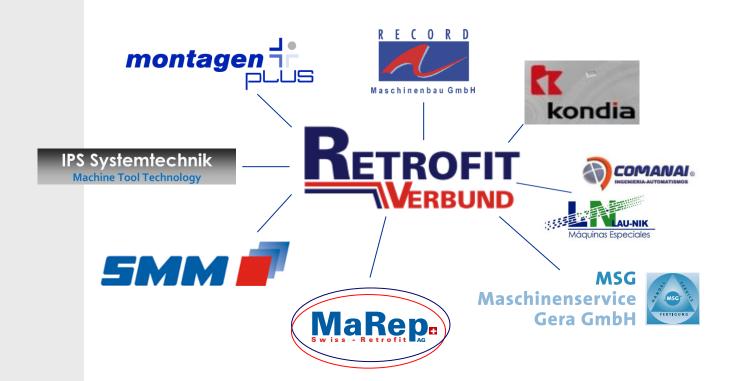




your partner for efficient solutions in machine tools overhauling and customized special machine



# **Retrofit-Verbund partners**







#### Retrofit-Verbund sales & service bases

#### **Switzerland:**

C= 8252 Schlatt TG

A= 2853 Courfaivre

I = 5015 Erlinsbach

#### **Germany:**

E= 07426 Königsee

F= 07546 Gera

D= 90475 Nürnberg

#### Slovenia:

G= 2000 Maribor

#### **Croatia:**

H= 47000 Karlovac

#### Russia:

195271 Sankt Petersburg

#### Spain:

48277 Extebarria 20870 Elgoibar



15.06.2013





the companies of the Retrofit-Verbund are specialized in:

- the overhauling of machine tools
- after sales service
- the development of customized machines













**Employees:** The Retrofit-Verbund has approx. 250 employees available.



Contract partner: To each project one company of the Retrofit-Verbund is assigned as the contract partner for the customer. If possible, the company providing the biggest part of the service will be assigned contract partner.



Infrastructure: The Retrofit-Verbund has approx. 2.000 m2 engineering and approx. 10.000 m2 production / assembly area available.



Retrofit, the alternative to purchasing new machinery and the associated opportunities and risks





- Detailed description of the requested reconstruction
- Maximum allowable machine downtime
- Does the customer wish to actively participate in the retrofit-project?
- Foundation refurbishment required?
- Machining technology required?





Does retrofitting make sense in all case scenarios?





**Example:** although technically interesting, refurbishing this horizontal turning machine would not make sense economically.





Our responsibility: to inform the customer objectively that the requested modernization of this specific machine would not make sense economically.

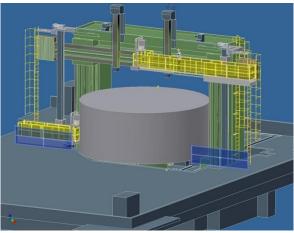


Our responsibility: to introduce a wide choice of manufacturers of suitable up-to-date machines in various price classes to the customer.



**Project:** modernization of big size vertical turning machine (dia. 10.000mm, two supports)





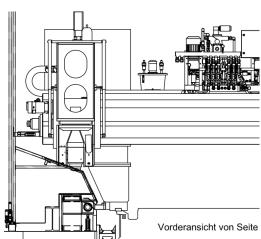


**Conclusion:** technically interesting economically interesting



# **Project:** Conversion of planing machine to 5 axis high speed milling machine







Conclusion: due to heavy moving parts, the possible dynamics of the axis must be calculated in advance. Result was negative











Conclusion: with the conversion of the X axis to a master / slave drive system were able to achieve a good result in dynamics and accuracy.



**Project:** Modernization of Schiess FB220 – boring machine (mechanically, electric and CNC)



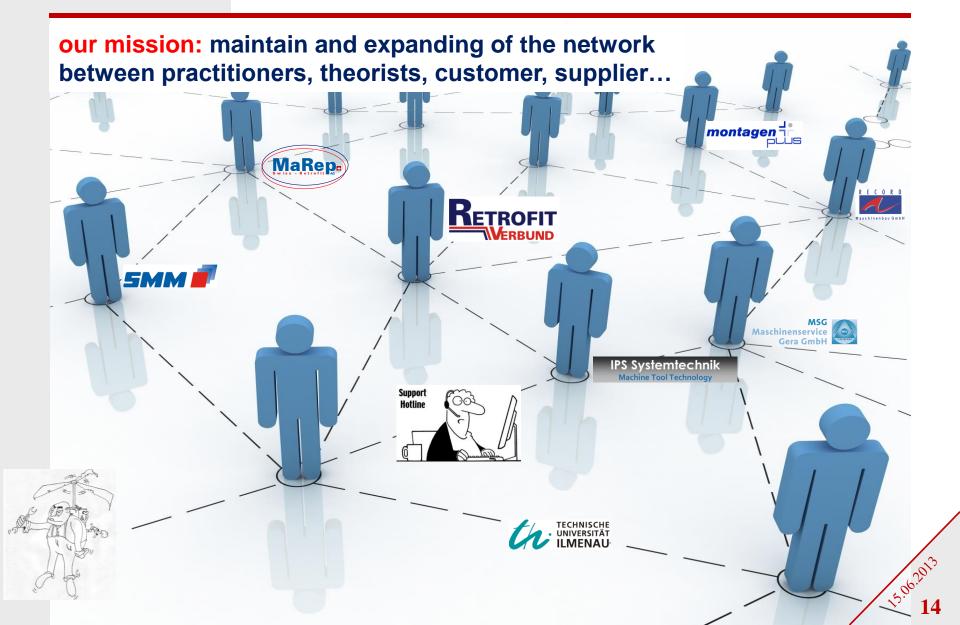




Conclus

**Conclusion:** suitable for modernization, good basic substance, expensive foundation cost







Over 250 specialists, more than 30 years of experience with machine tools





Project – coordination: The Retrofit-Verbund AG serves as the project coordinator for all members of the Retrofit-Verbund. This highly efficient concept allows to reduce project management and distribution costs. Our clients benefit from lower prices and higher time-efficiency.

Customer benefits: Only one direct local contact for inquiries - coordinated by the Retrofit-Verbund.





#### **Examples:** New deep boring machine and roll lathe







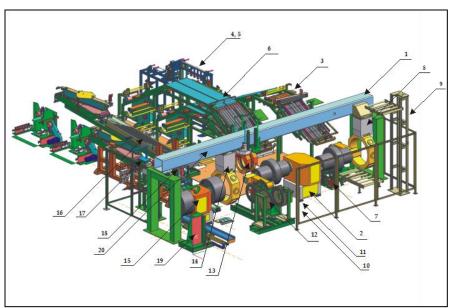
Complete mechanical and electrical overhauling of the Herkules roll lathe including upgrading to CNC - technics





## **Examples:** some interesting projects realized by the **Retrofit-Verbund network concept**





The roll necks milling and boring machine was customer specific developed, manufactured, mounted and put into operation

Development of a complete production line for the manufacturing of car and truck tires.





## **Examples:** Roll grinding machine



conversion of a "smoking,, roll grinding machine to a up to date technology



New roll measuring system, conversion to CNC – technics, upgrading grinding spindle power up to 260 Kw





## **Examples:** some interesting projects realized by the **Retrofit-Verbund network concept**



Retrofitting of gear box of roll turning machine including approx. 50% new gears.

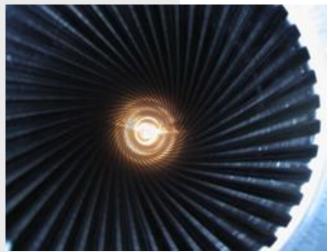


**Development of new study rests for** generator shaft slot milling machine, including upgrading of the machine to **CNC** technics.





#### **Examples:** New riffling machine



We manufacture improved versions of riffling machines based on the technical documents we purchased from the respected SIG



Tiefbohrtechnik company. We supply these machines in various stages of development. We supply these machines to a work piece length up to 12'000 mm



## **Examples:** Retrofit Nakamura turning machine





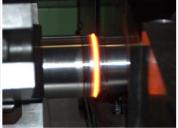
The Nakamura CNC – controlled turning machine was mechanically and electrically completely overhauled, including grinding of the guide ways and remade of the geometry. After the retrofit the machines was delivered to the customer with new machine warranty.





## **Examples: NEW friction welding machine**















The rotary friction welding, a process totally recognized, is regulated by the norm UNE-EN ISO 15620:2001.

After some seconds of friction, the contact point reaches the ideal temperature (incandescent). At this point, the moving workpiece stops and a bigger upset force is applied.





## **Examples: NEW automatic assembly machines**





Based on the requirements of the customer we are developing customized fully or semi automatic assembly lines. In our concept we are using match as possible standard components (robotic, hydraulic, pneumatic etc.)









**Examples:** some interesting projects realized by the **Retrofit-Verbund network concept** 



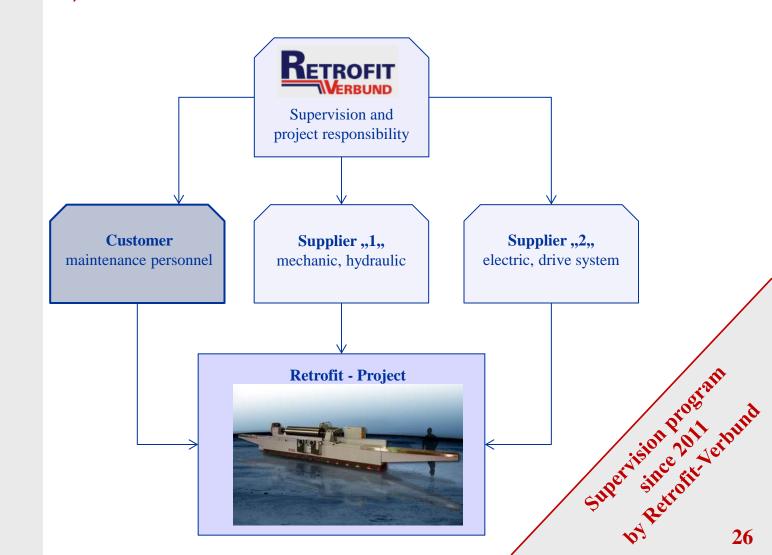


We are interested in new challenges, talk to us!

If necessary, we can also come through the roof. We have experiences in Engineering (mechanics, electrics, PLC & CNC controllers), Hydraulic, Hydrostatic, Geometry .....

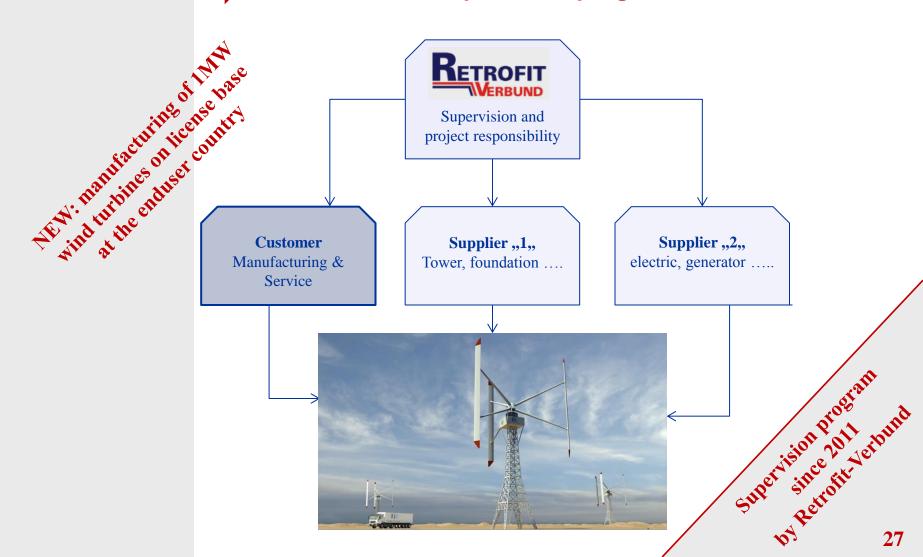


## Retrofit "supervision program,,





#### Wind turbines ,,supervision program,,







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