

PROCESSING INSTRUCTIONS

MANUFACTURER: OBO-Werke GmbH

MATERIAL: maridur® 30-70

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maridur® 30-70



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PRODUCT DESCRIPTION maridur® 30-70

maridur® is a high-quality and easy-to-process plastic material. Due to the combination of different raw materials and additives, products are generated which offer a wide range of different materials. The maridur® products are insensitive to moisture and can be laminated with different materials.

PROCESSING INSTRUCTIONS maridur® 30-70

The following processing information is based on a wide range of test series with the best machining results in each case produced by LEUCO Ledermann GmbH & Co. KG.

DEFINITION OF TERMS

DP = DIA; **HW** = carbide; **HR** = hollow back; **L-S** = slow, fast; **L-S-L** = slow, fast, slow; **S-S** = fast, fast; **vc** = cutting speed; **fz** = tooth feed; **vf** = feed speed

1. GENERAL INFORMATION

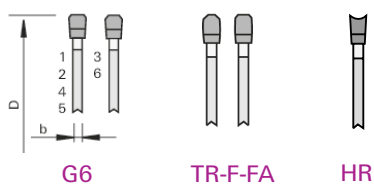
Fields of application for maridur® 30-70 are: interior finishing for front panels and lateral panels, door filling for front doors, profile ledges, handrails, inner ledges for insulating glass panes, bathroom furniture, wall and ceiling claddings, skirting boards, closing edges, cornices.

2. TRIMMING CUT / SIZING

2.1 PANEL TRIMMING WITH CIRCULAR SAW BLADES

Various factors are responsible for good trimming results:

Good side facing up, correct saw blade projection, feed speed, tooth configuration, tooth pitch, rpm and trimming speed. Depending on the volume to be cut, carbide-tipped (HW) or diamond-tipped (DP) circular saw blades are used. **Recommended tooth configurations:**



2.2 SIZING SAW

The best cutting result on sizing saws can be achieved using the circular HW saw blade "solid Surface" with a hook angle of 0°. Good cutting results are also possible with the DP saw blade nn-System DP flex and the HW saw blades g5-System. The cutting speed should be at approx. 72 - 80 m/sec.



2.3. PANEL SIZING SAW

On panel sizing machines, excellent cutting results can be achieved with the new circular panel sizing saw blades from the "Q-Cut G6" range. The recommended feed per tooth (fz) is between 0.06 - 0.07 mm. The maximum feed per tooth is $fz = 0.096$ mm and should not be exceeded. Here again, tooth engagement occurs on the good side of the panel. Good edges on both sides can only be achieved using a suitable scorer. Very good cutting results are achieved with a suitable saw blade projection. This depends on the diameter.



Circular saw blade diameter

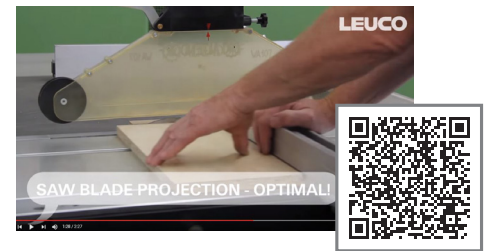
- D = 250 mm
- D = 300 mm
- D = 350 mm
- D = 400 mm
- D = 450 mm

Saw blade projection

- approx. 15 - 20 mm
- approx. 15 - 25 mm
- approx. 18 - 28 mm
- approx. 25 - 30 mm
- approx. 25 - 33 mm

The recommended cutting speed is 70 - 90 m/sec. The upper value should be selected in the case of DP-tipped circular saw blades. Try to aim for a feed per tooth of 0.06 - 0.07 mm.

Please refer to our YouTube channel for more information about the optimum saw blade projection. >>> Scan QR code and watch video on YouTube. Alternatively, go to www.youtube.com/leucotooling <<<



2.4. THROUGH-FEED MACHINES: HOGGERS

Industrial sizing on through-feed machines is done using diamond-tipped tools. When sizing with hogger tools, outstanding results are achieved in the double hogging process. For this purpose, we recommend hogs with low cutting pressure, such as the LEUCO PowerTec hogger. The number of hogger teeth should be matched to the respective machining feed. All hogs tested were used with the following application parameters: **speed:** $n = 6,000$ rpm; **abrasion:** $a = 2$ mm, **feed:** $vf = 40$ m/s. The PowerTec hogs have a favorable cutting geometry for the maridur® 30-70. The material can also be processed with other hogger types but the cross-section is not as good as if processed with the PowerTec hogger. In order to create optimal conditions for quality and edge lives, a precise hydro or HSK clamping is recommended for the processing with hogs.



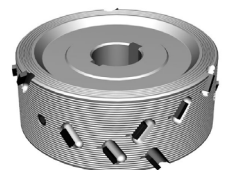
PowerTec airFace

3. MILLING / EDGE PROCESSING

In general, tools with carbide-tipped and diamond-tipped blades should be used for jointing work in the through-feed process. When sizing with jointing cutters, very good results can be achieved with tools that have a small shear angle. For diamond-tipped tools, a shear angle of 35° and for a cutterhead with HW turnover knives, a shear angle of 15° is suitable. Longer edge lives can be achieved with a diamond-tipped tool. Jointing in two stages is recommended if a double jointing unit is available. In order to create optimal conditions for quality and edge lives, a precise hydro or HSK clamping is recommended for the jointing work. The ideal feed per tooth (fz) is between 0.7 - 0.75 mm.



SmartJointer airFace



DIAMAX airFace



4. PROCESSING ON CNC STATIONARY MACHINES

Dividing cuts, jointing cuts, pocket milling, etc. can be performed easily with common shank-type cutters. The right choice depends on the requirements regarding the desired cutting quality. Generally, solid tungsten carbide shank-type cutters are optimally suited since they are mostly provided with continuous cutting edges. The use of tools with division of cut can lead to visible processing traces, especially if clamping systems with a clamping accuracy in the range of 1/100 mm (e.g. for draw-in collet chucks) are used. In order to achieve a high cutting quality, precision clamping systems such as hydro expansion chucks, TRIBOS or heat-shrinking chucks should be used.

Absolutely smooth cuts can be achieved using VHW shank-type cutters with continuous spiral and turnover knives with continuous cutting edge. When using tools with shear angles arranged opposite each other, there may be slight traces in the overlapping area even independently of the clamping elements used. Even diamond-tipped tools with a small shear angle work very well. Their use can be particularly taken into consideration for panels with high density (maridur® 65 + 70) and / or for panel with abrasive top layers.

5. DRILLING

Practically, the maridur® panels can easily be processed with all common HW / VHW dowel or through-hole bits. Hole edge quality and chip evacuation at e.g. **speed n** = 4,500 rpm and **feed vf** = 2 - 4 m/min are good. The respective surface of the laminated plates, however, are important for the selection of specific drill bit types. There are differences in borehole quality, chip evacuation and edge life between the conventional HW standard drill bits and drill bits with wear-resistant tungsten carbide and optimized geometries. For hinge holes, cylinder boring bits with the lowest possible cutting pressure are suitable.

6. FORMULAS

6.1. CUTTING SPEED – VC

| Unit: m/s

| Necessary data: diameter = D [mm];

Tool speed = n [1/min]

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

6.2. TOOTH FEED – FZ

| Unit: mm

| Required data: feed speed = vf [m/min];

Tool speed = n [1/min]; no. of teeth = z

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

6.3. FEED SPEED – VF

| Unit: m/min

| Required data: tooth feed = fz [mm];

Tool speed = n [1/min]; no. of teeth = z

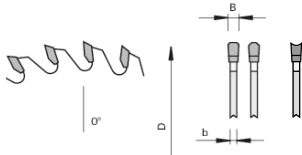
| Calculation: $vf = (fz * n * z) / 1000$



7. LEUCO TOOLS FOR PROCESSING maridur® 30-70 panels

7.1. CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Description	Z	Tooth shape	Cutting material	Projection	Ident-No.
Ø 303 x 3,2 x Ø 30	HW solid Surface	84	TR-F-FA	HL Board 06	approx. 25 mm	193133
Ø 303 x 2,5 x Ø 30	nn-System DP flex	60	HR	DP	approx. 25 mm	192444

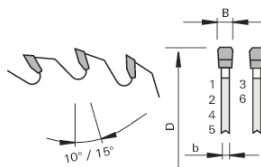


Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.

Number of teeth and feed speed depend on cutting height and application for single panels or stack cuts.

7.2. CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

Dimension	Description	Z	Tooth shape	Cutting material	Projection	Ident-No.
Ø 350 x 4,4 x Ø 60	Q-Cut G6	72	G6	HL Board 04+	approx. 20 mm	193148
Ø 360 x 4,4 x Ø 60	Q-Cut G6	72	G6	HL Board 04+	approx. 20 mm	192153
Ø 450 x 4,8 x Ø 60	Q-Cut G6	72	G6	HL Board 04+	approx. 25 mm	193175

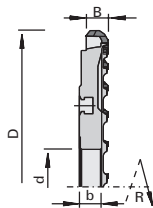


Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.

Number of teeth and feed speed depend on cutting height and application for single panels or stack cuts.

7.3. HOGGERS

Dimension	Description	Z	Tooth shape	Ident-No. (L)	Ident-No. (R)
Ø 250 x 9,5 x Ø 60	PowerTec airFace	20+10	DP	186528	186527
Ø 250 x 9,5 x Ø 60	PowerTec airFace S	20+10	DP	186552	186551

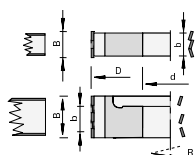


PowerTec airFace

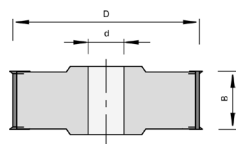
Additional PowerTec hoggers with other dimensions **available on request**.

7.4. JOINTING CUTTERS

Dimension	Description	Machine	Z	Shear<	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 125 x 43,2 x Ø 30	DIAMAX airFace	Through-feed MEC	3+3	35°	DP	186399	186399
Ø 125 x 44 x Ø 30	Jointing/rabbeting cutterhead	Through-feed MAN	2+2	15°	HW	179181	179181



DIAMAX airFace



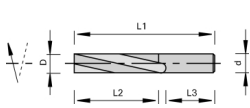
Jointing/rabbeting cutterhead

Additional jointing cutters with other diameters, cutting edge widths, bores and numbers of teeth **available upon request**.

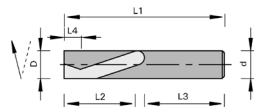


7.5. CNC SHANK-TYPE CUTTERS AND CLAMPING ELEMENTS

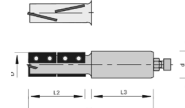
Dimension	Description	Z	Cutting material	L/R	Ident-No.
Ø 20 x 55 x Ø 20	Finishing cutters, positive	3	VHW	R	178352
Ø 16 x 55 x Ø 16	Finishing cutters, positive/negative	2+2	VHW	R	180873
Ø 20 x 53 x Ø 20	Shank-type cutters with alternating shear angle	2+2	HW	R	184253
Ø 10 x 22 x Ø 12	DIAMAX shank-type cutters	2	DP	R	178661
Ø 16 x 28 x Ø 16	DIAREX shank-type cutters	2+2	DP	R	186148
On request	Profile shank-type cutters HW or DP				On request
HSK 63F for Ø 16	Hydro expansion chucks ps-System				184307
HSK 63F for Ø 20	Hydro expansion chucks ps-System				184308



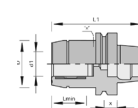
Finishing cutters, positive



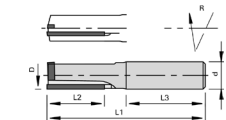
Finishing cutters, positive, negative



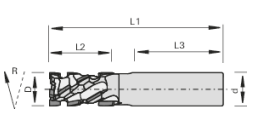
Shank-type cutters with alternating shear angle



Hydro expansion chucks ps-System



DIAMAX shank-type cutters



DIAREX shank-type cutters

Further shank-type cutters with other dimensions and clamping elements are available from stock upon request.

7.6. THROUGH-HOLE, DOWEL- AND BLIND HOLE BITS

Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Standard through-hole drill bits	HW	176505	176504
Ø 8 x L1=70 x Ø 10	Standard through-hole drill bits	HW	176507	176506
Ø 5 x L1=70 x Ø 10	Mosquito through-hole drill bits	VHW	183153	183152
Ø 8 x L1=70 x Ø 10	Mosquito through-hole drill bits	VHW	183157	183156
Ø 5 x L1=70 x Ø 10	topline through-hole drill bits	VHW	185742	185741
Ø 8 x L1=70 x Ø 10	topline through-hole drill bits	VHW	185744	185743

Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Standard dowel drill bits	HW	003231	003230
Ø 8 x L1=70 x Ø 10	Standard dowel drill bits	HW	003243	003242
Ø 5 x L1=70 x Ø 10	Mosquito dowel drill bits	VHW	182390	182391
Ø 8 x L1=70 x Ø 10	Mosquito dowel drill bits	VHW	183151	183150
Ø 5 x L1=70 x Ø 10	topline dowel drill bits	VHW	185760	185759
Ø 8 x L1=70 x Ø 10	topline dowel drill bits	VHW	185764	185763

Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 15 x L1=70 x Ø 10	"Light" cylinder boring bits	HW	184685	184684
Ø 35 x L1=70 x Ø 10	"Light" cylinder boring bits	HW	184689	184688

Additional drill bits with other dimensions, cutting lengths and shank dimensions available on request.

→ Couldn't find the tool type or tool dimensions you want?
Please contact LEUCO Sales.

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TIP – LEUCO ONLINE CATALOG

You can find LEUCO tool recommendations for processing maridur® panels in the LEUCO Online Catalog.



Alternatively:
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stock program.

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- 1 www.leuco.com/products
 - 2 Click "tool" filter
 - 3 "special manufacturer materials"
 - 4 maridur® 30-70
- Select saw blades, hogsers, cutters, drill bits



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