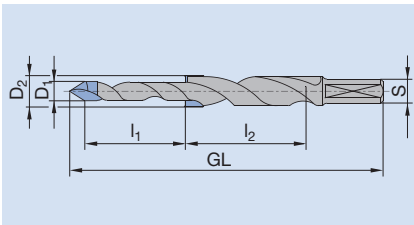


Application	To drill stepped bores. To cut plugs and longitudinal joints.												
Workpiece material	<p>Step drill Soft and hardwood. Chipboard and fibre materials (chipboard, MDF, HF, etc.), without coating, with plastic coating, veneer etc. Glulam (plywood, etc.). Plastomer. Duromers. Polymer compounds (Corian, Varicor, Noblan etc.). Composite materials. Non-ferrous metals.</p> <p>Plug cutter Soft and hardwood.</p>												
Machine	Through-feed boring machines, Point-to-point boring machines, Machining centres, Vertical boring machines, Automatic boring machines, Special boring machines, Portable boring machines.												
Design	<p>Step drill Step drills are characterised by pre-boring and subsequent drilling operations. The subsequent drilling operations can have either a V-point or a centre-point with spurs. The second drilling operation can have either a flat 180° counterbore or an angled countersink < 180°.</p> <p>Plug cutters Plug cutters are designed with spiral cutting edges to give a deep plug and good chip clearance. Large plugs are used, for example, for joining handrails in stair construction.</p>												
Technical features	<p>Step drill The dimensions listed in the tool tables refer to the following tool parameters:</p> <table border="1" data-bbox="587 1267 1461 1496"> <tr> <td>D_1</td> <td>Hole diameter, pre-boring bit.</td> </tr> <tr> <td>D_2</td> <td>Hole diameter, 1st step.</td> </tr> <tr> <td>l_1</td> <td>Working length pre-boring bit.</td> </tr> <tr> <td>l_2</td> <td>Working length, 1st step.</td> </tr> <tr> <td>S</td> <td>Shank diameter x shank length.</td> </tr> <tr> <td>GL</td> <td>Total length of the boring bit including the projection to the centre-point.</td> </tr> </table>	D_1	Hole diameter, pre-boring bit.	D_2	Hole diameter, 1st step.	l_1	Working length pre-boring bit.	l_2	Working length, 1st step.	S	Shank diameter x shank length.	GL	Total length of the boring bit including the projection to the centre-point.
D_1	Hole diameter, pre-boring bit.												
D_2	Hole diameter, 1st step.												
l_1	Working length pre-boring bit.												
l_2	Working length, 1st step.												
S	Shank diameter x shank length.												
GL	Total length of the boring bit including the projection to the centre-point.												
Application Data	<p>RPM/feed speeds The optimum RPM and feed speeds are detailed in the diagrams attached to the tool tables.</p>												





Shank 10 mm

Application:

For producing stepped screwed hinges, especially for screwed hinge holes in door production.

Machine:

Multi-spindle units, CNC machining centres, portable drills.

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:

Design HW Z 2, two-step. 1st step with V-point drill.

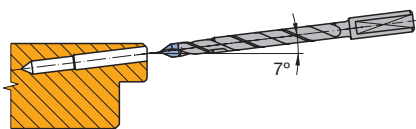
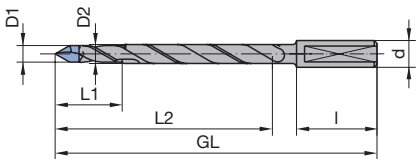


HW, Z 2

WB 201-0

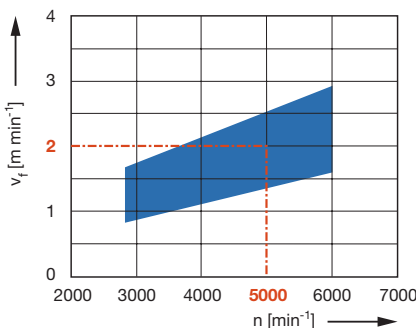
System	D ₁ mm	D ₂ mm	GL mm	L ₁ mm	L ₂ mm	S mm	DRI	ID
Anuba 14,5	5,5	7,1	120	25	85	10x30	RL	035800 ●
Anuba 16	6,2	7,7	120	30	85	10x30	RL	035801 ●
Anuba 18	7,5	8,8	120	30	85	10x30	RL	035802 ●
Simons	5,5	6,8	120	15	85	10x30	RL	035803 ●

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



Drilling screwed hinge holes at an inclined angle of 7° up to 9°.

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Chipboard plastic coated

Working step:

Step drilling

Correction factor for v_f :

MDF, solid wood = 0.7

6. Drilling

6.6 Stepped drilling and tenoning

6.6.2 Plug cutters



Shank 16 mm

Application:

For producing plugs, e.g. for handrail connections in stair manufacture or for plugs for knot repairs.

Machine:

Multi-spindle units, vertical boring machine, portable drills

Workpiece material:

Softwood and hardwood

Technical information:

Design SP Z 2 / V 2. Reinforced shank for use in heavy machining in vertical and horizontal boring machines.

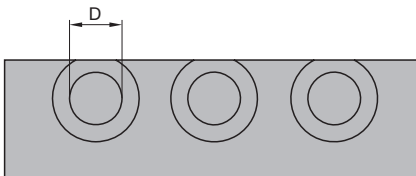
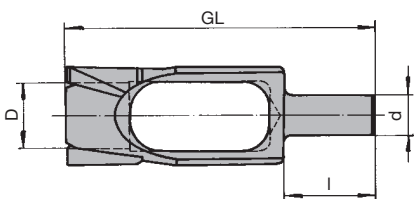


SP, Z 2 / V 2

WB 600-0

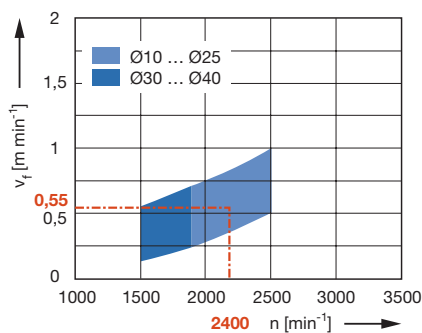
D mm	GL mm	S mm	DRI	ID
10	140	16x50	RL	036880 ●
15	140	16x50	RL	036881 ●
20	140	16x50	RL	036882 ●
25	140	16x50	RL	036883 ●
30	140	16x50	RL	036884 ●
35	140	16x50	RL	036885 ●

RPM: $n = 1500 - 2500 \text{ min}^{-1}$



Position the bore of the plug cutter at the edge of the workpiece so the ring diameter is open to the outside. This improves chip clearance, increases cut quality on the workpiece and performance time.

Feed speed v_f depending on the spindle RPM n



Workpiece material:

Softwood

Working step:

Tenoning

- available ex stock
- available at short notice