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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 TAC105 saw. Should you have any questions, do not hesitate to contact me.

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**Requirements:**

Cut diameter / side (min.-max.) mm:	Ø 20-105 mm
Input bar length mm:	Standard 6 m
Cut length (min.-max.) mm:	Standard is 10–150 mm, (with output conveyor 10- 750 mm, 10-1500 mm)
Quality of usually cut material:	Circular steel
Precision requirements:	± 0.15 mm / feeder uplift
Hourly output requirements:	
Other:	

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## CT. 2 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 3.000-6.000 mm (option 3-9m) and diameter 20-105 mm may be cut at 90°. Standard length of cut pieces is 10–150 mm with the accuracy of  $\pm 0.15$  mm / feeder uplift. For the lengths 10-750mm, 10 -1500 mm it is necessary to install an outfeed conveyor. Micronizer is installed as standard equipment for cooling and lubrication of the saw blade.

### 2.1. Pedestal

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

### 2.2. 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. 3 Material clamping mechanism

### 3.1. 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



Pict. 4 Gearbox

### 4.1. 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

### 4.2. Blade cleaning

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



Pict. 5 Blade cleaning

#### 5.1. 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. 6 Blade lubrication

#### 6.1. Blade drive mechanism

- Efficient asynchronous motor 11/15 kW (15/20,4 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

#### 6.2. Downfeeding mechanism

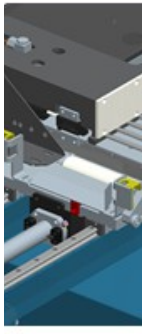
- Maximum rigidity of the cutting unit thanks to pretensioned linear guiding and ball screw
- Optional starting and finishing amps for optimal cutting process
- Precise positioning through an efficient servomotor minimising secondary times
- Automatic adjustment of the process acc. to parameters entered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



Pict. 7 Downfeeding mechanism

#### 7.1. Feeding vice mechanism

- Optimised to dynamic feeding and permanent loading
- Hydraulic clamping device with a regulated clamping force allowing moving with the maximum acceleration
- System for eliminating roughness during the feeding
- Contactless reverse run of the feeder thanks to jaws with double-sided opening
- Fast positioning through an efficient servomotor with a precise positioning system with a repeatable accuracy of 0.02 mm
- Stroke 750 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



Pict. 8 Feeding vice mechanism

## 8.1. Hydraulics

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



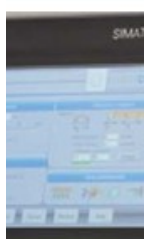
Pict. 9 Hydraulics

## 9.1. 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

## 9.2. 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. 10 Control panel

## 10.1. 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

## 10.2. Swarf remover

- Belt swarf conveyor incl. deflectors
- Continuous swarf removal from the working area
- Intuitive connector PLUG AND PLAY



Pict. 11 Swarf remover

## 11.1. Oil mist extractor ARNO 1VF - 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
- Intuitive connector PLUG AND PLAY

## CT. 12 MATERIAL INPUT

### 12.1. 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 3-6 m or 3-9 m
- Intuitive connector connection PLUG AND PLAY



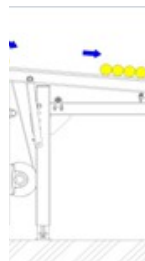
Pict. 13 Input gravity magazine

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



### 13.1. Input bundle magazine - optional

- Belt bundle magazine for automatic feeding
- Immediate monitoring of emptying
- Pushbuttons for manual control
- Bundle width 650 mm, max. bundle weight 5 tons (for material length 6-9m), 2,5 t (for material length 3m)



Pict. 14 Input bundle magazine - optional

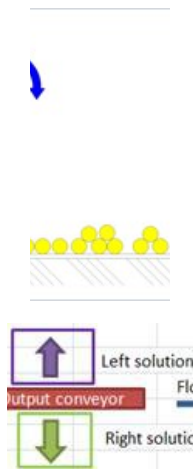
## CT. 15 MATERIAL OUTPUT

### 15.1.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
- Intuitive conector PLUG AND PLAY

### 15.2.Output conveyor with sorting gate - optional

- Robust industrial conveyor for supporting material
- Gate for removal to the box
- Simultaneous cutting and removal of pieces 10-750 mm, 10-1500 mm long increases the machine output
- Box sizes LxWxH 1200x800x700 mm
- Max. length 1500 mm. Possible cutting of bigger lengths only with manual removal after each cut.
- intuitive conector PLUG AND PLAY



Pict. 16 Output conveyor with sorting gate - optional

### 3.3 Safeguard for output conveyor

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



Pic 14 : Safeguard for output conveyor

## CT. 17 CONSUMER MATERIAL AND OUTPUT CALCULATION

### 17.1.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: Biocut O (produced by Biona Jersín), approximate price 4€/litre. Oil consumption in standard cutting is approx. 1.5 l / 8 hrs. (depending on material processed).

### 17.2.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 m2.

**HSS** – saw blades for cutting of 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.

### 17.3. Output example:

Steel quality 42CrMo4, number: 1.7225

Round material of 90 mm in diameter, bar length 6 m, cutting length 50 mm

With a hardmetal blade 360x2,6 mm in diameter x 60 teeth:

Cutting time 10,3 s

Cycle time 12,3 s

Hourly output 290 pc

## CT. 18 TECHNICAL DATA

<b>MACHINE TYPE</b>	<b>TAC 105</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 40/50 mm
Saw blade diameter	Ø 315/360 mm, tl. 2-3,5 mm
Pinholes NL	4x16x80/4x21x90
<b>Blade diameter 315 mm</b>	up Ø 70 mm, square 55x55 mm
<b>Blade diameter 360 mm</b>	up to Ø 105 mm, square 80x80 mm
<b>CUTTING RANGE</b>	
Cutting at an angle	90°
)	Ø 20-105 mm
	20x20 mm - 80x80 mm
Cutting speed	60-220 m.min-1
Remaining piece length	70 mm
Length precision (per feeder uplift)	± 0,15 mm
Positioning precision	0,02 mm
Fed material length	3-6 m (3-9 m)
Workpiece length (sorting chute)	10-150 mm
Workpiece length (output conveyor)	10-750 mm, 10-1500 mm
<b>FEEDER/DOWNFEEDING</b>	
Downfeeding speed	0-100 mm/s
Exiting speed	200 mm/s
Feeder uplift	750 mm
Feeder speed	1000 mm/s

### COMPRESSED AIR SUPPLY

System pressure	6-10 Bar
Supply hose	thread 10x1, 3/8 "

## **MACHINE HYDRAULIC SYSTEM**

**Flow** 6 dm<sup>3</sup>.min<sup>-1</sup>

**Working pressure** 20-35 Bar

## **MACHINE ELECTRICAL PARAMETERS**

Supply voltage ~3x 400 V, 50 Hz, 3+N+PE

Blade drive input 11 kW

**Maximal total input** 30 kW

Maximal ballast protection 80 A

Protection grade IP 54

Supply cable 5 core, wire, cross-section 16 mm<sup>2</sup>

## **INPUT CONVEYOR**

Maximum Input length of material Standard 3000-6000 mm, option 3000-9000 mm

Maximum loading 5000 kg (for material length 6/9 m),  
2500 kg (for material length 3 m)

Input gravity magazine capacity 1200 mm

## **CLIMATIC DATA FOR INSTALLATION SITE**

Air temperature +5 °C - +40 °C

Elevation Up to 1000 m o. s.

Air humidity up 80 %

## **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

SIM Card connection with data packet min 2 Mbit /s