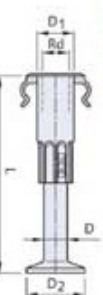


SA-SOCKET LIFTING SYSTEM

SA-Short anchor
ALLOWABLE LOAD CAPACITY,
DIMENSIONS AND REINFORCEMENT FOR SA-SHORT ANCHORS



For lifting flat structural elements such as floor slabs etc.
Load groups 1.3 - 5.0
Also available with dactylonised or stainless steel socket.



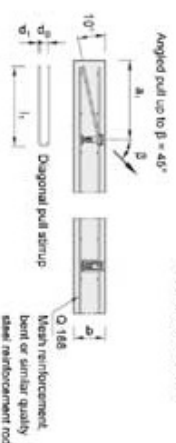
Allowable load capacities for SA Anchors in kN

Load group	Minimum structural element thickness up to 45°	Concrete compressive strength		Minimum structural element thickness up to 45°	Concrete compressive strength	
		15 N/mm ²	25 N/mm ²		15 N/mm ²	25 N/mm ²
1.3	115	13.0	13.0	115	13.0	13.0
2.5	150	19.5	25.0	125	16.5	21.3
4.0	220	31.2	40.0	160	23.3	32.8
5.0	275	39.3	50.0	175	29.1	37.5

Dimensions and reinforcement for the SAS Anchors in mm

Load group	Dimensions of SAS Anchors						Anchor arrangement *		Additional reinforcement			
	RdM	D	D ₁	D ₂	L	a,min	a,max	d ₁	d ₂	I ₁	I ₂	d ₃
1.3	12	10	17	25	70	250	500	10	370	19		
2.5	16	14	22	35	90	400	800	12	520	24		
4.0	20	18	27	45	120	500	1000	14	610	29		
5.0	24	20	32	50	140	650	1300	14	720	34		

* a₁ = Edge distance (a₁ min apply to axial pull.
For angled pull, see reinforcement)
* a₂ = Interval distance



The required additional reinforcement must be read from the reinforcement drawings and tables for the corresponding load groups. The value given for the concrete compressive strength relates to normal concrete according to DIN EN 206 or the new DIN 1045-1 on 150 mm test cubes.

SA-Long anchor Dimensions and reinforcement for SAL-Anchors in mm

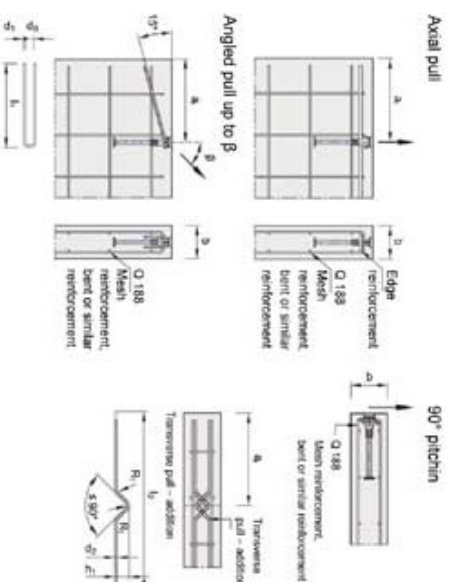
Load group	SAL-Anchor dimensions					Minimum element thickness	Position of anchors *		Additional reinforcement						
	RdM	D	D ₁	D ₂	L		a ₁ min	a ₂ min	Edge reinforcement	Angled load up to 45°	Pitching load		Pulling load		
1.3	12	10	17	25	130	80			-	10	500	16	10	600	43
2.5	16	14	22	35	200	120			-	10	600	24	12	800	47
4.0	20	18	27	45	258	160			-	12	1000	34	16	1000	56
5.0	24	20	32	50	325	180			-	12	1000	41	20	1200	66
7.5	30	24	39	60	400	200			-	20	1100	49	20	1200	78
10.0	36	28	47	70	475	220			-	20	1100	49	20	1200	84

* a₁ = Edge distance
* a₂ = spacings
** Extended length
*** at G_{min} = 20 mm

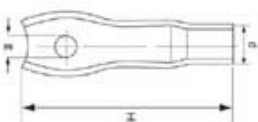
The pitching reinforcement on both sides also serves as diagonal-pull reinforcement. Additional angled-pull reinforcement is not necessary. This additional reinforcement placed in with tight contact with the socket.

Note:
Element thickness, edge distance and spacings are for guidance only.

Note:
β < 45° a is preferred



Type : BSR



Fixing

Insert BSR, with Flat end and cross drilled hole.

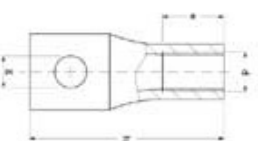
Steel, zinc plated

Stainless steel, A2 (304 / 1.4301)

Type BSR	Type BSR-SS	Overall				Load Kg	Weight				Quantity per BOX	
		Thread	length	Diam.	Diam.		axial (1)	axial (2)	axial (2)	Mg / 100		
zinc plated	stainless steel	M	mm	mm	mm	Do	Feb 500	0°	30°	45°	90°	Kg / 100 BOX
BSR-0850	BSR-0850-SS	M 8	50	10,5	6	-	-	-	-	-	-	1,50 1000
BSR-1050	BSR-1050-SS	M 10	50	13,5	10	-	-	-	-	-	-	1,79 1000
BSR-1250	BSR-1250-SS	M 12	60	16	12	1000	8 x U x300	500	300	220	140	3,27 750
BSR-1650	BSR-1650-SS	M 16	80	22	12	1600	10 x U x360	850	700	600	430	11,43 250
BSR-18100	BSR-18100-SS	M 18	100	22	12	1800	10 x U x360	1000	850	700	500	13,73 200
BSR-18120	BSR-18120-SS	M 18	120	22	12	1600	10 x U x360	1200	850	700	500	16,33 150
BSR-20100	BSR-20100-SS	M 20	100	27	14	2100	12 x U x400	1300	1000	950	650	18,44 150
BSR-20120	BSR-20120-SS	M 20	120	27	14	2500	12 x U x400	1400	1100	1000	700	21,54 125
BSR-24120	BSR-24120-SS	M 24	120	34	15	2500	12 x U x400	1800	-	-	-	32,40 150

(1) working load only valid if the reinforcing tail is used! This tail is NO part of the product BSR.
(2) The capacity loads are with a breakage factor of safety equal to 4.

Type : HSR



Lifting

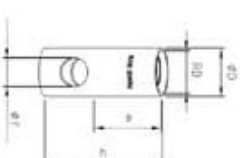
Socket HSR, with Flat end and cross drilled hole

zinc plated

Type HSR-M	Thread M	Type	Thread	Load	Overall	Diam.	Load Kg (1)						Weight	Quantity
		HSR-Rd		Rate	length	d	e	h	concrete > 15 N/mm2	concrete > 25 N/mm2		per		
			Rd	1	h mm	mm	mm	axial	lifting 45°(°)	axial	lifting 45°(°)	Kg / 100	BOX	
HSR-M1250	M 12	HSR-Rd1250	Rd 12	0,5	60	12	20	13	600	850	1150	1100	5,30	500
HSR-M1650	M 16	HSR-Rd1650	Rd 16	1,2	80	16	22	21	1500	1350	2000	1700	12,30	200
HSR-M2050	M 20	HSR-Rd2050	Rd 20	2,0	95	20	25	24	2500	2300	2800	2400	25,40	100
HSR-M24100	M 24	HSR-Rd24100	Rd 24	2,5	100	24	30	24	3000	2600	3600	3000	31,60	100
HSR-M30135	M 30	HSR-Rd30135	Rd 30	4,0	135	30	35	26	4000	4400	5600	5600	60,00	35

(*) by using the lifting loop type THS or the lifting swivel THH and with use of reinforcing tail and reinforcing steel
The admissible load is only valid if the mentioned reinforcing tail (Feb 500) is used

Type : HSB



Lifting
Socket HSB, with Round end and cross drilled hole

zinc plated

Type HSB-M	Thread	Type HSB-Rd	Thread	Load	Overall	Diam	d	h	f	Load Kg				Weight	Quantity
										per box	per box	per box	per box		
M		Rd	1	L mm	mm	mm	mm	mm	mm	axial	lifting 45°(°)	axial	lifting 45°(°)	Kg	BOX
HSB-M12	M 12	HSB-Rd12	12	0,5	48	16,5	22	40	8	600	650	1150	1100	0,11	350
HSB-M16	M 16	HSB-Rd16	16	1,2	55	22	27	54	13	1500	1350	2000	1700	0,24	150
HSB-M20	M 20	HSB-Rd20	20	2,0	68	28	35	67	15	2500	2300	2800	2400	0,38	100
HSB-M24	M 24	HSB-Rd24	24	2,5	77	31	43	77	18	3000	2600	3600	3000	0,55	75
HSB-M30	M 30	HSB-Rd30	30	4,0	95	41	56	105	22	4000	4400	5600	5600	1,06	30

(*) by using the lifting loop type THS or the lifting swivel THH and with use of reinforcing tail and reinforcing steel
The admissible load is only valid if the mentioned reinforcing tail (Feb 500) is used