

## MOUNTING INSTRUCTIONS

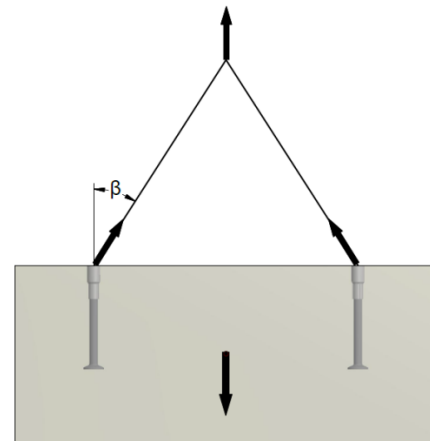
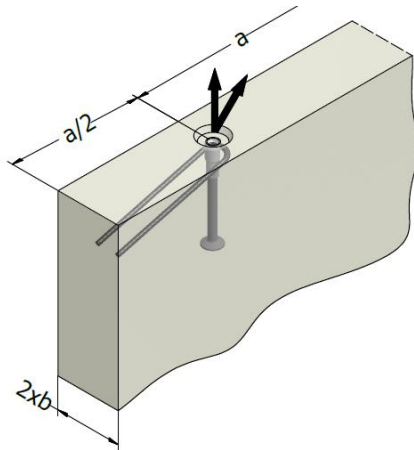


### **1D-HD - LIFTING SYSTEMS | HBS WITH BARRIER** **LIFTING SOCKET ANCHOR WITH BARRIER HEAVY DUTY**



## LIFTING AND TRANSPORT – HBS LONG ANCHORS

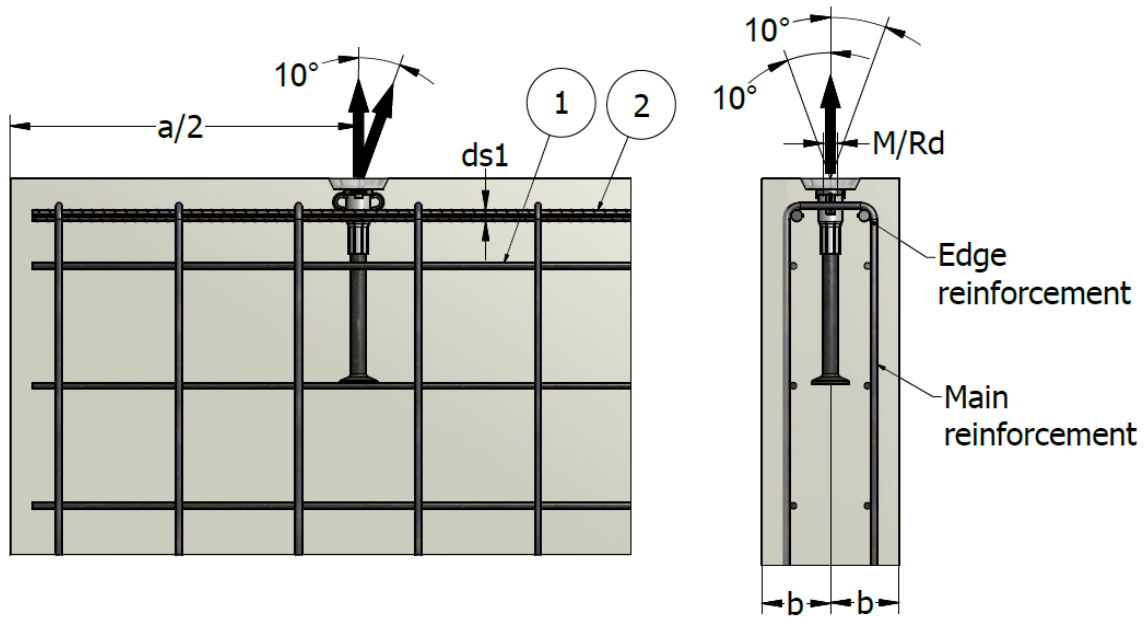
Edge distance and spacing for lifting sockets.



HBS-SS2/SS4	Load group	Thread	a min	Minimum element thickness 2 x b	Axial load and diagonal load ≤ 30°			Axial load and diagonal load ≤ 45°			Transverse load		
	$f_{cu} > 15$ MPa				15 MPa	25 MPa	35 MPa	15 MPa	25 MPa	35 MPa	15 MPa	25 MPa	35 MPa
	[t]	M(Rd)			[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
HBS-M(Rd)12-130	1.3	12	440	80	13.0	13.0	13.0	10.4	13.0	13.0	5.9	7.5	7.5
				100	13.0	13.0	13.0	10.5	13.0	13.0	7.5	7.5	7.5
				120	13.0	13.0	13.0	10.5	13.0	13.0	7.5	7.5	7.5
HBS-M(Rd)16-140	2.5	16	450	100	13.5	17.4	20.6	10.8	17.4	20.6	6.8	8.8	10.4
				120	15.5	20.0	23.7	12.4	20.0	23.7	9.9	12.7	14.0
				140	17.4	22.4	25.0	13.9	22.4	25.0	11.6	14.0	14.0
HBS-M(Rd)16-200	2.5	16	640	80	18.7	24.1	25.0	15.0	24.1	25.0	4.2	5.4	6.4
				100	22.7	25.0	25.0	18.2	25.0	25.0	6.8	8.8	10.4
				120	25.0	25.0	25.0	18.9	25.0	25.0	9.9	12.7	14.0
HBS-M(Rd)20-258	4.0	20	800	120	33.1	40.0	40.0	29.8	40.0	40.0	8.9	11.5	13.6
				140	36.0	40.0	40.0	31.8	40.0	40.0	12.9	16.6	19.6
				160	39.0	40.0	40.0	31.8	40.0	40.0	17.5	22.6	23.0
HBS-M(Rd)24-325	5.0	24	1000	120	40.0	50.0	50.0	40.0	50.0	50.0	13.1	16.9	20.0
				140	45.6	50.0	50.0	42.1	50.0	50.0	14.7	19.0	22.5
				160	49.0	50.0	50.0	42.1	50.0	50.0	20.0	25.8	28.0
HBS-M(Rd)30-400	7.5	30	1240	160	66.8	75.0	75.0	66.8	75.0	75.0	24.2	31.2	36.9
				180	71.8	75.0	75.0	67.7	75.0	75.0	31.1	40.1	42.5
				200	75.0	75.0	75.0	67.7	75.0	75.0	39.1	42.5	42.5
HBS-M(Rd)36-475	10.0	36	1460	180	90.7	100.0	100.0	90.7	100.0	100.0	30.5	39.4	46.6
				200	98.3	100.0	100.0	92.6	100.0	100.0	38.1	49.1	57.0
				220	100.0	100.0	100.0	92.6	100.0	100.0	46.2	57.0	57.0
HBS-M(Rd)42-550	12.5	42	1700	200	125.0	125.0	125.0	120.2	125.0	125.0	40.1	51.7	61.1
				220	125.0	125.0	125.0	120.2	125.0	125.0	48.4	62.4	71.0
				240	125.0	125.0	125.0	120.2	125.0	125.0	57.9	71.0	71.0
HBS-M(Rd)52-575	15.0	52	1760	200	126.8	150.0	150.0	126.8	150.0	150.0	36.2	46.7	55.2
				220	139.5	150.0	150.0	139.5	150.0	150.0	44.3	57.2	66.7
				240	150.0	150.0	150.0	144.8	150.0	150.0	53.0	68.5	81.0
				280	150.0	150.0	150.0	144.8	150.0	150.0	72.5	85.5	85.5

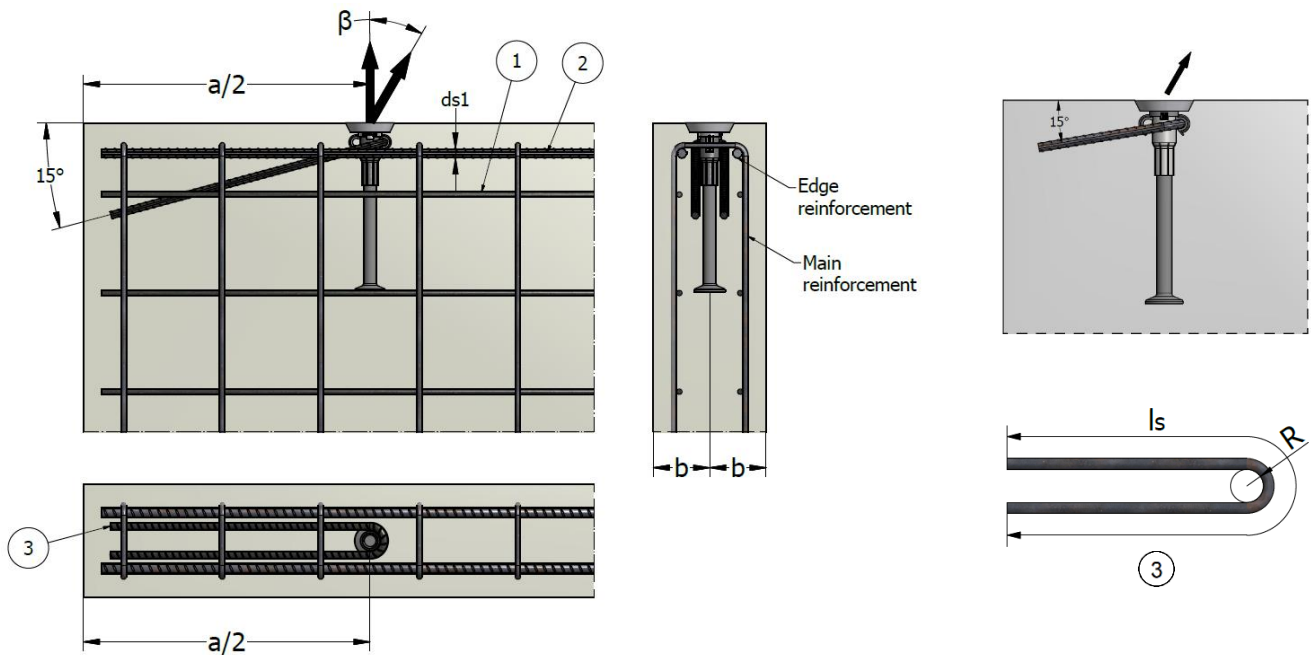
For using a cage or two layers of mesh, the dimensions indicated in the table above are available.


REINFORCEMENT AND LOAD CAPACITY – DIAGONAL LOAD UP TO 10°

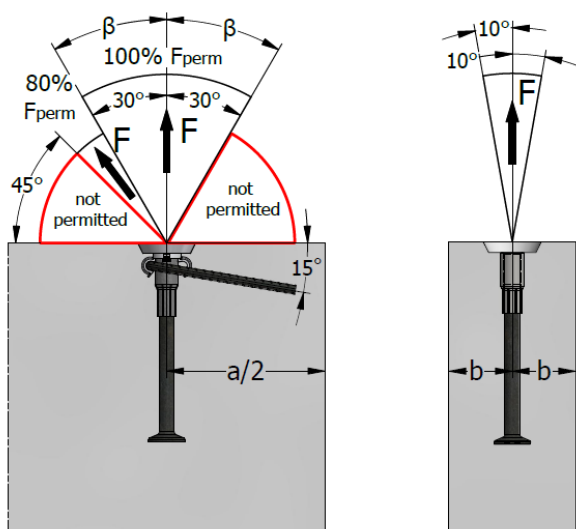


HBS-M(Rd)	Load group	Minimum unit thickness	Axial spacing	Mesh reinforcement ①	Edge reinforcement ②	Load capacity	
		2 x b	a		ds1	f <sub>cu</sub> > 15N/mm <sup>2</sup>	f <sub>cu</sub> >25N/mm <sup>2</sup>
	[t]	[mm]	[mm]	[mm <sup>2</sup> /m]	[mm]	[kN]	[kN]
M(Rd)12-130	1.3	80/100/120	440	2 x 188	-	13	13
M(Rd)16-140	2.5	100/120/140	450	2 x 188	-	25	25
M(Rd)16-200	2.5	80/100/120	640	2 x 188	-	25	25
M(Rd)20-258	4.0	120/140/160	800	2 x 188	-	40	40
M(Rd)24-325	5.0	120/140/160	1000	2 x 188	-	50	50
M(Rd)30-400	7.5	160/180/200	1240	2 x 188	2 x Ø12	75	75
M(Rd)36-475	10.0	180/200/220	1460	2 x 188	2 x Ø14	100	100
M(Rd)42-550	12.5	200/220/240	1700	2 x 188	2 x Ø14	125	125
M(Rd)52-575	15.0	200/220/240/280	1760	2 x 188	2 x Ø14	150	150

**REINFORCEMENT AND LOAD CAPACITY – DIAGONAL LOAD UP TO 45°**



HBS-M(Rd)	Load group	Minimum unit thickness	Axial spacing	Mesh reinforcement ①	Edge reinforcement	Diagonal reinforcement $\beta \leq 30^\circ$		Diagonal reinforcement $\beta \leq 45^\circ$		Load capacity
		2 x b	a		②	③		③		
		[mm]	[mm]		d <sub>s1</sub>	d <sub>s</sub>	L <sub>s</sub>	d <sub>s</sub>	L <sub>s</sub>	f <sub>cu</sub> > 15N/mm <sup>2</sup>
	[t]				[mm]	[mm]	[mm]	[mm]	[mm]	[kN]
M(Rd)12-130	1.3	80/100/120	440	2 x 188	-	Ø8	850	Ø8	1000	13
M(Rd)16-140	2.5	100/120/140	450	2 x 188	-	Ø10	1200	Ø10	1400	25
M(Rd)16-200	2.5	80/100/120	640	2 x 188	-	Ø8	1000	Ø10	1200	25
M(Rd)20-258	4.0	120/140/160	800	2 x 188	-	Ø10	1200	Ø12	1750	40
M(Rd)24-325	5.0	120/140/160	1000	2 x 188	-	Ø12	1750	Ø14	2000	50
M(Rd)30-400	7.5	160/180/200	1240	2 x 188	2 x Ø12	Ø14	1750	Ø16	2000	75
M(Rd)36-475	10.0	180/200/220	1460	2 x 188	2 x Ø14	Ø16	2000	Ø20	2050	100
M(Rd)42-550	12.5	200/220/240	1700	2 x 188	2 x Ø14	Ø20	2050	Ø20	2200	125
M(Rd)52-575	15.0	200/220/240/280	1760	2 x 188	2 x Ø14	Ø20	2200	Ø25	2200	150

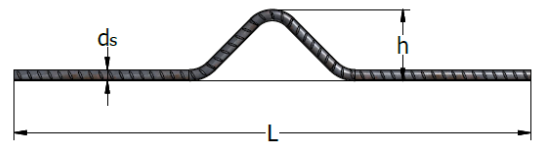
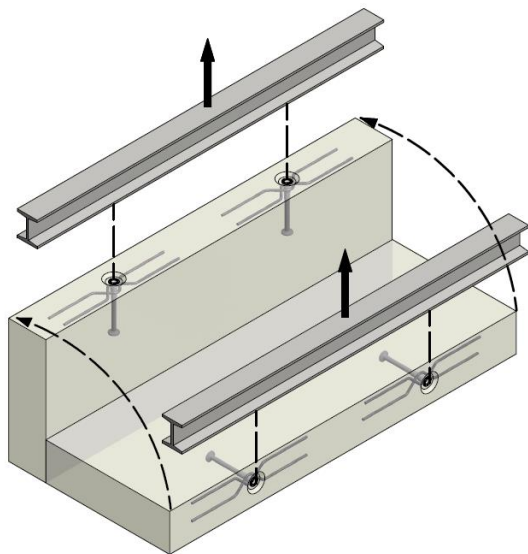


**Note:** The bend radius R will be determined according to EN 1992.

Diagonal reinforcement must be placed in direct contact with the socket anchor.  
 Always install diagonal reinforcement opposite the load direction.  
 The dimensions in the illustrations are in [mm].

### REINFORCEMENT AND LOAD CAPACITY – DIAGONAL LOAD AND TILTING UP TO 90°

For tilting and diagonal pull, additional reinforcements must be installed in the anchor zone. Make certain that the placement of the anchors ensures load transfer. When turning and lifting at an angle, tilt reinforcement is sufficient and there is no need for angle lift reinforcement.



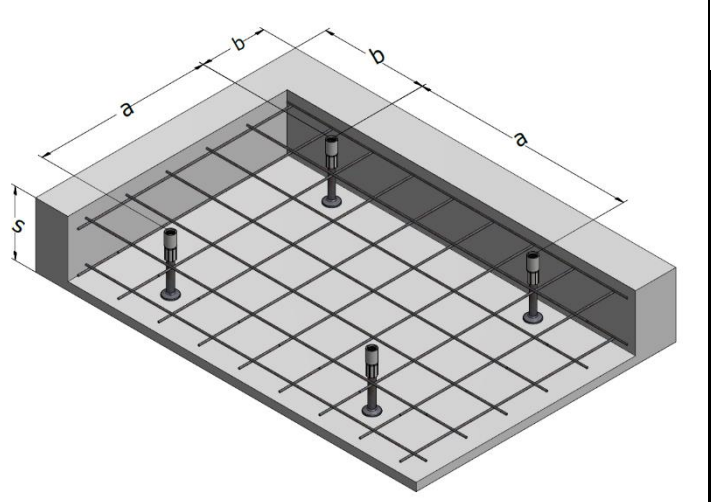
Tilt reinforcement

HBS-SS2/SS4	Load group	Thread	Overall length	Element thickness	Transverse reinforcement		
	$f_{cu} > 15 \text{ MPa}$				Dia. $d_s$	High $h$	Length before bending
	[t]						
HBS-M(Rd)12-130	1.3	12	130	80	Ø8	33	550
				100	Ø8	43	550
				120	Ø8	53	550
HBS- M(Rd)16-140	2.5	16	140	100	Ø 12	47	750
				120	Ø 12	57	750
				140	Ø 12	67	750
HBS- M(Rd)16-200	2.5	16	200	80	Ø 12	37	750
				100	Ø 12	47	750
				120	Ø 12	57	750
HBS- M(Rd)20-258	4.0	20	258	120	Ø 16	62	900
				140	Ø 16	72	900
				160	Ø 16	82	900
HBS- M(Rd)24-325	5.0	24	325	120	Ø 16	66	1100
				140	Ø 16	76	1100
				160	Ø 16	86	1100
HBS- M(Rd)30-400	7.5	30	400	160	Ø 20	94	1300
				180	Ø 20	104	1300
				200	Ø 20	114	1300
HBS- M(Rd)36-475	10.0	36	475	180	Ø 20	108	1700
				200	Ø 20	118	1700
				220	Ø 20	128	1700
HBS- M(Rd)42-550	12.5	42	550	200	Ø 25	127	1650
				220	Ø 25	137	1650
				240	Ø 25	147	1650
HBS- M(Rd)52-575	15.0	52	575	200	Ø 25	133	1950
				220	Ø 25	143	1950
				240	Ø 25	153	1950
				280	Ø 25	173	1950

## LIFTING AND TRANSPORT – HBS SHORT ANCHORS

Edge distance and spacing for lifting sockets.

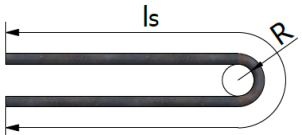
HBS-M(Rd)	s minimum	a minimum	b minimum
	[mm]	[mm]	[mm]
M(Rd)12-70	120	220	140
M(Rd)16-90	160	280	180
M(Rd)20-125	220	400	250
M(Rd)24-140	280	450	300
M(Rd)30-185	360	560	370



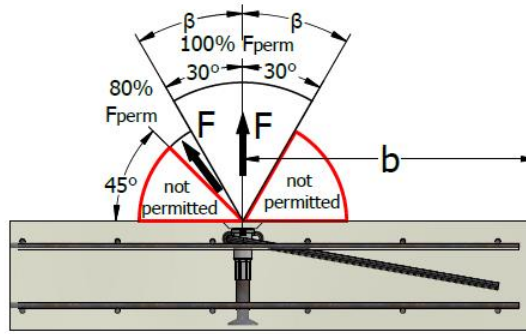
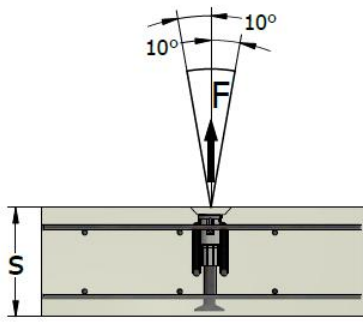
The HBS short anchors are used for lifting flat elements such as floor slabs. The lifting angle must be  $\leq 45^\circ$ . For a lifting angle between  $10^\circ$  and  $45^\circ$ , additional reinforcement is required.

HBS-M(Rd)	Load group	Thread	Overall length	Element thickness	Axial load and diagonal load $\leq 45^\circ$		
	$f_{cu} > 15 \text{ MPa}$				15 MPa	25 MPa	35 MPa
	[t]	M(Rd)	[mm]	[mm]	[kN]	[kN]	[kN]
HBS-M(Rd)12-70	1.3	12	70	120	13.0	13.0	13.0
HBS-M(Rd)16-90	2.5	16	90	130 160	16.5 19.5	21.3 25.0	25.0 25.0
HBS-M(Rd)20-125	4.0	20	125	160 220	25.3 31.2	32.6 40.0	38.6 40.0
HBS-M(Rd)24-140	5.0	24	140	180 280	29.1 39.3	37.5 50.0	44.4 50.0
HBS-M(Rd)30-185	7.5	30	185	240 360	44.9 59.4	57.9 75.0	68.5 75.0

HBS-M(Rd) short	Thread	Two layers of mesh	Diagonal reinforcement			
			Diameter d	Length before bending		
	M(Rd)	mm <sup>2</sup> /m		[mm]	15 MPa	25 MPa
				[mm]	[mm]	[mm]
HBS –M(Rd)12-70	12	2 x 188	Ø10	800	700	600
HBS –M(Rd)16-90	16	2 x 188	Ø 12	900	850	750
HBS –M(Rd)20-125	20	2 x 188	Ø 14	1020	850	750
HBS –M(Rd)24-140	24	2 x 188	Ø 14	1650	1400	1200
HBS –M(Rd)30-185	30	2 x 188	Ø 16	2000	1600	1400



**Note:** The bend radius  $R$  will be determined according to EN 1992. There must be two layers of mesh reinforcement. Diagonal reinforcement must be placed in direct contact with the socket anchor. Always install diagonal reinforcement opposite the load direction.

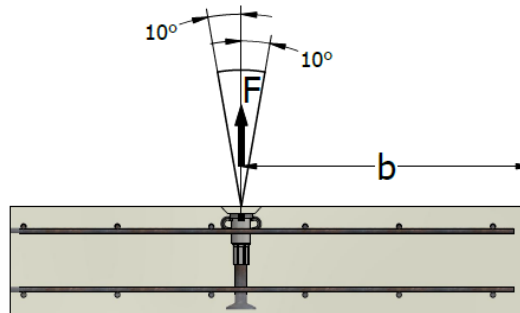
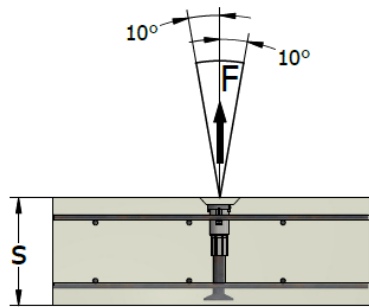


**Note:** The bend radius  $R$  will be determined according to EN 1992.

Diagonal reinforcement must be placed in direct contact with the socket anchor.

Always install diagonal reinforcement opposite the load direction.

The dimensions in the illustrations are in [mm].



## CONTACT



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