

## 2007 15 Years RAUMAG-JANICH

37 Years Telescopic Steel Covers  
40 Years JANICH-Speciality Dampers

PERFECT DAMPER TECHNOLOGIES FOR INDUSTRIAL PLANTS



### **Our firm's objectives are:**

- We aim to increase through strict market orientation and cost consciousness our earnings and financial strength.
- We strive to be a leading player in the international markets we cover.
- The orders we receive we owe to our customers .Recognising this we focus our thoughts and actions upon their requirements at all times.
- Our aim is the avoidance of errors in all spheres and the continuous improvement of quality and reliability of our products.
- We actively pursue innovations while not neglecting tried and tested solutions.
- We are innovatively minded and thus encourage and support ideas and initiatives of our employees.
- We act responsibly towards our community and the environment.
- Our employees and management act in accordance with these objectives.

# Message from the management



**Dipl.-Ing. (FH) Hans-Jürgen Janich**  
**President RAUMAG-JANICH**

**Dipl.-Ing. (Univ.) Winfried Deppe**  
**Vice-President RAUMAG-JANICH**

Dear customers, dear business partners,

after 15 years of business build up at our new location in Thüringen we look back upon an extraordinary successful development of our enterprise. Considering only the years 2003 up to the end of 2007 our revenue shall increase by 150%, whilst measures towards further strong growth have already been initiated. The number of our own full time employees has risen from 7 to 72, of which 10% are apprentices. Moreover, jobs for a further 120 to 130 employees are created by the work we outsource to German and foreign contractors working under our supervision.

Supported by the comprehensive experience of our associated company, the 1952 founded JANICH Spezialarmaturen GmbH & Co. KG and by working, as in the past, in close cooperation with our customers we have developed a new, innovative program, improved in essential details, of shut-off, rerouting and modulation dampers for service in pulverized fuel fired power stations, combined cycle power plants, metal smelters, cement plants, flue gas cleaning plants as well as other industrial installations.

More recently, we have taken a step away from being a mere components supplier towards one supplying complete plant modules, by taking on the design and supply of entire bypass systems for combined cycle plants, including our patented diverter as the core element. This step opens us the possibility to generate additional revenue growth in the future.

Today we can venture to state: RAUMAG-JANICH offers the most comprehensive and technically superior product range of all competitors active in this field of engineering.

The essential elements of our designs are protected by world wide patents; they are highly regarded and expressly acknowledged by our international clientele and make us one of the technology leaders. Deliveries to international contractors and plant operators as well as several licence agreements underscore our technical competency.

Just as successful has been the development of our telescopic cover division. Assisted by experienced staff, familiar since 1970 with this type of production, the manufacturing program has undergone repeated upgradings and has by now reached a high technological level. These innovative improvements were implemented in close cooperation with our customers. Reliability as well as longevity of our products are very much valued by our international customers.

Today, RAUMAG-JANICH has positioned itself amongst the leading suppliers of telescopic steel covers for the machine bed and guide way protection of machine tools.

At the beginning was a vision. Its realisation was only possible by consequent adherence to our corporate policies, the unflagging commitment of our workforce for further qualification and the high readiness of all of us to work towards achieving our objectives.

We are proud of what we have achieved. Moreover, we are also particularly proud to have been able to make a contribution towards the economic and structural improvement of our federal state, Thüringen.

During the next few years, our priorities will be to strengthen our worldwide marketing effort as well as extending our manufacturing facilities with a view of further improving our position in today's global business environment. We take this opportunity to thank all our customers, business partners and employees without whom this success would not have been possible.

# The Company

## RAUMAG-JANICH

### Your competent and reliable partner for power station and general engineering projects



RAUMAG-JANICH, is one of the leading designers and suppliers of flue gas shut off and modulation systems with extensive experience accumulated during many years of activity and a wide variety of different applications.

Founded in Essen in 1952, initially as a technical trading enterprise, our associated company JANICH Spezialarmaturen GmbH & Co, Beckum, started to develop and design equipment for the total shut off, rerouting and /or modulation of flue gas. In 1970 Mr. H. J. Janich assumed direction and control of the company. At that time, working in close cooperation with prominent engineering contractors and process plant operators, a number of industry influencing designs, for example tandem dampers, diverters, sickle isolators, guillotine dampers, the NICROFLEX sealing system etc. were introduced into the market.

In 1992 the active business operation was transferred to RAUMAG-JANICH Systemtechnik GmbH.

Building on this wealth of experience and ensuing world wide contacts we have since been able to acquire a significant competitive edge by introducing further innovations into the market which have secured us the support and goodwill of our customers.

Worldwide references, patents and licence agreements underscore our technical competence. Our dampers are in service in power stations, flue gas desulphurisation & denitrification plants, combined cycle power plants, garbage incinerating plants, cement & steel plants, as well as other industrial process plants all over the world. In a second division we design, manufacture and supply telescopic steel covers for the protection of machine tool slide beds aided by experienced staff familiar since 1970 with this type of engineering equipment.

Moreover, we manufacture and supply process plant equipment for the treatment of powdered bulk materials in accordance with customer supplied specifications or to their own designs.



Our engineers accomplish their work with the aid of the most modern, computer supported methods.

Our quality management has been certified to ISO 9001 by TÜV Hessen. And last not least, RAUMAG-JANICH possesses excellent fabrication potential. CNC controlled machine tools, qualified welding technology based upon the certificate of competency to DIN 18800, generous production space and ,very important, a staff of qualified artisans enables us to fabricate economically, yet to a high standard of quality and accuracy.

If required, we also manufacture in other countries with approved sub-contractors, yet with our own quality control.

We can also carry out the complete erection on site or can delegate an erection supervisor only. Our service department takes care of comprehensive maintenance of supplied equipment.

These features make us your reliable and competent partner from the early project stage through to manufacture, erection and after sales service.

**RAUMAG-JANICH stands for:**

**Perfect technique, quality and reliability**



**Agenda of pictures,  
starting left hand top:**

- Reception area at head office
- Design cum drawing office
- CNC controlled sheet metal fabrication machinery

The large picture below depicts our head office and main manufacturing facility

**Agenda of pictures,  
starting right hand top:**

- Machining of "DOPEX" damper casing
- Plate rolling of a heavy damper casing
- Guillotine dampers during final assembly
- Fabrication of stainless steel diverter casings
- Road transport of large shut-off damper
- Erection supervision at a plant in Turkey



# The historical evolution

**1952**, our associated company, JANICH Spezialarmaturen GmbH & Co. KG is founded in Essen, initially as a trading organisation.

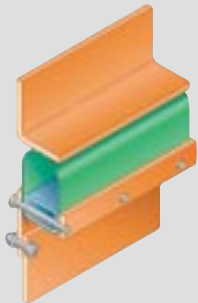
**1966**, Mr. Hans-Jürgen Janich obtains his first German patent concerning a mixing device for central heating systems. Around this time he decides to embark upon an entrepreneurial career.

**1970** Mr. Hans-Jürgen Janich assumes the position as managing partner with comprehensive financial responsibility. The company relocates to Beckum/ Westf. The emphasis of activities is now switched towards providing solutions for the shut-off and modulation of large flue gas ducts. In cooperation with plant operators and contractors a wide variety of innovative, patented designs are developed.

The picture below shows the office building at Beckum.



**1970** JANICH designs a sickle isolator for Schwenk-Zementwerke (picture on the right) serving to isolate the raw mill without interrupting the kiln operation. Operating temperature = 400 degrees C, dust burden of kiln waste gas = 200 gr./acbm. Following this initial supply all plants of the Schwenk group are equipped this way. Other cement plants follow suit.



**1971** JANICH introduces a new metal loop seal for the first time. Compared with the hitherto Common "soft elastic seal" its advantages are: greater stability, much improved and undiminishing resilience and self cleaning characteristics.

**1971** JANICH designs in cooperation with and for LOESCHE a new guillotine damper which is, to this day, albeit in an upgraded version, an almost standard part of cement plants the world over. More than 1000 units have been supplied so far.



**1973** JANICH succeeds in securing contracts from public utilities. Large shut-off isolators for ducts in excess of 80 sq. metre area are designed and supplied to the power stations Niederaussem, Weissweiler and Neurath for the first time. Later, the patented designs were supplied worldwide.

**1978** JANICH secures contracts, beginning in 1978 through 1984, to supply a manifold of dampers for the new ESCOM power stations DUVHA, TUTUKA and MATIMBA, (each 6 x 600 MW) in South Africa.



**1983** JANICH designs the first diverters, flap dampers and double louver dampers for flue gas desulphurisation (FGD) and denitrification (DeNOx) plants.

**1985** JANICH secures several contracts from RWE for design and supply of a total of 114 large sized flap dampers, many differently configured, for Niederaussem and Frimmersdorf power stations. Deliveries had to be effected in weekly intervals.





# Events, Innovations, Technical Highlights



**1988** JANICH obtains an order to refurbish STEAG power stations with shut-off and modulation dampers for their new DeNOx plants.

The photo depicts the hitherto world largest louver damper, ND 17000 x 10000 mm, isolating the DeNOx catalytic reactor at HERNE 4 power station

The damper was equipped with profiled blades, a Janich development dating back to 1986.

**1989** JANICH transfers part of the business to the previously founded JANICH-Systemtechnik GmbH, which in turn is acquired by MANNESMAN AG, effective end of the year.

**1990** JANICH Spezialarmaturen GmbH & Co KG remains active as an advisor and damper designer for future power station and industrial plant requirements.

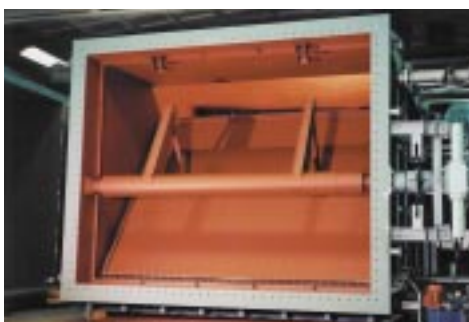
## 1992, the day to day business is transferred to RAUMAG-JANICH



**September 1992**, The Treuhand (Agency for the privatisation of former nationalized assets in the German Democratic Republic) approves the proposed business plan. RAUMAG-JANICH Systemtechnik GmbH, previously founded by Mr. Hans-Jürgen Janich acquires the telescopic covers section of TIRA. 27 employees are retained of which only 7 have full time work. The acquired facility could not be economically operated, even assuming that a sufficiently large volume of work could be generated to provide full time work for all employees.

Therefore, the business plan envisaged the set up of an additional product line, e.g. the section modulation and shut-off systems for flue gas. Immediately after signing the documents the implementation of the concept began. The picture shows the sole owner and managing director Hans-Jürgen Janich (centre) in discussion with the then manager Hans-Joachim Blochberger (deceased) (on the left) and the works manager Rainer Karl (right) about the immediate next steps. Office facilities were extended and modernised, suitable engineering personnel employed and qualified for their future positions, a drawing office and sales department established.

The works received new production equipment and machinery and the welding technology was upgraded and further qualified.



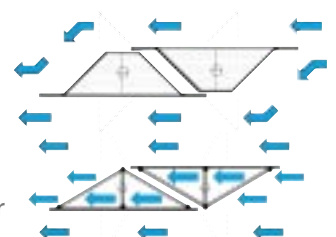
**1993** within only a few months after starting, RAUMAG-JANICH secured a contract for the supply of shut-off and modulation dampers for the FGD plants of BOXBERG and JÄNSCHWALDE power stations.

**1994** RAUMAG-JANICH obtains an order from BABCOCK-BORSIG POWER, Austria, for the supply of diverters and all shut-off and modulation dampers required for the FGD plant of the CAYIRHAHN power station, Turkey. Depicted is the diverter, ND 5000 x 4000 mm, with man safe shut-off, hydraulic actuation in combination with SIEMENS SP-control providing the required modulation during start ups.

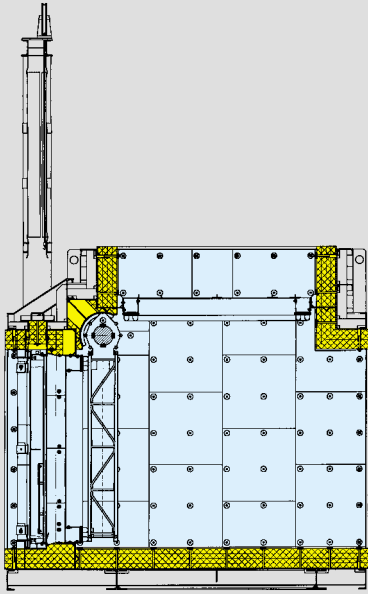
**1997** RAUMAG-JANICH develops a conceptually new damper blade design for high temperature applications and obtains patent rights. Its essential feature is the lattice support structure upon which cover plates are cardanically attached.

The new design reduces the loss of free damper area in open position from approx. 30% (for a conventional design) to only 7%. This helps to conserve energy.

**1998** supply of the first louver and tandem dampers, ND 10000x9000 mm, for the FGD and DeNOx plants of Theiss 2000 power station, Austria, designed and manufactured in accordance with the new concept.



# The historical evolution

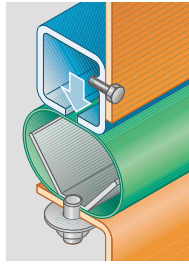
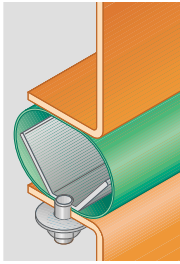
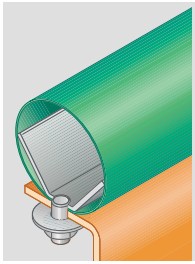
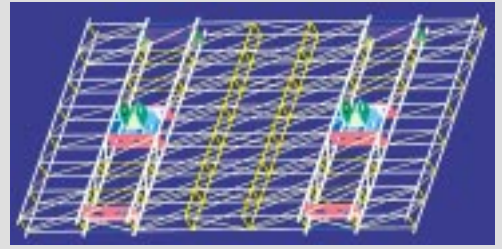


**1999** RAMAG-JANICH develops a new diverter damper for combined cycle service, by applying the principles of the new lattice structure supported blade.

**2000** RAUMAG-JANICH, utilizing the new concept, supplies the first diverter to DEGUSSA, Antwerp, on the basis of an order secured from ALSTOM Stuttgart.

Picture above, on the right: Schematically depicted is the patented, lattice structure support frame, all members of which shall always heat up evenly, without distortion, irrespective of its size.

Picture on the right: Diverter, ND 2400 x 6400 mm. It was installed downstream of the gas turbine of a combined cycle power station.



**2000** RAUMAG-JANICH develops the new NICROFLEX – HIPERFORM sealing system. Its most salient feature is its high resilience combined with high stability. These properties make it eminently suitable for large diverters and high gas velocities along with high temperatures.

In the meantime world wide patent rights have been secured for this sealing system.



**2001** a further diverter, ND 4.620 x 4.240 mm, is supplied for plant 3 at Linz power station (picture on the left) and provides further proof of the superior, innovative technology of RAUMAG-JANICH. With this delivery the break through in to this market has been accomplished.



**2001** RAUMAG-JANICH secures an order from ALSTOM POWER, Stuttgart for design and supply of a bypass shut-off and modulation damper for a gas turbine waste heat recovery boiler located at Bitterfeld, the bypass duct being an integral part of the boiler. The blades had a span of 17500 mm and featured the new lattice support structure as well as NICROFLEX-HIPERFORM seals. Immediately after turbine start up they are exposed to temperatures of 700 degrees C. This is possible without inducing any heat distortion. It is proof of the perfect technology



**2001** RAUMAG-JANICH concludes a contract with LOESCHE for the supply of guillotine dampers for the world's largest limestone milling plant at TAIWAN.

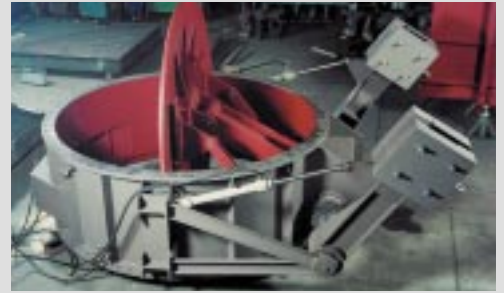
Depicted above are the guillotines during final assembly and test runs at the Rauenstein works.



# Events, Innovations, Technical Highlights



**2001** RAUMAG-JANICH supplies for the first time upgraded designs of a goggle valve and toggle disc valves for the blast furnace gas fired power station at Mittelsbühren. The order was secured on the strength of the improved technology.



**2001, during December,** RAUMAG-JANICH concludes a licence agreement with SAM KWANG and HITECS of Korea. Only 2 month later DOOSAN places the first large order for the supply of shut-off and modulation dampers for a FGD plant. RAUMAG-JANICH is responsible for the design and engineering. The picture shows from left to right: Mr. Paul Ju, President of HEATECS, Mr. Stephan Geyer, Sales Eng. RAUMAG-JANICH, Mr. Hans-Jürgen Janich, President RAUMAG-JANICH, Mr. Thomas Kim, President of SAM KWANG and Mr. Winfried Deppe, Vice-President RAUMAG-JANICH, on the occasion of signing the agreement.



**2001** RAUMAG-JANICH concludes a licence agreement with INDUSTRIAL FANS of India. The picture shows from left to right: Mr. S Sivanandham, Chief Designer INDUSTRIAL FANS, Mr. M. Krüger, Chief Draughtsman RAUMAG-JANICH, Mr. C. Arunagiri, Managing Director INDUSTRIAL FANS, Mr. Winfried Deppe, Vice-President RAUMAG-JANICH and Mr. S. Geyer, Sales Eng. RAUMAG-JANICH. After only a few months the first order was placed by BHEL for the supply of a diverter, ND 3048 x 3048 mm.



**2001** RAUMAG-JANICH develops a diverter design for off-shore service, which incorporates the new, patented blade concept. During the second half of the year ALSTOM, Norway, orders the first three diverters for service at STATOIL plants. In the meantime RAUMAG-JANICH has become the exclusive supplier of this product.



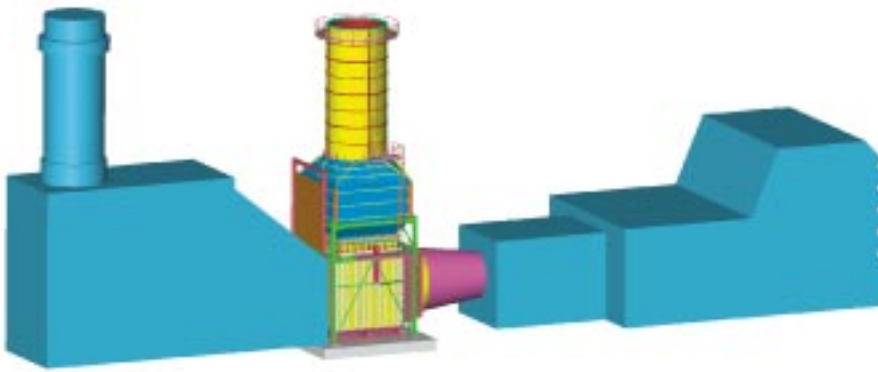
**After 15 years of operation replaced by RAUMAG-JANICH's more modern technology.**

**2001** RAUMAG-JANICH secures an order from RWE-STEAG AG for the supply of two new double louver dampers, ND 6780 x 5390 mm as a replacement of dampers originally supplied by another firm.



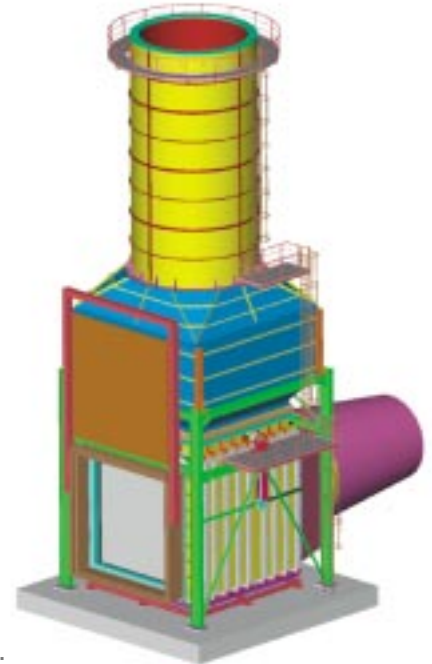
**2002** Supply and erection of two tandem dampers required at the FGD plant of Buschhaus power station. The patented, lattice structure supported blade design reduces the loss of free damper area from approx. 30% to 7% only and thus helps to conserve energy. In the course of a general plant-refurbishing program, these dampers replace two dampers supplied by JANICH 15 years ago.

# The historical evolution



**2003** RAUMAG-JANICH develops a new bypass system for combined cycle power stations, with the patented diverter as the core item. This move elevates RAUMAG-JANICH to the status of a supplier of complete plant modules. Picture on the right: bypass system comprising DIVERTER, guillotine damper, diffuser, silencer, flexible joints, waste gas stack and stack support structure. Stack diameter = 6 metre, stack height = 30 metre.

**2003**, FLS Denmark, concludes a framework of cooperation with RAUMAG-JANICH in terms of which the latter's guillotine damper becomes a standard equipment item for all FLS designed vertical roller mill plants. Picture on the left.



**2003** for the isolation of the kiln waste gas duct at the Schwenk cement plant at Almedingen, RAUMAG-JANICH supplies, in the course of a complete plant-refurbishing, a technologically upgraded replacement sickle isolator, ND 2200 mm diameter. The original one had been supplied by JANICH in 1972. After a service period of 30 years the order for the replacement was placed with RAUMAG-JANICH. In view of the satisfactory results obtained, the works management decided to use a sickle isolator again, albeit one with the improvements introduced in the meantime.



**2004** secures an order from GAMA BOILER for the design and supply of diverters, diffusers, guillotine dampers and flexible joints for the combined cycle power stations ENTEK and OSTIM in Turkey. Depicted on the right is the ENTEK power plant and the complete bypass system.

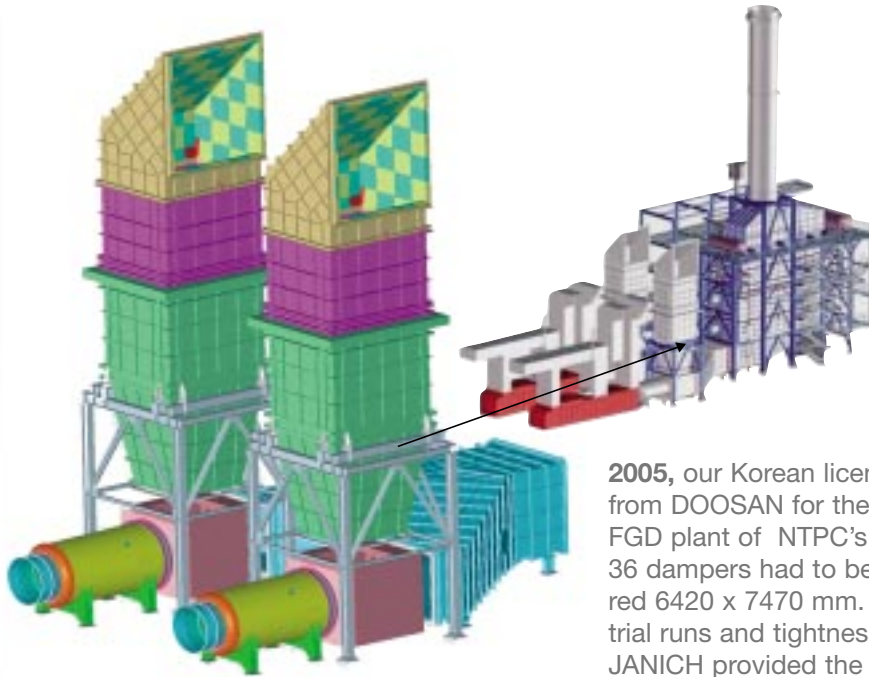


**2004** Supply of shut-off and modulation dampers for SNOVIT, the world's largest liquefied natural gas plant operated by STATOIL at Hammerfest. The order was placed by ALSTOM, London.





# Events, Innovations, Technical Highlights



**2004** RAUMAG-JANICH secures an order from BERTSCH, Austria for the design and supply of two complete waste gas systems for the communal combined cycle power plant at Bielefeld.

With this the first and most difficult step in the transformation away from a mere component supplier to one of supplying complete plant modules has been accomplished. This development opens the possibility of additional revenue increases in the near future.

**2005**, our Korean licensee, SAMKWANG secures an order from DOOSAN for the supply of guillotine dampers for the FGD plant of NTPC's SIPAT power station in India. A total of 36 dampers had to be supplied, the largest of which measured 6420 x 7470 mm. Depicted below is the test rig for the trial runs and tightness testing of 6 guillotines. RAUMAG-JANICH provided the entire engineering for the project.



**2006**, jointly with KANFATEC, Norway, RAUMAG-JANICH develops an entirely new rotary gas sluice, designed to reroute high temperature gas from bypass (waste) to heat recovery operation. Patented NICROFLEX-HIPERFORM seals have been utilised in this design. The sluice facilitates the coaxial arrangement of boiler and bypass which leads to considerable savings

of space and erection time. For offshore applications these features are of considerable importance.



**2007** RAUMAG-JANICH registers huge successes in China and acquires the status of a preferred supplier of high quality shut-off and modulation systems for flue gas. Since 2004 we have, in cooperation with our Chinese partner, SCHANGHAI GOLDEN BRIDGE CONSULTING CO. LTD. , supplied 42 tandem dampers (pictures below) for the FGD plants of several power stations in the Peoples Republic of China.



**2007**, RAUMAG-JANICH secures an order from ZURLU ENERGY, Turkey for the supply of six diverters, ND 3048 x 3048 mm, destined for Russia's largest combined cycle power station at Moscow.

The diverters are equipped with internal lagging (picture on the right). The customer decided in favour of the RAUMAG-JANICH technology.





# The historical evolution of the "Telescope" division

**1970**, the former Thüringer Industrierwerke Rauenstein commence with the manufacture of telescopic steel covers. This effort is supported by a licence agreement with a West German firm, the more so, since the licensor is also a substantial buyer of the products produced. The section enjoys rapid growth and develops quickly within the HECKER conglomerate to become the sole qualified manufacturer of telescopic steel covers. Still later, TIRA- Teleskopbau was extended to become the sole supplier for all eastern block countries.

**1983**, a new manufacturing facility commences production. The most modern machinery is now available. The number of production personnel rises to 45.

**1989**, after the German reunification a total market collapse is experienced. The only remaining customers are UNION Chemnitz and Hecker both with declining demand.



## 1992 RAUMAG-JANICH acquires TIRA-Teleskopbau

**1992**, RAUMAG-JANICH Systemtechnik GmbH acquires Teleskopbau from the TREUHAND (agency for the privatisation of former nationalized assets). During this abridged financial year, revenue slumped to a mere 140 T€. Out of the previously 45 employees only a core of 27 remained. Only seven could be productively employed full time on telescope business.

Apart from the build up of the second product line (shut-off and modulation dampers), efforts towards technological product improvements were intensified, as were the sales activities in the former West Germany.

**1994**, new customers such as WALDRICH Coburg as well as a number of other German firms award first orders and revenue increased rapidly.



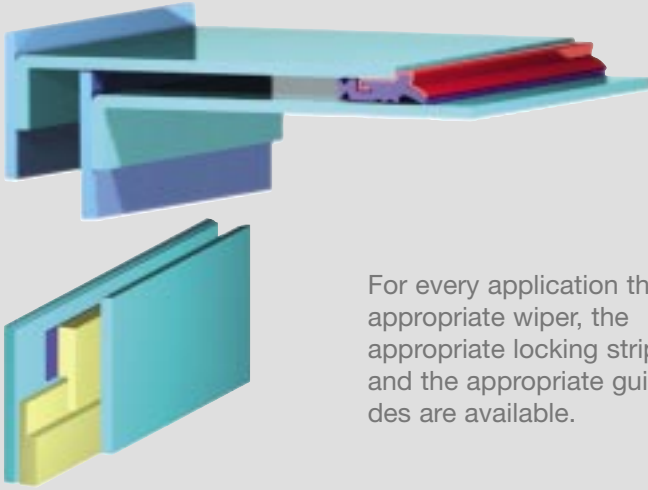
Picture on the right: UNION Chemnitz boring mill equipped with RAUMAG-JANICH telescopic covers during 2001.

Picture below, left and right: WALDRICH Coburg universal boring mill equipped with RAUMAG-JANICH telescopic covers supplied during the years 2000 and 2001.

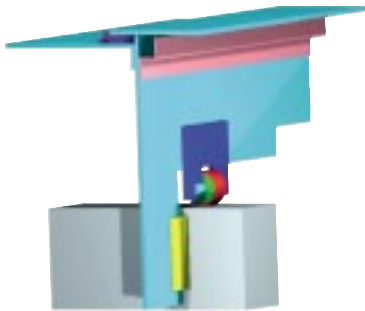


# Innovative details secure success

**1995** RAUMAG-JANICH develops many innovative design solutions all aimed at improving function and operational reliability of the covers.



For every application the appropriate wiper, the appropriate locking strips and the appropriate guides are available.

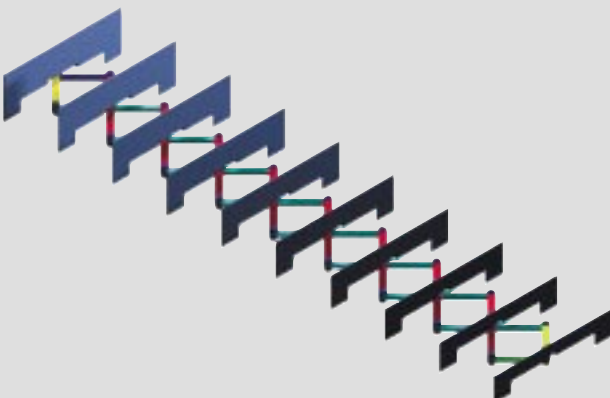


Different fluid drain designs serve to drain penetrating water away.

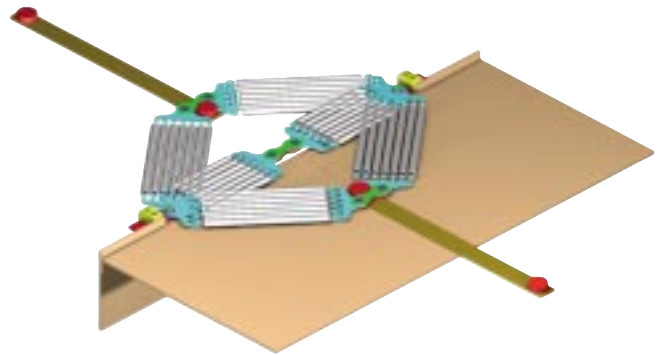


**2000** RAUMAG-JANICH develops a special spring dampening system for use with high velocity telescopic covers (picture on the right)

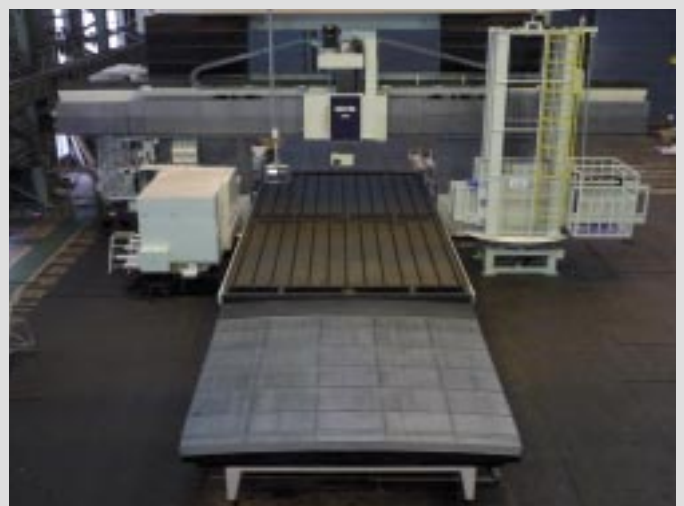
**2004** RAUMAG-JANICH develops a synchronisation device for certain service applications. It ensures the simultaneous actuation of all covers and results in a smooth, harmonious cover movement.



**2002** RAUMA-JANICH designs and supplies for the WALDRICH universal boring mill depicted above 2 tandem machine bed covers, each with a travel distance of 17000 mm.



**2006** TOSHIBA, an important, lasting new customer, orders large telescopic steel covers.



# References / unsere Kunden

**RAUMAG-JANICH-Systemtechnik** has been involved for more than 30 years in the design and manufacture of flue gas modulation and shut off dampers with corresponding experience and references to show for it. More than 10.000 large, tailor designed dampers are in service the world over. The most renowned process engineering contractors and plant operators are amongst our customers.

Moreover, since 1970, telescopic steel covers of different shapes and for a wide variety of applications have been designed and manufactured and are in world wide service.

RAUMAG-JANICH Systemtechnik is supplier to all important manufacturers of machine tools.

We take this opportunity to thank all our customers for their trusting cooperation and are proud to have earned their appreciation in this manner.

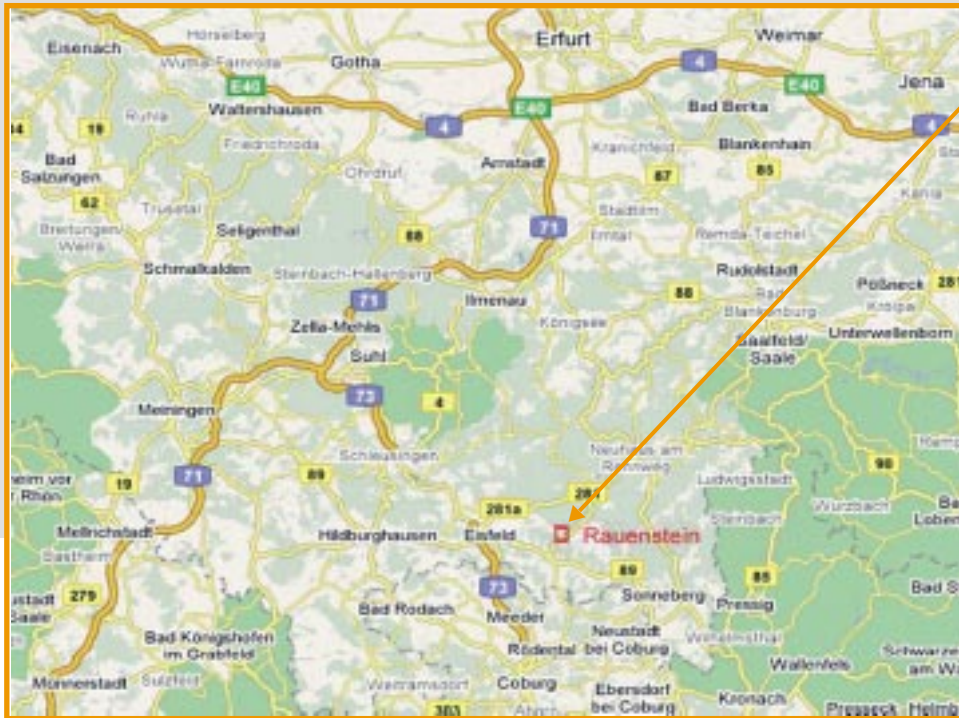
Please enquire and obtain a reference list for the kind of equipment you are interested in.

Abstract of our Customers List



# Welcome to RAUMAG-JANICH



A visit to  
Thüringen is  
always  
worthwhile



Travel directions: By car via A71/A73.  
By Plane via Erfurt or Nürnberg.

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