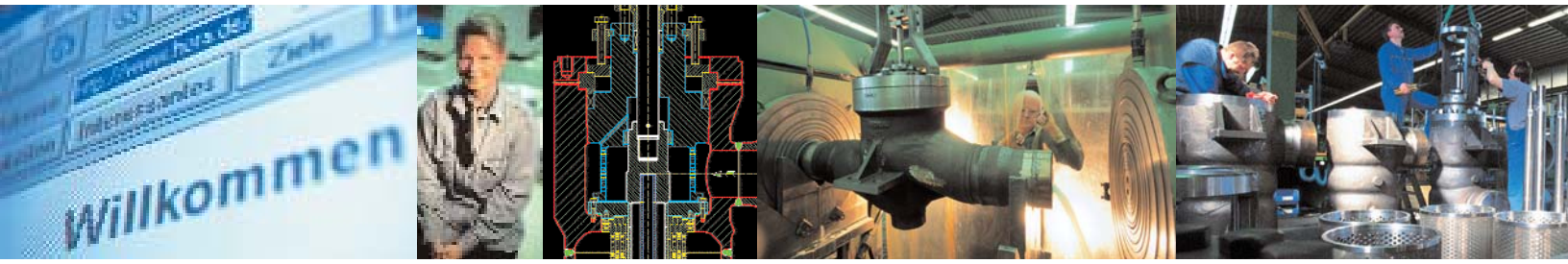


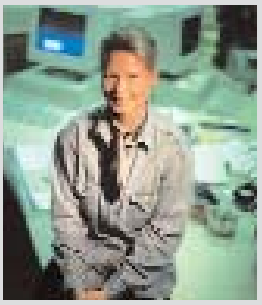
Control Valves, Desuperheaters, Steam Conditioning Valves

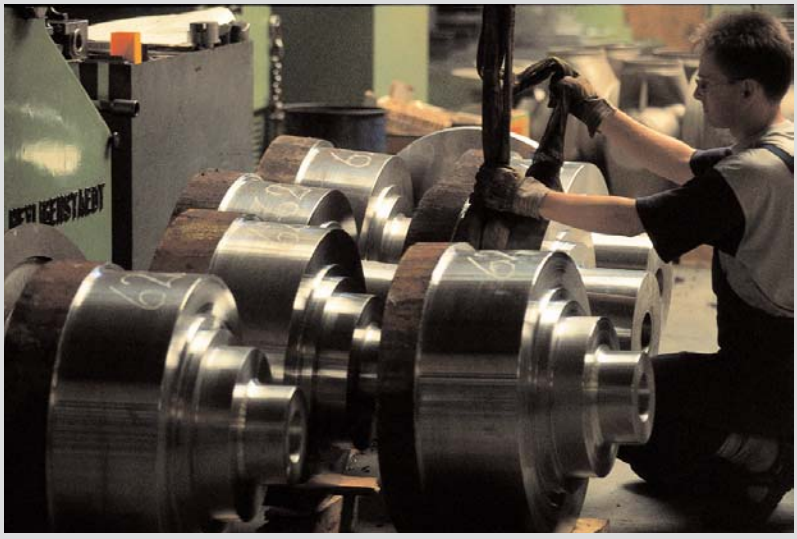
Armour Valve Ltd.

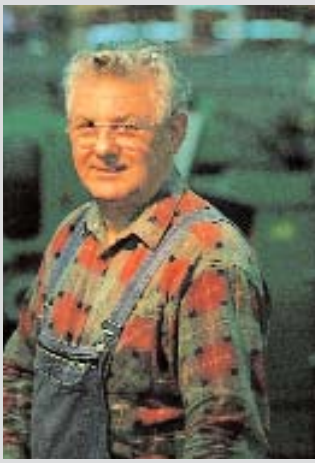
HORA
REGELARMATUREN

Excellence is our standard


http://www.hora.de/
Ziele
Interessantes
Willkommen





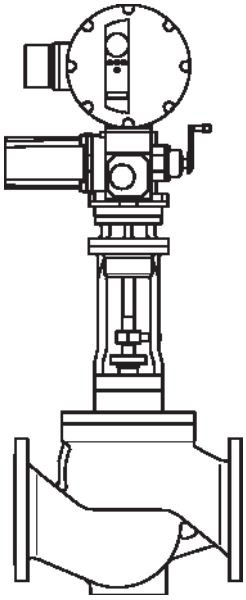


Holter Regelarmaturen GmbH & Co. KG, founded in 1967, offers an entire range of products for use in industry, power plants and process technology. Also known as HORA, the company designs and produces valves, pump recirculation valves, special valves for use in power plants, as well as electric and pneumatic actuators.

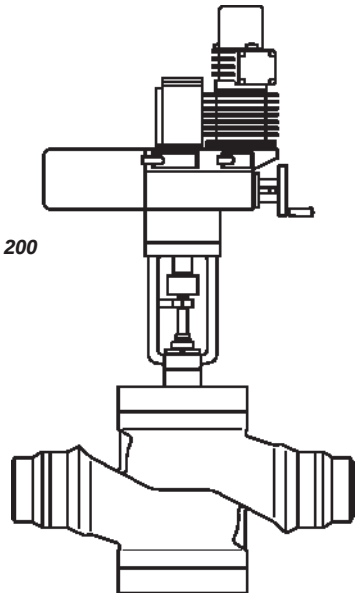
Long term experience has made the independent family-owned company from Schloss Holte-Stukenbrock into an international partner with leading boiler and power plant manufacturers and also for measurement and control companies.

Today´s position of the company in the marketplace is the result of the successful combination of innovative ability, continuity and reliability.

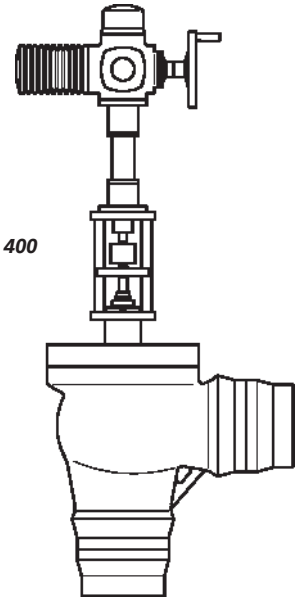
Single seat control valves



Series 300



Series 200

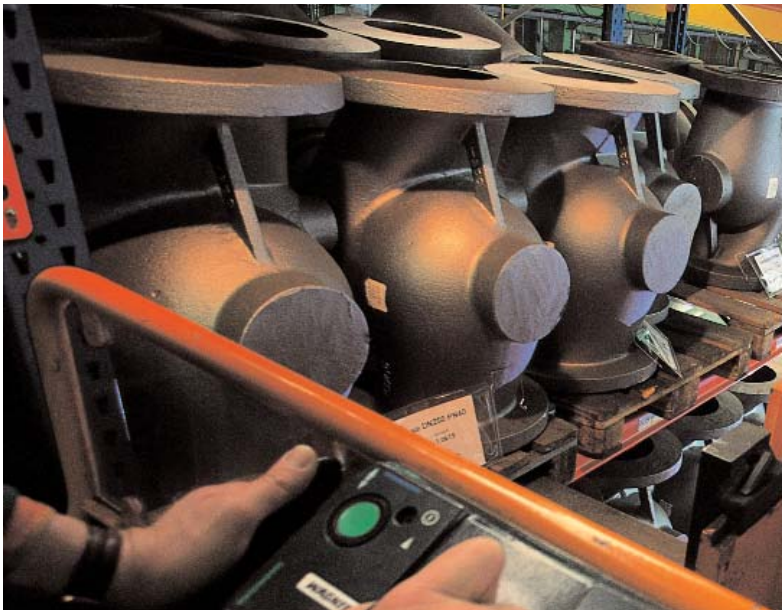


Series 400

Application	*Typical for liquid and gas control (water, steam, oil, gas)*
Body	*Heat resisting and high temperature resisting cast steel as well as stainless steel*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*

Series	*Size*	*ANSI Class*	*Body design*
300.01	*½" – 24"*	*150 – 300*	*Globe valve*
300.05	*½" – 16"*	*400 – 900*	*Globe valve*
300.50	*6"*	*1500*	*Globe valve*
200.03	*2 ½" – 16"*	*150 – 900*	*Angle style*
200.07	*2" – 12"*	*1500*	*Angle style*
400.16	*1" – 16"*	*150 - 300*	*Angle style*
400.16	*4" - 8"*	*400 900*	*Angle style*
400.16	*1" - 3"*	*1500*	*Angle style*

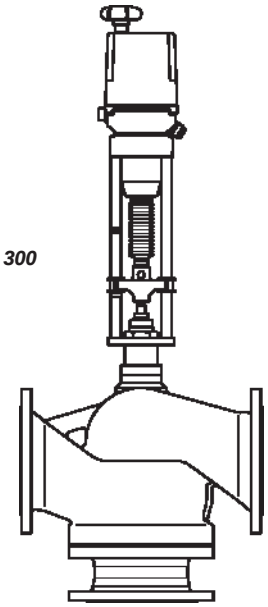
NPS 1" ≅ 25 mm = DN 25



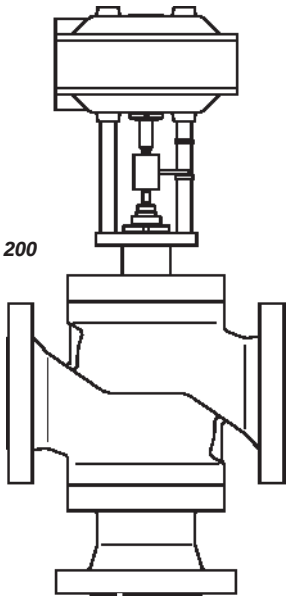
HORA maintains a customer oriented stockholding, which on closer examination says a good deal about the company's service-mindedness. Discussions with customers have repeatedly shown this system of material availability to be a key factor for HORA's competitiveness in international markets.

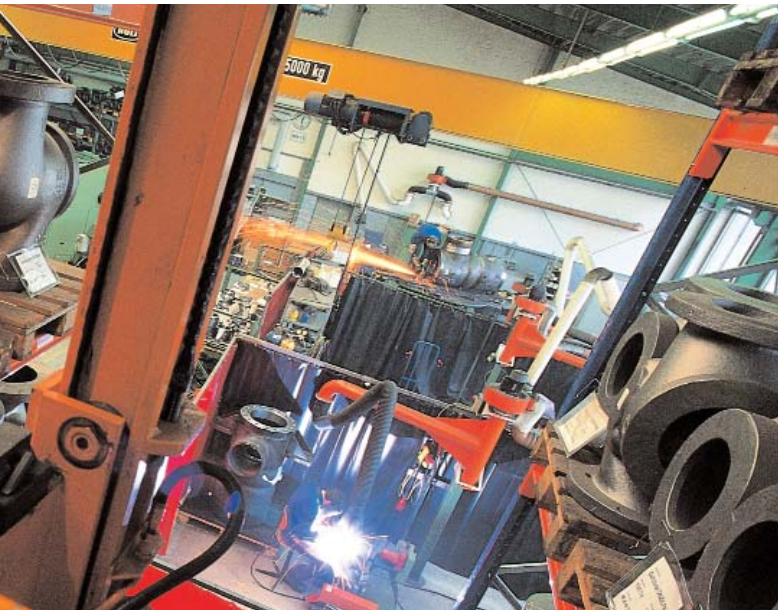
Three way valves

Series 300



Series 200





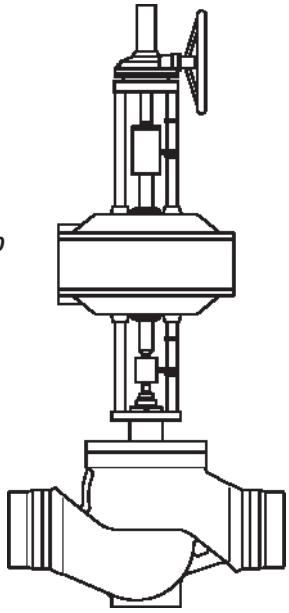
Application	*Mixing or diverting valve for liquid and gas control (water, steam, oil, gas)*
Body	*Heat resisting and high temperature resisting cast steel as well as stainless steel*
Connection	*Flanged (buttweld ends are not typically recommended due to installation difficulties.*
Actuator	*Electric, pneumatic or hydraulic*

Series	*Size*	*ANSI Class*
300.02	***½" – 24"***	***150 – 300***
300.06	***½"– 16"***	***400 – 900***
200.04	***2 ½" – 16"***	***150 – 900***
200.08	***2" – 12"***	***1500***

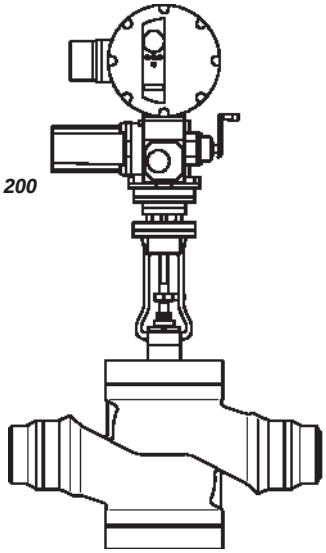
NPS 1" ≅ 25 mm = DN 25

Feedwater control valves

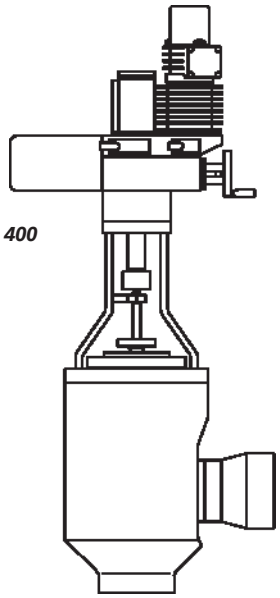
Series 300



Series 200



Series 400



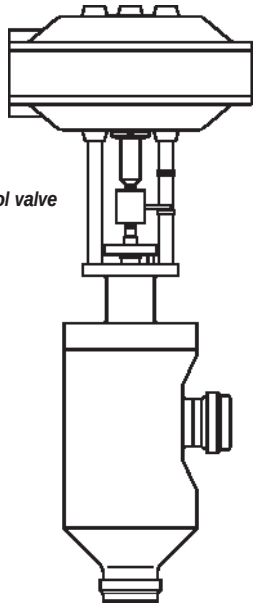
Application	*Feedwater control valve for start up and main-feedwater control. These two functions are integrated in the combined feedwater control valve. Our delivery range includes also separate control valves.*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*

The assembly and testing of industrial valves, that weigh tons calls for millimetre precision and finger-tip feeling – as in these eight turbine bypass valves for a power plant in India. Complicated function tests and final approval testing over several days face the assembly personnel with ever new challenge.

Series	*Size*	*ANSI Class*	*Body design*	*Body*	*Description*
300.73	*2 ½" – 12"*	*400 – 900 (1500)*	*Globe valve*	*Cast steel*	*Combined type (Start up and main feedwater control)*
200.72	*2 ½" – 12"*	*1500*	*Globe valve*	*Cast steel*	*Combined type (Start up and main feedwater control)*
400.74	*2 ½" – 12"*	*acc. to design data*	*Angle or Z-style*	*Forged steel*	*Combined type (Start up and main feedwater control)*
400.30 - 33	*2 ½" - 12"*	*acc. to design data*	*Angle or Z-style*	*Forged steel*	*Main feedwater control*

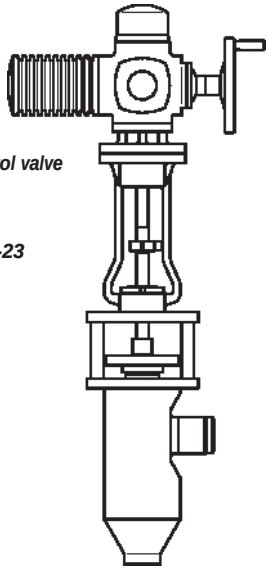
NPS 1" ≅ 25 mm = DN 25

Multi-stage control valves
Injection control valves



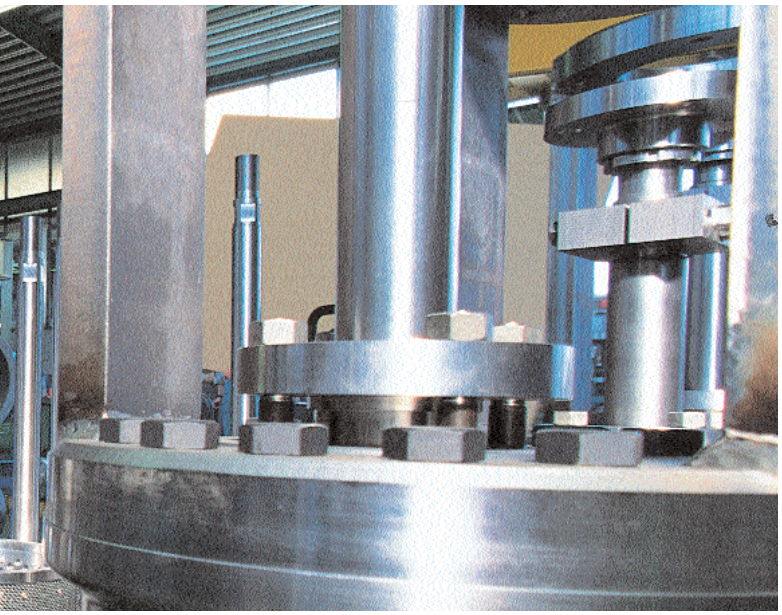
Multi-stage control valve

Series 400.64



Injection control valve

Series 400.20-23



Multi-stage control valve

Application	*The multi-stage control valve is typically used for throttling high pressure while avoiding cavitation. This is realized by the maximum 5-stage parabolic plug.*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*

Injection control valve

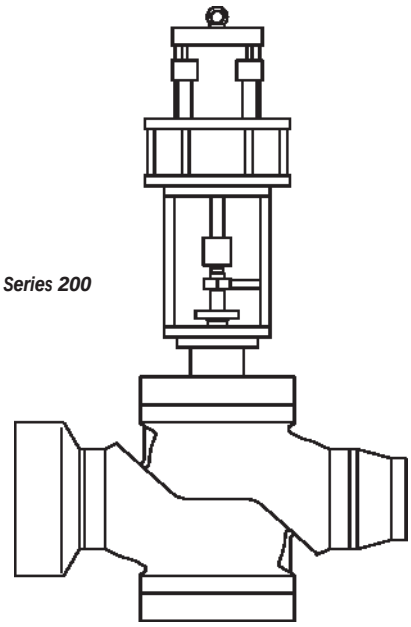
Application	*Cooling water control for steam desuperheaters and steam conditioning valves.*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*

Series	*Size*	*ANSI Class*	*Body design*	*Material*
400.64	2" – 8"	*400 – 2500*	*Angle or Z-style*	*Forged steel*
400.20 - 23	*½"– 5"*	*400 - 2500*	*Angle or Z-style*	*Forged steel*

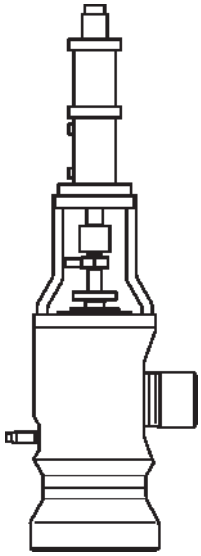
NPS 1" ≅ 25 mm = DN 25

Steam pressure reducing valves

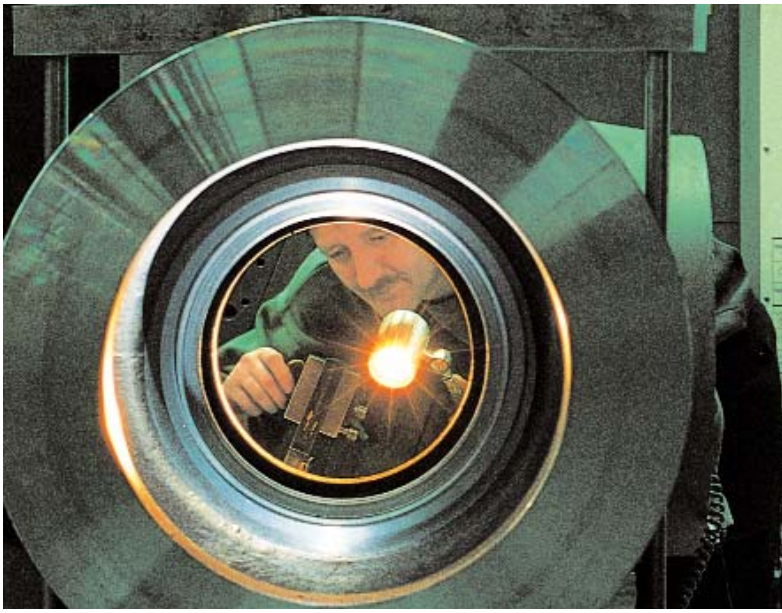
Series 200



Series 400.36



Application	*Steam pressure reducing valves are used primarily in power plants and industrial plants for steam control and pressure reducing. Multi-stage pressure reducing and outlet extension in accordance to the pressure drop.*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*



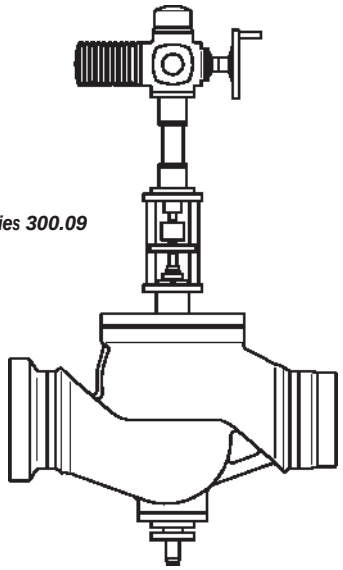
High-pressure body undergoing precision work with bore machining. Forged steel is usually used here.

Series	*Size*	*max. size of outlet extension*	*ANSI Class*	*Body design*	*Material*
200.03	*2 ½" – 16*	*64"*	*150 – 900*	*Globe valve*	*Cast steel*
200.07	*2" – 12*	*64"*	*1500*	*Globe valve*	*Cast steel*
200.35	*6" – 16"*	*64"*	*150- 900*	*Globe valve*	*Cast steel*
400.36	*2" - 16"*	*64"*	*acc. to design data*	*Angle or Z-style*	*Forged steel*

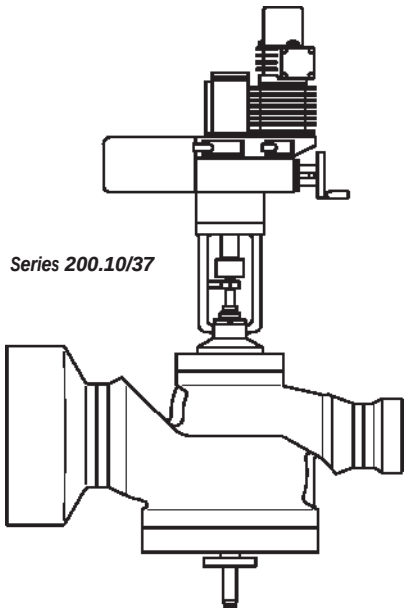
NPS 1" ≅ 25 mm = DN 25

Dampfumformventile / Steam conditioning valves

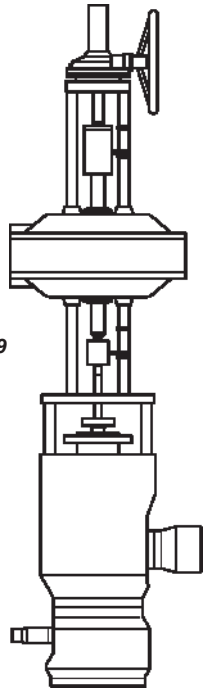
Series 300.09

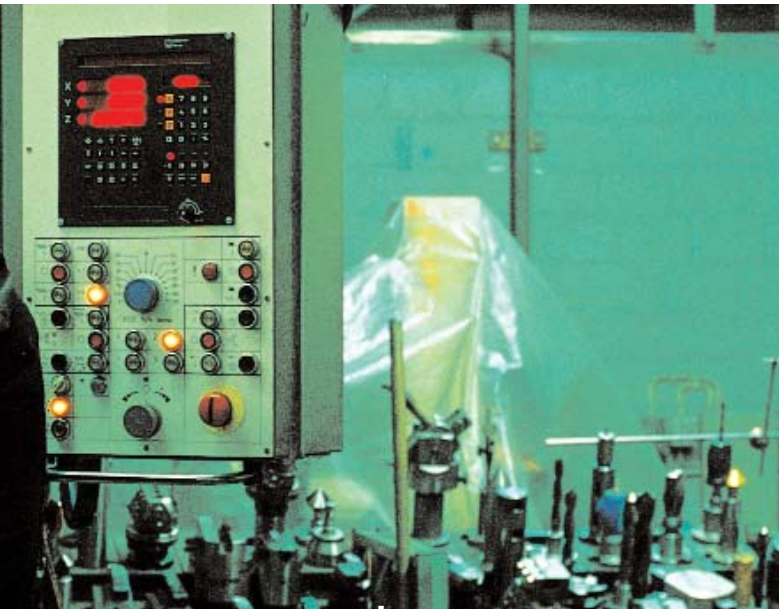


Series 200.10/37



Series 400.39



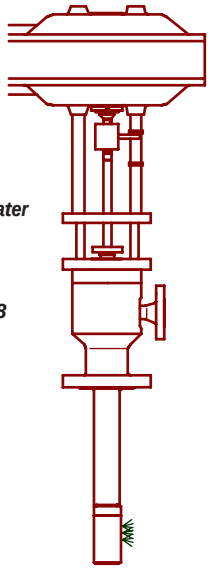


Application	*Steam pressure reducing and cooling in one valve. Cooling water is injected in proportion to the steam flow volume, thus ensuring optimum results. The multi-stage, low-noise design is available as a globe or angle style valve.*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*

Series	*Size*	*NPS max. outlet extension*	*ANSI Class*	*Body design*	*Body*
300.09	*2" – 24"*	*64"*	*150 – 300*	*Globe valve*	*Cast steel*
300.09	*2" – 16"*	*64"*	*400 – 900*	*Globe valve*	*Cast steel*
200.10/37	*2 ½" – 16"*	*64"*	*150 - 900*	*Globe valve*	*Cast steel*
200.10	*2" – 12"*	*64"*	1500	*Globe valve*	*Cast steel*
400.39	*2" - 16"*	*64"*	*acc. to design data*	*Angle or Z-style*	*Forged steel*

NPS 1" ≙ 25 mm = DN 25

Desuperheaters
Venturi-desuperheaters
Steam assisted desuperheaters



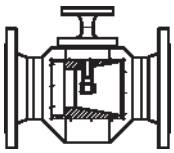
Desuperheater

Series 400.58

Desuperheater

Application	*The desuperheater is a control device for precision steam cooling by injection of cooling water into the steam pipe. Because of the regulated nozzles, the maximum 3-stage desuperheater offers a wide control range.*
Connection	*Flanged or buttweld ends for steam assisted desuperheater*
Actuator	*Electric, pneumatic or hydraulic*

Venturi-desuperheater

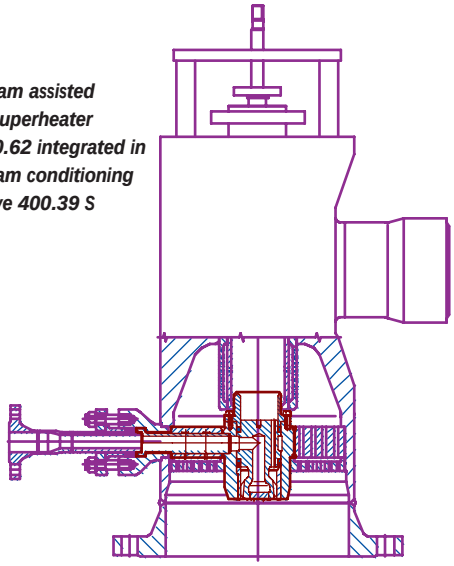


Series 400.85

Venturi-desuperheater

Application	*The venturi-desuperheater injects cooling water into the steam pipe through a fixed venturi-nozzle. The special venturi shape ensures an optimum mixing of steam and water.*
Connection	*Flanged or buttweld ends for steam assisted desuperheater*
Actuator	*Electric, pneumatic or hydraulic*

Steam assisted desuperheater 400.62 integrated in steam conditioning valve 400.39 S



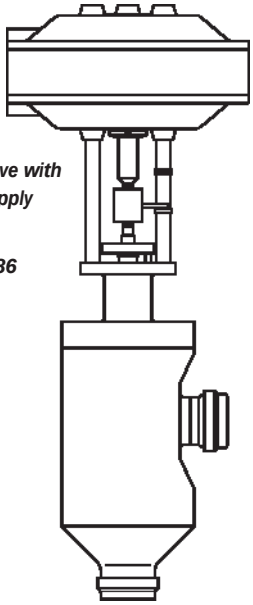
Steam assisted desuperheater

Application	*The steam assisted desuperheater injects the cooling water into the steam pipe under support of high pressure steam.*
Connection	*Flanged or buttweld ends for steam assisted desuperheater*
Actuator	*Electric, pneumatic or hydraulic*

Series	*Size*	*ANSI Class*	*Body design*	*Body*	*Remark*
400.58	*1" – 2/3"*	*300 – 2500*	*Angle style*	*Forged steel*	*max. kvs 10.66*
400.62	*6" – 12"*	*150 – 900*		*Forged steel*	*max. 85 t/h water*
400.85	*2" – 4"*	*150 – 900*	*Straight way*	*Forged steel*	

NPS 1" ≅ 25 mm = DN 25

Minimum flow valves with external power supply
Automatic pump recirculation valves
Back pressure regulators

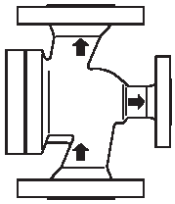


Minimum flow valve with external power supply

Series 400.86

Minimum flow valve with external power supply

Application	*The multi-stage control valve is typically used for throttling high pressure without cavitation.This is realized by a maximum 9-stage combination of perforated plug and perforated cages.*
Connection	*Flanged or buttweld ends*
Actuator	*Electric, pneumatic or hydraulic*

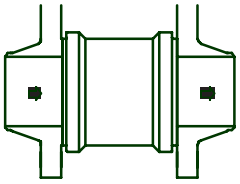


Automatic pump recirculation valve

Series PSG/N

Automatic pump recirculation valve

Application	*Protection of centrifugal pumps from damage that can occur during low-flow operation*
Connection	*Flanged or buttweld ends*



Back pressure regulator

Series BPR

Back Pressure Regulator

Application	*Prevention of flashing in pipelines*
Connection	*Wafer type*

Series	*Size*	*ANSI Class*	*Body design*	*Body*
400.86	*2" – 8"*	*400 – 2500*	*Angle or Z-style*	*Forged steel*
PSG/N	*2" – 10"*	*150 – 1500*	*Three way valve*	*Cast steel*
BPR	*2" – 12"*	*150 – 1500*	*Straight way*	*Forged steel*

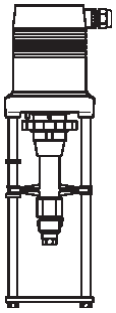
NPS 1" ≅ 25 mm = DN 25

MC 163, MC 253, MC 503

Stroke	max. 60 mm
Power supply	24 VAC / 24 VDC or 230 VAC
Input signal (adjustable)	3-point
	Y = 0 ... 10 VDC, 2 ... 10 VDC
	0 ... 20 mA, 4 ... 20 mA
Output signal	X = 0 ... 10 VDC
Enclosure protection	IP 54
Accessories	115 VAC
	Output signal X = 0 ... 20 mA, 4 ... 20 mA
	Position switch unit
	Enclosure protection IP 65

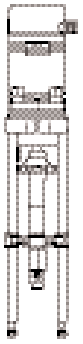
Linear actuator	Actuating thrust	Actuating time
MC 163	1,6	6, 4
MC 253	2,5	5, 2,5
MC 503	5,0	5, 2,5

MC 163



MC 503
MC 253

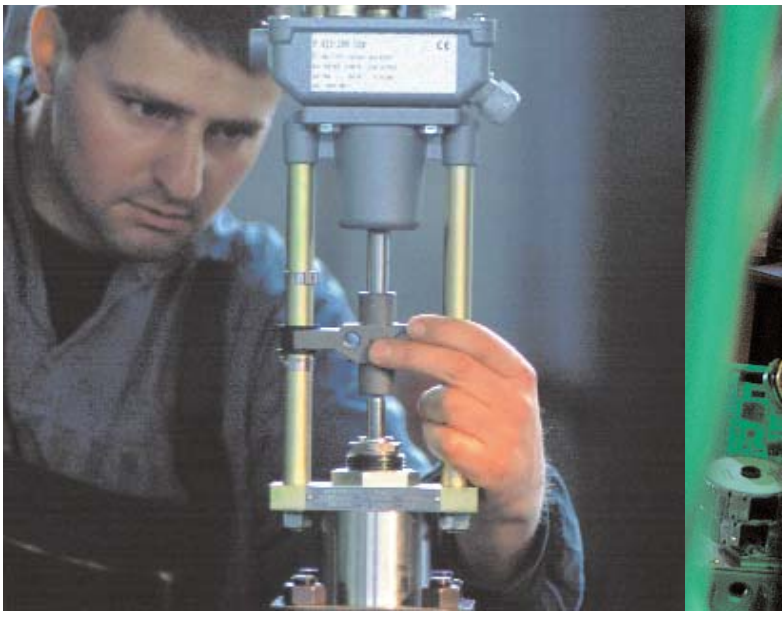
MC 1003
MC 1503



MC 1003, MC 1503

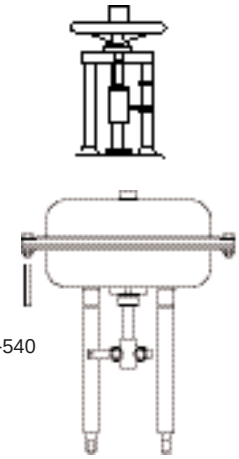
Stroke	max. 80 mm
Power supply	24 VAC / 24 VDC or 230 VAC
Input signal (adjustable)	3-point
	Y = 0 ... 10 VDC, 2 ... 10 VDC
	0 ... 20 mA, 4 ... 20 mA
Output signal	X = 0 ... 10 VDC
Enclosure protection	IP 54
Accessories	115 VAC
	Output signal X = 0 ... 20 mA, 4 ... 20 mA
	Position switch unit
	Enclosure protection IP 65

Linear actuator	Actuating thrust	Actuating time (adjustable)
MC1003	10	1
MC1503	15	2

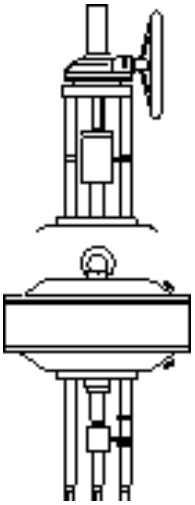


Our actuators with microcontroller can be adjusted in situations to meet all kinds of control and regulation requirements. Through automatic self-calibration and variable adjustment, they are suitable for universal application.

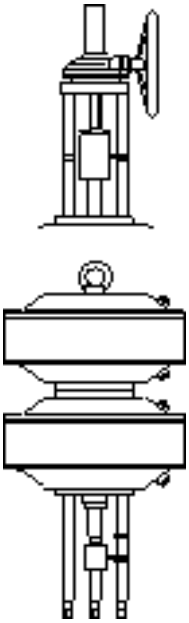
Pneumatic diaphragm actuators



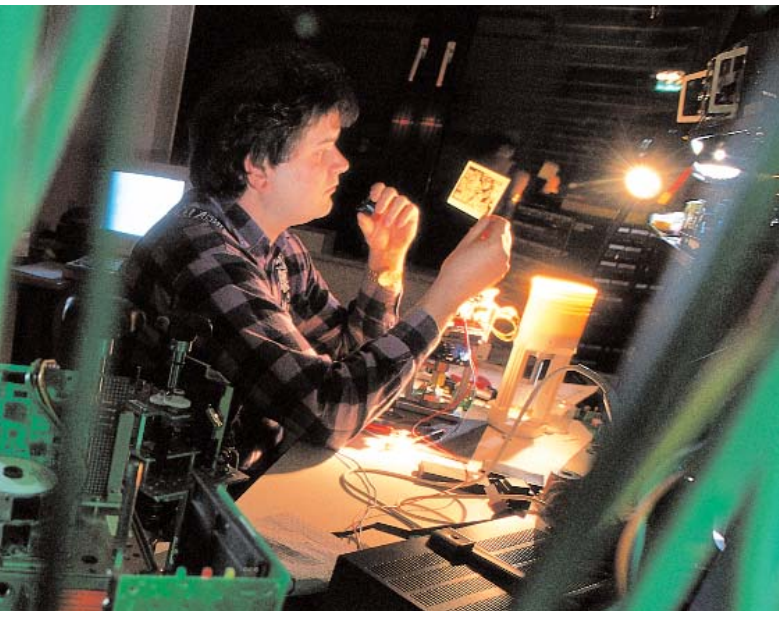
PA 160-540



PA 1080



PA 2160



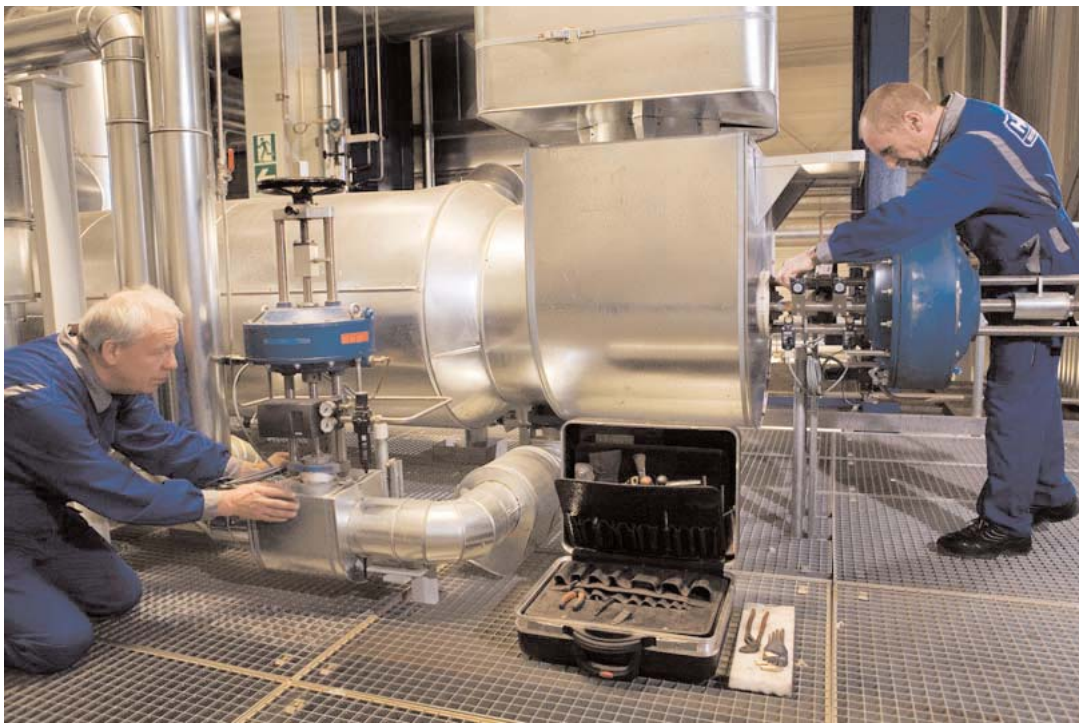
HORA performs all aspects of development work all the way to the serial production phase in its own development laboratory – from mechanics to electronics.

Operating pressure	*Maximal 6 bar*
Mode of operation	*Optionally spring to close/open*
Special accessories	*Manual adjustment on top, pneumatic or electro-pneumatic positioner, blocking valve, booster, solenoid valve, attachment set with limit switches, quick venting screw, outlet throttle.*

Pneumatic diaghragm actuator	*Diaphragm area*	*Stroke*
PA-N 160	160	20
PA-N 280	280	20/30
PA 540	540	30/50
PA 1080	1080	60/80
PA 2160	2160	60/80

Example of a tubine-bypass stop and control valve

A turbine bypass system permits operation of the boiler independently from the steam turbine during start-up, commissioning, turbine trip (shut down) and load alternations. It gives a higher plant availability and operational flexibility over all different operating conditions. The start-up time under cold, warm and hot conditions is reduced. A turbine bypass system is in operation until desired steam conditions from metal temperatures of rotor and casing of the turbine are matched. This method reduces the solid particle erosion to the turbine also, since the loss of material from the boiler internals most likely occurs during start-up. After a load rejection of the turbine the bypass valves operate the boiler at an optimal standby load and avoid a boiler trip. They equal the difference between the steam generator and the turbine flow. It is a big advantage that commissioning of the boiler can be carried out toally independent of the turbine. Boiler trials that are usual when commissioning the firing system are performed without stressing the turbine unnecessarily.



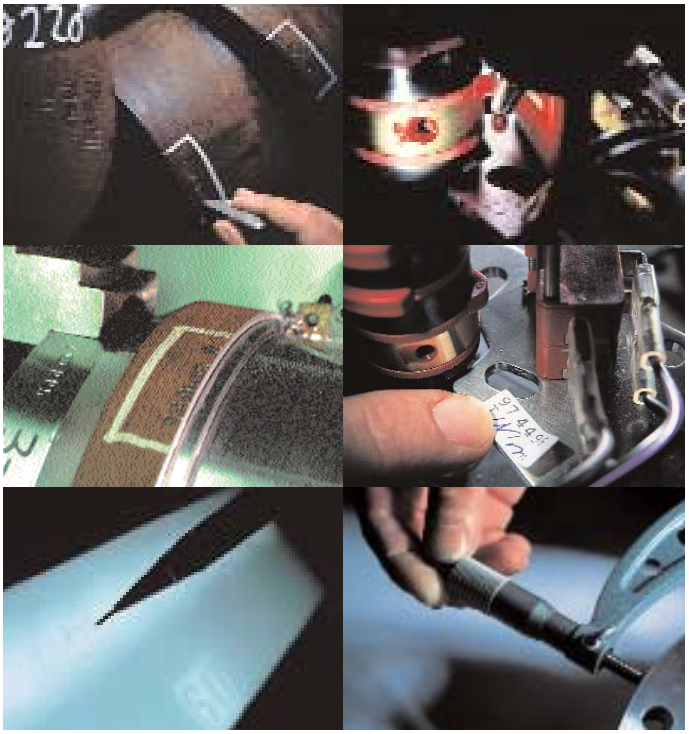
HORA is able to carry out all test procedures and approvals

With emphasis on assuring safety.

At HORA, quality does not come from testing but is built in from the start by highly qualified personnel. "Measuring what is measurable and making measurable what is not measurable". Galileo's precept has been absorbed into the flesh and blood of all the people at HORA. The basis for this are DIN EN ISO 9001:2000, the european directive 97/23/EC for pressure equipment and KTA 1401, i.e. the certification as an approved subsupplier for valves with application in nuclear power plants. The quality management system is geared to all the different approvals that may be required worldwide: TRD, AD-2000, ASME, Indian Boiler Rules (IBR), GOST and so on.

At the heart of quality testing is monitoring of the dimensions – for which the systematic and cyclical inspection of all measuring and testing instruments is an important precondition.

HORA is able to carry out all test procedures and approvals required for the production of control and special valves. In the course of production, more than eleven test procedures may be used.

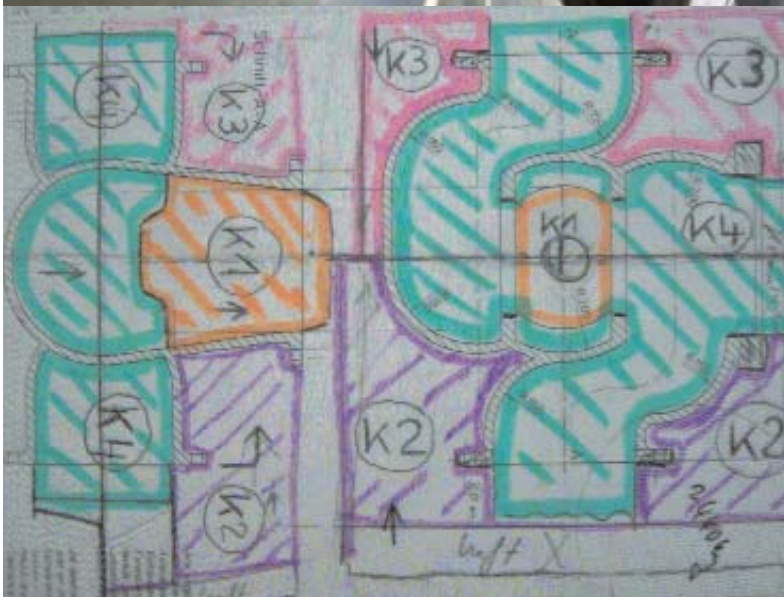


Your problem areas are as unique as your power station.

The patent recipe to prevent all problems is not financially viable. The intelligent, individual mix of preventative measures and help in emergencies is what is required. Some examples of our range of services:

The optimising repair:
Of course, we can change the faulty component in a valve. A lot of people can do that. However, we can also optimise the internal components so that they last considerably longer. For example, by avoiding cavitation or flushing.

The life-prolonging modernisation plan:
We can develop a modernisation plan for you, which includes the valves and the pipework ducts. Because we build power station valves ourselves, we know the interplay of the components in detail. We know how to avoid costly new purchases by modernising existing valves. The spin-off: the power station can be quickly started up again.



The targeted spare parts stock:
We fill a special spare parts box for a specific part of your valves in each case as a preventative measure. It will be stored on your premises. If a fault occurs, the HORA Service Team can repair the valve immediately. Then we refill the spare parts box.

The Service Check:
Our Service Team checks all valves at regular intervals and assesses the repair requirements and optimisation potential.

The individual problem solution – An example:
A plastics company asked a valve manufacturer to repair its valve which was about 30 years old. It was a 3-way valve of a quite specific design. The manufacturer had to decline and was also unable to supply a replacement valve with the same, non-standard connection dimensions. A new solution was ruled out: changing the pipework would have cost a fortune.Then HORA was approached. HORA produced the 3DCAD data and found a special foundry which specialised in styropor models. Styropor models can only be used once, but that was enough. Therefore, this foundry produced the first valve model in its history. The valve was cast and then finished and fitted by HORA. And so HORA gained a new customer.

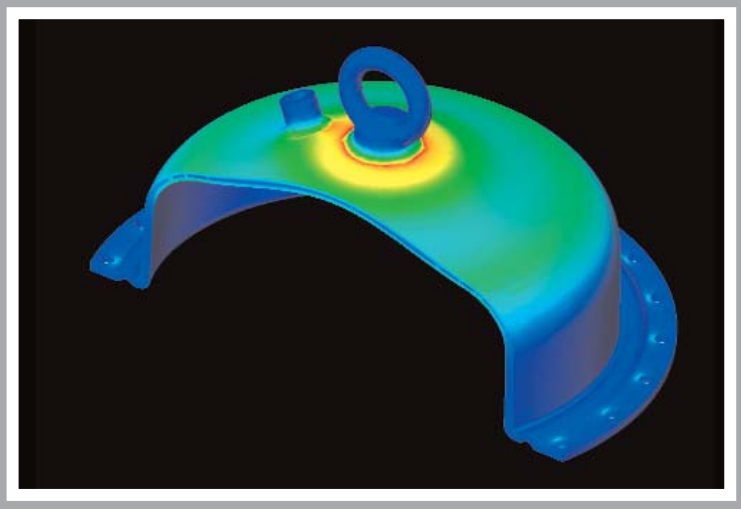
Simply tell us your goals – we'll get you there.

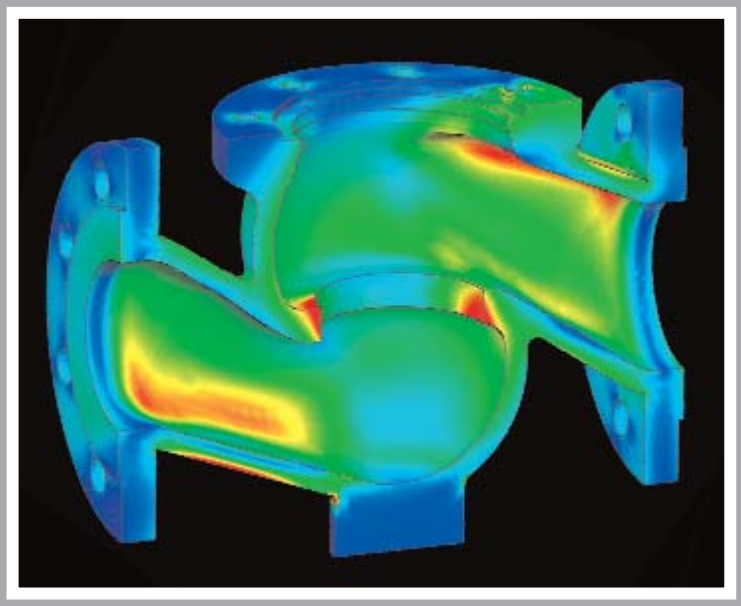
Increase in availability?
We can do that for you:
– Strategic spare parts stockholding
– Utilisation of improved materials and technologies
– Preventative maintenance

Increase in output?
We can do that for you:
– Modernisation of components and systems

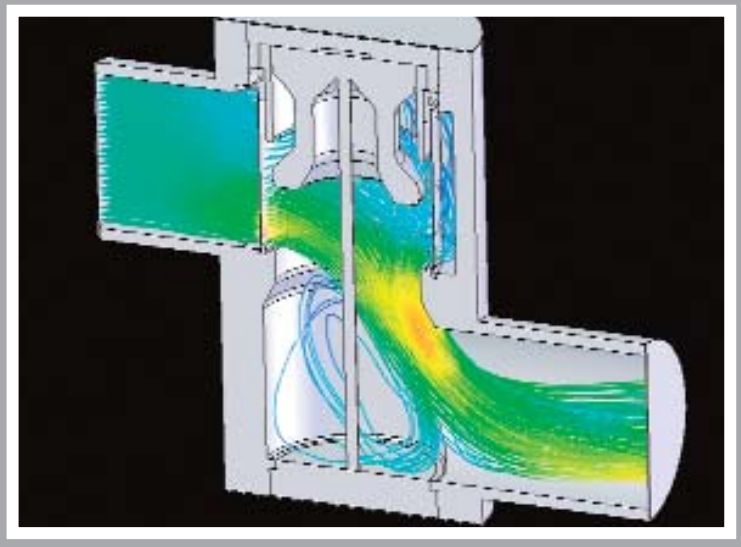
Service life extension?
We can do that for you:
– Status-orientated maintenance
– Service life analysis
– Changing specific components

Increase in efficiency?
We can do that for you:
– Process data analysis
– Examination of valve design
– Modification of existing valve





Finite Element Method

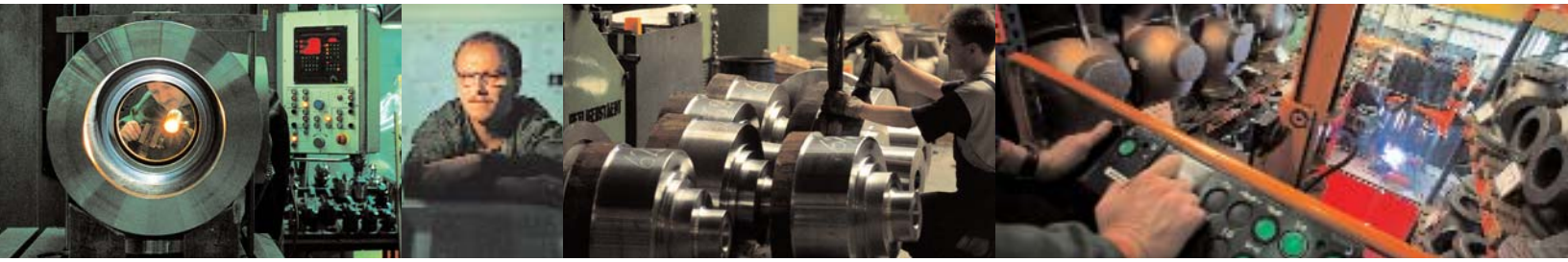


Fluid calculation to optimize the valve parts

HORA Power Technology Service accompanies a power station at every stage of its life.

Periods	*1*	*2*	*3*
Phase	– *Plant commissioning and start-up*	– *Plant economic phase* – *Few and mostly planned shutdowns* – *Maximum availability*	– *The end of the service life of various components in the plant is reached*
Reasons for failure	– *Material faults* – *Manufacturing faults* – *Design faults*	– *Random failures*	– *Failures due to fatigue and ageing*
HORA Power Technology Service	– *Commissioning by specialist personnel* – *Training of on-site personnel* – *Troubleshooting*	– *Rapid troubleshooting on site* – *Preventative maintenance* – *Service life observation and service life increase* – *Short planned shutdowns* – *Spare parts stock on site*	– *Modernisation* – *Retrofit: changing components and component parts* – *Upgrade: optimisation to the latest state-of-the-art technology* – *Status-orientated maintenance*

X-ray image of a cast-iron body with welded ends. Shrink holes and inclusions can only be detected with certainty in this way.



For all your Hora Needs:

- ***Control Valves***
- ***Desuperheaters***
- ***Steam Conditioning***

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Excellence is our standard