

EXAKT 302 / 312

DIAMANTOVÉ PÁSOVÉ PILY

Průmysl a
Patologie / Anatomie / Histologie



THE CHALLENGE

MATERIAL DIVERSITY

WHAT CAN BE CUT?



Examples:

- › Hart and soft tissue
- › Fresh or embedded tissue
- › Bone / bone with implant
- › Combinations of tissue, bone, implant
- › Composites
- › Very hard, but brittle
- › Soft & elastic

YOUR ADVANTAGES AT A GLANCE



- › **PRECISE** – CUT MM SLICES
- › **SAFE** – NO RISK OF CUTTING DAMAGE
- › **VERSATILE** – ANY MATERIAL & COMPOUND
- › **PERFECTED** – FLAWLESS SURFACE QUALITY
- › **EFFICIENT** – LITTLE KERF LOSS
- › **ECONOMIC** – LOW OPERATIONAL COST





EXAKT TECHNOLOGY

EXAKT DIAMOND BAND SAWS

302



312



EXAKT DIAMOND BAND SAWS

300 CL&CP	310 CL&CP	311 CL Industry
		

DIAMOND BAND



Special characteristics:

- › Distortion-free / corrosion free stainless steel
- › Single diamond layer, nickel embedded
- › Different band thicknesses and grain sizes
- › Minimized kerf-loss

DIAMOND BAND SPECIFICATION & KERF LOSS

Band (thickness / grain)	300	302	310 / 311	312	Kerf loss (approx.)
0.1 / D32	Option	n.a.	n.a.	n.a.	190 µm
0.1 / D46	Option	n.a.	n.a.	n.a.	
0.1 / D64	Option	n.a.	Option	n.a.	280 µm
0.2 / D46	Option	n.a.	n.a.	n.a.	
0.2 / D64	Option	n.a.	Option	n.a.	380 µm
0.2 / D91	Option	n.a.	Option	n.a.	460 µm
0.2 / D126	n.a.	Available	n.a.	n.a.	
0.3 / D91	n.a.	n.a.	Option	n.a.	
0.3 / D126	n.a.	n.a.	Option	n.a.	
0.3 / D151	n.a.	n.a.	Option	Available	760 µm
0.3 / D182	n.a.	n.a.	Option	n.a.	

BORON NITRIDE BAND FOR INDUSTRIAL APPLICATIONS

Band (thickness / grain)	300	302	310 / 311	312	Kerf loss (approx.)
0,2 / B91	Option	Option	Option	n.a.	460 µm
0,3 / B151	n.a.	n.a.	Option	n.a.	730 µm

About Industrial Diamond:

The so-called industrial diamonds are artificially manufactured diamonds. The diamond is the hardest material we know on earth. Materials are measured according to their hardness and can reach a maximum of level 10 on the Mohs scale.

Diamond tools are sometimes unsuitable for machining steel, as they can convert to graphite at the high temperatures during the process and the carbon atoms can diffuse into the steel.

About Cubic boron nitride (CBN)

Cubic boron nitride (also known as β -boron nitride) is one of the hardest materials and is the second hardest cutting material after diamond. The material therefore has high abrasion resistance combined with very good thermal conductivity and chemical resistance. Machining tools made from CBN therefore wear out much more slowly than ordinary cutting materials made from corundum or silicon carbide. The result: a much higher shape and dimensional accuracy of the workpieces. In addition, extremely hard materials can always be processed reliably. Microcrystalline CBN grades do not wear out as a whole, but form new sharp cutting edges under increasing pressure. Unlike diamond, using CBN there is no carbon migration into the steel even when exposed to temperature. With CBN even tough and hard steels such as HSS steel, hot and cold work steel work well.

BORON NITRIDE VS DIAMOND

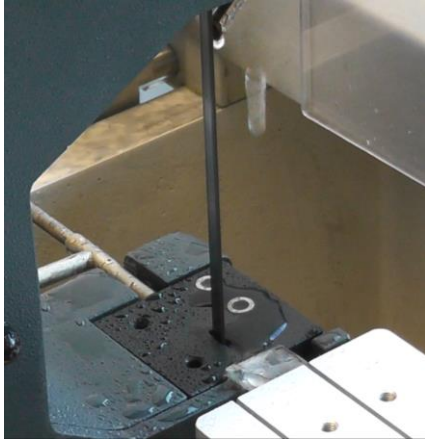
GUIDELINE FOR INDUSTRIAL APPLICATIONS

This table shows common applications (materials) and is a guideline to select the cutting band according to the material to cut.

Boron Nitride	Diamond
Alloy / Tool steel	Ceramic
Die Steel	Glass
Ball Bearing Steel	Rubber & Plastic
High Temperature materials on nickel and cobald basis	Non-Ferros metal (e.g. Al, Mg, Cd, Co, Cu, Ni, Pb,Sn, Zn, Ag, Au, ..)
Nickel alloy	Ferrite
Stainless Steel	Steel with low hardness
Chilled Casting	
Hard alloy on nickle/cobald basis	
Powder Coating with iron material	

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SAFETY FIRST – NO CUTTING DANGER !!!



The safest way for precise cutting

- › If you touch the band, nothing will happen to your finger
- › Unlike “butcher saws” or other traditional cutting systems, a diamond band is more like a grinder – and safe!

EXAKT 302 DIAMOND BAND SAW PATHOLOGY



EXAKT 302

- › Developed for the requirements of pathology today
- › Freehand cuts down to 1 mm possible
- › No risk of injury to the operator

- › Bench top diamond band saw

EXAKT 302

EASY TO OPERATE

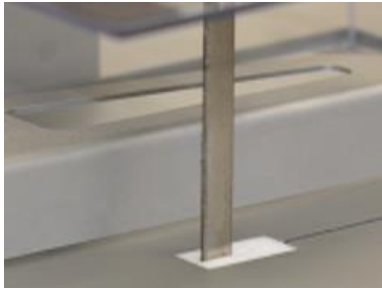


EXAKT 302

- › Tool less band replacement
- › Manual band tension adjustment
- › According to latest safety requirement (EN ISO 13849-1)
- › Single band speed
- › Stainless Steel design – fast to clean and hygienic

EXAKT 302

INCLUDED FEATURES



Cutting Band

- › Cutting Band 0,2 mm / D126
- › Same width as 312 band – 12 mm !!
- › EXAKT article 34390



Splash guard

- › Control water splashing
- › Combination of perspex and plastic foil



Cutting Guide

- › Manual adjustment for parallel cuts

EXAKT 302 OPTIONS



LASER aided Sample Orientation

- › Supports precise positioning of the sample to the cutting band
- › EXAKT article 47074



Water Cleaning Pistol

- › Fast cleaning of working table and the entire system.
- › EXAKT article 47070

EXAKT 312 DIAMOND BAND SAW PATHOLOGY



EXAKT 312

- › Developed for the requirements of pathology today
- › Freehand cuts down to 1 mm possible
- › No risk of injury to the operator
- › Mobile and universal use
- › Very easy to operate

EXAKT 312

EASY TO OPERATE

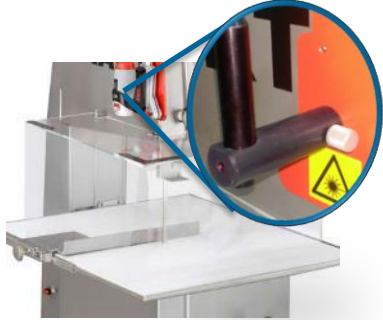


EXAKT 312

- › Tool less band replacement
- › Automatic band tension adjustment
- › According to latest safety requirement (EN ISO 13849-1)
- › Adjustable band speed
- › Stainless Steel design – fast to clean and hygienic



EXAKT 312 OPTIONS



LASER aided Sample Orientation

- › Supports precise positioning of the sample to the cutting band
- › EXAKT article 38074



Splash guard

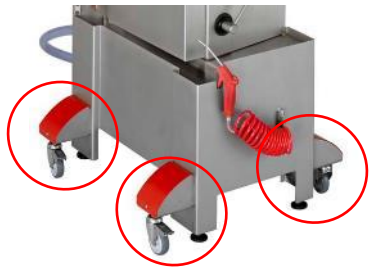
- › Control water splashing
- › Available in two sizes (small is included as standard)
- › EXAKT article 38082



Cutting Guide

- › Manual adjustment for parallel cuts, including scale
- › Available in two sizes
- › EXAKT article 38072 and 38073 (100mm rip fence)

EXAKT 312 OPTIONS



Mobility Set

- › Removable castors to move device easily
- › EXAKT article 38079



LED Light

- › For optimal illumination of the workspace
- › EXAKT article 38080



Water Cleaning Pistol

- › Fast cleaning of working table and the entire system.
- › EXAKT article 38070

EXAKT 312

OPTIONS









Cutting Guide 200 mm

- › Large rip fence for veterinary and anatomic application
- › Only available with the large splash guard
- › Art. No 38075

COMPARISON

EXAKT 302 VS EXAKT 312

	E 302	E 312
Band Speed Adjustment		
Tool less band replacement		
Stainless steel design		
Bench Top Model		
Water Cleaning Pistol (Option)		
LASER aided sample orientation (Option)		
Designed especially for the use in pathology labs		
Splash Guard		
No cutting risk - Very safe for the operator		
Easy to operate and clean		

TECHNICAL DATA

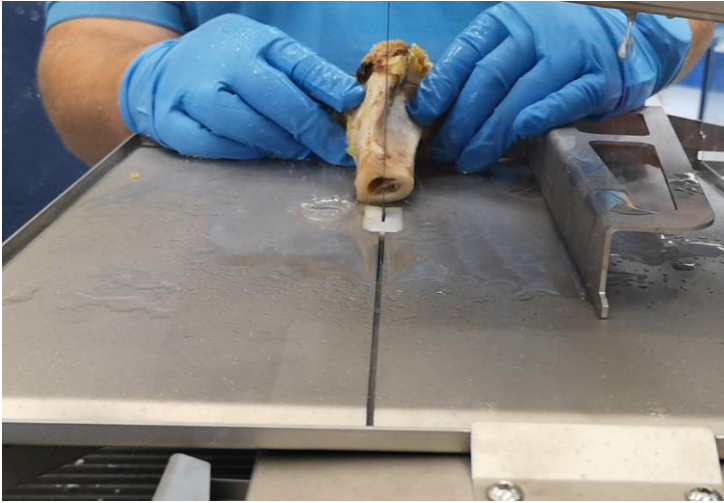
COMPARISON E 302 VS E 312

	E 302	E 312
Foot Print [mm]	600 x 850	1000 x 800
Height [mm]	720 – 740	1550
Weight [kg]	40	150
Cutting height [mm]	max. 110	max. 220
Cutting width [mm]	max. 185	max. 360
Band Speed [m/min]	1000 (50Hz) 1200 (60Hz)	200-1200
Drive Power [kW]	0,18	1,1



EXAMPLES FOR PATHOLOGY / ANATOMY APPLICATIONS

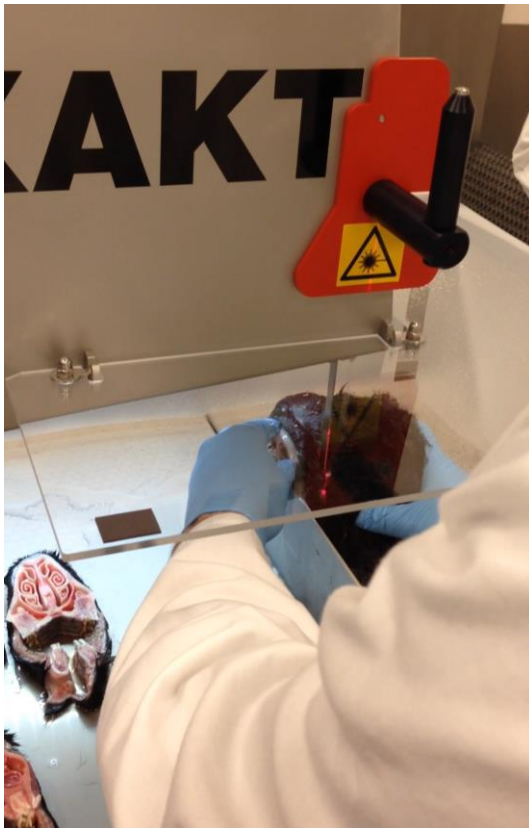
EXAKT 302 DIAMOND BAND SAW PATHOLOGY / ANATOMY EXAMPLES



Animal bone

› Cut through tissue, bone, teeth

EXAKT 312 DIAMOND BAND SAW PATHOLOGY / ANATOMY EXAMPLES



Animal sheeps head

› Cut through tissue, bone, teeth

EXAKT DIAMOND BAND CUTTING PATHOLOGY / ANATOMY EXAMPLES



Human jaw bone

› Cut through tissue, bone, teeth



Human foot

› Cut through bone, tissue, cartilage tissue

EXAKT DIAMOND BAND CUTTING PATHOLOGY / ANATOMY EXAMPLES



Sheep Head

› Cross sectional cut through sheep's head



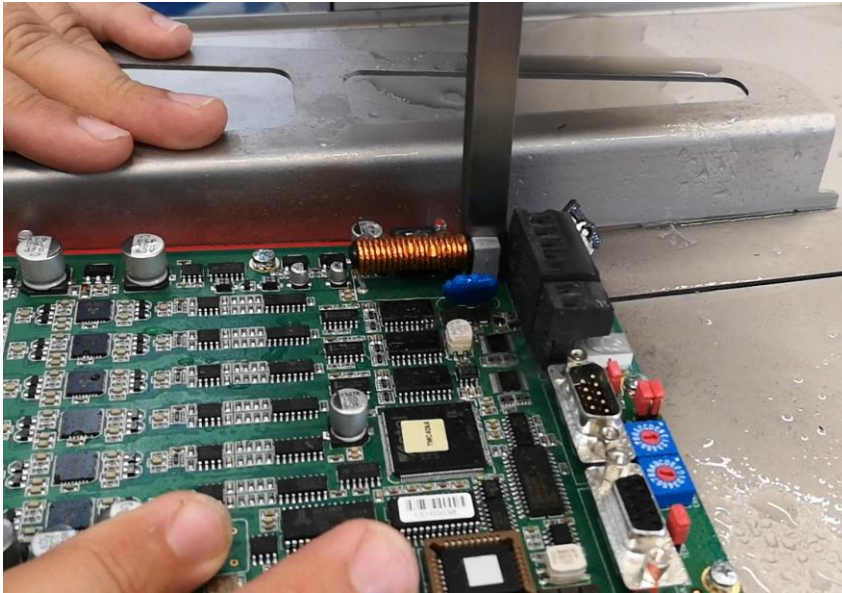
Femur

› Longitudinal section through femur



EXAMPLES FOR INDUSTRIAL APPLICATIONS

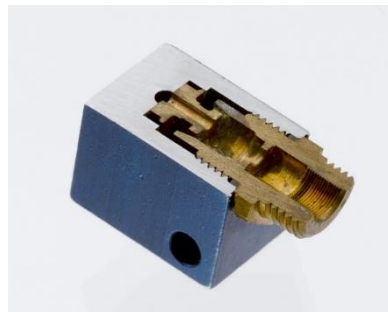
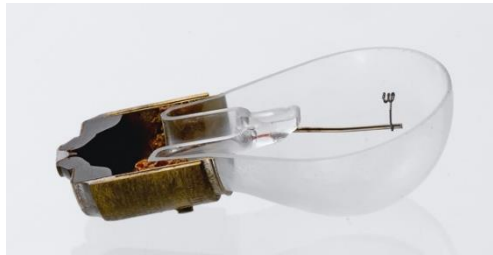
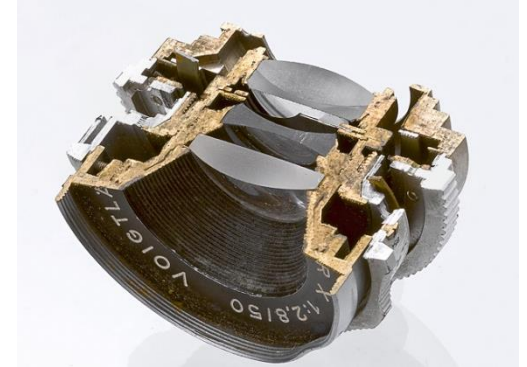
EXAKT DIAMOND BAND CUTTING INDUSTRIAL EXAMPLES



Electronic / Circuit Board

› Combination of different materials

EXAKT DIAMOND BAND CUTTING INDUSTRIAL EXAMPLES

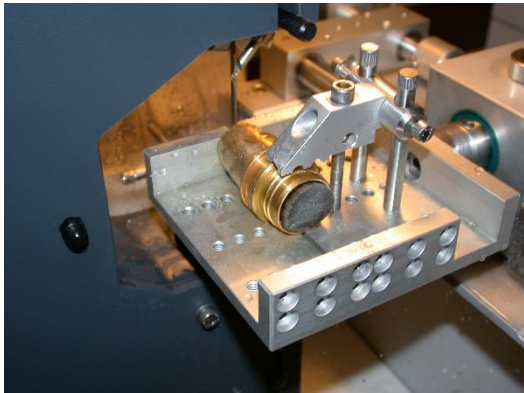


EXAKT DIAMOND BAND CUTTING INDUSTRIAL EXAMPLES



Concrete

- › Combination of concrete, threaded rod and chemical dowel



Fibre optic cable

- › Encapsulated cable with multiple glass fibres

EXAKT DIAMOND BAND CUTTING INDUSTRIAL EXAMPLES



Mobile phone

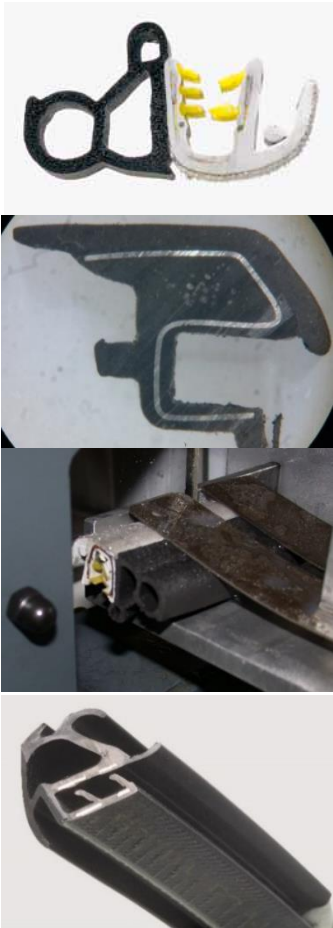
- › Cut electrical devices consisting of multiple different materials



Glass Bottle

- › Perfect cut and no sharp edges

EXAKT DIAMOND BAND CUTTING RUBBER PROFILE



Quality control during production

- › Time efficient cutting technique
- › No edges and damages in different kind of rubber and metal materials
- › Cut precise and plane parallel surfaces for shape monitoring on a projector
- › Reliable and consistent process in the production area
- › No further finishing work (grinding) necessary
- › High sample output possible

EXAKT DIAMOND BAND CUTTING COMPOSITE MATERIAL



Cut different material combination

- › Precise process for all kind of materials
- › Our technique cut & grinds with a diamond coated band, not with a dangerous and rough saw-tooth band
- › It is not necessary to further finish the sample with high effort
- › Sometime no embedding necessary

EXAKT DIAMOND BAND CUTTING GLAS/CARBON FIBER MATERIAL



Cutting and grinding for high-tech material

- › Cutting process without edges and artefacts
- › No thermal or mechanical stress for the sample
- › Analysing of cross sections is possible right after the cut
- › Thin section cutting technology with EXAKT equipment, including micron-precise grinding system
- › Measurement about glue layer is absolutely new principal

EXAKT DIAMOND BAND CUTTING GEOLOGY, STONES AND CRISTAL PRODUCTS



Cutting in research

- › Cutting process with CP-mode for an effective time and high throughput
- › Low hydraulic stress in the cutting area results in very fine surface without cracks and broken areas
- › The time for lapping and polishing will be reduced or even eliminated.

EXAKT DIAMOND BAND CUTTING ALUMINIUM CAST / PROFILE



The application for aluminium casts and profiles

- › Low stress in the cutting area and good cooling of the sample
- › Structure of the surface and tread packings from the material will be visible

EXAKT DIAMOND BAND CUTTING BRITTLE, SENSITIVE AND DELICATE STRUCTURES



The applications for “non-cuttable” materials

- › Precise cutting process with fine coated diamond bands reduce the force and stress applied to the sample
- › Excellent roughness values in one pass
- › No sharp edges

EXAKT



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