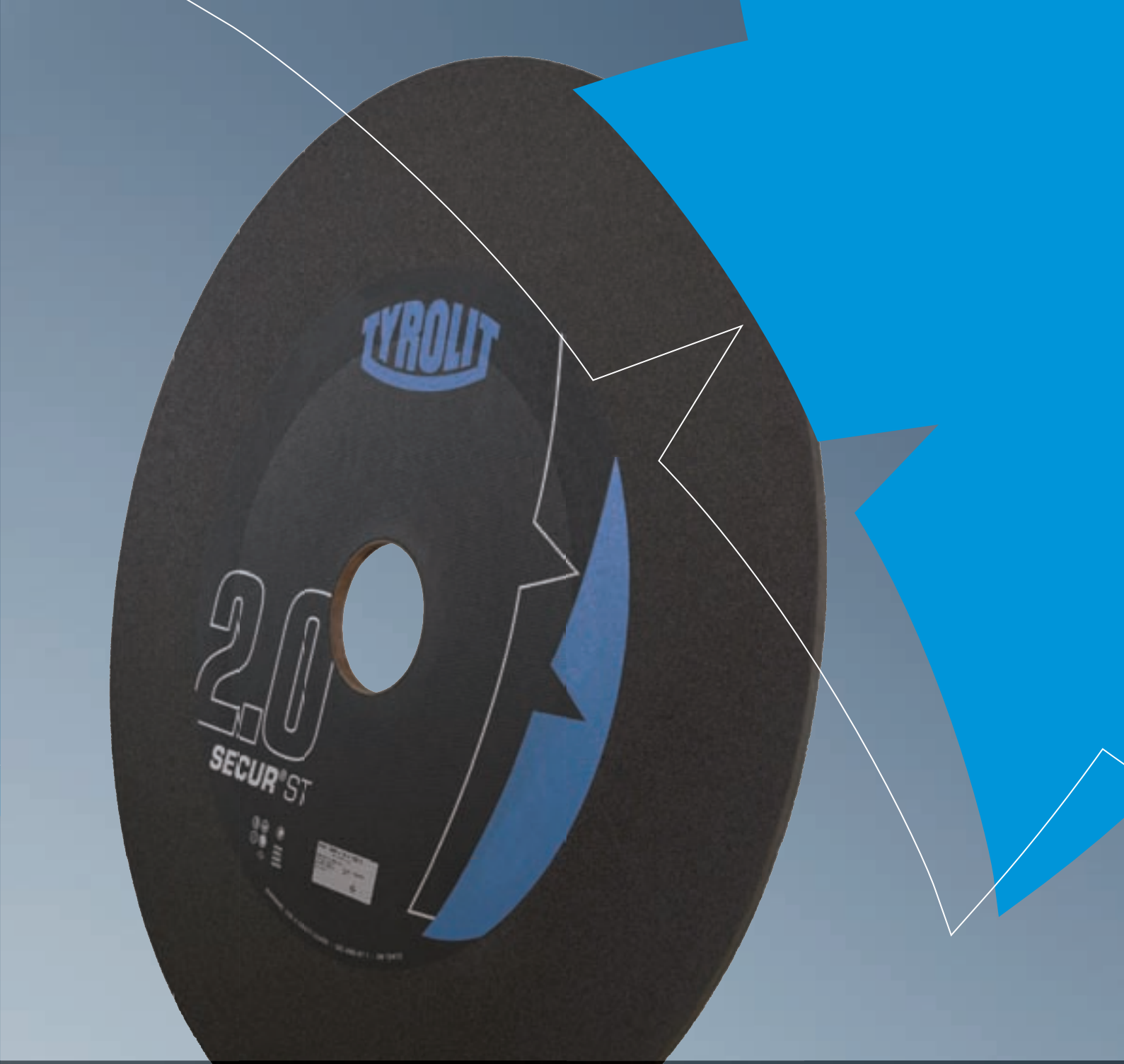


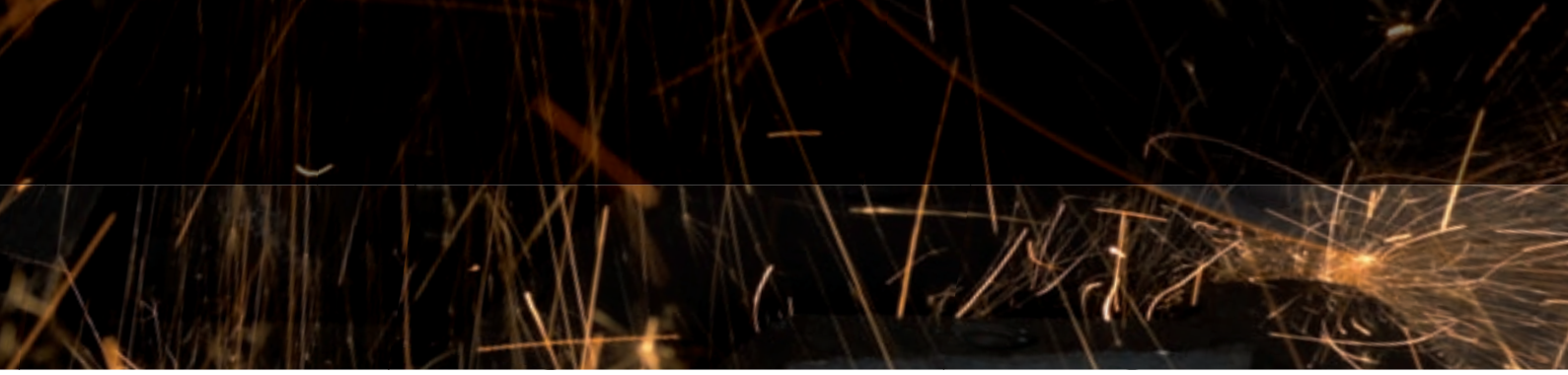
SECUR

THE ULTIMATE SOLUTION FOR CUT OFF GRINDING

- Optimises your process costs
- Opens opportunities for innovative customised solutions
- Achieves the best cut quality
- Highest product safety

A Company within the SWAROVSKI Group

TYROLIT



SECUR

Cut off grinding, a stock removal process with undefined cutting edges, is commonly used in steelworks and the foundry industry because of its performance reliability and high cost-effectiveness.

With its SECUR range of tools TYROLIT is able to provide the ideal solution for every application in the steel and foundry industries.

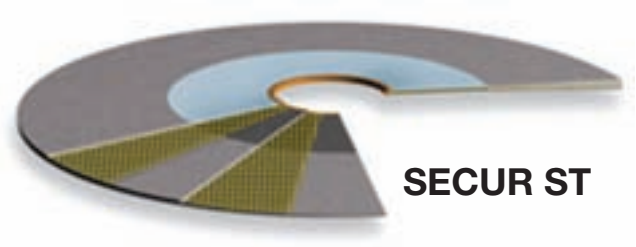
Invaluable years of experience and know-how in the design of cut off wheels assures an optimum process and the maximum tool life.

CONVINCING BENEFITS

- Customised solutions
- Highest product safety
- Optimised process costs
- Excellent cut quality
- Short cutting times
- Long wheel life

SECUR

- Securing – reinforced inner zone
- Optimised wheel stability
- For high-power machines
- Especially suitable for traverse cut machines
- Tapered wheel geometry

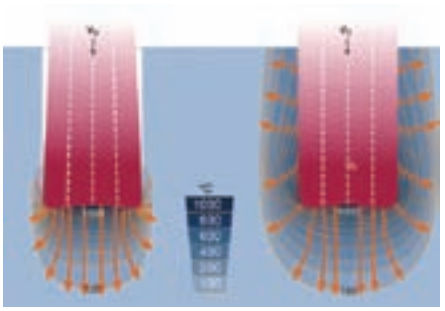


SECUR ST

- SECUR ST - innovative wheel design
- Excellent wheel stability
- For low-power machines
- Minimal material loss due to 20% reduction in wheel thickness
- Tapered wheel geometry

Tapered wheel geometry

- Thanks to the tapered wheel shape there is less lateral friction during the cutting process
- The thermal load on the workpiece and cutting tool is therefore significantly lower



CUT OFF GRINDING PROCESS

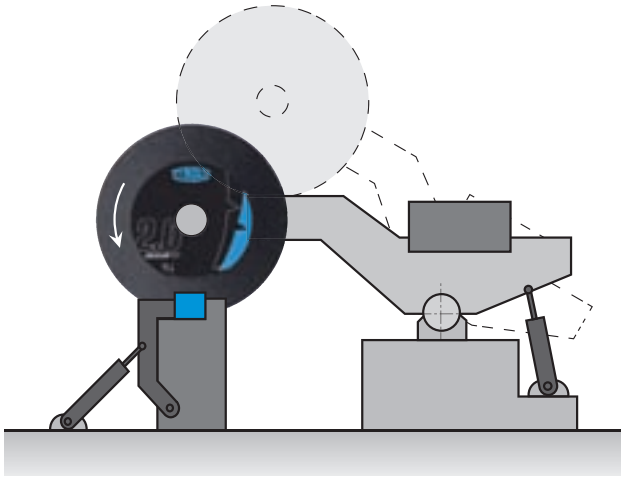
In order to come up with the optimum design and construction of the cut off wheel for the prospective application, it is essential to view the cutting process as a whole. Temperature, dimensions and material of the workpiece are just as important as the machine, parameters and cut off process.

Chop cut

The chop cut operation is the most commonly used cut off process. Individual workpieces and small layers are cut off using this process.

Workpiece
Dimensions: up to 650mm ❒ ❍
Temperature: cold, hot

Cut off wheel
SECUR 300mm - 2000mm
SECUR Super Thin 1000mm - 2000mm

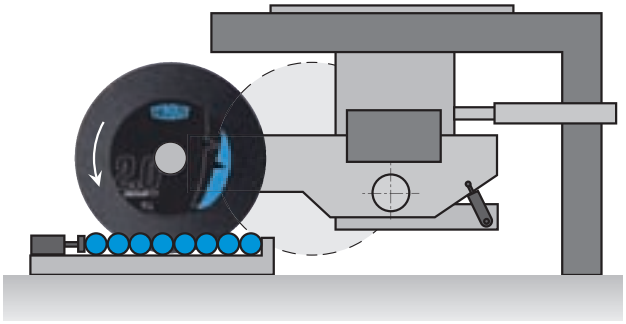


Traverse cut

Several workpieces are positioned next to each other and cut off as one layer. Slabs, sheets and plates are also cut off using the traverse cut process.

Workpiece
Rods, bars 20 - 150mm ❒ ❍
Slabs, Sheets, Plates
Temperature: cold, warm, hot

Cut off wheel
SECUR, SECUR Super Thin 1000mm - 2000mm



Recommended process parameters

	Hot cutting	Warm cutting	Cold cutting
Temperature	600 - 1100°C	100 - 600°C	< 100°C
Peripheral speed v_S*	80 - 100m/s	80 - 100m/s	80 - 100m/s
Flange diameter D_F:	1/3 D	1/3 D	1/3 D
Cutting rate Z_A	12 - 30 cm^2/s	7 - 25 cm^2/s	4 - 12 cm^2/s

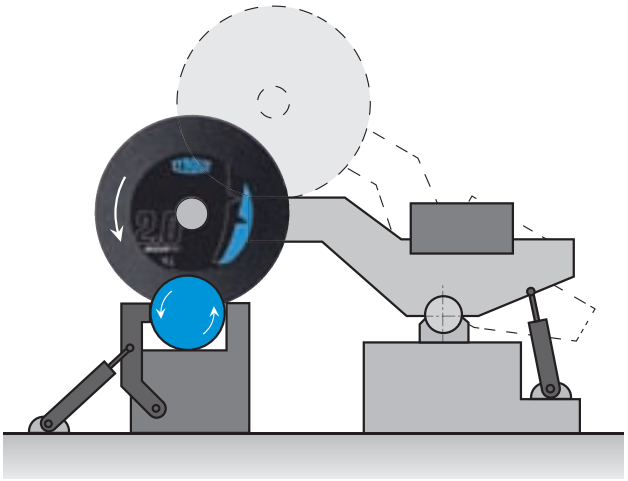
* Observe the maximum peripheral operating speed of the cut off wheel.

Index cut

Large dimension workpieces are cut using an index cut. Depending on either the workpiece diameter or the residual wheel diameter, the electrode is rotated after the first sectional cut by 180° or 120° accordingly.

Workpiece
Electrodes
Blocks: up to 1000mm
Temperature: cold, hot

Cut off wheel
SECUR, SECUR Super Thin 1600 - 2000mm

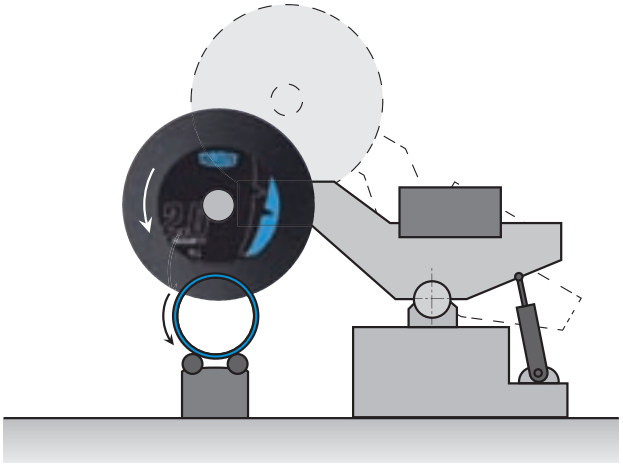


Rotary cut

The tube rotates during the cut off process. In this way it is possible to cut off large tube diameters with relatively small cut off wheels.

Workpiece
Tubes from diameter 250mm
Temperature: cold

Cut off wheel
SECUR 600 - 2000mm
SECUR Super Thin 1000 - 2000mm

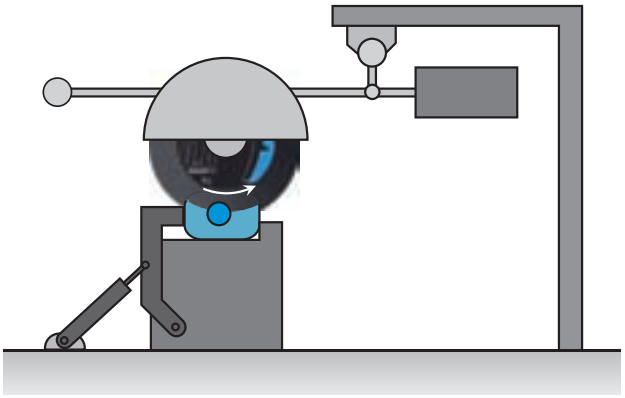


Hand guided cutting

In fettling shops risers, gates and runner scrap are cut off manually. The application is carried out on pedestal or swing frame cut off machines.

Workpiece
Castings
Temperature: cold

Cut off wheel
SECUR 300 - 600mm



Recommendations for motor power and clamping torque

Diameter	400	500	600	800	1000	1250	1380	1600	1840	2000
Motor power [kw] Nominal load/Overload	18/36	30/60	55/110	110/220	150/300	180/360	220/350	400/500	550/650	550/650
Chuck power flange [kN]	15	20	28	35	50	55	65	70	70-75	75-80

PRODUCT ASSORTMENT:

Specifications and product design are individually adjusted to your cut off grinding process by our application engineers.

Description	Diameter		Nominal wheel thickness		Application
Straight wheel SECUR	mm	inch	mm	inch	
Shape 41F	300	12	2,0 - 4,0	5/64 - 5/32	Cut off grinding wheels with straight wheel geometry for universal application in the steel, steel construction and foundry industries.
	350	14	2,5 - 4,5	3/32 - 11/64	
	400	16	3,0 - 5,0	7/64 - 3/16	
	450	18	4,0 - 5,0	5/32 - 3/16	
	500	20	4,5 - 6,0	11/64 - 1/4	
	600	24	5,0 - 8,0	0.197 - 0.315	
Depressed centre wheel SECUR	mm	inch	mm	inch	
 Shape 42F	400	16	5,0	5/32	The depressed centre wheel geometry facilitates a flush cut when cutting off risers, gates and runner scrap in the foundry industry.
	500	20	5,5 - 7,0	5/32 - 9/32	
	600	24	6,0 - 8,0	0.236 - 0.315	
	800	32	8,0 - 10,0	0.315- 0.394	
Tapered wheel SECUR	mm	inch	mm	inch	
 Shape 41KON	800	32	8,0 - 9,0	0.315 - 0.354	The main assortment for cutting applications in the steel industry; especially for high-power machines.
	864	34	8,0 - 9,0	0.315 - 0.354	
	1000	40	9,5 - 12,0	0.374 - 0.472	
	1250	50	10,0 - 14,0	0.394 - 0.551	
	1380	55	10,0 - 15,0	0.394 - 0.591	
	1500	59	14,0 - 16,0	0.551 - 0.630	
	1600	63	14,5 - 16,5	0.571 - 0.650	
	1840	72	17,0 - 18,5	0.669 - 0.728	
	2000	79	18,0 - 20,0	0.709 - 0.787	
Tapered wheel SECUR Super Thin	mm	inch	mm	inch	
 Shape 41ST	1000	40	8,0 - 10,0	0.315 - 0.394	This innovative wheel design allows for a 20% reduction in wheel thickness and is especially suitable for low-power machines.
	1250	50	10,0 - 13,0	0.394 - 0.512	
	1380	55	12,0 - 14,0	0.472 - 0.551	
	1500	59	13,0 - 15,0	0.512 - 0.591	
	1600	63	14,0 - 15,0	0.551 - 0.591	
	1840	72	15,0 - 17,5	0.591 - 0.689	
	2000	79	16,0 - 18,5	0.630 - 0.728	

Additional dimensions available on request

We optimise your process costs

- Project planning support for new cut off machines
- TYROLIT in-house test center
- Our global service and marketing network supports you during the machine start up phase and in process optimisation
- Internal and external training for your employees

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