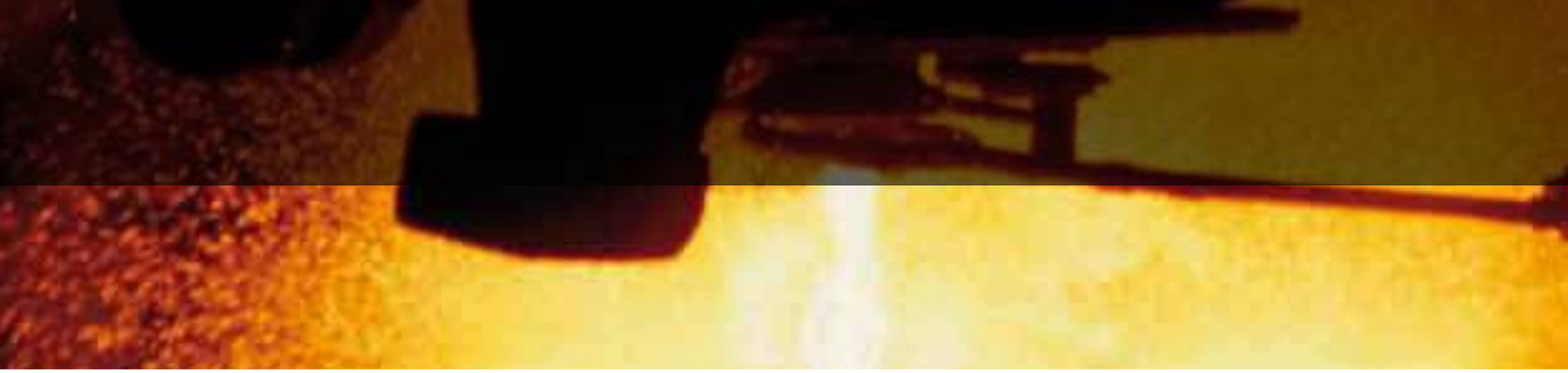




YOUR PARTNER IN THE FOUNDRY INDUSTRY
WE PROVIDE THE ULTIMATE SOLUTION FOR
YOUR GRINDING AND CUT OFF APPLICATION

A Company within the SWAROVSKI Group

TYROLIT



SOPHISTICATED KNOW-HOW: TYROLIT

ARE YOU ALREADY BENEFITTING FROM THE FOUNDRY INDUSTRY'S TECHNOLOGY LEADER?

When the roles are cast in the foundry industry TYROLIT is the principle performer. Years of cooperation with noted end-users and machine manufacturers have led to the further development of grinding processes and with innovative technology these processes have been elevated to the highest level.

TYROLIT provides the perfect tool for all grinding and cut off applications in fettling shops. Thanks to a wealth of experience, know-how and determination we have come up with successful solutions for problems specific to casting finishing – at the same time we have optimised our product range in terms of ergonomics and environmental compatibility.

Our own team of application engineers supports TYROLIT customers around the globe in optimising their grinding processes.

GREATER EFFICIENCY IN BOTH MANUAL FETTLING ...



... AND IN THE AUTOMATED MACHINING OF CASTINGS!

Continuous innovations in the foundry industry are mirrored in the new demands placed on the grinding tools. Be it for conventional tools in resinoid bonds or exclusive diamond grinding wheels - you need cast your glance no further than TYROLIT for the ideal partner.





CONVINCING PRODUCT INNOVATIONS

GRINDING & CUTTING OFF IN THE FOUNDRY INDUSTRY

Innovation leadership can only be achieved by constantly coming up with something new that serves the whole branch. TYROLIT did just that in 1952 when it introduced glass fibre reinforcements and thus took on a pioneering role in cut off grinding. Another first amongst TYROLIT's impressive milestones was the use of super abrasives for the dry machining of grey cast iron and spheroidal graphite cast iron.

2001 **FOCUR EXTRA easy cut**

Brought up to scratch -
the complete assortment for off-hand grinding

2002 **FOCUR SA**

The diamond of grinding wheels – for automatic fettling



2004 **FOCUR SA**

Optimised for even cooler grinding

2007 **VIB STAR**

Very important: vibration-damping snagging wheels

2009 **FOCUR EXTRA easy cut**

Extended assortment for steel castings and extremely hard cast materials



2011 **FOCUR EXTRA**

New line with improved easy cutting behaviour –
for pedestal and swing frame grinding



MAKES QUICK WORK OF YOUR PROCESS: SECUR

TOP QUALITY IN CUT OFF GRINDING



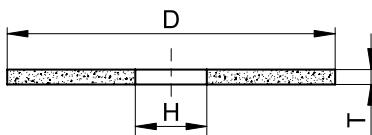
Cut off grinding is the most commonly used process for the removal of runners and risers. Swing frame cut off machines, stationary cut off machines or automatic cut off machines are used depending on the type and size of the workpiece.

TYROLIT cut off grinding wheels really stand out for the finest in product quality, long lifetimes and optimum cutting ability. Special production processes and extensive technical tests secure the very best operating safety – adjusted to the speed and cutting performance.



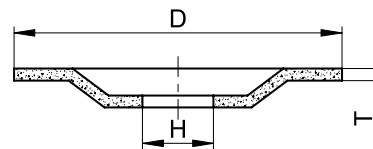
PRODUCT BENEFITS

- Reduced physical effort thanks to high easy cutting ability
- Clean cutting quality
- Long lifetime
- Maximum product safety
- Excellent wheel stability



Shape 41F

For universal applications
Nominal thickness is 1/100 of the wheel diameter



Shape 42F

A recessed wheel flange and the depressed centre wheel geometry facilitate a flush cut when cutting off runners and risers. Additional smoothing is no longer required

Standard operating speed 80m/s. In the case of additional side load or a higher operating speed of 100 m/s the glass fibre reinforcement has to be adjusted accordingly.

Please refer to the Precision Dealer Catalogue to find suitable stock types.
Consult our experienced application engineers if you have a special application.

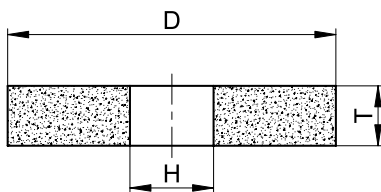
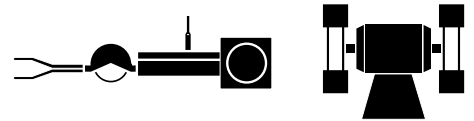


LIGHTWEIGHT OR HEAVYWEIGHT: FOCUB EXTRA

COST SAVINGS WITH PEDESTAL AND SWING FRAME GRINDING WHEELS

Fettling on a **pedestal grinding machine** entails manual guiding of the workpiece to the machine – primarily with lightweight workpieces. Specifications that have been optimally adjusted to the complete range of casting materials achieve high stock removal values and help to lower the grinding costs in fettling shops.

Reciprocating grinding is mainly used for heavy and bulky cast parts. With TYROLIT swing frame grinding wheels you are assured of a grinding process involving less physical effort for the operator and at the same time a high stock removal performance.

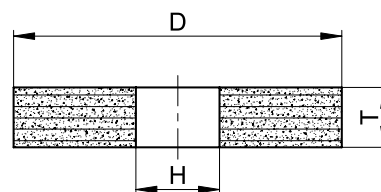


Shape 1

Tools with 50 and 63 m/s can be applied without fibre glass reinforcement, although for the 63 m/s it is still recommended as an extra safety precaution.

PRODUCT BENEFITS

- Reduced physical effort thanks to high easy cutting ability
- Solutions tailored to your individual grinding application
- Maximum safety for manual grinding tasks
- Available in all standard dimensions



Shape 1F63 and 1F80

Grinding wheels for 80m/s have to be fibre reinforced.

Please refer to the Precision Dealer Catalogue to find suitable stock types. Consult our experienced application engineers if you have a special application.



SHARP AND DURABLE: FOCUR EXTRA

EASY CUT + VIB STAR SNAGGING WHEELS = JUST BRILLIANT



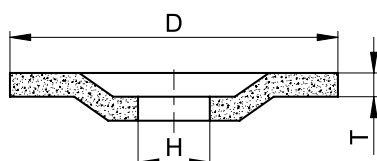
Casting finishing with angle grinders is the most flexible fettling process.

TYROLIT's snagging wheels, cut off grinding wheels and cup wheels impress with their high stock removal performance in grinding as well as in cutting off runners and risers. The combination of premium zirconium corundum and carefully coordinated bond qualities ensures an optimum product life.



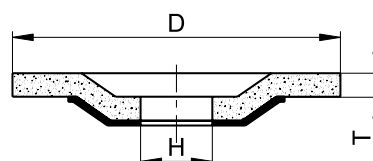
PRODUCT BENEFITS

- Effortless grinding thanks to high easy cutting ability
- Clean cutting quality
- Long lifetime
- Maximum product safety
- Selected assortment for all cast materials



Shape 27F
FOCUR Extra Easy cut

Standard shape for universal application.



Shape 27FV
FOCUR Extra Vib Star

The innovative wheel construction reduces vibration on the user's body. Operation is smoother and the machine life is increased.

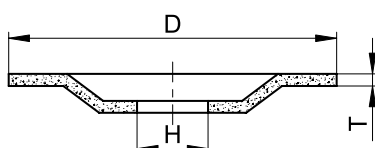
Please refer to the Trade Catalogue to find a suitable stock type.



EASY-CUTTING: FOCUR EXTRA EASY CUT



The cut off wheel FOCUR EXTRA easy cut was especially developed for the task of cutting off runners and risers. It is particularly suitable for grey cast iron and spheroidal graphite cast iron.



Shape 42F
FOCUR Extra Easy cut



PRODUCT BENEFITS

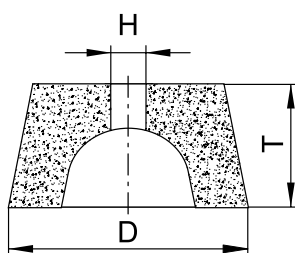
- Very high cutting ability
- Increased productivity
- Long lifetime
- Maximum product safety

EASY-GRINDING: PREMIUM



The PREMIUM cup wheels are used for large-area grinding tasks on heavy workpieces. Their outstanding features are the excellent stock removal performance and product lifetime.

For the tool holding device you can choose between a bore design $H=22,23\text{mm}$ and a thread connection in types M14 and $5/8''$



Shape 11
Cup wheel



PRODUCT BENEFITS

- Long lifetime
- Excellent stock removal performance
- Maximum product safety
- Comprehensive stock range

Please refer to the Trade Catalogue to find a suitable stock type.



AT THE PUSH OF A BUTTON: FOCUR EXTRA TOOLS AUTOMATED FETTLING PROCESSES AUTOMATICALLY SAVE TIME

High-tech automatic grinders are now standard in state-of-the-art foundries. Equipped with grinding tools optimised to the active application they achieve better results in less time!

TYROLIT provides the necessary know-how and application engineering expertise for the

- Grinding of brake drums
- Grinding of engine blocks and the
- Machining of castings with grinding manipulators



PRODUCT BENEFITS

- Clean machining quality
- Long lifetime
- Maximum product safety
- Customised solutions
- Increased output



Grinding of brake drums



Grinding of engine blocks



Machining of castings with grinding manipulators

Product designs can be adjusted to suit your individual grinding process by our experienced application engineers.

GOOD, BETTER, FOCUR SA! REVOLUTION IN AUTOMATED FETTLING

In using diamond we achieved a quantum leap in the machining quality of grey cast iron and spheroidal graphite cast iron.

PRODUCT BENEFITS

- Constant outer diameter of the tool
- Precise shape accuracy throughout the useful life of the tool
- Top lifetime
- No dressing cycle
- Reduced noise and dust emissions
- Reduced cycle times resulting from optimised parameters
- Maximum product safety
- Making use of the option of having the FOCUR Super Abrasive tool replated at TYROLIT increases the tool profitability



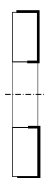
Shape 9LL1S

FOCUR SA – keep cool

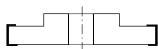
For the grinding of large surfaces, runners and risers we recommend the application of FOCUR SA with slots. These slots provide greater chip space and enable cooler grinding, whereby both the lifetime and the ability to produce a white surface have been decisively improved.

Assortment:

Besides a defined standard assortment for all the MAUS automatic fettling machines from SAM 300 – SAM 2000 we can also supply tools for all other manufacturers of automatic fettling machines on request.



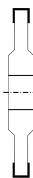
1LL2



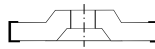
3LL1



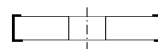
9LL1/9LL1S



14LL1



12LL1



1LL1R

To receive a prompt offer for a FOCUR SA product please send a drawing of your current tool to your nearest TYROLIT sales office and the appropriate tool recommendation will be sent by return.

Product designs can be adjusted to suit your individual grinding process by our experienced application engineers.

FLEXIBLE AND PROVEN: FOCUR EXTRA TOOLS FOR STRAIGHT GRINDERS



The use of tools with straight grinders and flexible shafts often provides the only solution to grinding those parts of castings that are otherwise barely accessible.

TYROLIT offers an extensive range of mounted points, grinding cones, cemented carbide burrs and snagging wheels.

PRODUCT BENEFITS

- Effortless grinding thanks to high easy cutting ability
- Diverse shapes and dimensions
- Long lifetime
- Reduced vibration
- Maximum product safety
- Comprehensive stock range



Due to their composition resin bonded mounted points have a vibration-reducing effect and therefore have high impact resistance. Thanks to these qualities they are particularly suitable for deburring and chamfering.

Vitrified bonded mounted points boast long lifetimes and consequently high G-ratios.



Cemented carbide burrs are used for nearly all materials on a wide range of hand-operated pneumatic or electric machines as well as on industrial robots. Lifetimes can be up to twentyfold that of conventional mounted points.

Snagging wheels come into their own for grooving and notching, deburring of gears, maintaining turbine blades and to rough curved surfaces in hollow spaces as well as ribs or fins.



Grinding cones are primarily used for the rough machining of barely accessible points. For your specific application TYROLIT can supply individual specifications up to a maximum grinding cone diameter of 80 mm with various threads.

Please refer to the Trade Catalogue to find a suitable stock type.

HARDWARE AND SOFTWARE - A STRONG BOND

TYROLIT SHINES WITH COMPETENCE FROM A TO Z

Successful enterprises expect perfect service and support from their partners throughout the whole of the supply chain. In short: an excellent product is obligatory – process know-how, service and expert advice provide the garnish.

At TYROLIT there is a strong bond between “hardware” and “software”. Our desire is to not only supply our customers with top quality tools, but also to provide them with the complete outfit required for sustainable trouble-free processes.



Clarify the task

What is the customer's target and how can we achieve this? Every order begins with a detailed analysis of the task. A requirements profile which takes technological and profitability aspects into account is then drawn up by our application engineering specialists together with the customer.



Concept

In the next step our professional team of application engineers defines customised approaches to the solution, calling upon the additional input from our experts in R & D as required.



Tailored solution

The process solution is taken direct to the customer where it is put into practice on the relevant machine. Very important: sustained process optimization! The application engineer precisely sets the mode of operation for the grinding tool and the interaction between machine, workpiece, material plus parameters.



Share the know-how

Our know-how in the field of grinding technology is essential to successful cooperation. A one-off optimization is not the solution for the customer – sustained results come from the continuous application of experience on a broad basis. Practice-oriented data preparation, training and seminars are therefore also part of the comprehensive service we offer our customers.

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Our **worldwide subsidiary companies** can
be found on our website at **www.tyrolit.com**

