

SBD-HT



SELF-DRILLING DOWEL

- Self-drilling system for concealed timber-to-steel joints. Can be used with screw guns running at 600-1500 rpm with:
 - steel S235 \leq 10.0 mm
 - steel S275 \leq 8.0 mm
 - steel S355 \leq 6.0 mm
- ALUMINI HT, ALUMIDI HT and ALUMAXI brackets, service classes 1 and 2
- Special self-perforating timber-to-metal tip geometry that reduces the possibility of breakage
- The cylindrical countersunk head ensures an optimal appearance and meets fire-resistance requisites

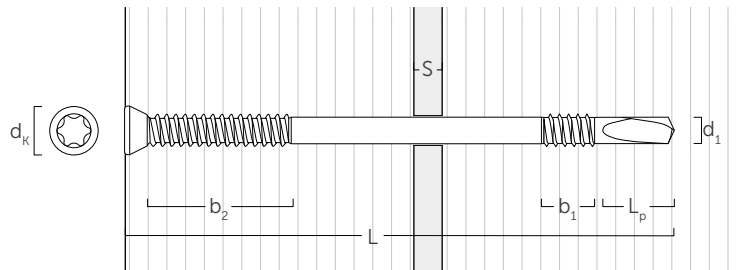


MATERIAL: carbon steel with bright zinc plated



d_1 [mm]	d_k [mm]	CODE	L [mm]	b_2 [mm]	b_1 [mm]	pcs
7,5 TX 40	11,00	SBD7575H	75	10	8	50
		SBD7595H	95	10	15	50
		SBD75115H	115	10	15	50
		SBD75135H	135	10	15	50
		SBD75155H	155	20	15	50
		SBD75175H	175	40	15	50
		SBD75195H	195	40	15	50

GEOMETRY AND MECHANICAL CHARACTERISTICS

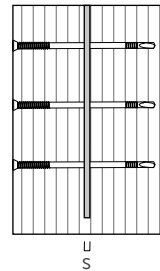


nominal diameter	d_1	[mm]	7,5
head diameter	d_k	[mm]	11
tip length	L_p	[mm]	19
effective length	L_{eff}	[mm]	L- 8,0
characteristic yield moment	$M_{y,k}$	[Nm]	42,0

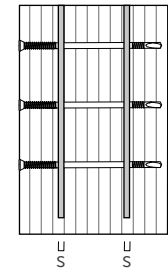
INSTALLATION

plate	s	
	single plate [mm]	double plate [mm]
S235 steel	10,0	8,0
S275 steel	8,0	6,0
S355 steel	6,0	5,0
ALUMINI HT	6,0	-
ALUMIDI HT	6,0	-
ALUMAXI	10,0	-

Timber-to-metal plate - timber shear joint
 Recommended pressure: ≈ 40 kg
 Recommended screwing: $\approx 1000 - 1500$ rpm (steel plate)
 $\approx 600 - 1000$ rpm (aluminium plate)



single plate

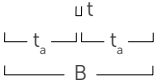
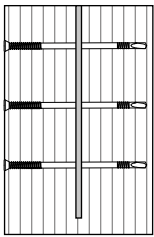


double plate

STRUCTURAL VALUES

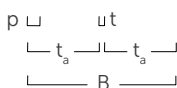
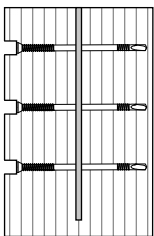
SHEAR $R_{V,k}$
 TIMBER-TO-STEEL-TO-TIMBER

1 INTERNAL PLATE (2 shear planes) - DOWEL HEAD INSTALLATION DEPTH 0 mm



fastening	SBD [mm]		7,5x75	7,5x95	7,5x115	7,5x135	7,5x155	7,5x175	7,5x195
	B	[mm]	80	100	120	140	160	180	200
beam width	B	[mm]	80	100	120	140	160	180	200
head insertion depth	p	[mm]	0	0	0	0	0	0	0
exterior wood	t_a	[mm]	37	47	57	67	77	87	97
$R_{V,k}$ [kN]	load-to-grain angle	0°	9,20	10,18	11,46	12,91	13,69	13,95	13,95
		30°	8,59	9,40	10,51	11,77	12,71	13,21	13,21
		45°	8,09	8,77	9,72	10,84	11,90	12,53	12,57
		60°	7,67	8,24	9,08	10,07	11,15	11,78	12,02
		90°	7,31	7,79	8,53	9,42	10,40	11,14	11,54

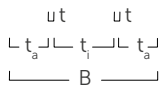
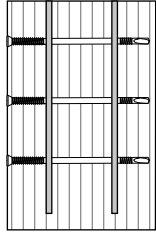
1 INTERNAL PLATE (2 shear planes) - DOWEL HEAD INSTALLATION DEPTH 15 mm



fastening	SBD [mm]		7,5x75	7,5x95	7,5x115	7,5x135	7,5x155	7,5x175	7,5x195
	B	[mm]	100	120	140	160	180	200	220
beam width	B	[mm]	100	120	140	160	180	200	220
head insertion depth	p	[mm]	15	15	15	15	15	15	15
exterior wood	t_a	[mm]	47	57	67	77	87	97	107
$R_{V,k}$ [kN]	load-to-grain angle	0°	9,10	10,13	11,43	12,89	13,95	13,95	13,95
		30°	8,49	9,35	10,48	11,75	13,06	13,21	13,21
		45°	8,00	8,72	9,70	10,82	12,04	12,57	12,57
		60°	7,58	8,19	9,05	10,05	11,14	12,02	12,02
		90°	7,23	7,74	8,50	9,40	10,39	11,40	11,54

STRUCTURAL VALUES

SHEAR $R_{V,k}$ TIMBER-TO-STEEL-TO-TIMBER

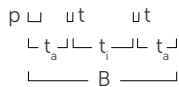
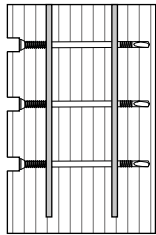


2 INTERNAL PLATES (4 shear planes) - DOWEL HEAD INSTALLATION DEPTH 0 mm

fastening	SBD	[mm]	7,5x75	7,5x95	7,5x115	7,5x135	7,5x155	7,5x175	7,5x195
beam width	B	[mm]	-	-	-	140	160	180	200
head insertion depth	p	[mm]	-	-	-	0	0	0	0
exterior wood	t_a	[mm]	-	-	-	37	42	48	56
interior wood	t_i	[mm]	-	-	-	54	64	72	76

$R_{V,k}$ [kN]	load-to-grain angle	0°	-	-	-	21,03	23,07	24,25	25,28
		30°	-	-	-	19,19	21,17	22,71	23,60
		45°	-	-	-	17,69	19,62	21,08	22,19
		60°	-	-	-	16,45	18,32	19,62	20,75
		90°	-	-	-	15,40	17,09	18,40	19,40

2 INTERNAL PLATES (4 shear planes) - DOWEL HEAD INSTALLATION DEPTH 10 mm



fastening	SBD	[mm]	7,5x75	7,5x95	7,5x115	7,5x135	7,5x155	7,5x175	7,5x195
beam width	B	[mm]	-	-	140	160	180	200	220
head insertion depth	p	[mm]	-	-	10	10	10	10	10
exterior wood	t_a	[mm]	-	-	37	42	48	56	66
interior wood	t_i	[mm]	-	-	54	64	72	76	76

$R_{V,k}$ [kN]	load-to-grain angle	0°	-	-	19,31	22,20	23,23	24,02	25,28
		30°	-	-	17,49	20,25	21,86	22,52	23,60
		45°	-	-	16,01	18,65	20,36	21,26	22,19
		60°	-	-	14,78	17,32	19,02	19,94	20,75
		90°	-	-	13,75	16,07	17,88	18,68	19,40

GENERAL PRINCIPLES

- Characteristic values according to EN 1995:2014.
- Design values can be obtained from characteristic values as follows:

$$R_d = \frac{R_k \cdot k_{mod}}{\gamma_M}$$

- The coefficients γ_M and k_{mod} should be taken according to the current regulations used for the calculation.
- The values provided are calculated using 5 mm thick plates, a 6 mm thick milled cut in the timber and a single SBD dowel.
- For the calculation process a timber characteristic density $\rho_k = 385 \text{ kg/m}^3$ has been considered.
- Dimensioning and verification of timber and steel elements must be carried out separately.