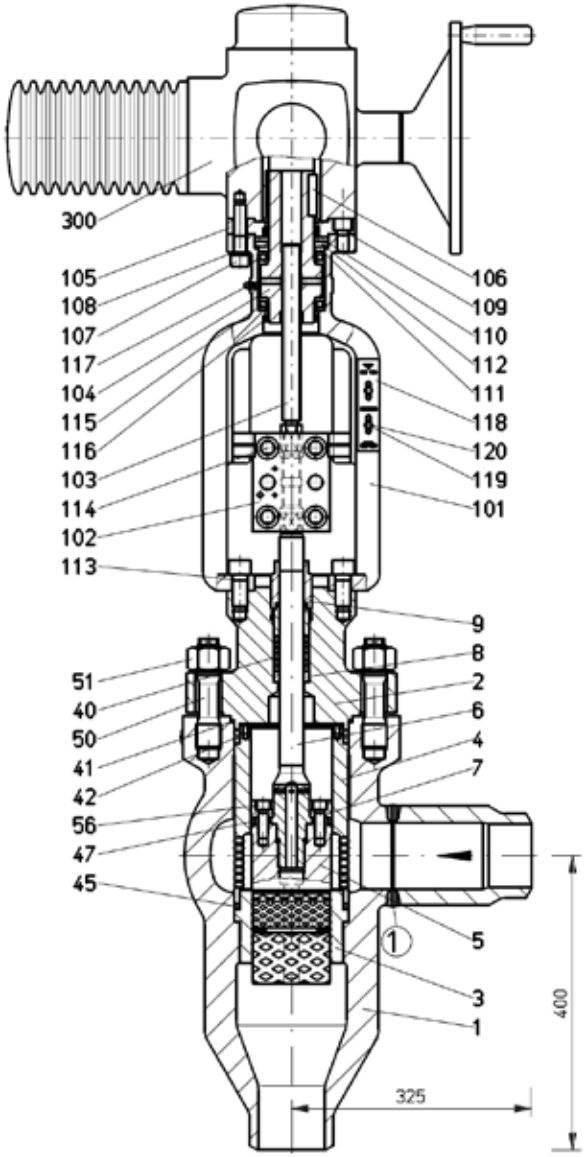
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Combined start-up and full load feed water control valve
Design:	Straight
Housing material:	Forged steel
Pipe connection:	Weld ends
Valve plug type:	Multi-stage throttle system consisting of perforated cage and labyrinth plug
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Electric actuator
Control function and/or Safety function:	Regulating the feed water flow during start-up and at full load
Highlights:	Balanced, leakage rate A, inner parts inserted, reduction of extreme high DPs

Boiler recirculation control valve



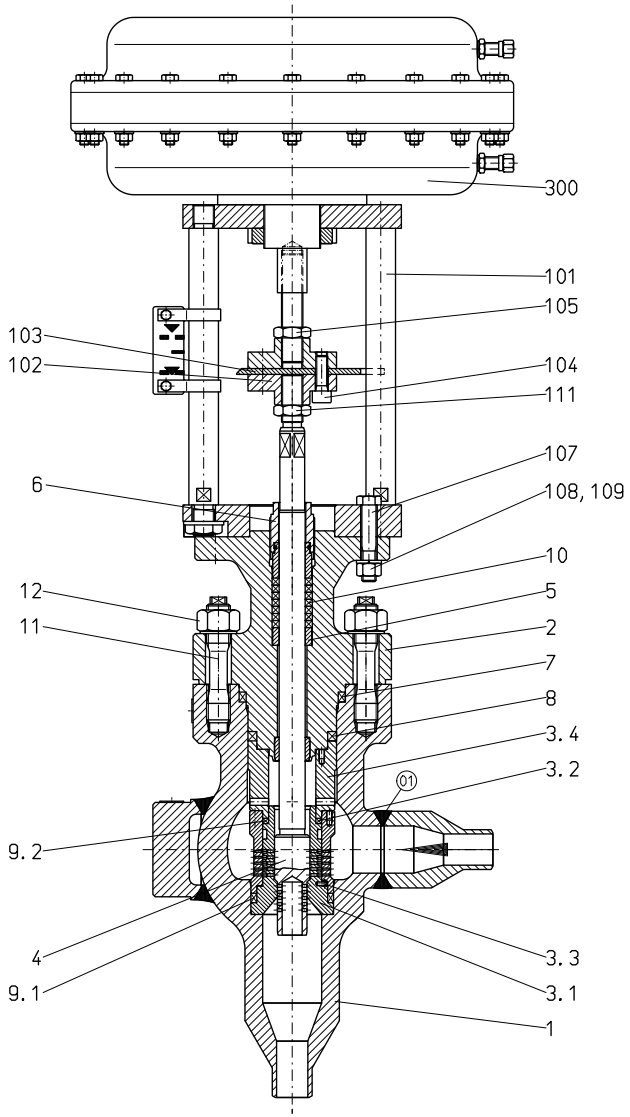
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Boiler start-up valve
- **Design:** Angular form
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Parabolic plug
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Electric actuator
- **Control function and/or Safety function:** Discharging wet, saturated and superheated steam when boiler starts, level regulation of start-up vessel
- **Highlights:** Leakage rate A, inner parts inserted, control and sealing edge separated, extremely hard-wearing materials

Feedwater recirculation control valve



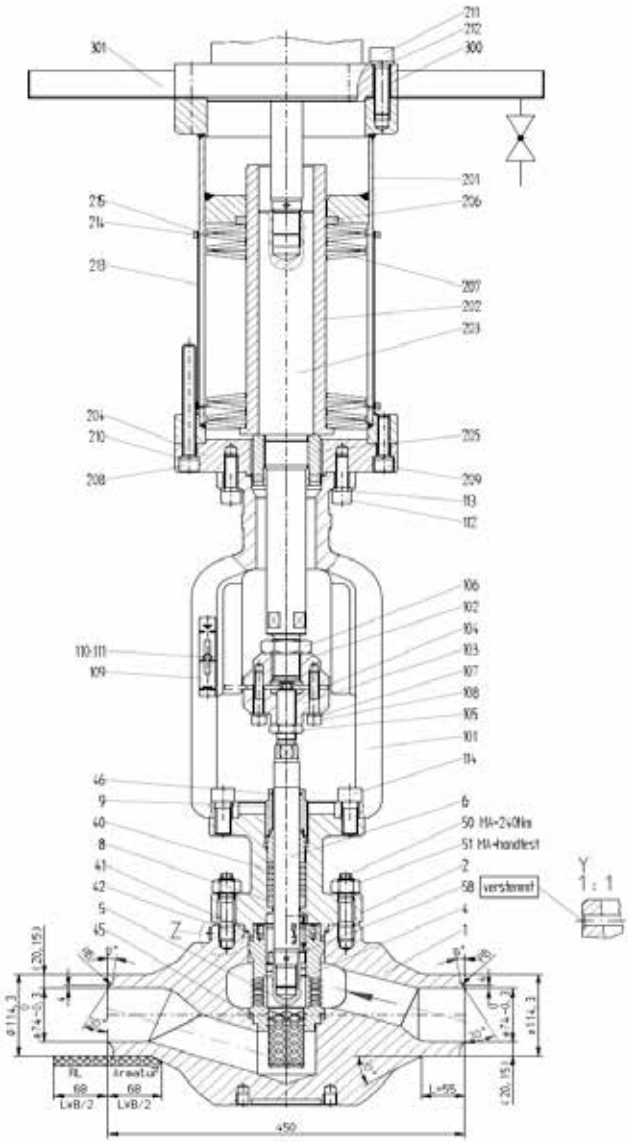
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Recirculation control valve
- **Design:** Angular form
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve cone type:** Multi-stage labyrinth plug
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite seal
- **Drive type:** Electric actuator
- **Control function and/or Safety function:** Pump protection
- **Highlights:** Leakage rate A, inner parts inserted, up to 500 bar dp

Water injection valve



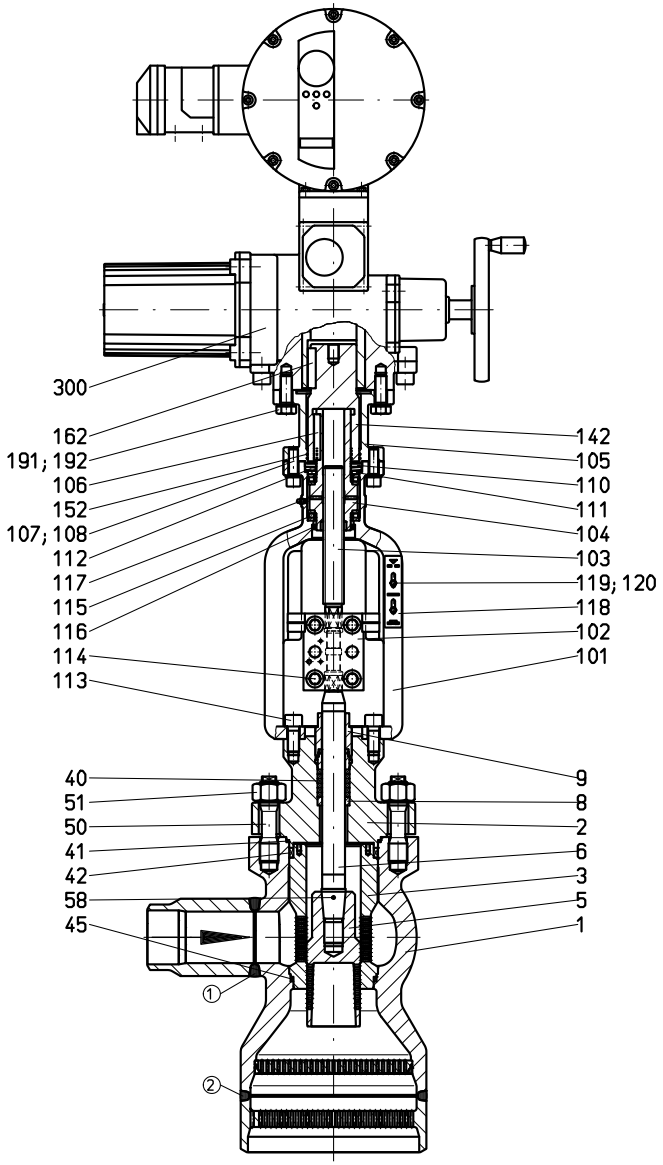
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Water injection valve
- **Design:** Angular form
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve cone type:** Multi-stage throttle system consisting of perforated cage and perforated throttle stages
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Pneumatic actuator
- **Control function and/or Safety function:** Regulation of steam temperature
- **Highlights:** Leakage rate A, inner parts inserted, multi-stage perforated throttle stages, extremely wear-resistant materials

Water injection valve



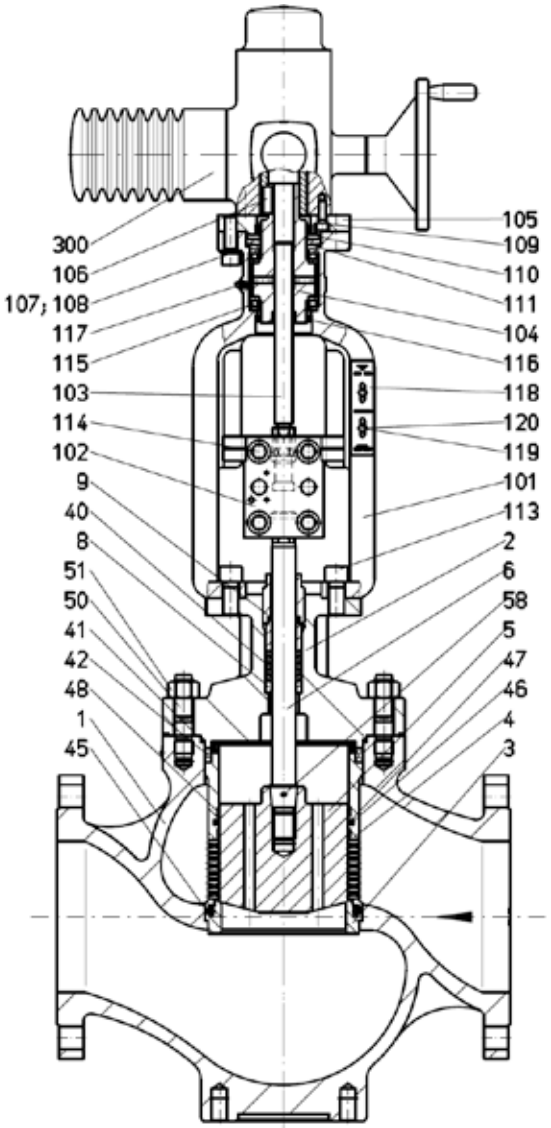
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Water injection valve
- **Design:** Straight
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve cone type:** Multi-stage throttle system consisting of perforated cage and labyrinth cone
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Hydraulic actuator
- **Control function and/or Safety function:** Regulation of steam temperature
- **Highlights:** Leakage rate A, inner parts inserted, multi-stage, extremely durable materials, labyrinth plug

Blow-off control valve



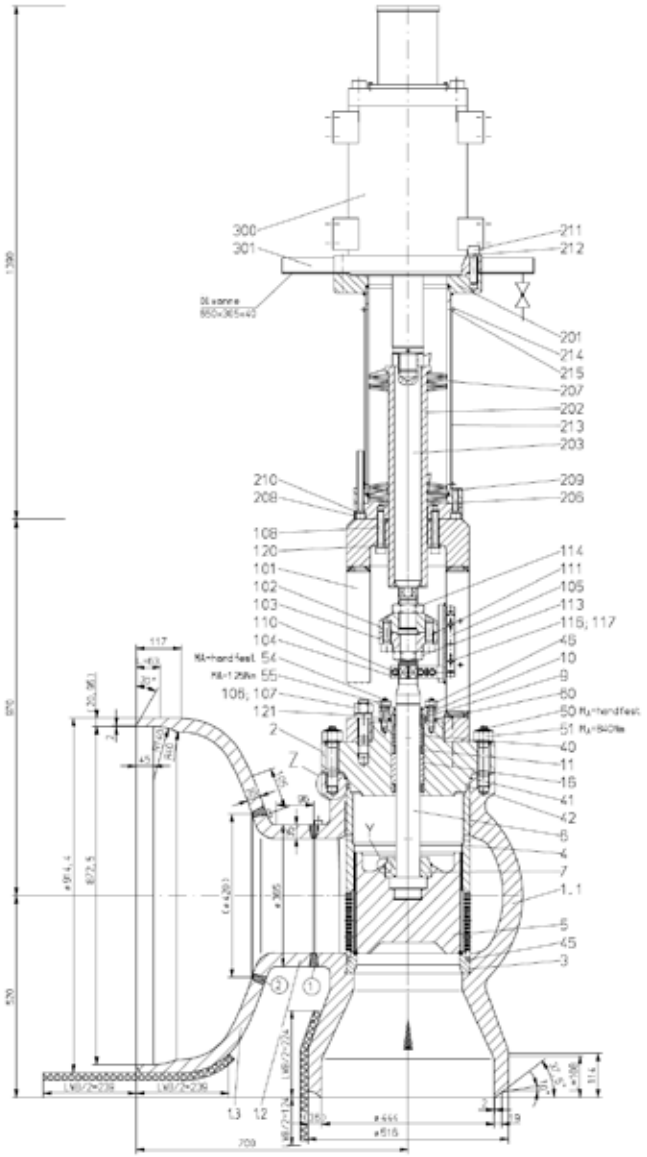
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Blow-off control valve
- **Design:** Angular form
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve cone type:** Multi-stage throttle system, perforated discs
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Electric actuator
- **Control function and/or Safety function:** Blowing off excessive steam before safety valve triggers
- **Highlights:** Leakage rate A, inner parts inserted, robust design

Condensate level control valve



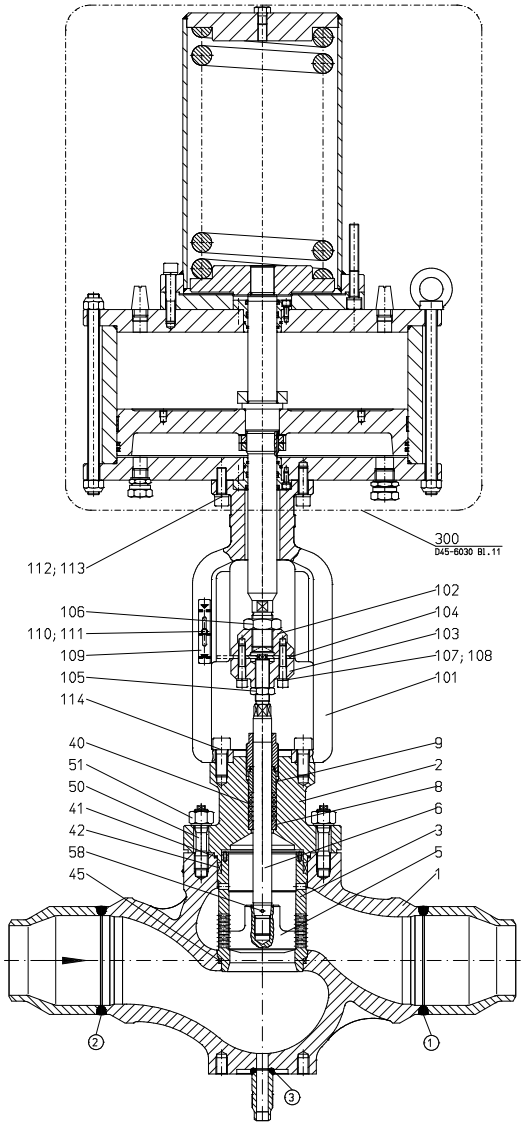
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Condensate control valve
Design:	Straight
Housing material:	Cast housing
Pipe connection:	Flanges
Valve cone type:	Perforated cage, balanced (< 230° C)
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite seal
Drive type:	Electric actuator
Control function and/or Safety function:	Level regulation
Highlights:	Leakage rate A, inner parts inserted

Superheater safety valve



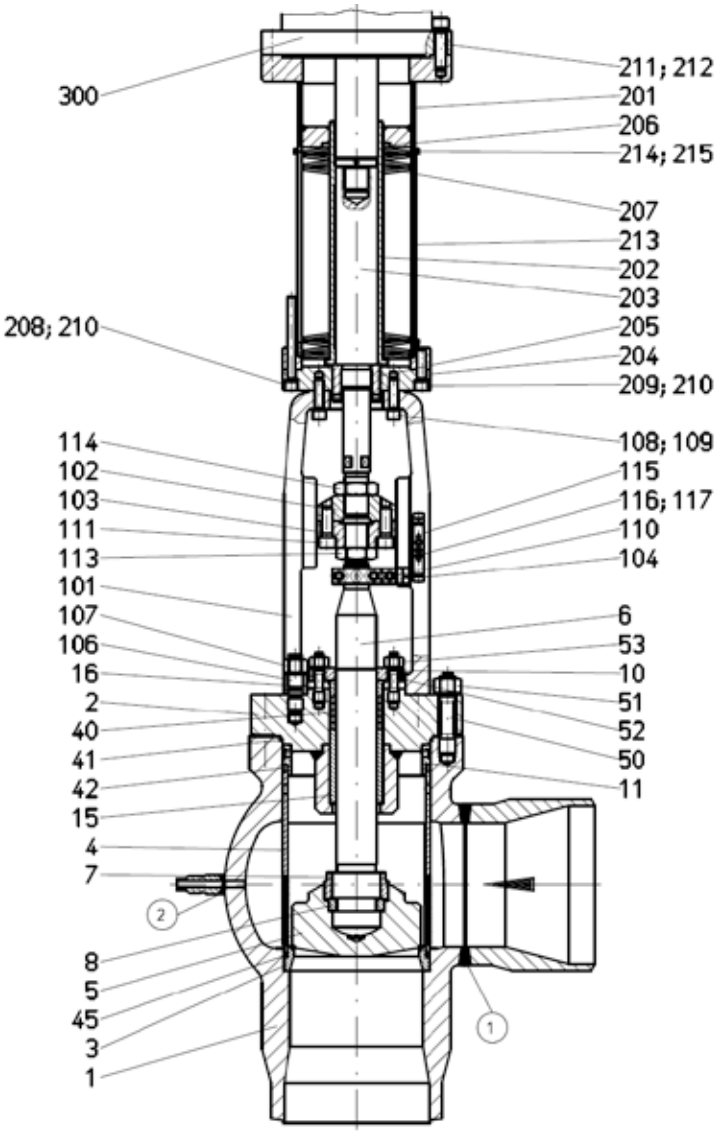
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Superheater safety valve
Design:	Angular form
Housing material:	Forged
Pipe connection:	Weld ends
Valve cone type:	Piston
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Hydraulic actuator with disc spring stack
Control function and/or Safety function:	Pressure protection acc. to TRD 421 via steam test device, controlled safety valve
Highlights:	Leakage rate A, inner parts inserted

Turbine extraction valve, steam extraction valve



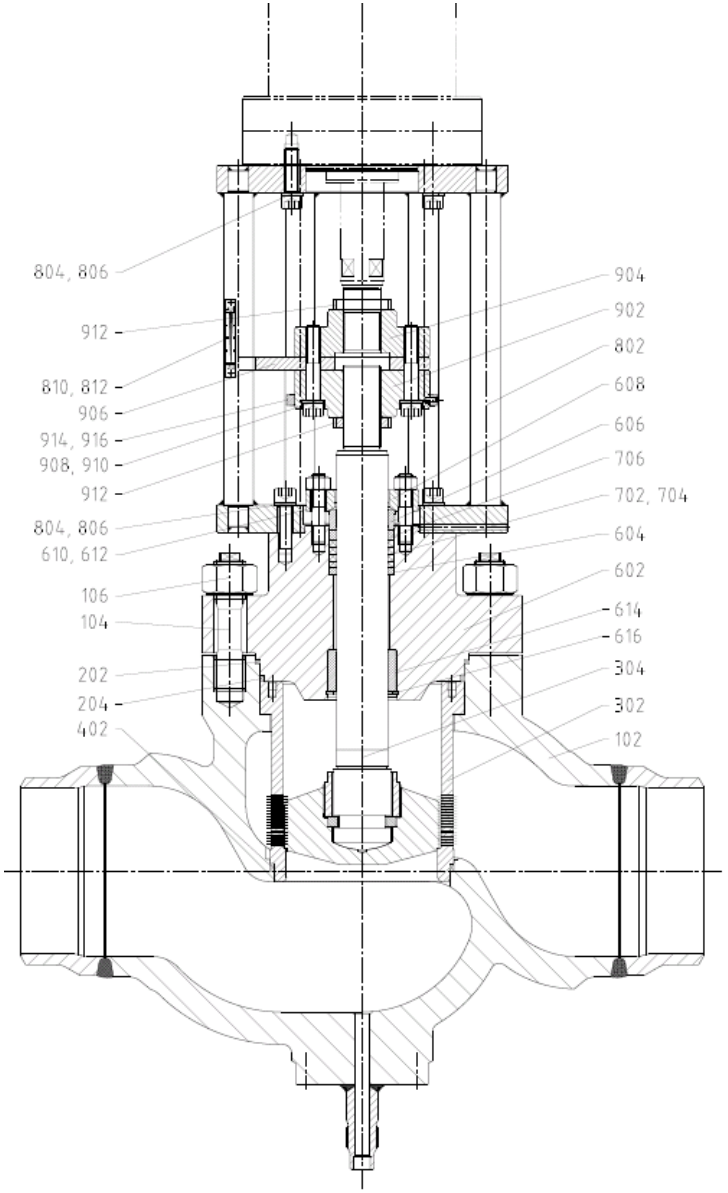
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Turbine extraction valve, steam extraction valve
- **Design:** Straight
- **Housing material:** Cast steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Perforated cage
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Pneumatic piston drive
- **Control function and/or Safety function:** Extraction pressure regulation, can be combined with safety function close < 0.5 s
- **Highlights:** Leakage rate A, inner parts inserted

High pressure quick-action valve



Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Steam quick-action stop valve
Design:	Angular form
Housing material:	Forged steel
Pipe connection:	Weld ends
Valve plug type:	Open/close plug (suspended)
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Hydraulic actuator
Control function and/or Safety function:	Closing in < 0.2 sec.
Highlights:	Leakage rate A, inner parts inserted, built-in strainer

High pressure quick-action valve



- **Application:** Bypass station
- **Product:** High pressure quick-action valve
- **Design:** Straight
- **Housing material:** Cast steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Shut-off cone
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Hydraulic actuator
- **Control function and/or Safety function:** Quick-acting if turbine trips
- **Highlights:** Leakage rate A, inner parts inserted, built-in strainer

Steam conversion stations

Atomising steam desuperheater, downstream

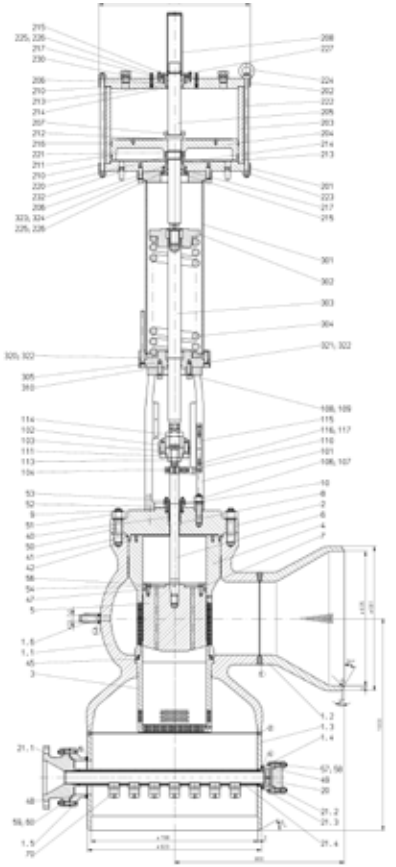
+ short vaporisation distance
+ inner parts protected
+ minimum flow rate of 5% achievable
+ cooling near to saturated steam temperature
+ water / steam ratio up to 30 %
+ no additional atomising steam required in combination with steam conditioning valve
- high complexity for large volumes of injected water
- investment intensive

Integrated injection

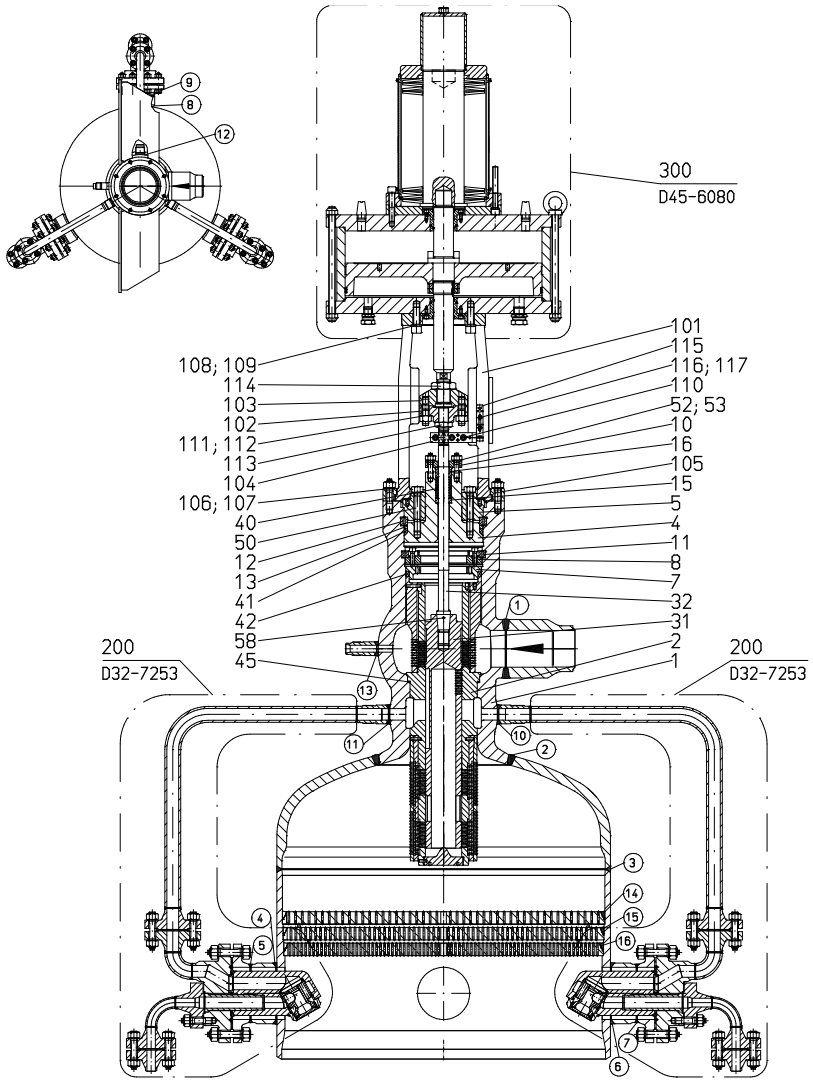
+ injection into area with high flow speeds for best mixing
+ precise and rapid regulation
+ cost-effectiveness
- high stress on internal parts
- limited to max. water volume of 10t/h
- water / steam ratio of max. 15-20 %

Downstream lance injection

+ no contact with internal parts
+ cost-effective alternative for condenser applications
+ low manufacturing costs
- ΔTcool must be >50°C
- load incidences below 20 % critical
- temperature control +/- 10K tolerance

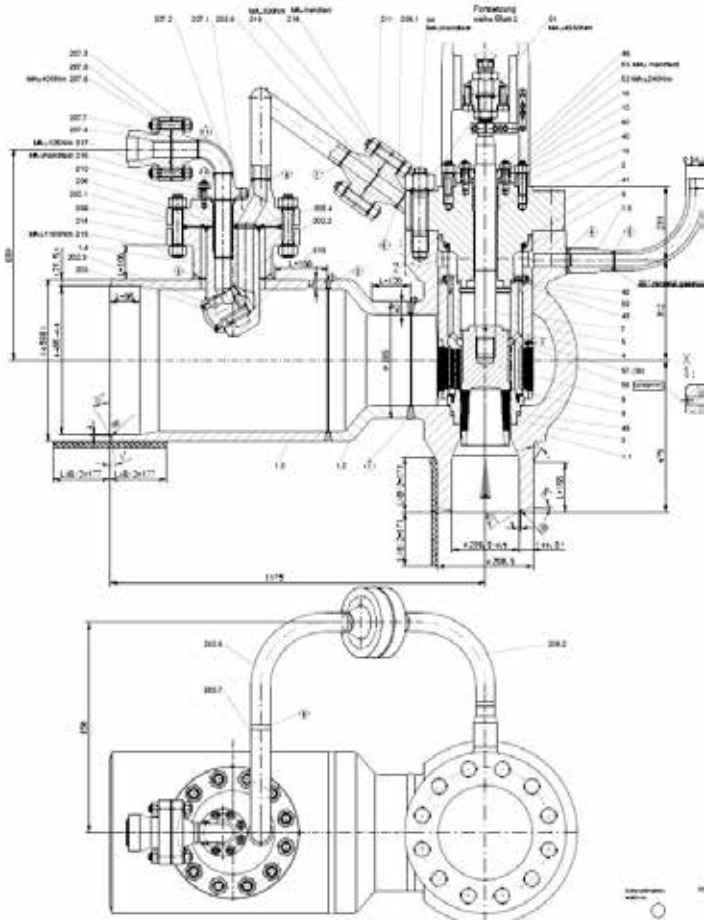


High pressure bypass station



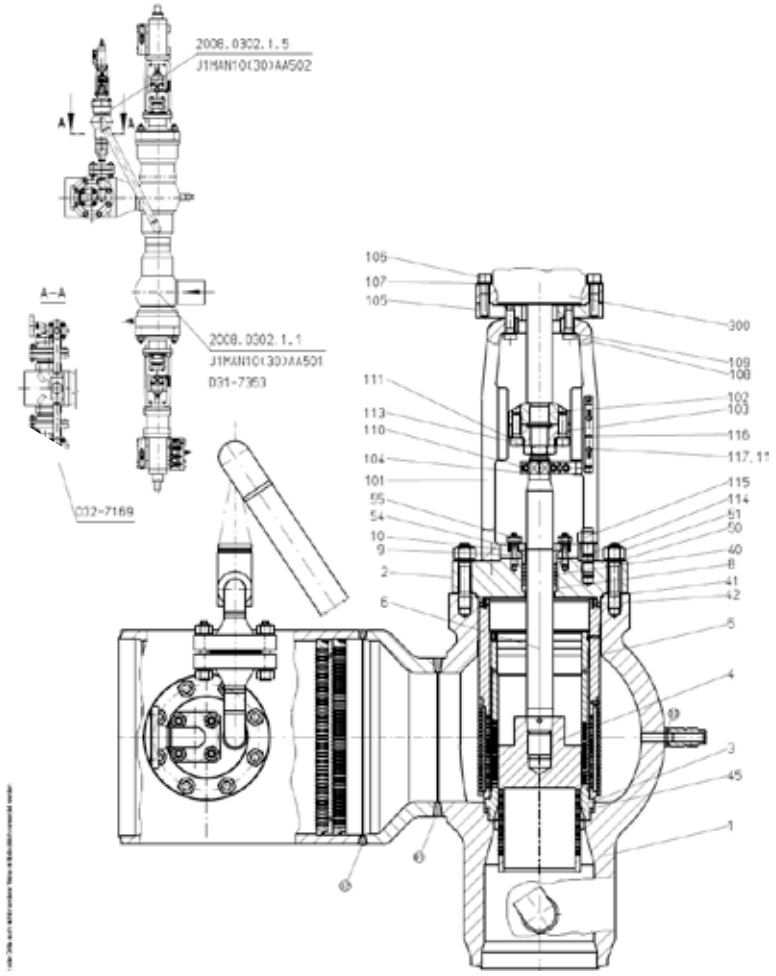
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Turbine bypass station with built-in atomising steam extraction and 2 to 3 desuperheaters
- **Design:** Angular form
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Multi-stage throttle system consisting of seat cage, perforated plug and perforated cages
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Pneumatic actuator
- **Control function and/or Safety function:** a) steam extraction on boiler start-up
b) steam extraction if turbine trips
c) downstream pressure regulation
- **Highlights:** Leakage rate A, inner parts inserted, fully regulated perforated throttle stages, internal atomising steam extraction

High pressure bypass station with atomising steam desuperheater



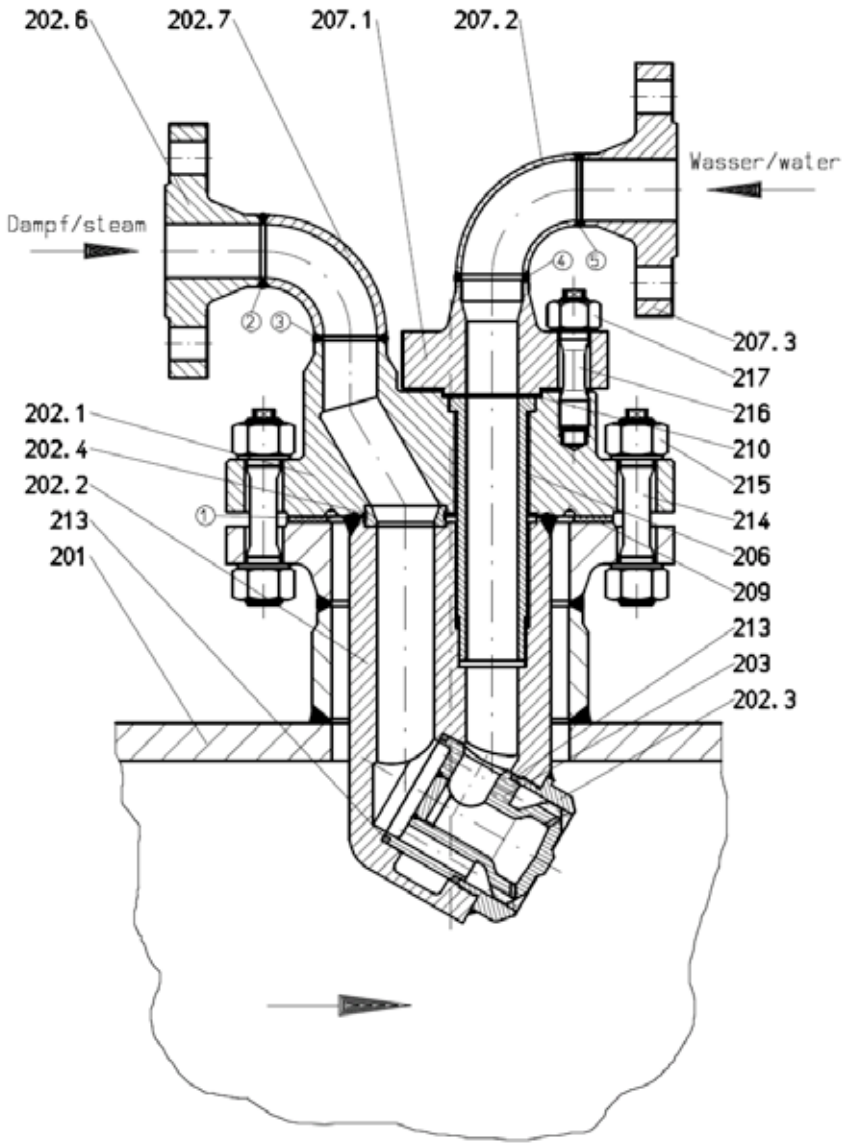
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	High-pressure bypass station (HPB) with built-in atomising steam extraction and downstream steam desuperheater
Design:	Angular form
Housing material:	Forged steel
Pipe connection:	Weld ends
Valve plug type:	Multi-stage throttle system consisting of perforated plug and 3 perforated cages
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Hydraulic actuator
Control function and/or Safety function:	Steam extracted on boiler start-up, steam extracted when turbine trips, regulation of down-stream pressure
Highlights:	Leakage rate A, no perforated discs, inner parts inserted, fully regulated perforated throttle reduction stages, "whispering" HPB, internal atomising steam extraction

LP bypass station complete



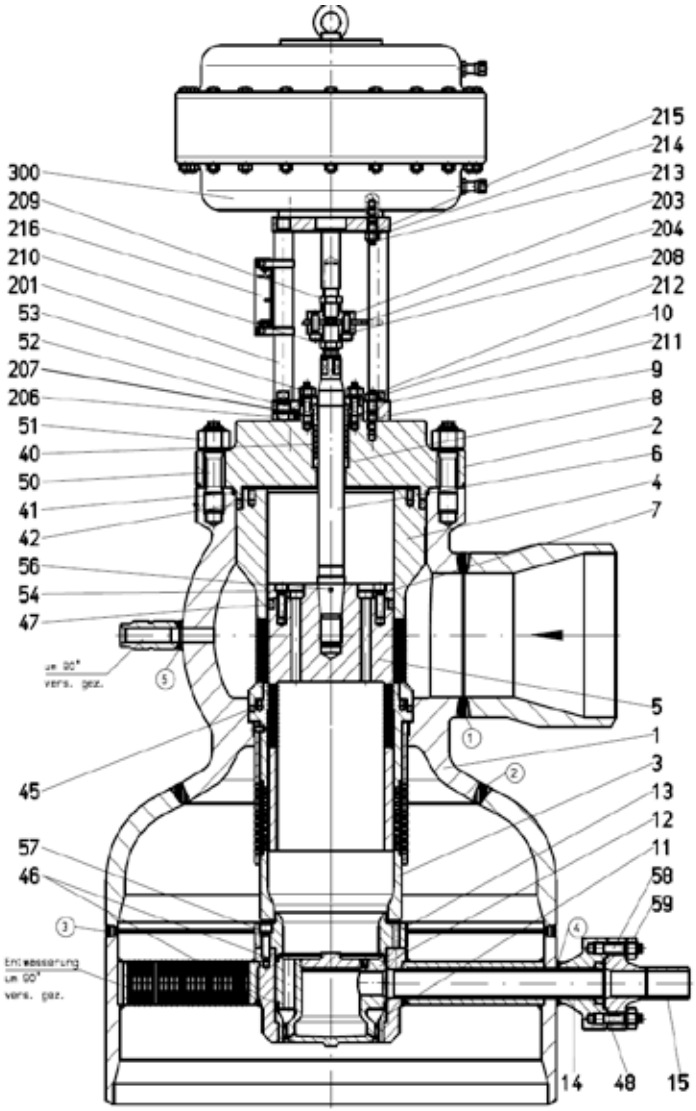
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** High-pressure bypass station (HPB) with atomising steam extraction before pressure reduction, with atomising steam shut-off valve, with 1 desuperheater, with welded steam quick-action stop valve
- **Design:** Angular form
- **Housing material:** Forged steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Multi-stage throttle system consisting of perforated plug, 3 perforated cages and 2 perforated discs
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Hydraulic actuator
- **Control function and/or Safety function:** a) steam extraction on boiler start-up
b) steam extraction if turbine trips
c) downstream pressure regulation
- **Highlights:** Leakage rate A, inner parts inserted, "low noise" design, fully regulated perforated throttle stages, injection supported by atomising steam

Atomising steam-assisted desuperheater



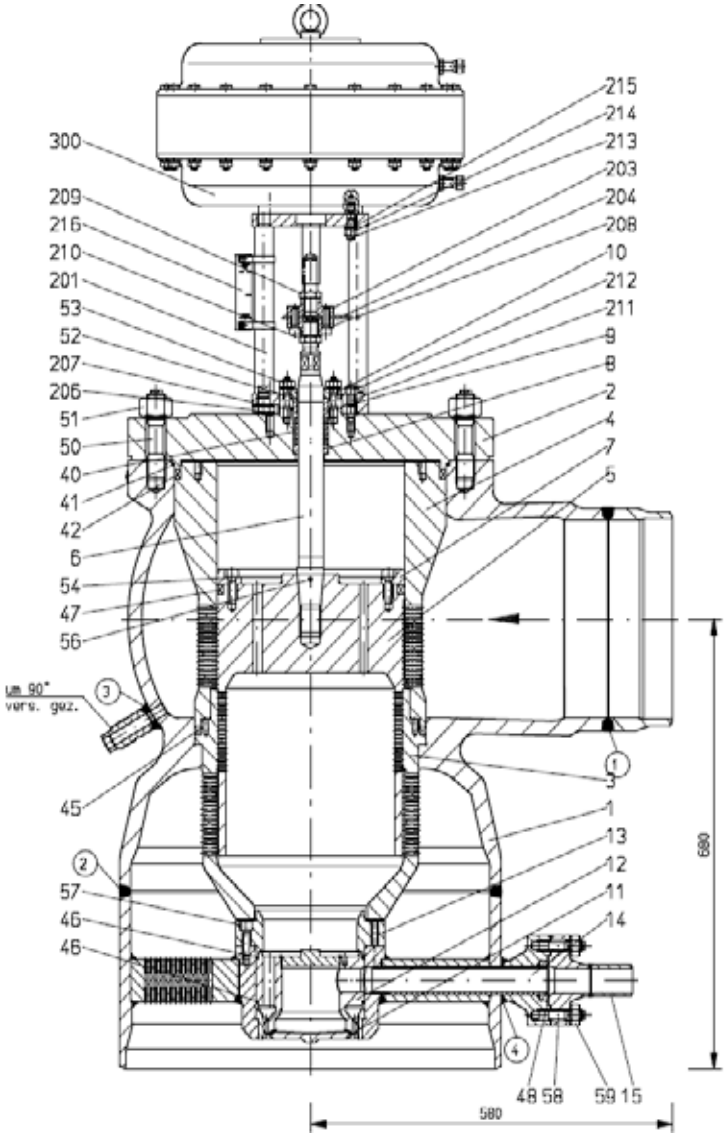
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Atomising steam-assisted desuperheater
Design:	Straight
Housing material:	Forged steel
Pipe connection:	Flanges
Valve plug type:	Atomising steam desuperheater
Valve seat seal:	–
Spindle seal:	–
Drive type:	–
Control function and/or Safety function:	Regulation of steam temperature
Highlights:	Precise temperature control to down to 3K above saturated steam temperature

High pressure bypass station



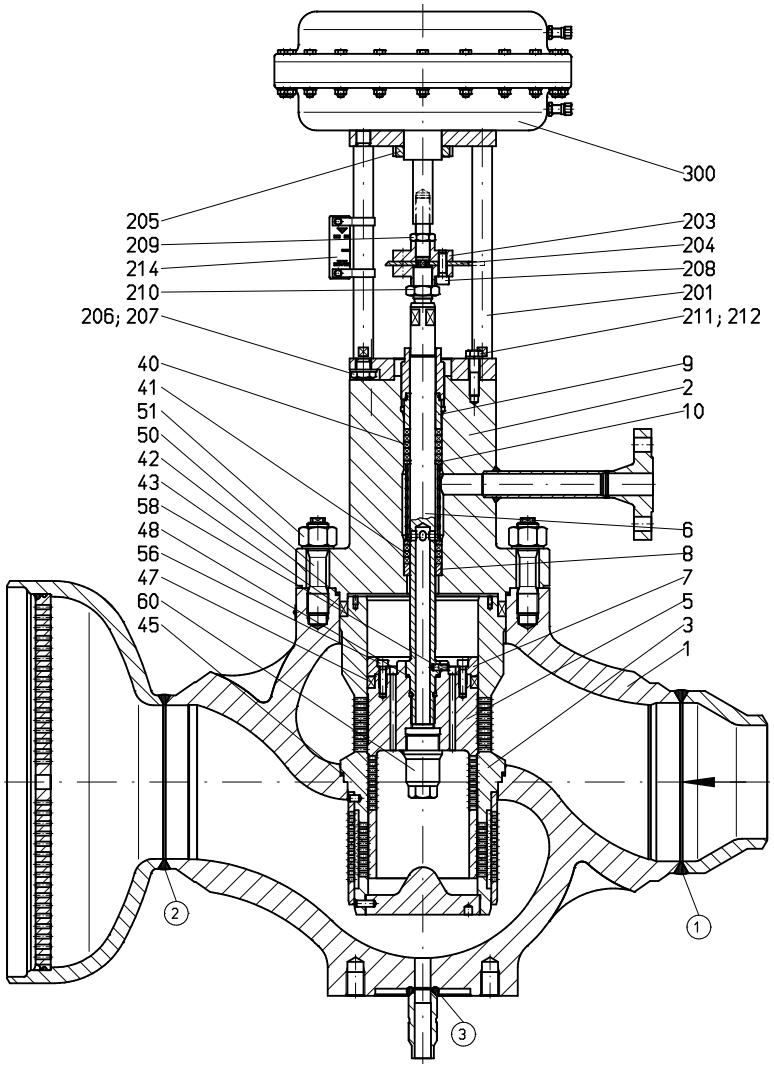
- **Application:** Gas and steam power plants, steam power plants, nuclear power plants
- **Product:** Turbine bypass station with built-in atomising steam extraction and in-built single desuperheater
- **Design:** Angular form
- **Housing material:** Cast steel
- **Pipe connection:** Weld ends
- **Valve plug type:** Multi-stage throttle system consisting of seat cage, perforated plug and perforated cages
- **Valve seat seal:** Metallic
- **Spindle seal:** Gland packing with graphite packing
- **Drive type:** Pneumatic actuator
- **Control function and/or Safety function:** a) steam extraction on boiler start-up
b) steam extraction if turbine trips
c) downstream pressure regulation
- **Highlights:** Leakage rate A, inner parts inserted, fully regulated perforated throttle stages, internal atomising steam extraction

Low-pressure bypass station



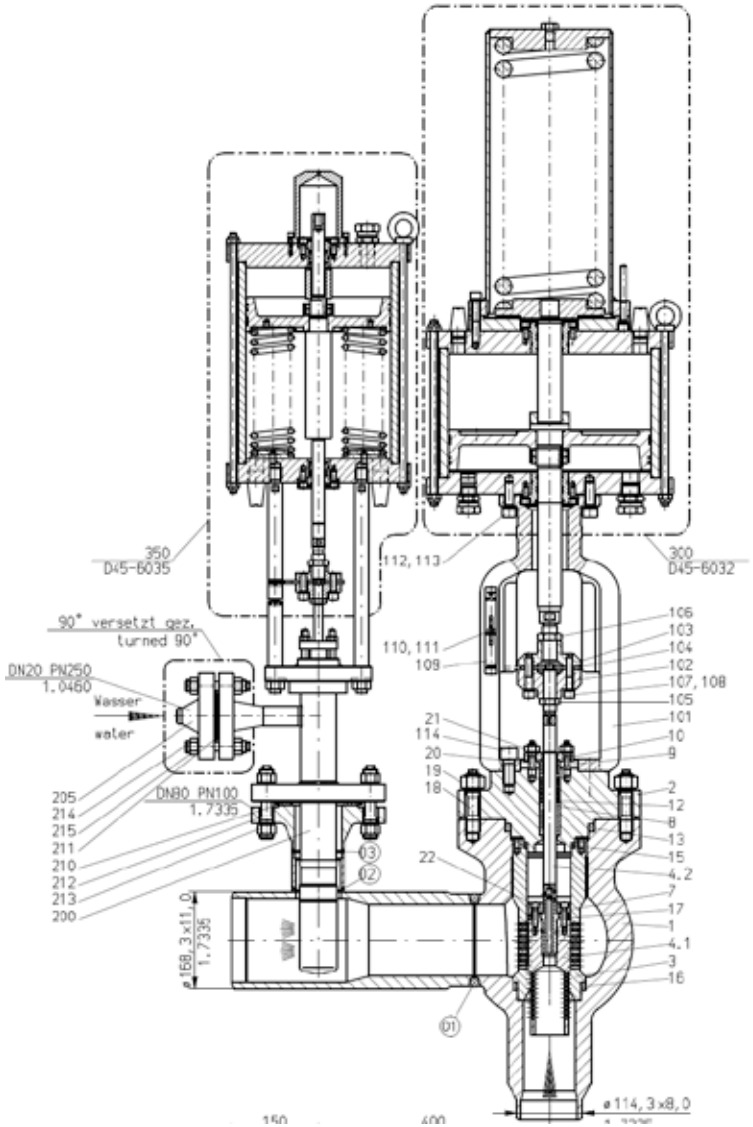
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Turbine bypass station with built-in atomising steam extraction and 2 to 3 desuperheaters
Design:	Angular form
Housing material:	Cast steel
Pipe connection:	Weld ends
Valve plug type:	Multi-stage throttle system consisting of seat cage, perforated plug and perforated cages
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Pneumatic actuator
Control function and/or Safety function:	a) steam extraction on boiler start-up b) steam extraction if turbine trips c) downstream pressure regulation
Highlights:	Leakage rate A, inner parts inserted, fully regulated perforated throttle stages, internal atomising steam extraction

Steam conversion valve



Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	Steam conversion valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Multi-stage throttle system consisting of perforated cage and perforated plug, internal water injection
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Pneumatic actuator
Control function and/or Safety function:	Regulation of steam parameters in steam networks
Highlights:	Easily replaceable inner parts, perfect water atomisation, tight-sealing

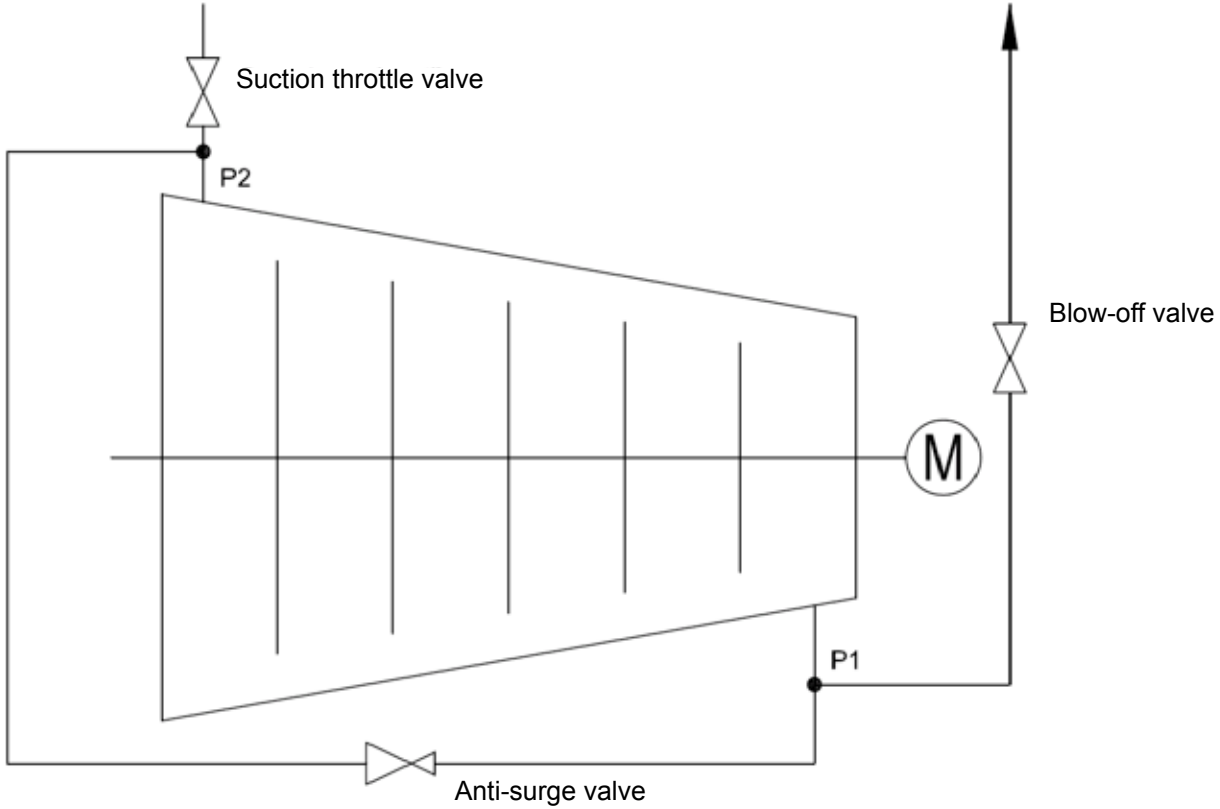
High pressure bypass station with pressurised water desuperheater



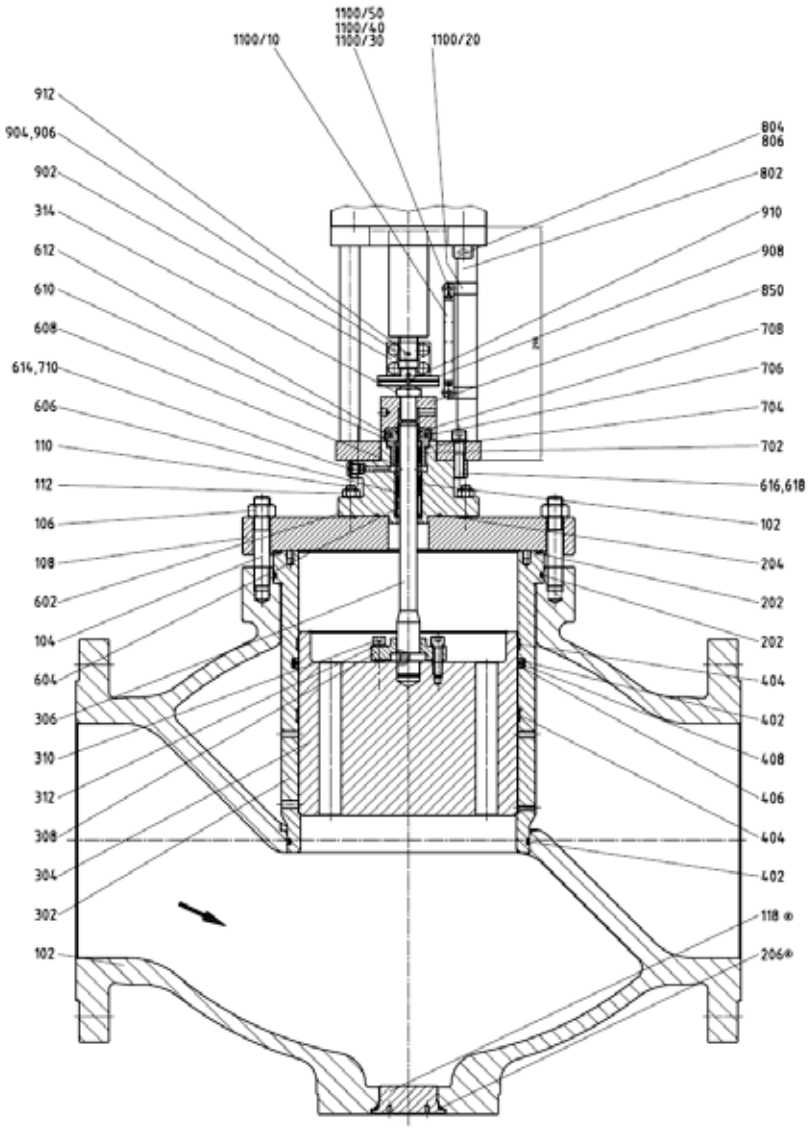
Application:	Gas and steam power plants, steam power plants, nuclear power plants
Product:	High-pressure bypass station (HPB) with pressurised water desuperheater
Design:	Angular form
Housing material:	Forged steel
Pipe connection:	Weld ends
Valve plug type:	Multi-stage throttle system consisting of perforated plug and seat cage
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Pneumatic actuator
Control function and/or Safety function:	a) steam extraction on boiler start-up b) steam extraction if turbine trips c) downstream pressure regulation
Highlights:	Leakage rate A, inner parts inserted, maintenance-friendly

Products for the oil and gas industry

Scheme: Oil and gas compressor

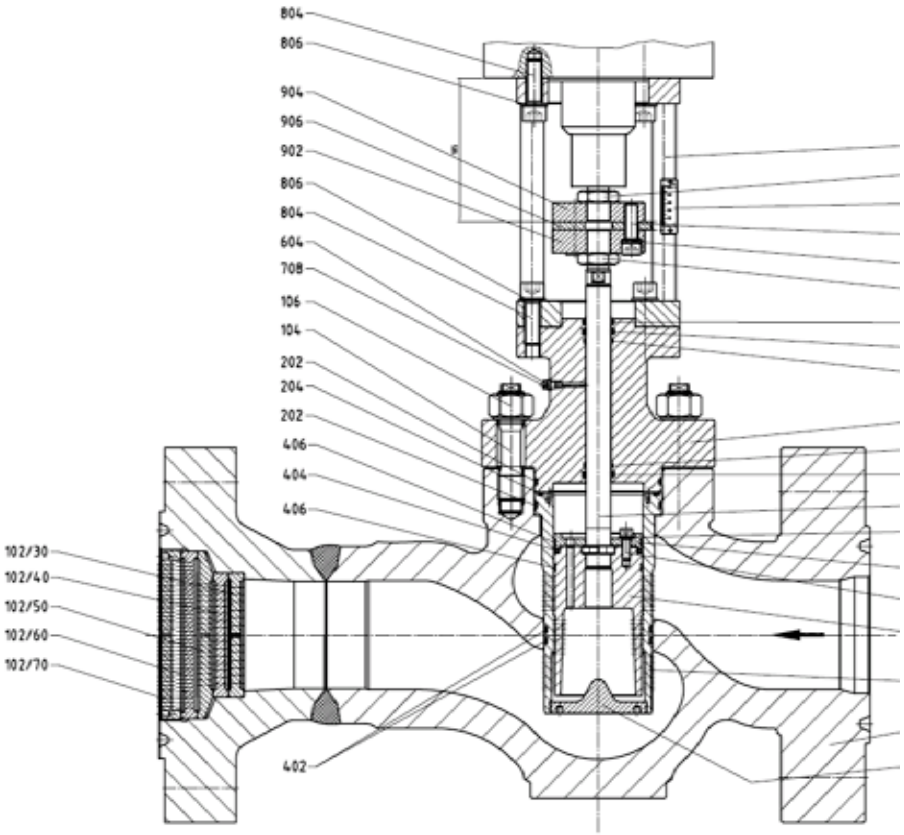


Valve for oxygen, nitrogen



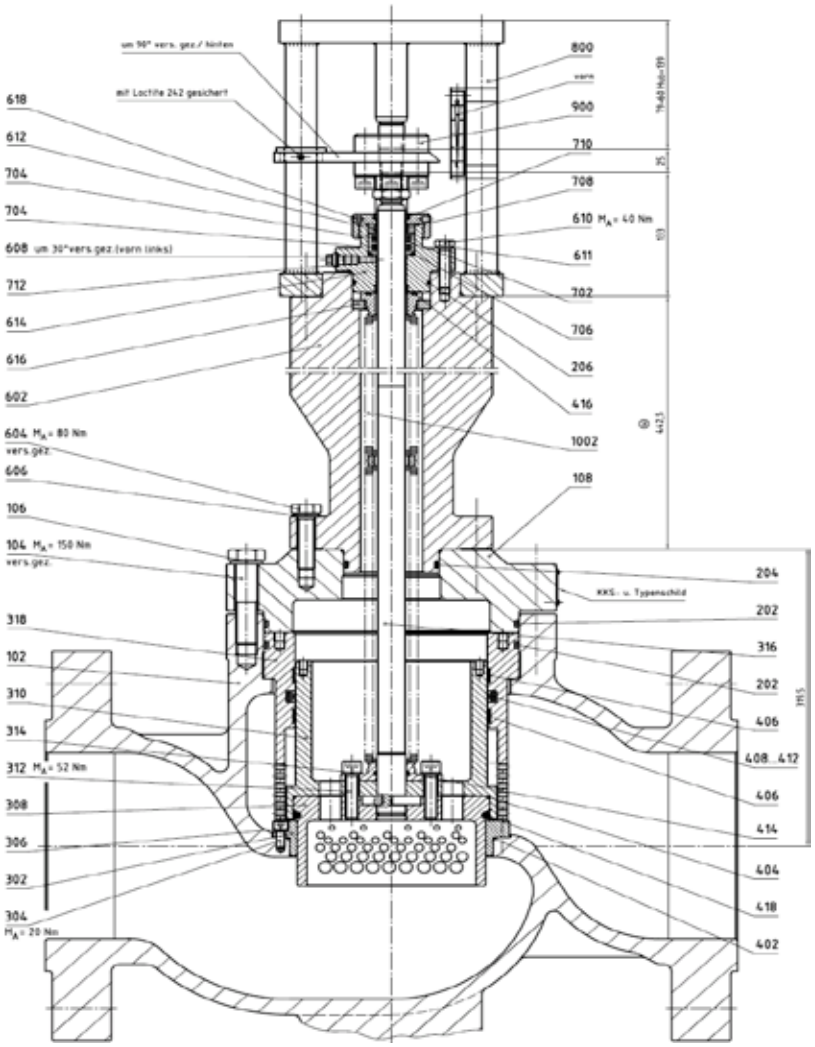
Application:	Gas separation systems, gas preparation systems
Product:	Valve for air separation
Design:	Straight
Housing material:	Bronze (copper-tin alloy)
Pipe connection:	Flanges
Valve plug type:	Perforated cage
Valve seat seal:	Metallic
Spindle seal:	Gland packing with V sleeves
Drive type:	Pneumatic actuator
Control function and/or Safety function:	Valve for air separation
Highlights:	Free of oil or grease for applications with oxygen, seals with BAM certification, balanced, leakage rate A

Storage and discharge valve



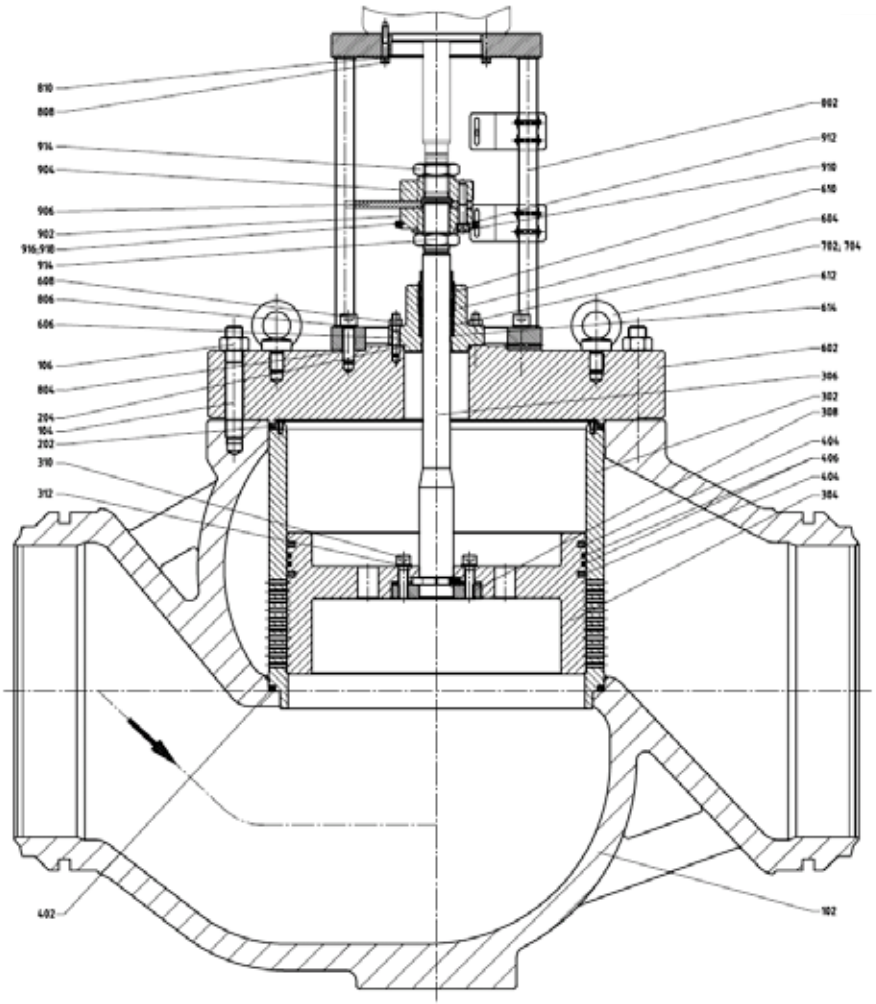
- **Application:** Gas storage facility, caverns
- **Product:** Storage and discharge valve for gas cavern
- **Design:** Straight
- **Housing material:** Cast steel
- **Pipe connection:** Flanges with ring joint nut
- **Valve plug type:** Multi-stage throttle system consisting of 2 seat cages, perforated plug and 6 perforated discs
- **Valve seat seal:** Metallic
- **Spindle seal:** Soft sleeve
- **Drive type:** Hydraulic actuator
- **Control function and/or Safety function:** Summer: storage in gas storage facility, Winter: discharge from gas storage facility
- **Highlights:** Extreme diff. pressures, balanced

Gas pressure control valve and pipeline valve



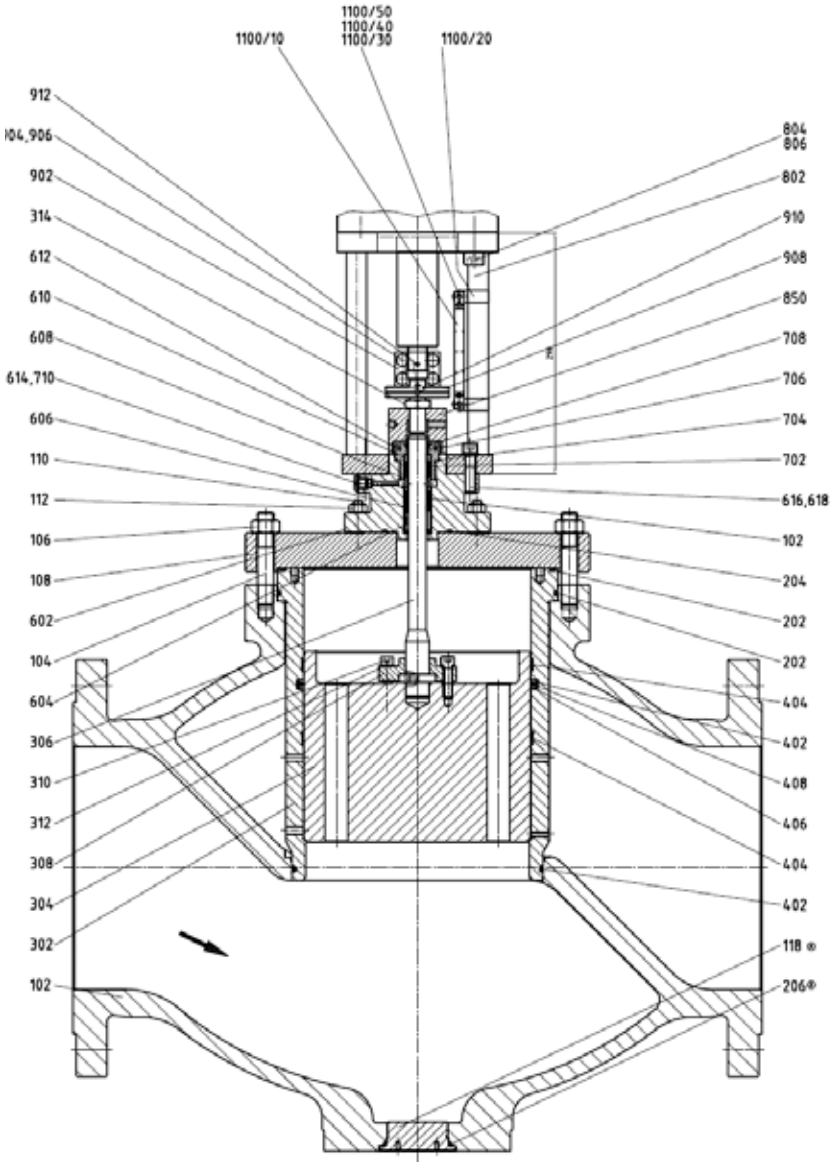
Application:	Gas transfer stations Gas distribution stations
Product:	Gas pressure regulator for gas turbines Gas pressure regulator for gas grids
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Multi-stage throttle system consisting of perforated cage and perforated plug
Valve seat seal:	Soft sealing
Spindle seal:	Bellows
Drive type:	Hydraulic actuator
Control function and/or Safety function:	Gas pressure regulator for controlling burner Gas pressure regulator for gas grids
Highlights:	Low noise, leakage rate A

Anti-surge valve



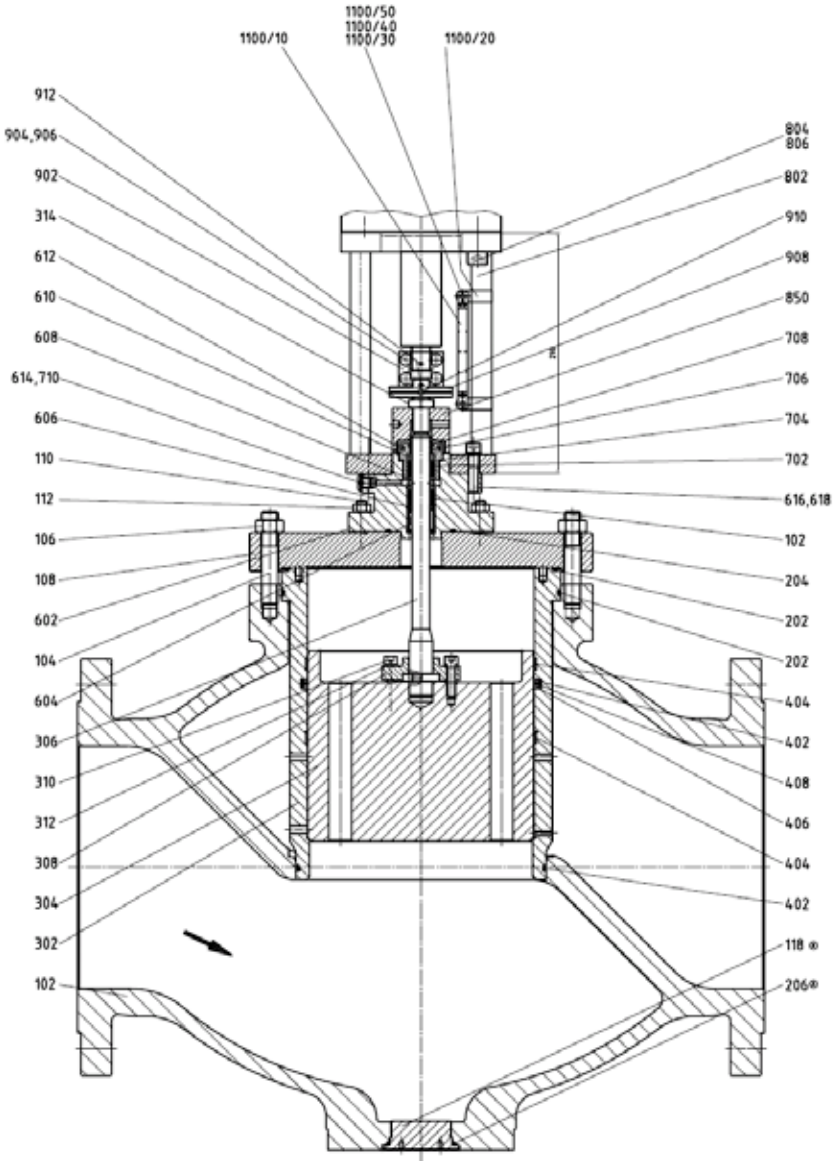
Application:	Gas compressor, compressors
Product:	Anti-surge valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Weld ends
Valve plug type:	Perforated cage
Valve seat seal:	Metallic
Spindle seal:	Gland packing with graphite packing
Drive type:	Hydraulic actuator
Control function and/or Safety function:	The valve controls the flow of gas on the suction side of the compressor before the compressor's surge line.
Highlights:	Fast-opening ≤ 1s, cast iron design up to DN 750

Blow-off valve



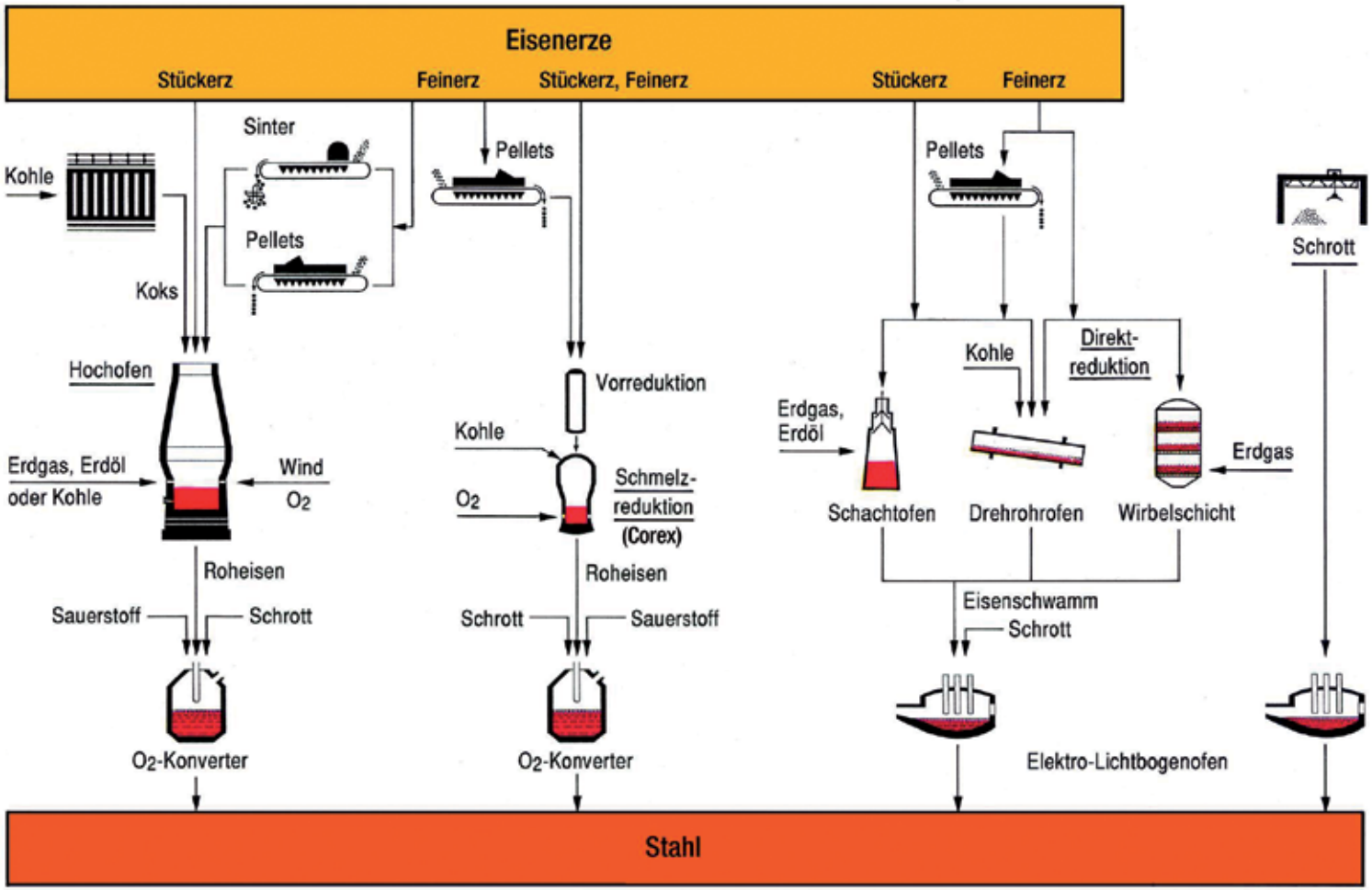
Application:	Gas compressor, compressors
Product:	Blow-off valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Perforated cage
Valve seat seal:	Metallic
Spindle seal:	Gland packing with V sleeves
Drive type:	Pneumatic actuator
Control function and/or Safety function:	The valve discharges the flow of gas above roof level before the compressor's surge line.
Highlights:	Fast-opening ≤ 1s, cast iron design up to DN 700

Suction throttle valve

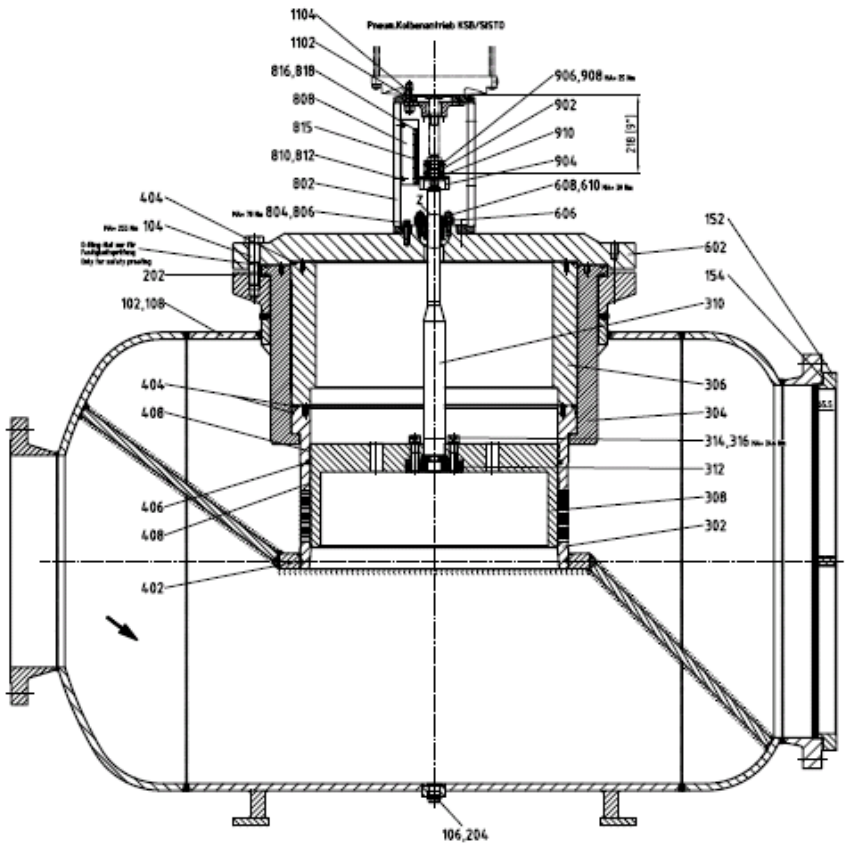


Application:	Gas compressor, compressors
Product:	Suction throttle valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Perforated cage
Valve seat seal:	Metallic
Spindle seal:	Gland packing with V sleeves
Drive type:	Pneumatic actuator
Control function and/or Safety function:	Controls the flow of gas to the compressor
Highlights:	Fast-opening ≤ 1s, cast iron design up to DN 700

Products for the iron and steel industry

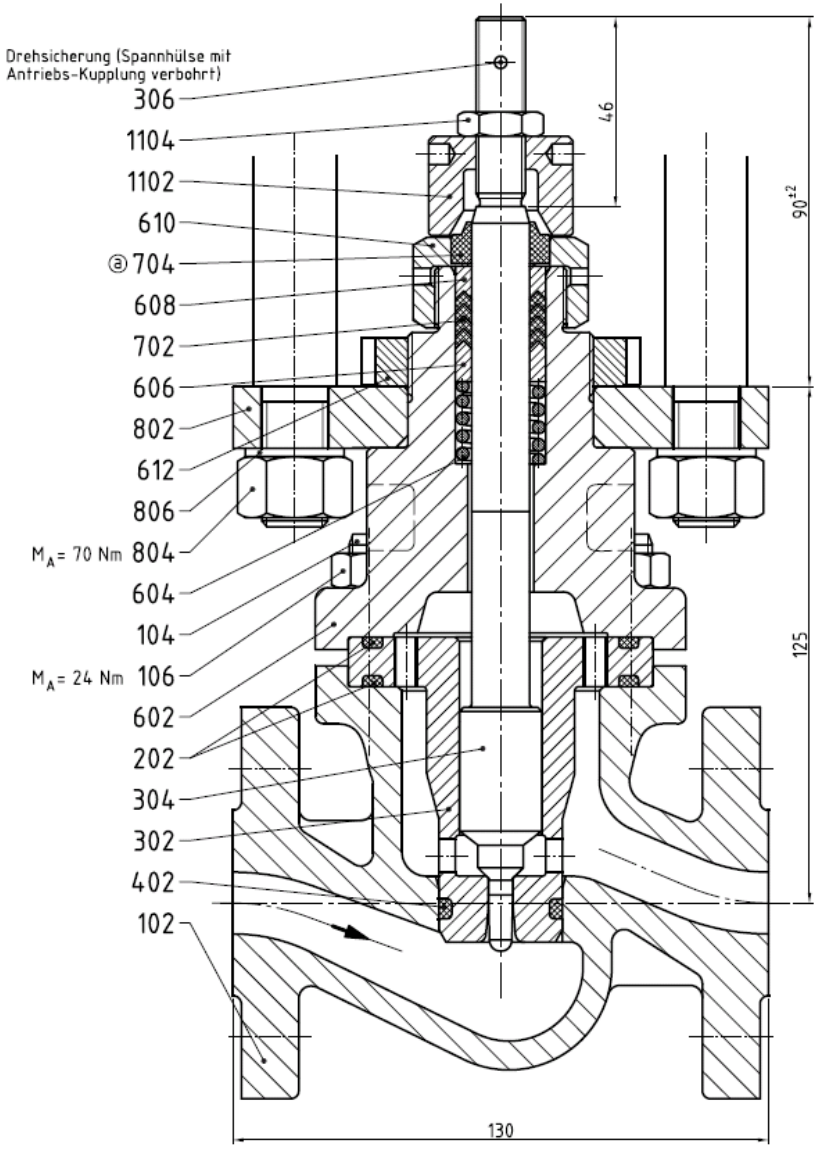

Eisenerze
Stückerz
Feinerz
Stückerz, Feinerz
Stückerz
Feinerz
Sinter
Kohle
Pellets
Pellets
Pellets
Schrott
Koks
Hochofen
Vorreduktion
Kohle
Direkt-
reduktion
Erdgas,
Erdöl
Kohle
Erdgas, Erdöl
oder Kohle
Wind
O2
O2
Schmelz-
reduktion
(Corex)
Erdgas
Schachtofen
Drehrohrofen
Wirbelschicht
Roheisen
Roheisen
Eisenschwamm
Schrott
Sauerstoff
Schrott
Schrott
Sauerstoff
O2-Konverter
O2-Konverter
Elektro-Lichtbogenofen
Stahl

Fresh air valve, cold wind valve



Application:	Fresh air furnace, cold wind furnace
Product:	Air control valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Perforated cage
Valve seat seal:	Metallic
Spindle seal:	Soft sleeve
Drive type:	Pneumatic actuator
Control function and/or Safety function:	Feeds the required volume of air to the furnace.
Highlights:	Nominal size up to DIN 1600

Valve for O_2, N_2 and Ar



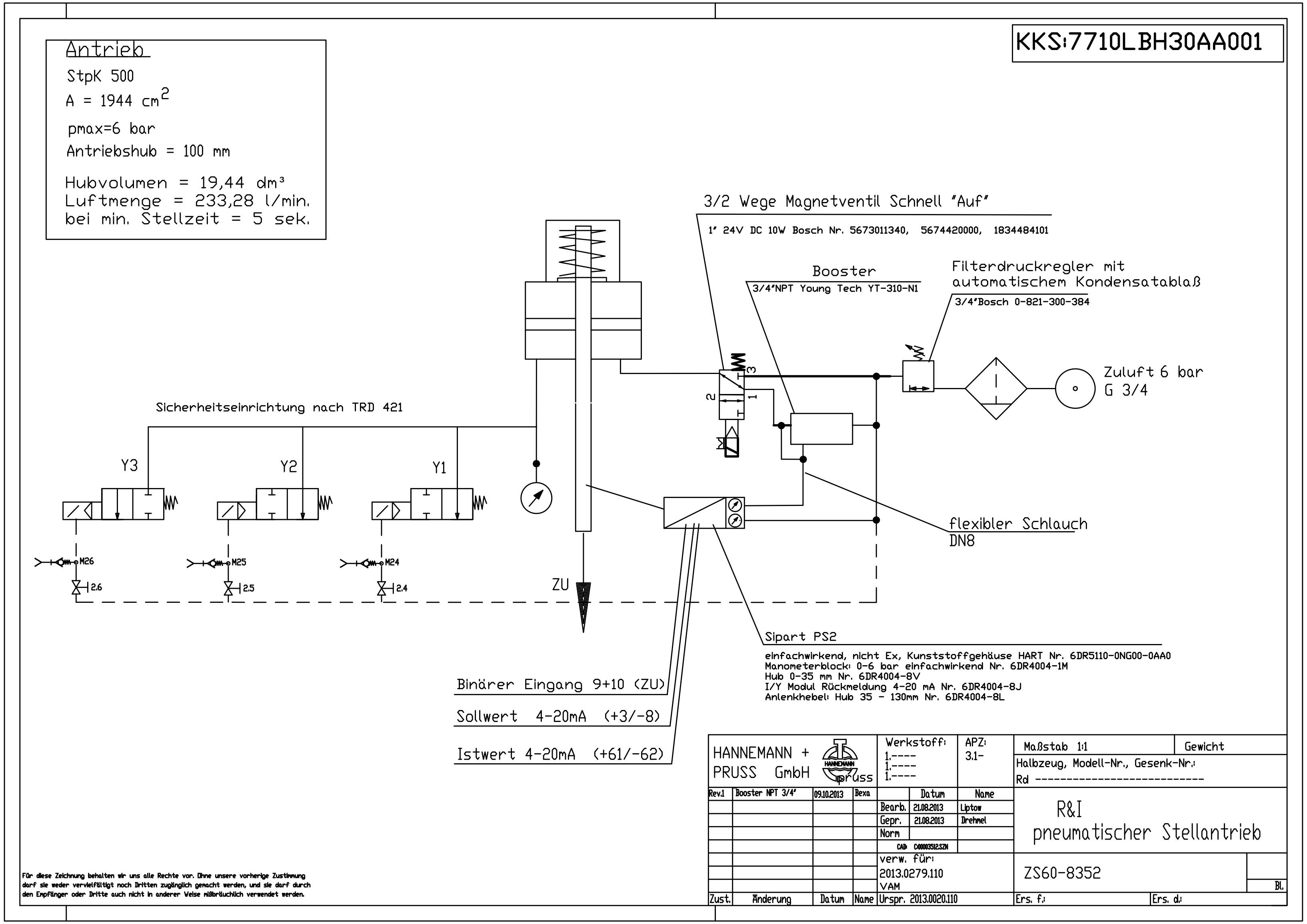
Application:	Steel production, Reduction plants
Product:	Oxygen valve, nitrogen valve, argon valve
Design:	Straight
Housing material:	Cast steel
Pipe connection:	Flanges
Valve plug type:	Parabolic/needle plug
Valve seat seal:	Metallic
Spindle seal:	Gland packing with V sleeves
Drive type:	Pneumatic and electrical actuator
Control function and/or Safety function:	Controls the substances required to produce steel
Highlights:	Precise control of minimal quantities

Actuators

Pneumatic
own production

Hydraulic
own production

Electrical
according customer's request
(Auma, Sipos, etc.)



KKS:7710LBH30AA001
Antrieb
StpK 500
A = 1944 cm2
pmax=6 bar
Antriebshub = 100 mm
Hubvolumen = 19,44 dm³
Luftmenge = 233,28 l/min.
bei min. Stellzeit = 5 sek.
3/2 Wege Magnetventil Schnell "Auf"
1" 24V DC 10W Bosch Nr. 5673011340, 5674420000, 1834484101
Booster
3/4"NPT Young Tech YT-310-N1
Filterdruckregler mit automatischem Kondensatablaß
3/4"Bosch 0-821-300-384
Zuluft 6 bar
G 3/4
Sicherheitseinrichtung nach TRD 421
Y3
Y2
Y1
M26
M25
M24
2.6
2.5
2.4
ZU
flexibler Schlauch
DN8
Sipart PS2
einfachwirkend, nicht Ex, Kunststoffgehäuse HART Nr. 6DR5110-0NG00-0AA0
Manometerblock: 0-6 bar einfachwirkend Nr. 6DR4004-1M
Hub 0-35 mm Nr. 6DR4004-8V
I/Y Modul Rückmeldung 4-20 mA Nr. 6DR4004-8J
Anlenkhebel: Hub 35 - 130mm Nr. 6DR4004-8L
Binärer Eingang 9+10 (ZU)
Sollwert 4-20mA (+3/-8)
Istwert 4-20mA (+61/-62)
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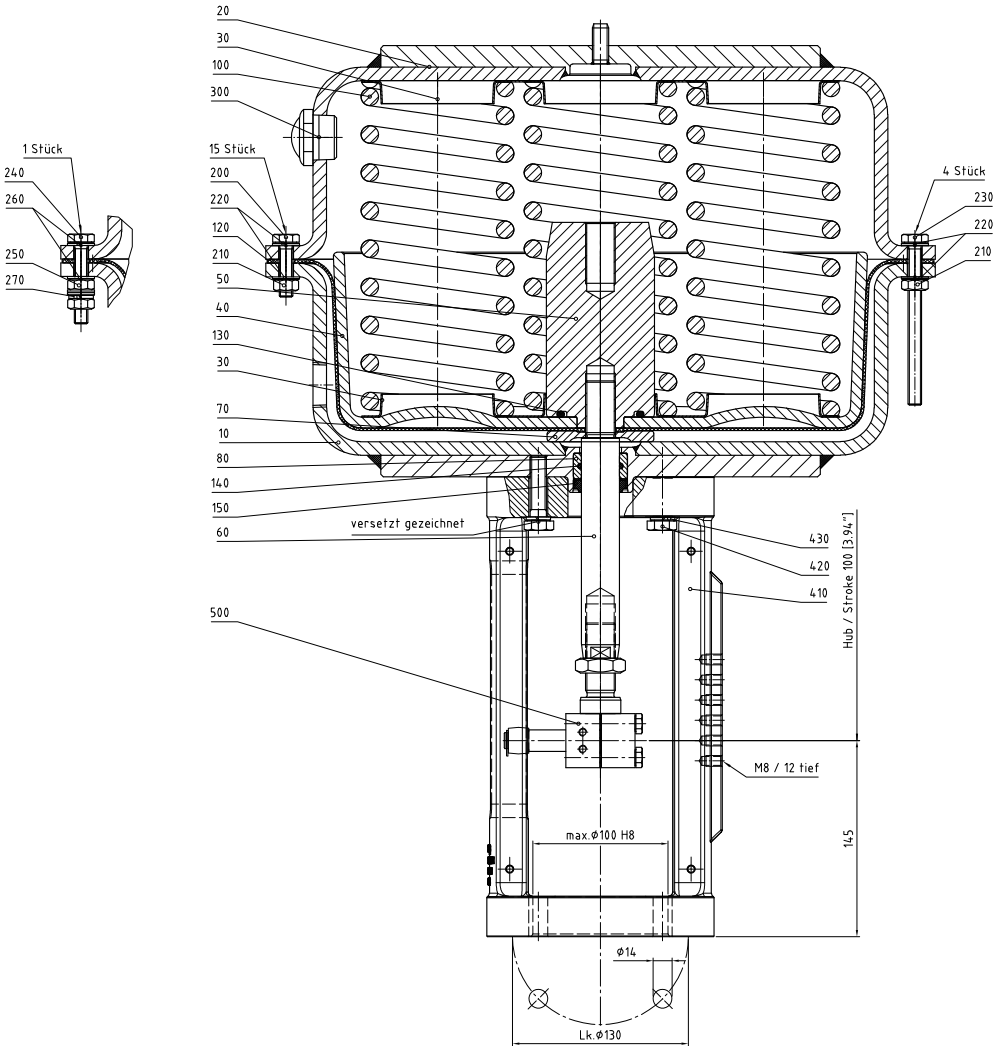
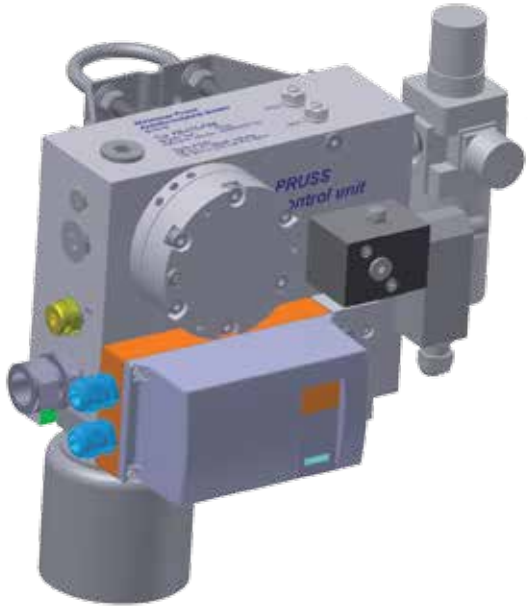
HANNEMANN + PRUSS GmbH
Werkstoff:
1.----
1.----
1.----
APZ:
3.1-
Maßstab 1:1
Gewicht
Halbzeug, Modell-Nr., Gesenk-Nr.:
Rd ---------------------------
Rev.1 Booster NPT 3/4" 09.10.2013 Bexa
Datum Name
Bearb. 21.08.2013 Liptow
Gepr. 21.08.2013 Drehmel
Norm
CAD: C:00003512.SZN
R&I
pneumatischer Stellantrieb
verw. für:
2013.0279.110
VAM
ZS60-8352
Bl.
Zust. Änderung Datum Name
Urspr. 2013.0020.110
Ers. f.:
Ers. d.:

Pneumatic diaphragm drive Type PPA

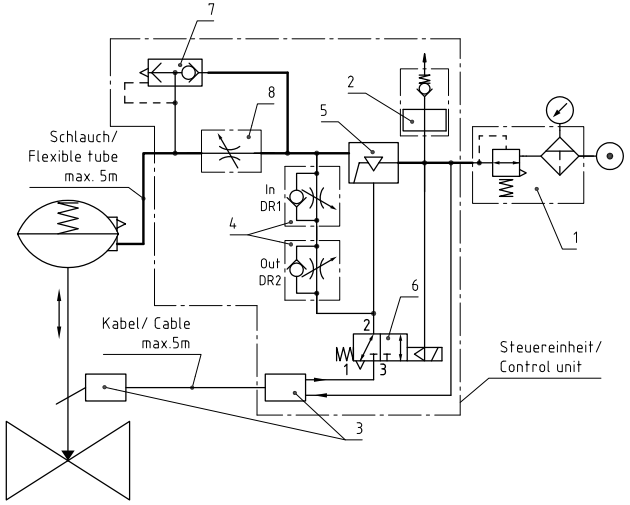


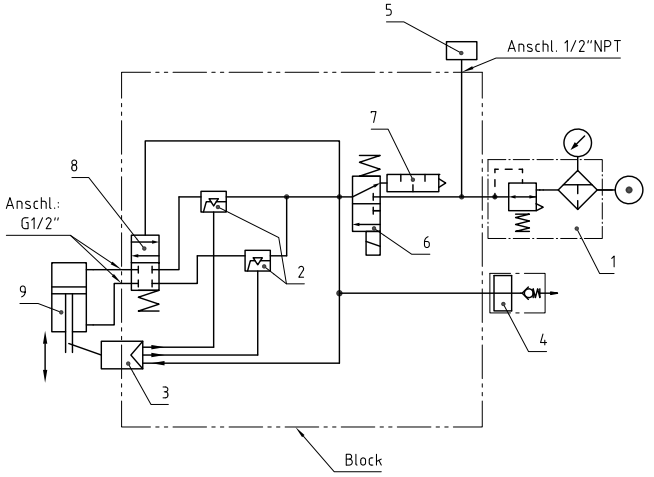
Type of drive			Pneumatic diaphragm drive		
Safety position if air fails	Drive spindle retracted or extended	Type	PPA 300	PPA 600	PPA 1200
Diaphragm area		cm^2	300	600	1200
Strokes		mm	30/50	75	100
max. air pressure		bar	6	6	6
Spring range		bar	0.8...2.7	0.8...2.0	1.0...2.0
		bar	1.2...3.8	1.2...3.0	1.4...3.0
		bar	1.4...4.5	1.4...3.5	1.6...3.6
Air connection		–	1/4" NPT	3/4" NPT	1" NPT
Material	Housing	–	Steel		
	Membrane	–	NBR		
Spindle seal		–	Shaft seal O-ring with support bearing ring		
Optional		–	Handwheel top mounted		

Power block

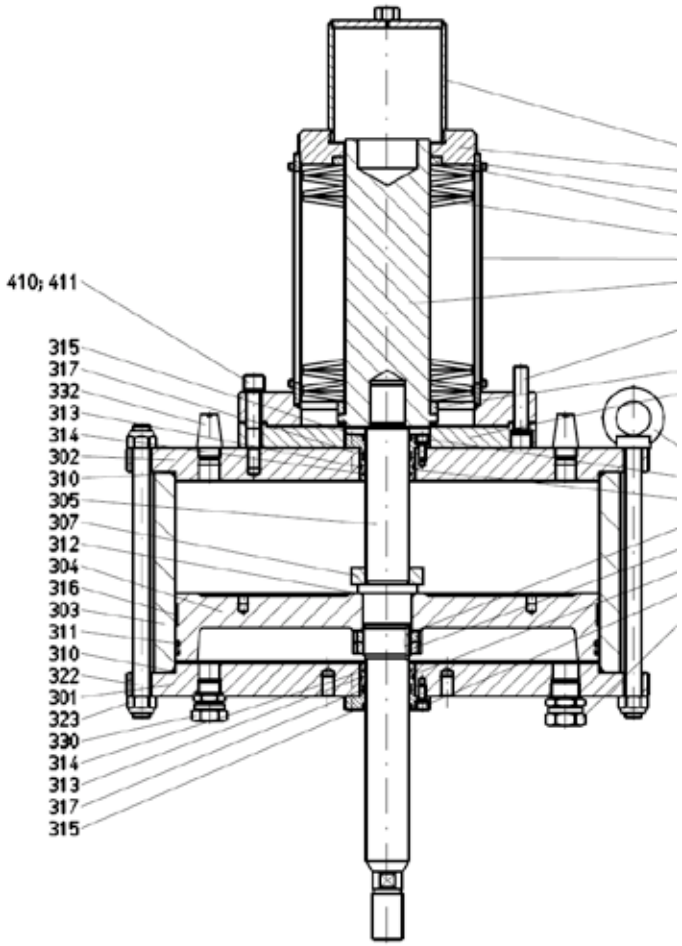


- Fully integrated pneumatic control unit
- No fittings
- Compact
- Detached installation possible
- Optimised stroke times
- Optional: non contact stroke measuring system
- Single or double-acting



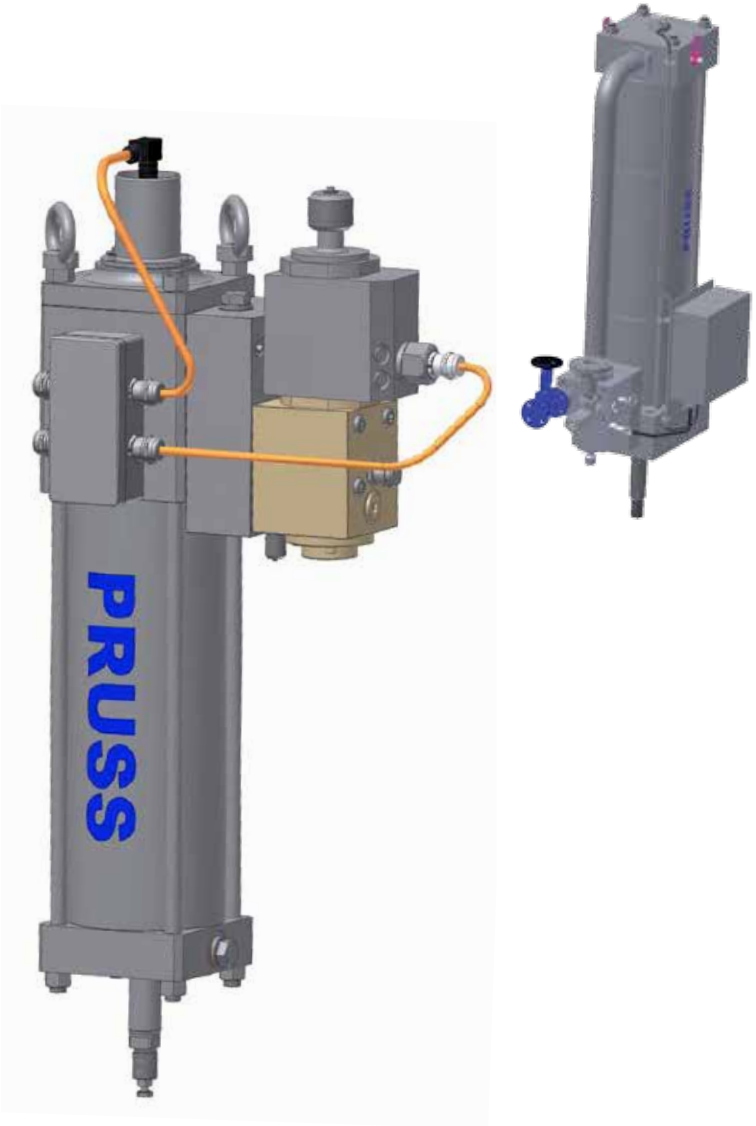


Pneumatic piston drive Type STPK



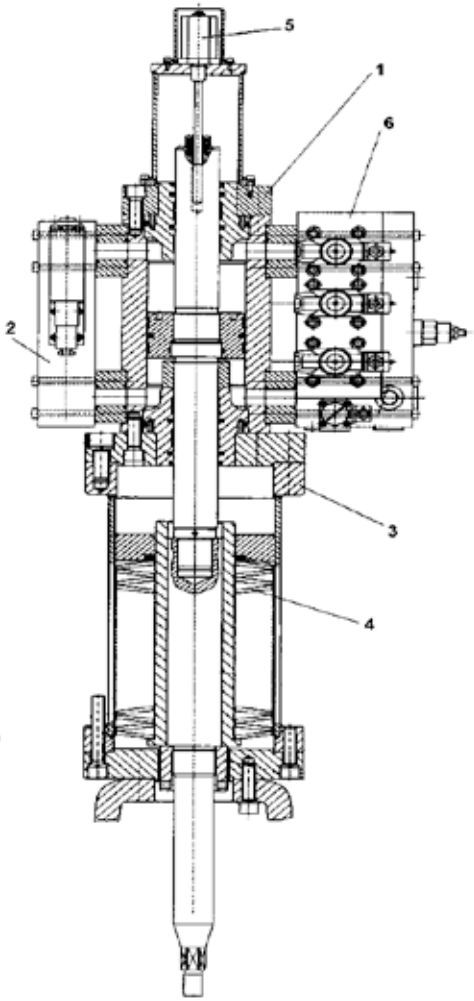
Type of drive			Pneumatic piston drive				
Safety position if air fails	Drive spindle extended	Type	STPK 250	STPK 350	STPK 500	STPK 600	STPK 700
	Drive spindle retracted	Type	special	special	special	special	special
Piston area		cm^2	490	950	1950	2800	3820
Stroke		mm	50 - 150	50 - 300	50 - 300	50 - 300	50 - 300
Air supply pressure max.		bar	10	10	10	10	10
Spring range adjustable	Start of stroke	bar	0.5...2.6	0.5...2.6	0.5...2.6	0.5...2.6	0.5...2.6
	End of stroke	bar	2.0...4.5	2.0...4.5	2.0...4.5	2.0...4.5	2.0...4.5
Air connection		–	G 3/4", G1"				
Material	Housing	–	Aluminium 3.2341.61 / Steel 1.0425				
	Pistons	–	Steel with O-ring seal from EPDM with supporting ring from PTFE				
Spindle seal		–	O-ring from EPDM with supporting ring of PTFE				
Optional		–	Manual override (Handpump)				
Optional / Certifications			Tripple safety device acc. to EU Directive 97/23/EC				

Hydraulic piston drive Type PHA



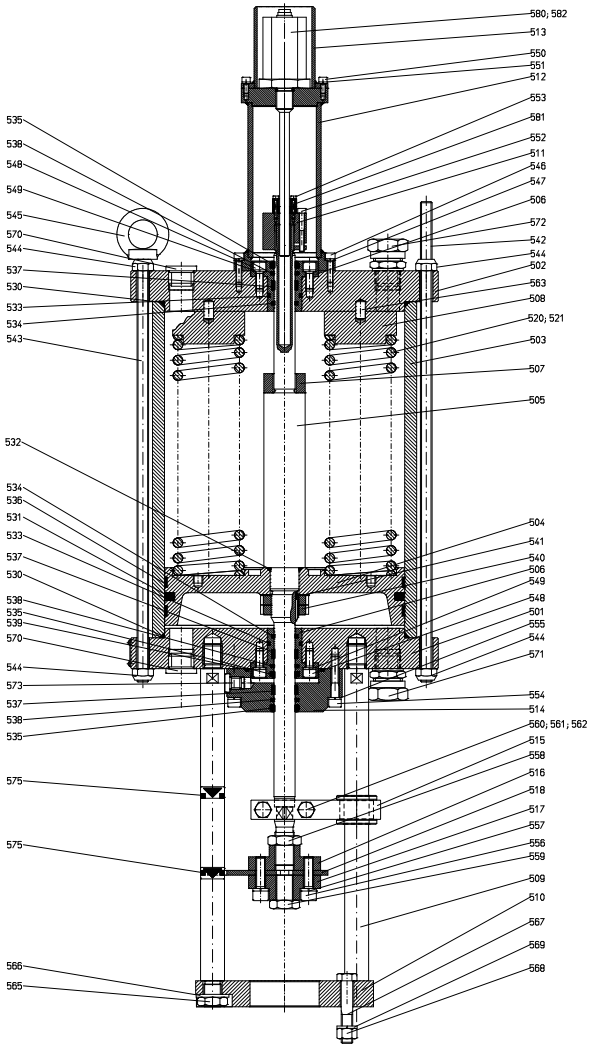
Type of drive			Hydraulic piston drive PN 40			
Safety position if signal fails or pressure falls	Drive spindle extended	Type	special	PHA 110	PHA 125	
	Drive spindle retracted	Type	PHA 100	special	special	
Piston diameter		mm	100	100	125	125
Piston rod diameter		mm	40	50	50	50
Stroke		mm	10	50	30	50
Max. oil pressure		bar	80	80	80	80
Actuating power	Spring	KN	6.8...9.6	15.5...26	15...19.3	18...38.3
	Hydraulic	kN	49.2...39.6	32.4...6.4	50...30.1	40...5.7
Material	Housing	–	Steel			
	Pistons	–	Steel piston ring of PTFE / NBR			
Spindle seal		–	Piston ring of PTFE / NBR			
Optional		–	With solenoid / cartridges to control shut- / blow off valves With way valve and position transmitter for control valve aplications Limit switches, junction boxes, hand pump			

Hydraulic piston drive Type GZ



Type of drive			Hydraulic piston drive (synchronising cylinder PN 250)									
Safety position if air fails or pressure falls	Drive spindle extended	Type	GZ 63	GZ 80	GZ 110	GZ 125	GZ 140	GZ 160	GZ 180	GZ 200	GZ 220	GZ 260
	Drive spindle retracted	Type	special	special	special	special	special	special	special	special	special	special
Piston diameter		mm	63	80	110	125	140	160	180	200	220	260
Piston rod diameter		mm	28	30 / 40	40	56	56	60	80	80	90	100
Stroke		mm	25 - 300	25 - 300	25 - 300	25 - 300	25 - 300	25 - 300	25 - 300	25 - 300	25 - 300	25 - 300
Max. oil pressure		bar	250	250	250	250	250	250	250	250	250	250
Spring range		–	Selectable depending on application									
Material	Housing	–	Steel									
	Pistons	–	Steel with seal provided by piston ring of PTFE / NBR									
Spindle seal		–	Piston ring of PTFE / NBR									
Optional		–	With solenoid / cartridge to control shut- / blow off valves With position control valve and position transmitter for controlvalve Applications, tripple safety device acc. EU Directive 97/23/EC; SIL 3/4 aproved, limit switch, hand pump									

Hydraulic low-pressure piston drive Type STHK



▶	**Type of drive**			**Hydraulic piston drive PN 16**	
▶	**Safety position if signal fails or pressure falls**	**Drive spindle extended**	Type	STHK 250	STHK 350
▶		**Drive spindle retracted**	Type	STHK 250 ÖF	STHK 350 ÖF
▶	**Piston diameter**		mm	250	350
▶	**Piston rod diameter**		mm	22	32
▶	**Stroke**		mm	10 - 300	
▶	**Max. oil pressure**		bar	15	15
▶	**Material**	**Housing**	–	Steel / Aluminium	
		Pistons	–	Steel with seal provided by piston ring of PTFE / NBR	
▶	**Spindle seal**		–	Piston ring of PTFE / NBR	
▶	**Optional**		–	Solenoid / Cartridge to control shut- / blow off valves Way valve and position transmitter egulate control valves Limit switch, hand pump	

Hydraulic stations

Hydraulic station standard					
Oil	100 litres	160 litres	250 litres	400 litres	600 litres
Type	HSS 100	HSS 160	HSS 250	HSS 400	HSS 600
Motor output KW	1.5 - 2.2	2.2 - 4.0	4.0 - 7.5	7.5 -13.0	18.5
Pump output litres/min	4 - 5.5	5.5 - 11	11 - 22	22 - 31	44
Motors	2	2	2	2	2
Bladder accumalator capacity	10 - 32 litres	32 - 50 litres	32 - 50 litres	32 - 50 litres	32 - 50 litres
Operating fluid	HLP oil	HLP oil	HLP oil	HLP oil	HLP oil
Oil tank	Steel	Steel	Steel	Steel	Steel
Oil sump	Steel	Steel	Steel	Steel	Steel
Solenoids voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Level and temperature sensor	binary/analogue	binary/analogue	binary/analogue	binary/analogue	binary/analogue
Pressure transducer 4 - 20 mA	Barksdale	Hydac	Hydac	Hydac	Hydac
Max. operating pressure	250 bar	250 bar	250 bar	250 bar	250 bar
Optional	Special seals for FRF service Stainless steel oil tank Oil cooler (water cooler / air cooler) Analogue level sensor (type as requested by customer) Oil heating Separate loading solenoid valves per motor Protective hood for outdoor use Special pressure transducer, ABB, Siemens, Rosemount Fire-resistant Quintolubric oil Special voltages, solenoid valves, AC, DC				

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