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**50**  
YEARS 1963 - 2013

PARTNER FOR HIGHEST DEMANDS

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**50 YEARS**

PARTNER FOR HIGHEST DEMANDS



## SPECIAL VALVES – THE SPECIAL WORLD OF AZ

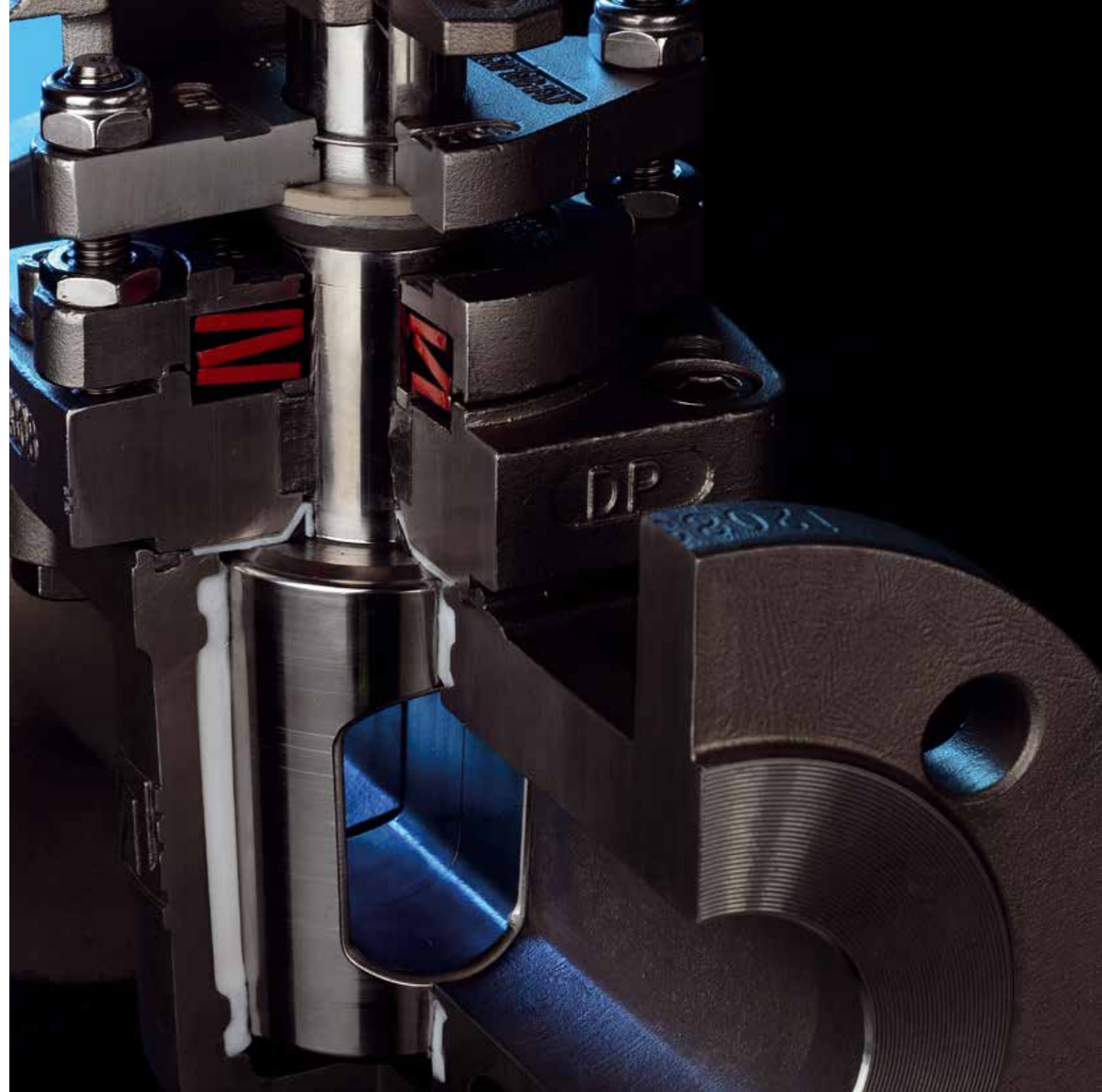
Our company manufactures industrial valves, particularly plug valves, for many production facilities in the chemical, petro-chemical, pharma, paper and food production industries, nuclear power stations and for many other application areas. AZ valves only represent one component in these complex plants but they are of vital importance in terms of safety and process flow.

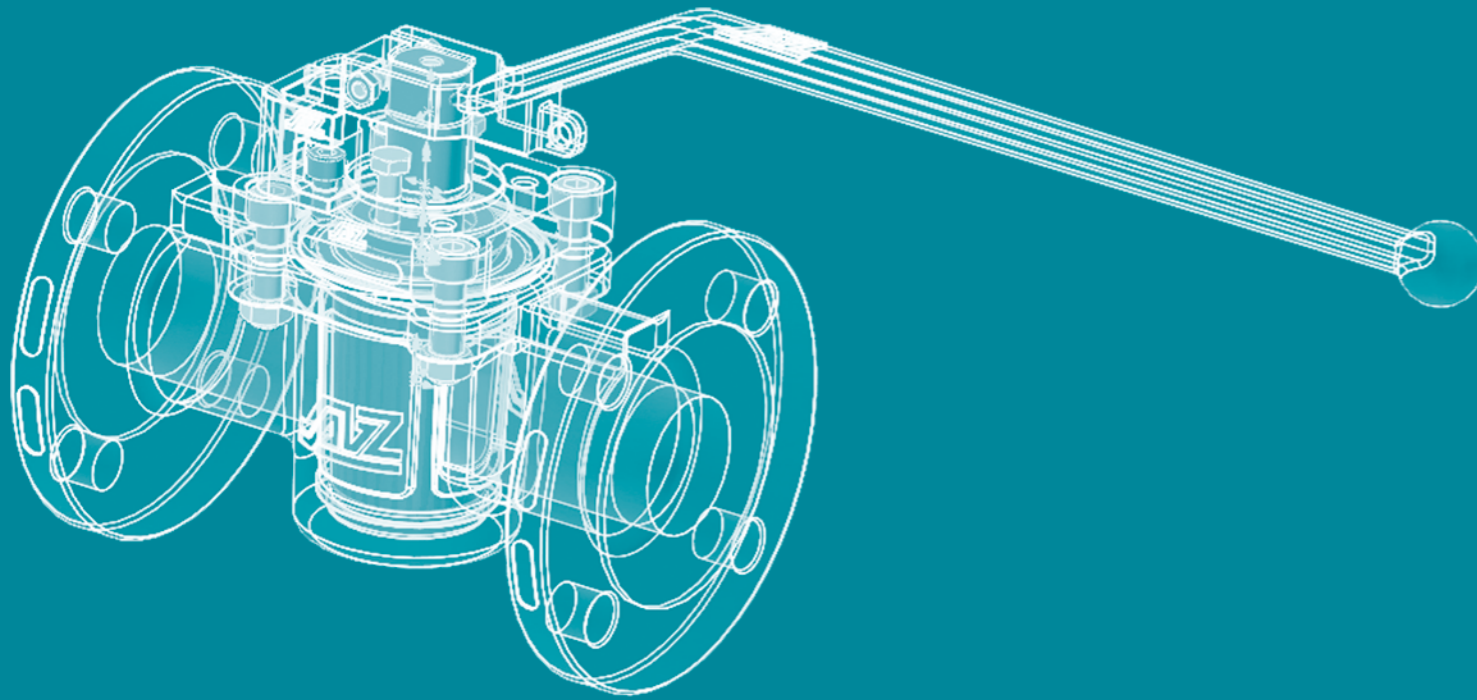
Together with the users, we develop valves for increasingly more demanding applications as specified for example, by new, more efficient production processes with higher pressures and temperatures. The solving of problems in plant engineering and the safeguarding of precise production processes are fascinating areas to work in and represent a challenge that we are confronted with all the time. Our valves are as versatile as the people who plan, design and produce these products. With this book, we want to give you a little look behind the scenes.

During the 50 years that our company has been in existence, we have been on a journey of continual development as we addressed the increasing demands of our globally active customers and together, we have grown. I would like to offer my heartfelt thanks for the constructive collaboration and for the confidence and trust that has been placed in us.

The tradition of being a partner for the highest demands for our customers is inextricably woven into our company's fabric and it is what drives us forward day-in, day-out.

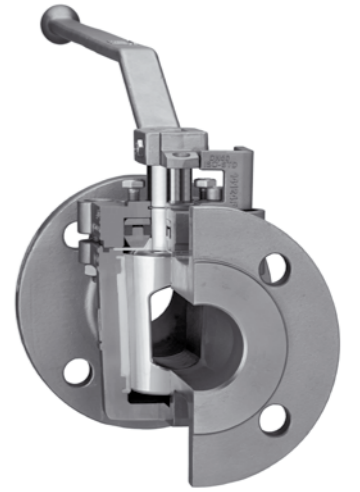
Dipl.-Ing. Jörg Wisser  
Managing Director





## CAVITY-FREE, MAINTENANCE-FREE

The production of high-quality plug valves with a construction that is free of cavities and that requires no maintenance is demanding. Over time, this has been perfected by AZ and has been optimised for robust applications in industrial facilities, through the use of new materials. All products are produced according to both the European DIN/EN ISO standards and the American ASME standard for pipe diameters, currently in the range from 6 mm to 600 mm. This production know-how forms the basis of the rest of the product portfolio.



### TYPE ISO STANDARD PLUG VALVE

Metallic with PTFE sleeve, 2 - 7 way

### TYPE EXTRA PLUG VALVE

Metallic with PTFE sleeve and full bore design

### HDS HIGH PRESSURE PLUG VALVE

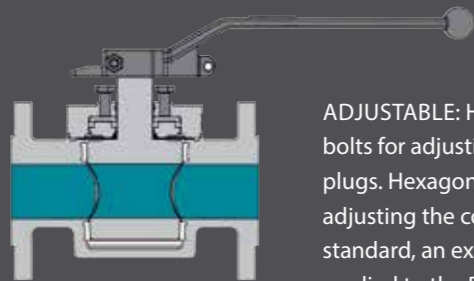
DN 15 - 600 / PN 10 - 100, NPS 1/2" - 24" / Class 150 - 600

### HM / TM PLUG VALVE

With full and partial heating jacket

### MG / SW PLUG VALVE

With screwed or welded ends



**ADJUSTABLE:** Hexagonal bolts for adjusting the conical plugs. Hexagonal bolts for adjusting the conical plugs. As standard, an external jacket is applied to the PTFE sleeve and V membrane. Available optionally with graphite packing with the Firesafe version.

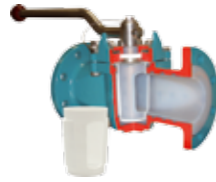


**CAVITY-FREE:** The PTFE sleeve encases the complete plug. Solid materials and aggressive media don't damage the sleeve as there are no surfaces that they can attack. Nothing can get deposited between the seals.



### PLUG VALVES

With lining and with exchangeable PTFE sleeve



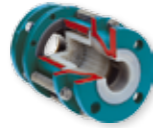
### BALL VALVES

With lining, cavity minimised design



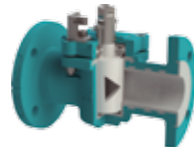
### CHECK VALVES SIGHT GLASSES STRAINERS

With lining



### CONTROL VALVES

Metallic with PTFE sleeve and with PFA lining, with linear or equal percentage characteristics



### AUTOMATION

- Pneumatic
- Electric
- Hydraulic
- NEW AZ-AIR-GEAR



### SAMPLING SYSTEMS

- Representative, pressure-free sampling
- Defined volume
- Closed system
- Without flow interruption
- Partially piggable

Simple and safe operation for

- Liquids
- Solids
- 1-phase or 2-phase Liquids
- Gases



CONTIFLOW



VARIO  
(Variable volume setting)



SAMPLING  
(Pressure-free sampling)



GSP  
Gas sampling system

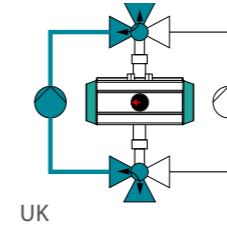


SAMPLING SIC

## INDIVIDUAL SOLUTIONS

### CROSS-OVER COMBINATION

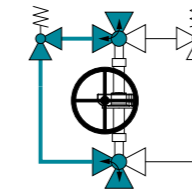
Combinable for heating and cooling cycles, reactor cycles, cross-over valves for filter cycles



UK

### SAVA

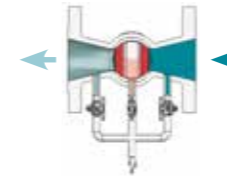
Special cross-over valve for safety (relief) valves with round bore diameter



SAVA

### DBI

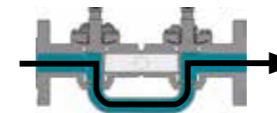
Plug valve for "Double Block and Bleed Inspection" with inspection connection



DBI

### SP / DBBC / DBI

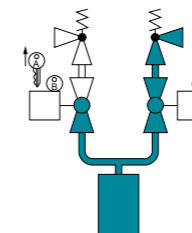
With flushing connection for cross-flushing the valve plug



DBBC

### LOCKING DEVICE

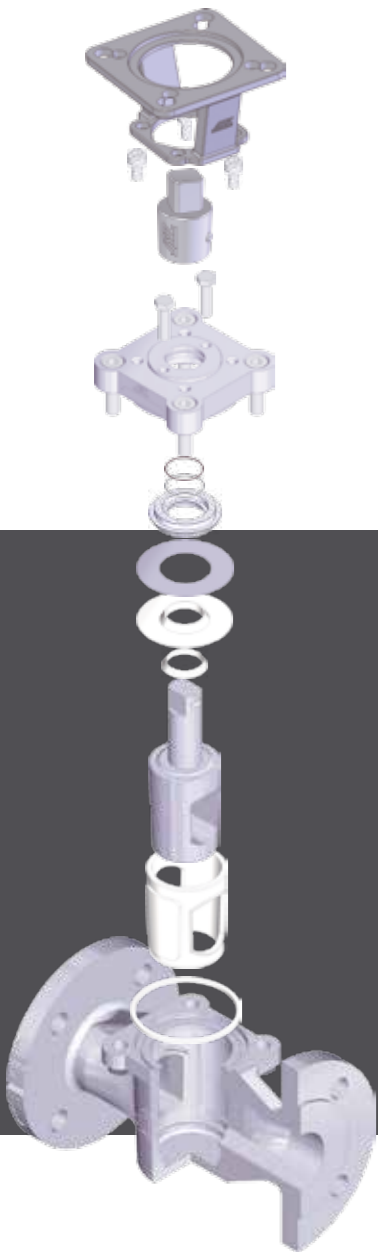
- Padlock eyelets
- Linear key concept
- Pilot valve combination





# CUSTOMER-FRIENDLY SERVICE

As well as the different production facilities, there is a network of service centres around the world that hold stocks of the standard valves, drives and accessories. As a result, short-notice modifications can be made to existing products or completely new configurations can be manufactured. As part of our comprehensive customer care packages, valves can be reworked or repaired during equipment servicing. Special valves are a valuable resource and are reconditioned by us, depending on how much wear there is.



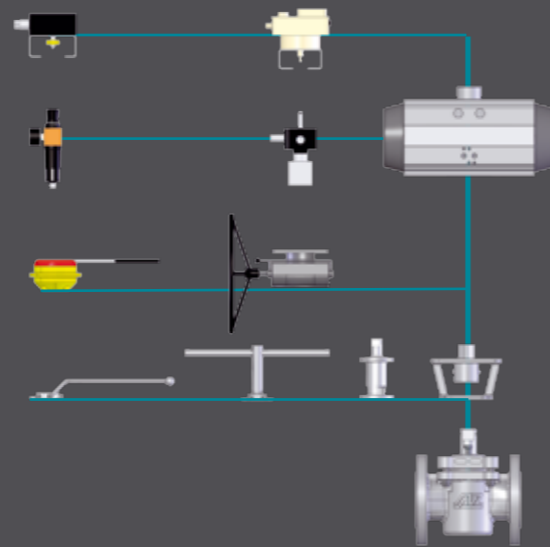
Limit switch/Position regulator

Pivot drive with solenoid valve/  
Filter regulator

Manual emergency actuator/Dead  
man's switch

Hand lever/Bracket/  
Plug stem extension/  
Flange extension

Valve



# THE PASSING OF TIME

1963 - 2013





Production hall in Schonach in 1985 after the takeover of the neighbouring building from the Gebrüder Spath Company. There is no more room for expansion at the Schonach facility.

## 1963

Dipl.-Ing. Gerhard Wisser founded the AZ Armaturen GmbH Company on 18th October 1963 together with his former fellow student Dipl.-Ing. Gernold Buck.

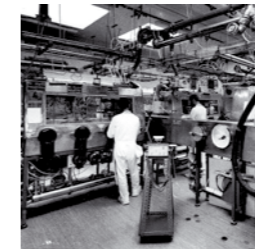
The first products are designed by AZ and built by outside companies.



## 1965

The first premises are rented in Triberg. In an area of 64 m<sup>2</sup>, Gerhard Wisser starts to produce with three employees.

One of their first big customers is the Nuclear Research Centre in Karlsruhe, which orders hundreds of sleeve valves.



Larger products are manufactured as well, e.g. NW 150.

## 1966

The 100% leakage test quality characteristic is enhanced by the addition of the strength test.



## 1967

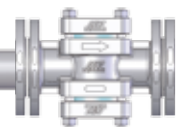
Gerhard Wisser's sales concept bears fruit. With his technical knowledge, he solves problems for industrial facilities.

After just two years, the company builds and proudly moves into its first self-owned factory located in Schonach / Black Forest.



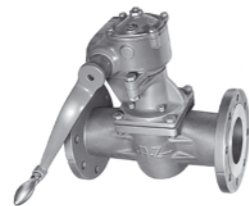
## 1968

The first ex-protected pneumatic drive is developed. The use of electrical servo drives is in decline in the chemical industry.



## 1970

Even with manually operated plug valves, the relatively high torques are equipped with innovative, multi-stage gear drives.



## 1971

The comprehensive product portfolio is showcased for the first time in a catalogue.



The production area is doubled by extending the existing building.

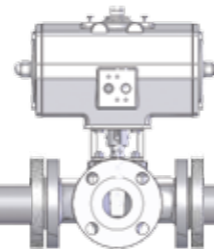
The basic portfolio is continually expanded by the addition of special valves and accessories.



## 1972

Through their many years of service, the employees, together with Gerhard Wisser, characterise the company, (shown in the picture from left to right):

Gerhard Wisser, Willy Schätzle (Plant Manager), Susan „Daisy“ Kienzler (Sales), Reinhold Walter (Production), Roswita Kienzler (Purchasing), Georg Mesarosch (Assembly), Bruno Roggenstein (Design).



## 1973

Valves are sleeved with FEP to prevent aggressive media impacting on the high-quality material.

AZ is a pioneer with this process and initiates FEP sleeving in the transfer moulding process.

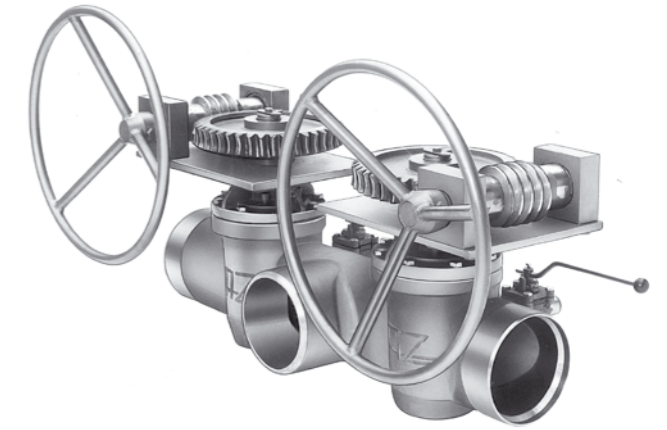
At the same time, the high-voltage porosity test is introduced.



## 1977

AZ develops a new manufacturing process for the valves that are sleeved in FEP. Significant improvements in quality and productivity are made.

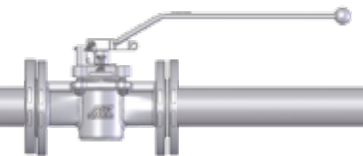
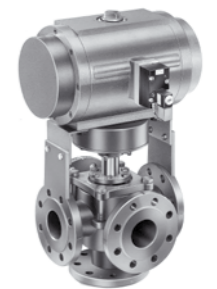
AZ strengthens its market position through gaining this competitive edge.



## 1978

Large valves are equipped with manually-operated, open worm gearing; increasing use of pneumatic drives.

Servo drives are not allowed in the nuclear power industry however. AZ develops an electrical servo drive for NUKEM in Hanau.





## 1980

The production hall is acquired from the neighbouring company, "Gebrüder Spath".

There is no more room for expansion at the Schonach facility.

## 1982

The new AZ logo is entered as a registered trademark and a new catalogue layout follows in the same year.

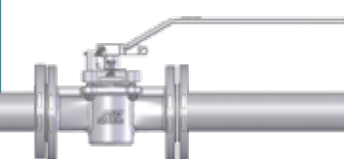
## 1985

AZ Armaturen South Africa (Pty) Ltd. established in Johannesburg/Boksburg in January 1985.



## 1987

The Sales and Service Centre, AZ Benelux Special Valves B.V established in June 1987 in Amsterdam/Nieuw Vennepe, The Netherlands.





## 1988

The colour penetration process (FE), in accordance with DIN EN 571, becomes an integral part in QM.



## 1989

Introduction of the helium leak test, in accordance with DIN EN 1518.

Commissioning of the company's own spectral analyser for rapid material testing.



## 1991

The production area in Schonach can no longer keep pace with the company's growth. Existing production halls in Mönchweiler are bought and extended by the addition of a modern administration building.

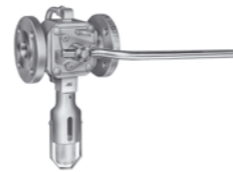
The permanent shortage of skilled workers is also alleviated by being able to attract workers from a bigger recruitment area.

## 1992

The relocation from Schonach to Mönchweiler to the new production and administration buildings is completed in March 1992.

Dipl.-Ing. Jörg Wisser, the son of the company's founder, joins the company in April.

AZ is granted protection of patented design for the sampling system SAMPLING.



AZ Valves (U.K.) Ltd. established in Gravenhurst, Great Britain in Oct. 1992.



## 1993

Product safety and quality are significantly increased by the introduction of the company's own x-ray laboratory for the non-destructive testing of materials.

Required tests can be carried out quickly and flexibly in the factory. Certificates can be issued immediately.



## 1994

A further step in QA is the company's ISO 9001 certification.

## 1995

Founding of AZ Armaturen do Brasil Ltda. in September in São Paulo. Initial production is done in rented buildings in Itatiba.



## 2000

AZ moves into its own premises in Itatiba, Brazil and expands production for the South American market.







## 2002

Founding of AZ Armaturen Polska Sp. zo.o. in August in Opoczno, Poland.



## 2003

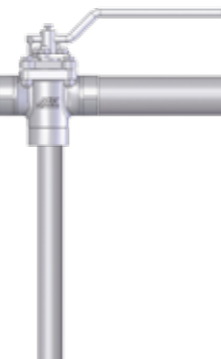
Introduction of 3D CAD throughout the group.

## 2006



Certification of the valves in accordance with the air pollution control regulation „Technical Instructions on Air Quality Control“.

Expansion of the production area in Mönchweiler and construction of a photovoltaic plant for sustainable power generation.



## 2007

AZ continues on its expansion course: The subsidiary AZ Armaturen Asia (Pte) Ltd. is formed in Singapore in February.



This is followed in December by AZ Armaturen Italia Ltd. Caltignaga/Italy.



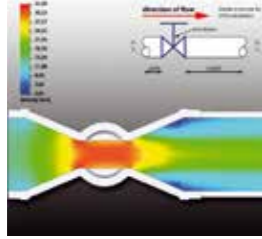
Protection of patented design for BMH special valve for safe operation of pipe systems.





## 2008

Introduction of the CFD Flow simulation analysis for the optimisation of control valves.



Founding of AZ Armaturen Trading Co., Ltd. in Shanghai, China in July.



16" and 20" plug valves with full bore design are supplied for a project in Poland.



## 2009



Expansion of the factory in Brazil with establishment of the company's own stainless steel foundry for precision casting.

Patent granted for the 2-way Kardan coupling for drive mountings.



Expansion of incoming goods inspection process with x-ray gun for improved metal analysis.

## 2010

A "grey room" is set up at the Mönchweiler plant for the oil- and grease-free assembly of valves, which, for example, is required for clean-room silicon production or for the pharma and food industries.

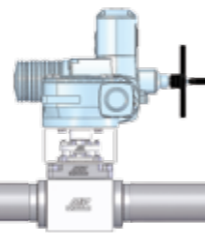
Expansion of the company's photovoltaic plant to a total of 295 kw. In summer, up to 70% of the company's energy needs are generated through solar power.

The production company AZ Armaturen Trading Co., Ltd. relocates its operations from Shanghai to Taicang/China.



## 2010

Development and supply of high-pressure plug valves from forged material with electric servo drive for nuclear power stations in Hungary; size DN 80 Extra, PN 100.





## 2012

AZ Armaturen Trading Co., Ltd. moves into new production halls in Taicang/China.

Founding of AZ Armaturen Thailand Co. Ltd. in Nonthaburi, Bangkok.

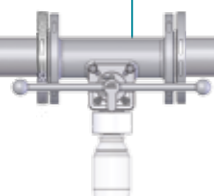


The world's largest plug valve with 24" full bore design created for a project in India.



## 2011

Patent for the needle system in the CONTIFLOW Sampling system for the emission- and vibration-free extraction of aggressive and toxic media, with integrated ventilation.



## 2013

Laying of the foundation stone for the second expansion of the production area at the Mönchweiler plant.

AZ Armaturen Polska Sp. zo.o in Opoczno builds its own office and warehousing.

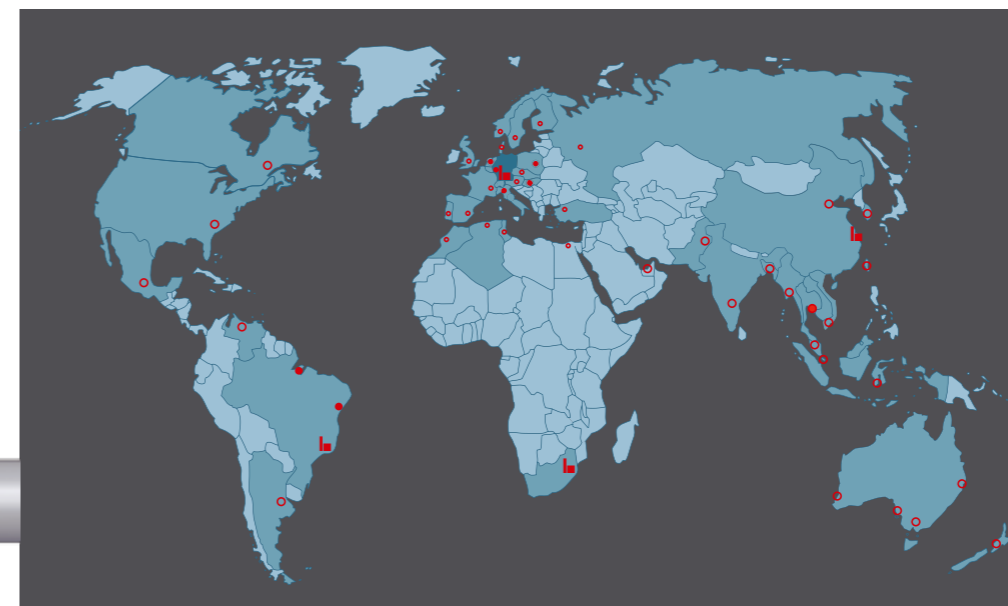


## FACTS ABOUT THE COMPANY

After 50 years in business, the AZ Armaturen Group is still family-owned. Dipl.-Ing. Jörg Wisser, the son of the company's founder, is the Managing Director and has been running the company for almost two decades.

In 2012, the Group had a turnover of around 45 million Euros of which 23 million was generated at the company's HQ in Mönchweiler. 62% of the business is done in export. Globally, around 350 staff are employed in manufacturing, sales and administration. The HQ headcount is almost 100 people.

The largest foreign subsidiary is the Brazilian factory in Itatiba near São Paulo, with its own foundry. The complete range of valves is produced in CNC machining centres at the AZ factories in Brazil, South Africa and China. Nine subsidiaries and 35 agents ensure that we provide global service and advice.



### ■ AZ Production facilities

- Germany (Mönchweiler)
- Brazil (Itatiba/São Paulo)
- South Africa (Boksburg/Johannesburg)
- China (Taicang)

### ● AZ Service Centres

- Germany (Rheinland)
- Italy (Caltignaga)
- Poland (Opoczno)
- Great Britain (Gravenhurst)
- The Netherlands (Lisse/Amsterdam)
- Thailand (Nonthaburi)
- China (Singapore)
- Brazil (Belem and Maceió)

### ○ 35x AZ Agents

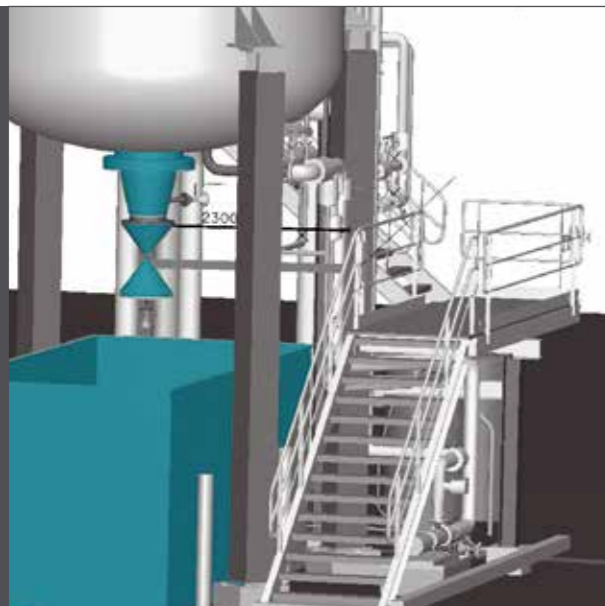
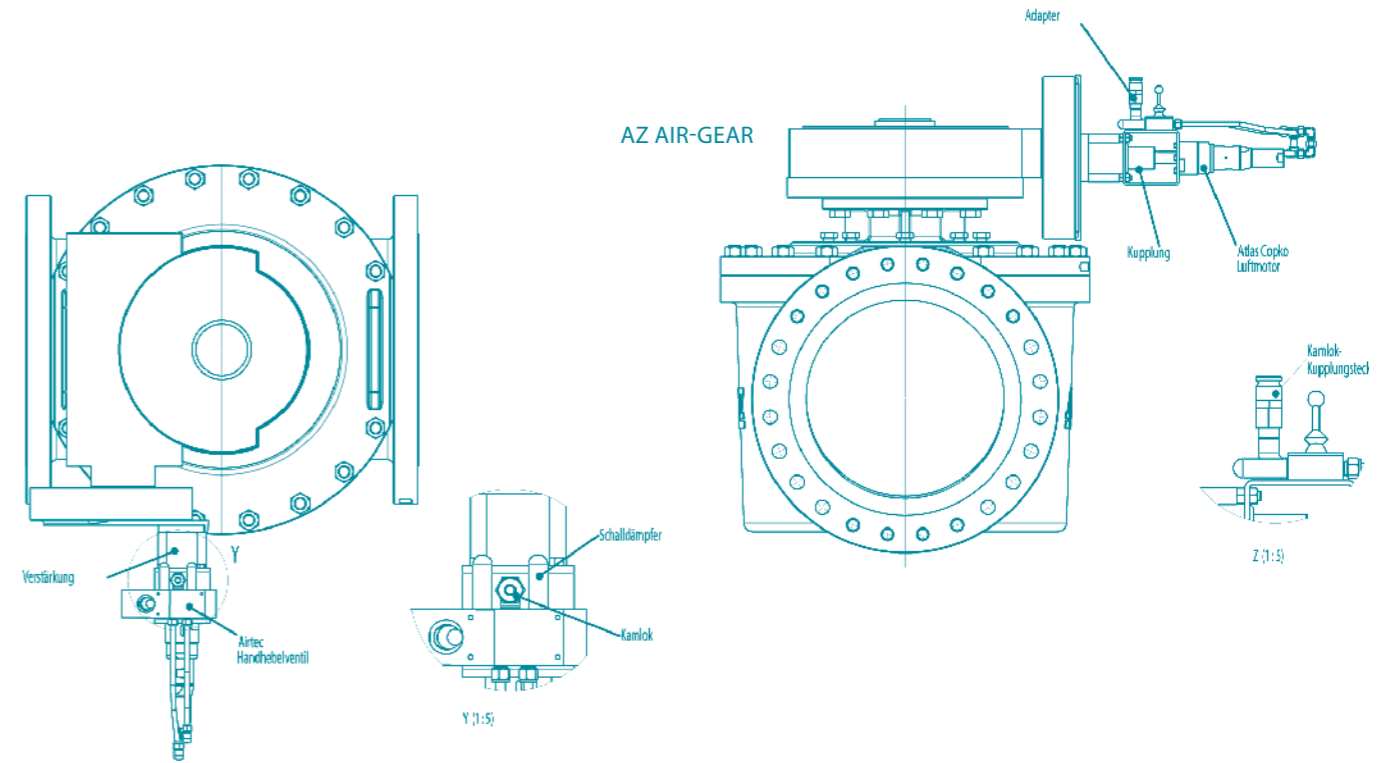


# PRODUCTION

FLEXIBLE AND FAST

# CONSULTANCY AS A CORE SKILL

A pre-requirement for creating a high-quality product is to be able to provide competent consultancy and advice. A dense network of qualified experts clarifies all the technical questions in advance with the plant designers. In order to achieve a customised, special valve, questions about pressure (P), temperature (T), medium (M) and aggregate state (A) form the basis for the correct choice of valve. Fine tuning in terms of materials, deployment conditions, required safety standards and test reports as well as DIN EN or ASME standards, is done between the customer and the design department. Globally, all AZ plants work and manufacture according to the same quality requirements.



PTMAF- SELECTION QUESTIONS	PRESSURE P	TEMP. T	MEDIA M	STATE A	FUNCTION F	MATERIAL	SLEEVING	ACCES- SORIES
	PN 10	....	Ammonia	Solid	2-way	Ductile cast iron	PFA	Pneum. drive
PN 20	-40 °C	Beer	Liquid	3-way	Cast steel	PFA conductive	Control plugs	
PN 40	-10 °C	Bitumen	Gaseous	4-way	Stainless steel	FEP	Limit switch	
PN 50	+50 °C	Chlorine		Control valve	Duplex	PVDF	...	
PN 100	+180 °C	Acetic acid		Full bore	Hastelloy			
PN 160	+220 °C	Liquid gas		...	Inconel			
...	+300 °C	Chocolate			Nickel			
Vacuum		Sulphuric acid			Zirconium			
		Heavy oil			Titanium			
		Toothpaste			...			

## MATERIALS

Based on the deployment location and medium, the customer determines the material and the version from valve body to plug valve. Using precision casting processes, steel and stainless steel bodies are produced in our own foundries. The AZ Group has been working with an established team of reliable suppliers of forged steel and cast iron for decades.

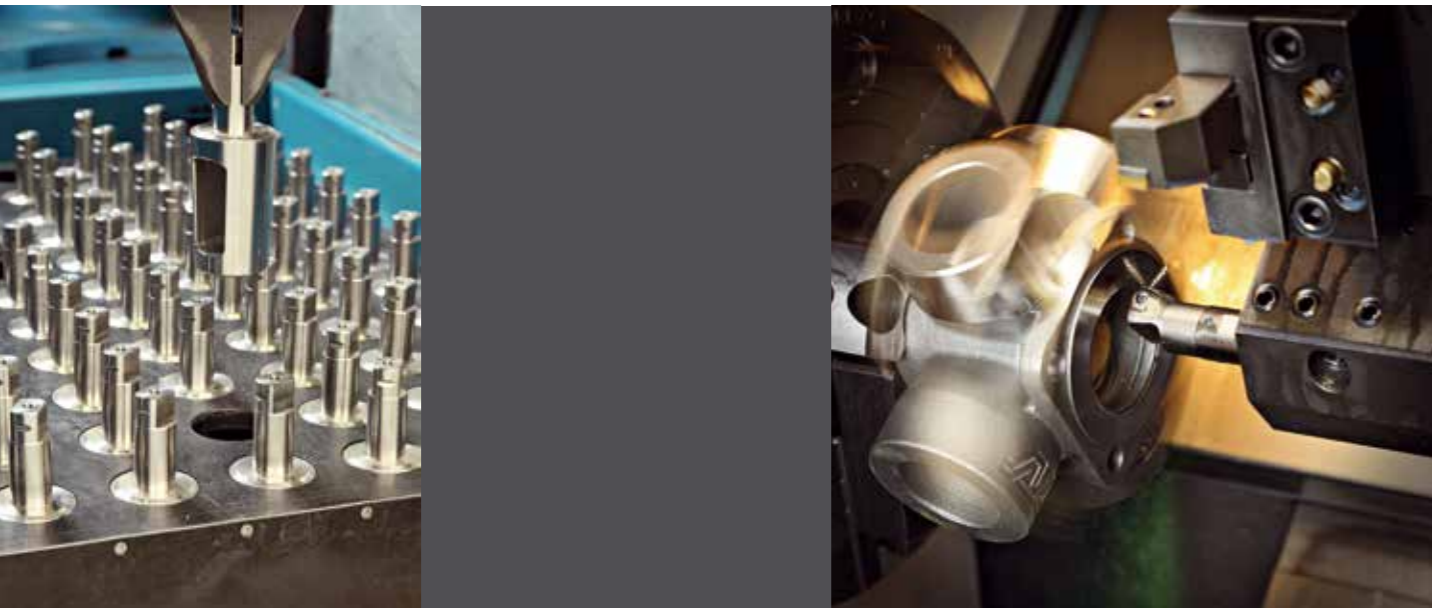
The raw materials only make it as far as production after they have successfully undergone intensive quality controls through PMI material analysis, colour penetration process, x-ray, etc. This also applies to nuts and bolts that are only accepted from certified suppliers and after submission of the relevant test certificates.





## PRECISION AND SPEED

A highly automated production is necessary because of the wide range of body shapes and valve designs and the small, make-to-order production runs. Together, production robots with magazines of up to 120 tools and CNC lathes mill, drill, turn and polish with high precision and with tight manufacturing tolerances. Traditional production lines are kept in readiness for special-size or special-model valves.





## VALVE ASSEMBLY

Bodies, plug valves, sleeves, safety gaskets, servo drives, etc. have to be assembled with great precision. The plug torques have to be set according to the requirements, medium and pressure. Only qualified, experienced employees assemble the component parts, irrespective of whether it is DN 6 or DN 600 size valve. Assembly is done in a separate "grey room" free of oil and grease, for the high-tech, pharma and food industries. Every single valve is tested for leaks and functionality. AZ has always carried out 100% testing.





## CERTIFICATION

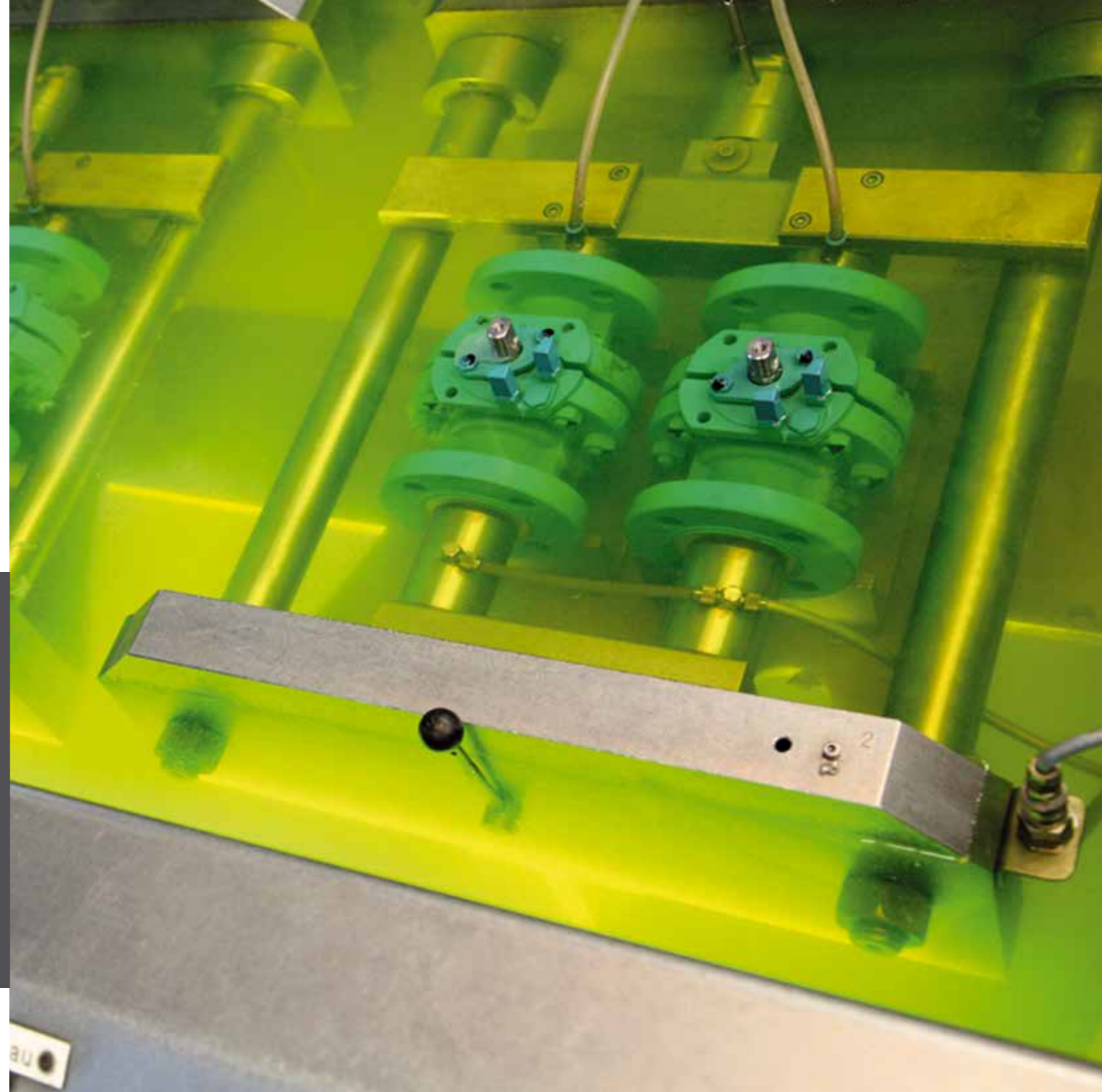
The entire production process, from raw materials to final assembly, is checked end-to-end through comprehensive quality tests. Depending on customer requirements, these and further tests are documented and certified by our own or an external laboratory. Only once all tests have been successfully completed are the special valves despatched to their final destination.

The quality tests are done based on standards and internal AZ test procedures:

- DIN EN 9001 • DGRL 97/23 EG • AD-2000 / HP 0 / TRD 201 • Firesafe API 60 • Type testing • KTA 1401 • DVGW • TA-Luft / VDI 2440 • Helium test • Colour penetration process • X-rays • PMI spectral analysis (Positive Material Identification) etc.



ISO 9001



# EXTREME DEPLOYMENT

TECHNICAL REFERENCES



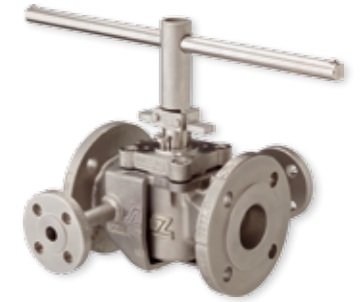


Bild: Bayer AG, Leverkusen

## CHEMICAL PLANTS

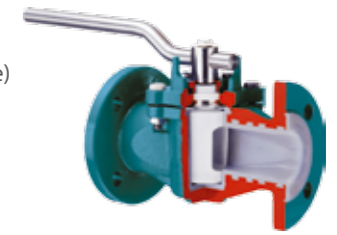
Application: Sulphur pastillation, India  
Medium: Liquid sulphur  
Temperature/Pressure: 125 to 140 °C, 2.5 - 3.0 bar

AZ-Armaturen: Plug valve with full heat jacket, DN 15 - 100, PN 40



Application: Manufacture of base chemicals for plastics, Germany  
Medium: TDI (Toluene diisocyanate) or MDI (Methylene diphenyl diisocyanate)  
Special features: Crystallising/polymerising, extremely toxic and explosive

AZ-Armaturen: Plug valve with conductive sleeve, ex-protected and ISO standard type in stainless steel, in part with triple sealing in FSN version (Firesafe)





## CHEMICAL PLANTS



Application: Polypropylene plant, Russia  
Medium: Polypropylene (powder) and Propylene (liquid)  
Temperature/Pressure: -52 to +120 °C, 28 bar and -45 to +80 °C, 22 bar  
Special features: Ambient temperature: -52°C, quick-acting drive with max. 12 seconds

AZ-Armaturen: Plug valve with flange, full bore design, 4" and 18", Class 300



Deployment location: Petro-chemical process monitoring  
Medium: Dry chlorine  
Temperature/Pressure: -30°C, max. 5 bar

AZ-Armaturen: Special cross-over valve SAVA UK-F-3 Extra 3" to 6", Class 150, Materials: Monel and Hasteloy



Application: Tank farm, Germany  
Medium: Base Oil  
Temperature/Pressure: 50°C, 1.3 bar

AZ-Armaturen: Plug valve with DN 350 and 400, PN 16, with stem extension, electrical drive with angle gear



Application: Polyethylene plant, Germany  
Medium: Hexane suspension  
Temperature/Pressure: 80 to 150°C, 16 bar

AZ-Armaturen: Plug valve, full bore design, F-2-Extra in 12", 16" and 20" (Class 150 or 300) with AZ AIR-GEAR drive







### DESALINATION PLANT

Deployment location: Desalination, South Korea  
Medium: Salt water  
Temperature/Pressure: 0.6 to 30°C / 40 to 160 bar  
Special feature: Super Duplex material

AZ-Armaturen: Stainless steel cast straight through/cut-off plug valves  
DN 25 to DN 200, Type RO



### FERTILISER

Application: Fertiliser manufacturing, France  
Medium: Ammonia, ammonium nitrate, urea

AZ-Armaturen: Plug valve with full bore design, 8", Class 300  
Plug and housing made of stainless steel

### NUCLEAR POWER STATIONS

Application: Nuclear power station (primary circuit), Hungary  
Medium: Boric acid solution  
Temperature/Pressure: Max. 274°C, max. 58 bar

AZ-Armaturen: Plug valve as safety valve between primary and secondary  
circuit, butt welding, DN 80 / PN 100, stainless steel block version



### PAPER AND PULP INDUSTRY

Application: Paper and pulp manufacturing, Poland  
Medium: Pulp and paper bleaching agent

AZ-Armaturen: Stainless steel cast straight through/cut-off plug valves





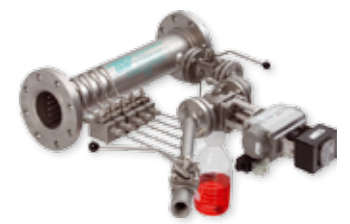


Bild: Bayer AG, Leverkusen

REFINERIES

Application: Off-shore crude oil loading, Brazil  
Medium: Crude oil with salt water

AZ-Armaturen: Automatic sample drawing, SAMPLING SIC as long-term sampling system for 2-phase fluids (Sampling VP = 8 ml)



FOOD INDUSTRY

Application: Chocolate bar production, China  
Medium: Chocolate base material

AZ-Armaturen: FDA-compliant straight through and 3-way plug valves made of stainless steel, DN 50 and DN 100, PN 40



Bild: Bayer AG, Leverkusen



# IMPRINT

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