



Spherical Head Anchors

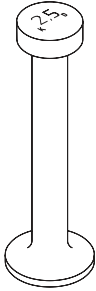
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Product Summary

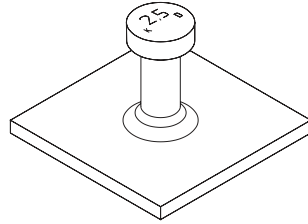
T - Spherical Head T Anchor

Forged from round steel St 52-3 with load groups 1.3–32 (higher load groups on request). Suitable for large precast elements such as slabs, beams, walls and pipes.



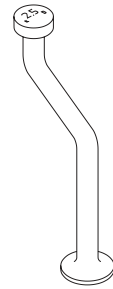
TPA - Spherical Head Plate Anchor

Spherical-Head Lifting Anchor with a welded-on plate. Load groups 2.5–10 t. or use in thin large-sized heavy slabs which are to be lifted or assembled in a horizontal position.



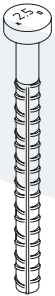
TSG - Spherical Head Cranked Anchor

Replace paragraph with “Specially cranked anchor to enable sandwich panel lifting to take place.”



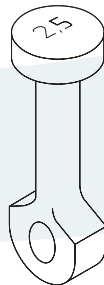
TKS - Spherical Head Rod Anchor

Forged from ribbed steel St 52-3, with load groups 2–15. For use in very thin concrete sections.



O - Spherical Head O Anchor

This anchor has a bar passed through the hole. For use in thin sections.



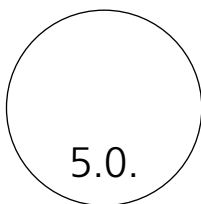
TKA - Spherical Head Tilt Anchor

Designed for tilting pre-cast element from the horizontal to vertical.



Anchor identification

Anchors head are always marked with the load group e.g. 5.0.



Material

Anchors are available in steel ST 52-3 or stainless steel 304 or hot dip spun galvanized.

Safety and quality

Factors safety

Anchors and lifting eyes have a minimum factor of safety of 3:1. Load data provides in the tables is based upon a factor of safety of 2.5:1 against concrete failure.

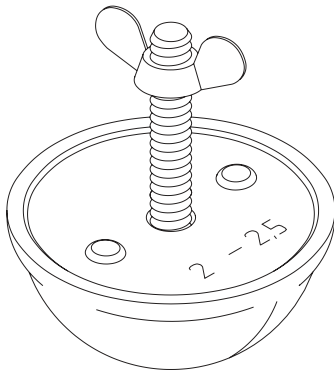
Quality

All anchors and clutches are produced by state of the art production equipment in accordance with ISO 9001. All anchors are batch checked and tested by a recognised research institute.

Recess Formers and Accessories

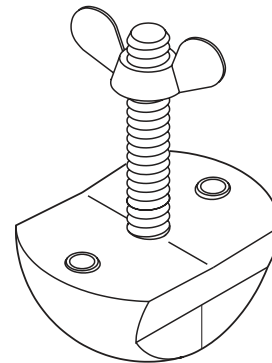
Rubber recess former

To attach the spherical head lifting anchor to the mould. forms a semi-circular recess to accept the lifting clutch



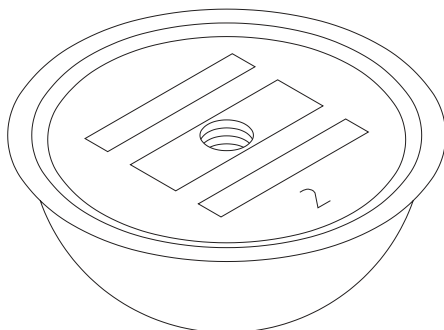
Narrow rubber recess former

To attach the spherical head lifting anchor to the mould and to produce the narrow recess in slender precast concrete units.



Magnetic recess former

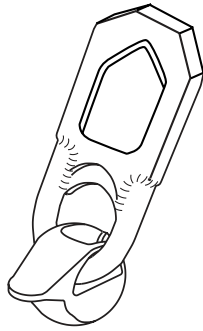
A former for use with spherical head anchors. Incorporates high power magnets to fix to the steel formwork. Use insert RRM.



Accessories

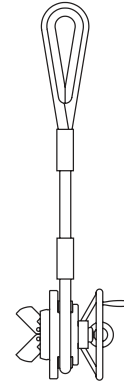
Lifting eye

Lifting clutch in 7 different load groups 1.3–45 t to suit the load carrying range of all Lifting Anchors of the Spherical-Head Anchor System.



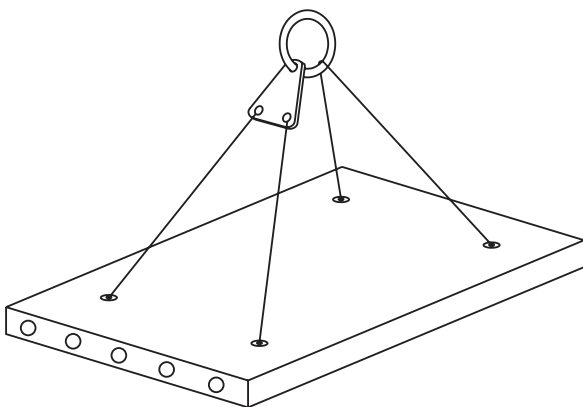
Turning and lifting device

For easy lifting and turning of heavy, large concrete pipes. Load groups 1.3–32 t. The Turning and Lifting Link is attached to an installed Spherical-Head Lifting Anchor. Please contact CFS for specific application details.



Other CFS Products for use in Construction with Spherical Anchor Systems

Chain sets for lifting precast planks and slabs



Pipe joining chains type BCH



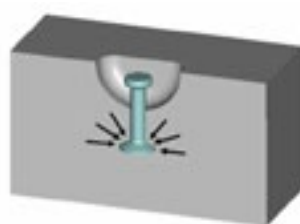
Type T - Spherical Head T Anchors

T Anchors are the most commonly used spherical head anchor and can be used in most situations. They are ideal for beam or wall elements.

The load on the anchor is transmitted to the concrete through the anchor foot. In the same load group, anchors are available with different lengths. Longer anchors are installed for reduced edge spacing or for low concrete strengths.

The anchors must be fixed in the mould using recess formers. The recess former retains the anchor securely in position during the concrete pour.

The recess former creates a void around the head which corresponds to the shackle. The incorrect coupling of parts from different load groups is impossible. Another advantage is that the shackle rests against the concrete during an angled lift and therefore the horizontal load is transferred into the concrete directly.



Part No Standard	Load Group
CFS-T-013-0035	1.3
CFS-T-013-0040	1.3
CFS-T-013-0050	1.3
CFS-T-013-0055	1.3
CFS-T-013-0065	1.3
CFS-T-013-0085	1.3
CFS-T-013-0120	1.3
CFS-T-013-0240	1.3
CFS-T-025-0045	2.5
CFS-T-025-0055	2.5
CFS-T-025-0065	2.5
CFS-T-025-0070	2.5
CFS-T-025-0085	2.5
CFS-T-025-0100	2.5
CFS-T-025-0120	2.5
CFS-T-025-0140	2.5
CFS-T-025-0170 **	2.5
CFS-T-025-0210	2.5
CFS-T-025-0240	2.5
CFS-T-025-0280	2.5
CFS-T-050-0055	5
CFS-T-050-0065 *	5
CFS-T-050-0075 *	5
CFS-T-050-0080	5
CFS-T-050-0085	5
CFS-T-050-0095 *	5
CFS-T-050-0110	5
CFS-T-050-0120 *	5
CFS-T-050-0140	5
CFS-T-050-0150	5
CFS-T-050-0160	5
CFS-T-050-0170	5
CFS-T-050-0180 *	5

Part No Standard	Load Group
CFS-T-050-0210	5
CFS-T-050-0240 **	5
CFS-T-050-0340	5
CFS-T-050-0480	5
CFS-T-050-0680	5
CFS-T-075-0085 *	7.5
CFS-T-075-0095 *	7.5
CFS-T-075-0100	7.5
CFS-T-075-0120	7.5
CFS-T-075-0140	7.5
CFS-T-075-0150	7.5
CFS-T-075-0160	7.5
CFS-T-075-0165	7.5
CFS-T-075-0170	7.5
CFS-T-075-0200	7.5
CFS-T-075-0240	7.5
CFS-T-075-0280	7.5
CFS-T-075-0300 *	7.5
CFS-T-075-0540	7.5
CFS-T-075-0680	7.5
CFS-T-100-0085	10
CFS-T-100-0090	10
CFS-T-100-0100	10
CFS-T-100-0115	10
CFS-T-100-0120	10
CFS-T-100-0135 *	10
CFS-T-100-0140	10
CFS-T-100-0150	10
CFS-T-100-0170	10
CFS-T-100-0200	10
CFS-T-100-0220	10
CFS-T-100-0250	10
CFS-T-100-0340 *	10

Part No Standard	Load Group
CFS-T-100-0500	10
CFS-T-100-0540	10
CFS-T-100-0650	10
CFS-T-100-0680	10
CFS-T-100-1300	10
CFS-T-150-0140	15
CFS-T-150-0150	15
CFS-T-150-0165	15
CFS-T-150-0170	15
CFS-T-150-0200	15
CFS-T-150-0210	15
CFS-T-150-0300	15
CFS-T-150-0400	15
CFS-T-150-0840	15
CFS-T-200-0100	20
CFS-T-200-0165	20
CFS-T-200-0170	20
CFS-T-200-0200	20
CFS-T-200-0240	20
CFS-T-200-0250	20
CFS-T-200-0340	20
CFS-T-200-0500	20
CFS-T-320-0175	32
CFS-T-320-0280	32
CFS-T-320-0320	32
CFS-T-320-0500	32
CFS-T-320-0700	32
CFS-T-320-1200	32
CFS-T-450-0280	45
CFS-T-450-0500	45
CFS-T-450-0700	45
CFS-T-450-1200	45

Anchors are available in black carbon steel (standard), hot dip galvanised steel, electro-galvanised steel and stainless steel.

Sizes highlighted in green are held standard in stock.

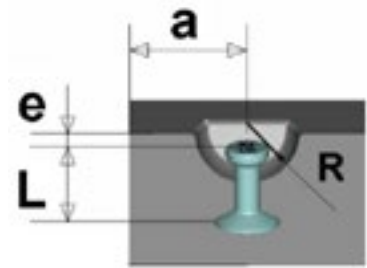
* Standard and hot dipped galvanized anchors held in stock. ** Standard, hot dipped galvanised and stainless steel held in stock.

All other anchors will take a few days longer and any bespoke length may be provided on request.

Type T - Axial Lifting of Beams and Walls

Load capacity under vertical axial lift using the CFS Lifting Clutch for walls and beams.

The values in this table are valid when using the additional reinforcement shown on the next page.

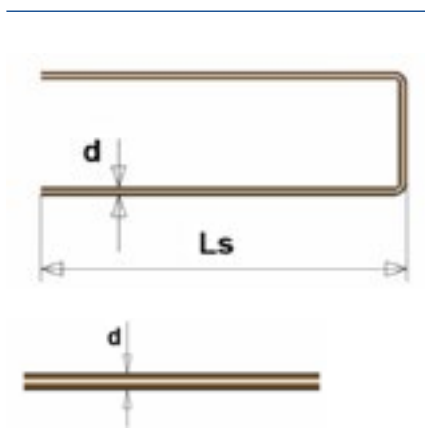
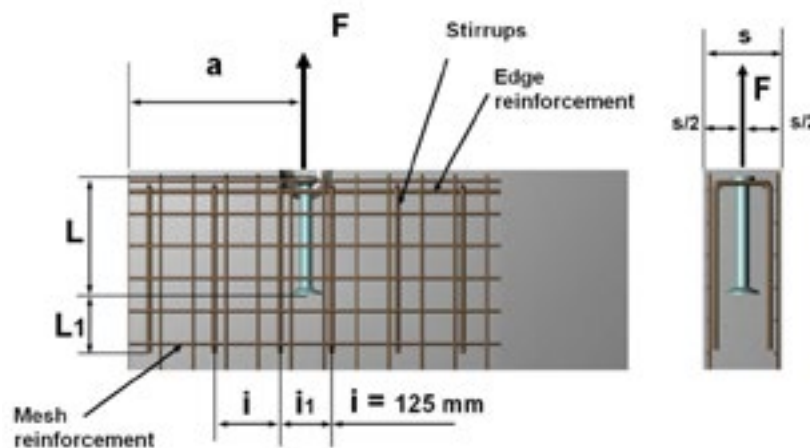


Part No	Load Group	Length of anchor	Cover to anchor head	Recess radius	Min edge distance	Minimum element thickness	Permissible axial load		
		L mm	e mm	R mm	a_{min} mm	s mm	Concrete strength in N/mm ²		
							15 kN	25 kN	35 kN
CFS-T-013-0120	1.3	120	10	30	390	60	9.9	12.8	13
						80	13	13	13
						100	13	13	13
CFS-T-025-0170	2.5	170	11	37	540	80	18.4	23.8	25
						100	23	25	25
						120	25	25	25
CFS-T-050-0340	5	340	15	47	765	120	39.5	50	50
						140	46	50	50
						160	50	50	50
CFS-T-050-0480	5	480	15	47	765	100	32.8	42	50
						120	39.5	50	50
						140	46	50	50
CFS-T-075-0300	7.5	300	15	59	945	160	63.2	75	75
						180	71	75	75
						200	75	75	75
CFS-T-075-0540	7.5	540	15	59	945	140	55.2	71.3	75
						160	63.2	75	75
						180	71	75	75
CFS-T-100-0340	10	340	15	59	1100	200	89.5	100	100
						240	98	100	100
						280	100	100	100
CFS-T-100-0680	10	680	15	59	1100	160	73.6	95.2	100
						180	83	100	100
						200	92	100	100
CFS-T-150-0400	15	400	15	80	1250	300	129	150	150
						400	149	150	150
						500	150	150	150
CFS-T-200-0500	20	500	15	80	1550	300	162	200	200
						400	175	200	200
						500	187	200	200
CFS-T-320-0700	32	700	23	102	2150	450	282	320	320
						550	312	320	320
						680	320	320	320
CFS-T-320-1200	32	1200	23	102	2150	300	266	320	320
						350	311	320	320
						400	320	320	320
CFS-T-450-1200	45	1200	23	102	2400	400	355	450	450
						500	444	450	450
						600	450	450	450

Where using two or more anchors, they should be spaced at a minimum distance of $2x_{a_{min}}$ apart.

Type T - Additional Reinforcement for Axial Lifting of Beams and Walls

For elements such as walls or beams where the lifting occurs axially, the reinforcement below must be included in addition to the mesh or other reinforcement specified by the engineer.



Part No.	Load Group	Stirrups		Edge reinforcement
		BSt 500s		BSt 500s
		n x d mm	Ls mm	d mm
CFS-T-013	1.3	4 x Ø6	L+300	Ø10
CFS-T-025	2.5	4 x Ø6	L+600	Ø10
CFS-T-050	5	6 x Ø8	L+750	Ø12
CFS-T-075	7.5	6 x Ø10	L+750	Ø12
CFS-T-100	10	6 x Ø10	L+750	Ø16
CFS-T-150	15	8 x Ø10	L+800	Ø16
CFS-T-200	20	8 x Ø10	L+800	Ø16
CFS-T-320	32	8 x Ø12	L+1000	Ø16
CFS-T-450	45	12 x Ø12	L+1000	Ø16

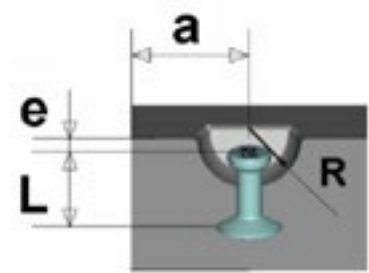
L = Anchor length

The stirrups adjacent to the anchor should be installed as close as possible to the recess former.

Type T - Angled Lifting of Beams and Walls

Load capacity under angled lifting up to 45° from vertical using CFS Lifting Clutch for walls and beams

The values in this table are valid when using additional reinforcement shown on the next page.



Part No	Load Group	Length of anchor	Cover to anchor head	Recess radius	Min edge distance	Minimum element thickness	Permissible angled load up to 45°		
		L mm	e mm	R mm	a_{min} mm		Concrete strength in N/mm ²		
							15 kN	25 kN	35 kN
CFS-T-013-0120	1.3	120	10	30	390	60	9.9	12.8	13
						80	13	13	13
						100	13	13	13
CFS-T-025-0170	2.5	170	11	37	540	80	18.4	23.8	25
						100	23	25	25
						120	25	25	25
CFS-T-050-0340	5	340	15	47	765	120	39.5	50	50
						140	46	50	50
						160	50	50	50
CFS-T-050-0480	5	480	15	47	765	100	32.8	42	50
						120	39.5	50	50
						140	46	50	50
CFS-T-075-0300	7.5	300	15	59	945	160	63.2	75	75
						180	71	75	75
						200	75	75	75
CFS-T-075-0540	7.5	540	15	59	945	140	55.2	71.3	75
						160	63.2	75	75
						180	71	75	75
CFS-T-100-0340	10	340	15	59	1100	200	89.5	100	100
						240	98	100	100
						280	100	100	100
CFS-T-100-0680	10	680	15	59	1100	160	73.6	95.2	100
						180	83	100	100
						200	92	100	100
CFS-T-150-0400	15	400	15	80	1250	300	129	150	150
						400	149	150	150
						500	150	150	150
CFS-T-200-0500	20	500	15	80	1550	300	162	200	200
						400	175	200	200
						500	187	200	200
CFS-T-320-0700	32	700	23	102	2150	450	282	320	320
						550	312	320	320
						650	320	320	320
CFS-T-320-1200	32	1200	23	102	2150	300	266	320	320
						350	311	320	320
						400	320	320	320
CFS-T-450-1200	45	1200	23	102	2400	400	355	450	450
						500	444	450	450
						600	450	450	450

Where using two or more anchors, they should be spaced at a minimum distance of $2x_{a_{min}}$ apart.

Type T - Additional Reinforcement for Angled Lifting of Beams and Walls

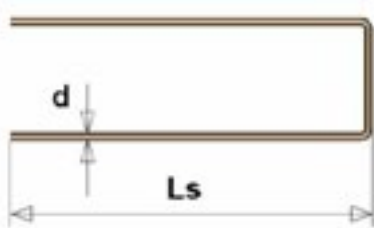
Load capacity under angled lifting up to 45° from vertical using CFS Lifting Clutch for walls and beams

The values in this table are valid when using additional reinforcement shown on the next page.

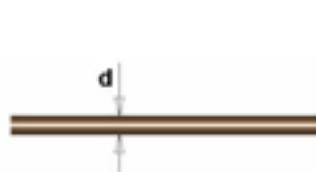
Part No	Load Group	Stirrups		Edge reinforcement	Angled Lift Reinforcement		
		BSt 500s		BSt 500s	BSt 500s		
		n x d mm	L _s mm	d mm	d _a mm	c mm	L _a mm
CFS-T-013	1.3	4 x Ø6	L+450	Ø10	Ø8	25	400
CFS-T-025	2.5	6 x Ø10	L+600	Ø10	Ø10	25	750
CFS-T-050	5	6 x Ø10	L+750	Ø12	Ø16	35	1000
CFS-T-075	7.5	8 x Ø10	L+750	Ø12	Ø16	40	1150
CFS-T-100	10	8 x Ø10	L+750	Ø16	Ø20	50	1300
CFS-T-150	15	8 x Ø10	L+1000	Ø16	2xØ20	80	1500
CFS-T-200	20	10 x Ø12	L+1000	Ø16	2xØ25	80	1500
CFS-T-320	32	10 x Ø16	L+1100	Ø16	2xØ25	80 </td <td>1500</td>	1500

L = Anchor length

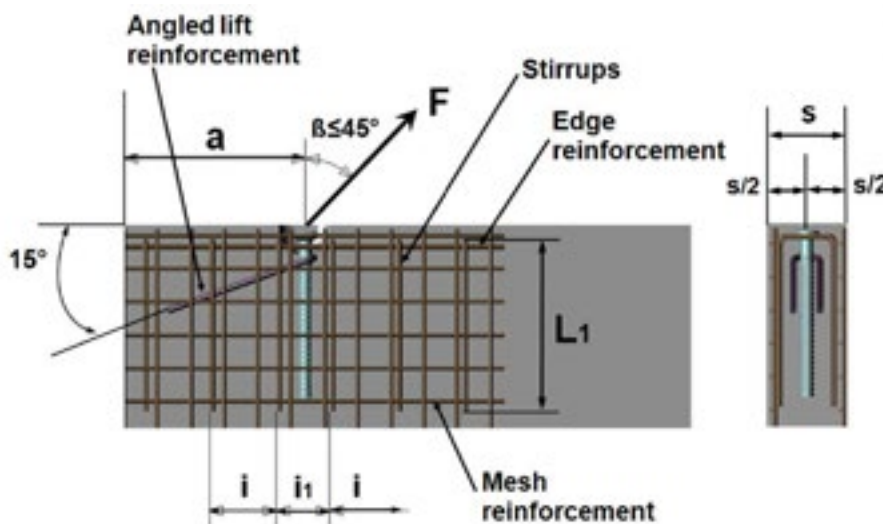
Stirrups



Edge Reinforcement



Angle Lift Reinforcement



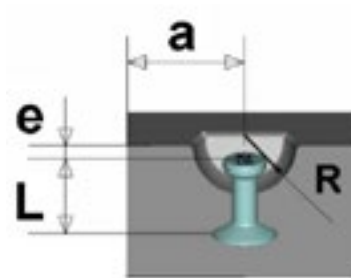
The stirrups adjacent to the anchor should be installed as close as possible to the recess former and then at a spacing of 125mm.

The angle lift reinforcement should also be placed as close as possible to the recess former and with full contact to the anchor in the opposite direction to the load.

Type T - Axial or Angled Lifting of Slabs

Load capacity under axial or angled lifting up to 45° from vertical using CFS Lifting Clutch for slabs.

The values in this table are valid when using additional reinforcement shown on the next page.

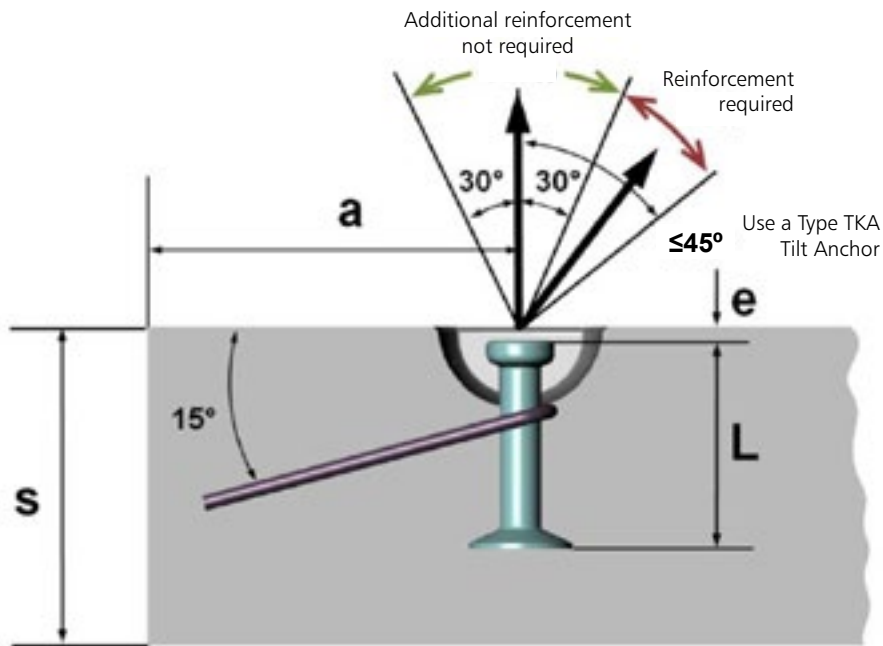


Part No	Load Group	Length of anchor	Cover to anchor head	Recess radius	Minimum Slab thickness	Edge distance	Permissible forces			
		L	e	R	s	a _{min}	Axial	Angle up to 45°	Axial or angle up to 45°	
		mm	mm	mm	mm	mm	Concrete strength in N/mm ²			
							15	15	25	35
							kN	kN	kN	kN
CFS-T-013-0040	1.3	40	10	30	75	150	7.8	6.2	10	11.8
CFS-T-013-0050		50			85	180	10	8	13	13
CFS-T-013-0065		65			100	225	13	10.4	13	13
CFS-T-013-0085		85			120	285	13	10.4	13	13
CFS-T-025-0055	2.5	55	11	37	95	200	11.2	9	14.5	17.1
CFS-T-025-0065		65			105	230	13.8	11	17.8	21.1
CFS-T-025-0085		85			125	290	19.5	15.6	25	25
CFS-T-025-0120		120			160	395	25	20	25	25
CFS-T-025-0140		140			180	455	25	20	25	25
CFS-T-050-0085	5	85	15	47	125	300	20	16	26	30.8
CFS-T-050-0095		95			135	330	23.3	18.6	30	35.5
CFS-T-050-0120		120			160	405	31.7	25.4	41	48.5
CFS-T-050-0180		180			220	585	50	40	50	50
CFS-T-050-0240		240			280	765	50	40	50	50
CFS-T-075-0095	7.5	95	15	59	135	330	24.5	19.6	31.6	37.4
CFS-T-075-0120		120			160	405	31.3	25	40.4	47.8
CFS-T-075-0140		140			180	465	38.5	30.8	49.9	59
CFS-T-075-0170		170			210	555	49.6	39.7	63.7	75
CFS-T-075-0200		200			240	645	63.8	51	75	75
CFS-T-075-0300		300			340	945	75	60	75	75
CFS-T-100-0115	10	115	15	59	155	390	29	23.2	37.5	44.4
CFS-T-100-0150		150			190	495	42	33.6	54.3	64.2
CFS-T-100-0170		170			210	555	50.2	40.2	64.8	76.5
CFS-T-100-0200		200			240	645	63.2	50.6	81.7	96.5
CFS-T-100-0250		250			290	795	87.3	69.8	100	100
CFS-T-100-0340		340			380	1065	100	80	100	100
CFS-T-0150-0140	15	140	15	80	180	465	37.5	30	48.4	57.2
CFS-T-0150-0170		170			210	555	47.3	37.8	61	72.3
CFS-T-0150-0200		200			240	645	62.4	49.9	80.6	95.3
CFS-T-0150-0300		300			340	945	113	90.4	145	150
CFS-T-0150-0400		400			440	1245	150	120	150	150
CFS-T-0200-0200	20	200	15	80	240	645	61.6	49.3	79.5	94
CFS-T-0200-0240		240			280	765	80.5	64.4	103	122
CFS-T-0200-0250		250			290	795	85.5	68.4	110	130
CFS-T-0200-0340		340			380	1065	134	107	174	200
CFS-T-0200-0500		500			540	1545	200	160	200	200
CFS-T-0320-0280		32			280	23	102	330	910	102
CFS-T-0320-0320	320		370	1030	124			99.5	160	190

Where using two or more anchors, they should be spaced at a minimum distance of $2x_{a_{min}}$ apart.

Type T - Additional Reinforcement for Angled Lifting of Slabs

For slab-type elements where lifting occurs at an angle greater than 30° from the vertical, the reinforcement below must be included in addition to the mesh or other reinforcement specified by the engineer.

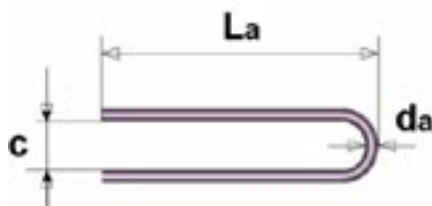


Angled Lift Reinforcement

BSt 500s

Part No	Load Group	d_s	c	L_a
		mm		
CFS-T-013	1.3	Ø8	25	400
CFS-T-025	2.5	Ø10	25	750
CFS-T-050	5	Ø16	35	1000
CFS-T-075	7.5	Ø16	40	1150
CFS-T-100	10	Ø20	50	1300
CFS-T-150	15	2xØ20	80	1500
CFS-T-200	20	2xØ25	80	1500
CFS-T-320	32	2xØ25	80	1500

Angle Lift Reinforcement



The angle lift reinforcement should also be placed as close as possible to the recess former and with full contact to the anchor in the opposite direction to the load.

This angled reinforcement may be omitted if the edge distance is increased to the following:

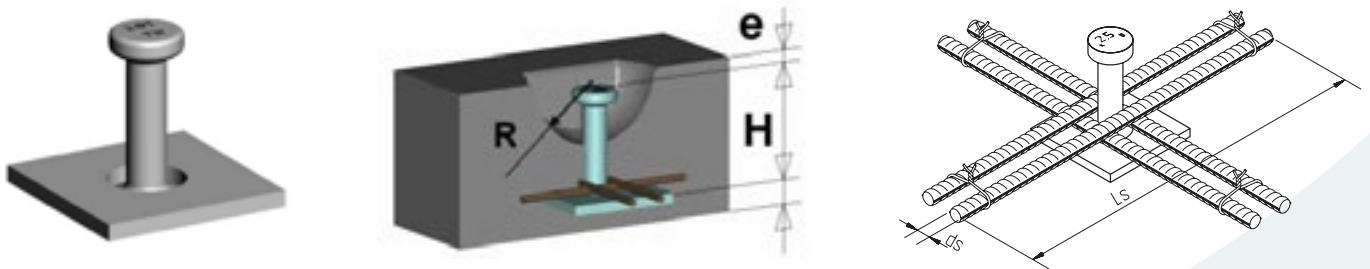
f_{cu}	Edge distance
$f_{cu} = 15\text{N/mm}^2$	$3 \times a_{\min}$
$f_{cu} = 25\text{N/mm}^2$	$2.5 \times a_{\min}$
$f_{cu} = 35\text{N/mm}^2$	$2 \times a_{\min}$

Type TPA - Spherical Head Plate Anchors

The Spherical Head Plate Anchor is recommended for all large thin precast slabs, when the standard short anchor cannot be adequately anchored.

The minimum element thickness results from the anchor length, the head cover dimension and the required concrete cover.

Appropriate measures must be taken to ensure concrete cover requirements for corrosion protection and also allow the concrete to flow under the anchor plate.



Part No	Load Group	Min Slab thickness <i>s</i> mm	Height of anchor <i>H</i> mm	Min edge distance <i>a_{min}</i> mm	Cover to anchor head <i>e</i> mm	Recess radius <i>R</i> mm	Additional Reinforcement <i>d_s</i> mm	<i>L_s</i> mm	Permissible forces			
									Axial		Angle up to 45°	
									Concrete strength in N/mm ²			
		15	25	15	25	15	25	15	25	15	25	
CFS-TPA-025-055	2.5	85	55	280	11	37	8	200	10	25	10.8	14
CFS-TPA-025-085		115	85	770			10	250	15	25	17	21
CFS-TPA-025-120		150	120	1000			10	300	25	25	25	25
CFS-TPA-050-055	5	90	55	1000	15	47	12	450	12	50	14	18.6
CFS-TPA-050-065		100	65	1000			12		16	50	16	20.8
CFS-TPA-050-095		125	95	1000			12		33	50	28	35
CFS-TPA-050-110		145	110	1000			12		50	50	34	43.8
CFS-TPA-100-115	10	150	115	1280	15	59	16	600	80	100	34.5	44.5

Anchors are available in black carbon steel (standard), hot dip galvanised steel.

Where using two or more anchors, they should be spaced at a minimum distance of $2x a_{min}$ apart.

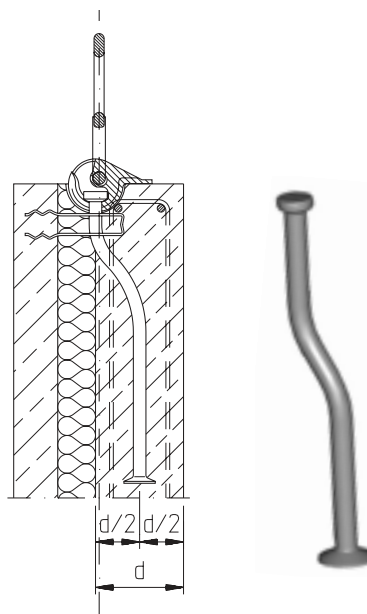
Type TSG - Spherical Head Cranked Anchor

The cranked lifting anchor differs from the standard spherical head lifting anchor only by its cranked shape. This special shape permits installation of this anchor in, for example, sandwich panels.

The foot of the anchor is installed within the middle of the loadbearing layer of the panel, whilst the anchor head is positioned at the centroid. This allows the panel to be lifted vertically. Spalling of the concrete during erecting, lifting and assembly operations is avoided.

If the element is produced with the front layer on top, the element may only be lifted with a tilting table. Please consult with CFS for pitching capacities. The positioning of several connector pins in the vicinity of the anchor is beneficial.

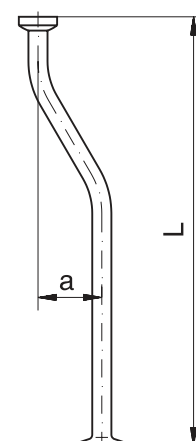
Diagonal/Angled Pull lifts are not permitted, therefore a spreader beam or other provision must be made to ensure only axial lifting is applied. Anchors are available in black carbon steel (standard) and hot dip galvanised steel.



Part No	Load Group	Min Edge distance a_{min}	Element thickness	Length of anchor	Offset	Permissible axial forces Concrete strength 25N/ mm ²
		mm	d	L	a	
CFS-TSG-013-227	1.3	130	80	227	50	13
CFS-TSG-025-268	2.5	185	100	268	50	25
CFS-TSG-040-406	4	320	100	406	60	40
CFS-TSG-050-466	5	410	100	466	60	50
CFS-TSG-075-664	7.5	605	120	664	70	75
CFS-TSG-100-667	10	610	140	667	70	100
CFS-TSG-150-825	15	750	180	825	90	150
CFS-TSG-200-986	20	1015	200	986	90	200
CFS-TSG-320-1150	32	1500	240	1150	150	320

Anchors are available in black carbon steel (standard) and hot dip galvanised steel.

Where using two or more anchors, they should be spaced at a minimum distance of $2x a_{min}$ apart.



Type TKS - Rod Lifting Anchor

The rod lifting anchor is used in very thin walls and the webs of precast beams. Brick faced precast panels can also be lifted using this anchor.

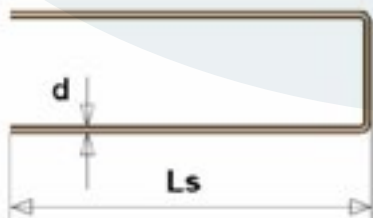
This anchor consists of a ribbed round steel bar with a forged head. The anchor forces are transferred solely via the ribs of the steel bar into the concrete of the prefabricated element.

Anchors are available in black carbon steel (standard) and hot dip galvanised steel.



Part No	Load Group	Stirrups BSt 500s		Edge reinforcement BSt 500s	Angled Lift Reinforcement BSt 500s		
		$n \times d$	L_s	d	d_a	c	L_a
CFS-TKS-025-0400	2.5	8 x Ø8	550	Ø10	Ø10	25	600
CFS-TKS-025-0520	2.5	10 x Ø8	670	Ø10	Ø10	25	600
CFS-TKS-050-0580	5	10 x Ø10	700	Ø12	Ø12	35	1000
CFS-TKS-050-0900	5	16 x Ø10	800	Ø12	Ø12	35	1000
CFS-TKS-075-0750	7.5	14 x Ø10	750	Ø16	Ø20	40	1000
CFS-TKS-075-1150	7.5	20 x Ø10	900	Ø16	Ø20	40	1000
CFS-TKS-100-0870	10	16 x Ø10	800	Ø16	Ø20	50	1150
CFS-TKS-100-1300	10	22 x Ø10	950	Ø16	Ø20	50	1150
CFS-TKS-150-1080	15	18 x Ø12	1050	Ø16	Ø25	80	1200
CFS-TKS-150-1550	15	26 x Ø12	1200	Ø16	Ø25	80	1200

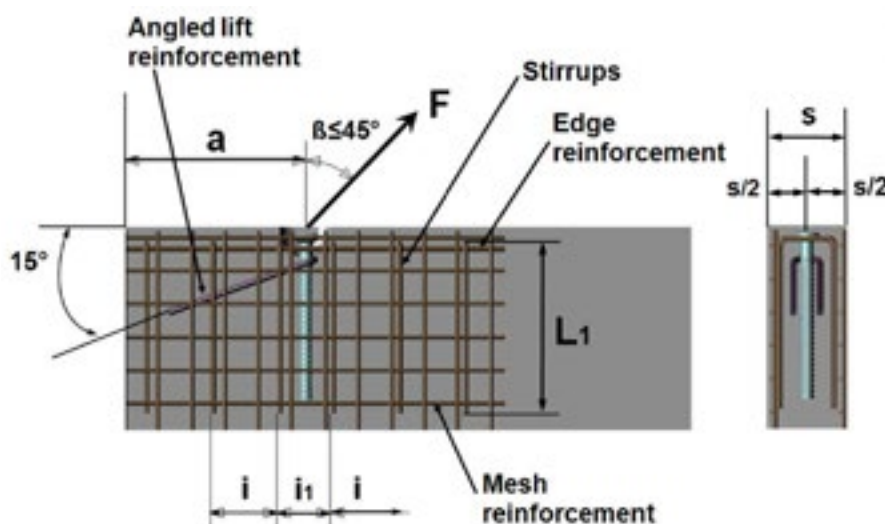
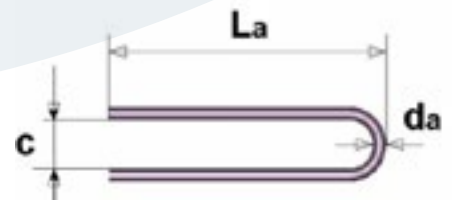
Stirrups



Edge Reinforcement



Angle Lift Reinforcement



The stirrups adjacent to the anchor should be installed as close as possible to the recess former and then at a spacing of 150mm.

The angle lift reinforcement should also be placed as close as possible to the recess former and with full contact to the anchor in the opposite direction to the load.

Type O - Eye Lifting Anchor

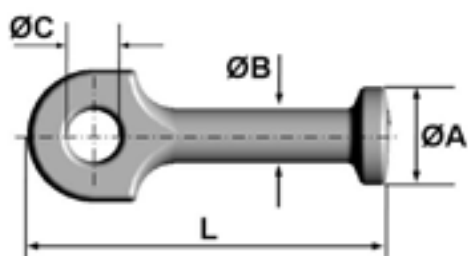
The Eye Lifting Anchor is used whenever, due to special circumstances, the load transfer through an anchor foot is not possible. It is mainly designed for the use in slender reinforced concrete elements, e.g. beams. It is also suitable for lightweight concrete elements.

The Eye Lifting Anchor is designed so that the total anchor force is transferred into the concrete via a reinforcement bar. This reinforcement bar is installed so that it is firmly fixed in the anchor hole and in contact with it. The additional reinforcement should be as described in the table below.

The reinforcement bars of ribbed steel must be bent to an angle of 30°. End hooks are not required. The length E can be reduced with the end hooks (see EN 1045).

For an angled lift it is necessary to use additional reinforcement similar to that installed with a T-Type anchor.

Anchors are available in black carbon steel (standard) and hot dip galvanised steel



Part No	Load Group	Length of anchor L mm	Diameter of hole ØC mm	Minimum element thickness s mm	Minimum edge distance a_{min} mm	Permissible axial load		Permissible angled load up to 45°			Reinforcement dimensions	
						15 kN	15 kN	25 kN	E		Øe mm	
									15 mm	25 mm		35 mm
Concrete strength in N/mm ²												
CFS-O-013-065	1.3	65	9	80	250	13	10.4	13	700	600	450	8
CFS-O-025-090	2.5	90	13	80	300	25	20	25	1100	800	650	10
CFS-O-050-120	5	120	18	100	375	50	40	50	1700	1400	1100	16
CFS-O-100-180	10	180	25	140	600	100	80	100	2000	1600	1300	20
CFS-O-200-250	20	250	37	180	750	200	160	200	3000	2400	2000	32
CFS-O-320-300	32	300	47	260	1000	320	256	320	3800	2700	2200	40

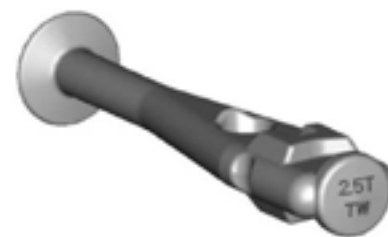
Where using two or more anchors, they should be spaced at a minimum distance of $2x_{a_{min}}$ apart.

Type TKS - Additional Reinforcement

Part No	Load Group	Length of anchor	Edge distance	Minimum element thickness	Permissible axial load		Permissible angled load up to 45°	
			min		Concrete strength in N/mm ²		15	25
			a_{min}		s	15	25	
		L	mm	mm	kN	kN	kN	kN
CFS-TKS-025-0400	2.5	400	460	90	25	25	20	25
				100	25	25	20	25
				120	25	25	20	25
CFS-TKS-025-0520		520		100	25	25	20	25
CFS-TKS-050-0580	5	580	675	120	44.2	50	35.3	50
				140	47	50	37.6	50
				160	50	50	40	50
CFS-TKS-050-0900		900		120	50	50	40	50
CFS-TKS-075-0750	7.5	750	875	140	70	75	56	75
				160	75	75	60	75
				140	75	75	60	75
CFS-TKS-075-1150		1150		140	75	75	60	75
CFS-TKS-100-0870	10	870	1025	160	95	100	76	100
CFS-TKS-100-1300		1300		160	100	100	80	100
CFS-TKS-150-1080	15	1080	1250	200	144	150	115	150
CFS-TKS-150-1550		1550		200	150	150	150	150

Type TKA - Tilt Anchor

The CFS Tilt-up anchor is used for the erection and transport of thin precast concrete elements (walls, beams). It is especially suitable for production without a tilting table. Special care must be taken when installing the anchor to ensure that the tilt-up anchor is installed in the direction of tilt.

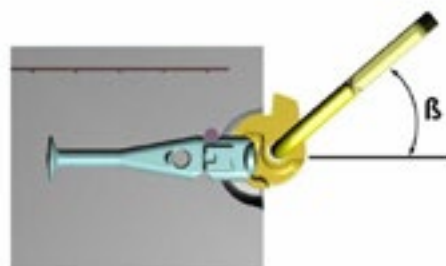


The anchor is cast in the concrete by means of a special recess formers (RBK) and should be used with a CFS Lifting Clutch. Care should be taken that the tongue of the CFS Lifting Clutch points in the direction of lift. Due to the special geometry of the tilt-up anchor, the CFS Lifting Eye bears on the anchor and not the concrete. Additional reinforcement must be used around the anchor to allow pitching.

Shear or Angled Lifting of Slabs



Shear Load

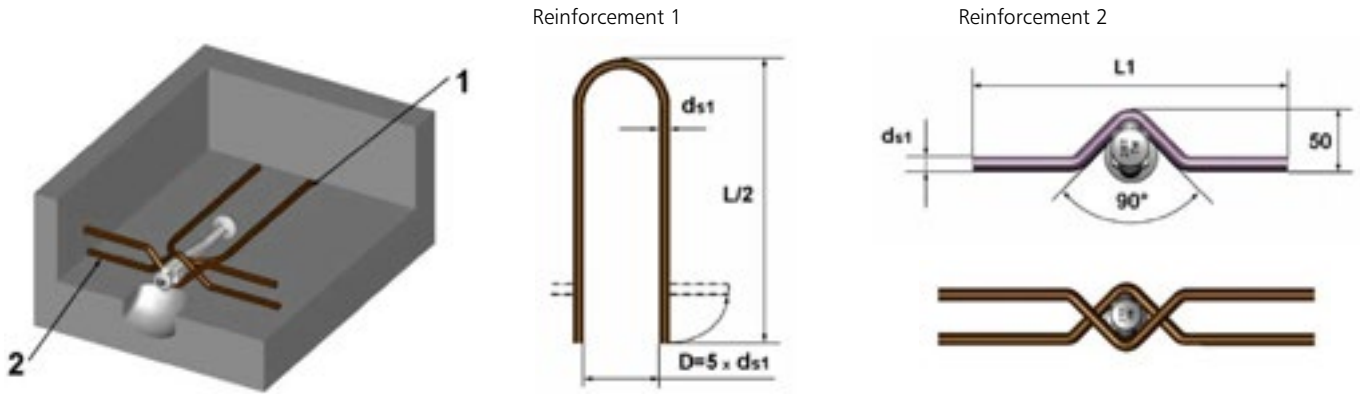


Angled Load

Part No	Load Group	Length of anchor L mm	Minimum element thickness s mm	Minimum Edge Distance a_{min} mm	Permissible shear load			Permissible angled load up to 45°			Permissible angled load up to 15°		
					Concrete strength in N/mm ²								
					15	25	35	15	25	35	15	25	35
					kN	kN	kN	kN	kN	kN	kN	kN	kN
CFS-TKA-013-120	1.3	120	80	765	2.4	3	3.6	8	10	12	9	11	13
			100	765	3.4	4	4.6	10	12	13	11	12	13
			120	765	4.4	5	5.6	12	13	13	12.5	13	13
CFS-TKA-025-170	2.5	170	100	765	6.4	7.8	10.1	18	24	25	17.7	25	25
			110	765	7.4	9	11.6	18	24	25	19.4	25	25
			120	765	8.4	10.3	12.5	19	25	25	22.6	25	25
			130	765	9.5	11.6	12.5	19	25	25	23.5	25	25
CFS-TKA-050-240	5	240	140	765	12.7	15.6	20.1	31	42	50	32	44	50
			150	765	14.1	17.3	22.3	33	44	50	35	46	50
			160	765	15.6	19.1	24.6	35	46	50	38	48	50

Where using two or more anchors, they should be spaced at a minimum distance of $2x_{a_{min}}$ apart.

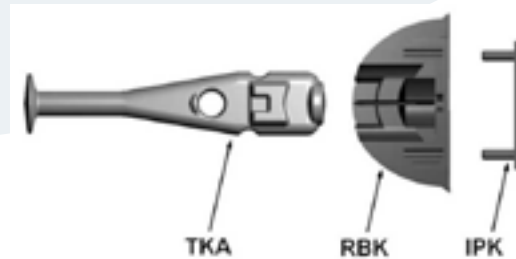
Type TKA - Additional Reinforcement for Shear Lifting of Beams and Walls



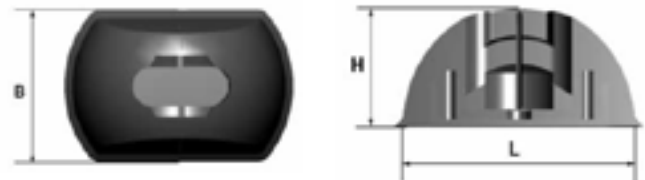
Part No	Load Group	Mesh reinforcement mm ² /m	Reinforcement 1		Reinforcement 2		
			d _{s1} mm	L (straight)	L (bent)	d _{s1}	L ₁
CFS-TKA-013-120	1.3	131	10	1035	500	10	500
CFS-TKA-025-170	2.5	131	10	1635	800	10	500
CFS-TKA-050-240	5	2 x 131	12	2240	1100	12	750

Type TKA - Recess Formers

The TKA must be fixed in the mould using a specific RBK recess former. This retains the anchor securely in position during the concrete pour. The IPK is mounted in the RBK in order to stabilise the RBK during pouring and hardening.



RBK Part No	IPK Part No	Load Group	L	H	B
			mm		
CFS-RBK-13	CFS-IPK-13	1.3	70	32	49
CFS-RBK-25	CFS-IPK-25	2.5	86	38	60
CFS-RBK-50	CFS-IPK-50	5	110	53	78



Recess Formers for Spherical Head Anchors

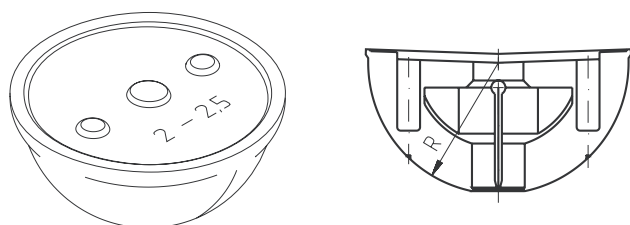
The installation of the Spherical-Head Lifting Anchor is achieved with the help of a semispherical recess former. This enables the simple and secure positioning, as well as the recessed setting of the lifting anchor. Additionally the dimensions of the recess former ensure that only the correct lifting clutch can be used.

The load group is also marked on the top of the former. The recess former is fixed to the formwork by means of either a bolt (timber) or a magnet (steel). The recess formers are produced from reusable materials e.g. rubber or steel.

Standard recess former - type RB

The Rubber Recept formers are produced from stable shape, oil and temperature (120 °C) resistant rubber and can be used repeatedly.

The CFS-RB recess former is used with the T anchor, O anchor, TPA anchor, TKS anchor and TSG anchor.

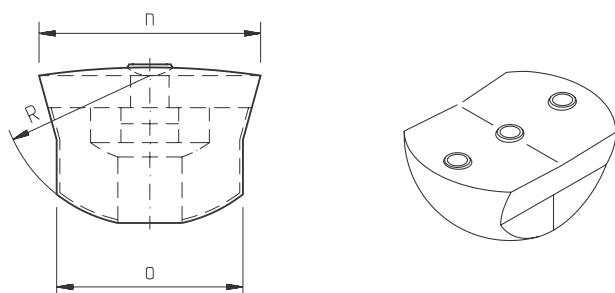


Part No	Load Group	R
		mm
CFS-RB-013	1.3	30
CFS-RB-025	2.5	37
CFS-RB-040/050	5	47
CFS-RB-075	7.5	60
CFS-RB-100	10	60
CFS-RB-150	15	80
CFS-RB-200	20	80
CFS-RB-320/450	32/45	108

Narrow recess former - type NRB

The Rubber Recept Formers are produced from stable shape, oil and temperature (120 °C) resistant rubber and can be used repeatedly.

The CFS-SRB recess former is used with the T anchor, O anchor, TPA anchor, TKS anchor and TSG anchor. Is often used for thin elements such as panels.



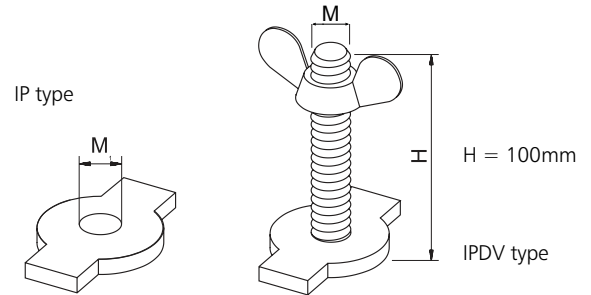
Part No	Load Group	R	n	o
		mm		
CFS-NRB-013	1.3	30	47	37
CFS-NRB-025	2.5	37	59	44
CFS-NRB-050	5	47	78	60
CFS-NRB-075	7.5	60	97	77
CFS-NRB-100	10	60	97	77

Recess Formers for Spherical Head Anchors

Fixing accessories for mould formers - IP and IPDV

There are two types of fixing accessories.

Use either a projecting stud with a wing nut (IPDV) or an internal plate with a threaded hole (IP).



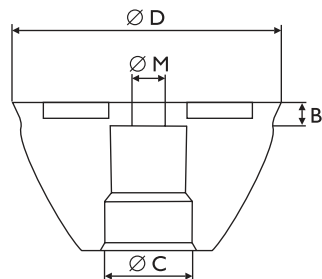
Fixing Plate	Fixing Plate with Threaded Rod and Wing Nut	Load Group	Thread
IP Part No	IPDV Part No		mm
CFS-IP-013	CFS-IPDV-13	1.3	M8
CFS-IP-025	CFS-IPDV-025	2.5	M10
CFS-IP-050	CFS-IPDV-050	5	M10
CFS-IP-075/100	CFS-IPDV-075/100	7.5/10	M12
CFS-IP-150/200	CFS-IPDV-150/200	15/20	M12
CFS-IP-320	CFS-IPDV-320	32	M16

Recess former with magnet type MPS and securing rings type RRM

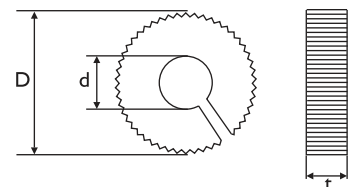
The MPS recess former is made from stainless steel and used with the T anchor, O anchor, TPA anchor, TKS anchor and TSG anchor. When these anchors are used a rubber ring RRM must be used to secure the anchor head firmly in the magnetic former.

Magnetic Recess Former	Rubber Ring	Load Group	Magnetic Recess Former			Rubber Ring			
			ØD	B	ØM	ØC	D	d	t
Part No	Part No		mm						
CFS-MPS-13	CFS-RRM-13	1.3	66.5	11	M12	20	21	10	11
CFS-MPS-25	CFS-RRM-25	2.5	80	11	M12	30	31	14	12
CFS-MPS-50	CFS-RRM-50	5	100	13	M12	37	38	20	14
CFS-MPS-100	CFS-RRM-100	100	129	16	M16	48	49	28	20

MPS – Round Magnet Recess Former



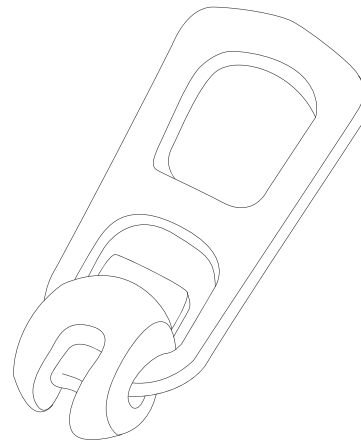
RRM – Rubber Rings



Spherical Head Anchor Lifting Devices

The spherical head lifting anchor system has long been in use for hoisting, transporting and assembling concrete elements.

The anchor is secured in the concrete by means of a rubber former. Once the concrete has cured, the former can be removed from the element mould. The design of the clutch ensures safe and tight connection to the anchor.



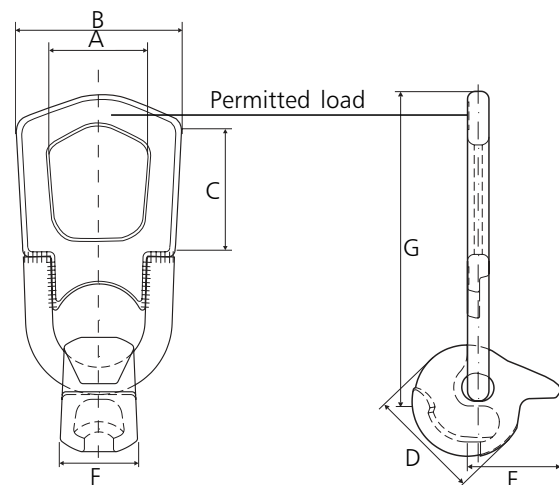
Lifting Clutches - Type H2

Electrolytically zinc-plated, with test certificate. The universal lifting clutch is made of wearresistant and age-resistant steel. This hook can also be used for tilting.

The spherical ball fits exactly in the concrete cavity. Thanks to the weight distribution, it is impossible for the ball on the lifting clutch to come loose from the anchor when under load. This means that no separate locking mechanism is necessary.

The lifting clutch hook is delivered standard with an individual certificate in accordance with European standards, so that for each year the user need only carry out a regular visual inspection.

After the lifting clutch has been tested with a test load of three times the authorised load, it is given an individual number which corresponds to the number on the test certificate.



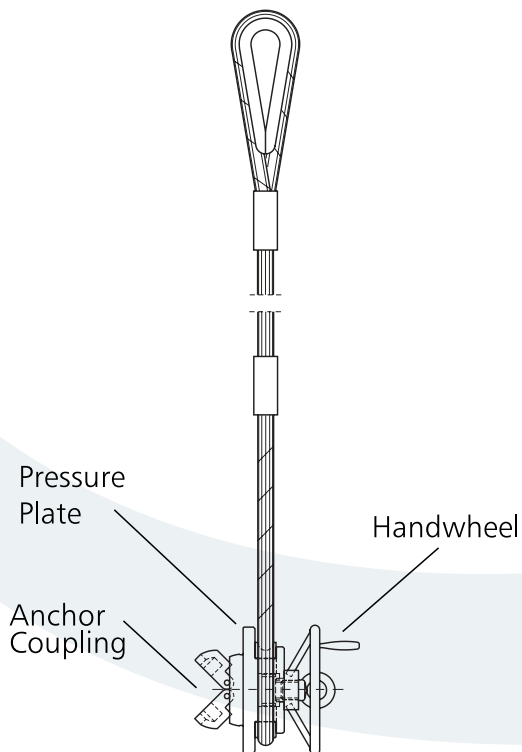
Part No	Load Group	A	B	C	D	E	F	G
		mm						
CFS-H2-013	1.3	48	77	60	55	40	32	165
CFS-H2-025	2.5	5	92	75	68	55	42	205
CFS-H2-050	5	68	121	86	88	64	57	240
CFS-H2-075/100	10	84	170	110	108	90	77	346
CFS-H2-150/200	20	124	230	140	146	118	115	520
CFS-H2-320	32	155	303	175	195	160	155	590
CFS-H2-450	45	155	303	175	195	160	155	590

Anchor Lifting and Turning Devices

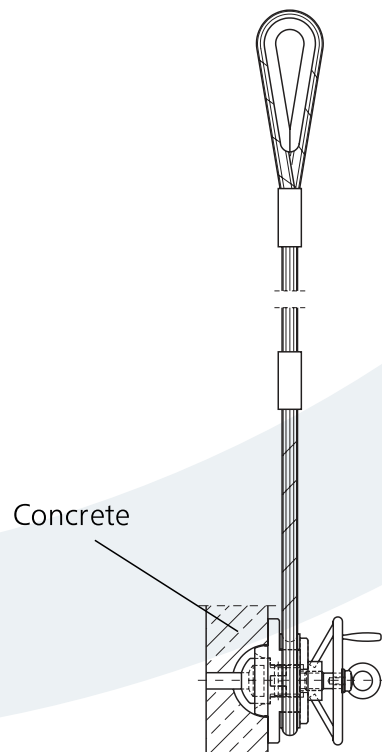
This is designed so that large elements can be rotated about their centre of gravity making handling of the units simplified. Ideal for products such as pipes or culverts available in the weight range 1.3 t to 32 t.

For anchor selection and applied reinforcement, please consult CFS for your particular application.

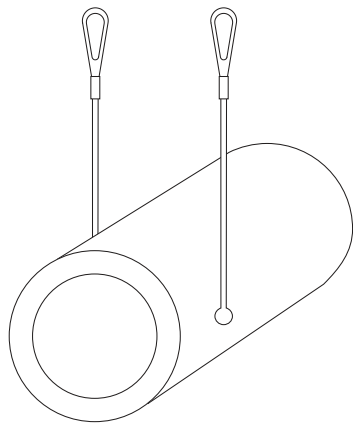
A. Before Installation



B. After Installation



Pipe



Culvert

Turning on C.O.G. point

