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Pict. 1 Circular saw

**Main characteristics of the machine:**

***A conceptual solution always in stock*** - a serial production of these machines means a significant reduction of delivery times and immediate availability of spare parts from the manufacturer's warehouse.

***Precise, efficient, simple*** – maximum rigidity of the driven cutting tool, reduced idle times, and intuitive control ensure maximum applicability of the machine in all fields.

***Safe, clean, and without vibrations*** – latest safety elements, TUV certification, efficient swarf removal, and low noise level ensure the maximum safety of operation.

In the name of our company I would like to thank you for your interest in our machine. Attached you will find a quotation for TAC75 saw. Should you have any questions, do not hesitate to contact me.

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**Requirements:**

**Cut diameter / side (min.-max.) mm:** Ø 10-75 mm

**Input bar length mm:** Standard 6 m

**Cutting length (min.-max.) mm:** Standard is 10–150 mm, (with output conveyor 10- 600 mm, 10-1200 mm)

**Quality of usually cut material:** Circular steel

**Precision requirements:** ± 0.15 mm / feeder uplift

**Hourly output requirements:**

**Other**

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## CIRCULAR SAW

ExactCut TAC is a serial-manufactured automatic circular saw mainly designed for cutting round steel bars. The machine is suitable for the use in a serial production for cutting both full and profiled materials. Bar materials of a standard length 2.000-6.000 mm and diameter 10-75 mm may be cut at 90°. Standard length of cut pieces is 10–150 mm, (with output conveyor 10- 600 mm, 10-1200 mm) with the accuracy of  $\pm 0.15$  mm / feeder uplift.

Micronizer is installed as standard equipment for cooling and lubrication of the saw blade.

### 1.1. Pedestal

- Robust, heavy-duty version filled with polymer concrete
- Efficient vibration damping
- Compact design
- Simple handling and anchoring

### 1.2. Material clamping mechanism

- Safe clamping with a four-point hydraulic clamping device before and two-point device behind the blade
- Prevention of pressure marks through continuously regulated clamping force
- Clamped material control with pressure switch
- Full-stroke cylinders without necessary mechanical readjusting



Pict. 2 Material clamping mechanism

### 2.1. Gearbox

- Torsion rigidity thanks to a compact design and optimal position of bearings
- Ground wheels with oblique tothing guarantee high efficiency and smooth running
- Smooth operation and robust structure increase the blade lifetime
- Maximum utilisation of the cutting range thanks to a suitable gearbox concept

### 2.2. Blade guidance

- Three-point guidance of the blade as close to the cutting area as possible
- Double-sided guiding cubes for the maximum stability of thin blades
- Simple precise setting with a single spanner

### 2.3. Blade cleaning

- Adjustable brush for cleaning the blade teeth from stuck swarf
- Protective cover directing the swarf removal



Pict. 3 Blade cleaning

### 3.1. Blade lubrication

- Micronizer for applying the minimal quantity of oil mist to the blade surface
- Control of the container emptying through a float switch



Pict. 4 Blade lubrication

#### 4.1. Blade drive mechanism

- Efficient asynchronous motor 7.5 kW (10.2 HP) providing sufficient cutting power
- Belt drive for revolution transmission to the gearbox
- Always optimal cutting conditions continuously adjusted with a frequency converter
- Easy access for belt tightening and replacement
- Zero speed control to protect the safe input in the area of the blade for operator

#### 4.2. Downfeeding mechanism

- Maximum rigidity of the cutting unit thanks to pretensioned linear guiding and ball screw
- Optional starting and finishing amps for optimal cutting process
- Precise positioning through an efficient servomotor minimising secondary times
- Automatic adjustment of the process acc. to parameters entered on the panel
- Feeding speed up to 6,000 mm/min



Pict. 5 Downfeeding mechanism

#### 5.1. Feeding vice mechanism

- Optimised to dynamic feeding and permanent loading
- Hydraulic clamping device with a regulated clamping force allowing moving with the maximum acceleration
- Contactless reverse run of the feeder thanks to jaws with double-sided opening
- Precise positioning through an efficient servomotor with repeatable accuracy of 0.02 mm
- Stroke 600 mm with possible re-gripping for bigger lengths and laser detection of the material beginning and end
- Feeding speed up to 1,000 mm/s

## 5.2. Hydraulics

- Robust and reliable structure with a long lifetime
- Simple assembly, disassembly and maintenance
- Working pressure up to 125 bars and flow 6 l/min
- Tank volume 50 litres for cooling in all conditions
- Accumulator for balancing flows at short cycles



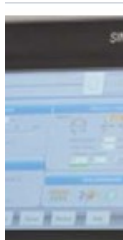
Pict. 6 Hydraulics

## 6.1. Control system

- Siemens S7 1500 designed for high performance and efficiency
- Integrated motion control for position and motion control
- Ensured machine safety
- Trace system for fast and easy diagnosis of machines via remote control
- Frequency inverters- SINAMICS S120 and G120 with integrated SAFETY SYSTEM for safe driving stop

## 6.2. Control panel

- Touch, 7" industrial control panel TP700 with high resolution
- Intuitive graphic interface with the capacity of hundreds of procedures
- Possible export and import via USB
- Video-instruction for setting the machine



Pict. 7 Control panel

## 7.1. Switchboard

- High-quality RITTAL switchboard mounted on the machine pedestal
- Integrated RITTAL ventilation with efficient cooling technology for trouble-free operation
- Lighting ensuring sufficient visibility at all conditions
- 16 A socket in the cabinet for service purposes

## 7.2. Swarf remover

- Belt swarf conveyor incl. deflectors
- Continuous swarf removal from the working area

## 7.3. Oil mist extractor ARNO 0VF/A - optional

- Device intended for extracting oil mist formed during cutting
- Cleaning microdust, micromist and smoke with a HEPA filter – highly-efficient filter (FAE)
- Containing filter contamination signalisation

## CT. 8 MATERIAL INPUT

### 8.1. Input gravity magazine for material

- Oblique profiles for inserting material at an adjustable angle
- Central adjusting of single-bar feeding
- Inserting bars directly to the feeder area saving filling times
- Pneumatically controlled separation system
- Versions for bar length 2-3 m, 2-6 m or as an option 2-9 m



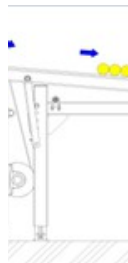
Pict. 9 Input gravity magazine

Flatness of input material: 2,5mm/m and 5mm/6m 0 – midpoint of material



### 9.1. Input bundle magazine - optional

- Belt bundle magazine for automatic feeding
- Immediate monitoring of emptying
- Pushbuttons for manual control
- Bundle width 450 mm, max. bundle weight 3 tons (for length 6-9m), 1,5 ton for length 3m



Pict. 10 Input bundle magazine

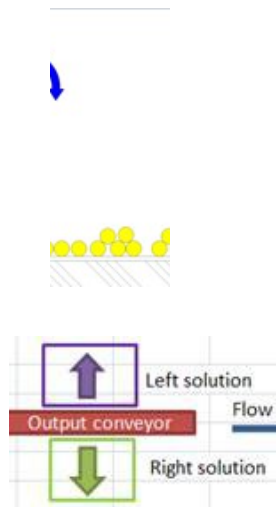
## CT. 11 MATERIAL OUTPUT

### 11.1. Sorting chute

- Pneumatically controlled chute sorting automatically cut-offs and remains to a separate box
- Intelligent position scanning with magnetic sensors
- For workpiece length 10-150 mm

### 11.2. Belt conveyor with sorting gate (left/ right)

- Robust industrial belt conveyor for supporting material
- Gate for removal to the box
- Simultaneous cutting and removal of pieces 10-600 mm, 10-1200 mm long increasing the machine output
- Box sizes LxWxH 1200x800x700 mm
- Possible cutting of bigger lengths only with manual removal after each cut. Max. 1200 mm



Pict. 12 Belt conveyor with sorting gate

### 3.3 Safeguard for output conveyor

Safeguard for output conveyor with the help of safety gates and mirrors



Pic 11 : Safeguard for output conveyor

## CT. 13 CONSUMER MATERIAL AND OUTPUT CALCULATION

### 13.1. Cutting oil

Cutting oil is used for the lubrication of the cutting blade as standard. Micronizer, installed on the machine, supplies oil together with air and brings it to the blade as an oil mist.

Oil recommended for lubrication: Bitol O (produced by Biona Jersín), approximate price 4€/litre. Oil consumption in standard cutting is approx. 0.7 l / 8 hrs. (depending on material processed).

### 13.2. Cutting blades

Blades used in this saw are divided into two basic types:

**Throw away (HM)** - saw blades for highly-productive cutting of steel, for full material as well as tubes of various types according to the application (material quality, cross-section, etc.). Price between 150-280,- €. Not to be resharpened, lifetime is about 20 m<sup>2</sup>.

**HSS** – saw blades for metal of various types acc. to the application (material quality, cross-section, etc.). Price 60-120,- €. Blades may be sharpened several times, particularly suitable for cutting thin-wall tubes. Low efficiency in cutting full materials.

### 13.3. Output example:

Steel quality 42CrMo4, number: 1.7225

Round material of 40 mm in diameter, bar length 6 m, cut-off length 50 mm

With a hardmetal blade 250x2 mm in diameter x 80 teeth:

Cutting time 3 s

Cycle time 4.5 s

Hourly output 780 pc

## CT. 14 TECHNICAL DATA

<b>MACHINE TYPE</b>	<b>TAC 75</b>
For cutting	steel
Machine dimensions - length x width x height	according to preview and design
<b>BLADES</b>	
Usable blades	HM - hardmetal/ HSS
Centre Bore HB	Ø 32 mm
Saw blade diameter	Ø 250/285 mm, thickness 1-3 mm
Pinholes NL	4x9x50 (2x9x50)
Blade diameter 250mm	up to Ø 55mm, square 45x45mm
Blade diameter 285mm	up to Ø 75mm, square 65x65mm
<b>CUTTING RANGE</b>	
Cutting at an angle	90°
	Ø 10-75 mm
	10x10 mm - 65x65 mm
Cutting speed	60-220 m.min <sup>-1</sup>
<b>Cutting shaft speed</b>	67-245 rpm
Remaining piece length	60 mm for min length of gripping 10 mm
Length precision (per feeder uplift)	± 0,15 mm
Positioning precision	0,01 mm
Fed material length	2-6 m, (2-9 m)
Workpiece length (sorting chute)	10-150 mm
Workpiece length (output conveyor)	10-600 mm, 10-1200 mm
<b>FEEDER/DOWNFEEDING</b>	
Downfeeding speed	0-100 mm/s
Exiting speed	300 mm/s
Feeder uplift	600 mm
Feeder speed	1000 mm/s
<b>COMPRESSED AIR SUPPLY</b>	
System pressure	6-10 Bar
Supply hose	thread 10x1, 3/8 "
<b>MACHINE HYDRAULIC SYSTEM</b>	
<b>Flow</b>	6 dm <sup>3</sup> .min <sup>-1</sup>
<b>Working pressure</b>	20-80 Bar
<b>Output</b>	1,5 kW



<b>Current</b>	3,5 A
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#### **MACHINE ELECTRICAL PARAMETERS**

Supply voltage	~3x 400 V, 50 Hz, 3+N+PE
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Blade drive input	7,5 kW
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Total input	9 kW
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Maximal ballast protection	63 A
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Protection grade	IP 54
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Supply cable	5 core, wire, cross-section 10 mm <sup>2</sup>
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#### **INPUT CONVEYOR**

Maximum input length of material	2000-6000 mm, 2000-9000 mm (Option)
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Maximum loading	3000 kg (for length 6-9m), 1500 kg (for length 3m)
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Input gravity magazine capacity	1300 mm
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#### **CLIMATIC DATA FOR INSTALLATION SITE**

Air temperature	+5 °C - +40 °C
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Elevation	up to 1000 m o. s.
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Air humidity	up to 80 %
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#### **INTERNET CONNECTION**

Cable connection	Input cable min. cat.5 with connector RJ-45 with static or dynamic network address with access for TCP or UDP communication
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SIM Card connection	With data packet min 2 Mbit /s
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