

New roll grinder control: KP 10 with touch panel

Topics:

Texturing technology stands the test
Successful factory acceptance at Severstal

Indian production facility expands
competences
DMI builds first lathe P 300

Chatter mark analysis
Solution for excellent grinding results



Herkules roll grinder WS 450, equipped with the high-performance and versatile KP 10 control

New KP 10 roll grinder control with intuitive touch control



The KP 10 is the most powerful and versatile roll grinder control in the market



Operation is as simple as using a smartphone



Well-structured display of the grinding process

Operating highly complex machine tools requires a high level of professionalism – and appropriately trained staff is hard to find. An operator-friendly machine control is therefore a clear production advantage. The most powerful and versatile roll grinder control in the market, the KP 10 by HCC/KPM, is available in a modernized version now and sets new standards with respect to operator friendliness. The highlight of the new control: a touchscreen that simplifies and speeds up operation of the machine.

Thanks to the redesigned and optimized user interface, the most important data is always in plain view of the operator. The panel is used by touch, like a smartphone or tablet PC. Plain and simple coloring, symbols and graphics support navigation and data input.

The user interface offers a well-structured display of the ongoing grinding process: despite the clear, uncomplicated structure, it allows for highly demanding applications. The comfortable program editor, combined with a menu-driven determination of the production steps, simplifies the creation of a grinding process and avoids any operating errors. Even complex curves and programs can be created, edited and carried out easily. Explanatory graphs help the user when editing parameters. Comprehensive input assistance and context-related help functions provide thorough support to the user. As an example, control messages can be located easily by referring to a circuit diagram; thus, the cause of the malfunction is easily diagnosed.

The user interface is structured so clearly that it can be operated even by less experienced staff with minimal training – elaborate training is no longer necessary. Traversing motions always have to be released using a hardware button. A high level of user safety is thus guaranteed. Measuring and inspection systems such as roll shape measuring devices, Eddy Current or Ultrasonic (non-destructive testing) are fully integrated into the control to provide trouble-free quality management.

Future-proof: state-of-the-art technology

The KP 10 control runs on a Windows 10 IoT 64-Bit operating system and a PLC based on Beckhoff TwinCAT 3.1. The industrial PC is equipped with the current processor generation Core™ i5. Thus equipped according to the latest level of technology, the control is completely future-proof. The control panel is resistant and durable due to its closed front structure and available in either 18.5" or 24". It can be set up in a relatively large distance to the PC thanks to its extremely robust image transmission technology.

The new version of the KP 10 control takes its place in the powerful range of controls made by HCC/KPM. The company is a member of the HerkulesGroup and specialized exclusively in the development and manufacture of control and measuring devices. The KP 10 control is specifically designed for roll grinders and sets the benchmark worldwide – more than 1,000 HCC/KPM controls have been in operation in the market since the product launch in 1999.

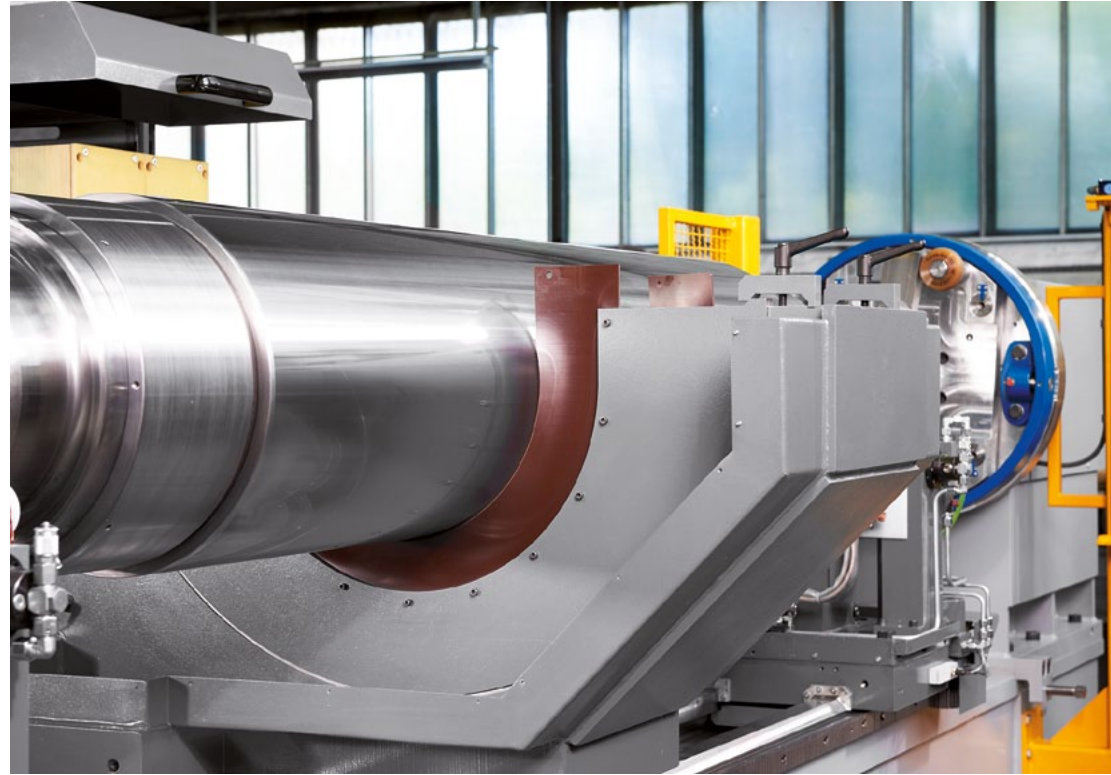
Texturing technology: Successful factory acceptance at Severstal

The new texturing machine by Herkules has proven a success already. A PTM 200 (up to 32 / optionally 36 electrodes) has been installed for the Russian steel manufacturer Severstal and stood the factory acceptance test with no reservations within a very short period of time. It is now already in operation in Severstal's new cold rolling mill that has been built by the SMS group.

The high-performance texturing machine PTM 200 is equipped with a new generator generation that is currently the most powerful one in the market. Another advantage is the concept of travelling electrodes in an open work tank of dielectric fluid with excellent texturing characteristics.

The properties of the PTM 200 have been tested in the area of Ra 0,6 µm to Ra 9,6 µm with the corresponding peak counts of R_{Pc} 230 - 30 – to the customer's full satisfaction. The roll profiles to be textured ranged from cylindrical rolls to sinus, CVC® Plus and CVC® PlusPlus profiles.

The completed factory acceptance test proves this innovation in texturing technology a success. Further developments in this area are already approved by the technical concept planning and are currently under construction – at the beginning of 2017, Herkules will present the brand new texturing machine PTM 500 with up to 80 electrodes.



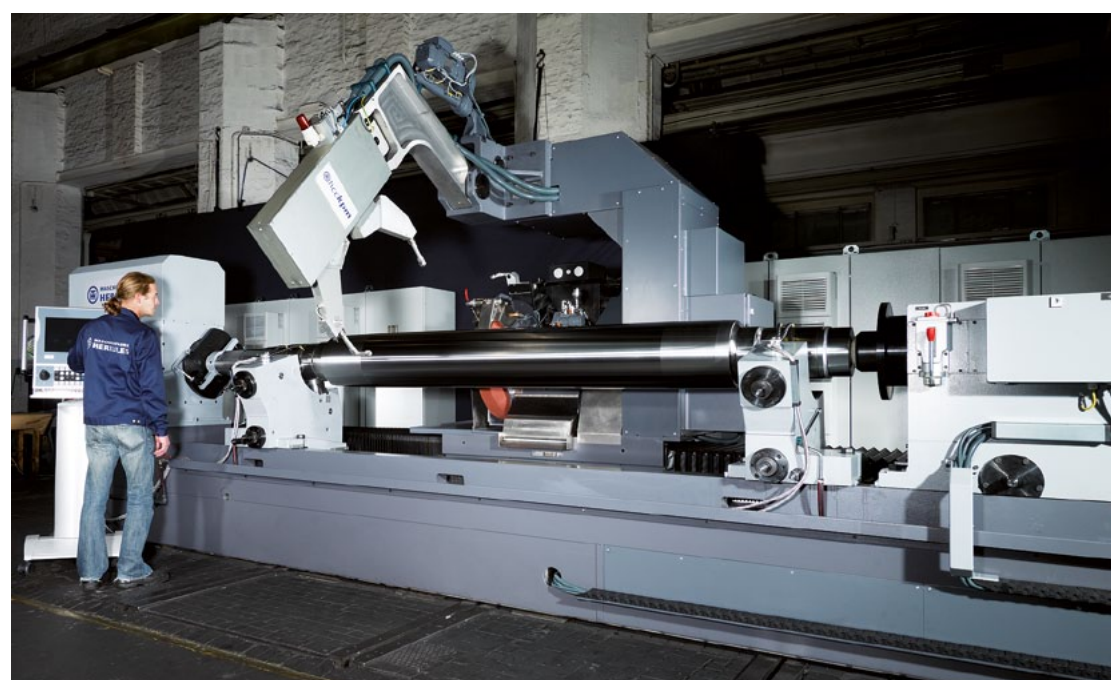
PTM 200 for Severstal – excellent texturing characteristics thanks to an open work tank of dielectric fluid

Work roll grinder WS 450 Monolith™ for CVC® Plus profiles

The Russian steel producer Severstal asked Herkules to build a roll grinder for its work rolls with demanding CVC® Plus profiles in early 2016. The order followed the delivery of a roll grinder by an Italian supplier. The goal was to guarantee the required surface qualities and geometrical accuracies of the work rolls for the production facility.

In order to achieve that, the Herkules machine is equipped with an inherently rigid Monolith™ machine bed and "correction on the fly" during the grinding process. The Monolith™ design allows for the machine to be installed directly on the floor, without the sprung foundations that would otherwise be necessary. Instead, the machine is positioned right on the factory floor on isolation pads without any anchors. Thanks to the excellent damping characteristics of the Monolith™ machine bed, the roll grinder achieves outstanding surface qualities when machining work rolls.

In order to reduce grinding time and stock removal on the roll surface, the WS 450 is equipped with on-the-fly correction grinding technology by Herkules, which is unique around the world. It allows measuring and correction grinding to take place simultaneously during the grinding process. The fact that the machine control carries out shape corrections during the machining process itself results in a significant reduction of machining time. At the same time, the Eddy Current measuring device performs a surface crack test. Its broad measuring width of 40 mm means that the



Highest surface qualities: WS 450 Monolith™

roll is scanned for cracks to 100% after just a few strokes. This process takes place during grinding and determines the correct crack depths, which change according to the stock removal, on the fly. As a result, the surface qualities required by Severstal can reliably be realized with Herkules technology in the future.

Project success: courage to make a change pays off

In November 2011, an ambitious expansion project was initiated at Werk Grevenbroich of Hydro Aluminium Rolled Products GmbH. The company, a leading manufacturer of aluminum strip and foil products, planned a radical change in the grinding shop. The goal: more efficiency, quality and reproducibility of the production processes. The heart of the project is a new Herkules roll grinder WS 450 AL with a foundation-free Monolith™ machine bed.

The machine was commissioned in Grevenbroich in June 2015. Four months and more than 2,000 ground rolls later, Hydro Aluminium presents the first results: “All the goals we have set ourselves have been exceeded,” the company magazine “go! The Hydro

Way” stated in October 2015. The machine produces “a perfect finish nearly 50% faster” than before, when surface qualities depended on the handiwork and skills of the experienced employees. The grinding results are due to the fact that the machine is perfectly customized to the client’s requirements, and to the non-contact roll surface inspection system (RSIS). The WS 450 AL for Hydro Aluminium is designed for the machining of aluminum foil work rolls. Their inherent stability is relatively low: they are long, but have a comparatively small diameter – an extra challenge when aiming to achieve reliable machining results. The WS 450 AL compensates this with its extremely robust design, which results in great damping characteristics and guarantees excellent, reproducible grinding results.

A perfect, flawless surface quality of the rolls is an indispensable precondition for the manufacture of aluminum foil. It is therefore constantly monitored by the roll surface inspection system RSIS: a measuring sensor detects surface defects, such as chatter and infeed marks, using the reflection of a laser ray on the surface of the roll. The RSIS reliably judges the quality of the roll surface and thus supports the operator of the machine. “The WS 450 AL fulfills the most recent security standards and even after a month, it impressed with an availability of 97%,” praised “go! The Hydro Way”. The new roll grinder contributed significantly to the grinding shop’s new road to success. Hydro Aluminium Rolled Products is more than satisfied with the new machine’s performance: the company has put in the order for a second WS 450 AL, which is identical in design and will be delivered at the end of 2016.



Excellent grinding results at less than 50% of machining time: the new WS 450 AL with RSIS

Technical Data WS 450 AL for Hydro Aluminium	
Grinding diameter (max.):	450 mm
Distance between the centers (max.):	4,500 mm
Roll weight (max.):	3,500 kg

Rizhao Steel impressed with assembly in record time



Ready for production in record time: one of the roll grinders WS 450

60% of the estimated time was all the service team, consisting of Sascha Zimmermann and Carsten Bogatzki, needed for the assembly, commissioning and successful factory acceptance test of two roll grinders WS 450 for the hot rolling mill of the Chinese Rizhao Steel Holding Group. The customer was impressed: in a letter of reference, the company thanked Herkules for the “conscientious and efficient work” of the technicians and also mentioned the “great support” by the sales unit Maschinenfabrik Herkules Shanghai Representative Office – according to Rizhao Steel, Sascha Zimmermann installed the main mechanical components of the first machine in just six days.

On March 17, 2016 Sascha Zimmermann started to assemble and install both machines at the same time and on April 2, the first one was ready for commissioning. The second machine, on which commissioning started on April 16, was ready for production after successfully completing the factory acceptance tests just 10 days later. In addition, the future machine operators received comprehensive training. “We are particularly proud of the high level of commitment that the team demonstrated and of the extraordinary effort of the young technician Sascha Zimmermann and his experienced colleague Carsten Bogatzki,” says Head of Service Klaus Engeland. After assembly had been completed in record time, the roll grinders immediately took up operation in Rizhao Steel’s production facility.

Deutsche Maschinen India builds first lathe P 300

Successful project completion in record time: the first lathe of the type P 300 has been built at the Indian production and service location Deutsche Maschinen India in Kolkata. The team, headed by P. K. Mazumder, built the machine, which has been designed in Germany, within six months. P. K. Mazumder was more than satisfied with his employees' performance: „Our team reached the target within a tight schedule. Now they are ready to go ahead with manufacturing more lathes of the P 300 series.“ Indian customers were invited for a demonstration of the machine. Maximilian Thoma, President and COO of Maschinenfabrik Herkules Meuselwitz, where the P-series is built in Germany, welcomed them with a presentation of the company and introduced the following technical presentations.

The P 300 is a lathe for medium-sized to small workpieces. It reliably machines parts with a maximum length of 2,500 mm, a turning diameter of 700 mm and a maximum weight of 5 t. Thanks to its robust design, comprising high-quality cast iron components, it is characterized by outstanding concentricity and surface quality.

DMI has been offering machine components, service and modernizations for the Indian markets since 2007 and is well equipped for the production of new machines with a 1,100 m² production facility and a comprehensive machine inventory. The lathe P 300 has been designed according to German quality standards in close cooperation with the production units in Siegen and Meuselwitz. This is also where the engineers and technicians at DMI have been trained. The completion of the project in record time means that Indian Herkules customers now benefit from a significant reduction of delivery times when buying P-series machines on the local market.



Presentation of the P 300 at the Open House in Kolkata

Technical Data of the P 300

Torque (max.):	9,000 Nm
Speed:	1 - 300 min ⁻¹
Distance between the centers (max.):	2,500 mm
Turning diameter (max.):	700 mm
Roll weight between centers (max.):	5 t

Herkules

Convincing solution for steel manufacturer

It is the third order by Omutninsk Metallurgical Plant already: the Russian steel manufacturer acquired one more roll lathe of the type P 300. The customer was able to verify its superior quality beforehand, as two machines of this type are already in operation in the production facility.

The roll lathe will be used for the manufacture of flat products and complex profiles at Omutninsk. The Herkules P 300 series is characterized by its high cutting capacity with an excellent surface roughness of Ra 0.8 µm. The main bearings at the headstock and the tailstock are over-dimensioned and guarantee a long service life at consistently high machining precision. Headstock and tailstock are made of a single, closed, cast iron housing each. This results in maximum stiffness of the housings, which is a precondition for chatter-free high-performance turning.

Herkules designs and uses customized main components only. The advantage for the customer is a better performance as well as maximized machine availability. The production increase that can be achieved ranges between 25 and 35%. Besides the resulting increase in revenue, the number of machines in operation and therefore the investment cost can be reduced to a minimum.



Great machining power in combination with maximized availability: the third P 300 for Omutninsk Metallurgical Plant

New knife grinding machine for roll shops



Herkules offers complete roll shops and equipment from a single source – including knife grinding machines

Besides single roll machining machines, Herkules also offers complete roll shops as a tailor-made solution from one single source. The development of a knife grinding machine by Herkules Meuselwitz is a further expansion of the product range in this field. Herkules Meuselwitz makes full use of its long experience in the area of flat grinding in the production of these machines.

The shear knives are taken up on swivellable electro-permanent magnetic clamping plates. Both straight and curved knives with a grinding length of 1 - 5 m can be ground. As an option, the machine can be equipped with a rotary table for grinding circular blades with a maximum diameter of 500 mm. The machine is operated with a KP 50 control made by HCC/KPM. This control is a HerkulesGroup development and therefore provides a consistent operating philosophy for the benefit of our customers.

Herkules

Chatter mark analysis: eliminating vibration excitors

Chatter marks on rolls cause deficient end products. Although they are sometimes clearly visible on the roll, they are nevertheless often only detected when inspecting the rolled products. Chatter marks are caused by process parameter-related vibrations in the grinding process, which lead to an inconsistent grinding pressure.

Vibrations occur whenever a system is excited. If they encounter the natural frequency, they are exponentially amplified. If the excitation vibration remains, the system is constantly supplied with energy. Vibrations are the result. These lead to chatter marks on the roll surface.

Herkules roll grinders counter the development of vibrations with machine beds that have excellent damping characteristics, hydrodynamic lubrication of the guideways

and many other design elements. Moreover, HCC/KPM has developed a device that localizes and analyzes the vibration exciter. It even detects heights and depths in μ range on the roll. This is achieved by a combination of a C-frame measuring device and an innovative software solution. The software, which is integrated in the machine control, analyzes the data using mathematical algorithms and detects the chatter marks. The amplitude and the frequency of the chatter marks can thus be identified. In a second step, the device uses the identified frequency to determine whether it corresponds to the frequencies of the separate systems of the roll grinder and is therefore the vibration exciter, or one of the vibration exciters. The result: the vibration exciter is identified and appropriate countermeasures can be taken in time. A chatter-free grinding result is achieved, leading to high-quality end products.

Jared Jörgens

Herkules

Sixth Cold Rolling Day in Chicago

On October 6, the sixth Cold Rolling Day will take place in Chicago. Around 150 visitors are expected to attend. The program includes the presentation of the new KP 10 control by HCC/KPM and the **Herkules** MACHtechnology (grinding with CBN wheels), as well as other recent developments. The main topic of this year's Cold Rolling Day: "Latest developments in state-of-the-art Herkules roll grinding machines and revamps in the NAFTA region by Herkules USA". You can register on **rolling-day.com**.

These companies will give technical presentations at the Cold Rolling Day: Herkules | Atlantic | Fraunhofer-Institut IZFP | Gontermann-Peipers | IMS |

Lechler | Lismar | Quaker Chemical | Rebs | Schaeffler Technologies | Steinhoff



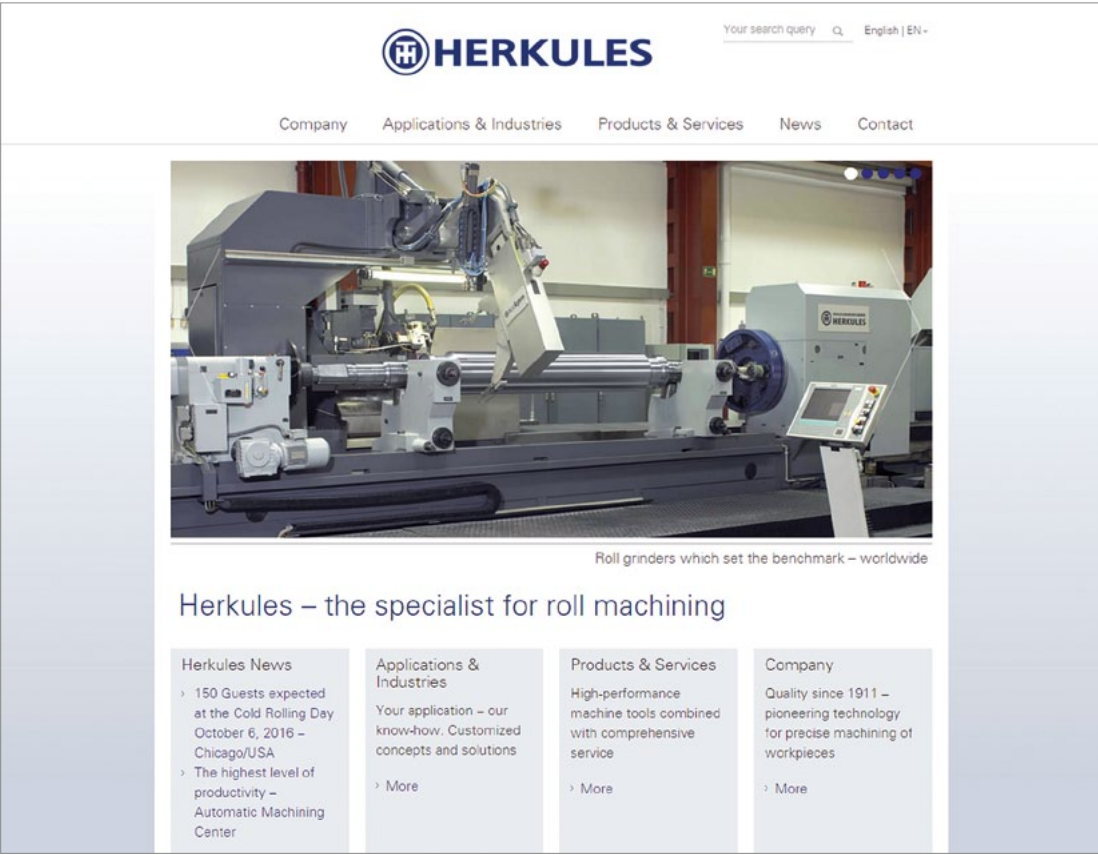
New web appearance – online in four languages

Comprehensive information, large-scale images, responsive design – the new Herkules website provides all that and a lot more on herkules-machinetools.com. The website has been completely revised with a focus on usability. Thanks to the clearly structured design and the intuitive navigation structure, visitors quickly find relevant information on the company and the product portfolio. The information is presented in compact form. It is complemented by multimedia elements, such as photo galleries. Current reports on the company, its national and international locations, technological innovations, and events can be found in the News area. Applicants can find career opportunities and current vacancies in the Career area.

Thanks to the responsive design of the web page, it perfectly adapts to the respective end device, whether it is displayed on a computer, cell phone, or a tablet PC. In addition, the website is no longer available in English only – German, Russian and Chinese-speaking customers can use it in their respective language now.

The new Herkules website is available via the following links:

English	herkules-machinetools.com
German	herkules-machinetools.de
Russian	herkules-machinetools.ru
Chinese	herkules-machinetools.com.cn



Clearly structured, modern design – the new Herkules website

HerkulesGroup

HerkulesGroup Kart Trophy has new champion

At 3 pm sharp Sam Kube, President and COO of Herkules USA, waved the black-and-white-chequered finishing flag on the kart track of the Herkules premises in Siegen, Germany. Eight laps before the end of the HerkulesGroup Kart Trophy, Team Safety-Car (Herkules Meuselwitz) with Andreas Göllnitz, Matthias Benndorf, André Gosc and President Maximilian Thoma found itself at the front of the race with a comfortable lead. Then the engine failed – a total breakdown brought the runner-up MHV International (Maschinenfabrik Herkules) with Ralf Klews, Max Bernau, Cedrick Lukusa and Guido Matarazzo to the lead. They are the new champion; Safety-Car came second. The third place went to last year’s champion Sejerlänner Bulldozer (WaldrichSiegen).

Four hours after the official start of the race, 17 teams with a total of 80 drivers and more than 50 volunteers finished an action and fun-packed day with excellent catering



CEO Christoph Thoma congratulates Safety-Car with Maximilian Thoma (left) and the winning team MHV International (above)

by the team of our chef Christian Sturm. The HerkulesGroup Kart Trophy is a traditional sports event: the staff event has been taking place once a year since 2000 – participants range from apprentices to presidents. Teams and fans travel to Siegen from all European production locations of the HerkulesGroup. Not just to compete, but also to cheer the teams and to network – and in doing so, strengthen the unity of the group.

Marita Thoma

Maschinenfabrik Herkules GmbH & Co. KG

Eisenhüttenstr. 21
57074 Siegen · Germany

T: +49 (0) 271 6906-0
F: +49 (0) 271 6906-222
info@herkules-machinetools.com

Maschinenfabrik Herkules Hans Thoma GmbH

Eisenhüttenstr. 21
57074 Siegen · Germany
mhs@herkules-machinetools.com

Maschinenfabrik Herkules Meuselwitz GmbH

Industriepark Nord
04610 Meuselwitz · Germany
mhm@herkules-machinetools.com

Herkules USA Corp.

101 River Street
Ford City · Pennsylvania 16226 · USA
husa@herkules-machinetools.com

Herkules USA Corp. d/b/a KPM

101 River Street
Ford City · Pennsylvania 16226 · USA
kpm@herkules-machinetools.com

HCC/KPM LLC.

101 River Street
Ford City · Pennsylvania 16226 · USA
hcckpm@herkules-machinetools.com

Deutsche Maschinen India Pvt. Ltd.

Palan Industrial Estate, Maheshtala
24 Parganas (South) · 700 141 · West Bengal · India
dmi@herkules-machinetools.com

German Machine International Trading Co. Ltd.

No.108 Furun Nan Road
Jiaxing City · Zhejiang Province · 314000 · China
gmt@herkules-machinetools.com

Jiaxing GMT German Machine Tools Co. Ltd.

No.108 Furun Nan Road
Jiaxing City · Zhejiang Province · 314000 · China
gmm@herkules-machinetools.com

Representative Offices:**Maschinenfabrik Herkules Latin America**

hla@herkules-machinetools.com

Herkules North America Corp.

hna@herkules-machinetools.com

Maschinenfabrik Herkules Asia Pacific Rep. Office

hap@herkules-machinetools.com

Maschinenfabrik Herkules Shanghai Rep. Office

hrc@herkules-machinetools.com

Maschinenfabrik Herkules East Rep. Office

hme@herkules-machinetools.com

Maschinenfabrik Herkules India Rep. Office

hri@herkules-machinetools.com

Maschinenfabrik Herkules (DMCC Branch), Dubai

hrd@herkules-machinetools.com

Imprint**HerkulesNews**

Publisher: Maschinenfabrik Herkules GmbH & Co. KG · Eisenhüttenstr. 21 · 57074 Siegen · Germany

T: +49 (0) 271 6906 - 0 · F: +49 (0) 271 6906 - 222

Responsible: HerkulesGroup Corporate Communications