

VAG-Technical Service



The original – Service f maintains the top performan

We carry out repairs, inspections and maintenance work promptly and professionally. We guarantee that your plant can be put into operation again without any delay.

Technical service performed by the manufacturer pays off! The most favourably priced valve is the valve that operates perfectly for many years, maintains the current status of technology and guarantees maximum operational reliability. This is exactly what your VAG service team offers you. We know your valve, from its actuator to its flow characteristics. We can count on experts from all the special fields: draughtsmen, designers, fitters, welders and system experts. This is why we maintain the top form of your valves throughout their service life.

Good service frequently becomes apparent when a situation is difficult: How quickly can a spare part be available? Can my valve be repaired on site? How quickly can the plant be put into operation again? What is more worthwhile: repair or replacement? Safety comes first. Deciding in favour of the VAG Service is deciding in favour of market-leading technical expertise and many years of experience.

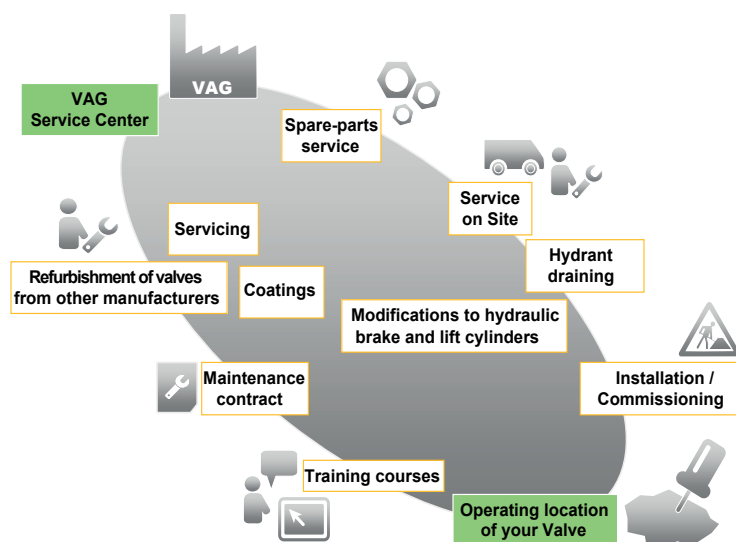
Technical service performed by the manufacturer pays off!



from the manufacturer to the operating location of your valves

Overview of our services,
from the VAG Service Center
to the operating location of your valve
(see chart on the right):

- Spare-parts service
- Service on site
- Installation / commissioning
- Training courses
- Maintenance
- Servicing / refurbishment / coatings



VAG Service Center

Pit stop in the VAG Service Center

We cooperate closely with planners, plant manufacturers and plant operators. With the consulting and the service we offer, we support you, at your request, from the planning of your valve to its installation, and throughout its entire service life.

Your valve is put onto the test bench only a few metres from our production department. If repairs prove to be necessary, our service fitters will immediately have all the essential technical appliances and spare parts available.

And we will naturally give you a quotation beforehand. We carry out our work professionally, in compliance with all the relevant safety and environmental protection directives.

Our services:

- Valve inspections
- Analyses, inspection reports and recommendations
- Maintenance and repair work
- Fundamental renewal of all the marketable valve makes
- Individual concept proposals for problematic applications



- Pressure and operational tests including inspection and acceptance by customers
- Build-up and strength welding
- Dismantling and assembly
- Sand-blasting
- Corrosion protection work
- Adaptation to the latest status of technology

Our service

- Proximity to valve production
- Modern technical equipment
- Large range of spare parts
- New-value guarantee on all repairs
- Quotation prior to repairs
- KTA 1401 certification
- SCC certification

Your benefit

- Experienced valve experts
- Various processing options
- Fast repairs if needed
- Maximum reliability
- Calculable expenses
- Repairs at nuclear power plants
- Work carried out according to directives relating to safety, health and environmental protection



Extend the useful life of your valve

An epoxy coating is an ideal protection against corrosion on your valves and moulded fittings. But there are many other special coatings for specific cases.

In addition to electric motors, pumps and valves are at the heart of industrial engineering.

Everything that keeps operations going flows through these pumps and valves. Permanent contact with the transported medium causes stress through wear and tear and corrosion, and this may greatly reduce the useful life of equipment.

We offer economic solutions for conditioning new and damaged valves. The useful life of valves can be prolonged with the use of ceramic and thermal composite materials. Other advantages are energy savings and the preservation of resources. You can see examples on the right-hand side.

Customer: Vattenfall

Valve: VAG RKV Plunger Valve, DN 800

Feature: Coated in VK 2000

Location: Markersbach pump storage station

Customer: RWE

Valve: VAG AKL Sealing Valve, DN 2000

Feature: Full reprocessing

Location: Frimmersdorf power station

Valves coatings





Restoration of valves from other manufacturers



Nothing is foreign to us

Our team of specialists comes up with a solution for virtually any valve. They repair whatever can be repaired with a depth of knowledge and experience. This frequently means that no complete replacement is necessary.

Our services

- Analyses, inspection reports and recommendations
- Maintenance and repair work
- Fundamental renewal of products from other manufacturers
- Build-up and strength welding
- Dismantling, assembly and corrosion protection work
- Adaptation to the latest status of technology

We know our product right down to the finest detail, and we have been trained for special service work on products from other manufacturers. In this context we have all the required special tools and maintain a large stock of spare parts for you in our storage. If a spare part is no longer available, we'll produce a new one in a very short time.

Everyday we carry out inspections, maintenance work and repairs on products from other manufacturers. We also provide on site advice, carry out assembly work and guarantee safety, promptly.



Customer: Thüringen remote water supply

Valve: MAW 1200 Plunger Valve

Feature: Full restoration involving dismantling and installation from the bottom outlet pipe and subsequent repair work in the factory

Location: Zeulenroda reservoir



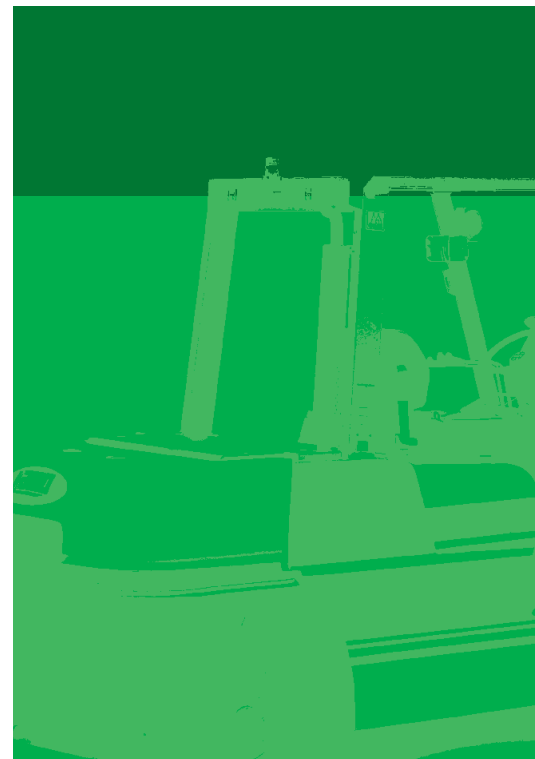
Customer: LTV Saxony

Valve: MAW Plunger Valve, DN 800

Feature: Full restoration involving dismantling and installation and subsequent repair work in the factory

Location: Dröda reservoir





Carry on again after a quick service operation

Not every valve can be dismantled when maintenance or repair work needs to be carried out. In this case our VAG service technicians will come to your premises. Our mobile service team has more than 20 service fitters and contact persons worldwide.

We will be with you on your premises quickly, equipped with special tools and original spare parts, and qualified for difficult operations. We are also certified for process and nuclear plants.

This ensures the greatest-possible reliability for you – whether we are putting a system into operation or carrying out a check or full restoration.

Our service

- Mobile check on valves and repair of valves
- Adaptation to the latest status of technology or to changed plant requirements
- Commissioning on site
- Detailed instructions and training for your operating staff

Your service plus

- More than 20 service fitters and contact persons for short outward journeys and for making contact quickly.
- Trained service specialists for professional immediate repairs with original spare parts and full functional reliability.
- Certified for process plants and nuclear plants as well as documented safety thanks to authorised service staff for on-site operations.

Service on site

Customer: Wiehl reservoir Agger Association

Valve: VAG Hollow-Jet Discharge Valve,
DN 1600, PN 10

Year of production: 1978

Feature: Full restoration, dismantling and
subsequent repair work in the plant

Location: Wiehl reservoir





VAG Hydrant draining system

*Defective draining does not mean
that a hydrant needs to be
replaced!*

A feature of hydrants is automatic draining following the shutting off of the main sealing. This serves to protect the hydrant against standing water and possible contamination (A) and frost (B). A check carried out on more than 50,000 hydrants in 20 public utility companies showed that approx. 18% of the hydrants no longer reliably drained.

The VAG Service offers to clear blockages in hydrant drainage systems. Conventional methods involve the jacket pipe of the hydrant being subjected to pressure of approx. 30 bars. This may, however, cause damage to the gaskets and the body.

Four steps to unblock a hydrant

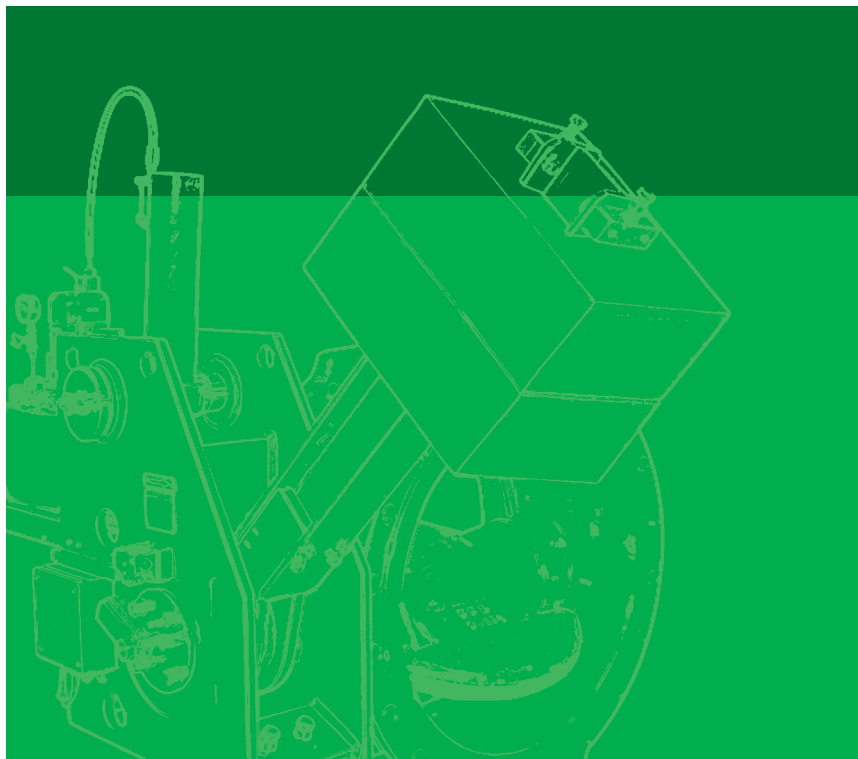
1. Shut off the main valve, dismantle the top column and remove the main valve assembly.
2. Pump the hydrant dry.
3. Insert a VAG hydrant draining system.
4. Unblock the hydrant with the VAG hydrant drainage system.

How you benefit

- No external energy needed (electricity)
- No laborious drilling
- No damage to the road surface
- No subsidence and frost heaving (B)
- No removal necessary
- Considerable cost-cutting

VAG Hydrant draining system





Make new from old

Modification to old brake and lift cylinders

(HB-HV/100 to HB-HV/100 compact)

The VAG hydraulic brake and lift cylinder HB-HV is used as an electro-hydraulic lifting and braking cylinder for shut-off valves and check valves with a controlled closing travel.

A hydraulic brake and lift cylinder may also be used for shut-off valves with a reverse drive function by means of adding extra equipment, i.e. when self-operated valves need to be opened.

The brake and lift cylinder can also be used as a quick-opening and variable-speed drive in connection with a switch and signalling unit.

In many cases old brake and lift cylinders (Figure 1) are not state-of-the-art and consequently do not offer the benefits of a modern brake and lift cylinder. But replacing an old actuator with a new one can be very costly. In order to nevertheless benefit from a new brake and lift cylinder, sustainable modification (Figure 2) may be the solution.

Expensive engineering components such as connecting flanges, brake and lift levers and cylinders are retained with this type of modification. Entire drive units, control units and all the control lines are renewed.

The drive unit, installed in the oil tank with a sub-oil motor and an integrated hand pump, is mounted direct onto the connecting flange.

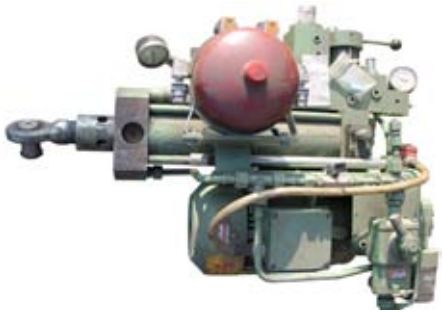
An advantage of this method of restructuring is that the bearing load on the cylinder is reduced. This reduced bearing load makes the running of the complete actuator smoother, and it is subjected to less wear and tear. The compact drive unit reduces the control line to a minimum and considerably decreases the number of potential leak points. The compact stainless steel control unit also reduces the number of potential leak points and makes additional functions possible.

Hydraulic brake and lift cylinder modification



Renewing the drive and control unit brings a hydraulic actuator technically up to date and makes it easier to maintain.

In general, restructuring makes it easier to fill the hydraulic system and saves time and money, particularly when inspection work is carried out.



1. Old hydraulic brake and lift cylinder 100

Customer: E. ON power station in Franconia
Valves: 1 VAG EKL Eccentric Valve, DN 700 PN 25, constructed in 1970
 1 VAG Hydraulic Brake and Lift Cylinder, series 100
Location: Power station in Franconia



2. Modified hydraulic brake and lift cylinder 100 compact



Fitness check signed and sealed

Regular maintenance ensures reliability and extends the useful life of your valves.

VAG valves are known for their long useful life. We frequently hear of valves that have been in operation for 60 or 70 years, or even longer. VAG valves are important shut-off, control and safety installations. Their perfect functioning is essential for the operation of whole systems. Regular inspections and maintenance guarantee reliability and help to save on time and costs.

We recommend that you have your valve regularly serviced by our specialists to keep it operating smoothly into old age.

Regular checks by a specialist benefit your systems in terms of reliable operation and efficiency in the long term.

Valves must be particularly dependable, in order to ensure that they always function reliably when put to use. Carrying out checks regularly and having maintenance work done in good time are ideal as precautionary maintenance procedures. Regular maintenance cycles must be observed in order to guarantee perfect functioning.

Service agreements

The German Association of Gas and Water Experts (DVGW) recommends maintenance at predetermined intervals. In the context of our services, we perform maintenance work on our own valves but we also service valves made by other manufacturers. When we carry out maintenance work, we strictly comply with DVGW Guideline 331 (water supply pipeline network valves, hydrants).

As a manufacturer of quality valves, we can also offer you expert and favourably-priced service. We will gladly carry out maintenance work on your valves and hydrants for you.

Our services

- Regular maintenance of your valve in line with a maintenance contract
- Operational tests
- Replacement of gaskets and wearing parts
- Hydrant maintenance

Your service plus

- Reminders of dates for compliance with maintenance intervals
- Maintenance by specialists in order to extend the useful life of your valve, guarantee that it operates reliably, and protect it
- Good conditions for a long-term cost-effective solution



Training courses and practical tips

We use well-developed training concepts and computer software to help you to get to know how our valves operate, giving you the knowledge to put training into practice and avoid making mistakes.

From standard product seminars to practical training with the valves and individual training concepts tailor-made for you. Depending on your requirements, seminars can be held in the VAG Service Center in Mannheim or on your premises.

Your service plus

- Detailed instructions: prevent mistakes from being made
- Experienced product experts: competent contacts and valuable practical knowledge
- Well-developed training concepts: sustainable success and effective implementation in practice
- Use of modern media: enable you to understand and visualise complex connections

- Use of cutaway models for practical learning with training valves



Service seminars



Module 1 Hydrants

- Latest hydrant technology
- Hydrant designs
- Industrial hydrant
- Standpost hydrant, model 38
- Hydrant maintenance
- Underground hydrants
- Practical exercises

Module 2 Control valves

- VAG PICO® Pilot Operated Control Valve
- VAG Plunger Valve Exchange profile sealing ring
- VAG RIKO® Plunger Valve
- Practical exercises

Module 4 Auma

- AUMA Electrical Actuators
- AUMA Gears
- Construction and setting
- Practical exercises

Module 3 Shut-off valves

- VAG Gate Valve Exchange wedge and sealing
- VAG EKN® Butterfly Valve Exchange profile sealing ring
- Butterfly valves
- Practical exercises

Module 5 Wastewater valves

- VAG EROX®*plus* / VAG ERI®*plus* Penstocks
- Exchange gasket
- Fastenings
- Practical exercises



Before kick-off

Safety comes first. Deciding in favour of VAG Service is deciding in favour of technical expertise and many years of experience.

You play it safe? We support you. Our experts put your valve into operation on site, and help you so that installation is smooth and quick. And naturally this service is available to you worldwide.

Your advantage: time gains and maximum functional reliability. We will gladly give you help and advice, even after installation and commencement of operation, for example when new valves and accessories are installed.

Our services

- Delivery to the construction site
- Assembly and installation
- Operational test and acceptance
- Training for operating staff
- Advice and help, also after installation and commissioning, e.g. when new valves and accessories are installed
- Project coordination and advice

Installation and commissioning

Your service plus

Experienced valve experts ensure that installation is quick and functioning reliably, and there are contact persons on site.

Customer: Eifel Ruhr Water Board

Valve: VAG KSS Hollow-Jet Discharge Valve

Feature: Supervision during installation and commissioning of

2 KSS Hollow-Jet Discharge Valves
DN 1800

2 EKN Butterfly Valves DN 2000

2 EKN Butterfly Valves DN 2300

Location: Rur Valley reservoir,
Schwammenauel





The material must be right

Original spare parts protect your investments – in the valve and in the entire plant.

When taking a look at the total cost of ownership (TCO) of a valve, it is not only the price that counts; fast availability, limited downtimes and useful life are other factors. First-class spare parts can even reduce the energy consumption of valves. We are in a position to deliver more than 10,000 parts from our comprehensive stores at short notice.

Our own spare-parts production enables us to produce virtually any components according to samples, from turned elements to elastomer seal rings – and

even components from other manufacturers – in no time at all.

Our services

- Fast help
- Supply of spare parts assured in the long term
- Quick identification of a spare part
- Delivery at short notice
- Delivery of spare parts anywhere in the world
- Custom-made spare parts
- Delivery of spare parts for old series

Original spare parts

Our service

- Extensive spare-part storage
- In-house spare-parts production
- First-class original parts

Your benefit

- Generally short-term delivery with 10,000 parts available from stock
- Almost any spare part producible, e.g. turned parts, elastomers, etc.
- Reliability ensured
 - Downtimes prevented
 - Costs reduced
 - Lower energy consumption
 - Improved health and environmental protection





Top efficiency worldwide

Wherever your valve is located: we'll come to almost any place in the world.

VAG has service points all over the world as well as a network of international partner companies.

In action for you every day, we carry out inspections, maintenance work and repairs, give you advice on site, carry out assembly work, give your staff professional instructions, and guarantee safety and fast help worldwide.

Our services

- Servicing and maintenance all over the world
- Supervision when commissioning a system
- Technical consulting
- Operations in your plant in the event of an accident
damage analysis and fast help
- Inspections of valves in process plants

Service International

Customer: Operator of a dam

Feature: Putting various valves into operation and fully equipping valves for the bottom outlet, water level control and water supply for the surrounding area.

Location: Columbia





Adventurous service ass wilderness of Tasmania

Project

Restoration of an historical water supply in the inaccessible wilderness of Tasmania

Services

Delivery and installation of a VAG EKN® Butterfly Valve, DN 1200, PN 16

Project executed

June 2008 to June 2009

Client

Hydro Tasmania

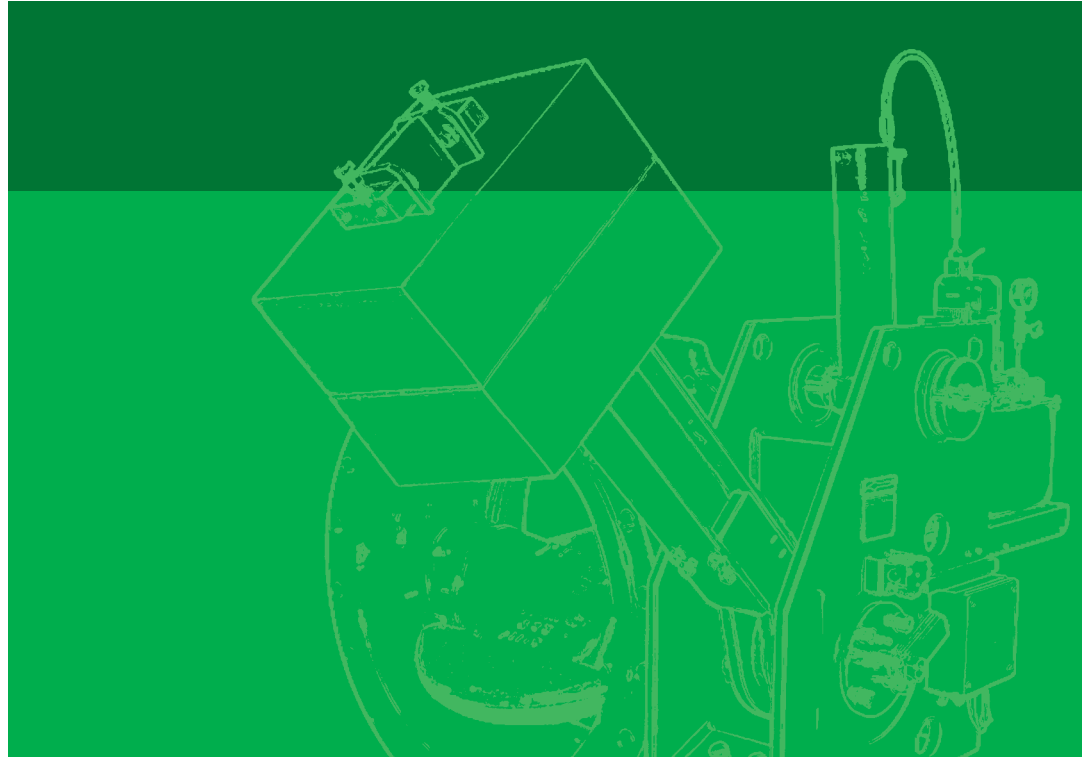
Referred by our local agency Metaval Ltd., Australia, Andrew Garland

In 1914 the Lyell Mining and Railway Company built a reservoir and a power station to supply its mining plant with electricity and drinking water through a three kilometre long water pipe. Just over 100 years later, the entire plant was temporarily shut down so that the historical wooden water pipe could be restructured.

As part of this restoration activity, a long-serving butterfly valve was to be renewed. But how would it be possible to deliver the valve to the heart of this rough terrain and install it there?

Transport and installation experts in the VAG Service Department came up with a solution. Before it was shipped to Tasmania, the valve was largely disassembled. Small units were then transported by helicopter from the power plant to the reservoir.

At the same time a VAG service fitter set off on his journey: 17,700 km by aeroplane, 320 km by car and another 3 km on foot. The tools, special resources and lifting and alignment devices all had to be planned and organised down to the finest detail,



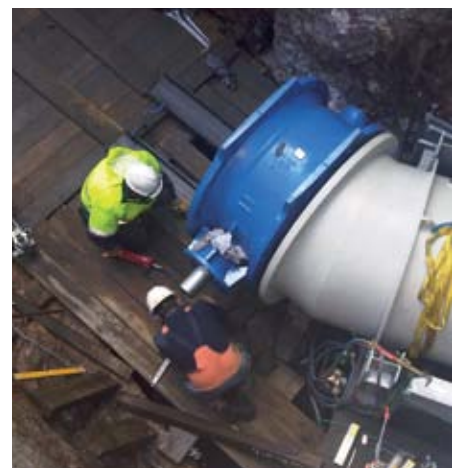
signment in the

since no on-site construction power supply or crane devices were to be expected.

Everything had to happen quickly: position the body, adjust the valve, which weighed many, and mount the axle bearing. Now, finally, the hydraulic brake and lift cylinder had to be mounted and then the butterfly valve was ready for operation right in the middle of the Tasmanian wilderness.

This was precision work carried out under the most difficult conditions. But it was no problem for the experienced

VAG Service man. He had fulfilled his mission even before construction work on the new wooden pipe had reached the section up to the valve. So he left for home before the wooden staves had been installed on the flange connection. "It's a pity that I wasn't able to follow the completion of the overall project," the Service employee reflects. "But in terms of minimising costs for the customer, it was no longer necessary for me to be present on site." The remaining construction work on the overall plant was successfully completed.



VAG special constructions

We make it fit

Sometimes structural situations or specific operational conditions mean that a standard construction is not possible.

This is why the VAG valve service offers special valve constructions. Restructuring work, additions and adjustments to take account of a given situation are not a problem. We optimise valves to meet the requirements of special operational conditions. Any spare parts which are needed but are no longer produced can be subsequently constructed and used in the repair. You challenge us, and the VAG valve service finds a solution.

Our services

- Restructuring, additions and adjustments to take account of given situations
- Optimising valves for specific operational conditions

Example of a service

Customer: RWE

Valve: VAG SKR Slanted Seat Tilting Disk Check Valve, DN 1000

Feature: Adapting the electronic position indicator to suit the damp environment. Including assembly of a position indicator outside of the valve body.

Location: Surface mining Hambach





VAG product portfolio

The VAG Service Center is your consultant for technical matters concerning valves, spare parts, repairs, maintenance and technical training courses. We will gladly advise you.

You can get the latest information and documentation on all the VAG products online at www.vag-group.com

You will also find many references and the "VAG on the spot" application reports, which describe concepts and products on the basis of specific fields of application.



Water treatment



Water distribution



Wastewater



Dams / Hydropower



Power plants



Industry



Pressure-Management



Gas

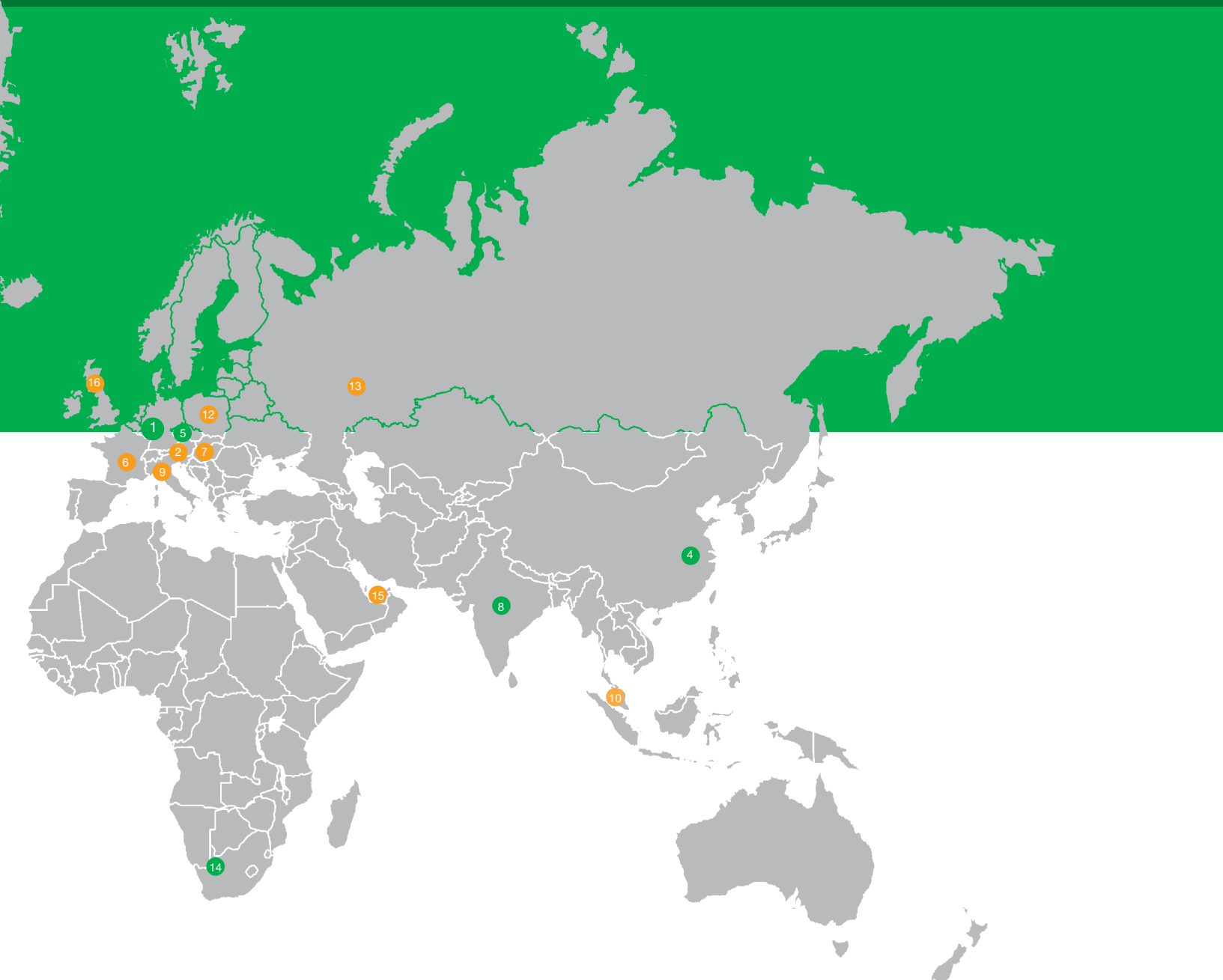


Subsidiaries

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7	HUNGARY	BUDAPEST
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11	MEXICO	MONTERREY
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16	UK	BIRMINGHAM
17	USA	CRANBERRY TWP, PA



++ MEXICO +++ POLAND +++ ROMANIA +++ RUSSIA +++ SOUTH AFRICA +++ UAE +++ UK +++ USA +++ VIETNAM



● Production and sales location

● Sales Office



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