

VERTIMASTER 3-12

A SCHIESS THAT'S FOR SURE



SCHIESS

ONE SERIES - MANY HIGHLIGHTS

Machine Design

- Cast-iron highest stiffness and vibration dampening
- Improved dynamics and low wear by eliminating counterweights
- Deflection compensation design by optimized force flow
- » Maximal stiffness and precision

Faceplate

- Several high power drives which are electronic preloaded in C-axis modus
- » Power and precision

Measurement Systems

- Direct scales on all axes
- » Extreme accuracy

Intelligent Cooling

- Water cooled drives
- Temperature control of oil and coolant
- Sensors to control the oil temperature
- » Highest precision

Ram

- Thermo symmetrical design
- Integrated contour controlled C-axis optional
- High power and torque
- » For the most demanding workpieces

Hydrostatic

- Wear free
- Compension of guideways
- Good dampening and overload capacity at dynamic loads
- » Highest constant precision

Crossrail

- Gear rack as drive element
- Positioning of gear rack in the lower area of crossrail
- » Optimized force flow
- » Constant stiffness at any position

Portal

- Modular design
- Permanent accuracy due to wear-free hydrostatic guideways and a portal of cast iron design
- » High rigidity, good vibration damping

CNC-control system

- Siemens 840 Dsl or Fanuc 31i-B
- Autinity diagnostic system



YOUR PARTS & OUR TECHNOLOGY

Wide range for all machining jobs

The concept of our portal milling machines allows for any combination of manufacturing processes like turning, drilling, and milling in all rotary and linear axes as well as grinding and boring with reliable equipment in one setup and with a high degree of automation.

The geometric design of the machines and its performance parameters are individually tailored to the manufacturing jobs of our customers.

This machine line reduces machining times and increases your manufacturing output, together with the reduction in the transport and handling processes, which influence the floor-to-floor-time.



THE GUARANTEE FOR BEST RESULTS



Pelton turbine



Steam turbine housing



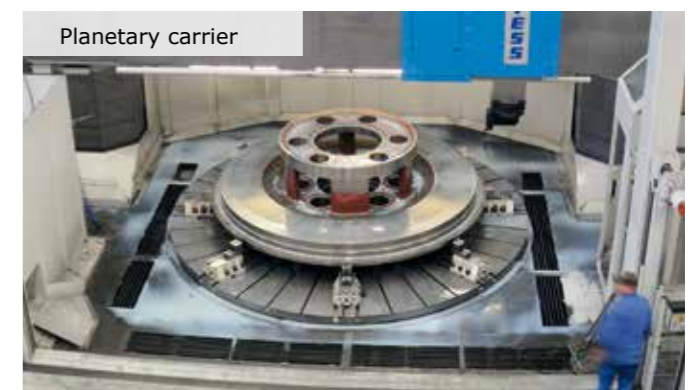
Steam turbine housing



Diesel engine block



Gas turbine housing



Planetary carrier

SCHIESS GmbH provides comprehensive solutions for large machines for the vertical turning and portal milling processes with great competency and experience.

All series of these SCHIESS machine tools are the latest large machining centers of their class with their outstanding design features.

These machine concepts guarantee our customers high productivity and profitability for their manufacturing with quick cycle times at low costs.

The SCHIESS Vertimaster series is tailored to fulfilling individual customer requirements in all aspects with a combination of modular components.

The machining centers of the Vertimaster machine series that have been installed all over the world prove their reliability day after day.

» Maximal benefits with low total costs of ownership



VERTIMASTER 3-12

Our large machining centers of series Vertimaster 3-12 are among the largest and most innovative machine tools worldwide. These CNC controlled portal, milling and turning centers in gantry or table design and for extreme part dimensions also in single column design can be adapted to all specific requirements of our customers.

This efficient and modern machine has a very strong foundation. All large parts as column, crossrail, connecting part are traditionally produced from spheroidal graphite iron and machined in-house. As a result, hydrostatic guideways with utmost accuracy for all axes are produced.

Our designers payed the utmost attention to avoid static overdefinition and ensure rigidity.

The machines cover a wide range of various machining tasks and adaption to customer-specific automation. Any combination of the manufacturing methods such as turning, drilling and milling can be realized. Also grinding and boring are, with the relevant accessories, part of the concept for our portal, milling and turning centers. The geometrical design and the performance parameters of the machine are individually tailored to the production jobs of our customers. Especially through optimization of necessary transportation and setup processes you will reduce the production times and thus, increasing your manufacturing capacities.

The machine series Vertimaster is a machining center with the most up-to-date drive and control engineering that provide the highest possible accuracy and optimal performance of the complete machine. Due to its modular and flexible system configuration, e.g. automatic tool and head changing, an individual adaption to each customer's requirement is possible.

Simulated Y-axis Yv by using a special transformation

Since 2008, SCHIESS is a pioneer in the field of special transformation by means of a simulated Y-axis Yv.

The SCHIESS machine types Vertimaster VM 3-12 with a milling spindle are technologically highly upgraded through a special transformation.

This allows for circular boring and milling operations outside of the center of the face plate. Maximum accuracies with respect to backlash-free drives and direct measuring systems can be seen in the rotary and linear axes involved. This technological advantage provides a clear cost advantage to our costumers.

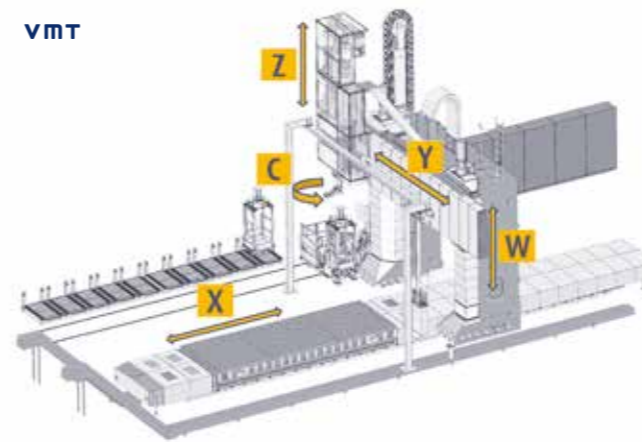
Thanks to the special transformation by means of a simulated Y-axis, we can avoid a price- and space-intensive Y-axis (gantry).

Application example

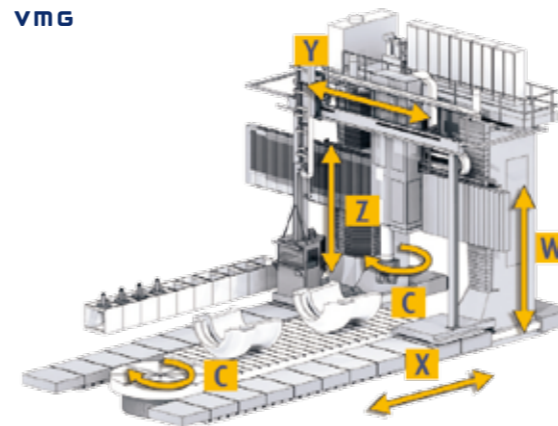
Making an inner groove on a vertical turning lathe without a Y-axis.

By interpolating the axes C, C' and X as well as Z as feed axes, parallel surfaces are created with a dimension offset in the Y-direction (simulated Y-axis).

VMT

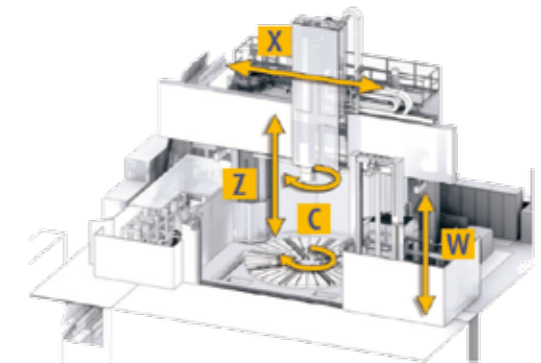


VMG



- VT – Vertical turning machine with 2 axes (X, Z)
- VM – Vertical turning machine with 3 axes (X, Z, C) with drilling / milling drive
- VMG – Gantry portal machine with 4 axes (X, Z, C, Y) also with turning table
- VMT – Table portal machine with 4 axes (X, Z, C, Y) with single or double table

VT/VM



		VT - VM - VMG - VMT							
Type		3	4	5	6	7	8	10	12
VT - VM - VMG									
VMT									
Working Area									
Width of Clamping Plates / Table Diameter Face Plate	mm	3,000	4,000	5,000	6,000	7,000	8,000	10,000	12,000
Travel of X-Axis	mm	2,000-20,000*							
Ram Allocation Z-Axis									
Cross Section	mm	280 x 240							
		420 x 340							
		520 x 460							
		640 x 570 / ø560							

* more on request

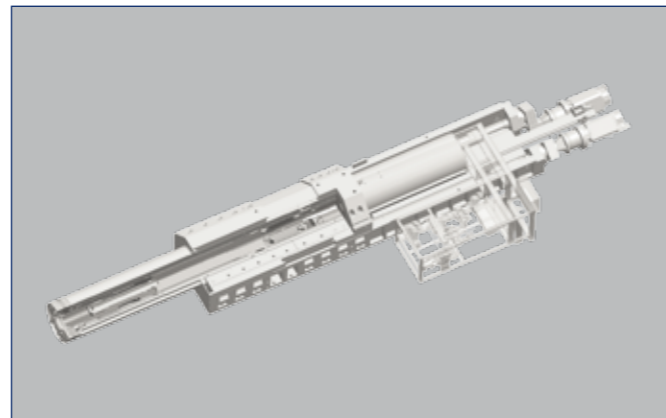
Ram Dimensions		280 x 240	420 x 340	520 x 460	640 x 570 / ø560
Size					
Power	kW	52	52	72	100
Torque	Nm	2,400	2,400	6,000	9,000
Speed	rpm	3,150	3,150	3,000	2,500
Max. travel of Z-Axis	mm	1,800	2,600	3,000	4,000
Integrated C-Axis				yes	yes

WORLD LARGEST POWERFUL RAM

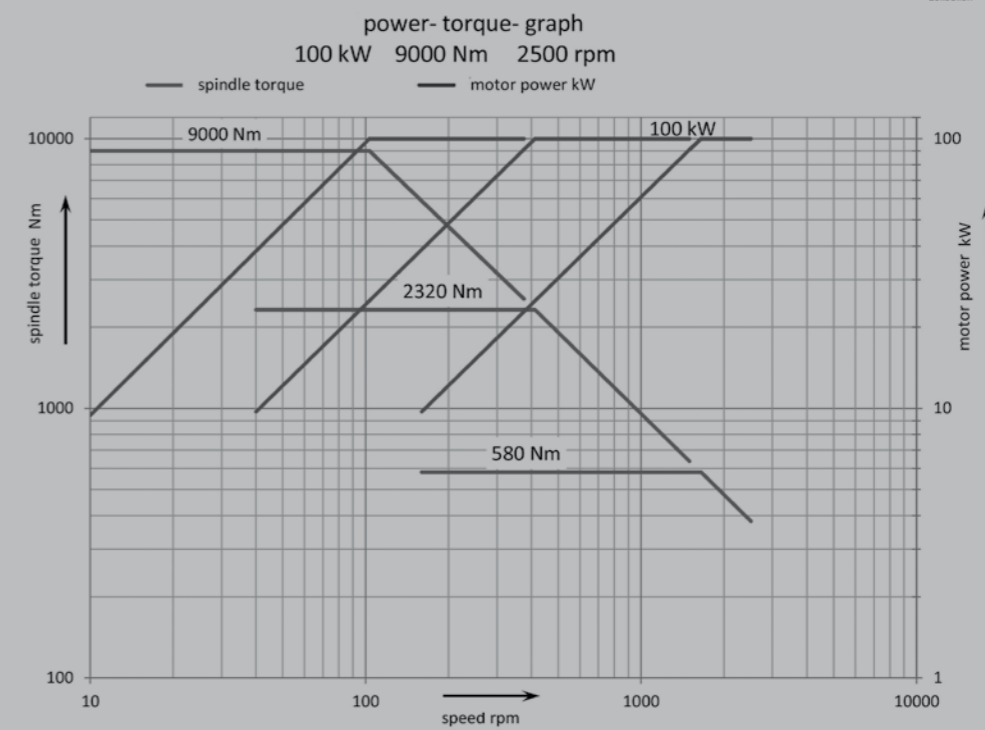
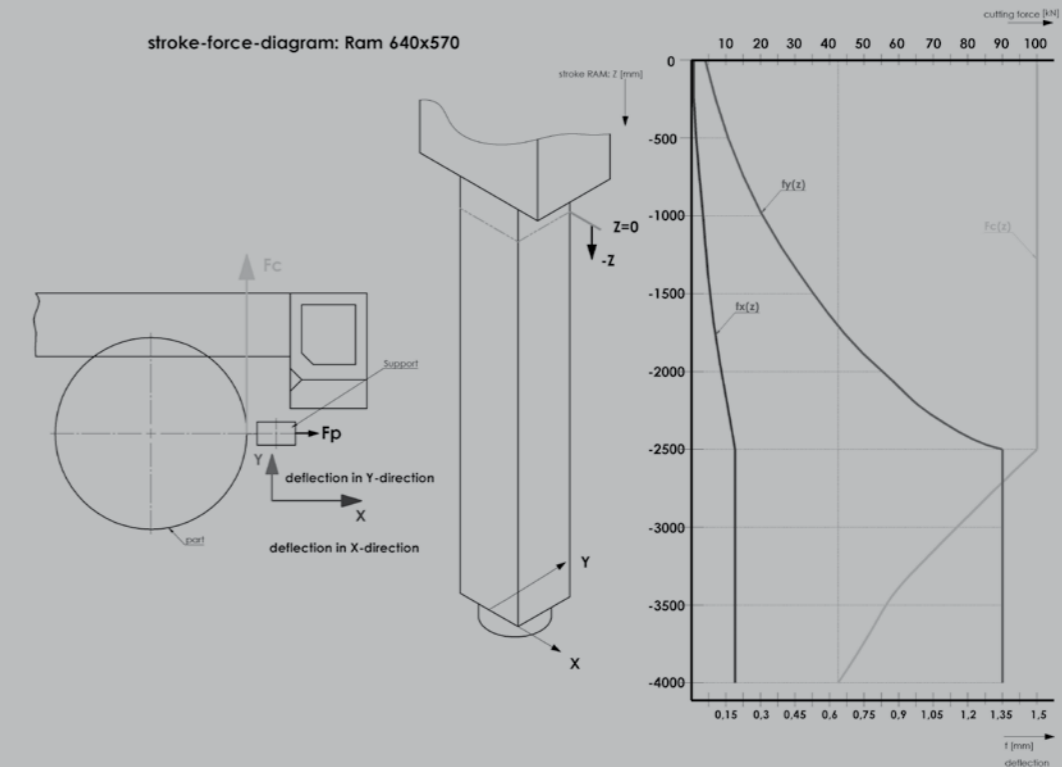
Unique combination of maximum dropping depth and power at minimal ram dimensions

Our round or rectangular rams ensure high technical flexibility while machining complex workpieces, e.g., milling deep surfaces having a small immersion diameter. They allow you to calculate the machining time with maximum load factor; long changeover times can be avoided.

There is special focus on the customer-specific modular solutions; they offer optimum adaptation with respect to the machining of the desired workpieces.



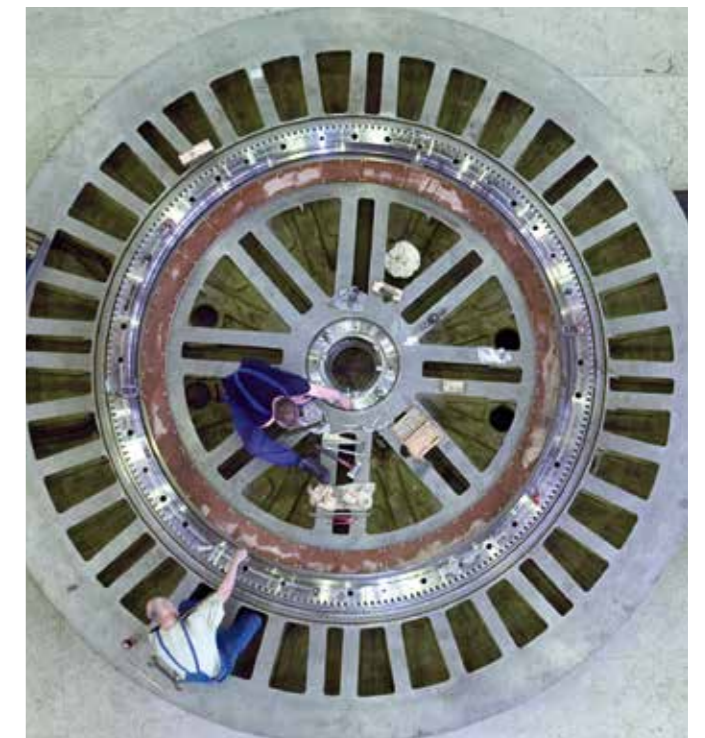
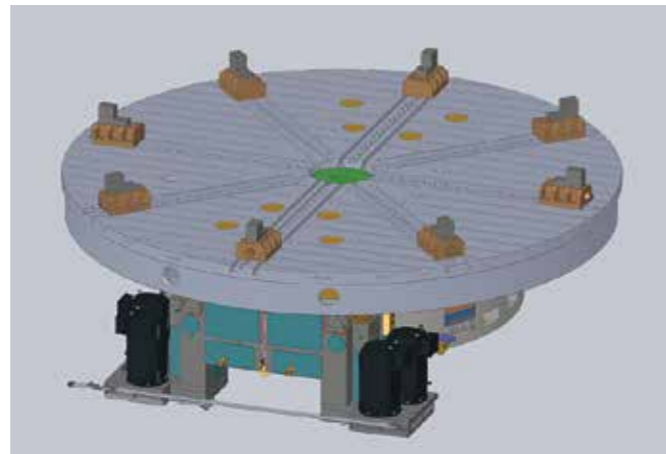
High output with maximum extension – typical SCHIESS



FACE PLATE & BASE

POWERFUL DESIGN FOR LARGEST AND HEAVIEST WORK PIECES

- Strong components made by sphero castings GJS
 - Max. load up to 500 tons
 - Turning power of up to 550 kW (100% Duty Cycle)
 - Version VM or VMG with additional C-axis in the face plate
 - Hydrostatic table bearing
 - Table up to $\text{Ø}12,000$ mm diameter*
 - 4 or 6 drives, electronically pre-loaded
 - Position accuracy ± 3 arc sec
- * larger diameters on request





The Masterhead Principle

We realize the adaption of several standard and customized machining heads with the intelligent Masterhead Principle to solve complicated and very complex machining operations. The focal point of our work is always the most effective technological solution. Thereby the head changing can be done in automatic pick up mode or in full automatic head changing.

The modular system configuration of the masterheads used by SCHIESS can be customized for machining a wide range of parts.

The universal boring and milling heads and the high-tech C-axis integrated into the SCHIESS ram also allow simultaneous five-axes machining of the workpieces.



Examples for boring, milling and grinding

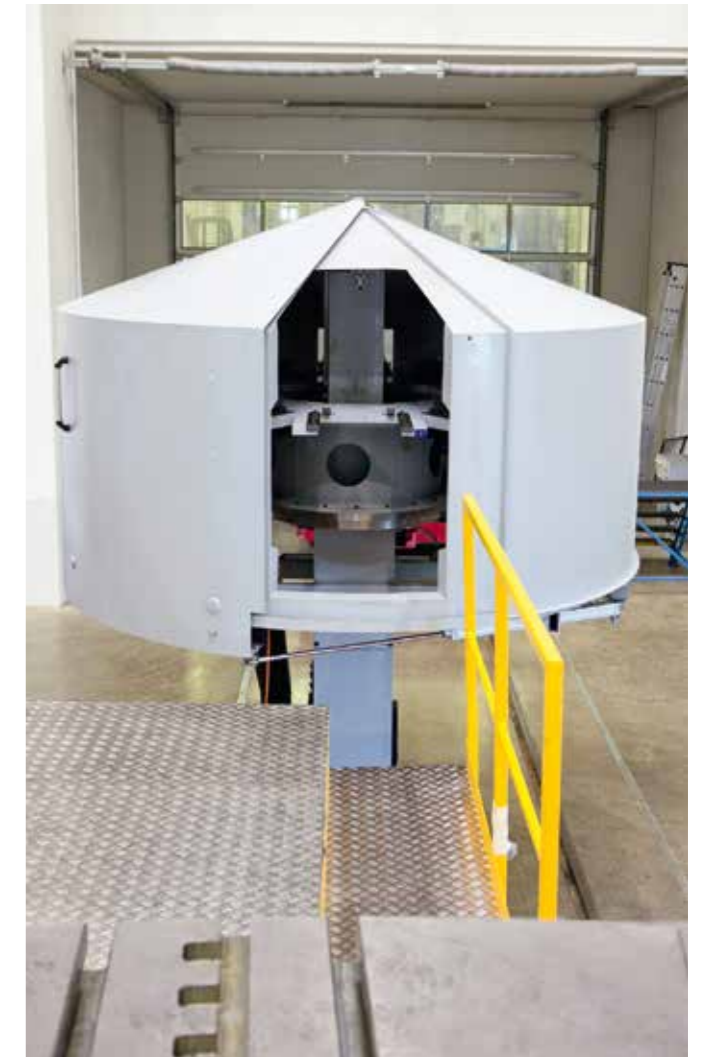


Examples for turning



Examples of customer-specific peripherals

- Tool changers with chain magazine, rack magazine, and special solutions
- Head change systems in suitable design (semi-automatic, automatic)
- Coolant system for external and internal supply
- Chip conveyors
- Component-/tool probe systems
- Advanced operator platforms
- Safety equipment



The machine tools

Set up by the Magdeburg engineer and VDW founding father Ernst Schiess in 1866, SCHIESS quickly progressed to being one of the largest manufacturers for machine tools with several plants and almost 2000 employees. Since then, the name SCHIESS has stood for excellent product quality, precision and efficiency in the field of heavy machine construction.

After merging with Werkzeugmaschinenfabrik Aschersleben GmbH in 1991, the company portfolio today includes large vertical and horizontal machining centers as well as average-sized, highly complex and compact CNC machines, a wide range of services for complete modernizations as well as a well-structured contract machining.

Since 2004, SCHIESS is a wholly-owned subsidiary of the biggest machine tool manufacturing holding in China, Shenyang Machine Tool Co. Ltd. (SYMG), which continuously invests in the manufacturing and the development work carried out at Aschersleben.

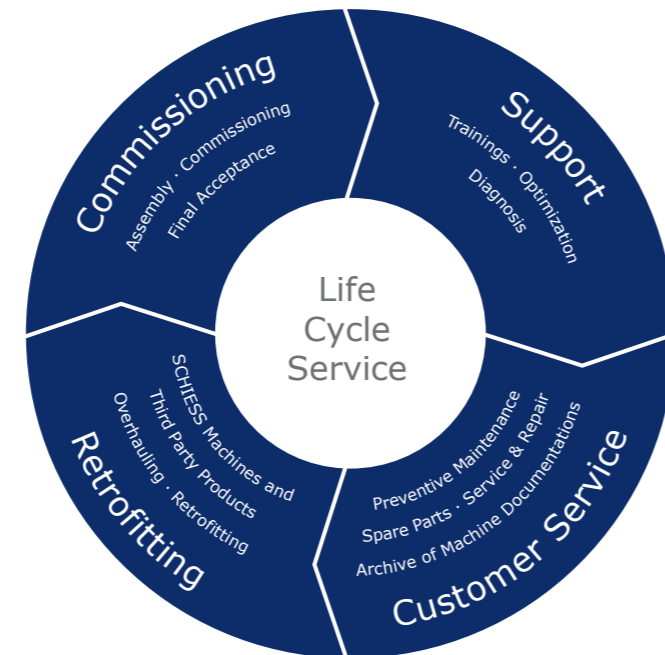
SCHIESS machines are being successfully used in Europe and all over the world for years now. Therefore, our customers are extremely satisfied with SCHIESS and remain loyal to us over decades:

- Long years of experience at the heart of manufacturing companies
- German engineering competence across generations in the field of heavy machine construction
- Renowned references worldwide
- Permanent optimization of the SCHIESS product portfolio with respect to ease of operation and versatility
- Individual maintenance and tight service network
- Fair collaboration



The Service

Life Cycle Service = Always at your Service!



Your partner right from commissioning up to retrofitting – a one-stop shop!

Northern Heavy Industry is among the top 500 industrial companies in China. Founded in 1921 NHI has developed to leading supplier of large and heavy components. NHI builds amongst others forging presses and machines for the mining industry. In 1937 NHI was the first heavy machinery plant of China. Today a large volume of machine tools are in operation. Top of the line is a SCHIESS Vertimaster (VMG 6) which was taken into operation 2006. The VMG 6 was an extension in several dimensions: Production capacity, size of parts, quality and technology of machining.



Customer:
 Northern Heavy Industry in Shenyang (CN)
Contact person for customer:
 Mr. Sun Yanjie, Vice General Manager
 Heavy Parts Machining Company of NHI

Electrical power is essential for industrial growth in China. Dong Fang is a leading supplier of turbines for various types of power plants. Dong Fang traditionally has a broad spectrum of large machine tools. In order to strengthen the leading position in Asia and for the global market it is necessary to produce parts with the highest accuracy and quality possible. With the Vertimaster (VT 1) SCHIESS has provided a solution that meets the accuracy, quality and productivity needs. The SCHIESS provides a reliable base for the future development of Dong Fang.



Customer:
 Dong Fang Steam Turbine in Deyang (CN)
Contact person for customer:
 Mr. Wang Zhiming
 General Machinery Experts

Bilfinger Maschinenbau GmbH & Co. KG, Linz ranks on top of the job shops when it comes to high-quality processing of large components. The workpieces machined by Bilfinger Maschinenbau have large dimensions and the used machine tools are larger than elsewhere. However, highest by far are the quality requirements on the production facilities, explained Mr. Gottfried Langthaler. He says the SCHIESS Vertimaster VM 6 is a perfect example in "precision work plus flexible fields of application". The machining center scores 99 of 100 possible hits on the Bilfinger Maschinenbau procurement matrix. SCHIESS pleasantly surprised. SCHIESS stayed clearly below the requested tolerances and on top of that the simulated y-axis works perfectly. Cost-intensive facilities like the VM 6 are purchased for up to 40-year long-term work in three-shift operation. The Black Box of SCHIESS in connection with the Autinity Software helps to keep the availability higher than 97 %. The large machining centers of the Vertimaster series belong to the largest

and latest machine tools in the world and allow any combination of the machining processes turning, drilling and milling as well as grinding and boring. Gottfried Langthaler confirms "The VM 6 working in 5-axes operation is currently the ultimate for our needs".



BILFINGER Power Systems
 Bilfinger Maschinenbau GmbH & Co KG
 Bilfinger und Berger (form. MCE)
 in Linz (AT)
Contact person for customer:
 Gottfried Langthaler
 (Project Manager for Investments)



Please visit our website for further information

WWW.SCHIESS.DE

PLEASE SEE ALSO OUR ASCA-SERIES PRODUCT LINE-UP



ASCAMILL



ASCATURN



ASCARAPID

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