

POW

OVAL STEEL WASHERS - DEEP VERSION

Steel washer with special form for roofing applications, for use with all types of roofing screws.



FEATURES AND BENEFITS

Oval washer made of aluminum and zinc sheet, which ensures a very high resistance against corrosion.

Deep shape of the washer in connection with WB double-threaded screw is the solution for installation of roofing membrane system to steel sheet.

SUBSTRATES



Concrete



Concrete slab



Metal sheet & profiles



Chipboard



Plywood



Timber



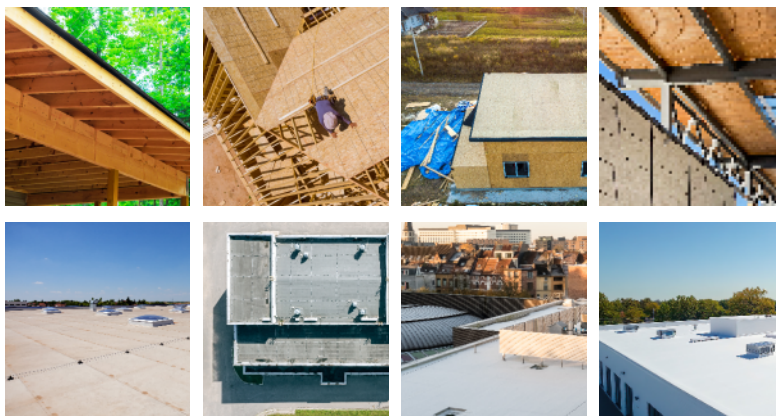
Oriented strand board





APPLICATIONS

Flat roofs

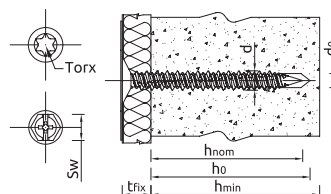
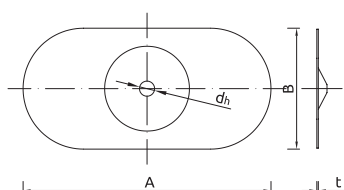


INSTALLATION GUIDE



1. Position POW washer on insulation and insert: WBT, WCS, WW screw.
2. Using drilling machine, drive the screw into substrate until fixing depth is reached.

INSTALLATION DATA



SKU	Steel Flange			
	Hole Diameter	Length	Width	Thickness
	d	a	b	t
	mm	mm	mm	mm
R-POW-05-ALZN	5	82	40	0,7
R-POW-07-ALZN	7	82	40	0,7

Type of fixing			R-WBT	R-LX	R-WCS	R-WO-T	R-WX-T	R-WX-T	R-WW-T
Thread diameter	d	[mm]	6,1	6,2	6,3	4,8	4,8	6,0	5,0
Min. edge distance	c _{min}	[mm]	40	40	40	30	30	30	30
Min. spacing	s _{min}	[mm]	120	120	120	120	120	120	120
Wrench size	-	[mm]	T25	SW8	SW8	T25	T25	T25	T25
CONCRETE SUBSTRATES									
Min. substrate thickness - Steel sheet	h _{min}	[mm]	100	100	100	-	-	-	-
Hole diameter in substrate	d _o	[mm]	5,0	5,0	5,0	-	-	-	-
Min. hole depth in substrate	h _o	[mm]	25 / 35	25 / 35	25 / 35	-	-	-	-
Installation depth	h _{nom}	[mm]	20 / 30	20 / 30	20 / 30	-	-	-	-
STEEL DECKS									
Min. substrate thickness - Steel sheet	h _{min} = t	[mm]	-	-	-	0,5	0,63	0,63	-
Max. drilling capacity	t _f + t _{li}	[mm]	-	-	-	1,0	1,5	1,5	-
TIMBER AND WOODEN BASED STRUCTURES									
Min. substrate thickness - Timber structures	h _{min}	[mm]	24	-	-	24	-	-	24
Min. substrate thickness - Wooden based structures	h _{min}	[mm]	18	-	-	18	-	-	18

DESIGN PERFORMANCE DATA

Characteristic values of axial load resistance

Concrete substrates

Type of fixing			R-WBT	R-WBT	R-LX	R-LX	R-WCS	R-WCS
Embedment depth	h _{ef}	[mm]	20	30	20	30	20	30
TENSION LOAD								
R-POW-05 + SCREW								
CONCRETE class ≥ C12/15 acc. to EN 206								
Characteristic resistance	N _{Rk}	[kN]	1,73	3,06	1,73	3,06	-	-
Partial safety factor	γ _M	[-]	1,33	1,33	1,33	1,33	-	-
CONCRETE class ≥ C20/25 acc. to EN 206								
Characteristic resistance	N _{Rk}	[kN]	2,48	4,37	2,48	4,37	-	-
Partial safety factor	γ _M	[-]	1,33	1,33	1,33	1,33	-	-
CONCRETE HOLLOW CORE SLABS / CONCRETE CHANNELS SLABS class ≥ C16/20 acc. to EN 206								
Characteristic resistance	N _{Rk}	[kN]	1,59	2,48	1,59	2,48	-	-

Type of fixing			R-WBT	R-WBT	R-LX	R-LX	R-WCS	R-WCS
Partial safety factor	V_M	[-]	1,33	1,33	1,33	1,33	-	-
R-POW-07 + SCREW								
CONCRETE class $\geq$ C12/15 acc. to EN 206								
Characteristic resistance	N_{Rk}	[kN]	1,73	2,93	1,73	2,93	1,73	2,93
Partial safety factor	V_M	[-]	1,33	1,33	1,33	1,33	1,33	1,33
CONCRETE class $\geq$ C20/25 acc. to EN 206								
Characteristic resistance	N_{Rk}	[kN]	2,48	2,93	2,48	2,93	2,48	2,93
Partial safety factor	V_M	[-]	1,33	1,33	1,33	1,33	1,33	1,33
CONCRETE HOLLOW CORE SLABS / CONCRETE CHANNELS SLABS class $\geq$ C16/20 acc. to EN 206								
Characteristic resistance	N_{Rk}	[kN]	1,59	2,48	1,59	2,48	1,59	2,48
Partial safety factor	V_M	[-]	1,33	1,33	1,33	1,33	1,33	1,33

Characteristic values of axial load resistance

Steel substrates

Type of fixing			R-WO-T	R-WX-T 4.8	R-WX-T 6.0
TENSION LOAD					
R-POW-05 + SCREW					
CHARACTERISTIC RESISTANCE - STEEL DECK S280GD					
Thickness of steel substructure $t_{li} = 0,50\text{mm}$	N_{Rk}	[kN]	0,61	-	-
Thickness of steel substructure $t_{li} = 0,63\text{mm}$	N_{Rk}	[kN]	0,83	0,74	-
Thickness of steel substructure $t_{li} = 0,75\text{mm}$	N_{Rk}	[kN]	1,19	1,00	-
Thickness of steel substructure $t_{li} = 0,88\text{mm}$	N_{Rk}	[kN]	1,22	1,08	-
Thickness of steel substructure $t_{li} = 1,00\text{mm}$	N_{Rk}	[kN]	1,59	1,50	-
Thickness of steel substructure $t_{li} = 1,25\text{mm}$	N_{Rk}	[kN]	-	1,86	-
Thickness of steel substructure $t_{li} = 1,50\text{mm}$	N_{Rk}	[kN]	-	1,88	-
Partial safety factor	V_M	[-]	1,33	1,33	-
CHARACTERISTIC RESISTANCE - STEEL DECK S320GD					
Thickness of steel substructure $t_{li} = 0,50\text{mm}$	N_{Rk}	[kN]	0,66	-	-
Thickness of steel substructure $t_{li} = 0,63\text{mm}$	N_{Rk}	[kN]	0,90	0,80	-
Thickness of steel substructure $t_{li} = 0,75\text{mm}$	N_{Rk}	[kN]	1,29	1,08	-
Thickness of steel substructure $t_{li} = 0,88\text{mm}$	N_{Rk}	[kN]	1,32	1,17	-
Thickness of steel substructure $t_{li} = 1,00\text{mm}$	N_{Rk}	[kN]	1,73	1,62	-
Thickness of steel substructure $t_{li} = 1,25\text{mm}$	N_{Rk}	[kN]	-	1,88	-
Thickness of steel substructure $t_{li} = 1,50\text{mm}$	N_{Rk}	[kN]	-	1,88	-
Partial safety factor	V_M	[-]	1,33	1,33	-
CHARACTERISTIC RESISTANCE - STEEL DECK S350GD					
Thickness of steel substructure $t_{li} = 0,50\text{mm}$	N_{Rk}	[kN]	0,71	-	-
Thickness of steel substructure $t_{li} = 0,63\text{mm}$	N_{Rk}	[kN]	0,97	0,87	-
Thickness of steel substructure $t_{li} = 0,75\text{mm}$	N_{Rk}	[kN]	1,38	1,16	-
Thickness of steel substructure $t_{li} = 0,88\text{mm}$	N_{Rk}	[kN]	1,41	1,26	-
Thickness of steel substructure $t_{li} = 1,00\text{mm}$	N_{Rk}	[kN]	1,85	1,74	-
Thickness of steel substructure $t_{li} = 1,25\text{mm}$	N_{Rk}	[kN]	-	2,17	-
Thickness of steel substructure $t_{li} = 1,50\text{mm}$	N_{Rk}	[kN]	-	3,04	-
Partial safety factor	V_M	[-]	1,33	1,33	-
R-POW-07 + SCREW					
CHARACTERISTIC RESISTANCE - STEEL DECK S280GD					
Thickness of steel substructure $t_{li} = 0,50\text{mm}$	N_{Rk}	[kN]	0,61	-	-
Thickness of steel substructure $t_{li} = 0,63\text{mm}$	N_{Rk}	[kN]	0,83	0,74	1,21
Thickness of steel substructure $t_{li} = 0,75\text{mm}$	N_{Rk}	[kN]	1,19	1,00	1,34
Thickness of steel substructure $t_{li} = 0,88\text{mm}$	N_{Rk}	[kN]	1,22	1,08	1,45
Thickness of steel substructure $t_{li} = 1,00\text{mm}$	N_{Rk}	[kN]	1,59	1,50	1,95
Thickness of steel substructure $t_{li} = 1,25\text{mm}$	N_{Rk}	[kN]	-	1,86	2,48
Thickness of steel substructure $t_{li} = 1,50\text{mm}$	N_{Rk}	[kN]	-	2,60	3,10
Partial safety factor	V_M	[-]	1,33	1,33	1,33
CHARACTERISTIC RESISTANCE - STEEL DECK S320GD					
Thickness of steel substructure $t_{li} = 0,50\text{mm}$	N_{Rk}	[kN]	0,66	-	-
Thickness of steel substructure $t_{li} = 0,63\text{mm}$	N_{Rk}	[kN]	0,90	0,80	1,31
Thickness of steel substructure $t_{li} = 0,75\text{mm}$	N_{Rk}	[kN]	1,29	1,08	1,45
Thickness of steel substructure $t_{li} = 0,88\text{mm}$	N_{Rk}	[kN]	1,32	1,17	1,57
Thickness of steel substructure $t_{li} = 1,00\text{mm}$	N_{Rk}	[kN]	1,73	1,62	2,11
Thickness of steel substructure $t_{li} = 1,25\text{mm}$	N_{Rk}	[kN]	-	2,01	2,69
Thickness of steel substructure $t_{li} = 1,50\text{mm}$	N_{Rk}	[kN]	-	2,82	3,17
Partial safety factor	V_M	[-]	1,33	1,33	1,33
CHARACTERISTIC RESISTANCE - STEEL DECK S350GD					
Thickness of steel substructure $t_{li} = 0,50\text{mm}$	N_{Rk}	[kN]	0,71	-	-
Thickness of steel substructure $t_{li} = 0,63\text{mm}$	N_{Rk}	[kN]	0,97	0,87	1,41
Thickness of steel substructure $t_{li} = 0,75\text{mm}$	N_{Rk}	[kN]	1,38	1,16	1,56
Thickness of steel substructure $t_{li} = 0,88\text{mm}$	N_{Rk}	[kN]	1,41	1,26	1,69

Type of fixing			R-WO-T	R-WX-T 4.8	R-WX-T 6.0
Thickness of steel substructure $t_{st} = 1,00\text{mm}$	N_{Rk}	[kN]	1,85	1,74	2,27
Thickness of steel substructure $t_{st} = 1,25\text{mm}$	N_{Rk}	[kN]	-	2,17	2,89
Thickness of steel substructure $t_{st} = 1,50\text{mm}$	N_{Rk}	[kN]	-	3,04	3,17
Partial safety factor	γ_M	[-]	1,33	1,33	1,33

Characteristic values of axial load resistance

Wooden and wooden-based substrates

Type of fixing			R-WO-T	R-WX-T 4.8	R-WX-T 6.0
TENSION LOAD					
R-POW-05 / R-POW-07 + SCREW					
TIMBER STRUCTURES - WOOD class $\geq$ C24 acc. to EN 14081-1					
Embedment depth	h_{ef}	[mm]	24	24	24
Characteristic resistance	N_{Rk}	[kN]	1,73	1,02	1,57
Partial safety factor	γ_M	[-]	1,33	1,33	1,33
OSB SHEETS acc. to EN 300, density $\geq$ 650kg/m ³					
Embedment depth	h_{ef}	[mm]	18	18	18
Characteristic resistance	N_{Rk}	[kN]	1,31	0,88	1,4
Partial safety factor	γ_M	[-]	1,33	1,33	1,33
WOOD WOOL PANELS MEB GREEN SUPREMA GB 600 acc. to EN 13168, density $\geq$ 600kg/m ³					
Embedment depth	h_{ef}	[mm]	25	25	-
Characteristic resistance	N_{Rk}	[kN]	0,29	0,28	-
Partial safety factor	γ_M	[-]	1,33	1,33	-
WOOD WOOL PANELS MEB GREEN SUPREMA GB 1050 acc. to EN 13168, density $\geq$ 1050kg/m ³					
Embedment depth	h_{ef}	[mm]	18	18	-
Characteristic resistance	N_{Rk}	[kN]	0,75	0,92	-
Partial safety factor	γ_M	[-]	1,33	1,33	-
WOOD-BASED PANELS MIAMI ECO BOARD acc. to EN 13986, density $\geq$ 1300kg/m ³					
Embedment depth	h_{ef}	[mm]	20	20	-
Characteristic resistance	N_{Rk}	[kN]	1,62	1,69	-
Partial safety factor	γ_M	[-]	1,33	1,33	-
PARTICLEBOARDS MFP acc. to EN 312, density $\geq$ 740kg/m ³					
Embedment depth	h_{ef}	[mm]	22	22	-
Characteristic resistance	N_{Rk}	[kN]	1,85	1,85	-
Partial safety factor	γ_M	[-]	2	2	-

LOGISTICAL DATA

SKU	Base-sales unit	Unit pack	Bulk pack	Pallet	Single Package - Gross Weight	Bulk Package - Gross Weight	Palette - Gross Weight	Barcode
R-POW-05-ALZN	pcs.	100.0	1200.0	28800.0	2.3	28.0	672.8	5906675102580
R-POW-07-ALZN	pcs.	100.0	1200.0	28800.0	2.3	28.0	671.0	5906675102603

RELATED PRODUCTS

ANCHORING	Screw for concrete R-WBT 	Screws for timber R-WW-T 	Screw for steel R-WO-T 	Screw for concrete R-WCS 	Self-drilling screws for steel R-WX-T 
	Drill bits Roof System with collar RT-TDC 	Drill bits Aggressor SDS plus RT-SDSA 	Drill bits Roof System RT-TD 	Bit holder with 2 magnets RT-BIT-ADAP 	Long screwdriver bits RT-BIT-TORX25 
DRILLING	Cordless Hammer 18V SDS plus R-PRH18 	Cordless RawlDriver 18V R-PDD18 	Cordless drywall RawlDriver 18V, set R-PDS18-M2A 		
Automatic					