



Tools for Production of **Window and Door Joinery**
2017

Globus[®]
...ostre narzędzia

WINDOW AND DOOR JOINERY

After several years of dynamic growth, manufacturers of window and door joinery are facing many new challenges. They must follow new trends and technologies in order to meet rising requirements related to energy saving and thermal insulation power of their products. New trends require not only purchasing new technologies and machines, but also applying tools of highest quality, often determined by efficiency, very high precision of cutting various details and intermediate products, guaranteed continuity of operation, fast and professional service support.

Apart from highly specialized industrial tools, the GLOBUS brand also offers comprehensive advisory services provided by a professional engineering team, and a wide range of after-sale services for the manufactured tools. Our work is based on many years of experience in industry and design, research and development conducted by our R&D department, as well as highly skilled employees.

This is our latest brochure related to professional tools used in specialized production lines for manufacturing vertical and horizontal windows, windowsills, interior and exterior doors, stairs, roller blinds and shutters, garage doors, smoke vents, guards, facade systems, i.e. the whole gamut of products generally referred to as window and door joinery. Thanks to their high performance, GLOBUS industrial tools are also widely applied in companies cooperating with window and door manufacturers in the production of profile systems, glazed units, fittings, and ventilation.



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WHICH TOOLS PRODUCTION PROCESSES WE USE?

CUTTING PROCESS



Delivered metal sheets are inserted to a special cutter and undergo laser cutting processes, where laser acts as a "knife".

HARDENING AND TEMPERING



Heat treatment of tool steel consists of three stages:
Stage 1 - steel heating;
Stage 2 - quick cooling of material;
Stage 3 - tempering.

DISCS GRINDING



Grinding of planes aims to obtain required thickness with maintaining minimum scattering and flatness of the disc. This part of process is implemented on automated grinding machine, which provides precise grinding with accuracy up to 0.0005 mm.

TENSIONING AND BALANCING OF DISCS



Due to the character of manufactured disc tools, they have to maintain the specified rigidity and stability during working. Therefore saw blades discs undergo tensioning and dynamic balancing.

SOLDERING OF SINTERED CARBIDES



Soldering of sintered carbides is executed on fully automated soldering units. Carbides are segregated in vibrating drums and set into a soldering position.

SHARPENING OF SINTERED CARBIDES



Sharpening of sintered carbides is made in a modern, fully automated line of highly - efficient production grinders with numerically-controlled axes serviced by an arm of robot.

DISCS MARKING



Laser marking is one of the most advanced marking methods. This method is very quick and aesthetic.

QUALITY CONTROL - PACKAGING



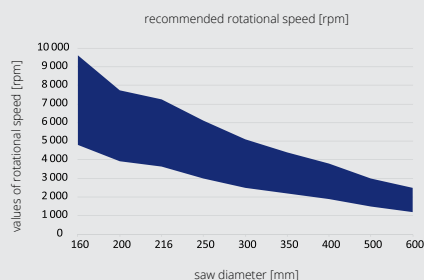
Marked tools go to the control department where they undergo final acceptance by experienced experts from the quality department.





TOOLS FOR ALUMINUM AND PVC JOINERY

PS415	HM saw blade, series ALUEX GA -5° for cutting of AL and PVC profiles	6
PS415	HM saw blade, series ALUEX GA +5° for cutting of AL and PVC profiles	7
PS415	HM saw blade, series ALUEX GA for cutting of glazing beads	8
PS900	HM saw blade for beveling of glazing beads	9
PS495	HM saw blade, W2R +5° for angle deburring machines for PVC windows	10
PS810	HM saw blade, series STEEL-TECH for cutting of steel profiles	11
FP600	HSS saw blade [TiCN] for cutting of window spacer bars	12
PS682	HM saw blade, series STEEL-TECH Electro for cutting of steel sections and elements	13
PS680	HM saw blade, series 1GS5 TYPE OSA for cutting of sandwich panels	14
FP220	HSS saw blade for cutting of full materials and profiles on cut off machines	15
PX100	Band saw blade, series METAL PROF-CUT for metal cutting	16
LS220	Solid carbide finishing router bits for milling of holes for drains, hinges, and handles	17
LS580	HSS drill bits for door handle holes for machining centers	18
LS300	HSS shank cutter for processing of metal, AL, and PVC in machining centers	19

**EXPERT'S ADVICE:**

- ▶ Adequate selection of the pitch, type and geometry of teeth has a decisive influence on proper operation of the saw and high quality of the surface after cutting.
- ▶ In the case of cutting of AL and PVC profiles, it is recommended to use saws with GA type teeth with a positive or negative rake angle (depending on wall thickness of cut profiles).
- ▶ Number of teeth should be selected using the following rule – the thicker the wall of the cut profile, the less number of teeth.



HM saw blade, series ALUEX GA-5°

for cutting of AL and PVC sections

- ▶ used in the production of window and door joinery for cutting of single window profiles, frames, casings and beads
- ▶ also used for cutting of sections and open profiles of AL and PVC with wall thickness up to 3 mm
- ▶ saw with a negative rake angle, intended for cutting of sections of AL alloys with wall thickness up to 3 mm and for cutting of PVC profiles
- ▶ low-noise series, with very precise parameters of execution, dynamically balanced disk, and specially selected sintered carbide

Index								PRICELIST
	mm	mm	mm	mm	mm	mm	ilxd/d _p	eur/pc.
PS415-0160-0002	160	20	2,5	1,8	56	-	-	47,05
PS415-0200-0004	200	30	2,5	1,8	60	-	2x7/42+2x8,5/46+2x10/60	50,75
PS415-0216-0001	216	30	2,8	2,2	72	Cu	2x7/42+2x8,5/46+2x10/60	65,55
PS415-0250-0002	250	30	3,2	2,5	80	Cu	2x7/42+2x8,5/46+2x10/60	67,50
PS415-0300-0002	300	30	3,2	2,5	96	Cu	2x7/42+2x8,5/46+2x10/60	77,10
PS415-0350-0002	350	30	3,2	2,5	108	Cu	2x7/42+2x8,5/46+2x10/60	91,10
PS415-0350-0001	350	32	3,2	2,5	108	Cu	2x10/60+2x11/63+2x11/70	91,10
PS415-0380-0001	380	32	4,0	3,4	108	Cu	2x10/60+2x11/63+2x11/70	113,65
PS415-0400-0003	400	30	4,0	3,4	120	Cu	2x10/60+2x11/63+2x11/70	115,40
PS415-0450-0001	450	30	4,0	3,4	108	Cu	2x10/60+2x11/63+2x11/70	126,00
PS415-0500-0003	500	30	4,2	3,6	120	Cu	2x10/60+2x11/63+2x11/70	162,65
PS415-0600-0001	600	30	4,4	3,8	160	Cu	2x10/60+2x11/63+2x11/70	246,65

d_o - driving holes diameter
d_p - pitch diameter of holes

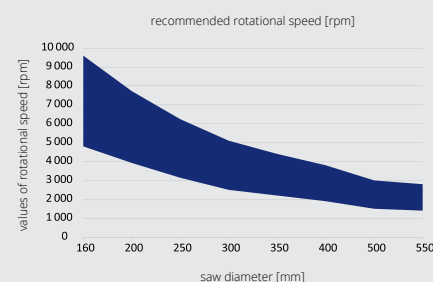
*see the website for more products



Tools in ACTION!

EXPERT'S ADVICE:

- ▶ Adequate selection of the pitch, type and geometry of teeth has a decisive influence on proper operation of the saw and high quality of the surface after cutting.
- ▶ In the case of cutting of AL and PVC profiles, it is recommended to use saws with GA teeth geometry with a positive or negative rake angle (depending on wall thickness of cut profiles).
- ▶ Number of teeth should be selected using the following rule – the thinner the wall of the cut profile, the greater number of teeth.



HM saw blade, series ALUEX GA+5°

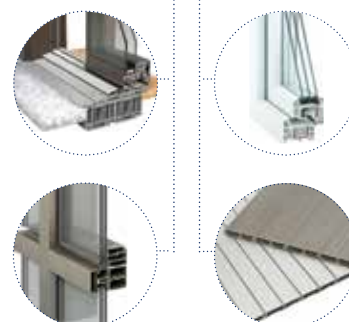
for cutting of AL and PVC sections

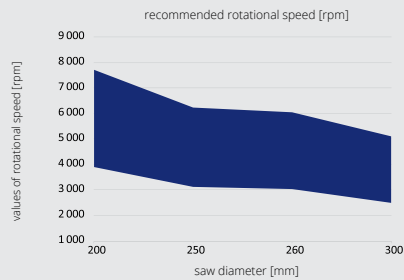
- ▶ used in the production of window and door joinery for cutting of beads, sections, and closed profiles of thickness above 3 mm
- ▶ also used for single cutting of facade aluminium profiles with wall thickness up to 5 mm
- ▶ saw with a negative rake angle, intended for cutting of sections of AL alloys with wall thickness up to 3 mm and for cutting of PVC profiles
- ▶ low-noise series, with very precise parameters of execution, dynamically balanced disk, and specially selected sintered carbide

Index								PRICELIST
	mm	mm	mm	mm			ixd _h /d _p	eur/pc.
PS415-0160-0003	160	20	2,5	1,8	56	-	-	47,05
PS415-0200-0003	200	30	2,5	1,8	60	-	2x7/42+2x8,5/46+2x10/60	50,75
PS415-0250-0001	250	30	3,2	2,5	80	Cu	2x7/42 2x8,5/46+2x10/60	67,50
PS415-0300-0001	300	30	3,2	2,5	96	Cu	2x7/42+2x8,5/46+2x10/60	77,10
PS415-0315-0002	315	30	3,2	2,5	96	Cu	2x7/42+2x8,5/46+2x10/60	88,35
PS415-0350-0009	350	30	3,2	2,5	78	Cu	2x7/42+2x8,5/46+2x10/60	75,90
PS415-0350-0003	350	30	3,2	2,5	108	Cu	2x7/42+2x8,5/46+2x10/60	91,10
PS415-0400-0004	400	30	4,0	3,4	120	Cu	2x10/60+2x11/63+2x11/70	115,40
PS415-0450-0002	450	30	3,7	3,0	120	Cu	2x10/60+2x11/63+2x11/70	132,40
PS415-0500-0016	500	30	5,0	4,0	72	Cu	2x8/42+2x10/60+2x11/63	155,10
PS415-0500-0100	500	30	4,2	3,6	120	Cu	2x10/60+2x11/63+2x11/70	162,65
PS415-0550-0002	550	30	4,4	3,2	160	Cu	2x10/60+2x11/63+2x11/70	238,80

d_h driving holes diameter
d_p pitch diameter of holes

*see the website for more products





EXPERT'S ADVICE:

- ▶ Saws for cutting of glazing beads with an adequately selected tooth pitch, make it possible to eliminate the phenomenon of tearing the cut material – this element of the tool structure has a decisive influence on surface quality of the cut detail.
- ▶ In order to ensure a proper cutting process and to maintain a high surface quality, special attention must be paid to rigid fastening of the element on the work table so as to protect the detail from uncontrolled displacement.



HM saw blade, series ALUDEX GA

for cutting of glazing beads

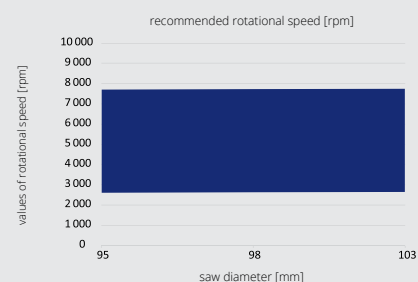
- ▶ for cutting of PVC beads with a rubber seal on specialized machines used in the production of PVC windows
- ▶ often used in combination with saws for bevelling of glazing beads
- ▶ series with very precise parameters of disk execution and specially selected sintered carbide
- ▶ saw with a greater number of teeth is intended especially for cutting of thin-walled profiles

Index								PRICELIST
	mm	mm	mm	mm	1 2 3...			eur/pc.
PS415-0200-0008	200	30	2,2	1,6	100	-	-5°	100,20
PS415-0200-0006	200	32	2,2	1,6	100	-	-5°	100,20
PS415-0250-0009	250	30	2,2	1,6	100	-	-5°	85,10
PS415-0250-0006	250	32	2,2	1,6	100	-	-5°	85,10
PS415-0260-0001	260	30	2,5	2,0	100	Cu	5°	95,95
PS415-0300-0004	300	30	3,2	2,5	120	-	-5°	103,95

*see the website for more products

**EXPERT'S ADVICE:**

- ▶ Depending on machine type, saws can be used in machines as right and left ones.
- ▶ Saw blades can operate in a set with the main saw, or can be used singly with the main saw in the case of a system of two cutting axes.
- ▶ Saw blades for beveling of glazing beads work in a set with the following indexes: PS415-0200-0008, PS415-0200-0006, PS415-0250-0009, PS415-0250-0006, PS415-0260-0001, PS415-0300-0004.



HM saw blade

for beveling of glazing beads

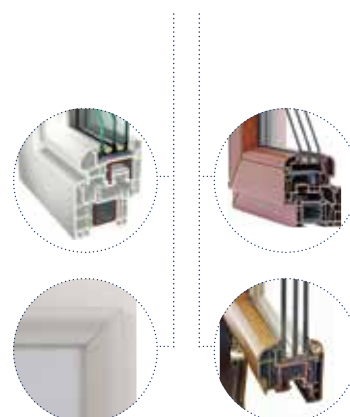
- ▶ specialized saw designed for beveling of PVC beads with a rubber seal
- ▶ as a standard, the HM saw for beveling of glazing beads operates in a set with the main saw
- ▶ use of beveling saws with sintered carbides ensures long life time and high quality of the beveled surface
- ▶ precisely made disc guarantees stable work during cutting process

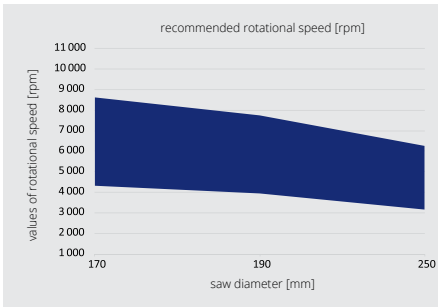


Index						Tip angle	PRICELIST
	mm	mm	mm	mm			eur/pc.
◦ PS900-0095-0003	95	20	2,1	1,6	20	Left saw blade	
◦ PS900-0095-0004	95	20	2,1	1,6	20	Right saw blade	
◦ PS900-0095-0005	95	20	2,1	1,6	36	Left saw blade	
◦ PS900-0095-0006	95	20	2,1	1,6	36	Right saw blade	
◦ PS900-0098-0001	98	32	3,0	2,0	36	Left saw blade	
◦ PS900-0098-0002	98	32	3,0	2,0	36	Right saw blade	
PS900-0103-0003	103	32	2,2	1,6	36	Right saw blade	40,00
PS900-0103-0004	103	32	2,2	1,6	36	Left saw blade	40,00

o- on request

*see the website for more products





EXPERT'S ADVICE:

- ▶ Often used as left and right saws in respect of milling side and rotation direction – therefore please note: before ordering a saw, please check the operation and maintenance documentation of your machine.
- ▶ Saws are equipped with beveled fixing holes that enable the saw to be properly fastened in the machine.
- ▶ Additional and longer HM teeth enable deeper milling of PVC corners.



HM saw blade, W2R+5°

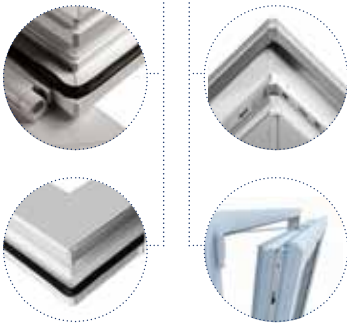
for angle deburring machines for PVC windows

- ▶ specialized saw for executing the process of milling the outer side of the corner, aimed at removal of the so-called fin after welding of PVC profiles
- ▶ intended for specialized machines in the production of window and door joinery of PVC
- ▶ specially designed geometry of teeth and HM tips makes it possible to achieve proper surface quality after cutting and long service life of the tool
- ▶ saw has additional and longer HM teeth that enable deeper milling of PVC corner

Index							Bevel	PRICELIST
	mm	mm	mm	mm		ixd ₁ /d ₂		eur/pc.
◦ PS495-0170-0001	170	20	4,5	3,2	16+4	6x6,8/40	Right bevel	
◦ PS495-0190-0001	190	20	4,5	3,2	16+4	6x6,8/40	Right bevel	
◦ PS495-0190-0002	190	22	4,5	3,2	16+4	6x6,8/40	Left bevel	
◦ PS495-0250-0001	250	22	4,5	3,2	22+4	6x6,8/40	-	

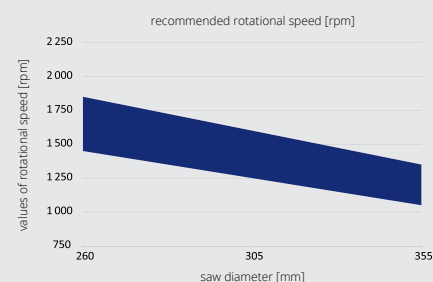
o - saws on request
d₁ - driving holes diameter
d₂ - pitch diameter of holes
minimum quantity for ordering: 2 pieces
scope of diameters for execution: 150-400 mm

*see the website for more products



**EXPERT'S ADVICE:**

- Introduction of cutting of steel profiles on steel miter saws makes it possible to significantly improve the working conditions (reduction of noise, elimination of dustiness), and has an excellent effect on surface quality after cutting (no burns, significant reduction of burr).
- Please note that miter saws for steel cutting are operated on lower rotational speeds, specially adapted to cutting of steel sections using saws with sintered carbides.



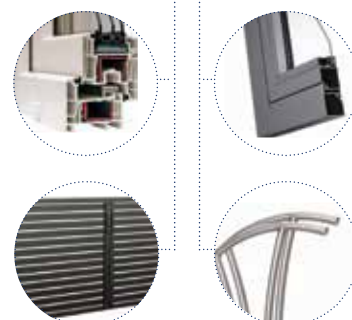
HM saw blade, series STEEL-TECH

for cutting of steel and profiles

- cutting of steel glazing cavity beads and steel reinforcements
- also used for cutting of steel profiles constituting elements of doors and garage door structures
- cutting of steel sections of structural steel with wall thickness of < 3 mm, including in miter machines of such brands as: Jepson, Makita, Ridgid, DeWALT
- saw of this series is equipped with specialized sintered carbide intended for cutting of steel details

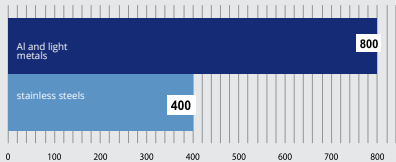
Index						Geometry		PRICELIST
	mm	mm	mm	mm				eur/pc.
PS810-0260-0001	260	30	2,5	2,0	100	GC	5°	146,05
PS810-0305-0013	305	25,4	2,5	2,0	80	GC	10°	149,45
PS810-0355-0007	355	25,4	2,2	1,8	90	2GC	10°	152,90

*see the website for more products





recommended values of rotational speed [rpm]
for saw blade diameter: 200 mm



EXPERT'S ADVICE:

- ▶ HSS saw blades are tools intended for very precise cutting operations in order to obtain the best surface quality after processing – these tools are executed on the basis of very precise standards.
- ▶ Such precise parameters are achieved thanks to the ability to execute saw blades with a high number of teeth and simultaneously with very thin bodies.
- ▶ Advantages of their operation are especially evident while cutting thin-walled sections with wall thickness of ≤ 0.5 mm.



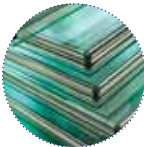
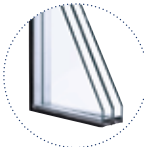
HSS saw blade [TiCN]
for cutting of window spacer bars

- ▶ for cutting of window spacer bars made of aluminum, plastics and stainless steel
- ▶ saw blade used in specialized machines adapted for cutting with HSS saw blades– with adequate tool rotational speed adapted to cut material type
- ▶ tool made of extra-fine high-speed steel with additional TiCN coating aimed at reducing the cutting resistance and extending the service life
- ▶ adequately selected pitch and geometry of teeth ensures high quality of surface after cutting

Index						Blades coating	PRICELIST
	mm	mm	mm	ltxd/d _p			eur/pc.
o FP600-0200-0001	200	32	0,50/1,00	1x7,1/55	350	TiCN	

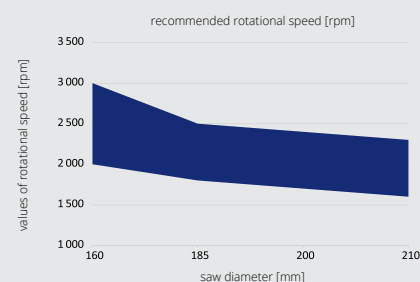
o - saws on request
d_p- driving holes diameter
d_p- pitch diameter of holes
minimum quantity for ordering: 2 pieces
scope of diameters for execution: 160 -315 mm

*see the website for more products



**EXPERT'S ADVICE:**

- Very good surface of steel section after cutting is a result of using specialized sintered carbide (for cutting of steel) and teeth geometry specially designed for this series of saws.
- In the case of cutting metal sheets and other thin elements, the material must be properly fastened before commencing work in order to avoid uncontrolled vibrations of the cut element.
- For operation in sawing machines with adjustment of rotational speed or adapted for cutting of steel at lower rotational speeds.



HM saw blade, series STEEL-TECH Electro

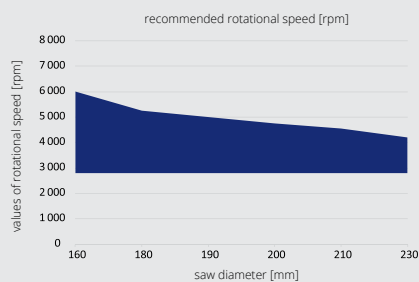
for cutting of steel sections and elements

- saw for the so-called cold cutting technology for steel elements enables cutting with no burns on the edges of the processed material
- series designed for cutting of elements made of structural steels, such as: tubes, sections, trapezoidal sheets with wall thickness of up to 2.5 mm
- also used for cutting of elements of doors and garage door structures made of mild structural steel
- special sintered carbide (for cutting of steel) soldered into the disk guarantees long life time and enables repeated sharpenings

Index							PRICELIST
	mm	mm	mm	mm		for power tools	eur/pc.
PS682-0160-0001	160	20	2,0	1,4	40	BOSCH GKS 55, Metabo KSE 55 Plus, FESTOOL TS 55 EBQ	31,65
PS682-0185-0001	185	30	2,0	1,4	48	MAKITA 4131, DEWALT DW62K	37,15
PS682-0200-0001	200	30	2,0	1,4	50	FESTOOL TS75EBQ	38,50
PS682-0210-0001	210	30	2,0	1,4	50	FESTOOL TS75EBQ	38,50

*see the website for more products



**EXPERT'S ADVICE:**

- ▶ Series equipped with special sintered carbide for cutting of steel with high impact resistance.
- ▶ Due to the designed feed limiter, the saw cannot be used in cutting-off machines with mechanical feed.
- ▶ Series with very versatile applications.



HM saw blade, series 1GS5 TYPE OSA

for cutting of sandwich panels

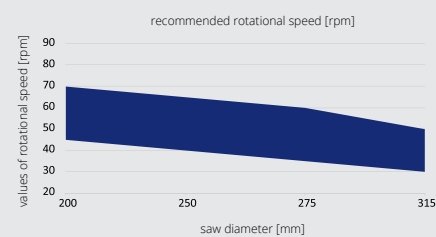
- ▶ cutting of sandwich panels used in construction of doors, gates, walls, and roofing sandwich panels
- ▶ also used for cutting of polycarbonate panels, PVC profiles, as well as sections of steel sheet or non-ferrous metals (Al, Cu)
- ▶ special 1GS5 type alternate top bevel teeth makes it easier to lead the saw while cutting
- ▶ special tooth shape designed for this series, and sintered carbide applied, guarantee long life time and enable repeated sharpening of the tool

Index							PRICELIST
	mm	mm	mm	mm		for power tools	eur/pc.
PS680-0160-0001	160	20	2,7	1,6	32	BOSCH GKS55 CE, MILWAUKEE CS55, Metabo KS54 SP, Metabo KSE55 Plus, PROTOOL CSP56 EQ, PROTOOL CSP55 - 2, FESTOOL TS55 EBQ	28,75
PS680-0180-0001	180	20	2,7	1,6	36	EINHELIN BHS 66/1, EINHELIN HK- PG 66/1	32,30
PS680-0190-0001	190	30	2,7	1,6	40	BOSCH GKS65 CE, MAKITA 5705R, HITACHI C7BU2, DEWALT D23650K, Metabo KSE68 Plus, PROTOOL CSP68 EB, FESTOOL AP65, MILWAUKEE SC565 Q, DWT HKS-190 VS	34,10
PS680-0200-0001	200	30	2,7	1,6	42	HITACHI C9U, METABO KS85, PERLES KS170, FESTOOL TS75EBQ	35,00
PS680-0210-0001	210	30	2,7	1,6	42	BLACK&DECKER KS810, DWT HKS-210 VS, FESTOOL TS75 EBQ, MILWAUKEE CS75, REBI RZ2-70-2,	35,85
PS680-0230-0001	230	30	2,7	1,6	44	FESTOOL CS70, Metabo KS 85	38,55

*see the website for more products

**EXPERT'S ADVICE:**

- ▶ In order to extend the life time of HSS saw blade, the disk can be covered with PVD coatings (e.g. titanium nitride TiN) – application of coatings reduces the friction coefficient, increases the surface microhardness and tool life time by 200-300%.
- ▶ During the use of HSS saw blades pay attention to the fact that they should not operate on cutting off machines without a disk cooling system.
- ▶ Note – the saw blade tooth pitch is strictly related to material thickness or wall thickness.



HSS saw blade

for cutting of full materials and profiles on cut-off machines

- ▶ intended for cutting of steel reinforcements in windows, as well as profiles and sections of steel doors
- ▶ cutting process characterized by high quality of cut surfaces and dimensional precision of processed details
- ▶ saw blade made of high - speed steel HSS-DM[®]5 (SW7M), used in low rotational speed cutting-off machines designed for cutting of steel elements
- ▶ type, pitch, and geometry of teeth selected adequately for cutting of sections of structural steel with wall thickness of 1.5-3.0 mm

Index						Geometry	$\Phi \oplus \Phi$	PRICELIST
	mm	mm	mm	mm			ilxd _h /d _p	eur/pc.
FP220-0225-0002	225	32	2,00	180	80	Bw18°	Type"C"2x8,5/45; 2x9,5/50; 2x12/64	49,40
FP220-0225-0001	225	32	2,00	220	80	Bw18°	Type"C"2x8,5/45; 2x9,5/50; 2x12/64	49,40
FP220-0250-0001	250	32	2,00	200	80	Bw18°	Type"C"2x8,5/45; 2x9,5/50; 2x12/64	50,20
FP220-0275-0001	275	32	2,00	220	100	Bw18°	Type"C"2x8,5/45; 2x9,5/50; 2x12/64	67,60
FP220-0275-0007	275	32	2,50	220	100	Bw18°	Type"C"2x8,5/45; 2x9,5/50; 2x12/64	74,20
FP220-0275-0005	275	40	2,50	200	100	Bw18°	Type"H"2x8,5/55; 4x12/64	74,20
FP220-0315-0001	315	32	2,50	220	100	Bw18°	Type"C"2x8,5/45; 2x9,5/50; 2x12/64	81,35
FP220-0315-0002	315	40	3,00	200	100	Bw18°	Type"U"4 x 10,5/63	92,45

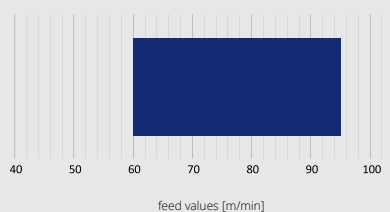
d_h - driving holes diameter
d_p - pitch diameter of holes

*see the website for more products





band feed speed [m/min]
for material: steel 500-750 [N/mm²]



EXPERT'S ADVICE:

- ▶ When setting a new cutting band in the cutting-off machine and before commencing the actual work, apply band grinding-in.
- ▶ This process is performed in the following way: using an adequate speed of the cutting band, selected for the grade of the cut material, during the first 10 minutes of cutting, increase the feed by 1/3-1/2 of the value, during next 10 minutes, gradually increase the feed until the recommended values are reached.
- ▶ Application of grinding-in extends the life time of bands by 20-30%!!!

Band saw blade, series METAL PROF-CUT for metal cutting

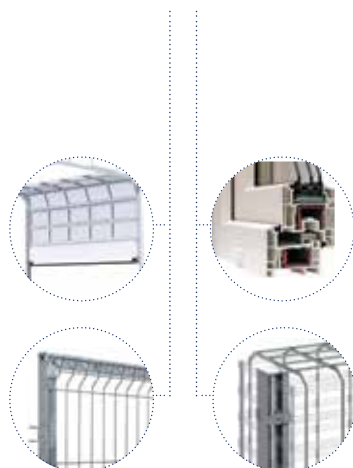


▶ in the production of window and door joinery, intended for cutting of steel reinforcements in windows and other profiles of iron alloys used in structures of gates, doors, roller blinds, etc.

▶ designed also for cutting of most grades of materials from aluminum to stainless steels

▶ structure of bimetallic saw, where tooth tips are made of high-speed cobalt steel (M42) of 8% cobalt content, ensures long life time of the tool

▶ saws welded in latest - generation devices, (with temperature control) which ensures high strength of the band and prevents its breaking during operation



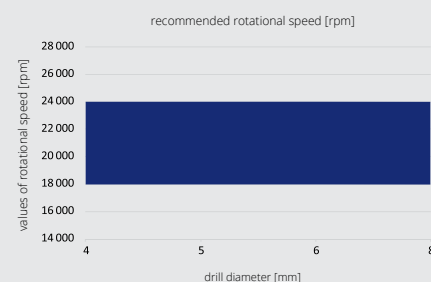
Index					Toothing type	IU	PRICELIST
	mm	mm	mm				eur/pc.
PX100-2009-0003	custom order	20	0,9	6/10	PC-S	rm.	7,30
PX100-2009-0004	custom order	20	0,9	8/12	PC-S	rm.	7,30
PX100-2009-0005	custom order	20	0,9	10/14	PC-S	rm.	7,30
PX100-2709-0005	custom order	27	0,9	6/10	PC-S	rm.	8,15
PX100-2709-0006	custom order	27	0,9	8/12	PC-S	rm.	8,15
PX100-2709-0007	custom order	27	0,9	10/14	PC-S	rm.	8,15
PX100-3411-0005	custom order	34	1,1	6/10	PC-S	rm.	9,95
PX100-4113-0005	custom order	41	1,3	6/10	PC-S	rm.	11,95

price for rm includes the cost of welding

*see the website for more products

**EXPERT'S ADVICE:**

- ▶ Solid carbide finishing router bit with one spiral work the best during execution of drainage grooves.
- ▶ Number/quantity of spirals is selected depending on the parameters and type of the machine in which the cutting process is executed.



Solid carbide finishing router bit

for milling of drains, hinges, and handles

- ▶ milling and drilling of drainage grooves and holes for fixing of hinges, handles in windows
- ▶ intended for processing of plastics and profiles of aluminum
- ▶ special blade geometry and spiral arrangement allow easy chip removal and obtaining smooth surface of the processed material
- ▶ solid carbide cutters, body and working part made of sintered carbide

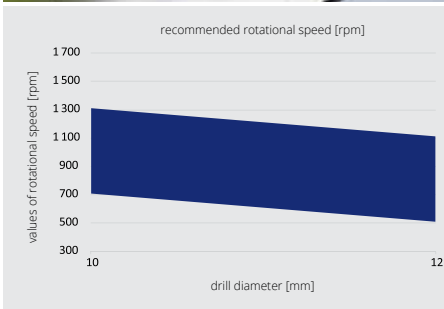


Index							PRICELIST
	mm	mm	mm	mm			eur/pc.
◦ LS220-0004-0001	4	25	60	6	2 positiv	R	
LS220-0006-0001	6	22	70	8	2 positiv	R	26,50
LS220-0008-0001	8	32	80	8	2 positiv	R	28,95
LS070-0005-0003	5	15	80	8	1 positiv	R	34,60
LS070-0005-0001	5	15-25	80	8	1 positiv	R	39,00
◦ LS070-0005-0018	5	30	80	5	1 positiv	R	
◦ LS070-0005-0009	5	30	80	8	1 positiv	R	
LS070-0006-0002	6	15	80	8	1 positiv	R	35,20
LS070-0006-0003	6	15-25	80	8	1 positiv	R	39,30
LS070-0008-0008	8	25	80	8	1 positiv	R	44,90
◦ LS070-0008-0016	8	22-40	80	8	1 positiv	R	

o- on request

*see the website for more products





EXPERT'S ADVICE:

- ▶ Application of the pilot facilitates drilling into the material, reduces the cutting resistance, and makes it possible to achieve a better quality of the processed surface.
- ▶ In order to extend the life time of the tool, it is recommended to use drill bits of HSS-E steel (with increased cobalt content).
- ▶ Drill bits of HSS-E material have extended life time and are more durable – they operate longer.

HSS drill bit for door handle holes

for machining centers



- ▶ right - or left- drill bits with external thread
- ▶ for drilling of holes for handles in PVC profiles
- ▶ drilling in profiles with or without steel reinforcement installed
- ▶ possibility of executing drill bits in version of HSS-E steel and/or in version with the pilot



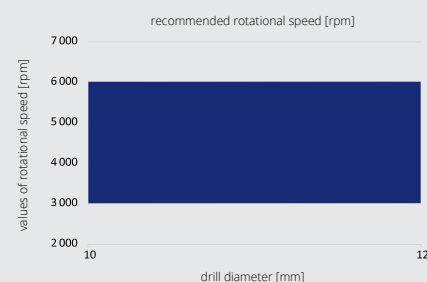
Index						PRICELIST
	mm	mm	mm	mm		eur/pc.
◦ LS580-1010-0001	10	M10	50	87	L	35,10
◦ LS580-1010-0002	10	M10	50	87	R	35,10
◦ LS580-1210-0001	12	M10	50	87	R	38,55
◦ LS580-1210-0002	12	M10	50	87	L	38,55
◦ LS580-0010-0004	10	M10	65	115	L	56,60
◦ LS580-0010-0006	10	M10	65	115	R	56,60
◦ LS580-0012-0004	12	M10	65	115	R	75,10
◦ LS580-0012-0006	12	M10	65	115	L	75,10

◦- on request

*see the website for more products

**EXPERT'S ADVICE:**

- ▶ Use of shank cutters made of HSS-E steel, with increased cobalt content, is recommended for processing of hardly machinable metals.
- ▶ HSS-E shank cutters are characterized by extended life time and increased durability.
- ▶ In the case of processing of hardly machinable metals, as well as for the purpose of extending the life time of tools, it is recommended to use refining coatings (TiN, TiCN, etc.).
- ▶ Use of coatings refining the cutter surface extends the life time up to 50% in comparison with uncoated tools.

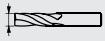
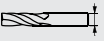


HSS shank cutter for processing of metal, AL, and PVC

for machining centers

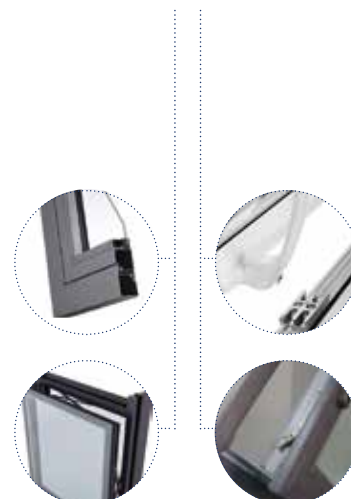
- ▶ made of high-quality high-speed HSS steel
- ▶ for milling and drilling of grooves and holes in window profiles made of PVC, aluminum, and steel in machining centers, milling machines and tracer milling machines
- ▶ possibility of executing smooth shell cutters and chip breaker shell cutters, depending on the intended use
- ▶ saw blades are characterized by high edge stability and durability, as well as increased resistance to chipping



INDEX					PRICELIST
	mm	mm	mm	mm	eur/pc.
LS300-	6 / 8 / 10 / 12 / 16 / 18 / 20	15 - 100	60 - 150	6 / 8 / 10 / 12 / 16 / 18 / 20	

o-on request

*see the website for more products





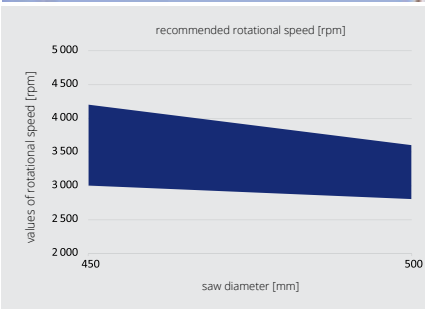


TOOLS FOR WOODEN JOINERY

PS320	HM saw blade, series LL CUT 3GS for cross cutting and defects removing	22
PS320	HM saw blade, series LL CUT GS10 for cutting of wood based panels	23
PS320	HM saw blade, series LL CUT Electro for cutting of wood based boards on hand sawing machine	24
PS312	HM saw blade, series LL CUT VH GA5 for cutting of wooden window and door profiles	25
PS322	HM saw blade, series LL CUT VH 3GS-5 for cutting of wood based strips and frames	26
NS130-140	Planer knives for planing of wood on planing machines	27
LS010	Solid carbide finishing router bit for machining centers and milling machines	28
LS501-504	Drill bit with an HM finishing for machining centers and multiple-spindle drilling machines	29
LS550	HM cylinder boring bit / machine drill bit for machining centers and multiple-spindle drilling machines	30
	Set of cutters for windows for milling of window profiles of wood and PVC	31



TOOL IN ACTION



EXPERT'S ADVICE:

- ▶ Specialized saws for cutting out defects, adapted for operation in specialized machines where cutting takes several milliseconds!!!
- ▶ Specially profiled HM 3GS and 3GE teeth shape (sharp alternate top bevel) makes it possible to maintain very good surface quality of processed materials.
- ▶ Due to the application of VERY hard sintered carbide (HM), saws should be sharpened at specialized tool sharpening points in machines equipped with continuous cooling systems – wet sharpening.
- ▶ During defect marking a special attention should be paid to ensure that defect area on both sides of the processed material does not exceed contour of marking.



HM saw blade, series LL CUT

for cross cutting and defects removing

- ▶ for cross cutting and defects removing using impact method on the optimizing cross cut saw with high feed rate
- ▶ used in the production of glued elements in window and door joinery, both before and after tenoning
- ▶ VERY hard sintered carbide (ULTRAFINE) guarantees even longer life time and enables repeated sharpening
- ▶ dynamically balanced disk of toughened extra-fine steel, cut using laser technology, ensures high rigidity and stability of the tool during the cutting process

Index						Geometry		PRICELIST
	mm	mm	mm	mm			ikld _d /d _p	eur/pc.
PS320-0450-0007	450	30	4,8	3,5	136	3GS10°	2x15/63	132,30
PS320-0500-0008	500	30	4,8	3,5	144	3GS5°	2x14,5/63	153,90
PS390-0450-0008	450	30	4,8	3,5	136	3GE10°	2x15/63	132,30
PS390-0500-0003	500	30	4,8	3,5	144	3GE5°	2x14,5/63	153,90

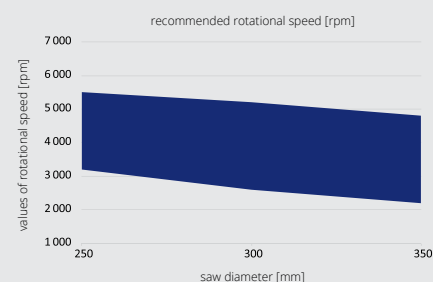
o - on request
d_s - driving holes diameter
d_p - pitch diameter of holes

*see the website for more products



**EXPERT'S ADVICE:**

- Specially profiled HM GS 10° teeth shape (alternate top bevel) allows to maintain very good surface quality of processed materials.
- Due to the application of VERY hard sintered carbide (HM), saws should be sharpened at specialized tool sharpening points in machines equipped with continuous cooling systems – wet sharpening.
- Sharpening of sintered carbides (HM tips) should be carried out on blunting in the range from 0.10 to 0.20 m, measured on the edge between contact surface and tooth rake.



HM saw blade, series LL CUT GS10

for cutting of wooden based panels

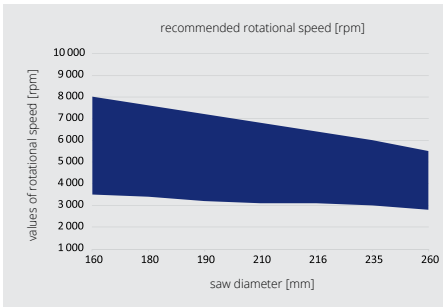
- series designed for cutting/incising of hard-wood, including exotic wood, wood based veneered materials, and plywood
- used for precise cutting of beads, glazing frames, and other finishing elements having the structure of wood grain fibers
- VERY hard sintered carbide (ULTRAFINE) guarantees even longer tool life and enables repeated sharpening
- dynamically balanced disk of toughened extra-fine steel, cut using laser technology, ensures high rigidity and stability of the tool during the cutting process

Index							$\Phi \oplus \Phi$	PRICELIST
	mm	mm	mm	mm			ilxd/d _p	eur/pc.
PS320-0250-0003	250	30	3,2	2,2	80	L	2x7/42+2x8,5/46+2x10/60	57,25
PS320-0300-0001	300	30	3,2	2,2	96	L	2x7/42+2x8,5/46+2x10/60	62,25
PS320-0350-0002	350	30	3,2	2,2	84	L	2x7/42+2x8,5/46+2x10/60	63,70

d_i - driving holes diameter
d_p - pitch diameter of holes

*see the website for more products





- EXPERT'S ADVICE:**
- ▶ This series can also be used in CNC machining centers as a replacement tool in angular aggregate.
 - ▶ Specially profiled HM GS 10° teeth shape (alternate top bevel) allows to maintain very good surface quality of processed materials.
 - ▶ Due to the application of VERY hard sintered carbide (HM), saws should be sharpened at specialized tool sharpening points in machines equipped with continuous cooling systems – wet sharpening.



HM saw blade, series LL CUT Electro

for cutting of wood based boards on hand sawing machines

- ▶ series designed for cutting/incising of hard - wood, including exotic wood, wood - based veneered materials, and plywood
- ▶ used for precise cutting of beads, glazing frames, and other finishing elements having the structure of wood grain fibers
- ▶ VERY hard sintered carbide (ULTRAFINE) guarantees even longer tool life and enables repeated sharpening
- ▶ dynamically balanced disk of toughened extra -fine steel, cut using laser technology, ensures high rigidity and stability of the tool during the cutting process

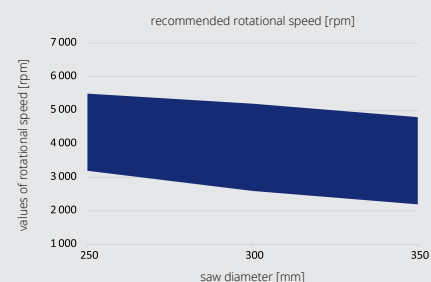
Index							PRICELIST
	mm	mm	mm	mm		for power tools	eur/pc.
PS320-0160-0002	160	20	2,2	1,4	56	BOSCH GKS55 CE, MILWAUKEE CS55, Metabo KS54 SP, Metabo KSE55 Plus, PROTOOL CSP56 EQ, PROTOOL CSP55 - 2, FESTOOL TS55 EBQ	41,90
PS320-0180-0003	180	30	2,4	1,6	56	BOSCH GKS65 CE, MAKITA 5705R, HITACHI C7BU2, DEWALT D23650K, Metabo KSE68 Plus, PROTOOL CSP68 EB, FESTOOL AP65, MILWAUKEE SC565 Q, DWT HKS-190 VS, Celma DBRCc	44,00
PS320-0190-0001	190	30	2,5	1,6	56	BOSCH GKS65 CE, MAKITA 5705R, HITACHI C7BU2, DEWALT D23650K, Metabo KSE68 Plus, PROTOOL CSP68 EB, FESTOOL AP65, MILWAUKEE SC565 Q, DWT HKS-190 VS, Celma DBRCc	44,65
PS320-0210-0007	210	30	2,5	1,6	60	BLACK&DECKER KS810, DWT HKS-210 VS, FESTOOL TS75 EBQ, MILWAUKEE CS75, REBI RZ 2-70-2	47,55
PS320-0216-0003	216	30	2,8	1,8	72	BLACK&DECKER KS810, DWT HKS-210 VS, FESTOOL TS75 EBQ, MILWAUKEE CS 75, REBI RZ 2-70-2	53,30
PS320-0235-0002	235	30	2,8	1,8	80	FESTOOL CS 70, Metabo KS 85	56,80
PS320-0260-0002	260	30	2,8	1,8	84	MAKITA LS1013	63,75

o- on request

*see the website for more products

**EXPERT'S ADVICE:**

- ▶ Due to the application of SUPER hard sintered carbide, saws should be sharpened at specialized tool sharpening points in machines equipped with continuous cooling systems – wet sharpening.
- ▶ Series working on vertical and horizontal sizing machines equipped with scoring saw blades (pre-cutting saw blades).
- ▶ GA teeth geometry (triple chip grind) – designed for precise cutting of uniform wood - based materials.
- ▶ Sharpening of sintered carbides (HM tips) should be carried out on blunting in the range from 0.10 to 0.20 m, measured on the edge between contact surface and tooth rake.



HM saw blade, series LL CUT VH GA5

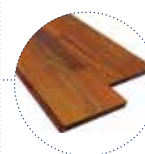
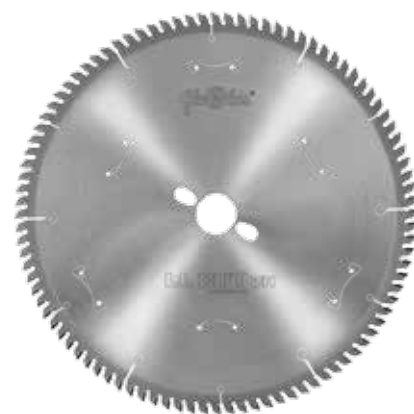
for cutting of wooden window and door profiles

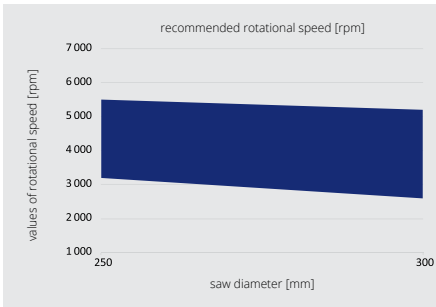
- ▶ in window and door joinery, for cutting of fixed and adjustable casings made of MDF or finishing materials for window and door joinery
- ▶ cutting of interior windowsills of uniform wood based materials – can also be used for cutting of other wood based materials, not related to the production of window and door joinery
- ▶ SUPER HARD sintered carbide (NANOGRAIN) of hardness amounting to 2,250 HV guarantees even longer tool life and enables repeated sharpening
- ▶ dynamically balanced disk of toughened extra-fine steel, cut using laser technology, ensures high rigidity and stability of the tool during the cutting process

Index							$\Phi \oplus \Phi$	PRICELIST
	mm	mm	mm	mm			ilxd/d _p	eur/pc.
PS312-0250-0002	250	30	3,2	2,2	80	L	2x7/42+2x8,5/46+2x10/60	57,75
PS312-0300-0003	300	30	3,2	2,2	96	L	2x7/42+2x8,5/46+2x10/60	55,00
PS312-0350-0002	350	30	3,2	2,2	108	L	2x10/60	79,25

d₁ - driving holes diameter
d₂ - pitch diameter of holes

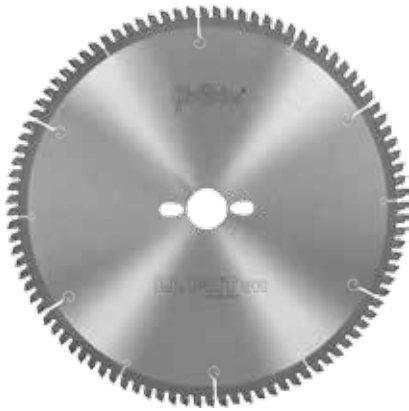
*see the website for more products





EXPERT'S ADVICE:

- ▶ Series recommended for cutting of materials of height not exceeding 30 mm.
- ▶ Specially profiled HM 3GS teeth shape (alternate top bevel) makes it possible to maintain very good surface quality of processed materials.
- ▶ Due to the application of SUPER hard sintered carbide, saws should be sharpened at specialized tool sharpening points in machines equipped with continuous cooling systems – wet sharpening.
- ▶ Sharpening of sintered carbides (HM tips) should be carried out on blunting in the range from 0.10 to 0.20 m, measured on the edge between contact surface and tooth rake.



HM saw blade, series LL CUT VH 3GS-5

for cutting of wood based strips and frames

- ▶ for cutting of strips and frames of wood and wood-based materials, as well as packaged veneers
- ▶ often used in processes of cutting of cellular materials in the production of window and door joinery
- ▶ characterized by perfect surface after cutting and by very good edge quality at the point where the saw leaves material
- ▶ disk of toughened extra-fine steel, cut using laser technology, ensures high rigidity and stability of the tool during the cutting process

Index						$\Phi \oplus \Phi$	PRICELIST
	mm	mm	mm	mm		ltxd/d _p	eur/pc.
PS322-0250-0001	250	30	3,2	2,2	80	2x7/42+2x8,5/46+2x10/60	56,25
PS322-0300-0003	300	30	3,2	2,2	96	2x7/42+2x8,5/46+2x10/60	61,25

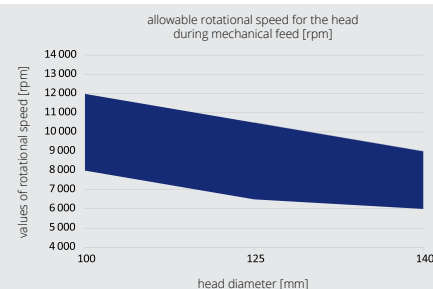
o- on request

*see the website for more products



**EXPERT'S ADVICE:**

- Please note that the selection of a specific type of tool for planed work depends on the density and hardness of the processed material.
- Quality of processed surface depends not only on quality of the tools in the head, but also on proper mutual alignment of the tools in the head.
- Tool should not protrude beyond the heads by more than its double thickness (e.g. a tool of thickness of 3 mm should not protrude by more than 6 mm).
- If you need a planing cutterhead you can order it from us - cutterheads with 4 or 6 knives on stock.



Planer knives

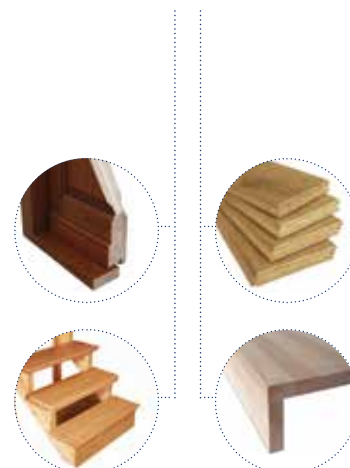
for planing of wood on planing machines

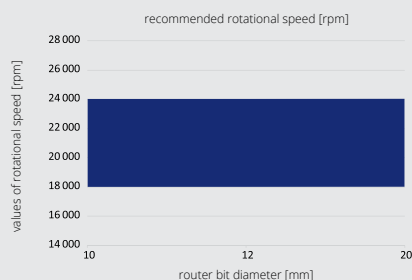
- in the production of window and door joinery, very often used in planing heads in multiple – head tools – four-sided
- for planing of structural elements of posts, casings of wood before the profiling process
- PREMIUM and STANDARD HSS tools differ in execution quality, the PREMIUM HSS tool is executed in precision class I, while the STANDARD HSS tool is executed in precision class II
- the STANDARD HSS tool is recommended for softwood, the PREMIUM HSS tool is recommended for hardwood (deciduous wood), and a tool with HM carbide is recommended for wood based materials

Index					Knife material	Machined material	PRICELIST
	mm	mm	mm	mm			eur/pc.
NS130-0120-0002	120	30	3,0	43°	HSS PREMIUM	board and wood based materials, soft and hard wood	7,05
NS130-0120-0003	120	35	3,0	43°	HSS PREMIUM	— II —	7,50
NS130-0130-0002	130	30	3,0	43°	HSS PREMIUM	— II —	7,10
NS130-0130-0001	130	35	3,0	43°	HSS PREMIUM	— II —	7,65
NS130-0160-0007	160	30	3,0	43°	HSS PREMIUM	— II —	8,85
NS130-0160-0003	160	35	3,0	43°	HSS PREMIUM	— II —	9,70
o NS135-0120-0002	120	30	3,0	43°	HSS STANDARD	— II —	5,40
o NS135-0130-0002	130	30	3,0	43°	HSS STANDARD	— II —	5,50
NS135-0160-0007	160	30	3,0	43°	HSS STANDARD	— II —	6,85
o NS135-0160-0003	160	35	3,0	43°	HSS STANDARD	— II —	7,50
NS140-0120-0002	120	30	3,0	40°/45°	HM	for board and wood based materials	16,40
NS140-0130-0002	130	30	3,0	40°/45°	HM	for board and wood based materials	17,75

o- on request

*see the website for more products



**EXPERT'S ADVICE:**

- ▶ Solid carbide shank cutters should operate at rotational speeds of approximately 18,000-24,000, depending on the type of the processed material.
- ▶ Applied feed values should be from 2 to 12 m/min., depending on the tool diameter, type and thickness of the material, as well as the number of blades.

Solid carbide finishing router bit

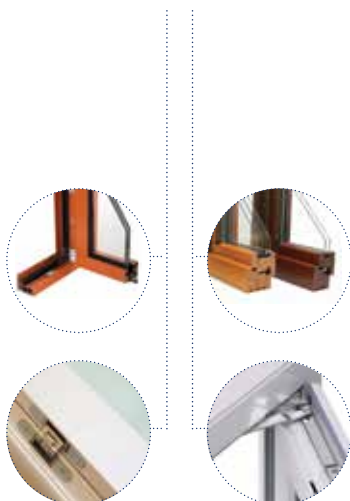
for milling and drilling in wood in machining centers and milling machines



- ▶ cutter with universal application in milling and drilling in CNC machining centers and top spindle milling machines
- ▶ intended for processing of wood, plywood, MDF panels, chipboards, and plastics (PVC, Plexiglas) – for hinges, locks, and handles
- ▶ special blade geometry and spiral arrangement make it possible to remove chip easily and to obtain smooth surface of the processed material
- ▶ solid carbide cutters – body and working part made of sintered carbide

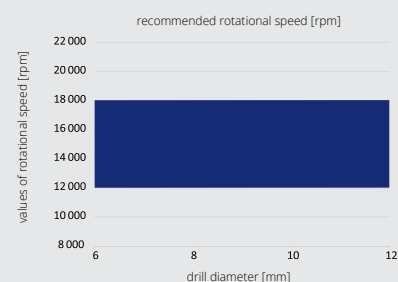
INDEX							PRICELIST
	mm	mm	mm	mm			eur/pc.
LS010-0010-0001	10	42	90	10	3 positiv	R	41,80
LS010-0012-0001	12	42	90	12	3 positiv	R	52,55
LS010-0020-0001	20	60	120	20	3 positiv	R	145,35

*see the website for more products



**EXPERT'S ADVICE:**

- ▶ Drill bits with HM inserts are tools where the sintered carbide (HM) insert can be safely serviced – HM inserts are sharpened in specialized grinding machines, without changing the tool diameter at the same time.
- ▶ Due to the applied production technology, the drill bit structure ensures extending the tool life time by up to 20%.
- ▶ If you need a drill bit of specialized spiral structure and untypical parameters – be sure to send an inquiry, drawing and description of use.



Drill bit with HM finishing

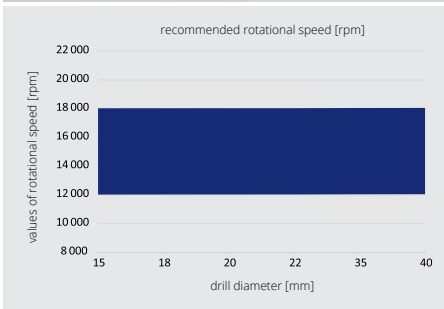
for machining centers and multiple-spindle drilling machines

- ▶ drilling of through and blind holes in wooden window profiles and doors of wood and wood based materials
- ▶ drill bits designed for processing in machining centers and multiple-spindle drilling machines – holes for hinges and handles
- ▶ blade made of sintered carbide, and drill bit body made of special tool steel characterized by durability and resistance to cracking
- ▶ drill bit with machine shank (with bevel) facilitates fast assembly and disassembly in a machine chuck

Index						PRICELIST
	mm	mm	mm	mm		eur/pc.
LS501-0810-0002	8	10	20	70	R	8,20
LS501-1010-0002	10	10	20	70	R	8,95
LS501-1210-0002	12	10	20	70	R	13,25
LS502-0810-0002	8	10	20	70	L	8,20
LS502-1010-0002	10	10	20	70	L	8,95
LS502-1210-0002	12	10	20	70	L	13,25
LS503-0810-0002	8	10	20	70	R	8,55
LS503-1010-0001	10	10	20	70	R	10,95
LS503-1210-0001	12	10	20	70	R	12,30
LS504-0810-0002	8	10	20	70	L	8,55
LS504-1010-0001	10	10	20	70	L	10,95
LS504-1210-0001	12	10	20	70	L	12,30

*see the website for more products





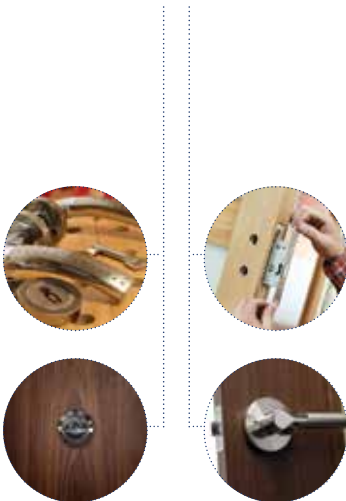
- EXPERT'S ADVICE:**
- ▶ Possibility of executing drill bits in various diameter type dimensions.
 - ▶ Suitable for operation in wood and wood based materials.
 - ▶ Possibility of manufacturing drill bits in various total lengths of 90, 105, 110, and 120 mm.

HM cylinder boring bit / machine drill bit

for machining centers and multiple-spindle drilling machines



- ▶ drilling of blind holes in wooden window profiles and doors wood and wood based materials
- ▶ drill bits designed for processing in machining centers and multiple-spindle drilling machines
- ▶ blade made of sintered carbide, and drill bit body made of special tool steel characterized by durability and resistance to cracking
- ▶ drill bit with machine shank (with bevel) facilitates fast assembly and disassembly in a machine chuck



Index						PRICELIST
	mm	mm	mm	mm		eur/pc.
◦ LS550-1510-0003	15	15	57	10	R	10,35
◦ LS550-1510-0004	15	15	70	10	R	10,95
◦ LS550-1510-0005	15	15	57	10	L	10,35
◦ LS550-1510-0006	15	15	70	10	L	10,95
◦ LS550-2010-0001	20	15	57	10	R	11,40
◦ LS550-2010-0002	20	15	70	10	R	11,80
◦ LS550-2010-0006	20	15	57	10	L	11,40
◦ LS550-2010-0003	20	15	70	10	L	11,80
◦ LS550-2510-0001	25	15	57	10	R	11,70
◦ LS550-2510-0002	25	15	70	10	R	12,20
◦ LS550-3010-0006	30	15	70	10	R	14,45
◦ LS550-3510-0002	35	15	70	10	R	16,00

o- on request

*see the website for more products



SETS OF CUTTERS FOR WINDOWS

On individual client's request, we execute sets of formed arbor cutters for various types of window profiles.

WE MANUFACTURE CUTTERS IN VERSION WITH AN HSS OR HM BLADE, DEPENDING ON THE TYPE OF MACHINED MATERIAL

- ▶ sets of cutters with HSS blade are recommended for processing of solid wood
- ▶ sets of cutters with HM blade are recommended for processing of glued solid wood and for processing of window profiles of PVC

A price quote for execution of sets of cutters for window profiles is generated on the basis of a window profile drawing send by the client, with marked dimensions, or on the basis of a finished profile delivered to our address.



Prices do not include the delivery cost (prices quoted EX WORKS). The delivery form and cost are determined individually with customer.



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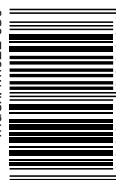
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