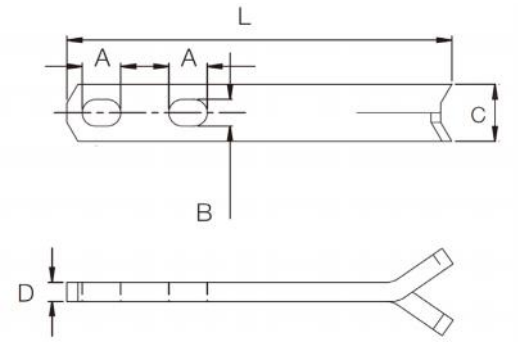
Spread Anchor System

HULKMETAL

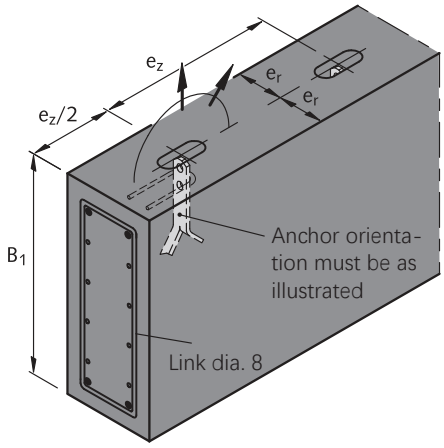
Two Hole Spread Anchor



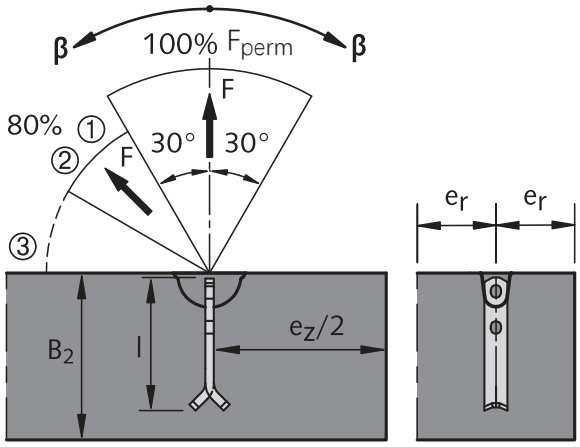
Two Hole Spread Anchor							
MATERIAL	20Mn2 / Q345D / CM490 / Stainless Steel / Customizable						
SURFACE TREATMENT	Raw Color / Electro-galvanized / Hot-dip Galvanized						
SAFETY FACTOR	≥ 3						
CERTIFICATE	ISO9001 / CE						
Load Group (tons)	**CODE**	**SWL (tons)**	**LENGTH (mm)**	**A (mm)**	**B (mm)**	**C (mm)**	**D (mm)**
2.5	DSA007-05-110	0.7	110	20	14	30	5
	DSA014-06-110	1.4	110	20	14	30	6
	DSA014-06-160	1.4	160	20	14	30	6
	DSA020-08-130	2.0	130	20	14	30	8
	DSA020-08-160	2.0	160	20	14	30	8
	DSA020-08-210	2.0	210	20	14	30	8
	DSA025-10-150	2.5	150	20	14	30	10
	DSA025-10-200	2.5	200	20	14	30	10
	DSA025-10-250	2.5	250	20	14	30	10
5.0	DSA030-10-160	3.0	160	22	18	40	10
	DSA030-10-200	3.0	200	22	18	40	10
	DSA030-10-280	3.0	280	22	18	40	10
	DSA040-12-180	4.0	180	22	18	40	12
	DSA040-12-240	4.0	240	22	18	40	12
	DSA040-12-320	4.0	320	22	18	40	12
	DSA050-15-180	5.0	180	22	18	40	15
	DSA050-15-240	5.0	240	22	18	40	15
	DSA050-15-400	5.0	400	22	18	40	15

10.0	DSA053-12-260	5.3	260	31	26	60	12
	DSA053-12-300	5.3	300	31	26	60	12
	DSA053-12-340	5.3	340	31	26	60	12
	DSA075-16-260	7.5	260	31	26	60	16
	DSA075-16-300	7.5	300	31	26	60	16
	DSA075-16-420	7.5	420	31	26	60	16
	DSA100-20-300	10.0	300	31	26	60	20
	DSA100-20-370	10.0	370	31	26	60	20
	DSA100-20-520	10.0	520	31	26	60	20
26.0	DSA140-20-370	14	370	45	35	80	20
	DSA140-20-460	14	460	45	35	80	20
	DSA220-26-500	22	500	45	35	90	26
	DSA220-26-620	22	620	45	35	90	26

Without angled pull reinforcement



With angled pull reinforcement



The spread anchor is highly versatile, offering efficient anchorage in thin panels and slabs. In special cases, the spread anchor can be combined with additional reinforcement by utilizing the extra hole.

① Angled pull at 30° < β ⩽ 60° without angled pull reinforcement only permissible when:

$\beta_W \geqslant 15$ N/mm^2 + 3-fold min. thickness of unit

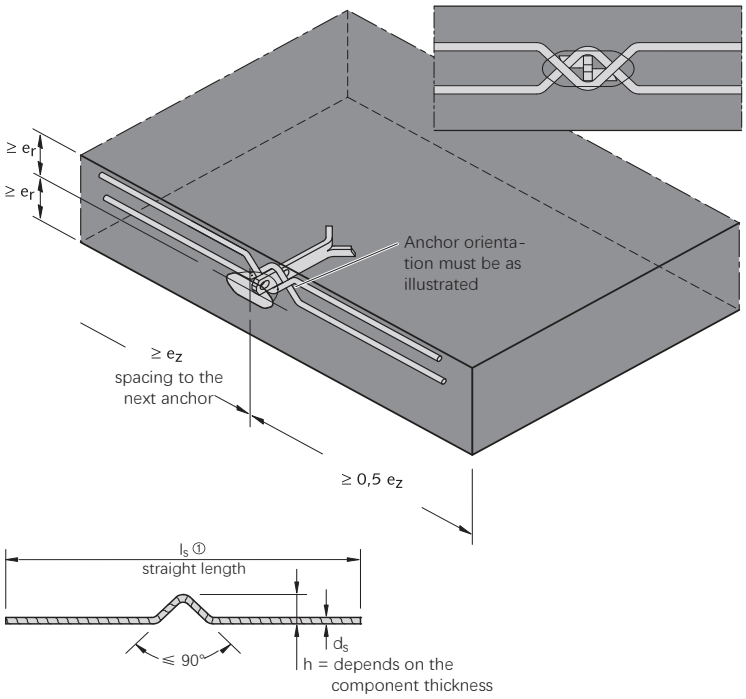
$\beta_W \geqslant 25$ N/mm^2 + 2,5-fold min. thickness of unit

$\beta_W \geqslant 35$ N/mm^2 + 2-fold min. Thickness of Unit

(minimum thickness of unit: $e = 2 \times e_r$)

② Where concrete strength $\beta_W \geqslant 23$ N/mm^2 F_{perm} can be taken as 100%.

③ Angle of β > 60° due to cable spread are impermissible!



The horizontal legs of the tilting and turning reinforcement are located directly within the outermost position of the reinforced area.

Reinforcement steel:
Yield strength 500 N/mm² ,
Tensile strength 550 N/mm²

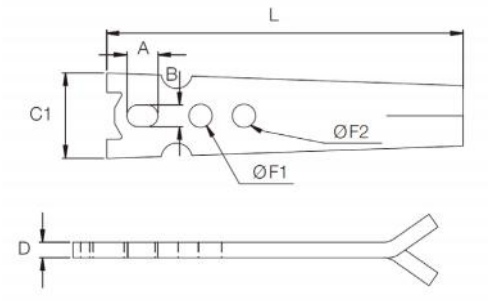
Load Capacity，Installation Dimensions

Concrete Strength βW ≥ 15 N/mm²

Load group [t]	Designation	Minimum distances from edge and between centres for βW ≥ 15N/mm²		Tilting and turning reinforcement		Permitted load		
						Lifting	Lifting ②	Tilting
		e_r [mm]	e_z [mm]	d_s [mm]	① l_s [mm]			
						[kN]	[kN]	[kN]
2.5	DSA 0.7 - 110	100	700	dia. 8	600	7	5.6	3.5
	DSA 1.4 - 160	100	700	dia. 10	700	14	11.2	7.0
	DSA 2.0 - 210	100	800	dia. 10	750	20	16.0	10.0
	DSA 2.5 - 250	100	875	dia. 12	800	25	20.0	12.5
5.0	DSA 3.0 - 280	150	950	dia. 12	850	30	24.0	15.0
	DSA 4.0 - 320	150	1050	dia. 14	950	40	32.0	20.0
	DSA 5.0 - 400	150	1435	dia. 16	1000	50	40.0	25.0
10.0	DSA 7.5 - 420	250	1470	dia. 20	1200	75	60.0	37.5
	DSA 10.0 - 520	300	1820	dia. 20	1500	100	80.0	50.0
26.0	DSA 14.0 - 460	525	1800	dia. 25	1800	140	112.0	70.0
	DSA 22.0 - 620	710	2200	dia. 28	1800	220	176.0	110.0

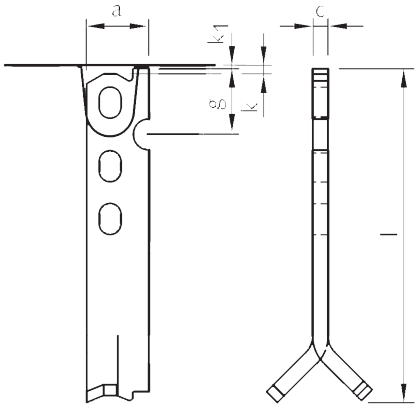
l_s = Length before bending reinforcement steel
For concrete strength $\beta_W \geqslant 23$ N/mm² is 100% of load permitted.
- Required reinforcement: minimum standard reinforcement.

Erection Anchor



Erection Anchor							
MATERIAL	20Mn2 / Q345D / CM490 / Stainless Steel / Customizable						
SURFACE TREATMENT	Raw Color / Electro-galvanized / Hot-dip Galvanized						
SAFETY FACTOR	≥ 3						
CERTIFICATE	ISO9001 / CE						
Load Group (tons)	**CODE**	**SWL (tons)**	**LENGTH (mm)**	**A (mm)**	**B (mm)**	**C (mm)**	**D (mm)**
2.5	ESA014-06-200	1.4	200	20	14	55	6
	ESA025-10-230	2.5	230	20	14	55	10
5.0	ESA040-12-270	4.0	270	22	18	70	12
	ESA050-15-290	5.0	290	22	18	70	15
10.0	ESA075-15-320	7.5	320	31	26	95	15
	ESA100-20-390	10.0	390	31	26	95	20
26.0	ESA125-20-500	12.5	500	-	-	148	20
	ESA170-25-500	17.0	500	-	-	148	25
	ESA220-30-500	22.0	500	-	-	148	30

Unilateral Erection Anchor

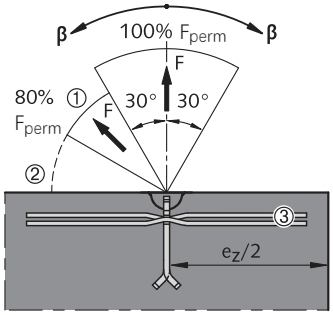


Unilateral Erection Anchor						
MATERIAL	20Mn2 / Q345D / CM490 / Stainless Steel / Customizable					
SURFACE TREATMENT	Raw Color / Electro-galvanized / Hot-dip Galvanized					
SAFETY FACTOR	≥ 3					
CERTIFICATE	ISO9001 / CE					
Load Group (tons)	**CODE**	**SWL (tons)**	**LENGTH (mm)**	**A (mm)**	**C (mm)**	**G (mm)**
2.5	SEA014-06-200	1.4	200	40	6	42.2
	SEA025-10-230	2.5	230	40	10	42.5
5.0	SEA040-12-270	4.0	270	55	12	50.5
	SEA050-15-290	5.0	290	55	15	50.5
10.0	SEA075-15-320	7.5	320	80	15	78.0
	SEA100-20-390	10.0	390	80	20	78.0
26.0	SEA125-20-500	12.5	500	115	20	88.5
	SEA170-25-500	17.0	500	115	25	88.5
	SEA220-30-500	22.0	500	115	30	88.5

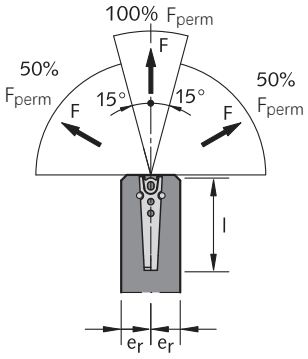
Load Capacity, Installation Dimensions

The erection anchor means that the pitching/turning loads are borne by the anchor instead of the concrete. This prevents concrete spalling. The anchors are notched to aid in the placement of additional reinforcement needed for the pitching/turning process.

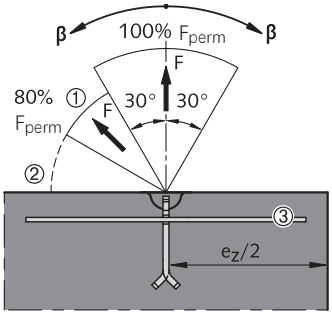
ESA



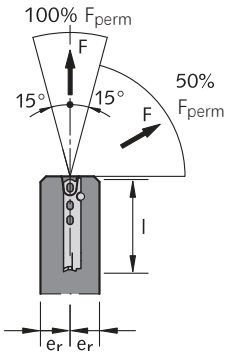
ESA



SEA



SEA



① Where concrete strength $\beta_W \geq 23$ N/mm² Fperm can be taken as 100%.

② Angle of β > 60° due to cable spread are impermissible!

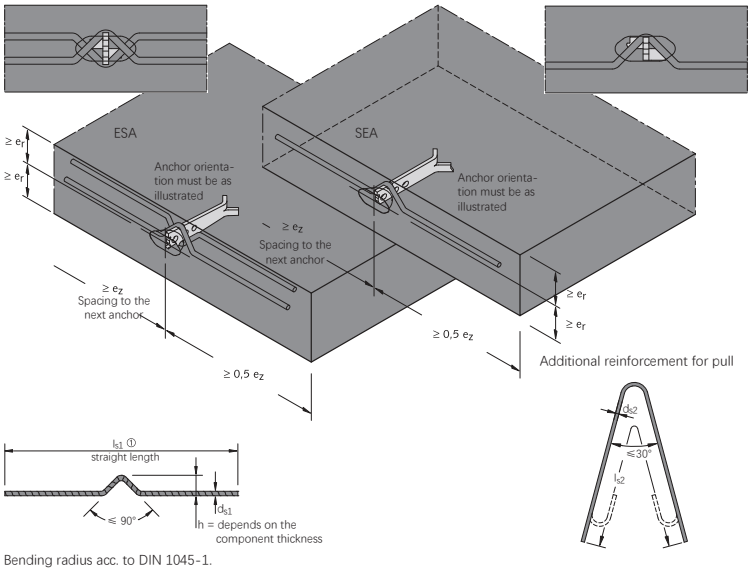
③ Insert the erection reinforcement in the anchor notches.

Load Capacity, Installation Dimensions

Concrete Strength βW ≥ 15 N/mm²

Load group [t]	Load range [t]	Anchor length l [mm]	Spacing between anchor centres e_z [mm]	Minimum thickness of precast element (2 x e_r)				Lifting		Tilting
				with additional reinforcement		without additional reinforcement		Pull (β ≤ 30°)	① Angled Pull (β ≤ 30°)	
				SEA [mm]	ESA [mm]	SEA [mm]	ESA [mm]	100% F_{perm} [kN]	80% F_{perm} [kN]	50% F_{perm} [kN]
2.5	1.4	200	700	90	100	90	100	14	11	7
	2.5	230	800	120	120	120	120	25	20	13
5.0	4.0	270	950	140	150	150	150	40	32	20
	5.0	290	1000	140	160	180	180	50	40	25
10.0	7.5	320	1200	160	175	200	200	75	60	38
	10.0	390	1500	200	200	250	250	100	80	50
26.0	12.5	500	1500	240	240	320	320	125	100	62,5
	17.0	500	1500	300	300	380	380	170	136	85
	22.0	500	1500	360	360	450	450	220	176	110

Reinforcement in Erection Anchor Zone



Bending radius acc. to DIN 1045-1.

The horizontal legs of the tilting and turning reinforcement are located directly within the outermost position of the reinforced area.
Tilting reinforcement on both sides also acts as angled pull reinforcement.
No additional angled pull reinforcement is required.

Without additional reinforcement for pull:
Meshes, slot-in links and edge reinforcement.
With additional reinforcement for pull:
Meshes, slot-in links and edge reinforcement.

Reinforcement of Thin-walled Concrete Precast Unit

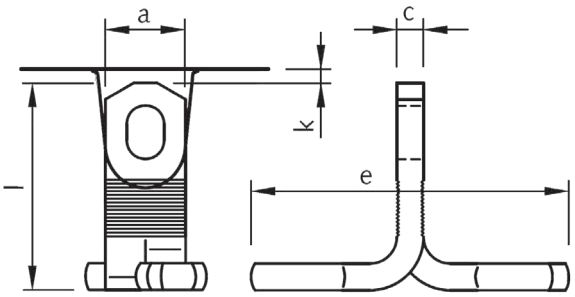
Concrete Strength βW ≥ 15 N/mm²

Load Group [t]	Load rate [t]	Tilting reinforcement d_{s1} x l_{s1} [mm]	Additional reinforcement for pull d_{s2} x l_{s2} [mm]
2.5	1.4	dia. 10 x 700	dia. 10 x 650
	2.5	dia. 12 x 800	dia. 12 x 1000
5.0	4.0	dia. 14 x 950	dia. 16 x 1200
	5.0	dia. 16 x 1000	dia. 16 x 1500
10.0	7.5	dia. 20 x 1200	dia. 20 x 1750
	10.0	dia. 20 x 1500	dia. 20 x 1900
26.0	12.5	dia. 25 x 1500	dia. 25 x 2200
	17.0	dia. 25 x 1800	dia. 28 x 2500
	22.0	dia. 25 x 1800	dia. 28 x 3000

l_{s1} = Length before bending reinforcement steel
For other concrete strength, the length l_{s1} of the erecting reinforcement may be reduced in relation to the permitted composite stresses.
(β_W = 25 N/mm² : x 0,8; β_W = 35 N/mm² : x 0,65)

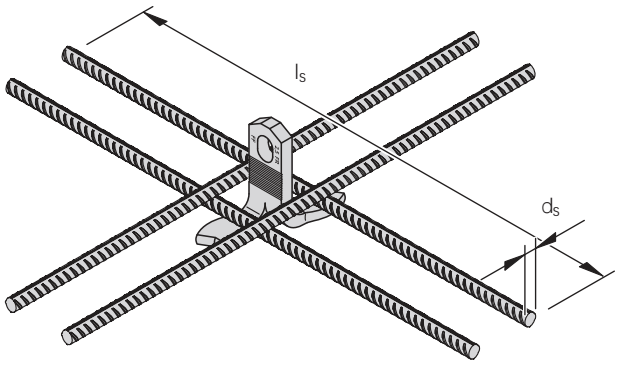
*Tensile strength: 550 N/mm², Yield strength: 500 N/mm²

Flat Foot Spread Anchor

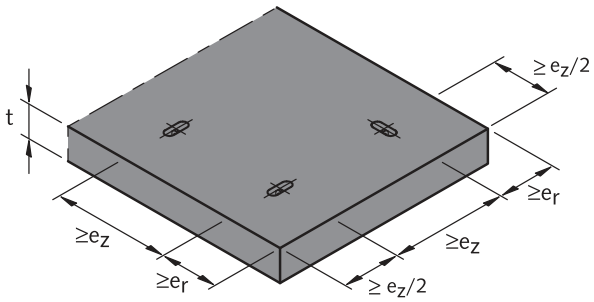


Flat Foot Spread Anchor						
MATERIAL	20Mn2 / Q345D / CM490 / Stainless Steel / Customizable					
SURFACE TREATMENT	Raw Color / Electro-galvanized / Hot-dip Galvanized					
SAFETY FACTOR	≥ 3					
CERTIFICATE	ISO9001 / CE					
Load Group (tons)	CODE	SWL (tons)	LENGTH (mm)	a (mm)	c (mm)	e (mm)
2.5	FSA007-05-065	0.7	65	30	5	70
	FSA014-06-065	1.4	65	30	6	70
	FSA020-08-070	2.0	70	30	8	80
	FSA025-10-075	2.5	75	30	10	94
5.0	FSA030-10-090	3.0	90	40	10	100
	FSA040-12-110	4.0	110	40	12	100
	FSA050-15-125	5.0	125	40	15	105
10.0	FSA075-16-170	7.5	170	60	16	120
	FSA100-20-200	10.0	200	60	20	120
26.0	FSA125-16-220	12.5	220	80	16	200
	FSA170-20-270	17.0	270	80	20	200
	FSA220-28-310	22.0	310	90	28	200

Reinforcement in Flat Foot Anchor Zone



Where loads are acting towards the edge of the element, insert angled pull reinforcement as for spread or two hole anchors.
Position the additional reinforcement bars as close to anchor as possible.



Position the additional reinforcement bars as close to anchor as possible.

Reinforcement in Anchor Zone

Concrete Strength βW ≥ 15 N/mm²

Load Group [t]	Code	Anchor length l [mm]	Minimum thickness of element B [mm]	Minimum distance between centres and from edge		Additional reinforcement *		Permitted load Centrical, angled and transversal pull at concrete strength βW when lifted		
				e_r [mm]	e_z [mm]	d_s [mm]	l_s [mm]	≥ 15 N/mm² [kN]	≥ 25 N/mm² [kN]	≥ 35 N/mm² [kN]
2.5	FSA007-05-065	65	95 ①	140	280	8	200	7	7	7
	FSA014-06-065	65	95 ①	140	280	8	250	14	14	14
	FSA020-08-070	70	100 ①	150	300	8	300	18	20	20
	FSA025-10-075	75	105 ①	160	320	8	300	20	25	25
5.0	FSA030-10-090	90	120	190	380	10	400	28	30	30
	FSA040-12-110	110	140	230	460	12	450	37	40	40
	FSA050-15-125	125	160	260	520	12	500	44	50	50
10.0	FSA075-16-170	170	215	340	680	14	600	54.6	70.4	75
	FSA100-20-200	200	245	400	800	14	600	75.5	100	100
26.0	FSA125-16-220	220	265	440	880	16	750	88.5	125	125
	FSA170-20-270	220	315	540	1080	16	900	120.3	170	170
	FSA220-28-310	310	355	620	1240	20	1100	148	220	220

If corrosion protection is assured, the plate thickness can be reduced.

* Yield strength: 500 N/mm², tensile strength: 550 N/mm²

Plate Spread Anchor

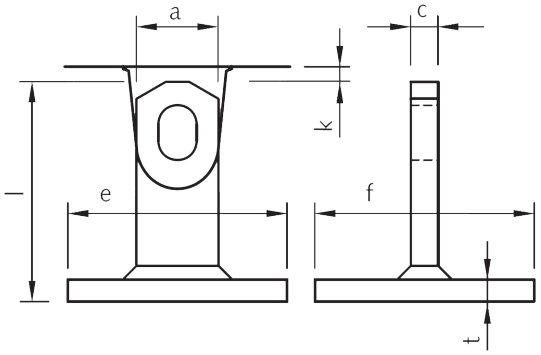
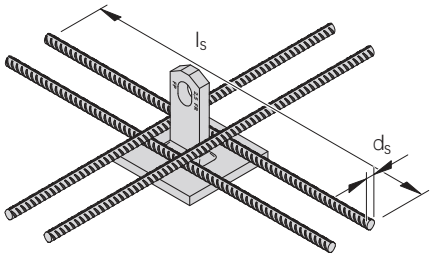
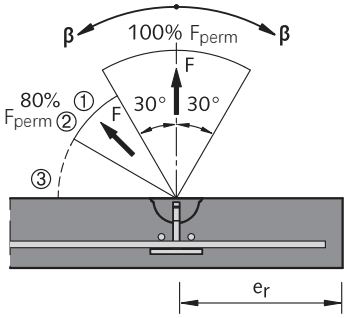
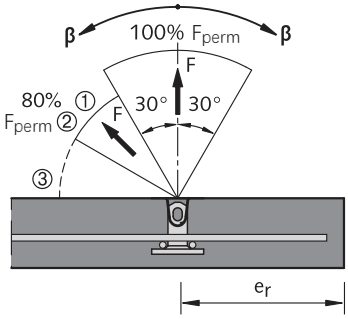


Plate Spread Anchor						
MATERIAL	20Mn2 / Q345D / CM490 / Stainless Steel / Customizable					
SURFACE TREATMENT	Raw Color / Electro-galvanized / Hot-dip Galvanized					
SAFETY FACTOR	≥ 3					
CERTIFICATE	ISO9001 / CE					
Load Group (tons)	CODE	SWL (tons)	LENGTH (mm)	A (mm)	C (mm)	T (mm)
2.5	SPA014-06-055	1.4	55	30	6	8
	SPA025-10-080	2.5	80	30	10	8
5.0	SPA050-15-120	5.0	120	40	15	10
10.0	SPA100-20-160	10.0	160	60	20	12

Load capacity, installation dimensions, additional reinforcement for thin slabs and pipes







Yield strength: 500 N/mm^2,
tensile strength: 550 N/mm^2

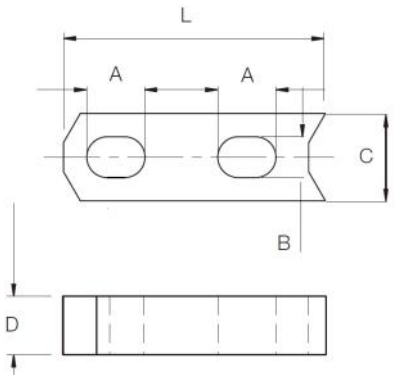
① .Angled pull at 30° < β ⩽ 60° without angled pull reinforcement only permissible when:
$\beta_W \geqslant$ 15 N/mm^2 + 3-fold min. thickness of unit
$\beta_W \geqslant$ 25 N/mm^2 + 2.5-fold min. thickness of unit
$\beta_W \geqslant$ 35 N/mm^2 + 2-fold min. thickness of unit

② .Where concrete strength βW ⩾ 23 N/mm^2 F_{perm} can be taken as 100%.

③ .Angle of β > 60° due to cable spread are impermissible!

Reinforcement							Concrete Strength βW ≥ 15 N/mm^2	
Load Group [t]	Code	Anchor length l [mm]	Minimum spaces between centres and from edge		Additional reinforcement *		100 % F_{perm} Pull	② 80 % F_{perm} Angled pull
			e_r [mm]	e_z [mm]	d_s [mm]	l_s [mm]	(β ≤ 30°) [kN]	(β ≤ 30°) [kN]
2.5	SPA014-08-055	55	115	230	8	200	14	11.2
	SPA025-08-080	80	165	330	10	300	25	20
5.0	SPA050-10-120	120	240	480	12	450	50	40
10.0	SPA100-12-160	160	330	660	16	600	100	80

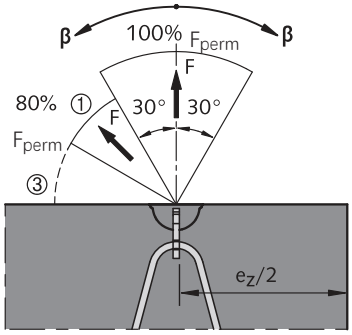
Two Hole Anchor



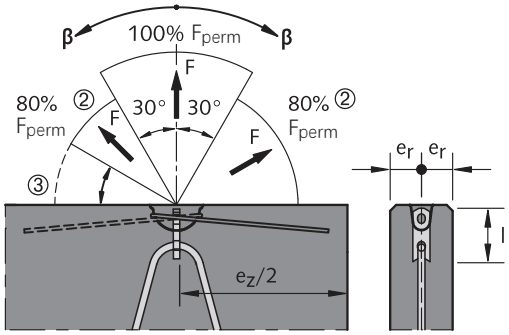
Two Hole Anchor						
MATERIAL	20Mn2 / Q345D / CM490 / Stainless Steel / Customizable					
SURFACE TREATMENT	Raw Color / Electro-galvanized / Hot-dip Galvanized					
SAFETY FACTOR	≥ 3					
CERTIFICATE	ISO9001 / CE					
Load Group (tons)	CODE	LENGTH (mm)	A (mm)	B (mm)	C (mm)	D (mm)
2.5	THA014-05-090	90	20	14	30	5
	THA020-06-090	90	20	14	30	6
	THA025-10-090	90	20	14	30	10
5.0	THA030-10-120	120	22	18	40	10
	THA040-12-120	120	22	18	40	12
	THA050-15-120	120	22	18	40	15
10.0	THA075-16-160	160	31	26	60	16
	THA100-20-160	160	31	26	60	20
26.0	THA260-30-240	240	45	35	80	30

Load capacity, installation dimensions

Without angled pull reinforcement



With angled pull reinforcement



Position the angled pull reinforcement as closely to the recess former as

① .Angled pull at 30° < β ⩽ 60° without angled pull reinforcement only permissible when:

$\beta_W \geqslant 15$ N/mm² + 3-fold min. thickness of unit
$\beta_W \geqslant 25$ N/mm² + 2,5-fold min. thickness of unit
$\beta_W \geqslant 35$ N/mm² + 2-fold min. thickness of unit
(minimum thickness of unit: $e = 2 \times e_r$)

② .Where concrete strength βW ⩾ 23 N/mm² F_{perm} can be taken as 100%.

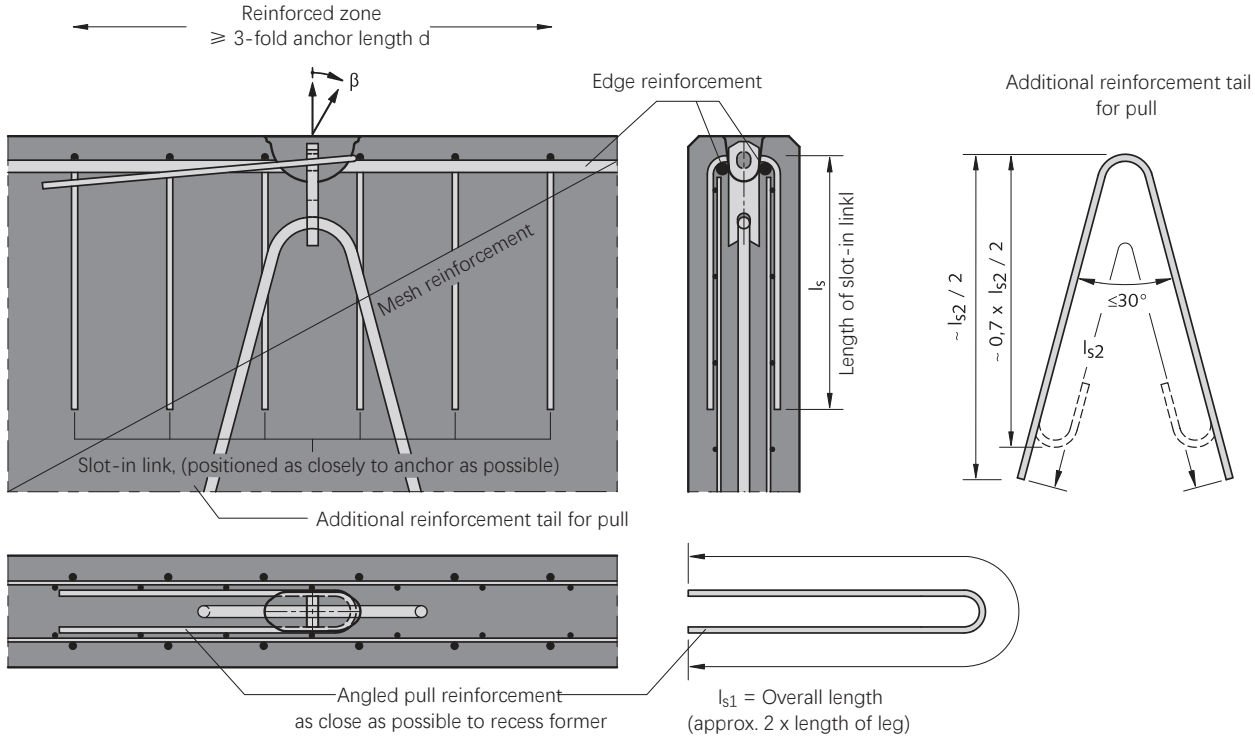
③ .Angle of β > 60° due to cable spread are impermissible!

Load Capacity, Installation Dimensions

Concrete Strength $\beta_W \geq 15$ N/mm²

Designation	Load group [t]	Anchor lenght l [mm]	Spacing between anchor centres ez [mm]	Minimum thickness of precast unit 2 x er [mm]	100% Fperm Pull (β ≤ 30°) [kN]	80% Fperm Angled pull (β > 30°) [kN]
THA014-05-090	2.5	90	500	80	14	11.2
THA020-06-090		90	600	90	20	16
THA030-10-120	5.0	120	650	100	30	24
THA040-12-120		120	700	110	40	32
THA050-15-120		120	750	120	50	40
THA075-16-160	10.0	160	1200	130	75	60
THA260-30-240	26.0	240	1500	200	260	208

Reinforcement in anchor zone

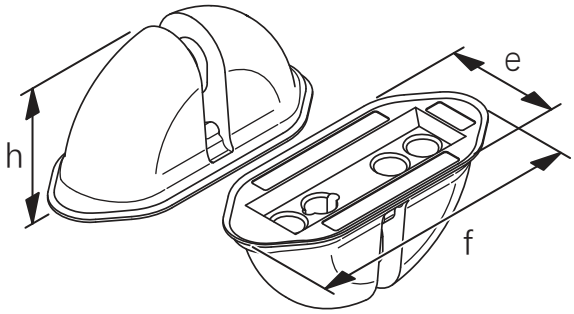


Reinforcement

Concrete Strength $\beta_W \geq 15$ N/mm²

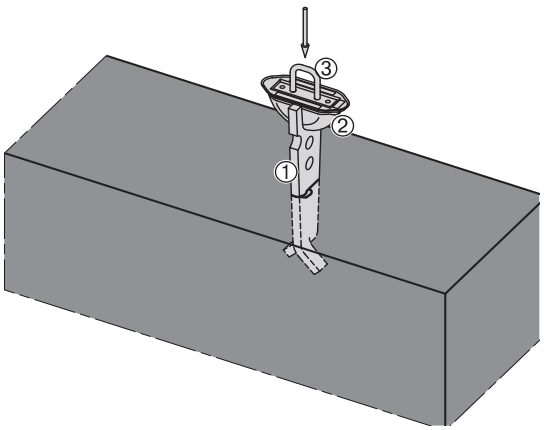
Load group [t]	Designation	Pull (β ≤ 30°)				Angled pull (β > 30°)				
		Mesh reinf. both sides crosswise* [mm²/m]	Slot-in links * ds x ls [mm]	Edge reinf.* [mm]	② Add. reinf. for pull d_{s2} x l_{s2} both sides [mm]	Mesh reinf. both sides crosswise* [mm²/m]	Slot-in links * d_s x l_s [mm]	Edge reinf.* [mm]	② Add. reinf. for pull d_{s2} x l_{s2} [mm]	① Angled Pull reinf d_{s1} x l_{s1} [mm]
2.5	THA014-05-090	131	2 dia. 6 x 400	constructive	1 dia. 10 x 650	131	4 dia. 6 x 400	dia. 8	1 dia. 10 x 650	dia. 6 x 900
	THA020-06-090	131	2 dia. 6 x 400	constructive	1 dia. 12 x 650	131	4 dia. 6 x 500	dia. 8	1 dia. 10 x 800	dia.8 x 950
	THA025-08-090	131	2 dia. 8 x 600	constructive	1 dia. 12 x 1000	131	4 dia. 8 x 600	dia. 10	1 dia. 12 x 1000	dia. 8 x 1200
	THA030-10-120	131	2 dia. 8 x 700	constructive	1 dia. 14 x 1000	131	4 dia. 8 x 700	dia. 10	1 dia. 14 x 1000	dia. 10 x 1150
5.0	THA040-12-120	131	2 dia. 8 x 700	constructive	1 dia. 16 x 1200	131	4 dia. 8 x 800	dia. 12	1 dia. 16 x 1200	dia. 10 x 1500
	THA050-15-120	131	2 dia. 8 x 800	constructive	1 dia. 16 x 1500	131	4 dia. 10 x 800	dia. 12	1 dia. 16 x 1500	dia. 12 x 1550
10.0	THA075-16-160	131	2 dia. 10 x 800	dia. 10	1 dia. 20 x 1750	131	4 dia. 10 x 800	dia. 12	1 dia. 20 x 1750	dia. 14 x 2000
26.0	THA260-20-240	131	6 dia. 12 x 1200	dia. 14	2 dia. 28 x 3050	131	8 dia. 12 x 1200	dia. 16	2 dia. 28 x 3050	dia. 28 x 3450

Recess Former



Recess Former					
MATERIAL	Rubber / Customizable				
CERTIFICATE	ISO9001 / CE				
Load Group (tons)	CODE	e (mm)	f (mm)	h (mm)	Thread (M)
2.5	SRF025-104	43	104	45	8
5.0	SRF050-126	49	126	59	8
10.0	SRF100-188	67	188	85	12
26.0	SRF260-234	112	234	118	16

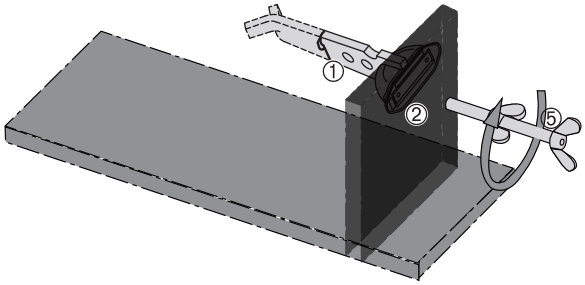
Installation of Spread Anchors



Floating installation

Application for: columns, beams, trusses, π-slabs
Installation aid: **Holding plate**

Open up recess former ② insert anchor ① , press holding plate ③ into recess former and press into the wet concrete.



Mounting on the formwork (wood/steel)

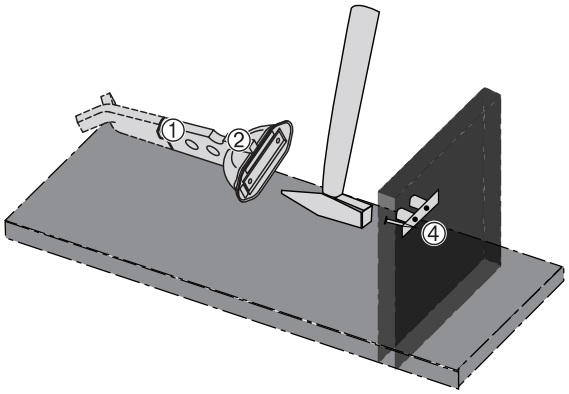
Installation aid: **Holding bold S1 or S2**

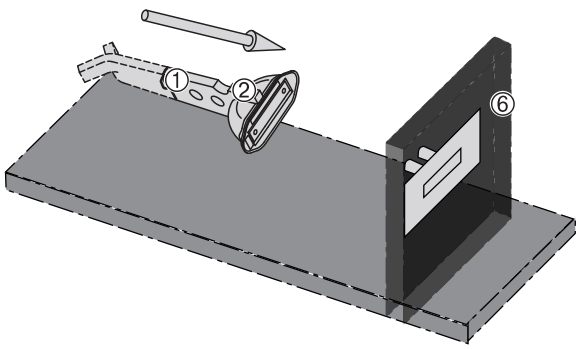
Drill through the formwork, push through the holding bolt ⑤ , screw into the recess former ② , with inserted anchor ① , draw up against formwork and tighten with wing nut.

Mounting on the formwork (wood)

Installation aid: **Holding plate**

Nail or screw the holding plate ④ onto the formwork. Press on the recess former ② , with inserted anchor ① .



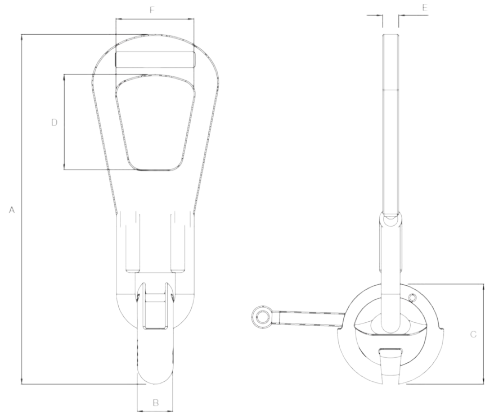


Mounting on the formwork (steel)

Installation aid: **Magnetic plate**

Magnetic holding plate ⑥ grips the formwork. Press the recess former ② , with inserted anchor ① onto pins.

Ring Clutch



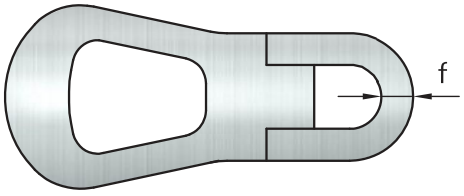
Ring Clutch

MATERIAL	Q345D / Q355D / CM490 / G30CrMoV / Customizable
SURFACE TREATMENT	Electro-galvanized
SAFETY FACTOR	≥ 5
CERTIFICATE	ISO9001 / CE

SWL (tons)	CODE	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
2.5	RC025-261	261	27	80	70	50
5.0	RC050-330	330	36	100	86	71
10.0	RC100-425	425	50	140	112	90
26.0	RC260-605	605	72	209	160	120

Shackle (RC)

Load group [t]	Nominal dimensions f [mm]	Minimum dimension f [mm]
2.5	14	13
5.0	20	19
10.0	26	25
26.0	40	38.5



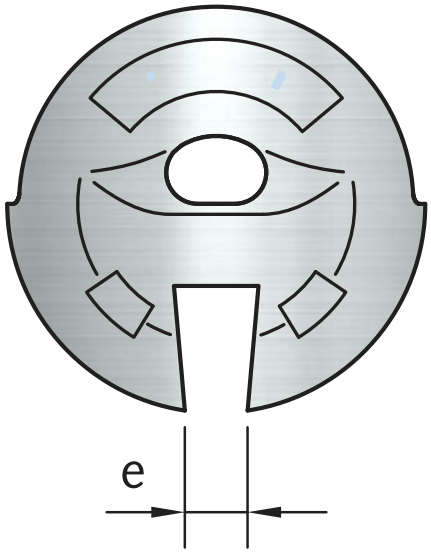
Shackle

Clutches with visible signs of damage or excessive wear must be withdrawn immediately. For allowable tolerance due to wear see the table below.

Like all load-carrying devices, ring clutches must be checked at least once annually by an expert for safe operating condition. There is no fixed working life HULK Metal Ring Clutches. When checking ring clutches, the following points should be observed:

Clutch Head

If the clutch head is deformed or the mouth opening is enlarged, the ring clutch has to be withdrawn and can not be repaired. For allowable tolerance due to wear see the table below.

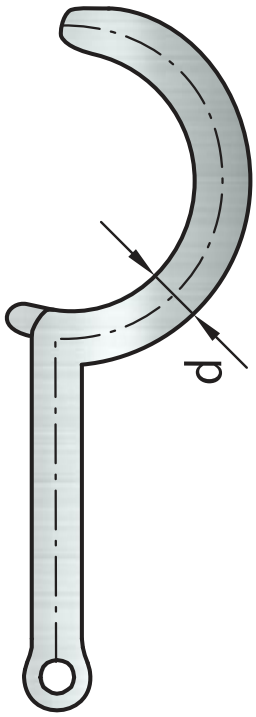


Clutch Head		
Load Group [t]	Nominal dimensions e [mm]	Minimum dimension e [mm]
1.25	7.0 ±0.12	8.0
2.5	12.0 ±0.5	13.0
5.0	18.0 +0.5/-1.0	19.5
10.0	22.0 ±0.5	23.5
26.0	34.0 +2.0/-1.0	37.0

Locking Bolt

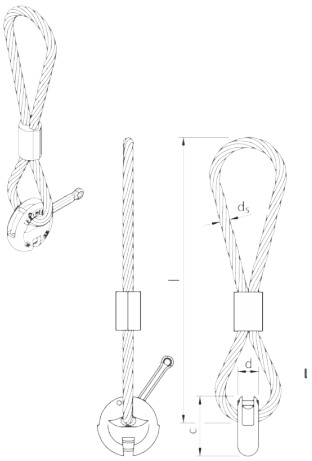
Ring clutches with worn or bent locking bolts must be taken out of use.

For allowable tolerance due to wear see the table below.



Locking Bolt		
Load Group [t]	Nominal dimensions d [mm]	Minimum dimension d [mm]
1.25	8.0 +0.4/-0.6	7.0
2.5	13.0 +0.7/-0.4	12.0
5.0	16.5 +0.7/-0.4	15.5
10.0	23.5 +0.8/-0.4	22.5
26.0	32.0 +0.9/-0.5	31.0

Wire Loop Ring Clutch



Wire Loop Ring Clutch

MATERIAL	Q345D / Q355D / CM490 / G30CrMoV / Customizable				
SURFACE TREATMENT	Electro-galvanized				
SAFETY FACTOR	≥ 5				
CERTIFICATE	ISO9001 / CE				
SWL (tons)	**CODE**	**LENGTH (mm)**	**c (mm)**	**d (mm)**	**d_s (mm)**
1.25	RC0125-20-0320	320	52	20	dia. 8
2.5	RC0250-27-0560	560	80	27	dia.14
5.0	RC0500-36-0595	595	105	36	dia.18
10.0	RC1000-50-0702	702	150	50	dia.22
26.0	RC2600-72-1570	1570	206	72	dia.32

Wire Loop should be checked for the following defects:

- Kinking and buckling
- One braid broken
- Slackening of the outermost exposed layer on free length
- Crushing on free lengths
- Crushing at the eye´s contact point with more than 4 ruptured wires on braided loops, or more than 10 ruptured wires on looplaid rope
- Corrosion marks
- Damage or severe wear to the loop connector or loop-end connector
- High number or ruptured wires

The loop must be taken out of use if the following numbers of ruptured wires are found. (depending from the rope diameter)

Checking of the wire loops has to include for signs of slipping between the loop and the swaged clamp. Acids, alkaline fluids and other aggressive media, that can cause corrosion, must be kept away from the wire loops.
Crane hooks must have a large radius. Sharp-edged hooks or hooks with small cross-section, and therefore small radii, can lead to unacceptable damage of the wire loops.

Wire Cables (RC)			
Cable type	No. of visible ruptured wires over a lenght of		
	3d	6d	30d
Braided cable	4	6	16

Spread Anchors Using Process

1. Removing the formwork sections

Before lifting the precast concrete unit, as many sections of the formwork as possible should be removed in order to minimise adhesion to the formwork. Inadequate stripping is the most common cause of flaking of the precast concrete unit or of anchor failure. The forces acting on the lifting system may be several times the actual weight of the precast unit.

2. Removing the recess formers

To strip the recess former, two rods are inserted in the holes in the recess former, which is then levered out by scissors action. This technique will guarantee a long life time for the recess former. Attempting to remove the recess former using the tip of a carpenter‘s hammer will destroy it.

3. Fitting the ring clutch

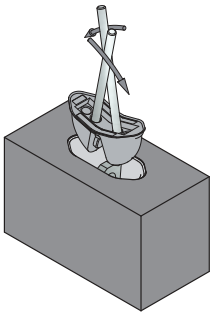
To transport an element, insert the suitable ring clutch for the load group over the anchor head in the concrete recess. The load ranges are foolproof.

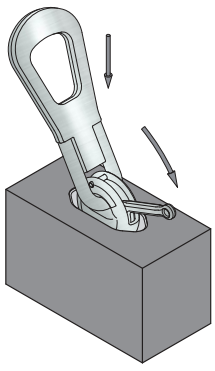
4. Locking the ring clutch

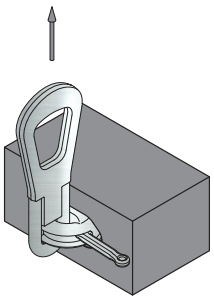
Securely lock the ring clutch with a straightforward hand-operated movement of the locking bolt. The resulting connection is secure, allowing the ring clutch to move freely in any direction. The precast element can now be safely lifted out of the formwork and transported to its storage location.

5. Assembly

A primary advantage of the HULK Metal Rapid Lift System is that the slinging devices (ring clutches) remain attached to the crane hook and do not need to be transported by hand.
The ring clutch can be released manually by pushing back the locking bolt once the device is off-loaded.







Warning:
Spread Anchors must be used with the correct recess former. Then only the correct ring clutch will fit the anchor.

6. Tilting slabs without tilting the table

The hulk metal ring clutch can be used to move flat-manufactured precast units from a horizontal to a vertical position. The direction of the pull is at right angles to the built-in anchor.
To avoid flaking of the concrete, the erection anchor should be properly embedded in the unit.
The use of cross-beams when lifting is recommended to avoid torsional forces.

Application and Misuse of Ring Clutch

1. Engaging:

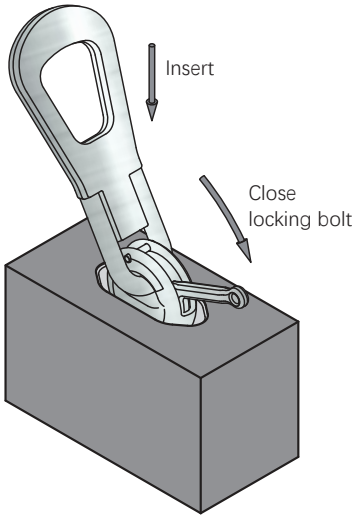
Insert the ring clutch into the recess in the concrete and securely fasten the locking bolt or slide manually until it reaches the maximum position. Proceed with the lifting operation.

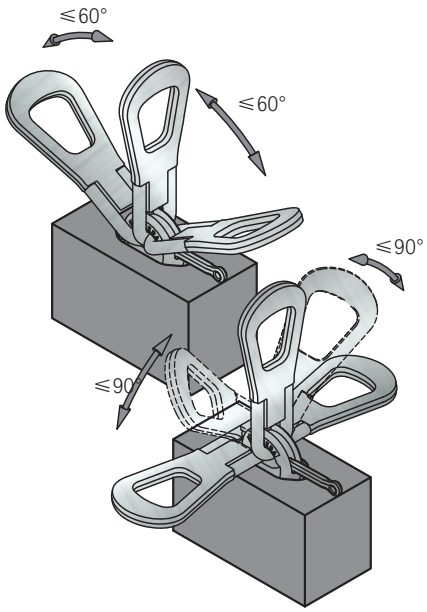
2. Lifting:

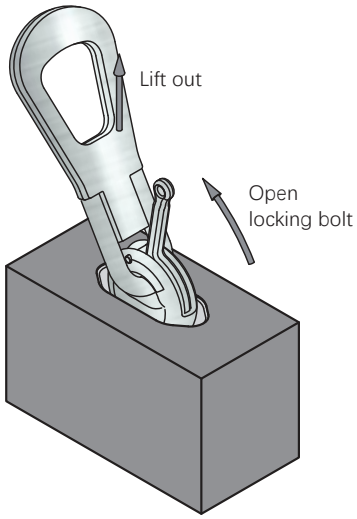
The ring clutch can be subjected to loads in any direction (do not exceed the load limits of the anchors!). Angled pull of up to 60° due to the use of a spreader is permissible.

3. Releasing:

Manual ring clutch: push back the bolt by hand. Now the ring clutch is released.





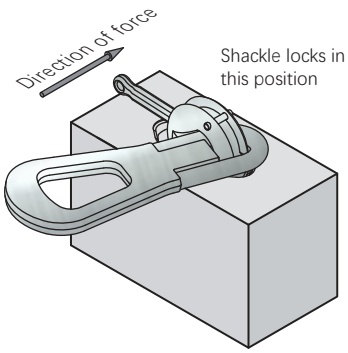


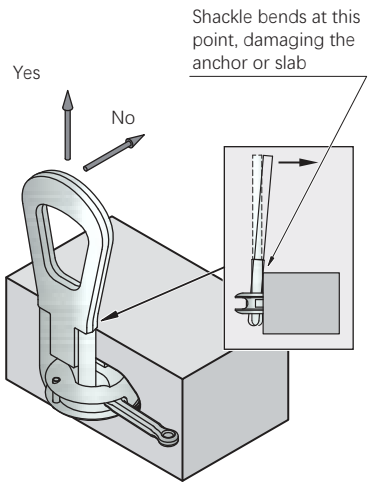
Misuse of the Ring Clutch

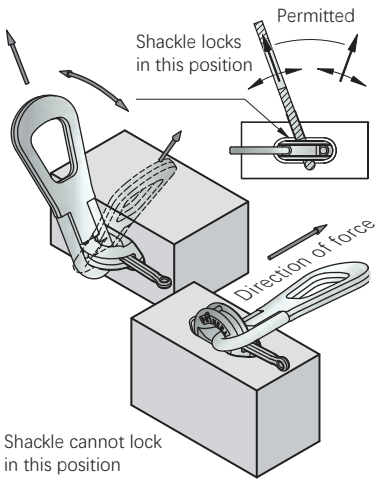
If the shackle is beneath the clutch head when subjected to the load, it may lock in the position illustrated. The round shackle will become bent then when the load is raised.

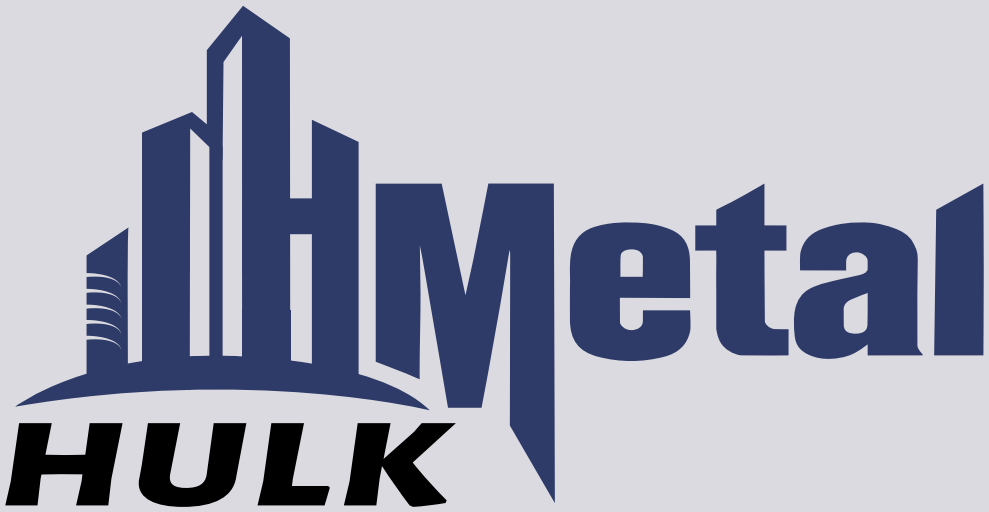
If the shackle is pulled towards the top surface of the slab when subjected to the load, it may become bent on the edge of the slab.

In the upper position, the shackle may lock within the clutch housing.
A narrow lifting cable angle will cause the shackle to become bent. The problem can be overcome by turning the shackle through approx 45° .









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