

# RIGGING SCREWS

## Rigging Screws

Often called straining screws, turnbuckles, or bottle screws. The open body rigging screw is the preferred type for theatre flying as the thread engagement can be clearly seen. However, British Standard BS 7905-1:2001 "Lifting Equipment for Performance, Broadcast and similar applications" states:

*"Rigging Screws shall be constructed of welded or seamless steel tube. The full length of the thread in the tapped holes shall not be less than 1.5 times the diameter of the screwed shank. A tommy bar hole shall be drilled through both walls of the body at the centre of its length, central to and at right angles to its axis. A probe hole shall be provided to check the thread of the shank is fully engaged"*

I'm not sure who writes these standards but it looks suspiciously like a "cut and paste" job from BS 4429:1987 by someone unfamiliar with theatre rigging. I can say that I have personally never seen a closed-body rigging screw with a probe hole and if you decided to drill your own "probe holes" it would not pass a visual lifting examination due to the design being compromised.

The rigging screws shown with the "Hook Symbol" will be supplied with a Report of Thorough Examination of Lifting Equipment or an EC Declaration of Conformity. For handrailing and display applications closed-body screws, especially stainless steel ones, are often more suitable as the smooth surface prevents snagging and gives a more pleasing appearance.

Rigging screws should be secured once they are adjusted with Monel Seizing Wire [page 168] or with lock nuts if they are provided. If the rigging screws are being used outside we would recommend smearing the threads with Anhydrous Lanolin [page 169]. Rigging screws must always be free to move into the direction of the load.

## US FEDERAL SPECIFICATION STRAINING SCREWS



These good value rigging screws come from a long established ISO9001:2000-registered German company. They are supplied fitted with locking nuts to avoid accidental unwinding.



**Straining Screw Eye to Eye** Meets the performance requirements of USA Federal Specification FF-T-791b. Straining screws should be used for a straight or in-line pull only. The eye diameters are 13 and 18 mm.



Fitted with lock nuts!

Straining Screw Eye to Eye		code	price
thread diameter	length BB	WLL	
3/8"	6"	540 kg	WIR2263 £10.39
1/2"	6"	1,000 kg	WIR2264 £16.29



**Straining Screw Jaw to Jaw** Meets the performance requirements of USA Federal Specification FF-T-791b. Straining screws should be used for a straight or in-line pull only. The width between forks are 12 and 16 mm.



Straining Screw Jaw to Jaw		code	price
thread diameter	length BB	WLL	
3/8"	6"	540 kg	WIR2283 £12.91
1/2"	9"	1,000 kg	WIR2285 £19.64



**Straining Screw Jaw to Eye** Meets the performance requirements of USA Federal Specification FF-T-791b. Straining screws should be used for a straight or in-line pull only. The eye diameters are 13 and 18 mm and width between forks are 12 and 16 mm.



Straining Screw Jaw to Eye		code	price
thread diameter	length BB	WLL	
3/8"	6"	540 kg	WIR2273 £11.38
1/2"	6"	1,000 kg	WIR2274 £17.98

## CROSBY STRAINING SCREWS



Made from hot-dip galvanised steel, the end fittings are quenched and tempered. Eyes are elongated to facilitate fitting. The length specified for straining screws is the maximum take up of the item shown as BB, in the illustration below. The proof load is twice the working load limit and the ultimate load is five times the WLL.

← BB →



**Crosby Straining Screw Eye to Eye HG226**

To USA Federal Specification FF-T-791b Type 1 Form 1 Class 4.



Straining screws should be used for a straight or in-line pull only.

Straining Screw Eye to Eye HG226		code	price
thread diameter	length BB	WLL	
5/16"	4 1/2"	360 kg	CRO2262 £27.00
3/8"	6"	540 kg	CRO2263 £32.30
1/2"	6"	1,000 kg	CRO2264 £33.10



**Crosby Straining Screw Jaw to Jaw HG228**

To USA Federal Specification FF-T-791b Type 1 Form 1 Class 7.



Straining screws should be used for a straight or in-line pull only.

Straining Screw Jaw to Jaw HG228		code	price
Thread diameter	length BB	WLL	
5/16"	4 1/2"	360 kg	CRO2282 £32.50
3/8"	6"	540 kg	CRO2283 £35.00
1/2"	9"	1,000 kg	CRO2285 £42.80



**Crosby Straining Screw Jaw to Eye HG227**

To USA Federal Specification FF-T-791b Type 1 Form 1 Class 8.



Straining screws should be used for a straight or in-line pull only.

Straining Screw Jaw to Eye HG227		code	price
thread diameter	length BB	WLL	
5/16"	4 1/2"	360 kg	CRO2272 £29.40
3/8"	6"	540 kg	CRO2273 £33.90
1/2"	6"	1,000 kg	CRO2274 £37.30



## Lock Nuts for Crosby Rigging Screws

Crosby rigging screws are, sadly, not fitted with locking nuts. They can be seized with Monel Seizing Wire [page 168] or lock nuts can be purchased separately.

Lock Nuts		hand	code	price
thread diameter				
5/16"		left	CRO1075516	£1.32
3/8"		left	CRO1075534	£1.72
1/2"		left	CRO10755701	£2.61
5/16"		right	CRO1075133	£1.01
3/8"		right	CRO1075151	£1.14
1/2"		right	CRO1075197	£1.28

Most orders over £325.00 go carriage free.

## STA-LOK RIGGING SCREWS

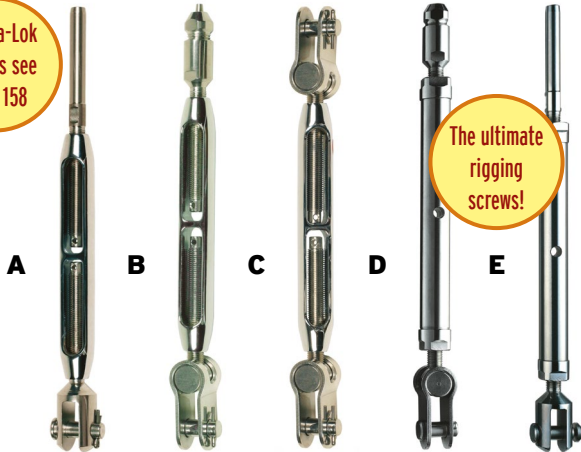


Sta-Lok manufacture the ultimate rigging screws in stainless steel and bronze. They are widely used on prestige yachts and by architects.



Flints can offer advice on the correct selection of these products which can be supplied roll-swaged onto your wire or with "fit yourself" Sta-Lok fittings. We can even supply wires with a left-hand thread on one end and a right-hand one on the other end so that the wire can be tensioned between drilled and tapped handrail posts without the need for rigging screws. See page 158 for details. If you have a project which involves unusual rigging applications we can probably help. Please phone and ask for our Rigging Manager.

For Sta-Lok fittings see page 158



The ultimate rigging screws!

**A Type B28** Swage to machined fork. Turnbuckle is made from chrome-plated bronze. We can supply these rigging screws swaged to wires from 3 - 12 mm diameter.

**B Type B22** Toggle to Sta-lok. Turnbuckle is made from chrome-plated bronze. By using the Sta-lok fitting you can fit these rigging screws onsite to wires from 3 - 12 mm diameter.

**C Type B41** Toggle to toggle. Turnbuckle is made from chrome-plated bronze. Sizes M6 to M20.

**D Type SC22** Supajust toggle to Sta-lok. Turnbuckle is made from 316-grade stainless steel lined with bronze to prevent seizing. By using the Sta-lok fitting you can fit these riggings screws onsite to wires from 7 - 14 mm diameter. The Supajust is probably the ultimate rigging screw.

**E Type SC28** Supajust fork to Swage. Turnbuckle is made from 316-grade stainless steel lined with bronze to prevent seizing. We can supply these riggings screws swaged to wires from 7 - 26 mm diameter with minimum breaking loads of up to 46,472 kg. The Supajust is probably the ultimate rigging screw.

### Ordering Sta-lok Rigging Screws

Let's talk! There are so many combinations of sizes that we cannot usefully list the prices here and it is best to talk through the project to ensure everything matches perfectly. Inevitably, fittings of this quality are not going to be the cheapest option but with prices starting at around £35.00 they are certainly worth considering on any prestige installation, and for marine use they are most definitely the preferred choice.

If you know the exact length of your wires we can supply the end fittings and rigging screws roll-swaged directly onto stainless wire rope. If you cannot determine the final length, or if the wires have to be threaded through holes, then the best option is to order slightly over length wires with a fitting roll-swaged to one end and to purchase Sta-lok type fittings which can be easily fitted onsite. Sta-lok fittings must use stainless steel wire and the preferred wire construction for standing rigging and handrailing is 1 x 19 which is quite stiff. If the wires need to run over pulleys then 7 x 19 flexible wire rope is a better choice. Our Rigging Manager can advise you. Just give us a ring!

## STAINLESS RIGGING SCREWS

### Closed-Body Rigging Screws

The rigging screws below are made from marine-grade 316 stainless steel. Closed-body adjusters are ideal for handrail wires, small tension wires and for display and exhibition purposes. The smooth sleek appearance is less likely to snag on clothing and blends in with modern settings.

The fork ends can be attached directly onto small Pad Eyes [page 169] without the need for extra shackles. They are all fitted with lock nuts. The given lengths are from centre of pin to centre of pin.

### Handrailing

If you are considering using wire rope assemblies for handrailing purposes be sure to check with your local authority regarding the regulations. Normally, the maximum width between the wires must not exceed 100 mm - tested with a 100 mm sphere to represent a child's head. Any horizontal wires should lean inwards to prevent children from climbing the wires. Best to check first!



**Machined Fork Rigging Screws** These machined fork rigging screws offer the smartest appearance for prestigious installations.



Machined Fork Stainless Rigging Screws					Min BL	code	price
size	length closed	length open	kN	kgf			
M4	115 mm	175 mm	4.1 kN	417 kg		WIR2514SS	£3.39
M5	135 mm	195 mm	4.6 kN	468 kg		WIR2515SS	£3.41
M6	160 mm	230 mm	9.1 kN	927 kg		WIR2516SS	£4.54



**Welded Fork Rigging Screws** These rigging screws represent fantastic value for a marine-grade 316 stainless steel product.



Welded Fork Stainless Rigging Screws					Min BL	code	price
size	length closed	length open	kN	kgf			
M4	110 mm	170 mm	3.4 kN	346 kg		WIR2714SS	£3.04
M5	130 mm	190 mm	5.6 kN	570 kg		WIR2715SS	£3.26
M6	150 mm	220 mm	7.7 kN	784 kg		WIR2716SS	£3.98
M8	165 mm	240 mm	13.9 kN	1,416 kg		WIR2718SS	£5.24
M10	190 mm	280 mm	21.8 kN	2,222 kg		WIR27110SS	£7.61
M12	245 mm	360 mm	32 kN	3,261 kg		WIR27112SS	£10.96

Flints can order larger sizes up to M20.

## MONEL SEIZING WIRE



**Monel Seizing Wire** Seizing wire for seizing up rigging screws and shackles to prevent them from accidentally coming undone. Many of our rigging screws are supplied with locking nuts.

Monel Seizing Wire [10 m]	Ø	code	price
Spool	0.9 mm	WIR080	£7.80

### Give us a bell

Did you know that the average time for us to answer a call is 30 seconds. Even in this era of emails over 83% of our clients prefer to get technical advice by telephone. Over 97% of those people who asked us for technical advice said they were either satisfied or very satisfied. It's old fashioned but it works - 020 7703 9786. Dring dring!

## ANHYDROUS LANOLIN



**Lanoguard** Anhydrous lanolin combined with non-toxic corrosion inhibitors to provide long-term protection for rigging screws, shackles and sheep etc. Helps to prevent the cold welding sometimes associated with stainless steel threads. Also widely used to prevent weed growth on propellers. Available as a tub of thick butter-like lanolin or as a thinner concoction in a trigger spray.

Lanoguard	size	code	price
Prop-tection & Lube	250 ml pot	PATLAN250	£13.42
Marine & Chassis Spray	500 ml bottle	PATLANS	£19.17

## PELICAN HOOKS

Type 812



Type 354



**Pelican Hooks** A convenient means of quickly releasing tensioned wire ropes. They can be very useful for clearing gauze guide wires during scene changes. To use the threaded version we will need to roll-swage an M8 right-hand thread to the end of your wire which will need to be stainless steel. Please phone and ask for the Rigging Manager. Safety factor 4:1.

Pelican Hook	Min BL	code	price
	kN    kgf		
Type 812		WIRPH812	£37.04
Type 354 [M8 right-hand thread]	16.3 kN, 1,661 kgf	WIR3548SS	£5.55

## WIRE STRAP EYES



**Wire Strap Eyes – Lacing Eyes** A simple and very useful neat and economical fixing typically used to anchor small wire-rope assemblies or as a lacing eye for cords or small ropes.

Wire Strap Eyes	code	price
width    height    bar Ø    fixing		
50 mm    18 mm    5 mm    4 mm csk	WIR97815SS	£0.30
60 mm    22 mm    6 mm    4.5 mm csk	WIR97826SS	£0.37
63 mm    24 mm    8 mm    5 mm csk	WIR97838SS	£0.55

**Need to tie up a cheetah, suspend a twenty-foot clock, rig a water writing machine under a bridge, hang paper from a hydraulic tower? Give us a ring, we like a challenge!**

## PAD EYES



**Pad Eyes and Pad Eyes with Rings** Marine-grade stainless steel pad eyes to provide a really neat fixing. Ideal for use with our Stainless Rigging Screws [page 167]. We now also stock these pad eyes complete with ring.



Pad Eyes [no ring]	code	price
length    width    height    bar Ø    fixing/Ø		
45 mm    15 mm    20 mm    5 mm    M4 [4.5]	WIR9815SS	£0.66
60 mm    20 mm    26 mm    6 mm    M4 [4.5]	WIR9816SS	£0.98
80 mm    26 mm    32 mm    8 mm    M6 [6.2]	WIR9818SS	£1.90
100 mm    36 mm    39 mm    9 mm    M6 [6.2]	WIR9819SS	£2.38

Pad Eyes [with ring]	code	price
length    width    int ring Ø    bar Ø    fixing		
45 mm    15 mm    30 mm    5 mm    M4 [4.5]	WIR9895SS	£1.17
60 mm    20 mm    35 mm    6 mm    M4 [4.5]	WIR9896SS	£1.59
80 mm    26 mm    45 mm    8 mm    M6 [6.2]	WIR9898SS	£2.84
100 mm    36 mm    50 mm    9 mm    M6 [6.2]	WIR9899SS	£3.95



**Folding Pad Eye** Drop-forged with no welding to offer remarkable strength. In addition, by aligning the D-ring to the direction of the force they can handle higher operating loads. Often used to secure trapeze tension wires. A small silicone pad inside prevents vibration when folded flat. Also available in titanium with strengths up to 10,000 kg. Genuine Wichard product.

### SAFETY

Breaking Load	Safety Factor	Safe Working Load
4,500 kgf	1.5 to 1	3,000 kgf

Folding Pad Eye	code	price
width of D-ring    fixing Ø    weight		
59 mm    8 mm    136 g	WIR6505	£25.85

## CROSSOVER CLAMPS



**Crossover Clamps** These 316-grade stainless steel clamps will hold wire ropes at right angles. They are often used to form large wire-netting structures to help plants to grow up the sides of buildings. I'm sure you will dream up all sorts of odd things to do with them. They are all 20 mm Ø. For Wire Rope Stoppers see page 157.

Crossover Clamps	code	price
to fit    length    weight		
3 mm wire rope    19 mm    37 g	WIR4103SS	£1.98
4 mm wire rope    21 mm    37 g	WIR4104SS	£2.16
5 mm wire rope    23 mm    37 g	WIR4105SS	£2.53
6 mm wire rope    25 mm    37 g	WIR4106SS	£2.79