

Application To drill holes for the furniture industry and in timber frame construction.

Workpiece material Soft and hardwood.
Chipboard and fibre materials (chipboard, MDF, HF, etc.), without coating, with plastic coating, veneer etc. (only HW).
Glulam (plywood, etc.; only HW).

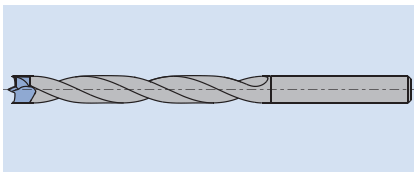
Machine Vertical boring machines,
Automatic boring machines,
Special boring machines,
Portable boring machines.

Design

1. Twist drills

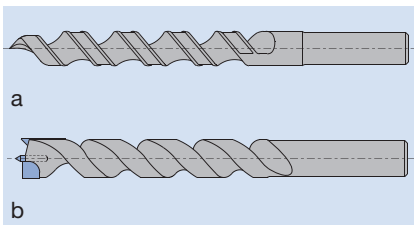
Twist drills with a centre-point and spurs (Z2/V2) are used for drilling holes deeper than possible with dowel drills.

There is a choice of cutting materials – SP, HS and HW – and the matrix details the recommended cutting material for the different workpiece materials:



	SP	HS	HW
Softwood, dry	◆	◆	◆
Softwood, wet	◆	◆	◇
Hardwood, dry	◇	◆	◆
Hardwood, wet	◇	◆	◇
Glulam (plywood, etc.)			◆
Chipboard and fibre materials			
– paper-coated			◆
– plastic-coated			◆
– veneered			◆
Solid wood, veneered			◆
◆ suitable ◇ partly suitable			

HW spiral boring bits are supplied with single or double heel. The design with double heel improves guidance during boring and return stroke and reduces the friction between flute and hole.

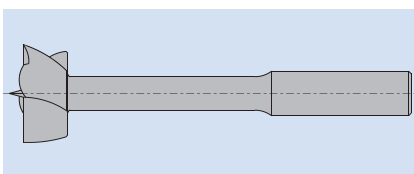


2. Levin-type drill

Levin-type drills are used to bore deep holes. The key feature is a spiral flute with a very large chip gullet cross section giving excellent chip clearance.

Two designs are available:

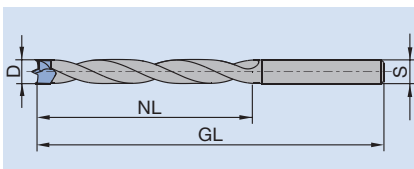
- a) With V-point in HS: recommended for through-hole drilling and boring holes in cross grain.
- b) With centre-point and spurs in HW: recommended when drilling hardwood and glulam.



3. Machine bit

Machine bits are used to drill tear-free holes in solid wood, for blind holes, for hinge holes and holes for repair plugs.

Technical features



The dimensions listed in the tool tables refer to the following tool parameters:

D	Hole diameter.
S	Shank diameter x shank length.
NL	Working length = possible boring depth.
GL	Total length of the boring bit including the projection of the centre-point.

Application Data

RPM/feed speeds

The optimum RPM and feed speeds are detailed in the diagrams attached to the tool tables.

6. Drilling

6.4 Multi-purpose drilling

6.4.1 Twist drills



HW-solid, Z 2

Application:

For all-purpose drilling of holes and through-holes.

Machine:

Point-to-point drilling machines, through-feed drilling machines, CNC machining centres, hinge boring machines, multi-spindle units, vertical boring machine, portable boring machine

Workpiece material:

Softwood and hardwood, chipboard and fibre materials (chipboard, MDF, HF etc.), untreated, plastic-coated, veneered etc., laminated woods (plywood etc.), plastics (thermoplastic, fibre-reinforced etc.), NE metals (aluminium, copper etc.)

Technical information:

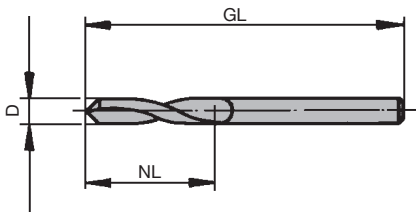
Flat V-point tip. Shank diameter identical to drill diameter. Adaptable for shank d. 10 mm with reducing sleeve TB 110-0 or PM 320-0-25 (see following pages).



V-point 120°

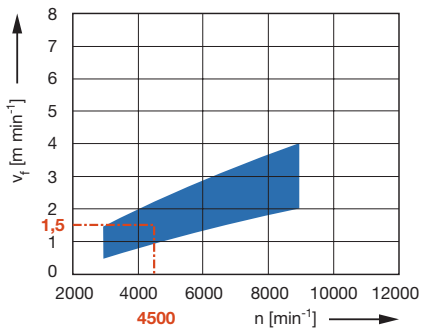
WB 101-0-04

D mm	GL mm	NL mm	QAL	ID LL	ID RL
2	40	17,5	HW-solid	034410	034411 ●
2,5	40	18	HW-solid	034412	034413 ●
3	46	16	HW-solid	034414	034415 ●
3,2	49	18	HW-solid	034420	034421 ●
3,5	52	20	HW-solid	034416	034417 ●
4	55	22	HW-solid	034418	034419 ●
5	62	26	HW-solid	034424	034425 ●



RPM: $n = 3000 - 9000 \text{ min}^{-1}$

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Chipboard plastic coated

Working step:

Boring

Correction factor for v_f :

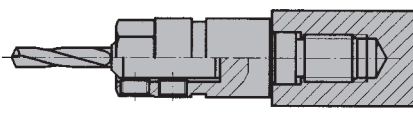
MDF, solid wood = 0.7

Chipboard, untreated = 1.3

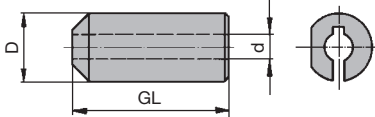
6. Drilling

6.4 Multi-purpose drilling

6.4.1 Twist drills



Boring bit clamping using the reducing sleeve TB 110-0 to use the full drill working length



Reducing sleeve with short clamping length

Application:

To hold twist drill WB 101-0-04. To use the full drill working length.

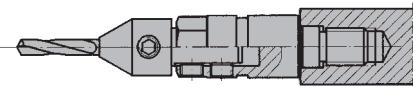
Technical information:

Adaptor can be used in boring spindles or adjustable drill chucks with side clamping screw. Not suitable for use in most quick-change drill adaptors such as PM 320-0-55/-56/-57/-58.

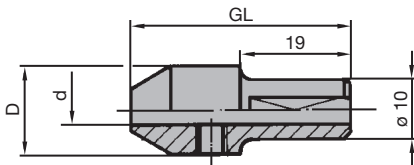
Reducing sleeves with short clamping length

TB 110-0

D mm	d mm	GL mm	ID
10	2	23	034520 ●
10	2,5	23	034521 ●
10	3	23	034522 ●
10	3,18 / 3,2	23	034525 ●
10	3,5	23	034523 ●
10	4	23	034524 ●
10	5	23	034526 ●



Boring bit clamping with increased stability using reducing sleeve PM 320-0-25



Reducing sleeve with increased clamping length

Application:

To hold twist drill WB 101-0-04 with reduced risk of braking the clamped drill by reducing the overhang length.

Technical information:

Adaptor can be used in boring spindles or adjustable drill chucks with side clamping screw and the sleeve shank length adjustment screw ID 7408 allows for trouble-free clamping in adjustable drill chucks PM 320-0-55/-56/-57/-58.

Reducing sleeves with increased clamping length

PM 320-0-25

D mm	d mm	GL mm	S mm	ID
15	2	38	10x19	034490 ●
15	2,5	38	10x19	034491 ●
15	3	38	10x19	034492 ●
15	3,18 / 3,2	38	10x19	034495 ●
15	3,5	38	10x19	034493 ●
15	4	38	10x19	034494 ●
15	5	38	10x19	034496 ●

Spare parts:

BEZ	ABM mm	ID
Allen Key	SW 3	005433 ●
Allen screw	M6x5	005836 ●

6. Drilling

6.4 Multi-purpose drilling

6.4.1 Twist drills



HS-solid, Z 2 / V 2

Application:

For multi-purpose drilling of tear-free holes.

Machine:

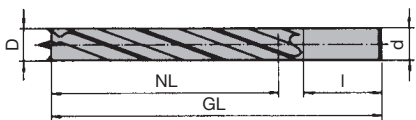
Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood, laminated woods (plywood etc.), plastics (thermoplastic)

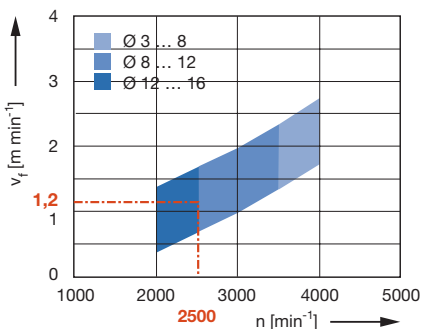
Technical information:

Design in HS-solid with long centre point and round spurs. Shank diameter identical to drill diameter. Design with single heel for reduced friction in the hole.



WB 120-0-02 / 05 / 06, with single heel

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Softwood

Working step:

Boring

Correction factor for v_f :

Hardwood = 0.7

Shank diameter identical to drill diameter.

WB 120-0-05

D mm	GL mm	NL mm	S mm	QAL	DRI	ID
3	70	35	3x30	HS	RL	035852 ●
4	80	45	4x30	HS	RL	035853 ●
4,5	85	50	4,5x30	HS	RL	035892 ●
5	90	50	5x30	HS	RL	035854 ●
5,5	95	55	5,5x35	HS	RL	035893 ●
6	100	60	6x35	HS	RL	035855 ●
6,5	105	65	6,5x35	HS	RL	035894 ●
7	110	65	7x40	HS	RL	035856 ●
7,5	115	70	7,5x40	HS	RL	035895 ●
8	120	75	8x40	HS	RL	035857 ●
8,5	120	75	8,5x40	HS	RL	035896 ●
9	130	80	9x40	HS	RL	035858 ●
10	140	85	10x50	HS	RL	035859 ●
11	150	90	11x50	HS	RL	035860 ●
12	155	95	12x50	HS	RL	035861 ●

RPM: $n = 1500 - 4000 \text{ min}^{-1}$

6. Drilling

6.4 Multi-purpose drilling

6.4.1 Twist drills



SP solid, Z 2 / V 2

Application:

For multi-purpose drilling of tear-free holes.

Machine:

Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood, laminated woods (plywood etc.), plastics (thermoplastic)

Technical information:

Design in SP-solid with long centre point and round spurs. Shank diameter different from the drill diameter. Design with single heel for reduced friction in the hole.



Shank diameter different from drill diameter

WB 120-0-02, WB 120-0-06

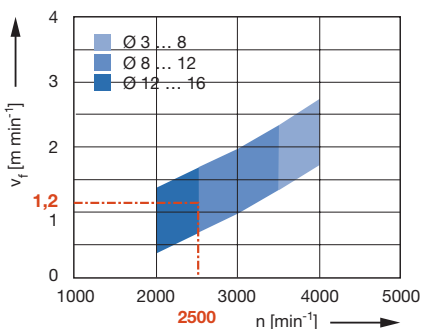
D mm	GL mm	NL mm	S mm	QAL	DRI	ID
10	94	60	8x30	SP	RL	035982 ●
12	93,5	60	8x30	SP	RL	035983 ●
13	175	110	13x50	SP	RL	035760 ●
14	180	115	13x50	SP	RL	035761 ●
15	185	120	13x50	SP	RL	035762 ●
16	190	125	16x50	SP	RL	035763 ●



RPM: $n = 1500 - 4000 \text{ min}^{-1}$

WB 120-0-02 / 05 / 06, with single heel

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Softwood

Working step:

Boring

Correction factor for v_f :

Hardwood = 0.7



HW, Z 2 / V 2

Application:

For multi-purpose drilling of tear-free holes.

Machine:

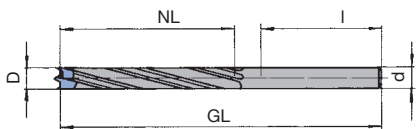
Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood, chipboard and fibre materials (chipboard, MDF, HF etc.), untreated, plastic-coated, veneered etc., laminated woods (plywood etc.).

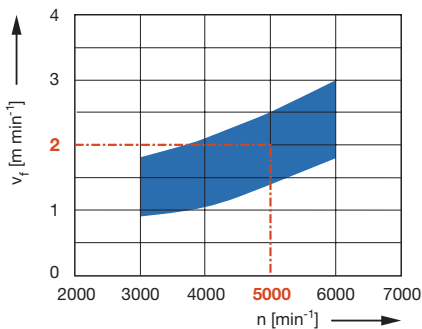
Technical information:

Design HW-tipped. Shank diameter identical to the drill diameter. Design with double heel for improved guidance during drilling and return stroke from the hole.



WB 120-0-27 / 25, with double heel

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Chipboard plastic coated

Working step:

Boring

Correction factor for v_f :

Solid wood = 0.7

Glulam = 0.8

When drilling holes with a depth greater than 4 x drill diameter interim clearance stroke is recommended!

Short version

WB 120-0-27

D mm	GL mm	NL mm	S mm	QAL	DRI	ID
5	70	35	5x35	HW	RL	035885 ●
6	70	35	6x35	HW	RL	035886 ●
7	70	35	7x35	HW	RL	035887 ●
8	70	35	8x35	HW	RL	035888 ●
10	70	35	10x35	HW	RL	035889 ●
11	70	35	11x35	HW	RL	035890 ●
12	70	35	12x35	HW	RL	035891 ●

RPM: $n = 3000 - 6000 \text{ min}^{-1}$

Long version

WB 120-0-25

D mm	GL mm	NL mm	S mm	QAL	DRI	ID
4	80	55	4x25	HW	RL	035882 ●
4,5	85	60	4,5x25	HW	RL	035883 ●
5	90	60	5x30	HW	RL	035872 ●
5,5	100	65	5,5x35	HW	RL	035873 ●
6	100	65	6x35	HW	RL	035874 ●
6,5	110	70	6,5x40	HW	RL	035875 ●
7	110	70	7x40	HW	RL	035876 ●
8	120	75	8x45	HW	RL	035877 ●
8,5	130	80	8,5x50	HW	RL	035884 ●
9	130	80	9x50	HW	RL	035878 ●
10	140	90	10x50	HW	RL	035879 ●
11	150	95	11x55	HW	RL	035880 ●
12	155	100	12x55	HW	RL	035881 ●

RPM: $n = 3000 - 6000 \text{ min}^{-1}$

6. Drilling

6.4 Multi-purpose drilling

6.4.2 Levin-type drills



HS-solid, Z 1

Application:

For drilling very deep holes. Suitable for depths up to approx. 4 times the diameter without interim clearance strokes.

Machine:

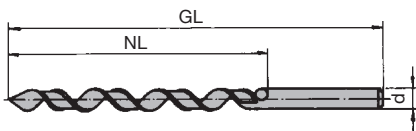
Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood

Technical information:

Solid tungsten carbide quality, Z 1. V-point for producing tear-free holes on both sides when drilling through-holes. Extremely large gullets for good chip removal especially in cross grain.



V-point for through-hole drilling

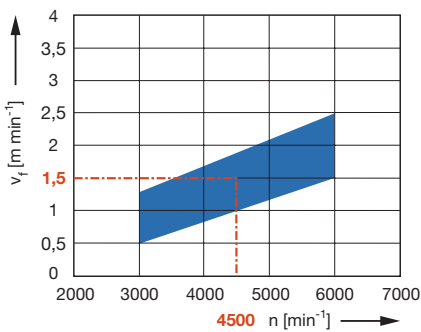
WB 100-0

D mm	GL mm	NL mm	QAL	Z	DRI	ID
5	90	50	HS	1	RL	036110 ●
6	100	60	HS	1	RL	036111 ●
8	120	80	HS	1	RL	036112 ●
10	120	80	HS	1	RL	036113 ●
12	140	100	HS	1	RL	036114 ●

RPM: $n = 3000 - 6000 \text{ min}^{-1}$

WB 100-0, with V-point

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Solid wood

Working step:

Boring

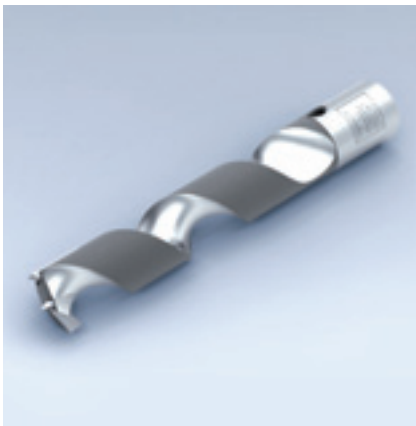
Correction factor for v_f :

Boring depth $> 4 \times$ diameter = 0.8

6. Drilling

6.4 Multi-purpose drilling

6.4.2 Levin-type drills



HW, Z 1 / V 1

Application:

For drilling very deep holes. Suitable for depths up to 75 mm without interim clearance strokes. Suitable for producing connecting holes in frame constructions.

Machine:

Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood, laminated woods (plywood etc.), glued boards

Technical information:

Design HW, Z 1 / V 1 and centre point. Extremely large gullets for good chip removal, particularly when drilling cross grain.



Drill point for dowel holes

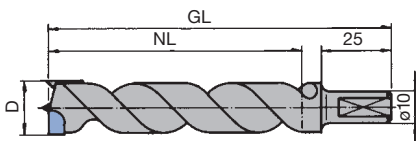
WB 110-0

D mm	GL mm	NL mm	S mm	QAL	Z	ID LL	ID RL
12	107,5	80	M 10	HW	1	036160	● 036161 ●
16	107,5	80	M 10	HW	1	036164	● 036165 ●
12	110	80	10x25	HW	1	036174	● 036175 ●
14	110	80	10x25	HW	1	036176	● 036177 ●
16	110	80	10x25	HW	1	036178	● 036179 ●

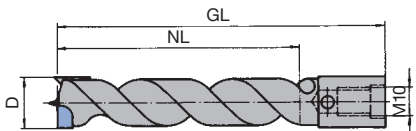
RPM: n = 3000 - 7500 min⁻¹

Spare parts:

BEZ	ABM mm	BEM	ID
Allen screw	M5x10	Length adjustment	005802 ●

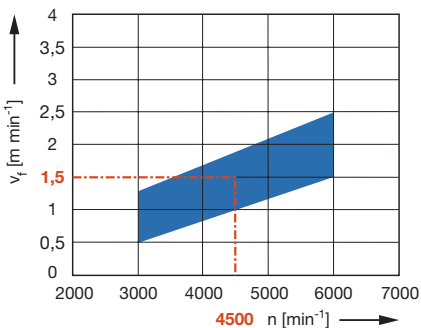


WB 110-0, shank with clamping area and adjusting screw.



WB 110-0, shank with internal thread.

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Solid wood

Working step:

Boring

Correction factor for v_f :

Boring depth > 4 x diameter = 0.8



HW-solid, Z 1 / V 1

Application:

For drilling very deep holes. Suitable for depths up to 4 times the diameter without interim clearance strokes. Suitable for producing connecting bores in frame and window constructions.

Machine:

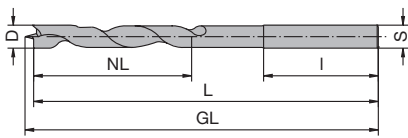
Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood, laminated woods (plywood etc.), glued panels

Technical information:

Design HW, Z 1 / V 1 and centre point. Extra-long centre point for perfect application on bevelled surfaces. Extremely large gullets for good chip removal particularly when drilling cross grain.



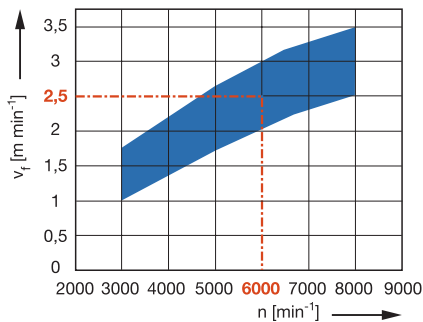
Drill point for hinge holes

WB 110-0

D	L	GL	NL	AL	S	QAL	ID	ID
mm	mm	mm	mm	mm	mm		LL	RL
8	120	123	55	75	8x40	HW-solid	036118	● 036115 ●
10	120	123	65	75	10x40	HW-solid	036119	● 036116 ●
12	135	139	65	90	12x40	HW-solid	036120	● 036117 ●

RPM: $n = 3000 - 8000 \text{ min}^{-1}$

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Softwood

Working step:

Boring

Correction factor for v_f :

Hardwood = 0.7

Glulam = 0.8



SP, Z 2 / V 2

Application:

For drilling holes, especially in manual cabinetry and timber construction.

Machine:

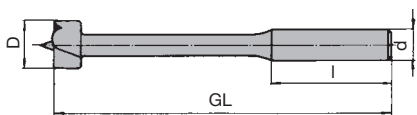
Vertical boring machines, special-purpose boring machines, portable drills

Workpiece material:

Softwood

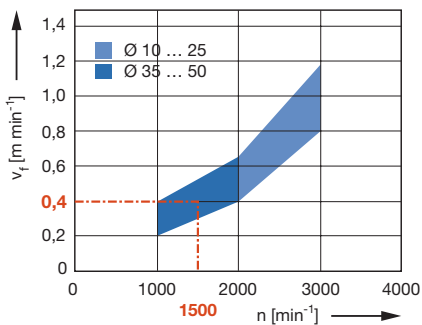
Technical information:

SP solid, Z 2 / V 2. Shank 10 mm suitable for stationary boring machines and portable drills.



WB 310-0-02, reinforced shank
13/16 mm

Feed speed v_f depending on the spindle
RPM n



Workpiece material:

Softwood

Working step:

Boring

Shank 10 mm

WB 310-0-03

D mm	GL mm	S mm	DRI	ID
15	90	10x55	RL	036650 ●
16	90	10x55	RL	036651 ●
18	90	10x55	RL	036653 ●
19	90	10x55	RL	036654 ●
20	90	10x55	RL	036655 ●
22	90	10x55	RL	036656 ●
24	90	10x70	RL	036657 ●
25	90	10x70	RL	036658 ●
26	90	10x70	RL	036659 ●
30	90	10x70	RL	036661 ●
34	90	10x65	RL	036663 ●
35	90	10x65	RL	036664 ●
40	90	10x65	RL	036667 ●

RPM: $n = 1000 - 3000 \text{ min}^{-1}$

Technical information:

SP-solid, Z 2 / V 2. Reinforced shank for use in heavy machining in vertical and horizontal boring machines as well as powerful portable drills.

Shank 13 - 16 mm, reinforced design

WB 310-0-02

D mm	GL mm	S mm	DRI	ID
10	120	13x50	RL	036421 ●
12	120	13x50	RL	036422 ●
15	140	13x50	RL	036424 ●
20	140	13x50	RL	036427 ●
22	140	13x50	RL	036428 ●
25	140	13x50	RL	036430 ●
30	140	13x50	RL	036433 ●
35	140	16x50	RL	036436 ●
40	140	16x50	RL	036439 ●
45	140	16x50	RL	036442 ●
50	140	16x50	RL	036445 ●

RPM: $n = 1000 - 3000 \text{ min}^{-1}$

Drill set

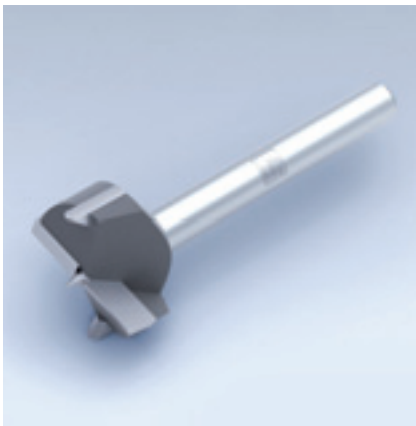
AB 610-0-01

BEM	ABM mm	QAL	ID
1 pc each WB 310-0-03 SP	D = 15, 20, 25, 30, 35	SP	036780 ●

6. Drilling

6.4 Multi-purpose drilling

6.4.3 Machine bits



HW, Z 2 / V 2

Application:

For drilling holes, especially in manual cabinetetry.

Machine:

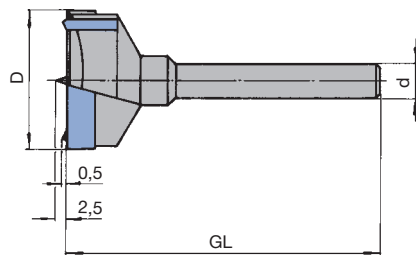
Vertical boring machines, automatic boring machines, multi-spindle units, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood

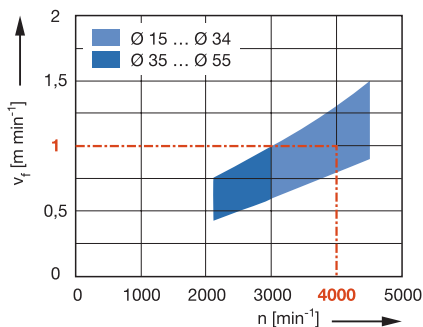
Technical information:

Design HS, Z 2 / V 2. Shank 10 mm suitable for stationary boring machines and portable drills.



WB 310-0-03, shank 10 mm,
GL = 90 mm

Feed speed v_f depending on the spindle
RPM n



Workpiece material:

Hardwood

Working step:

Boring

Correction factor for v_f :

Chipboard = 1.2

Laminated wood = 1.1

Shank 10 mm WB 310-0-03

D mm	GL mm	S mm	DRI	ID
15	90	10x55	RL	036668 ●
16	90	10x55	RL	036669 ●
17	90	10x55	RL	036670 ●
18	90	10x55	RL	036671 ●
19	90	10x55	RL	036672 ●
20	90	10x55	RL	036673 ●
22	90	10x55	RL	036674 ●
22,8	90	10x70	RL	036675 ●
24	90	10x70	RL	036676 ●
25	90	10x70	RL	036677 ●
26	90	10x70	RL	036678 ●
28	90	10x70	RL	036679 ●
30	90	10x70	RL	036680 ●
32	90	10x70	RL	036681 ●
34	90	10x65	RL	036682 ●
35	90	10x65	RL	036683 ●
36	90	10x65	RL	036684 ●
38	90	10x65	RL	036685 ●
40	90	10x65	RL	036686 ●

RPM: $n = 1200 - 4500 \text{ min}^{-1}$

6. Drilling

6.4 Multi-purpose drilling

6.4.3 Machine bits



HW, Z 2 / V 2

Application:

For drilling holes, especially in manual cabinetry.

Machine:

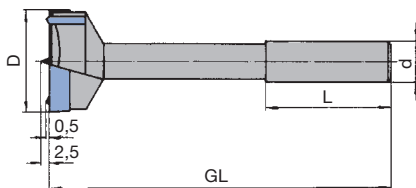
Vertical boring machines, automatic boring machines, special-purpose boring machines, portable drills.

Workpiece material:

Softwood and hardwood

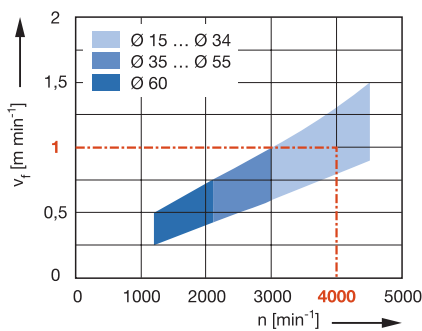
Technical information:

Design HW, Z 2 / V 2. Reinforced shank for use in heavy machining vertical and horizontal boring machines as well as powerful portable drills.



Tungsten carbide tipping with large regrinding area

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Hardwood

Working step:

Boring

Correction factor for v_f :

Chipboard = 1.2

Laminated wood = 1.1

Shank 13 - 16 mm, reinforced design

WB 310-0-02

D mm	GL mm	S mm	DRI	ID
15	140	13x50	RL	036459 ●
20	140	13x50	RL	036462 ●
22	140	13x50	RL	036463 ●
24	140	13x50	RL	036464 ●
25	140	13x50	RL	036465 ●
26	140	13x50	RL	036466 ●
28	140	13x50	RL	036467 ●
30	140	13x50	RL	036468 ●
35	140	16x50	RL	036471 ●
40	140	16x50	RL	036474 ●
42	140	16x50	RL	036475 ●
45	140	16x50	RL	036477 ●
50	150	16x50	RL	036480 ●
55	150	16x50	RL	036483 ●
60	150	16x50	RL	036486 ●

RPM: $n = 1200 - 4500 \text{ min}^{-1}$