



**LEUCO**

# INSTRUCTIONS

MANUFACTURER: DUROPAL

MATERIAL: XTREME BOARDS



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# INSTRUCTIONS FOR USE

## DUROPAL XTREME BOARDS

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## PRODUCT DESCRIPTION DUROPAL XTREME BOARDS

Decorative high-pressure laminate in postforming quality with hard-wearing, melamine resin surface and sanded reverse.

### Areas of use:

Surface material for high-quality kitchen and office furniture, for walls and doors, furniture and installations in sales and leisure facilities, catering, in administration buildings, sanitary, clinic or laboratory areas. Especially when particular robustness, easy care and hygiene standards are set.

## INSTRUCTIONS FOR USE DUROPAL XTREME BOARDS

The following useful information is based on various different testing methods with the best machining results in each case by LEUCO Ledermann GmbH & Co.KG.

### EXPLANATION OF TERMS USED

**DP** = DIA / diamond; **HW** = hard metal; **HR** = hollow back; **L-S** = slow, fast; **L-S-L** = slow, fast, slow; **vc** = cutting speed; **fz** = feed per tooth; **vf** = feed rate

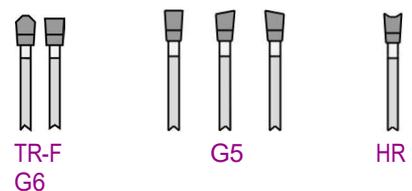
## 1. GENERAL INFORMATION

The load on the tool when machining Duropol XTreme boards is higher than with most wood-based panels. Hard metal (carbide) tools (HW) can also be used for the machining. For large quantities and if modern automatic machine tools are used we recommend using diamond-tipped tools (DP); these offer very good quality work and a long tool life.

## 2. CUTTING / SIZING & TRIMMING

### 2.1 Circular saw bend

Various factors are responsible for a good cutting result: Decor side at the top, correct saw blade projection, feed rate, tooth geometry, tooth pitch, speed and cutting speed. Carbide-tipped (HW) or diamond-tipped (DP) circular saw blades are used, depending on the amount of cutting to be done.



HW saw blades with trapezoidal-flat-chamfer (TR-F-FA) (= modified triple chip grind MTCG) and G5 tooth geometries forms are particularly suitable for final trimming of smaller quantities of cuts. Good cutting results are also possible with the nn-system DP Flex circular saw trimming blades with tooth geometry HR.



## 2.2 PANEL CUT-TO-SIZE SAWS

Outstanding cutting results are achieved with a new hard metal tipped panel tipped panel cut-to-size machine with a new panel cut-to-size saw blade (192976) from the Q-Cut saw family (Q-Cut K). Good results can also be achieved with LEUCO DIA panel cut-to-size circular saw blades "HR" nn-system DIAREX (192655).



TR-F B



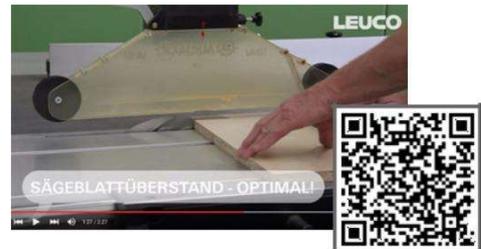
HR

The tooth also engages on the decor side of the panel. Good edges are achieved on both sides only if a suitable scorer is used. Very good cutting results are achieved with a suitable saw blade projection. This depends on the diameter:

Circular saw blade diameter:	Circular saw blade diameter:
D = 250mm	approx. 15 - 20 mm
D = 300mm	approx. 20 - 30 mm
D = 350mm	approx. 22 - 28 mm
D = 400mm	approx. 25 - 30 mm
D = 450mm	approx. 25 - 33 mm

The recommended cutting speed is 60 - 90 m/sec. The upper value is to be chosen for DP and HW-tipped circular saw blades. A feed per tooth of 0.05 - 0.12 mm must be aimed for.

For further information on the optimum saw blade projection, visit our YouTube channel. >>> Scan the QR code and watch the video on YouTube! Or directly at [www.youtube.com/leucotooling](http://www.youtube.com/leucotooling) <<<



## 2.3 CONTINUOUS CUTTING MACHINES: CUTTER (CHIP REMOVAL)

Outstanding results can be achieved with double cutter methods for trimming with cutter tools in continuous cutting machines. Cutters with low cutting pressure are recommended, for example, the Leuco "Powertec III LowNoise" cutter.

Cutting speed: 80 m/sec.  
Tooth feed: 0.2 – 0.3 mm with PowerTec cutters



PowerTec III LowNoise

## 3. ROUTING / EDGE FINISHING

Good edge jointing results, not only with high-gloss but also with matt surfaces, are achieved with "LEUCO p-system"- joint cutters (shank angle = 70°) as well as the LEUCO DIAREX airFace joint cutters (shank angle = 48°). Tools with DP tipped cutting edges are to be used for cutting work. If a double jointing unit is available it is advisable to joint in two stages. In the first pass material remove according to the allowance less the finish cutting width. In the second pass removal of max. 0.5 mm for finishing.



p-System joint cutter



DIAREX airFace joint cutter



## 4. MACHINING ON STATIONARY CNC MACHINES

DP tools as shown on page 6 are recommended for stationary machining. However, the following points must be noted:

- || Always select the largest possible diameter (less risk of vibration).
- || On stationary machines it is advisable to use tools with very large shank angles, as here a good relationship exists between the capacity of the tools and the cutting quality.
- || Clamping devices: Use hydro clamping systems or shrink-fit chucks, to ensure smooth tool movement
- || Diameter: choose the largest possible size. For cutting pockets or cutouts/recesses the tool should definitely be designed with bottom cutting edge / drilling cutting edge.
- || Tooth feed: as shown in the table

Cutter diameter	3 - 10 mm	10 - 16 mm	16 - 25 mm	25 - 40 mm	> 40 mm
Recommended fz (mm) for particleboard & MDF	0,03 - 0,10	0,10 - 0,20	0,20 - 0,30	0,30 - 0,40	0,40 - 0,50

## 5. DRILLING

For drilling, for example dowel holes and through-holes, we recommend drill bits with low cutting pressure and good chip transport. These include the drill bits of the LEUCO "Mosquito" (through-drill bits, dowel drill bits) and "Light" Forstner bits product families as well as drill pins (D = 3-5 mm).

- || Tension means: free clearance entry with secure hold



"Mosquito" through-drill bit HW



"Mosquito" dowel drill bit



"Light" cylinder head drill bit

## 6. FORMULAE

### 6.1 CUTTING SPEED - VC

|| Unit: m/s

|| Data required: Diameter = D [mm];  
Tool speed = n [1/min]

|| Calculation:  $vc = (D * \pi * n) / (60 * 1000)$

### 6.2 TOOTH FEED - FZ

|| Unit: mm

|| Data required: Feed rate = vf [m/min];  
Tool speed = n [1/min];  
Number of teeth = z

|| Calculation:  $fz = (vf * 1000) / (n * z)$

### 6.3 FEED RATE - VF

|| Unit: m/min

|| Data required: Tooth feed = fz [mm];  
Tool speed = n [1/min];  
Number of teeth = z

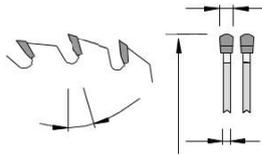
|| Calculation:  $vf = (fz * n * z) / 1000$



## 7. LEUCO TOOLS FOR MACHINING DUROPAL XTREME BOARDS

### 7.1 CIRCULAR SAW BLADES FOR PANEL CUT-TO-SIZE SAWS

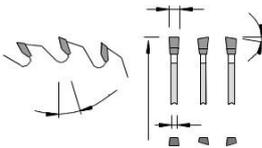
Dimensions	Name/description	Z	Tooth geometry	Cut material	Projection	ID No.
Ø 380 x 4,4 / 3,2 x Ø 60	Q-Cut K	72	TR-F K	HL Board 04 plus	approx. 22-30 mm	192976
Ø 350 x 3,5 / 2,8 x Ø 60	nn-System DIAREX	72	HR	DP	approx. 20-25 mm	192655



- II Further saws with other diameters, cutting widths, holes and number of teeth **available on request**.
- II The number of teeth and feed rate are dependent on the cut height and use for single panels or stack cutting.

### 7.2 CIRCULAR SAW BLADES FOR TRIMMING SAW

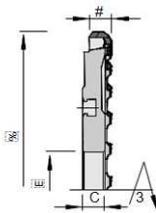
Dimensions	Name/description	Z	Tooth geometry	Cut material	Projection	ID No.
Ø 303 x 2,5 (2,0) x Ø 30	nn-System DP flex	60	HR	DP	approx. 20 mm	192444
Ø 300 x 3,2 (2,2) x Ø 30	HW-LowNoise	96	G6	HL Board 04 plus	approx. 20 mm	192783
Ø 300 x 3,0 (2,2) x Ø 30	Circular saw final trimming blades HW "G5"	100	G5	HL Board 04 plus	approx. 20 mm	192794



- II Further saws with other diameters, cutting widths, holes and number of teeth **available on request**.
- II The number of teeth and feed rate are dependent on the cut height and use for single panels or stack cutting.

### 7.3 CUTTER (CHIP REMOVAL)

Dimensions	Name/description	Z	Cut material	ID No.
Ø 250 x 14,5 x Ø 60	PowerTec III LowNoise	16+16+4	DP	185630
				185631

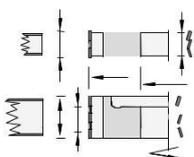


PowerTec III LowNoise

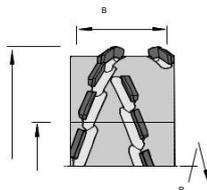
- III Further PowerTec cutters with other dimensions **available on request**.

### 7.4 JOINT CUTTERS

Dimensions	Name/description	Z	AW	Cut material	ID No.
Ø 125 x 42,8 x Ø 30	DIAREX joint cutter	3+3	48°	DP	186323
Ø 125 x 47,8 x 40 x Ø 30	p system joint cutter MEC	3+3	70°	DP	184071
Ø 125 x 47,8 x 54,8 x Ø 30	p system joint cutter MAN	2+2	70°	DP	184333



DIAREX airFace  
Joint cutters



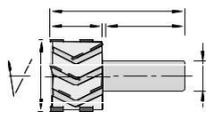
P system  
Joint cutters

- II Further saws with other diameters, cuttings widths, holes, and number of teeth **available on request**.

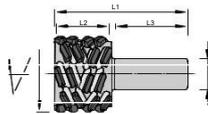


## 7.5 CNC SHANK CUTTER

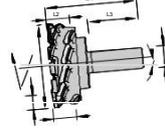
Dimensions	Name/description	Z	AW	Cut material	ID No.
Ø 48 x 22 x Ø 25	High-performance square edge/trimming cutter	4+2+4	40°	DP	186140
Ø 60 x 38 x Ø 25	High-performance shank cutter CM „p system“	4+4	70°	DP	184084
Ø 25 x 48 x Ø 25	High-performance shank cutter CM „p system“	2+2	70°	DP	184384
Ø 12 x 21,5 x Ø 16	High-performance shank cutter CM „p system“	1+1	70°	DP	185501
Ø 100 x 18,6 x Ø 25	High-performance notching/rabbeting shank cutter „p system“	3+3	70°	DP	184731
Ø 18 x 19 x Ø 20	High-performance routing/groove shank cutter	1+1	70°	DP	185614



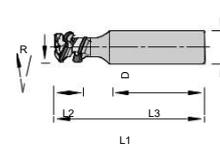
High-performance square edge / trimming cutter



High-performance shank cutter CM (4+4) „p system“



High-performance notching / rabbeting shank cutter (3+3) „p system“

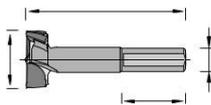


High-performance routing / groove shank cutter (1+1) „p system“

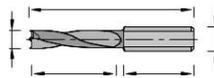
|| Further end mill cutters with other dimensions are **available on request**.

## 7.6 THROUGH, DOWEL AND BLIND HOLE DRILL BITS

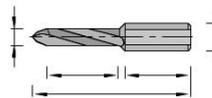
Dimensions	Name/description	Cut material	ID No. (L)	ID No. (R)
Ø 25 x L1=70 x Ø 10	„Light“ cylinder head drill bit	HW	184687	184686
Ø 5 x L1=70 x Ø 10	Mosquito through-hole drill bit	HW	182462	182463
Ø 6 x L1=70 x Ø 10	Mosquito dowel drill bit	HW	181526	181525
Ø 3 x L1=45 x Ø 3	Drilling pin	VHW	180943	180943



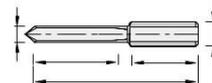
„Light“ cylinder head drill bit



Mosquito dowel drill bit



Mosquito through-hole drill bit



Drilling pin VHW

|| Further drill bits with other diameters, cutting edge lengths and shank dimensions **available on request**.

- Your required tool type or tool dimension is not included?  
Please contact the LEUCO sales department.  
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## TIP – LEUCO ONLINE CATALOGUE

The LEUCO tool recommendations for processing Duropal XTreme sheets can be found in the LEUCO Online catalogue.

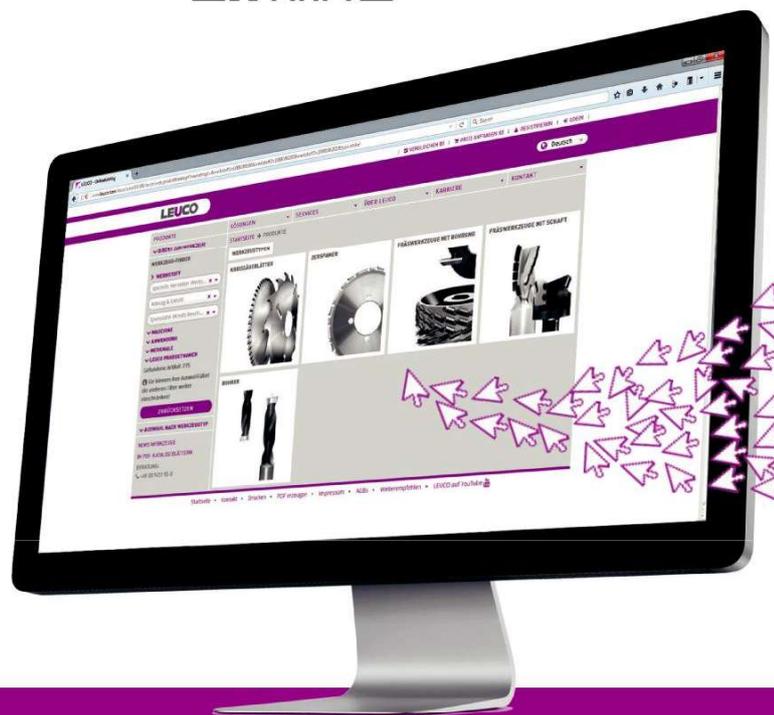


Alternative:  
Scan this QR code to bring up  
the LEUCO guide.

FAST  
&  
EASY

- 1 [www.leuco.com/produkte](http://www.leuco.com/produkte)
- 2 Click „Material“ filter
- 3 „specific manufacturer materials“
- 4 „Duropal“
- 5 „XTreme“

- Select saw blades, chip  
remover, cutter, drill bit



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