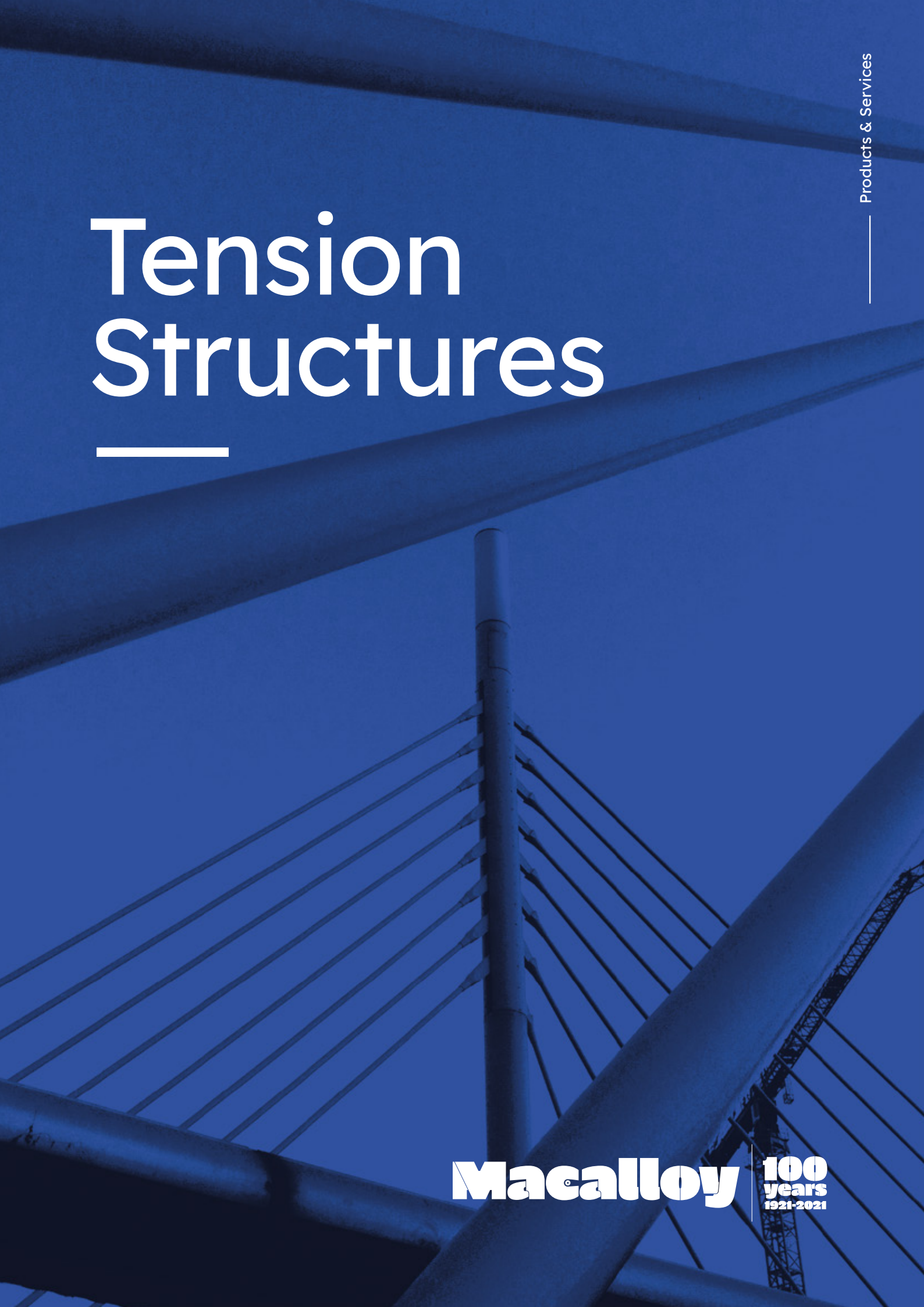
Products & Services

Tension Structures



Macalloy 100 years 1921-2021

Macalloy are global leaders in the manufacture of threaded tension steel bars and cable systems.

Based in the heart of the UK's steelmaking industry, we have a history that can be traced back 100 years.

However, we are always looking forward, and we constantly strive to innovate and improve quality to meet the needs of the modern construction industry. Our products have been central to the construction of many prestigious global landmarks including four of the Russian World Cup Stadiums, the 7-star Burj Al-Arab Hotel in Dubai, Marina Bay Sands in Singapore and Jubilee Bridge in London.

The Renault Building, Swindon.

Why work with us?

- Leading suppliers to the construction industry for over 100 years
- Exporting worldwide since the 1960s
- Industry experts in steel threaded bar and cable systems
- Innovative solutions to challenges in the construction industry
- Home of the PT Bar
- Originators of the Tension Structure System
- Technical support from our experienced design and engineering team
- Internally and externally audited for quality
- Internationally-recognised award winners
- Holders of European and worldwide technical product approvals
- Often imitated but never equalled

Our commitment to innovation and willingness to work alongside our customers to develop solutions to industry problems, are the qualities that have enabled us to maintain our position as market leaders for 100 years.

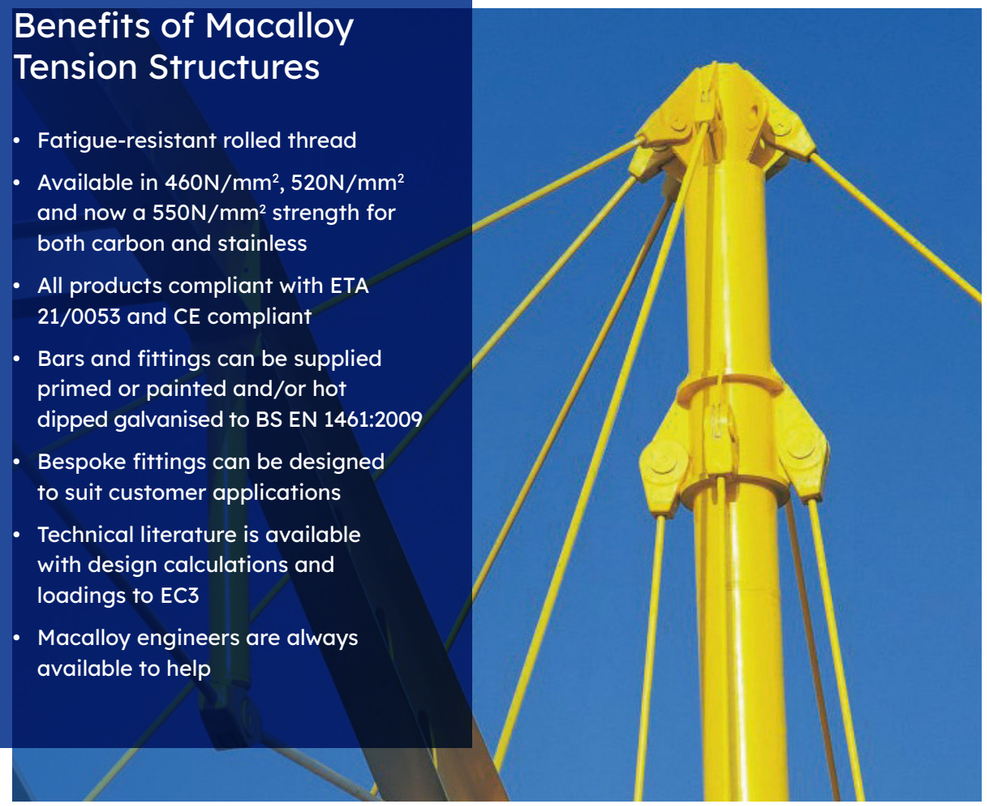
At Macalloy, we have been developing innovative new systems and technologies in Tensile Structures since the early 1980s.

Since then, our range of architectural tension structure bars has grown in popularity, providing designers with the opportunity to create contemporary designs and custom solutions.

As market leaders in the design, manufacture and supply of threaded bar systems, Macalloy products have been integral to the construction of many pioneering, landmark structures across the globe.

Benefits of Macalloy Tension Structures

- Fatigue-resistant rolled thread
- Available in 460N/mm², 520N/mm² and now a 550N/mm² strength for both carbon and stainless
- All products compliant with ETA 21/0053 and CE compliant
- Bars and fittings can be supplied primed or painted and/or hot dipped galvanised to BS EN 1461:2009
- Bespoke fittings can be designed to suit customer applications
- Technical literature is available with design calculations and loadings to EC3
- Macalloy engineers are always available to help



The Renault Building, Swindon.

Tension Bars

The Macalloy tension structures range includes a 460N/mm², 520N/mm² and the new 550N/mm², available in carbon and stainless steel. For more details, please refer to the data sheet.

All systems are ISO 9001 accredited and meet European technical approval document ETA 21/0053, which is available on request.

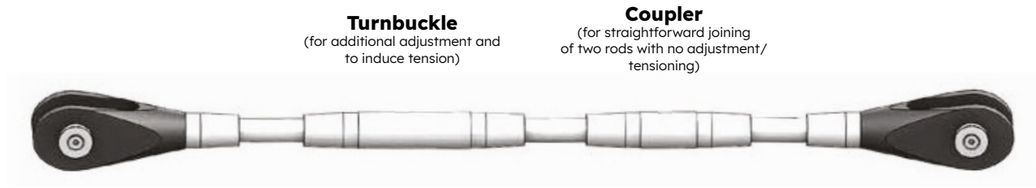
Carbon bars can be supplied primed and ready for paint, painted, powder-coated or hot-dipped/galvanised to BS EN 1461:2009.

Fittings are designed to give the maximum amount of flexibility and adjustment, and special fittings can be designed to suit customer requirements.

All fittings (forks, pins, turnbuckles, couplers and lock covers) are supplied with a galvanised coating.

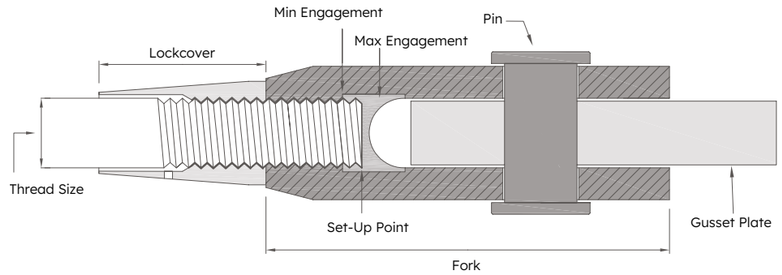
Cast fittings are UT and MPI tested in accordance with European technical approval – ETA21/0053.

FINAL ASSEMBLY EXAMPLE



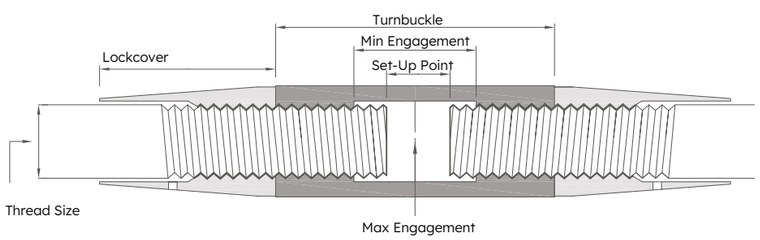
FORK ADJUSTMENT AND SET UP POINTS

Fork Adjustment – M10 to M56: +/- ½ thread diameter in each fork end.
Fork Adjustment – M64 to M105: +/- 25 mm in each fork end.
Set-Up Point – M10 to M56: 1 ½ x thread diameter in each fork end.
Set-Up Point – M64 to M105: 1 x thread diameter plus 25mm in each fork end.



TURNBUCKLE ADJUSTMENT AND SET UP POINTS

Turnbuckle Adjustment – M10 to M24: +/- 25mm.
Turnbuckle Adjustment – M30 to M105: +/- 50mm.
Set-Up Point – M10 to M24: 1 x thread diameter +12.5mm in each end of the turnbuckle.
Set-Up Point – M30 to M105: 1 x thread diameter + 25mm in each end of the turnbuckle.



Assembly and Installation

For both pre-assembled and non-assembled tendons, please follow the assembly and installation instructions to ensure correct set-up points and thread engagement.

1. Note the thread direction of each bar end.

2. Screw tapered lockcovers on to the bar as far as the thread allows, with the taper pointing away from the fork, coupler or turnbuckle. Ensure the correct lockcover is used for fork or turnbuckle.

3. Screw forks, turnbuckles and couplers on to bars, noting set-up points on page 5. Couplers should be fully engaged.

4. Position the bar in place and secure with pins.

5. Where no turnbuckle is used, turn the bar to induce the load/adjustment required.

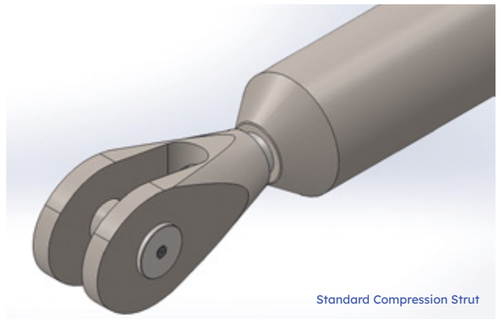
6. Where a turnbuckle is used, turn the turnbuckle to induce the load/adjustment required.

7. Screw lockcovers back against forks/couplers and turnbuckles.

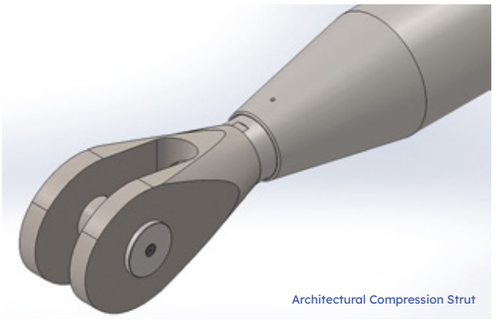
8. Seal fork and lockcover - please contact Macalloy for sealing method statements.

9. Assembly and installation is complete

Compression struts



Standard Compression Strut



Architectural Compression Strut

Corrosion Protection

Can be supplied galvanised, painted, powder-coated or in stainless steel.

Assembly and Installation

1. Remove pins using an Allen key, position the strut and secure with pins. Tighten with an Allen key.

2. Screw the locking collar into the strut so that only a small part of the locking collar is left visible, then turn the strut to the required position.

3. Screw the locking collar back against the fork. All the thread should be covered. The forks should be sealed. Please contact Macalloy for sealing method statements.

SC460 Cable System
SC460 S SC460 Cable Systems
SC460 Swaged Adjustable Fork

FOR MINIMUM BREAK LOADS AND CABLE TYPES, PLEASE REFER TO THE DATA SHEET.

Assembly and Installation

1. Remove pins using the Allen key supplied, and screw lockcovers away from tensioners as far as the thread will allow.

2. Position the cable in place and secure with pins, tightening with the Allen key supplied. For Swaged fork tensioning, use an open-ended spanner on each adjuster and simultaneously turn each one to induce load/adjustment.

3. Swaged Tensioner and Inline Tensioner Adjustment – turn tensioner using an open-ended spanner until the correct level of adjustment tension is achieved. Then screw lockcovers back against the tensioners. Where large loads need to be induced in a cable, a version of the Macalloy TechnoTensioner can be used. For further information, please contact technical@macalloy.com.

Cable stretch

Cables undergo an initial, permanent stretch. This can be between 0.10% and 0.75%, depending on the loading and type of cable. Further elastic stretch will then be proportional to the load applied and cable used. Elastic stretch can be calculated using the following formula:

$$d = \frac{\text{Load (kN) x Length (mm)}}{\text{E (k/Nmm}^2\text{) x Cross Sectional Area (mm}^2\text{)}}$$

Where E =	
7 x 19 Strand	85 kN/mm²
1 x 19 Strand	107 kN/mm²
Compact Strand	133 kN/mm²

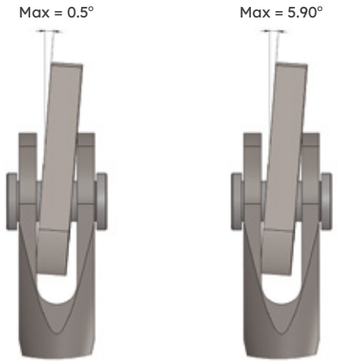
Cables are not supplied pre-stretched. If pre-stretched cables are required, please request this at the time of the enquiry or order.

Etihad Stadium, Manchester.

Fork / Gusset Plate Misalignment

Forks should be kept in plane and perpendicular to each other on all Macalloy Tension Structure Systems.

Use of horizontal gusset plates should be avoided to prevent loads in gusset plates due to bar weight.



Standard Arrangement

Additional misalignment with spherical bearing

The standard Macalloy fork allows for misalignment between gusset plates of up to 0.5 degrees. Where greater adjustment is required or there is potential movement exceeding 0.5 degrees, larger forks can be put on the bar or strut and a spherical bearing can be inserted providing up to 5.9 degrees of misalignment / movement.

BESPOKE SYSTEMS

Macalloy can supply a range of special items, including:

- Larger diameter tension bars
- Bespoke cast and fabricated connection pieces
- Spade connections
- Oversized forks or spades on smaller diameter bars, cables or struts

ENGINEERING SUPPORT

Our experienced Engineering Team are here to answer your technical enquiries and assist in the design and development of your project.

From your first initial design, our Technical Team can help in putting your ideas into practice and help develop solutions tailored to your specific needs. Macalloy's engineering team can provide support and advice on a range of issues including:

- Fire protection
- Thermal expansion
- Installation and stressing
- Managing misalignment and movement

Macalloy Site Services

Get the most out of your Macalloy products

Have you thought about...

Pre-loading and sagging?
The need for aligning and levelling tension rods?
Checking and determining loads?

At Macalloy, we offer a comprehensive Site Services package. This includes:

1. SERVICE OPTIONS

Macalloy offer a number of service options, including complete job stressing, de-stressing or measurement of loads, all to an agreed stressing sequence. In addition, one of our representatives can supervise the assembly of the components on site.

2. TRAINING

Macalloy provide support and training on all our systems, as well as on the use of hydraulic equipment. You can also access training on jacks and Macalloy TechnoTensioner units.

3. EQUIPMENT HIRE/PURCHASE

We can arrange for the hire or purchase of calibrated torque wrenches, hydraulic jacks and TechnoTensioner Units, for any length of time required. All equipment comes with calibration and test certificates and conversion charts.

4. AFTER SALES SERVICE

As part of our system management and maintenance programme, to ensure the long-term health of the bar system, Macalloy can offer an inspection service including load checking.

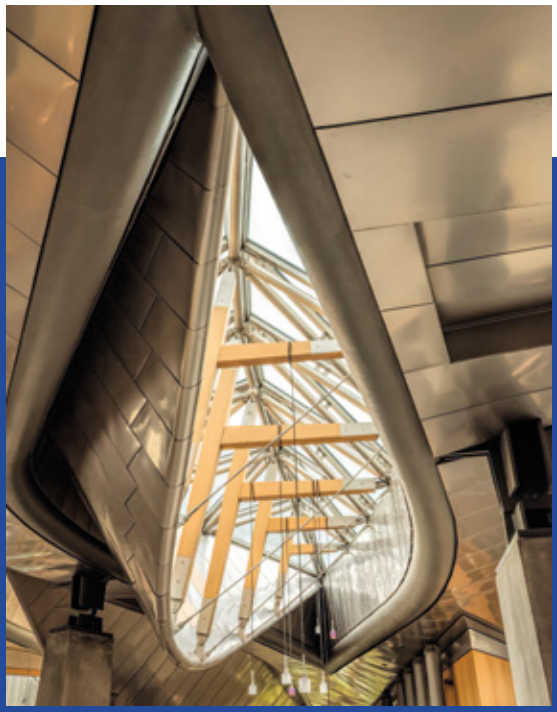
MACALLOY TENSIONING SYSTEMS

MACALLOY PIN-CONNECTED BARS AND CABLES

The Macalloy TechnoTensioner for use on architectural systems is a unique hydraulic tensioning device. This allows for the simple stressing, de-stressing and load measurement of pin-connected tension bars and small cables. It is used in conjunction with a turnbuckle and can be used to accurately induce predetermined loads. The Macalloy TechnoTensioner can be used to avoid seizing in stainless steel threads due to cold welding. Macalloy's Site Services team is available to provide on-site support and training on the use of the Macalloy TechnoTensioner.

University Bridge, Malmö.

Etihad Stadium, Manchester.



Scottish Parliament, Edinburgh.

ETA DANMARK

ETA - 21/0053 Tension Rod Systems
BSEN ISO 9001: 2015

MADE IN SHEFFIELD

Macalloy 100 years 1921-2021

For further information call +44 (0)1909 519200
email sales@macalloy.com or visit macalloy.com
Caxton Way, Dinnington, Sheffield, S25 3QE, U.K.

Macalloy Tension Systems

Technical Data

Product Name	Material	Characteristic Yield Stress N/mm²	Ultimate Tensile Stress N/mm²	Min. Elongation %	Min. Charpy Impact J@-20°C
Macalloy 460	Carbon Steel	460	610	19	27
Macalloy S460	Stainless Steel	460	610	15	27
Macalloy 520	Carbon Steel	520	660	19	27
Macalloy S520	Stainless Steel	520	660	15	27
Macalloy 550	Carbon Steel	550	700	19	27
Macalloy S550	Stainless Steel	550	700	15	27

MAXIMUM LENGTH OF INDIVIDUAL BAR LENGTHS			
DIAMETER	STAINESS STEEL	CARBON	GALVANISED
M10 – M12	6.0m	8.5m	6.0m
M16 – M30	6.0m	11.8m	11.8m
M36 – M100	6.0m	11.8m	11.8m
M105 - M120	CONTACT MACALLOY FOR DETAILS		

TENDON CAPACITIES FOR CARBON AND STAINLESS 460																					
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
Nominal Bar Dia. (mm)	10	11	15.5	20	25	29	34.5	40	45	52	60	67	73	78	83	90	93	98	105	110	120
Design Resistance to EC3 $N_{R,d}$ (kN)	24	35	66	103	149	238	348	479	630	871	1149	1401	1677	1880	2138	2418	2714	3029	3360	3709	4459
Min. Yield Load (kN)	25	37	69	108	156	249	364	501	660	912	1204	1467	1756	1969	2239	2533	2843	3172	3520	3885	4671
Min. Break Load (kN)	33	48	91	143	207	330	483	665	875	1209	1596	1946	2329	2610	2969	3358	3769	4206	4667	5152	6194
Nominal Bar Weight (kg/m)	0.6	0.8	1.5	2.5	3.9	5.2	7.3	9.9	12.5	16.7	22.2	27.7	32.9	37.5	42.5	49.9	53.3	59.2	68.0	74.6	88.8

Macalloy
Threaded Bar Systems Trusted Worldwide

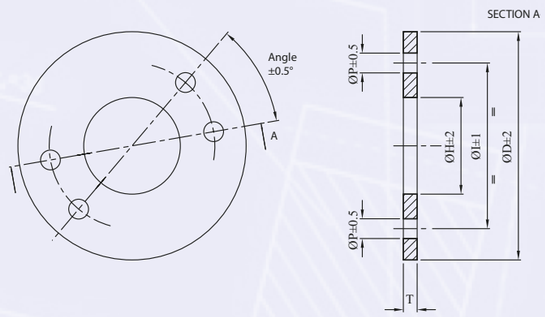
TENDON CAPACITIES FOR CARBON AND STAINLESS 520																					
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
Nominal Bar Dia. (mm)	10	11	15.5	20	25	29	34.5	40	45	52	60	67	73	78	83	90	93	97	105	110	120
Design Resistance to EC3 $N_{R,d}$ (kN)	26	38	71	112	161	257	376	518	682	942	1244	1516	1814	2034	2313	2616	2936	3277	3636	4041	4825
Min. Yield Load (kN)	28	41	78	122	176	282	412	567	746	1031	1361	1659	1986	2225	2531	2863	3213	3586	3979	4392	5280
Min. Break Load (kN)	36	52	98	155	223	357	523	719	947	1308	1727	2105	2520	2824	3213	3634	4078	4551	5050	5574	6701
Nominal Bar Weight (kg/m)	0.6	0.8	1.5	2.5	3.9	5.2	7.3	9.9	12.5	16.7	22.2	27.7	32.9	37.5	42.5	49.9	53.3	59.2	68.0	74.6	88.8

TENDON CAPACITIES FOR CARBON AND STAINLESS 550																					
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
Nominal Bar Dia. (mm)	10	11	15.5	20	25	29	34.5	40	45	52	60	67	73	78	83	90	93	97	105	110	120
Design Resistance to EC3 $N_{R,d}$ (kN)	27	40	75	119	171	273	399	549	723	999	1319	1608	1924	2157	2453	2775	3114	3475	3856	4257	5117
Min. Yield Load (kN)	29	43	81	127	183	293	428	589	775	1070	1413	1722	2062	2311	2629	2973	3337	3793	4208	4645	5584
Min. Break Load (kN)	38	56	104	165	237	379	554	763	1004	1387	1832	2233	2673	2996	3407	3854	4325	4827	5356	5912	7107
Nominal Bar Weight (kg/m)	0.6	0.8	1.5	2.5	3.9	5.2	7.3	9.9	12.5	16.7	22.2	27.7	32.9	37.5	42.5	49.9	53.3	58.0	68.0	74.6	88.8

CAPACITY AND LENGTHS OF ARCHITECTURAL AND STANDARD COMPRESSION STRUTS														
System Ref.	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M76	M85	M90	M100
Maximum Compressive Capacity (kN)	14	28	45	69	122	190	274	370	530	729	1064	1395	1589	2031
Maximum Pin To Pin Length (mm)	2369	2663	2671	3105	3357	3367	4498	6397	7097	7420	8188	9323	10291	11679
Carbon CHS O.D. (mm)	33.7	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	193.7	219.1	244.5	273	323.9
Carbon CHS Wall Thickness (mm)	4	5	5	5	5	5	6.3	10	10	10	12.5	16	16	16
Stainless CHS O.D. (mm)	33.4	42.4	48.3	60.3	73.0	88.9	114.3	141.3	CONTACT TECHNICAL FOR DETAILS					
Stainless CHS Wall Thickness (mm)	4.5	5.0	5.0	5.0	5.2	5.5	6.0	9.5	CONTACT TECHNICAL FOR DETAILS					

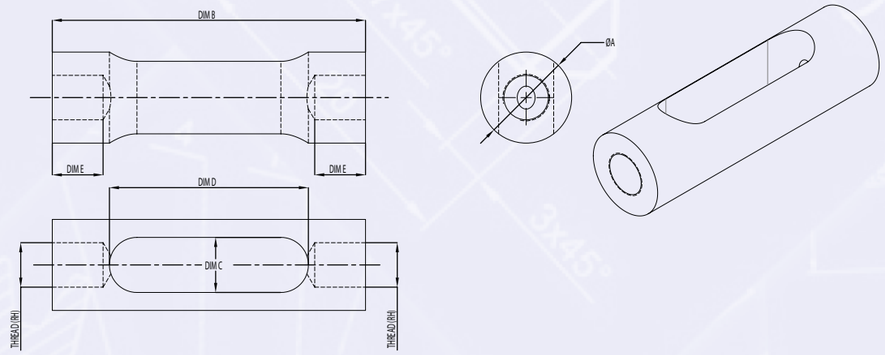
CAPACITY OF MACALLOY CHS FORK ENDS															
Macalloy Product Reference		CSF 12	CSF 16	CSF 20	CSF 24	CSF 30	CSF 36	CSF 42	CSF 48	CSF 56	CSF 64	CSF 76	CSF 85	CSF 90	CSF 100
CHS Size To Fit	Outer Diameter (mm)	33.7	42.4	48.3	60.3	76.1	88.9	114.3	139.7	168.3	193.7	219.1	244.5	273.0	323.9
	Wall Thickness (mm)	4	5	5	5	5	5	6.3	10	10	10	12.5	16	16	16
Compressive Capacity (kN)		52	99	122	174	272	374	534	735	1048	1437	2127	2723	3110	3686
Equivalent Macalloy Fork Size		M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M76	M85	M90	M100
Gusset Plate Thickness (mm)		10	12	15	20	22	30	35	40	45	55	70	70	80	85
Weight (kg)		0.25	0.51	1.0	1.4	2.4	3.7	6.2	10.8	15.8	20.5	40.3	59.3	74.0	100.0

CONNECTION DISC



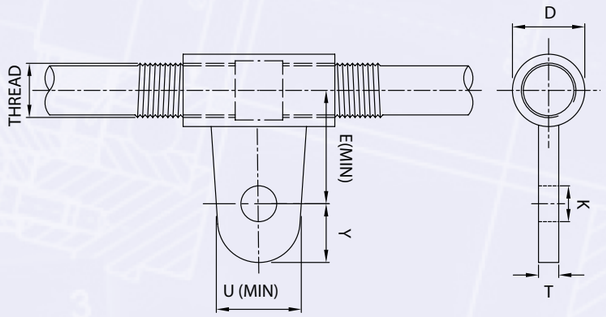
	D/10	D/12	D/16	D/20	D/24	D/30	D/36	D/42	D/48	D/56	D/64	D/76
ØI	96	120	160	180	210	280	320	360	410	500	560	700
ØP	11.5	13	17	21.5	25.5	31.5	37.5	43.5	49.5	57.5	65.5	78.5
T	10	10	12	15	20	22	30	35	40	45	55	70
ØD	130	164	218	249	294	386	444	502	572	694	782	964
ØH	50	70	90	105	115	160	185	205	235	290	330	400
CONTACT MACALLOY FOR DETAILS FOR ADDITIONAL SIZES												

CROSS COUPLER



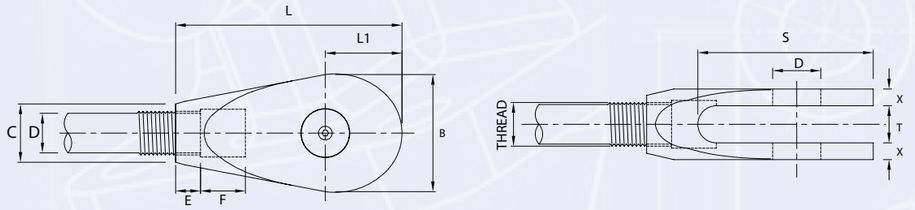
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
ØA (mm)	19	25	29	35	43	52	62	72	82	96	110	120	134	140	148	158	165	172	184	190	208
B (mm)	73	82	105	128	148	183	217	249	283	328	376	408	462	481	509	556	561	582	620	645	704
C (mm)	12	14	18	22	26	32	38	44	50	58	66	72	78	82	87	92	97	102	107	112	122
D (mm)	47	52	67	82	94	117	139	159	181	210	242	262	300	315	323	346	365	376	404	419	458
E (mm)	10	12	16	20	24	30	36	42	48	56	64	70	76	80	85	90	95	100	105	110	120

TURNBUCKLE WITH FIN PLATE



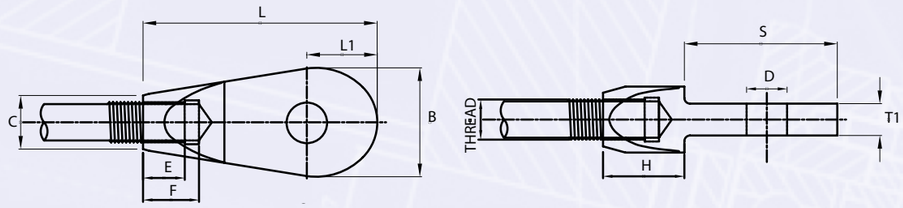
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100
Y (mm)	19	22	30	37	43	56	64	74	84	101	112	120	132	148	160	166	181	196
U (mm)	28	34	48	60	68	90	103	118	135	163	180	192	211	237	259	266	291	317
E (mm)	28	32	42	49	60	75	87	100	115	137	157	165	186	191	214	227	235	260
D (mm)	17	19	25	29	35	43	52	60	68	80	91	100	108	114	121	129	136	143
K (mm)	11.5	13	17	21.4	25.5	31.5	37.5	43.5	49.5	57.5	65.5	72.5	78.5	85.5	91.5	96.5	104.5	111.5
T (mm)	10	10	12	15	20	22	30	35	40	45	55	70	70	70	70	80	85	85

FORK



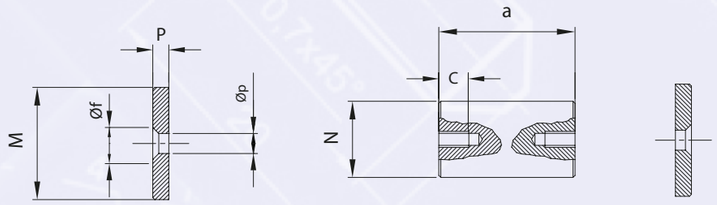
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
L (mm)	63	75	99	122	148	178	204	232	266	314	348	386	410	432	459	489	512	555	600	600	661
B (mm)	30	34	45	53	64	81	93	109	123	147	169	181	201	212	236	248	262	289	294	296	350
C (mm)	17	19	25	29	35	44	52	60	69	80	91	100	108	114	121	129	136	143	148	159	176
E (mm)	12	14	18	24	27	32	38	44	50	58	66	72	78	82	87	92	97	102	107	112	122
F (mm)	8	10	14	16	22	28	34	41	46	55	49	49	49	49	49	49	49	49	49	49	49
T (mm)	11	12	15	19	24	26	34	39	44	49	59	75	76	78	78	86	91	91	96	106	125
D (mm)	11.5	13	17	21.5	25.5	31.5	37.5	43.5	49.5	57.5	65.5	72.5	78.5	85.5	91.5	96.5	104.5	111.5	115.5	118	122
S (mm)	46	54	70	85	104	127	148	167	191	227	259	276	309	325	349	374	396	407	430	455	516
X (mm)	4	4.5	6	8.5	9.5	11.5	14.5	17.5	21	23.5	27.5	31	34.5	36	37	41	41	41	55	50	55
L1 (mm)	18	22	29	34	42	53	61	70	81	97	111	114	132	134	153	162	165	188	190	190	211

SPADE



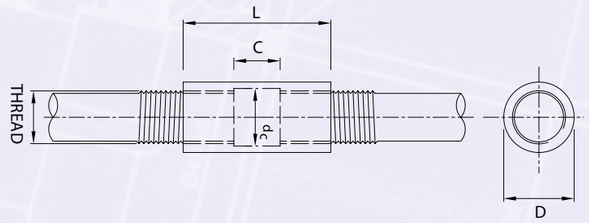
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
L (mm)	78	92	118	147	174	213	249	289	321	365	408	CONTACT MACALLOY FOR DETAILS	476	CONTACT MACALLOY FOR DETAILS	524	555	CONTACT MACALLOY FOR DETAILS	625	CONTACT MACALLOY FOR DETAILS	CONTACT MACALLOY FOR DETAILS	CONTACT MACALLOY FOR DETAILS
B (mm)	28	32	44	51	62	80	94	107	122	147	169		202		236	249		287			
C (mm)	17	19	25	29	35	43	52	60	68	80	89		108		121	129		143			
E (mm)	20	24	32	22	26	34	38	44	50	58	66		78		87	92		102			
F (mm)	26	30	40	40	48	62	72	84	96	112	119		126		135	140		150			
H (mm)	32	38	48	60	70	85	100	115	127	150	168		181		194	202		217			
D (mm)	11.5	13	17.5	21.5	25.5	31.5	37.5	43.5	49.5	57.5	65.5		78.5		91.5	96.5		111.5			
S (mm)	46	54	70	87	104	128	149	169	194	215	245		290		330	353		408			
T1 (mm)	8	9	12	15	20	22	30	35	40	45	55		70		72	80		85			
L1 (mm)	17.5	21.5	29	33	41	52	61	69	80	96	110		132		152	161		188			

PIN SET



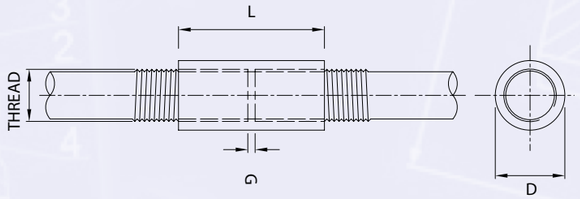
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
Screw Length	10	10	10	16	16	16	16	20	25	25	25	25	25	25	25	25	25	25	25	25	25
a (mm)	22	24	30	39	46	52	66	78	91	100	120	142	151	156	158	175	178	180	214	214	241
C (mm)	7	7	7	12	12	12	12	14	18	18	18	18	18	18	18	18	18	18	18	18	18
øf	9	9	11.2	13.4	13.4	13.4	13.4	17.9	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4
M (mm)	15	18	24	28	31	40	45	55	65	75	85	90	95	100	105	110	115	120	125	145	150
N (mm)	10.5	12	16	20	24	29	35	41	47	54.5	62.5	69.5	75.5	82.5	89	93	101.5	108	112.5	116	120
P (mm)	4	4	4	5	5	5	5	8	10	10	10	10	10	10	10	10	10	10	10	10	10
øp	4.5	4.5	5.5	6.5	6.5	6.5	6.5	9	12	12	12	12	12	12	12	12	12	12	12	12	12

TURNBUCKLE



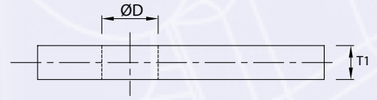
THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
d_C (mm)	12	14	18	22	26	32	38	44	50	58	66	72	78	82	87	92	97	102	107	112	122
C (mm)	50	50	50	50	50	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
D (mm)	17	19	25	29	35	43	52	60	68	80	91	100	108	114	121	129	136	143	148	157	172
L (mm)	74	78	86	90	98	160	172	184	196	212	228	244	252	264	270	280	290	300	310	320	340

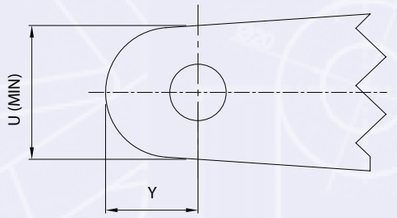
COUPLER



THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
D (mm)	17	19	25	29	35	43	52	60	68	80	91	100	108	114	121	129	136	143	148	157	172
G (mm)	1 ≤ G ≤ 5																				
L (mm)	25	29	37	45	53	65	77	89	101	117	133	145	157	165	175	185	195	205	215	225	245

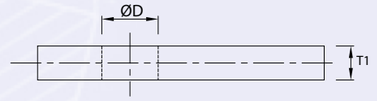
GUSSET PLATE

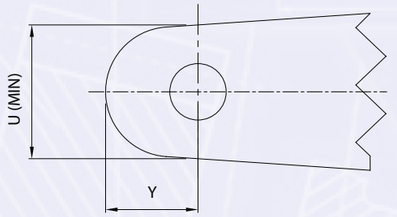




THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M78	M80	M85	M90	M95	M100	M105	M110	M120
T1 (mm)	10	10	12	15	20	22	30	35	40	45	55	70	70	70	70	80	85	85	90	100	120	
T (mm)	11	12	15	19	24	26	34	39	44	49	59	75	76	78	78	86	91	91	96	106	125	
D (mm)	11.5	13	17	21.4	25.5	31.5	37.5	43.5	49.5	57.5	65.5	72.5	78.5	85.5	91.5	96.5	104.5	111.5	115.5	118	122	
S (mm)	46	54	70	85	104	127	148	167	191	227	259	276	309	325	349	374	396	430	430	455	516	
X (mm)	4	4.5	6	8.5	9.5	11.5	14.5	17.5	21	23.5	27.5	31	34.5	36	37	41	41	41	55	50	55	
U (mm)	28	34	48	60	68	90	103	118	135	163	180	192	211	237	259	266	291	317	326	332	348	
Y (mm)	19	22	30	37	43	56	64	74	84	101	112	120	132	148	160	166	181	196	202	206	215	

GUSSET PLATE WHEN USED WITH ISOLATION

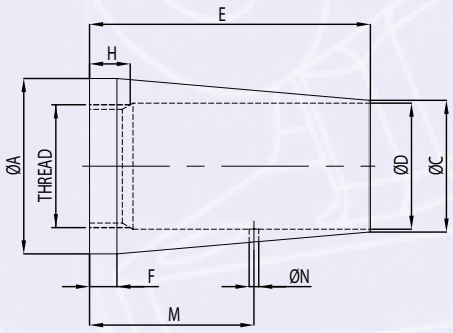




THREAD	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M70	M76	M80	M85	M90	M95	M100	M105	M110	M120
T1 (mm)	8	9	12	15	20	22	30	35	40	45	55	70	70	70	70	80	85	85	90	100	120
T (mm)	11	12	15	19	24	26	34	39	44	49	59	75	76	78	78	86	91	91	96	106	125
D (mm)	15.5	17	21	25.5	30	36	42	48	55.5	57.5	72.5	*	85.5	*	99	104	*	119	*	*	*
S (mm)	46	54	70	85	104	127	148	167	191	227	259	276	309	325	349	374	396	430	430	455	516
X (mm)	4	4.5	6	8.5	9.5	11.5	14.5	17.5	21	23.5	27.5	31	34.5	36	37	41	41	41	55	50	55
U (mm)	34	38	49	58	69	89	108	117	136	160	179	*	210	*	265	272	*	323	*	*	*
Y (mm)	21	24	31	37	45	56	64	74	85	100	115	*	136	*	163	169	*	199	*	*	*
*CONTACT MACALLOY FOR DETAILS																					

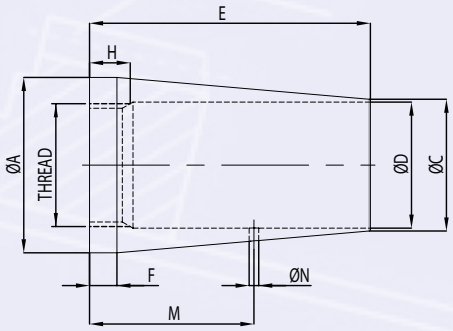
UNIVERSAL LOCK COVERS

REF	THREAD	ØA	ØC	ØD	E	F	H	M	ØN
LCU10	M10 x 1.5	16.5	16	13.5	44	12	8	18	5
LCU12	M12 x 1.75	18.5	16	13.5	44	12	8	18	5
LCU16	M16 x 2	24	21	18	46	12	10	26	5
LCU20	M20 x 2.5	28	25	22	48	12	12	30	6
LCU24	M24 x 3	34	30	26	92	12	15	35	6
LCU30	M30 x 3.5	42	36	32	126	15	18	45	6
LCU36	M36 x 4	51	42	38	134	15	20	51	6
LCU42	M42 x 4.5	59	48	44	145	15	23	57	6
LCU48	M48 x 5	67	54	50	153	15	25	63	7
LCU56	M56 x 5.5	79	62	58	169	15	28	71	7
LCU64	M64 x 6	90	70	66	179	15	30	84	7
LCU70	M70 x 6	99	76	72	185	20	30	90	7
LCU76	M76 x 6	107	82	78	191	20	30	96	7
LCU80	M80 x 6	113	86	82	195	20	30	100	7
LCU85	M85 x 6	120	91	87	200	20	30	105	7
LCU90	M90 x 6	128	96	92	205	20	30	110	7
LCU95	M95 x 6	135	101	97	210	20	30	115	7
LCU100	M100 x 6	142	106	102	215	20	30	120	7
LCU105	M105 x 6	147	111	107	220	20	30	120	7
LCU110	M110 x 6	158	116	112	225	20	30	120	7
LCU120	M120 x 6	175	126	122	235	20	30	120	7



CROSS COUPLER LOCK COVERS

REF	THREAD	ØA	ØC	ØD	E	F	H	M	ØN
LCU10	M10 x 1.5	18.5	16	13.5	29	12	8	16	5
LCU12	M12 x 1.75	24	16	13.5	31	12	8	18	5
LCU16	M16 x 2	28	21	18	37	12	10	26	6
LCU20	M20 x 2.5	34	25	22	43	12	12	30	6
LCU24	M24 x 3	42	30	26	74	12	15	35	6
LCU30	M30 x 3.5	51	36	32	105	15	18	45	6
LCU36	M36 x 4	61	42	38	111	15	20	51	6
LCU42	M42 x 4.5	71	48	44	117	15	23	57	6
LCU48	M48 x 5	81	54	50	123	15	25	63	7
LCU56	M56 x 5.5	95	62	58	136	15	28	71	7
LCU64	M64 x 6	109	70	66	144	15	30	84	7
LCU70	M70 x 6	119	76	72	150	20	30	90	7
LCU76	M76 x 6	133	82	78	156	20	30	96	7
LCU80	M80 x 6	139	86	82	160	20	30	100	7
LCU85	M85 x 6	147	91	87	165	20	30	105	7
LCU90	M90 x 6	157	96	92	170	20	30	110	7
LCU95	M95 x 6	164	101	97	175	20	30	115	7
LCU100	M100 x 6	171	106	102	180	20	30	120	7
LCU105	M105 x 6	183	111	107	185	20	30	120	7
LCU110	M110 x 6	189	116	112	190	20	30	120	7
LCU120	M120 x 6	207	126	122	195	20	30	130	7



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