

## Table of working loads – Dimensioning of dovetail assembly

**Vd1 : Dimensioning according to the shearing effort of the joist tail**
**Vd2: Dimensioning according to the bed on the stringer**
 $Vd1 = 2/3 \cdot Az \cdot z_{ul\tau Q}$  where:  $Az = ((b1+b2)/2 \cdot (he-12.5)) + \pi (12.5^2)/4 + ((b2-25) \cdot 12.5) *$ 
 $z_{ul\tau Q} = 0.9 \text{ N/mm}^2$ : tangential constraint due to the shearing action according to DIN 1052-1 table 5

 $Vd2 = 0.09 \cdot a$  where: 0.09 (kN/mm)= empirical coeff., where  $a = h_{som} \cdot he - He + b2/2$  resisting "length" (mm) \* 12.5 = 12.5mm geometrical value

*The values of Vd1 and Vd2 are indicative. They correspond to real loads, without coefficient.*
***These indicative values do not incur the liability of the manufacturer.***

Tail H: maximum tail height (mm)		he: tail height or cut-out against joist (mm)		hsol max $\leq 2 \cdot He$								
hsol: joist height (mm)		b: joist width (mm)		hsom min = 1.2 · tail H								
hsom min: total minimum stringer height (mm)		b1: maximum variable tail width (mm)		b2: variable minimal tail width (mm)								
Minimum stringer width bs: bs = 80 mm if cut-out on one side bs = 120 mm if cut-out on both sides		Jig Arunda N° 60 Joist width 60 to 80 (100) mm x height 90 to 260 (280) mm		Jig Arunda n° 80 Joist width 80 to 120 (140) mm x height 90 to 260 (280) mm								
		Jig Arunda n° 100 Joist width 100 to 140 (160) mm x height 90 to 260 (280) mm		Jig Arunda n° 120 Joist width 120 to 160 (180) mm x height 90 to 260 (280) mm								
		Jig Arunda n° 160+		Jig Arunda n° 160+								
		Joist width 160 to 300 mm x height 90 to 420 mm		Joist width 160 to 300 mm x height 90 to 420 mm								
The lesser working load of Vd1 and Vd2 will be taken to calculate the loads 1 kN = 100 kg												
Tail h (mm)	hsol (mm)	hsom min (mm)	Vd1 (kN)	Vd2 (kN)	Vd1 (kN)	Vd2 (kN)	Vd1 (kN)	Vd2 (kN)	Vd1 (kN)	Vd2 (kN)	Vd1 (kN)	Vd2 (kN)
300	420	420	-	-	-	-	-	-	-	-	23.98	16.92
300	300-360	360	-	-	-	-	-	-	-	-	23.98	11.52
290	400	400	-	-	-	-	-	-	-	-	23.02	16.02
290	300-340	348	-	-	-	-	-	-	-	-	23.02	11.34
280	400	400	-	-	-	-	-	-	-	-	22.08	16.92
280	280-330	336	-	-	-	-	-	-	-	-	22.08	11.16
270	380	380	-	-	-	-	-	-	-	-	21.14	16.02
270	280-320	324	-	-	-	-	-	-	-	-	21.14	10.98
260	360	360	-	-	-	-	-	-	-	-	20.21	15.12
260	260-310	312	-	-	-	-	-	-	-	-	20.21	10.80
250	340	340	-	-	-	-	-	-	-	-	19.29	14.22
250	260-300	300	-	-	-	-	-	-	-	-	19.29	10.62
240	320	320	-	-	-	-	-	-	-	-	18.38	13.32
240	240-280	288	-	-	-	-	-	-	-	-	18.38	10.44
230	300	300	-	-	-	-	-	-	-	-	17.47	12.42
230	240-270	276	-	-	-	-	-	-	-	-	17.47	10.26
220	280	280	-	-	-	-	-	-	-	-	16.57	11.52
220	220-260	264	-	-	-	-	-	-	-	-	16.57	10.08
210	280	280	-	-	-	-	-	-	-	-	15.69	12.42
210	220-250	252	-	-	-	-	-	-	-	-	15.69	9.90
200	260	260	4.49	7.33	7.24	8.34	9.56	9.24	11.87	10.14	14.80	11.52
200	200-240	240	4.49	5.53	7.24	6.54	9.56	7.44	11.87	8.34	14.80	9.72
190	240	240	4.17	6.43	6.79	7.44	8.98	8.34	11.17	9.24	13.93	10.62
190	200-220	228	4.17	5.35	6.79	6.36	8.98	7.26	11.17	8.16	13.93	9.54
180	240	240	3.87	7.33	6.34	8.34	8.41	9.24	10.48	10.14	13.07	11.52
180	180-220	220	3.87	5.53	6.34	6.54	8.41	7.44	10.48	8.34	13.07	9.72
170	220	220	3.57	6.43	5.89	7.44	7.85	8.34	9.80	9.24	12.21	10.62
170	180-200	204	3.57	4.99	5.89	6.00	7.85	6.90	9.80	7.80	12.21	9.18
160	200	200	3.27	5.53	5.46	6.54	7.29	7.44	9.13	8.34	11.36	9.72
160	160-180	192	3.27	4.81	5.46	5.82	7.29	6.72	9.13	7.62	11.36	9.00
150	200	200	2.99	6.43	5.04	7.44	6.75	8.34	8.46	9.24	10.52	10.62
150	160-180	180	2.99	4.63	5.04	5.64	6.75	6.54	8.46	7.44	10.52	8.82
140	180	180	2.72	5.53	4.62	6.54	6.21	7.44	7.81	8.34	9.69	9.72
140	140-160	168	2.72	4.45	4.62	5.46	6.21	6.36	7.81	7.26	9.69	8.64
130	140-160	160	2.45	4.63	4.21	5.64	5.69	6.54	7.16	7.44	8.86	8.82
120	160	160	2.19	5.53	3.81	6.54	5.17	7.44	6.52	8.34	8.04	9.72
120	120-140	144	2.19	4.09	3.81	5.10	5.17	6.00	6.52	6.90	8.04	8.28
110	120-140	140	1.94	4.63	3.42	5.64	4.65	6.54	5.89	7.44	7.23	8.82
100	100-120	120	1.70	3.73	3.04	4.74	4.15	5.64	5.27	6.54	6.43	7.92
90	100	108	1.47	3.55	2.66	4.56	3.66	5.46	4.65	6.36	5.64	7.74

1 kN = 100 kg