

**PRECAST**  
**LIFTING SYSTEM**



## BRIEF INTRODUCTION

QINGDAO XINYUANTE MACHINERY CO.,LTD is a manufacturer and supplier .We designs and manufactures high integrity products and provide the technical solution for application in construction and industrial projects.

The products include:

- LIFTING ANCHOR SYSTEM**
- FIXING SYSTEM**
- FLAT LIFTING SYSTEM**
- THREAD LIFTING SYSTEM**
- FORMWORK SYSTEM**

We can supply samples and products according to international construction standard and meet your very demand.

### Quality

XYT is fully committed to producing quality products thus enabling us to be at the pinnacle of industry standards.

We consistently produce a range of the highest quality products tested and stamped to enable full traceability.

### Service

The foundations of our business were built on service and will always be the number one driving force at XYT.

Delivery and constant evaluation of our customers' needs and expectations ensure we are pioneers in our sale & market department

### Price

In a constantly changing economic climate we understand the needs of cost saving in any business and endeavours to provide value for money at no expense to quality or service.

XYT staff would like to work together with you to find the best effective and lasting products in construction projects around the world .

We also pay attention to social responsibility and sustainable development. And We don't purpose short-term interests and seek a long-term development.

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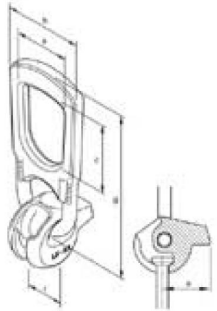
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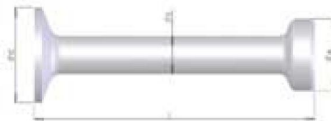
**LIFTING CLUTCH, Galvanised**

Delivered with individual test certificate x3 working load!

galvanised	Axial Capacities load Kg	Dimensions mm						Weight Kg / pc.
		a	b	c	e	f	g	
1.3	1,300	47.5	75	71	45	33	165	1.0
1.5-2.5	2,500	64	98	85	55	42	205	1.6
3.0-5.0	5,000	70	118	88	66	57	240	3.3
8.0-10.0	10,000	95	160	121	117.5	73	348.5	9.6
15-20	20,000	118	196	150	155	110	441	24.5

The capacity loads are axial with breakage factor of safety equal to 5 for all the types of lifting eyes (1.3 tonne till 32 tonne).

Lifting clutch in 6 different load groups 1.3-32 ton to suit the load carrying range of all type of lifting anchor of the spherical head anchor system.

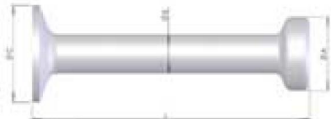


**Spherical lifting anchor, Black, Hot dipped galvanised**

The capacity loads are axial with breakage factor of safety equal to 3.

Black Hot dipped galvanised	Axial Capacities load Kg	Lengths L = mm	Weight Kg / pc	Quantity per BAG
13-40	1,300	40	0.050	350
13-50	1,300	50	0.055	300
13-55	1,300	55	0.058	300
13-65	1,300	65	0.062	250
13-85	1,300	85	0.074	250
13-120	1,300	120	0.095	200
13-240	1,300	240	0.170	125
25-45	2,500	45	0.119	175

25-55	2,500	55	0.120	175
25-65	2,500	65	0.131	175
25-70	2,500	70	0.136	150
25-85	2,500	85	0.155	125
25-100	2,500	100	0.175	100
25-120	2,500	120	0.195	100
25-140	2,500	140	0.220	80
25-170	2,500	170	0.255	75
25-210	2,500	210	0.280	75
25-280	2,500	280	0.366	50
40-55	4,000	55	0.290	85
40-65	4,000	65	0.300	80
40-70	4,000	70	0.310	80
40-75	4,000	75	0.320	75
40-80	4,000	80	0.340	75
40-110	4,000	110	0.390	65
40-140	4,000	140	0.460	55
40-160	4,000	160	0.470	50
40-170	4,000	170	0.480	50
40-180	4,000	180	0.500	50
40-210	4,000	210	0.550	30
40-240	4,000	240	0.605	30
40-340	4,000	340	0.815	20
50-55	5,000	65	0.302	60
50-75	5,000	75	0.331	60
50-80	5,000	80	0.337	60
50-95	5,000	95	0.377	60
50-110	5,000	110	0.415	50
50-120	5,000	120	0.442	50
50-140	5,000	140	0.490	50
50-150	5,000	150	0.500	50
50-160	5,000	160	0.545	50
50-170	5,000	170	0.565	50
50-180	5,000	180	0.585	50
50-210	5,000	210	0.658	45
50-240	5,000	240	0.725	45
50-340	5,000	340	0.980	30
50-480	5,000	480	1.400	20
75-55	7,500	85	0.570	50
75-95	7,500	95	0.600	50
75-120	7,500	120	0.705	50
75-140	7,500	120	0.730	40
75-150	7,500	150	0.801	40
75-160	7,500	160	0.835	40
75-165	7,500	165	0.850	40
75-200	7,500	200	0.980	25
75-300	7,500	300	1.330	20
75-540	7,500	540	2.180	
75-680	8,000	680	2.700	

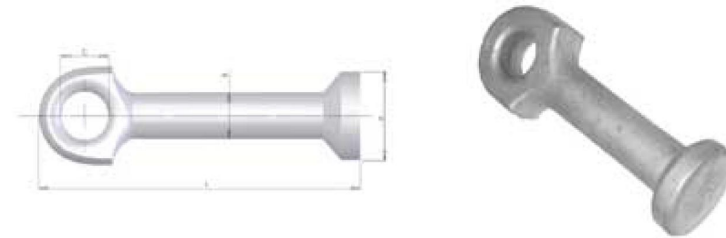


**Spherical lifting anchor ,Black,Hot dipped galvanised**

The capacity loads are axial with breakage factor of safety equal to 3.

Black Hot dipped galvanised	Axial Capacities load Kg	Lengths L = mm	Weight Kg / pc	Quantity per BAG
100-85	10,000	85	0.772	
100-100	10,000	100	0.820	
100-110	10,000	110	0.900	
100-115	10,000	115	0.910	
100-120	10,000	120	0.920	
100-135	10,000	135	1.000	
100-150	10,000	150	1.088	
100-170	10,000	170	1.170	
100-200	10,000	200	1.300	
100-220	10,000	220	1.390	
100-250	10,000	250	1.559	
100-340	10,000	340	2.000	
100-650	10,000	650	3.500	
100-680	10,000	680	3.630	
150-140	15,000	140	1.800	
150-150	15,000	150	2.000	
150-165	15,000	165	2.200	
150-200	15,000	200	2.530	
150-210	15,000	210	2.610	
150-300	15,000	300	3.440	
150-400	15,000	400	4.270	
150-840	15,000	840	8.200	
200-165	20,000	165	2.600	
200-200	20,000	200	2.960	
T-200-250	20,000	250	3.455	
200-340	20,000	340	4.370	
200-500	20,000	500	5.970	
200-1000	20,000	1000	11.050	
320-175	32,000	175	5.490	
320-280	32,000	280	7.100	
320-500	32,000	500	11.200	
320-700	32,000	700	13.540	
320-1200	32,000	1200	21.000	

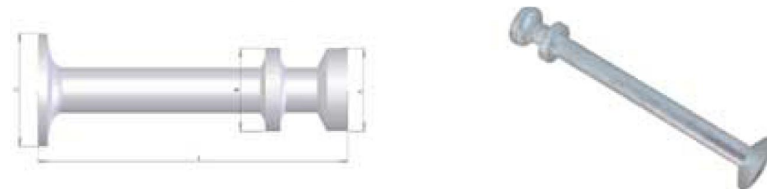
It is absolute not allow to weld at the body or the head of the anchor



**Lifting eye anchor ,Black,Hot dipped galvanised**

Black Hot dipped galvanised	Axial Capacities load KG	Lengths L = mm	Dimensions			Weight Kg / pc	Quantity per bag
			diam. C	diam. B	diam. A		
13-65	1300	65	9	10	19	0.065	350
25-90	2500	90	13	14	26	0.175	125
25-120	2500	120	13	14	26	0.233	125
50-90	5000	90	18	20	36	0.350	60
50-120	5000	120	18	20	36	0.435	50
100-115	10,000	115	25	28	47	0.810	-
100-180	10,000	180	25	28	47	1.130	-
200-250	20,000	250	37	39	70	3.280	-
320-300	32,000	300	47	50	88	6.310	-

The capacity loads are axial with breakage factor of safety equal to 3.



**Spherical double head anchor,Black,Hot dipped galvanised**

Black Hot dipped galvanised	Axial Capacities load KG	Lengths L = mm	Dimensions			Weight Kg / pc
			diam. C	diam. B	diam. A	
13-55	1300	55	25	19	19	0.087
13-85	1300	85	25	19	19	0.087
13-120	1300	120	25	19	19	0.109
25-85	2500	85	35	26	26	0.175
25-120	2500	120	35	26	26	0.215
25-170	2500	170	35	26	26	0.280
50-75	5000	75	50	36	36	0.430
50-120	5000	120	50	36	36	0.590
50-240	5000	240	50	36	36	0.925

The capacity loads are axial with breakage factor of safety equal to 3.

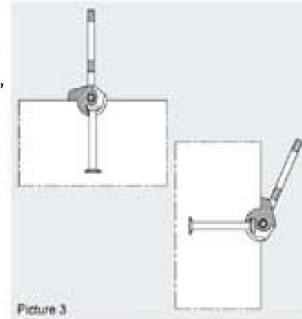
**USING INSTRUCTION OF SPHERICAL HEAD LIFTING CLUTCH**

**Lifting and turning**

The Spherical Head Lifting Clutch is constructed in a way that an unintended coupling off (even without tension by a lifting device) is impossible. On lifting, attention must be paid that the lip shows into direction of tension.

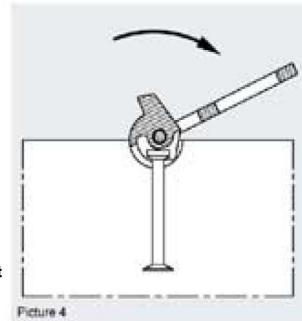
The Spherical Head Clutch is suitable for all directions (axial, diagonal and lateral tension).

On turning of units, special attention must be paid on the lip position of the Spherical Head Lifting Clutch. It must always show into direction of tension (Picture 3).



**Coupling Off**

Coupling off the Spherical Head Lifting Clutch it must be unloaded. There after the Spherical Head Lifting Clutch can be coupled off by turning back the lip (Picture 4).

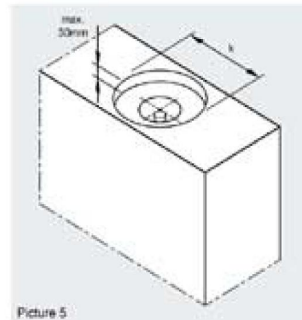


**Corrosion Protection**

The corrosion protection can be increased by installing the Spherical Head Anchor in a sunk position. The additional recess former must ensure the functionality of the anchor according to this installation instruction and must have the minimum dimensions of Table 2.

**Table 2 :Dimensions for Deepened Assembly**

Load Group	dia.k [mm]
1.0 - 1.3	110.0
1.5 - 2.5	130.0
3.0 - 5.0	142.0
6.0 - 10.0	255.0
15.0 - 20.0	330.0



The Spherical Head Lifting Clutch counts as lifting device and is therefore subject of an annual inspection (BGR 500 Section 2.8). This inspection must be executed by an expert and is the responsibility of the user.

The particular accident prevention regulations must be taken into account in order to extend a higher durability. The right hook size and form should be considered.

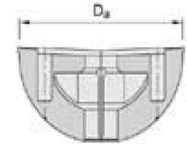
**Recess Formers**

To fix Spherical Head Anchors to the formwork a Recess former must be used. This ensures simple and secure locating of the anchor and leaves the anchor ready for the correct universal head lifting link.

**Rubber recess former, round shape**



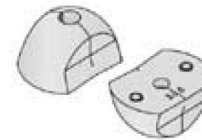
The rubber recess former is constant in shape even when heated up to 120° C or contact with oil in can be used several times. In order to ease the identification of the load group the formers are produced in different colours. Recess formers are used with threaded plates with may be either rod or a socket.



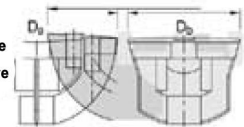
**Rubber recess former, round shape**

Load group	including plate with threaded rod		including plate with socket		without threaded parts		Colour	D <sub>0</sub> [mm]
	Designation	Order no. 0736.020-	Designation	Order no. 0736.030-	Designation	Order no. 0736.010-		
1.3	6132-1.3	00001	6133-1.3	00001	6131-1.3	00001	blue	60
2.5	6132-2.5	00002	6133-2.5	00002	6131-2.5	00002	yellow	74
4.0	6132-4.0	00003	6133-4.0	00003	6131-4.0	00003	black	94
5.0	6132-5.0	00004	6133-5.0	00004	6131-5.0	00004	blue	94
7.5	6132-7.5	00005	6133-7.5	00005	6131-7.5	00005	red	118
10.0	6132-10	00006	6133-10	00006	6131-10	00006	yellow	118
15.0	6132-15	00007	6133-15	00007	6131-15	00007	gray	160
20.0	6132-20	00008	6133-20	00008	6131-20	00008	black	160
32.0/45.0	6132-32	00009	6133-32	00009	6131-32	00009	black	214

**Rubber recess former, round shape**

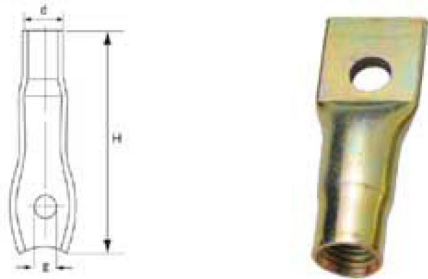


The narrow rubber recess former is used when the load is only in one direction. It is constant in shape even when heated up to 120°C or in contact with oil. It can be used several times. All of the narrow recess formers are coloured black.



**Rubber recess former, round shape**

Load group	including plate with threaded rod		including plate with socket		without threaded parts		Colour	D <sub>0</sub> [mm]	D <sub>1</sub> [mm]
	Designation	Order no. 0736.020-	Designation	Order no. 0736.030-	Designation	Order no. 0736.010-			
1.3	6138-1.3	00001	6145-1.3	00001	6137-1.3	00001	black	62	42
2.0/2.5	6138-2.0/2.5	00002	6145-2.0/2.5	00002	6137-2.0/2.5	00002		77	52
4.0	6138-4.0	00003	6145-4.0	00003	6137-4.0	00003		67	69
5.0	6138-5.0	00004	6145-5.0	00004	6137-5.0	00004		67	69
7.5	6138-7.5	00005	6145-7.5	00005	6137-7.5	00005		122	85
10.0	6138-10	00006	6145-10	00006	6137-10	00006		122	85
15.0	6138-15	00007	6145-15	00007	6137-15	00007		164	124
20.0	6138-20	00008	6145-20	00008	6137-20	00008		164	124



**Flat end fixing socket with cross hole**

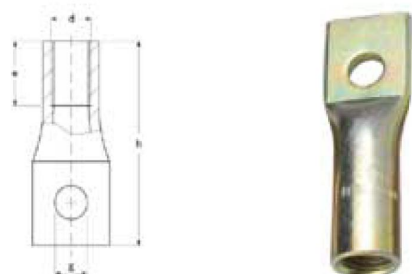
Steel, zinc plated

Stainless steel, A2(304/1.4301)

zinc plated	stainless steel	Thread	Overall length	Diam.	Diam.	Load Kg					Weight Kg / 100	Quantity per BOX				
						axial ( 1 )							axial (2)			
						H	d	g	axial ( 1 )	tail			axial (2)	angel (2)	angel (2)	
0850	0850-SS	M 8	50	10.5	6	-	-	250	-	-	-	1.50	1000			
1050	1050-SS	M 10	50	13.5	10	-	-	350	200	140	80	1.79	1000			
1260	1260-SS	M 12	60	16	12	1000	8 x U x300	900	300	220	140	3.27	780			
1680	1680-SS	M 16	80	22	12	1600	10 x U x350	850	700	600	430	11.43	250			
18100	18100-SS	M 18	100	22	12	1800	10 x U x350	1000	800	700	500	13.73	200			
18120	18120-SS	M 16	120	22	12	1600	10 x U x350	1200	850	750	500	16.33	150			
20100	20100-SS	M 20	100	27	14	2500	12 x U x400	1300	1000	950	650	18.44	150			
20120	20120-SS	M 20	120	27	14	2500	12 x U x400	1400	1100	1000	700	21.54	125			
24120	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 .

(2)The capacity loads are with a breakage factor of safety equal to 4.



**Fixing socket,with Flat end and cross drilled hole**

zinc plated

M	Thread	Rd	Thread Rate	Load length	Overall	Diam.			Load Kg( 1 )				Weight Kg / 100	Quantity per BOX
						d	e	h	concrete > 15 N/mm2		concrete > 25 N/mm2			
						mm	mm	mm	axial	lifting 45°(°)	axial	lifting 45°(°)		
M1260	M 12	Rd1260	Rd 12	0.5	60	12	20	13	900	850	1150	1100	5.30	500
M1680	M 16	Rd1680	Rd 16	1.2	80	16	22	21	1500	1350	2000	1700	12.30	200
M2095	M 20	Rd2095	Rd 20	2.0	95	20	25	24	2500	2300	2900	2400	25.40	100
M24100	M 24	Rd24100	Rd 24	2.5	100	24	30	24	3000	2600	3900	3000	31.60	100
M30135	M 30	Rd30135	Rd 30	4.0	135	30	35	26	4000	4400	6600	5500	60.00	35

(1)by using the lifting loop or thr lifting swivel and with use of reinforcing tail and reinforcing steel .The admissible load is only valid if the mentioned reinforcing tail(Feb 500) is used.

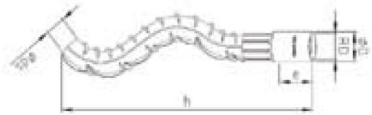


**Lifting socket with Round end and cross drilled hole**

zinc plated

M	Thread	Rd	Thread Rate	Load length	Overall	Diam			Load Kg				Weight Kg	Quantity per BOX	
						D	e	h	concrete > 15 N/mm <sup>2</sup>		concrete > 25 N/mm <sup>2</sup>				
						mm	mm	mm	axial	lifting 45°(°)	axial	lifting 45°(°)			
M12	M 12	Rd12	12	0.5	48	16.5	22	40	8	900	850	1150	1100	0.11	350
M16	M 16	Rd16	16	1.2	55	22	27	54	13	1500	1350	2000	1700	0.24	150
M20	M 20	Rd20	20	2.0	68	28	35	67	15	2500	2300	2900	2400	0.38	100
M24	M 24	Rd24	24	2.5	77	31	43	77	18	3000	2600	3900	3000	0.55	75
M30	M 30	Rd30	30	4.0	95	41	56	105	22	4000	4400	6600	5500	1.06	30

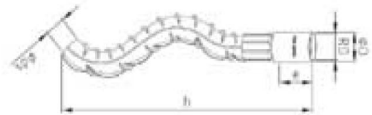
(!)by using the lifting loop or thr lifting swivel and with use of reinforcing tail and reinforcing steel .The admissible load is only valid if the mentioned reinforcing tail (Feb 500) is used.



**Wavy Bar Anchor - short**

M	Thread M	Rd	Thread Rd	Load Rate	Overall length	Bar diam.	D diam.	e mm	Load Kg				Weight Kg/100	Quantity per BOX
									concrete > 15 N/mm <sup>2</sup>		concrete > 25 N/mm <sup>2</sup>			
									axial	lifting 45°(*)	axial	lifting 45°(*)		
M12-105	12	Rd12-105	12	0.5	105	8	15	22	450	700	580	900	10.00	250
M16-165	16	Rd16-165	16	1.2	165	12	21	27	1350	900	1700	1250	31.00	100
M20-195	20	Rd20-195	20	2.0	195	14	27	35	1700	1300	2200	1700	51.00	50
M24-240	24	Rd24-240	24	2.5	240	16	31	43	2000	1850	2600	2400	73.00	50
M30-300	30	Rd30-300	30	4.0	300	20	40	56	3000	3650	3900	4700	162.00	-
M36-380	36	Rd36-380	36	6.3	380	25	47	68	5000	4000**	5450	5100**	220.00	-
M42-450	42	Rd42-450	42	8.0	450	28	54	80	5400	5600**	7000	7200**	345.00	-

(1) by using the lifting loop or lifting swive and with use of reinforcing tail and reinforcing steel.



**Wavy Bar Anchor - long**

M	Thread M	Rd	Thread Rd	Load Rate	Overall length	Bar diam.	D diam.	e mm	Load Kg				Weight Kg/100	Quantity per BOX
									concrete > 15 N/mm <sup>2</sup>		concrete > 25 N/mm <sup>2</sup>			
									axial	lifting 45°(*)	axial	lifting 45°(*)		
M12-137	12	Rd12-137	12	0.5	137	8	15	22	800	1100	1000	1400	17.00	250
M16-216	16	Rd16-216	16	1.2	216	12	21	27	1350	1250	1700	1600	38.00	100
M20-257	20	Rd20-257	20	2.0	257	14	27	35	2500	1600	2900	2100	67.00	50
M24-360	24	Rd24-360	24	2.5	360	16	31	43	3300	2000	4100	2600	96.00	50
M30-450	30	Rd30-450	30	4.0	450	20	40	56	4750	4350	5100	5600	204.00	-
M36-570	36	Rd36-570	36	6.3	570	25	47	68	7900	4500**	9700	5800**	310.00	-
M42-620	42	Rd42-620	42	8.0	620	28	54	80	10200	5600**	13150	7200**	519.00	-

(1) by using the lifting loop or the lifting swivel and with use of reinforcing tail and reinforcing steel

**Lifting loop**

**Introduction**

Threaded lifting loops can be used with all sizes of threaded inserts. They are the most economic lifting loop and are suitable for most applications. They may be reused subject to the safe operation. They are not suitable for turning/pitching, inspection procedure, detailed below, but they are not recommended for severe re-use conditions.

Threaded Lifting loops only be attached to the unit after the concrete strength has reached 15N/mm. In some cases it may be economic and practical to leave the loops with the unit until final installation.

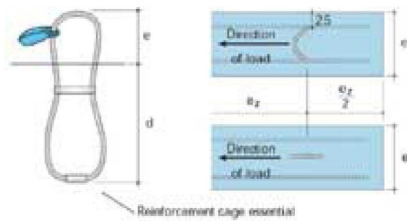
**Description**

Threaded Lifting loops are manufactured from high grade steel wire, swaged in steel ferrule and finished with zinc plating. They are clearly marked with their SWL. The thread type is Rd/M, which is compatible with both metric and Rd inserts. Threaded Lifting loops are suitable for use with inserts cast in flush with the face of the unit, or recessed using the recess former shown opposite.



M	Thread M	Rd	Thread Rd	Load Rate	Full SWL Kg	Dimensions			Weight Kg/1	Quantity per BOX
						t	h(ca)	wire rope diam mm		
						mm	mm	mm		
M12	12	Rd12	12	0.5	500	22	155	6	0.10	50
M16	16	Rd16	16	1.2	1200	27	155	8	0.14	25
M20	20	Rd20	20	2.0	2000	35	215	10	0.28	25
M24	24	Rd24	24	2.5	2500	43	255	12	0.50	20
M30	30	Rd30	30	4.0	4000	56	300	16	1.00	10
M36	36	Rd36	36	6.3	8300	68	340	18	1.45	-
M42	42	Rd42	42	8.0	8000	80	425	20	2.00	-
M52	52	Rd52	52	12.5	12500	97	550	26	3.50	-

Lifting under an angle > 45° is not allowed



**Introduction**

Cast- in wire rope lifting hoops are the most economic way of providing a crane hook attachment in precast units. However, they require relatively large edge distances , Consideration must also be given to the exposure of steel rope hoops after panel assembly,Once finally in position,protruding hoops can be cut off,if required,but consideration must still be given to the provision of corrosion protection to the cut ends to avoid rust staining

The flexibility of steel rope makes it the safest method for forming a cast-in hoop, Lifting loops formed from reinforcement bars are liable to fatigue,particularly if bent during angled lifts.

Provided that hoops are installed in reinforced concrete and to the minimum dimensions in the table.no anchorage reinforcement is generally required.However for acute angled lifts,additional lateral reinforcement may be required.

**Description**

Cast-in lifting hoops are manufactured from bright or galvanised mild steel rope. They have a swaged connecting ferrule and a tag that clearly identifies the SWL of the hoop, The tag is designed not to slide down the hoop during casting and should therefore remain visible.

Cast-in hoops are suitable for use through a single cycle from production to final instalation but are not suitable for multi-use applications.

**Lifting Cast in loop**

For differentiation of the vanouse sizes.The cast in lifting loops have taps which show admissable load capacities in Kg The cable(loop) is galvanised.

	Overall	Diam.	Load Kg concrete > 15 N/mm <sup>2</sup>	Dimensions		Test results of the loop KN ( " )	Weight Kg/100	Quantity per BOX
	length mm	Wire mm		e mm	d mm			
008	210	6	800	60	150	37.5	9	300
012	225	7	1200	65	160	37.1	12	200
016	235	8	1600	70	165	31.9	15	175
020	275	9	2000	75	200	31.9	20	125
025	315	10	2500	85	230	88.8	30	100
040	340	12	4000	100	240	128.1	50	50
052	360	14	5200	100	260	-	80	30
063	390	16	6300	110	280	-	110	25
080	440	18	8000	120	320	-	160	-
100	525	20	10000	135	390	251	210	-
125	570	22	12500	150	420	-	340	-
160	615	26	16000	165	450	381.4	470	-
200	730	28	20000	180	550	466.2	655	-
250	800	32	25000	200	600	487.5	840	-

(1)The cast-in loop was placed in the tensile test machine and tested till fracture.

**Description of the system**

The lifting anchor system consists of a steel component inset into the concrete (the anchor) and a lifting component (the ring clutch). The prefabricated concrete component is lifted and transported by means of a ring clutch,which is locked to the anchor casted into concrete.The design and shape of the ring clutch and anchor enable the lifting of the load in almost any load dinction.The ring clutch can be unlocked either manually . direct at the clutch head, or by remote release.

**The anchors**

The anchors are made of special-quality flat steel.The shape of the shape of the anchor foot is described under the corresponding anchor types. The anchor head is provided with a hole. into which is fitted the locking bolt of the ring clutch anchor carries a clearly visible, stamped manufacturers designation,which designates the product and the system designation, the anchor type(e.g.S), the anchor length(e.g.13)and the anchor load(e.g.2.0).

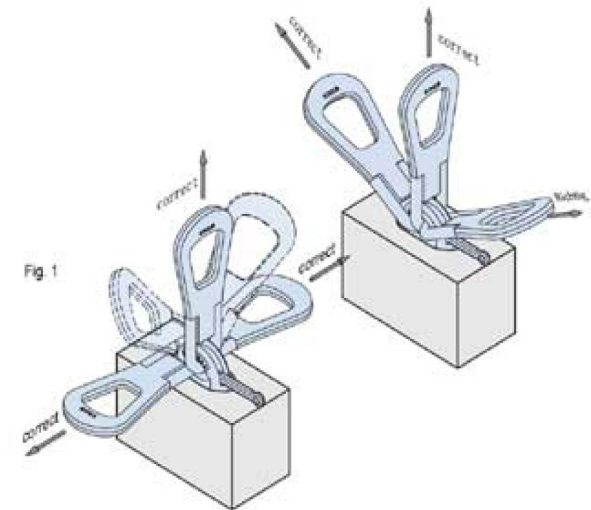
**The ring clutches**

The ring clutch is inserted into the recess of the cast-in anchor and the locking bolt is closed by hand.The ring clutch is thus secured to the anchor in a matter of seconds.The ring clutch can now be subjected to loads in any direction\* turning ,rotating and tilting can all be carried out.There is no preferred direction of pull(Fig.1).To disengage,the locking bolt is simply opened to free the ring clutch.If the access is more difficult(see German safety code Unfallverh,tungsvor schriften"(UVV),ring clutches with pneumatic or manual remote-control release can be use deasily(TPA-F1,TPA-F2).

**The load group system**

The components of the lifting anchor system are classified in terms of load roups.Every load group corresponds to the permissible load of a ring clutches to which anchors of the different load rates of a load group can be connected. The anchor loads available in each load are shown in the table below. Incorrect connection is safely prevented,since the ring clutches cannot be connected to anchors of the wrong load group.

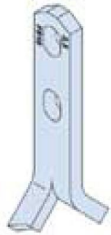
Load group system	
Load group Ring clutches [t]	Anchor loads [t]
2.5	0.7
	1.4
	2.0
	2.5
5.0	3.0
	4.0
	5.0
10.0	7.5
	10.0
25.0	12.5
	14.0
	17.0
	20.0
	22.0



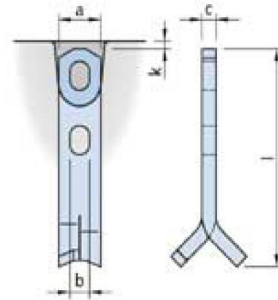
The load range shows the maximum load bearing of the anchor at the point of steel failure.

The instauration conditions in concrete (concrete grade . edge distances, etc)can reduce load capacity.





The spread anchor is very very versatile. It provides an efficient anchorage in both thin panels and slabs. For special applications additional reinforcement can be combined with the spread anchor by utilising the extra hole.



**Spread Anchor**

**Dimensions**

Designation mill finish	No.	Designation hot-dip galvanised	Load group [t]	a [mm]	b [mm]	c [mm]	l [mm]	k [mm]		
0,7-11	00001	0,7-11	2,5	30	14	8	110	10		
1,4-11	00002	1,4-11		30	14	8	110			
1,4-16	00003	1,4-16		30	14	8	160			
2,0-13	00004	2,0-13		30	14	8	130			
2,0-16	00005	2,0-16		30	14	8	160			
2,0-21	00006	2,0-21		30	14	8	210			
2,5-15	00007	2,5-15		30	14	10	150			
2,5-20	00008	2,5-20		30	14	10	200			
2,5-25	00009	2,5-25		30	14	10	250			
3,0-16	00010	3,0-16		5,0	40	18	10		160	10
3,0-20	00011	3,0-20	40		18	10	200			
3,0-28	00012	3,0-28	40		18	10	280			
4,0-18	00013	4,0-18	40		18	12	180			
4,0-24	00014	4,0-24	40		18	12	240			
4,0-32	00015	4,0-32	40		18	12	320			
5,0-18	00016	5,0-18	40		18	16	180			
5,0-24	00017	5,0-24	40		18	16	240			
5,0-40	00018	5,0-40	40		18	16	400			
7,5-26	00022	7,5-26	10,0		60	26	16	260	15	
7,5-30	00023	7,5-30		60	26	16	300			
7,5-42	00024	7,5-42		60	26	16	420			
10,0-30	00025	10,0-30		60	26	20	300			
10,0-37	00026	10,0-37		60	26	20	370			
10,0-52	00027	10,0-52		60	26	20	520			
10,0-37	00028	10,0-37		26,0	80	35	20	370		15
14,0-46	00029	14,0-46			80	35	20	460		
22,0-50	00030	22,0-50			90	35	28	500		
22,0-62	00031	22,0-62			90	35	28	620		

**Load capacity, installation dimensions for large-area or thick-walled precast elements.**

Designation	Load-group	Anchor length l	Permitted load F <sub>perm</sub>	Minimum height of beams B <sub>3</sub> ⊕	Minimum edge distances beams e <sub>y</sub>			Minimum thickness of slabs B <sub>3</sub> ⊕	Minimum edge distances slabs e <sub>x,z</sub>			Minimum spacing-between e <sub>z</sub>
					for BW ≥15N/mm <sup>2</sup>	for BW ≥25N/mm <sup>2</sup>	for BW ≥35N/mm <sup>2</sup>		for BW ≥15N/mm <sup>2</sup>	for BW ≥25N/mm <sup>2</sup>	for BW ≥35N/mm <sup>2</sup>	
					[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	
0,7 - 11	2,5	110	7	200	35	35	35	145	35	35	35	280
1,4 - 11		110	14	190	55	40	35	145	70	50	40	380
1,4 - 16		160	14	290	35	35	35	195	60	35	35	530
2,0 - 13		130	20	225	75	55	45	165	100	70	55	450
2,0 - 16		160	20	285	60	40	35	195	80	60	45	570
2,0 - 21		210	20	385	45	35	35	245	65	45	35	770
2,5 - 15		150	25	260	90	65	50	185	120	85	70	520
2,5 - 20		200	25	360	65	45	35	235	90	65	50	720
2,5 - 25		250	25	460	50	35	35	285	75	50	40	920
3,0 - 16		5,0	160	30	275	105	75	60	195	145	100	80
3,0 - 20	200		30	350	80	60	45	235	115	85	65	710
3,0 - 28	280		30	510	55	40	40	315	65	60	50	1025
4,0 - 16	180		40	310	140	100	80	215	190	135	105	610
4,0 - 24	240		40	425	100	70	55	275	145	100	80	850
4,0 - 32	320		40	590	70	50	40	365	110	75	60	1175
5,0 - 18	180		50	300	100	135	110	215	260	180	145	600
5,0 - 24	240		50	420	135	95	75	275	195	140	110	840
5,0 - 40	400		50	740	75	55	45	435	115	85	65	1480
7,5 - 26	260		75	450	210	150	120	300	300	215	175	900
7,5 - 30	300	75	530	180	125	100	340	265	190	150	1060	
7,5 - 42	420	75	770	120	85	70	460	190	135	110	1540	
10,0 - 30	26,0	300	100	515	270	190	150	340	390	275	220	1035
10,0 - 37		370	100	655	210	150	120	410	315	225	180	1310
10,0 - 52		520	100	955	140	100	80	560	225	160	130	1910
14,0 - 37		370	140	615	350	250	200	410	500	355	285	1230
14,0 - 46		460	140	795	265	190	150	500	400	285	230	1590
22,0 - 50		500	220	850	450	320	260	540	675	480	385	1700
22,0 - 62		620	220	1090	350	250	200	660	540	385	310	2180

Required reinforcement minmum standard reinforcement

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

BW ≥ 15 N/mm<sup>2</sup> +3-fold min. thickness of unit

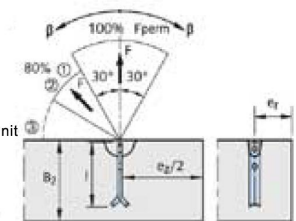
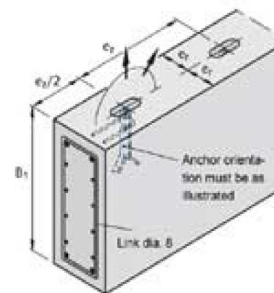
BW ≥ 25 N/mm<sup>2</sup> +2.5-fold min. thickness of unit

BW ≥ 35 N/mm<sup>2</sup> +2-fold min. thickness of unit

(minimum thickness of unit : e = 2xe.)

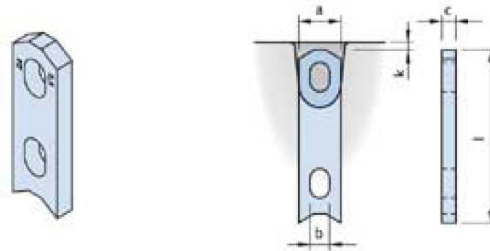
② Where concrete strength BW ≥ 23 N/mm<sup>2</sup> F<sub>perm</sub> can be taken as 100%

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



**Two Hole Anchor**

The head of the two hole anchor is identical to the head of the spread anchor. The anchor age in concrete is achieved by means of a reinforcement tail. Longer anchors with additional holes can be produced on request.



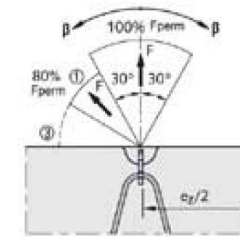
**Dimensions, Two hole anchor**

Designation mill finish	Load group [I]	a [mm]	b [mm]	c [mm]	l [mm]	k [mm]
1,4- 9	2,5	30	14	6	90	10
2,0- 9		30	14	8	90	
2,5- 9		30	14	10	90	
3,0-12	5,0	40	18	10	120	10
4,0-12		40	18	12	120	
5,0-12		40	18	15	120	
7,5-16	10,0	60	26	16	160	15
10,0-17		60	30	20	165	
14,0-24	26,0	80	35	20	240	15
22,0-30		90	35	28	300	
26,0-30		120	65	30	300	

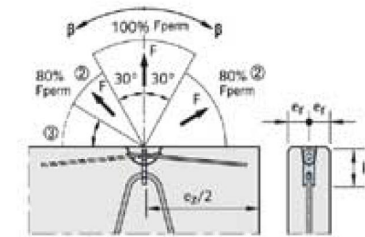
Designation hot-dip galvanised	Load group [I]	a [mm]	b [mm]	c [mm]	l [mm]	k [mm]
1,4- 9	2,5	30	14	6	90	10
2,0- 9		30	14	8	90	
2,5- 9		30	14	10	90	
3,0-12	5,0	40	18	10	120	10
4,0-12		40	18	12	120	
5,0-12		40	18	15	120	
7,5-16	10,0	60	26	16	160	15
10,0-17		60	30	20	165	
14,0-24	26,0	80	35	20	240	15
22,0-30		90	35	28	300	
26,0-30		120	65	30	300	

**Load capacity, installation dimensions**

Without angled pull reinforcement



With angled pull reinforcement



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

① Angled pull at 30° <math>\beta \le 60^\circ</math> without angled pull reinforcement only permissible when:  
  
  
  
 (minimum thickness of unit :  $e=2xe$ )

② Where concrete strength  $\beta W \ge 23 \text{ N/mm}^2$   $F_{perm}$  can be taken as 100%.

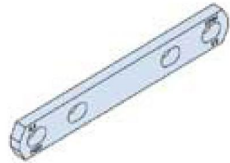
③ Angle of  $\beta > 50^\circ$  due to cable spread are impermissible!

**Load capacity , installation dimensions**

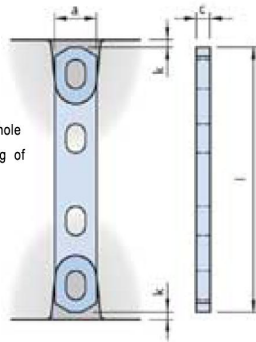
**Concrete strength  $\beta W \ge 15 \text{ N/mm}^2$**

Designation	Load group [I]	Anchor length l [mm]	Spacing betwe anchor centre ez [mm]	Minimum thickness of precast unit 2 x ez [mm]	100% Fperm Pull ( $\beta \le 30^\circ$ ) [kN]	80% Fperm Angled pull ( $\beta > 30^\circ$ ) [kN]
1,4- 9	2,5	90	500	80	14	11,2
2,0- 9		90	600	90	20	16
2,5- 9		90	600	100	25	20
3,0-12	5,0	120	650	100	30	24
4,0-12		120	700	110	40	32
5,0-12		120	750	120	50	40
7,5-16	10,0	160	1200	130	75	60
10,0-17		165	1200	140	100	80
14,0-24	26,0	240	1500	180	140	112
22,0-30		300	1500	180	220	176
26,0-30		300	1500	200	260	208

**Dimensions**



This anchor is identical to the head of the two hole anchor. It was specially developed for the tilting of columns or similar construction elements.



Dimensions, Double ended column anchor

Designation mill finish	Designation hot-dip galvanised	Load group [I]	Column width [mm]	a [mm]	c [mm]	l [mm]	k [mm]		
2.5-23	2.5-23 FV	2.5	250	30	10	228	10		
2.5-28	2.5-28 FV		300	30	10	278			
2.5-33	2.5-33 FV		350	30	10	328			
5.0-23	5.0-23 FV	5.0	250	40	15	226	10		
5.0-28	5.0-28 FV		300	40	15	276			
5.0-33	5.0-33 FV		350	40	15	326			
5.0-38	5.0-38 FV		400	40	15	376			
5.0-43	5.0-43 FV		450	40	15	426			
5.0-48	5.0-48 FV		500	40	15	476			
7.5-26	7.5-26 FV	10.0	300	60	16	262	15		
7.5-31	7.5-31 FV		350	60	16	312			
7.5-36	7.5-36 FV		400	60	16	362			
7.5-41	7.5-41 FV		450	60	16	412			
7.5-46	7.5-46 FV		500	60	16	462			
10.0-26	10.0-26 FV		300	60	20	262			
10.0-31	10.0-31 FV		350	60	20	312			
10.0-36	10.0-36 FV		400	60	20	362			
10.0-41	10.0-41 FV		450	60	20	412			
10.0-46	10.0-46 FV		500	60	20	462			
12.5-36	12.5-36 FV		26.0	400	80	16		362	15
12.5-41	12.5-41 FV			450	80	16		412	
12.5-46	12.5-46 FV	500		80	16	462			
17.0-36	17.0-36 FV	400		80	20	362			
17.0-41	17.0-41 FV	450		80	20	412			
17.0-46	17.0-46 FV	500		80	20	462			
22.0-41	22.0-41 FV	450		90	28	412			
22.0-46	22.0-46 FV	500		90	28	462			
22.0-56	22.0-56 FV	600		90	28	562			

**Double ended column anchor**

**Load capacity reinforcement**

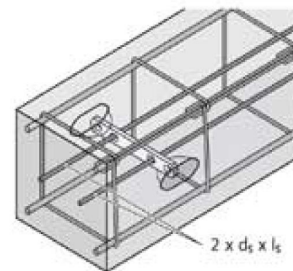
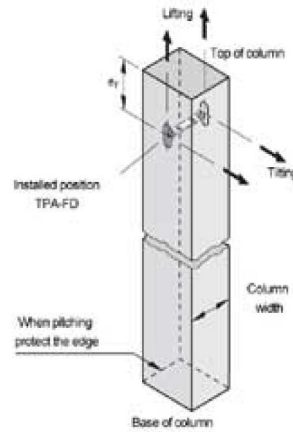
The anchor is capped with the appropriate recess former at both ends.

The assembly of anchor and recess formers is then pushed between the reinforcement bars and fastened to the formwork at both ends. The additional reinforcement bars are then pushed through the holes of the anchor and wired into place.

The diameter of the reinforcement tails is the same as for the two hole anchor

**Load capacity double ended column anchor**

Designation	Load group [I]	Reinforcement		Load capacity		
		ds [mm]	ls [mm]	for [N/A] ≤ 15 N/mm <sup>2</sup>	for [N/A] ≤ 25 N/mm <sup>2</sup>	
2.5-23	2.5	12	750	40	50	
2.5-28		12	750	40	50	
2.5-33		12	750	40	50	
5.0-23	5.0	16	1000	80	100	
5.0-28		15	1000	80	100	
5.0-33		18	1000	80	100	
5.0-38		15	1000	80	100	
5.0-43		18	1000	80	100	
5.0-48		15	1000	80	100	
7.5-26	10.0	20	1200	120	150	
7.5-31		20	1200	120	150	
7.5-36		20	1200	120	150	
7.5-41		20	1200	120	150	
7.5-46		20	1200	120	150	
10.0-26		25	1500	160	200	
10.0-31		25	1500	160	200	
10.0-36		25	1500	160	200	
10.0-41		25	1500	160	200	
10.0-46		25	1500	160	200	
12.5-36		26.0	25	1500	200	250
12.5-41			25	1500	200	250
12.5-46	25		1500	200	250	
17.0-36	28		1800	272	340	
17.0-41	28		1800	272	340	
17.0-46	28		1800	272	340	
22.0-41	28		2000	352	440	
22.0-46	28		2000	352	440	
22.0-56	28		2000	352	440	



Note:

The larger the dimension, the greater the load on the anchor when tilting; but the lower the load on the edge at the base of the column.