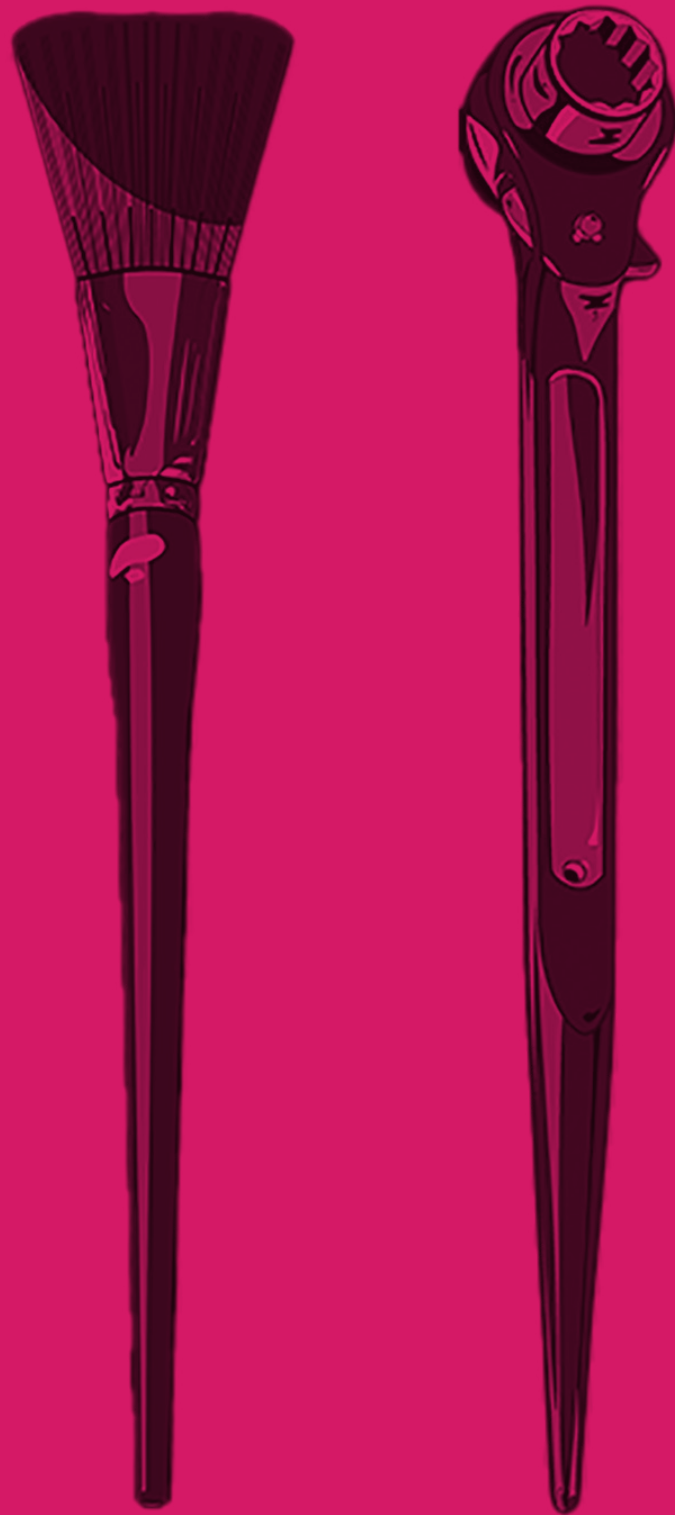


Rigging



FLINTS

The one-stop-shop that delivers to your door

WINCHES & LIFTING GEAR

CHAIN HOISTS

Tralift Chain Hoists

A hoist that's hand-operated and triple-spur geared, with an automatic brake with double pawls. All steel construction, with steel alloy chains, and high carbon hooks. Simple to install and use. Prices include both the lifting chain and hand chain. The hand chain is one metre shorter than the height of lift. We also stock a 1t black unit with a 12 m lift. For Chain Buckets see page 351.

Other ratings and lifting heights are available. Please ask for details.



LEVER HOISTS

Bravo™ Lever Hoists

Ideal for lifting, pulling, positioning, and adjusting heavy weights. Available in sizes from 250 kg up to 6,000 kg. Please phone for details of the larger sizes.

- ✓ Robust design
- ✓ Adjustable lift
- ✓ Can be used in any position
- ✓ Rotates around 360° on swivel hooks with overload indicators
- ✓ Automatic brake with double pawls
- ✓ Self-lubricating chain to EN 818
- ✓ Standard lifting heights can be increased to 6 m as an option



TRADELINE

Buy 2+ = less 25% off list

code	Model	WLL	lifting height	chain falls	price
LIF272999	272999	1t	3m	1	£115.34
LIF273269	273269	1t	6m	1	£140.30
LIF280629	280629	1t	9m	1	£184.66
LIF106399	106399	1t	12m	1	£230.69
LIF245339	245339	2t	3m	2	£164.69
LIF245519	245519	2t	6m	2	£238.45
LIF250369	250369	2t	9m	2	£296.67

code	Model	chain type	WLL	lifting height	chain falls	price
LIF35919	35919	4 x 12	250kg	1.5m	1	£83.86
LIF245649	245649	5 x 15	500kg	1.5m	1	£117.56
LIF245659	245659	6 x 18	750kg	1.5m	1	£163.99
LIF245679	245679	7 x 21	1500kg	1.5m	1	£211.16

BEAM CLAMPS AND PUSH TROLLEYS

Beam Clamps and Push Trolleys

Beam clamps are ideal for securing chain hoists to a wide range of beams [other sizes available, please phone for details]. Push trolleys are fitted with steel wheels with bearings. Longer traverse bars are available to fit wider beams.



TIRFORS®

Tirfor®

Tirfor® machines are portable manual hoists used with Maxiflex wire rope. They can be used to lift, pull, and position loads over great distances determined by the wire rope length. They are the ideal solution for precise location of heavy loads or the setting up of tension wires.

- ✓ No limitation in terms of wire length
- ✓ Manageable, lightweight, robust, powerful
- ✓ Increase load capacity with deflection sheaves
- ✓ Overload protection
- ✓ Precise load placement within millimetres.

The wires are supplied separately and are fitted with a safety hook on one end. Flints can supply all Tirfor® equipment, please phone our Rigging Manager.



code	description	WLL	wire rope ø	list price	Tradeline
WIRT508D	Tirfor® 508D	800kg	8.3mm	£643.80	£598.64
Wires to suit Tirfor 508D		length			price
WIRT50010		10m			£161.20
WIRT50015		15m			£197.60
WIRT50020		20m			£250.64
WIRT50030		30m			£326.56
WIRT50040		40m			£410.80



code	Model	Type	min beam width	max beam width	WLL	price
LIFLT1B	LT-1B	Clamp	75mm	230mm	1000kg	£80.87
LIFLT2B	LT-2B	Clamp	75mm	230mm	2000kg	£94.35
LIF23309	500	Trolley	50mm	220mm	500kg	£103.33
LIF23319	1000	Trolley	58mm	220mm	1000kg	£130.29
LIF23329	2000	Trolley	66mm	220mm	2000kg	£199.93

Choosing a hand winch

Hand winches are economical to purchase and very reliable. Some of the winches that we list in this catalogue are quiet in operation but others will make a slight clicking noise. Apart from the truck winches [featured on page 179, and the Line Driver which is not self-sustaining in the "Down" mode] they are all self-sustaining so if the handle slips from your hand they will hold the load. When choosing a winch try to choose one with plenty of spare capacity. As a rule of thumb, the working load should be reduced by 10% for each extra layer of rope on the drum so if you are lifting weights near the winch load capacity try to keep the wire to a single layer. There should always remain three full turns of wire on the drum in its maximum out dead [see also "Attaching wire to a plain drum winch" on page 181]. Please be aware that the speed of hand winches may make them an unsuitable choice for items which need to move in front of an audience – or to put it another way – they can be very slow.

SMALL HAND WINCHES AND LINE DRIVERS

SG Hand Winch [125 kg]

This small aluminium spur gear hand winch is suited for scenic applications such as raising shutters or small drawbridges. Also handy for stowing light but bulky items in roof voids. They are silent in operation and have a self-locking spring operated load pressure brake. The handle is removable. Size 130 x 130 x 116 mm out [270 mm with the handle in place]. Other sizes are available, please phone our Rigging Manager for more details.

A full data sheet with dimensioned technical drawings can be downloaded from flints.co.uk



Working Load Limit [1st layer]	125kg	[last layer]	125kg
Wire rope size	3mm	Capacity 1st layer	2m
Total capacity	20m	Lift per crank	135mm
Effort on crank	12kg	Weight	3kg

code

LIF0271008

price

£219.00

GO-CS Hand Winches [100 kg or 200 kg]

A range of worm geared small winches which can be base- or wall-mounted. Ideal for short movement strokes such as ramps and draw bridges. Compact, self-sustaining and quiet in operation with no brake ratchets. Meets the requirements of BS EN 13157. Both winches are 109 mm high x 91 mm wide x 100 mm out [251 mm with shaft and handle in place]. Weight: 1.8 kg.

A full data sheet with dimensioned technical drawings can be downloaded from flints.co.uk.

A version that uses 20 mm wide webbing is also available.

Please phone our Rigging Manager for more details.



	GOCS100	GOCS300
Working Load Limit [1st layer]	100kg	200kg
Working Load Limit [last layer]	80kg	100kg
Wire rope size	3mm	3 or 4mm
Total wire capacity	9m	4 or 2m
Lift per crank	13mm	7mm
Effort per crank	6kg	6kg
Min load for brake to function	10kg	10kg

code

description

WLL

price

LIFGOCS100

GOCS100

100kg

£91.98

LIFGOCS200

GOCS200

200kg

£99.98

Can't find what you want?

There is almost certainly a winch available to suit your needs, we just don't have the space to list them all here. Flints can supply Loadstars, Tiraks, Pilewinds, capstans and multiple-wire grooved drums. If we can't supply what you need we can probably advise on a company that can. Why not tap into our knowledge and give us a ring?

MEDIUM TO HEAVY-DUTY WINCHES

K-WB Hand Winches [250 kg - 750 kg]

A worm gear winch of cast iron construction with the gears enclosed in an oil bath for smooth operation. It will make a clicking noise when hauling but is silent lowering. Features a self-locking friction type brake, hardened worm shaft, and adjustable crank radius. A good choice for flying bars which need occasional access for maintenance but it is normally too slow for use during performance.

For transport reasons these winches are supplied dry. You will need SAE80 oil to fill the oil bath. Also available with grooved or multicompartment drums, please phone our Rigging Manager for more details. Complies with BS EN 13157.



	LIF02422004	LIF0243000	LIF0244007
Lifting capacity [1st layer]	250kg	500kg	750kg
Lifting capacity [final layer]	210kg	425kg	624kg
Rope diameter	5mm	6mm	8mm
1st layer rope capacity	4.8m	7.9m	9.2m
Total capacity	11.3m	29.1m	49m
Number of layers	2	3	4
Ratio	16:1	16:1	25:1
Lift per crank turn	20mm	26mm	20mm
Effort on crank	9.2kg	14.5kg	16kg
Weight	12.5kg	21kg	42kg

code

lifting capacity

price

LIF02422004

250kg

£620.19

LIF0243000

500kg

£969.21

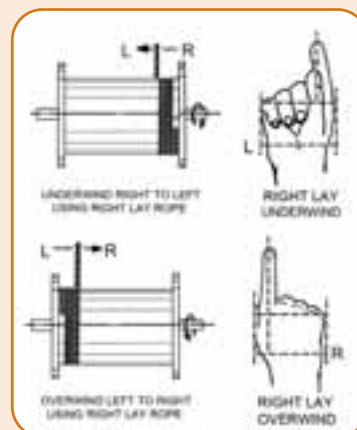
LIF0244007

750kg

£1,414.89

Attaching wire to a plain drum winch

Most wire ropes [all the ropes we sell] are right-hand lay. The rope certificate may just use the abbreviation RHRL [right-hand regular lay]. If the RHRL wire is to be fed down the back of the drum [under wind] then it should be attached on the right-hand side so it works across towards the left hand side. If the RHRL wire needs to be fed down the front of the drum then it should be attached on the left-hand side and feeds towards the right. Always ensure that at least three full turns of wire remain on the drum at all times.



WINCHES & LIFTING GEAR / ROUND & SEWN SLINGS

Swivel Clews

Swivel Clews are used to convert one wire from a winch or cradle to several drops for hauling bars. Swivel clews can occasionally tend to twist under load despite the swivel fitting. Flints is able to arrange for guide tubes or track runners to be fitted to the clew to help prevent this. Please ask for details. Spot the "deliberate" mistake in the picture*. See also Delta Rings on page 211. *Refer to page 194 regarding "dead horses"



ROUND & SEWN SLINGS

ROUND SLINGS



ROUND SLING CHART

	straight pull	choke hitch	basket hitch	
colour coding			parallel	90°
Violet	1t	0.8t	2t	1.4t
Green	2t	1.6t	4t	2.8t
Yellow	3t	2.4t	6t	4.2t

SAFETY

Working Load Limits

A Note on Newtons

Technically a newton is the SI unit of force [symbol: N]. It is defined as the amount of force required to accelerate a mass of one kilogram at a rate of one metre per second squared. The newton is also the unit of weight. A mass of one kilogram near the earth's surface has a weight of approximately 9.81 newtons. One newton has the mass of a small apple! Throughout this catalogue reference is made to "kN" or kiloNewtons. To convert kN to kgf [kilogram-force] firstly multiply by 1,000 to get newtons then divide by 9.81. Therefore a sling tested to 25 kN could be converted to kgf by the following method: 25 x 1,000 = 25,000. Then divide by 9.81 = 2,548 kgf.

WEIGHING BEAMS

Load Beams

It is now a prerequisite to mark the weight of scenery before it is flown. These beam scales are ideal for weighing large pieces of scenery up to 2 t. The beams are 1.2 m long and supplied with 4 m long cables to a remote digital indicator unit. Free UK mainland delivery. For hire details go to page 404.



HIRE

code	price
WB2000KG	£687.95

LIFTING ENGINEER'S HANDBOOK

The Lifting Engineer's Handbook & Quick Reference Guide

[LEEA] A pocket reference and working tool for competent engineers or riggers to carry around for immediate use when required. Covers technical data and legislation concerning lifting equipment. Updated Version for 2017. Also available is the Lifting Equipment Examiners Quick Reference Guide. A pocket sized flip book designed for use on site. Barry thinks it is brilliant!



code	description	price
BKSLEHN	Handbook	£15.00
BKSLEEQRG	Quick Reference Guide	£7.50

Black Theatre Slings

The sizes below are supplied in theatre black for inconspicuous rigs. Be sure to carefully read the label attached to each sling to determine the correct loading. NB: We sell the slings by their Effective Working Length [EWL] which is half the circumference.



EWL	circum.	code	1t price	code	2t price
500mm	1m	SAF609B	£3.68	SAF610B	£5.75
1m	2m	SAF612B	£5.79	SAF622B	£6.71
2m	4m	SAF614B	£9.15	SAF624B	£10.40
3m	6m	SAF616B	£11.36	SAF626B	£14.35
4m	8m	SAF617B	£14.65	SAF628B	£17.62

Black Soft Steel [Wire Rope] Round Slings

Made like polyester round slings but the core consists of multiple turns of flexible steel-wire rope protected by the polyester sleeve. These slings will provide far superior fire resistance over ordinary round slings.



Details shows steel wire core



code	Colour	WLL straight pull	EWL	circum.	price
SAF622BW	Black	2t	1m	2m	£18.26
SAF624BW	Black	2t	2m	4m	£28.67
SAF626BW	Black	2t	3m	6m	£41.15

NYLON SEWN SLINGS [EN 566]

Nylon Sewn Slings

These sewn nylon slings provide an economical quick and strong temporary fixing for pulleys etc. to trusswork or flying bars. The 18 mm slings are black with red stitching, the 25 mm ones have yellow stitching. Supplied with user instruction sheet. CE marked.



The 18 mm wide slings conform to EN 566. Minimum Breaking Load is 24 kN when new. The 25 mm wide slings conform to EN 566, EN 795 type B. Minimum Breaking Load is 30 kN when new.



SAFETY	Sewn slings are marked with the minimum strength as per EN 566.				
	This is NOT the SWL				

code	width	EWL	circumference	MBL	price
PETLSL18020	18mm	200mm	400mm	24kN	£4.05
PETLSL18030	18mm	300mm	600mm	24kN	£4.46
PETLSL18060	18mm	600mm	1.2m	24kN	£5.79
PETLSL25030	25mm	300mm	600mm	30kN	£4.62
PETLSL25060	25mm	600mm	1.2m	30kN	£6.00
PETLSL25120	25mm	1200mm	2.4m	30kN	£8.83

DYNEEMA SEWN SLING [EN 566]

Dyneema Sewn Sling

Although Dyneema is very strong, it has virtually no stretch. If subjected to a sudden-shock load by arresting the fall of a weight it could fail before a similar, or theoretically weaker, sling made from nylon. These slings are, however, popular with climbers where saving weight is crucial. In the event of a Dyneema sling arresting the fall of a climber their own body and their climbing gear will act as a shock absorber [...and that's not a good thing].

The Dyneema slings conform to EN 566. Minimum Breaking Load is 22 kN when new.



code	width	EWL	circumference	MBL	price
PETLSD060	15mm	600mm	1.2m	22kN	£8.08

WEB LINKS

Flat Web Sling

Sadly our extremely popular Black Web Links [below] are not rated for lifting so Barry got straight to the drawing board and came up with this solution! A really simple sling that snugly fits a piece of standard size 8 scaffold. Because of the choke hitch design it will also fit a piece of size 6 scaffold, or any piece of truss. The design allows for it to be used in a straight lift - if you have an appropriate connection point above, or even a basket lift! Similar to our Round Slings. Works really well with the 0.75t Green Pin Shackles - available in Black too! Fully certificated for Lifting to EN1492-1. SPECIFICATION: Overall length: 300 mm, Width: 25mm, Material: Polyester, WLL based on a 7:1 safety factor and MBL of 1750 kg



code	length	width	WLL	price	10+
FHSFWB	300mm	25mm	250kg	£12.60	£10.80
WIR2093B	13.5mm	37mm	0.75t	£5.37	-

Black Web Link

A very popular special link designed for theatre use made of black webbing. These links are marked with the year of manufacture and SWL. Fits up to 60 mm Ø barrel.



SAFETY	Min Breaking Load	Safety Factor	SWL
	1,500kg	6 to 1	250kg

code	length	width	SWL	price	10+
ROPOT25300	280mm	25mm	250kg	£20.30	£19.45

Truss Straps

Designed to give a really quick suspension point, simply sling over a bar, pass a shackle through the two d-rings and you're ready to attach whatever you wish to hang! Often used for suspending LX ladders, they are really handy for making small horizontal adjustments - by supporting the weight briefly the strap can be slid along to the desired position. Please note, these straps are not to be used for dynamic lifting, but can be used for hauling and lashing. Multiple sizes available depending on your requirements. SPECIFICATION: Material: Polyester / Steel. SWL based on a 4:1 safety factor.



code	length	width	SWL	price
SAFTS001	320mm	35mm	500kg	£6.30
SAFTS002	525mm	35mm	500kg	£6.75
SAFTS003	320mm	50mm	1000kg	£6.85
SAFTS004	500mm	50mm	1000kg	£7.85

Seddon Link

A quick method of slinging pulleys etc. from flying bars. Made of blue webbing with stainless steel fittings. SPECIFICATION: SWL based on a 7:1 safety factor and MBL of 3500 kg.



code	length	width	SWL	price
ROP0806	200mm	25mm	500kg	£32.51

Handling Steel Wire Rope

Unreeling and Uncoiling Wire Rope: When removing wire rope from the reel on which it was received, or from the coil if it is a coil shipment, it is imperative that the reel or coil rotates as the rope unwinds. Attempts to unwind rope from stationary coils or reels will result in kinking the rope, and once a kink is formed the rope at that point is ruined beyond repair.

Unreeling: If the rope is to be unwound from a reel, there are three correct methods of unreeling. 1) The reel may be mounted on a shaft supported by two jacks. The rope is then pulled from the reel by operators holding the end of the rope and walking away from the reel which rotates as the rope unwinds. This is the common approved method of unreeling wire rope. Care should be taken to avoid over-running. 2) The reel may be mounted on a turntable. It is then unwound in the same manner as described above. Care must be exercised to keep the rope from dropping below the lower reel head. Again avoid over-running. 3) The end of the rope may be held and the reel rolled along the ground.

Uncoiling: If the rope is to be removed from a coil, there is only one correct method of uncoiling. The end of the rope should be held and the coil rolled on the ground like a hoop.

Terminations: Wire Rope terminations should be suitable for their purpose and should have a strength of not less than 80% of the minimum breaking load of the rope. Any free end of the rope should be seized to prevent unlaying. The ends of any wire rope other than that on a lifting device, hoist or winch should be fixed to the suspension point with a thimble-eye splice or ferrule-secured eye termination or bulldog-grip fixing [to DIN 1142] or other rope coupling device giving a strength of not less than 80% of the breaking load of the wire rope. The ends of any wire rope feeding onto a reeling winch should be fastened onto the winch drum in the manner specified by the manufacturer and in addition should preferably have at least three turns left on the drum when the suspended item is at its lowest level, and in no circumstances less than two turns.

This information is reproduced with permission from the ABTT Code of Practice for Flying, 2000. See also The Lifting Engineers Handbook [page 402].



Lifting Equipment Engineers Association

Flints are full members of this association. Our staff frequently attend their informative courses and obtain specialist lifting qualifications. The association also keeps us right up to date with changing regulations.



ISO 9001

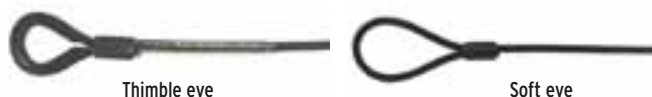
Flints is ISO 9001 registered. This certification is awarded by the International Standards Organisation. Flints has chosen the prestigious British Standards Institute to verify and audit our company to rigorous standards.

STOCK BLACK DRIFTS

Stock Black Drifts

Flints holds large stocks of a range of 5 mm diameter 7 x 19 construction galvanised black wire drifts designed to cover most backstage requirements. They are available with either thimble eyes at both ends or with a thimble eye on one end and 100 mm soft loop on the other end. The soft eye enables the wire to be choke hitched around appropriate materials. The Working Load Limit of all the wires is marked at 250 kg. Each wire is individually identified, CE marked and printed with the WLL. They are supplied with appropriate certification and instructions. Flints registers all the stock drift sales on our lifting database so that duplicate copies of certification can be raised [up to 2 years].

For Wire Strops, see page 357.



code	Type	length	price	10+
WIRHE1M	Thimble Eye Both Ends	1m	£24.04	£21.64
WIRHE2M	Thimble Eye Both Ends	2m	£25.82	£23.24
WIRHE3M	Thimble Eye Both Ends	3m	£27.49	£24.74
WIRHE4M	Thimble Eye Both Ends	4m	£29.27	£26.34
WIRHE5M	Thimble Eye Both Ends	5m	£30.75	£27.68
WIRHE6M	Thimble Eye Both Ends	6m	£32.38	£29.14
WIRHE7M	Thimble Eye Both Ends	7m	£34.14	£30.73
WIRHE8M	Thimble Eye Both Ends	8m	£35.87	£32.28
WIRHE10M	Thimble Eye Both Ends	10m	£39.40	£35.46
WIRSE1M	Soft and Thimble Eye	1m	£24.04	£21.64
WIRSE2M	Soft and Thimble Eye	2m	£25.82	£23.24
WIRSE3M	Soft and Thimble Eye	3m	£27.49	£24.74
WIRSE4M	Soft and Thimble Eye	4m	£29.27	£26.34
WIRSE5M	Soft and Thimble Eye	5m	£30.75	£27.68
WIRSE6M	Soft and Thimble Eye	6m	£32.38	£29.14
WIRSE7M	Soft and Thimble Eye	7m	£34.14	£30.73
WIRSE8M	Soft and Thimble Eye	8m	£35.87	£32.28
WIRSE10M	Soft and Thimble Eye	10m	£39.40	£35.46
WIRDCR	Duplicate certification retrieval fee [up to 2 years]		£10.00	-

MADE TO ORDER WIRE ROPE ASSEMBLIES

Wire Rope Assemblies and Crimping Charges

If our Stock Black Drifts listed left do not suit your purpose then we can make up wire rope assemblies to order.

Non-Lifting Wire Rope Assemblies

These assemblies are constructed in the same way as lifting assemblies but will not be marked with a WLL or individual identification. They will not be supplied with certification and are therefore not suitable for lifting purposes. We are also unable to supply certification for wire ropes under 1 mm in diameter so Micro Cable Assemblies will be priced as Non-Lifting Assemblies. To price up for budget purposes, use the codes given below plus the cost of the wire, allowing an additional 1m per assembly for the termination.

Lifting Wire Rope Assemblies

For lifting purposes the assemblies need dimensionally checking, and marking with individual identification, the WLL, UKCA, and CE marks. The wires will be supplied with the appropriate certification and instructions. Wires requiring a termination on one end only will be supplied with a "Test for Inclusion in the Technical File". Soft eyes complying with BS EN 13411-3 must have a length 15 x the diameter of the wire rope and the width of the eye should be half its length. To price up for budget purposes, use the codes given below plus the cost of the wire, allowing an additional 1m per assembly for the terminations. These prices include the certification but replacements for lost certificates will be charged at £10 per certificate.

code	description	per end
WIRDRIFT04	Wire Rope Assemblies up to 4mm	£3.00
WIRDRIFT58	Wire Rope Assemblies 5 - 8mm	£3.50

Current Technical Data

We have tried to include as much technical data as we can in this edition of our catalogue. We will always try to match products as closely as possible to the specifications listed but if you are using a product with very tight tolerances then we would advise that you give us a ring and we will be happy to check the dimensions and load ratings for you.

Wire Rope Terminology

The general purpose wire ropes used in the theatre are normally 6 x 19 fibre core or 7 x 19 steel core. The first number refers to the number of "Strands" in the "Wire Rope". The second number refers to the number of "Wires" in the "Strand". A 6 x 19 construction wire rope will be slightly more flexible than a 7 x 19 rope. However, 7 x 19 ropes are slightly stronger and are better able to resist crushing and heat. They are less liable to deform when running over sheaves.

Ropes with a construction of 1 x 19 are very stiff and are used for yachts' standing rigging, architectural rigging or handrailing applications. They must be terminated with roll swagged fittings as the wire cannot be formed into loops. The advantage of this construction is that it uses thicker wires which are better able to resist chafe and they present a smoother surface. We only stock them as stainless steel, but regrettably can no longer roll swage them for you.

All the wires that we hold in stock are "R.H.R.L." which stands for Right Hand Regular Lay. Nearly all ropes are "Right Hand Lay" but rarely a rope may need to be left hand lay for a special purpose such as drilling rigs. The "Regular Lay" means that the small "Wires" in each "Strand" are left hand lay to oppose the right hand lay of the rope. Some special purpose wire ropes are made with the wires laid in the same direction as the strands. This lay is called "Lang's Lay". These ropes are not suitable for making slings or drifts as they tend to unwind under load.

All our wire ropes are "Pre-formed". Pre-formed ropes do not tend to spring apart when being cut and are much preferred for general use. Wire ropes are made from various grades of steel. There are only two general grades used for Galvanised Steel Wire Ropes and these are 1,770 N/mm² and 1,960 N/mm². A rope made to 1,770 is manufactured from wire with tensile strengths between 1,570 and 1,960 N/mm². A rope made to 1,960 will have a minimum strength of 1,770 and a maximum of 2,160 N/mm². Stainless steel ropes are slightly weaker than galvanised steel ropes.

The Working Load Limit of a wire rope is based on a safety factor of 5:1 of the Minimum Breaking Load. This is industry general practice but higher safety factors may be specified for your specific application.

Flints supplies full certification for all the wires we supply above 1 mm in diameter.

Flints is a full member of the Lifting Equipment Engineers Association and is approved to ISO 9001 by British Standards Institute.

We are proud of the fact that our staff attend regular training courses and symposiums regarding lifting and working at height.



Lifting Equipment Engineers Association

Here are Flints' staff undertaking practical assessments at LEEA training centre covering thorough examination of lifting accessories [wire rope slings, chain slings, textile slings, loose gear-shackles, eye bolts, rigging screws etc.].

GALVANISED WIRE ROPES [TO BS EN 12385/2002]

Galvanised Wire Rope [BS EN 12385:2002] 6 x 19 [Fibre Core] 1,960 N/mm²



This rope is the most flexible wire rope construction that we stock. It is a right-hand regular lay wire rope consisting of 6 strands of 19 wires around a fibre core. The wires are pre-formed so the wire will not spring apart when being cut. Choose it as a general purpose wire for making drifts or slings. If you are replacing a damaged wire in a set of wires, all the wires in the set should be replaced at the same time. The Working Load Limit specified is based on a 5:1 safety factor which must not be exceeded. Sometimes, in the theatre industry, higher safety factors of times eight or ten are required. The tensile strength of these wires is 1,960 N/mm². Supplied complete with certification. The minimum breaking load shown on the certificate may vary slightly from those given below due to fluctuations in batches.

per metre	WLL 5:1	wire rope ø	min BL	price
WIR012	110kg	3mm	522kg	£0.44
WIR014	196kg	4mm	982kg	£0.56
WIR016	307kg	5mm	1534kg	£0.69
WIR018	442kg	6mm	2209kg	£0.79
WIR020	785kg	8mm	3927kg	£0.99
per drum	WLL 5:1	wire rope ø	min BL	price
WIR012D	110kg	3mm	522kg	£34.00
WIR014D	196kg	4mm	982kg	£46.00
WIR016D	307kg	5mm	1534kg	£59.00
WIR018D	442kg	6mm	2209kg	£73.00
WIR020D	785kg	8mm	3927kg	£89.00

Galvanised Wire Rope [BS EN 12385:2002] 7 x 19 [Steel Core] 1,960 N/mm²



This rope is slightly stiffer than 6 x 19 construction wire rope but it is better at resisting crushing and less liable to deform when running around sheaves. The steel core also makes it a slightly stronger rope. It is a right-hand regular lay wire rope consisting of 6 strands of 19 wires around a steel core. The wires are pre-formed so the wire will not spring apart when being cut. Choose this rope for running rigging and when terminations state that they should only be used on steel core ropes [Gripples and Nicopress are examples]. If you are replacing a damaged wire in a set of wires, all the wires in the set should be replaced at the same time. The Working Load Limit specified is based on a 5:1 safety factor which must not be exceeded. Sometimes, in the theatre industry, higher safety factors of times eight or ten are required. The tensile strength of these wires is 1,960 N/mm². These ropes are supplied complete with certification. The minimum breaking load shown on the certificate may vary slightly from those given below due to fluctuations in batches. If you require these wires in 1,770 N/mm² then please add N17 to the code and allow five days.

per metre	WLL 5:1	wire rope ø	min BL	price
WIR023	130kg	3mm	651kg	£0.44
WIR024	232kg	4mm	1158kg	£0.65
WIR025	362kg	5mm	1809kg	£0.80
WIR026	521kg	6mm	2605kg	£0.79
WIR028	926kg	8mm	4630kg	£1.32
per drum	WLL 5:1	wire rope ø	min BL	price
WIR023D	130kg	3mm	651kg	£34.00
WIR024D	232kg	4mm	1158kg	£53.50
WIR025D	362kg	5mm	1809kg	£68.00
WIR026D	521kg	6mm	2605kg	£72.00
WIR028D	926kg	8mm	4630kg	£118.00

Low Rotation Wire Rope

These ropes are specially wound in contrary directions to reduce rotation to a minimum. Used mainly for single-point hanging of chandeliers etc. If using these wires with wedge sockets ensure the tail exceeds 20 times the diameter of the rope. Available to order only. Please phone our Rigging Department for details.

BLACK WIRE ROPES

Black PVC-Covered Wire Rope 6 x 19 [BS EN 12385-2002] [Fibre Core] 1,770 N/mm²

This is a 6 x 19 construction galvanised wire rope with a black PVC sheath. These covered wires are useful for disguising suspension lines. They can also be used for handrail and lanyard applications. This type of wire is not suitable for running rigging. It is essential that the PVC sheath is removed where terminations are made. We can also supply these wires coated in white PVC in 100 m drums POA. Please allow five days.



per metre	WLL 5:1	wire rope ø	finished ø (up to)	min BL	price
WIR032	100kg	3mm	4mm	499kg	£0.73
WIR034	177kg	4mm	5mm	887kg	£0.82
WIR036	277kg	5mm	6mm	1385kg	£1.00
per drum	WLL 5:1	wire rope ø	finished ø (up to)	min BL	price
WIR032D	100kg	3mm	4mm	499kg	£63.00
WIR034D	177kg	4mm	5mm	887kg	£72.00
WIR036D	277kg	5mm	6mm	1385kg	£89.00

Black Wire Rope [BS EN 12385-4] [Steel Core] 1,770 N/mm²

These popular matt black flexible wire ropes are suitable for use as running rigging whereas the PVC-coated cables listed above should not be used over pulley sheaves. Not suitable for use outdoors.



per metre	Construction	WLL 5:1	wire rope ø	min BL	price
WIR002	7 x 7	56kg	2mm	280kg	£0.99
WIR003	7 x 7	126kg	3mm	630kg	£1.05
WIR004	7 x 7	224kg	4mm	1120kg	£1.37
WIR005	7 x 19	327kg	5mm	1633kg	£2.65
WIR006	7 x 19	470kg	6mm	2352kg	£3.15
WIR008	7 x 19	836kg	8mm	4182kg	£3.15
per drum	Construction	WLL 5:1	wire rope ø	min BL	price
WIR002D	7 x 7	56kg	2mm	280kg	£68.33
WIR003D	7 x 7	126kg	3mm	630kg	£72.00
WIR004D	7 x 7	224kg	4mm	1120kg	£77.99
WIR005D	7 x 19	327kg	5mm	1633kg	£169.00
WIR006D	7 x 19	470kg	6mm	2352kg	£239.00
WIR008D	7 x 19	836kg	8mm	4182kg	£194.15

STAINLESS STEEL WIRE ROPES

Flexible Stainless Steel Wire Rope [BS EN 12385-2002] [Steel Core] 1,570 N/mm²

These flexible cables are made from 316 marinegrade stainless steel. They are suitable for running over sheaves or for forming thimble eyes. Ideal when high resistance to corrosion is needed or when the cables are being used for display purposes. Unlike galvanised wire, stainless wire will show no tell-tale signs of wear such as rust streaks, but as no cables last for ever it is a wise precaution to enforce a schedule of replacement depending on the wire's application.



code	per metre	code	per 100 m drum	Const.	wire rope ø	min BL	WLL 5:1
-	-	WIR049D	£35.00	7 x 7	1mm	61kg	12kg
WIR059	£0.45	WIR059D	£37.50	7 x 7	1.2mm	90kg	18kg
WIR050	£0.52	WIR050D	£40.00	7 x 7	1.5mm	140kg	28kg
WIR051	£0.56	WIR051D	£43.00	7 x 7	2mm	248kg	50kg
WIR054	£0.70	WIR054D	£54.00	7 x 7	2.5mm	388kg	78kg
WIR056	£0.78	WIR056D	£60.00	7 x 19	3mm	522kg	104kg
WIR055	£1.45	WIR055D	£92.50	7 x 19	4mm	927kg	185kg
WIR057	£1.74	WIR057D	£142.00	7 x 19	5mm	1449kg	290kg
WIR058	£2.46	WIR058D	£195.00	7 x 19	6mm	2086kg	417kg

Non-Flexible Stainless Steel Wire Rope [BS EN 12385-2002] [Steel Core] 1,570 N/mm²

These wire ropes are most typically used for standing rigging on yachts and for architectural and handrailing applications. They have a smoother appearance and are relatively stiff. Because the wires are thicker they are much less susceptible to surface wear which could cause sharp stray strands. They are NOT suitable for running over sheaves or for forming thimble eyes. 316-grade wire. These wire ropes being "Non Flexible" means they are not suited for general lifting purposes. Unlike galvanised wire, stainless wire will show no tell-tale signs of wear such as rust streaks, but as no cables last for ever it is a wise precaution to enforce a schedule of replacement depending on the wire's application. Regrettably we can no longer roll swage these for you in house, but we may be able to help point you in the right direction - please do email rigging@flints.co.uk with your enquiry.

per metre	Const.	WLL 5:1	wire rope ø	min BL	price
WIR081	1 x 19	151kg	3mm	746kg	£0.90
WIR082	1 x 19	269kg	4mm	1345kg	£1.40
WIR083	1 x 19	420kg	5mm	2101kg	£3.28
WIR084	1 x 19	605kg	6mm	3026kg	£2.78
per drum	Const.	WLL 5:1	wire rope ø	min BL	price
WIR081D	1 x 19	151kg	3mm	746kg	£72.00
WIR082D	1 x 19	269kg	4mm	1345kg	£116.00
WIR083D	1 x 19	420kg	5mm	2101kg	£173.00
WIR084D	1 x 19	605kg	6mm	3026kg	£229.00

Some observations on Stainless Steel

Stainless Steel has a lower tensile strength than ordinary steel. As a raw material it is rather weak but higher levels of strength can be obtained by the ability of austenitic stainless steel to be heavily cold worked. The two most common grades of stainless steel are AISI 304 and AISI 316. AISI stands for the American Iron and Steel Institute. They are often referred to as A2 and A4 grade. As a general rule, A2 is used for architectural purposes and A4 is used for marine purposes. A2 [304] is stronger but not so well suited to withstand salt water corrosion. Although A4 [316] is weaker it is virtually always specified for marine use. All our stainless wire ropes are made from A4 [316] grade except for the very small micro cables where the extra strength of 304 grade is essential. N.B. BS EN 13414-1: 2003 + A2: 2008 standard permits rope of both 1,770 N/mm² and 1,960 N/mm² to be used for Lifting. Our stainless steel rope (1,570 N/mm²) falls outside the standard.

Stainless steel resists corrosion by forming an oxide layer on its outer surface. If oxygen is prevented from getting to the steel to form this layer it will corrode rapidly. For this reason stainless steel is not suitable for underwater marine fastenings although it is perfect for standing rigging exposed to both salt water and oxygen. Do not expose stainless steel to hydrochloric acid of any concentration.

When using stainless steel wire ropes a rigorous regime of inspection should be employed as they will tend to look new even when they are old! Care should also be taken with stainless rigging screws which can suffer from cold welding. This is the phenomenon where screw threads can spontaneously weld themselves together without heat. Normally a little Anhydrous Lanolin will prevent this.

MICRO CABLES & THEIR TERMINATIONS

Micro Cables

These very fine stainless steel micro cables have many uses. They will form virtually invisible suspension wires which are ideal for display or theatre use. They make excellent small control wires for animatronics and special effects. The wires are made from two grades of stainless steel. The smaller wires are made from the stronger 304 grade. The 1 mm wire is made from the more corrosion resistant 316 grade. Two of the wires that Flints stocks have a fine transparent nylon coating which is almost invisible but provides a very smooth finish and holds the strands neatly together when the wire is being cut. Certification is not issued with Stainless Steel Micro cables. We would recommend that you carry out your own tests to establish a minimum breaking load of the finished assembly and then apply a safety factor of at least times five. To terminate these micro cables we recommend using the Nicopress® system. Flints has had special ferrules developed by Nicopress® to solve the old problem of making secure terminations in these very small wires [see below]. We also supply small brass ferrules [not Nicopress®]. When using ferrules any nylon covering should be stripped back and the ferrule should be chosen to suit the actual wire diameter.



Base Stainless Steel

code	Grade	Const.	diameter	min BL	finish ø	per 100 m drum
WIR047D	304	1 x 3	0.26mm	6.8kg		£52.00
WIR048D	304	1 x 7	0.51mm	34kg		£59.95
WIR049D	316	7 x 7	1mm	61kg		£35.00

Nylon Covered Stainless Steel

code	Grade	Const.	diameter	min BL	finish ø	per 100 m drum
WIR048ND	304	1 x 7	0.51mm	34kg	0.75mm	£82.80
WIR049ND	304	1 x 7	0.87mm	90kg	1.05mm	£136.25

BRASS MICRO FERRULES

Brass Ferrules

These ferrules are too small for conventional crimpers. A substitute crimper can be made by drilling downwards through the jaws of a pair of pliers and using a vice to apply pressure. Flints' trials have found a good termination can be made using the Nicopress® 17BA tool. These brass ferrules are not Nicopress® ferrules. Not suitable for lifting purposes.



code	description	pack size	wire rope ø	per 100
WIR112	[see above for Nicopress® Tool and rotate 90° and repeat]	100pcs	0.26mm	£10.07
WIR113	[see above for Nicopress® Tool use groove A]	100pcs	0.51mm	£13.55
WIR114	[see above for Nicopress® Tool use groove B]	100pcs	1mm	£20.04

Micro Cable Cutter & Crimper 0.27-1.5 mm

Crimps AND cuts wire ropes from 0.27 to 1.5 mm. We found that customers often improvise the crimping of ferrules around micro cables because of the prohibitive cost of the Nicopress tools. Now, if you need to reliably crimp many wires and that is regular part of your job, the Nicopress tools are an investment worth making. If however, you need a cheaper solution for occasional use you might want to try this serviceable Japanese made Crimper. Also features cross cutting jaws on the side so no need for an extra tool.



code	price
TOPBWC180	£35.00

Nicopress® Micro and Small Wire Tools

Effectively terminating our very small Micro Cables used to be a problem. Flints has worked with Nicopress® to develop a range of Micro Ferrules and Stops with special hand tools which completely solve this dilemma. They are simple to use and are supplied complete with instructions. We have also found them suitable for crimping the brass ferrules listed. The 17-BA size can be hired [page 405].

SPECIFICATION: Length: 210 mm. Weight: 0.3 kg.



	No. of grooves	Wire ø	Suits ferrule	Suits stop
Micro Wires Tool	2 [A, B] A	0.26mm	NIC161A, WIR112*	NIC87132B
		0.51mm	NIC162A, WIR113*	
		0.75mm	NIC171B	
		0.87mm	NIC171B	
		1.0mm	WIR114*	
Small Wires Tool	2 [B, B4] B	0.75mm	NIC171B	NIC87132B
		0.87mm	NIC171B	
		1.0mm	WIR114*	
		1.0mm	NIC42815VB4	NIC87112B4
		1.2mm	NIC42815VB4	

*Not Nicopress®

code	description	Type	price	5+
NIC17BA	Micro Wires Tool	17-BA	£79.00	£71.00
NIC17B4B	Small Wires Tool	17-B4B	£105.00	£94.50

NICOPRESS MICRO FERRULES

Nicopress® Micro Ferrules

These small ferrules have been developed by Nicopress® for Flints to provide an effective means of securing a loop in our micro cables. They are made from solid copper. They can be easily compressed by using the tools above. The combination of these economical tools and the micro ferrules solves the old problem concerning the termination of very small cables. Tests show that these terminations exceed the strength of the wire. They are ideal for invisible control and display wires. For the nylon-covered wires use a ferrule to suit the actual wire diameter. The nylon cover should be stripped back before compressing the ferrule. For non-lifting applications it is possible to make a termination with the nylon coating in place. Using ferrule NIC42815VB4 on the 1.05 mm nylon-covered wire with the nylon cover still in place we achieved results of around 20 kg before the wire slid out through the nylon coating. Although less strong with the nylon in place, they do make extremely smooth and neat assemblies which would be suitable for lightweight lanyards.



	Tool	Finish	Presses	Sleeve Shape	Sleeve Length Before / After
NIC161A	A	Copper	3	Round	10 / 12mm
NIC162A	A	Copper	3	Round	10 / 11mm
NIC171B	A, B	Copper	2	Oval	6 / 8mm
NIC42815VB4	C, D	Tin-plated	3	Oval	9 / 11mm

code	Constr.	suits wire ø min	price	100+	1,000+
NIC161A	1 x 3	0.26mm	£0.10	£0.09	£0.08
NIC162A	1 x 7	0.51mm	£0.12	£0.11	£0.10
NIC171B	1 x 7	0.75-0.9mm	£0.17	£0.14	£0.11
NIC42815VB4	1 x 7	1 & 1.2mm	£0.33	£0.29	£0.27



MINIATURE WIRE ROPE FITTINGS

Miniature Wire Rope Fittings

These smart and unobtrusive fittings fit wire ropes from 1.5 – 2.5 mm diameter or 2 – 3 mm diameter. There are fittings and ready-made wires designed to make neat ceiling fixings and there are also fittings which slide along the wire and grip when the cap is released. To prevent accidental release they are fitted with a safety cap. By carefully selecting the components you can suspend shelving, display boards, scenery etc. and crucially have the ability to make quick and easy onsite height adjustments. There are many other types of fittings available – please ask our Rigging Manager if you are unable to find what you need. The WLLs are assuming stainless steel wire rope, WLLs are slightly higher using galvanised wires.

Caution: Not suitable for outdoor use. For static loads only. Not for suspension of persons.

Correct Wire Selection

You can buy your wire by the metre or drum or you can select ready-made lengths of wire complete with end fittings to match the ceiling attachments. If using your own wire, select it as follows:

Galvanised Steel Wire Rope 7 x 7 construction [EN 12385, 2300 N/mm²]

Diameters from 1.5 mm to 2.5 mm.

Flints supplies [see page 186]:

2 mm Black Galvanised Steel Wire Rope 7 x 7 constr. code WIR092 [per m], WIR092D [drum].

Stainless Steel Wire Rope 7 x 7 construction [EN 12385-4, 1,570 N/mm²]

Diameters from 1.5 mm to 2.5 mm

Flints supplies [see page 186]:

1.5 mm SS Wire Rope 7 x 7 constr. code WIR050 [per m], WIR050D [drum].

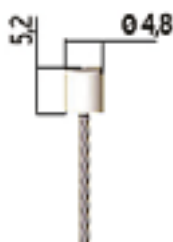
2 mm SS Wire Rope 7 x 7 constr. code WIR051 [per m], WIR051D [drum].

2.5 mm SS Wire Rope 7 x 7 constr. code WIR054 [per m], WIR054D [drum].

READY MADE WIRES

Ready-Made Small Wire Ropes

These 7 x 7 stainless steel cables are ideal for use with the fittings listed on this page. The cylindrical stop fits inside the ceiling fixing shown right making a really neat termination. Use them for display purposes or wire suspended shelving etc. The wires supplied with an M5 thread can be either used with a nut or can be fitted directly into tapped holes. Flints can, of course, make up other wire ropes to your specifications.



code	Construction	length	wire rope ø	price
WIR196207100	7 x 7	1m	2mm	£3.35
WIR196207200	7 x 7	2m	2mm	£5.52
WIR196207300	7 x 7	3m	2mm	£6.06
WIR19620750	7 x 7	5m	2mm	£7.78

CEILING ATTACHMENT

Ceiling Attachment

This unobtrusive fitting can be screwed with a 6 mm diameter screw or machine screw to a ceiling or wall. The end cap simply unscrews and a wire with a cylindrical stop can be inserted [see left]. Sold as body and end cap complete. See also Nicopress® [page 190].



code	Construction	thread	length	wire rope ø	price
WIRCAM13	7 x 7	Cap thread M13	23mm	2mm	£3.76

There are other fittings in this range. Please call our Rigging Manager for details or email rigging@flints.co.uk. See also the Zip Clip STRUT-LOCK [page 196] and for use with larger cable diameters see Reutlingers [page 197].

CABLE GLIDERS

Cable Gliders with Threaded Stud

These fittings can be securely attached to shelving, display boards or scenery by means of their threaded stud. When the cap is depressed the fittings slide along the wire and grip when the cap is released. To prevent accidental release they are fitted with a safety cap. The WLLs are assuming stainless steel wire rope, working loads are slightly higher using galvanised wires.



	static wll 1.5mm ø	static wll 2.5mm ø	fits wire ø mm
WIR193000241	16kg	40kg	1.5mm
WIR193000251	16kg	40kg	1.5mm
WIR193000301	28kg	56kg	2mm
WIR193000302	28kg	56kg	2mm

code	Type	Constr.	thread	thread length	price
WIR193000241	25V	7 x 7	M8	6mm	£8.19
WIR193000251	25V	7 x 7	M8	6mm	£8.25
WIR193000301	30V	7 x 7	M10	8mm	£8.45
WIR193000302	30V	7 x 7	M10	8mm	£8.57

Cable Glider for Side Fixing

These fittings can be securely attached to display boards or scenery by means of a simple 6 mm diameter screw into the side of the frame. The panels can be easily adjusted onsite to achieve the best possible position.



	static wll 2mm ø	static wll 3mm ø	fits wire ø mm
WIR193001308	40kg	85kg	2mm

code	Type	Construction	width	height	price
WIR193001308	30V	7 x 7	15mm	49mm	£10.75

Cable Glider with Fork and Clevis Pin

Use this fitting to terminate your wire onto an eye, loop or drilled lug. The fork diameter is 6 mm and the width of the opening between forks is also 6 mm. The distance from the centre of the clevis pin to the top of the fork is 12 mm. The wire exits from this point so sufficient clearance should be allowed. As with the other fixings listed above this fitting will slide up or down the wire while the top is depressed but will lock onto the wire firmly when the top is released. To prevent accidental release they are fitted with a safety cap.



	static wll 1.5mm ø	static wll 2.5mm ø	fits wire ø mm
WIR193001308	16kg	40kg	1.5mm

code	Type	Construction	width	height	price
WIR193000034	25V	7 x 7	12mm	57mm	£13.50

NICOPRESS® FERRULES & STOPS

Nicopress® Ferrules

The Nicopress® ferrules that Flints supplies are made from solid copper plated with either zinc or tin. For stainless steel wire ropes it is best to choose the tin-plated ones but for galvanised wire rope choose the zinc-plated ferrules. Nicopress® ferrules can be distinguished from British Standard or DIN ferrules by their shape which slightly separates the two wires. Nicopress® ferrules are not designed for fibre-core cables. Flints can, of course, supply all the wire ropes which are listed on pages 185 – 187. Tip: Using the Nicopress® system is very satisfying but there is a bit of craft and skill involved. We would recommend that you practise on one or two ferrules and a scrap of wire before undertaking your project. We have made a little YouTube video which we hope will help you.

*Tool B is on page 187

NICOPRESS



Scan the QR code to watch the video



5. RIGGING

FOR STAINLESS STEEL WIRES

code	suits metric wire	Type	Tool	construction	wire ø	nom ø	sleeve lengths before compression	sleeve lengths after compression	price	100+	1,000+
NIC42815VB4	1 and 1.2mm	tin-plated	B*,D	1 x 7, 7 x 7	3/64"	1.19mm	9.5mm	11mm	£0.33	£0.29	£0.27
NIC4282VC	1.5mm	tin-plated	C,D,E	7 x 7, 7 x 19	1/16"	1.59mm	9.5mm	11mm	£0.35	£0.31	£0.29
NIC428F2VC	2mm	tin-plated	C,D,E	7 x 7, 7 x 19	1/16"	1.59mm	9.5mm	11mm	£0.35	£0.31	£0.29
NIC4283VG	2.5mm	tin-plated	C,D,E	7 x 7, 7 x 19	3/32"	2.38mm	9.5mm	11mm	£0.36	£0.32	£0.31
NIC4284VM	3 and 3.5mm	tin-plated	E,F	7 x 7, 7 x 19	1/8"	3.17mm	14mm	19mm	£0.75	£0.67	£0.65
NIC4285VP	4mm	tin-plated	E,F	7 x 7, 7 x 19	5/32"	3.97mm	16mm	22mm	£0.95	£0.85	£0.82
NIC4286VX	5mm	tin-plated	F	7 x 7, 7 x 19	3/16"	4.76mm	24mm	30mm	£1.75	£1.55	£1.50
NIC4287VF2	6mm	tin-plated	J	7 x 7, 7 x 19	7/32"	5.56mm	22.2mm	27mm	£2.40	£2.15	£2.00

FOR GALVANISED WIRES

code	suits metric wire	Type	Tool	construction	wire ø	nom ø	sleeve lengths before compression	sleeve lengths after compression	price	100+	1,000+
NIC281C	1.5 and 2mm	zinc-plated	C,D,E	7 x 7, 7 x 19	1/16"	1.59mm	9.5mm	11mm	£0.35	£0.31	£0.27
NIC282G	2.5mm	zinc-plated	C,D,E	7 x 7, 7 x 19	3/32"	2.38mm	9.5mm	11mm	£0.40	£0.36	£0.34
NIC283M	3 and 3.5mm	zinc-plated	E,F,H	7 x 7, 7 x 19	1/8"	3.17mm	14mm	19mm	£0.76	£0.68	£0.65
NIC284P	4mm	zinc-plated	E,F	7 x 7, 7 x 19	5/32"	3.97mm	16mm	22mm	£0.99	£0.89	£0.85
NIC286X	5mm	zinc-plated	F	7 x 7, 7 x 19	3/16"	4.76mm	24mm	30mm	£1.99	£1.79	£1.70
NIC288F2	6mm	zinc-plated	J	7 x 7, 7 x 19	7/32"	5.56mm	22.2mm	27mm	£2.10	£1.89	£1.77

FOR BLACK WIRE ROPE

Black Nicopress® Ferrules

These Nicopress® ferrules are made from solid copper plated with a black oxide coating- best for blackened steel wire ropes, especially when terminations are visible.



NEW

code	suits metric wire	Type	Tool	construction	wire ø	sleeve lengths before compression	sleeve lengths after compression	price	100+	1000+
NIC6181CB	1.5 and 2mm	Black Oxide Copper	C,D,E	7 x 7, 7 x 19	1/16"	9.5mm	11mm	£0.39	£0.35	£0.33
NIC6183MB	3 and 3.5mm	Black Oxide Copper	E,F,H	7 x 7, 7 x 19	1/8"	14mm	19mm	£0.84	£0.76	£0.72
NIC6184PB	4mm	Black Oxide Copper	E,F	7 x 7, 7 x 19	5/32"	16mm	22mm	£1.10	£0.99	£0.94
NIC6186XB	5mm	Black Oxide Copper	F	7 x 7, 7 x 19	3/16"	24mm	30mm	£2.26	£2.04	£1.94
NIC6188F2B	6mm	Black Oxide Copper	J	7 x 7, 7 x 19	7/32"	22mm	27mm	£2.48	£2.23	£2.12

NICOPRESS® FERRULES & STOPS

NICOPRESS® STOPS AND STOP TOOL

Nicopress® Stops

The stops are unplated copper and are suitable for stainless and galvanised steel wire ropes. They have many uses such as control cables, handrailing and making concealed terminations in hanging shelves. They are also very useful for providing support and accurate positioning under yacht spreaders. Some of the stops are colour coded to help with identification. *The typical strength given is based on galvanised aircraft cable.



code	suits metric wire	uses tool	Tool	construction	wire ø	sleeve length	sleeve outside ø	typical strength	price	100+	1,000+
NIC87132B	0.75mm	-	A, B	1 x 7	1/32"	6mm	3mm	54kg	£0.25	£0.22	£0.20
NIC87112B4	1 and 1.2mm	-	B* D	7 x 7	3/64"	5.5mm	4mm	108kg	£0.25	£0.20	£0.17
NIC8711C	1.5mm	HIRNIC32-VCVG	E	7 x 7, 7 x 19	1/16"	1.5mm	5mm	195kg	£0.31	£0.27	£0.25
NIC87117J	2.5mm		H	7 x 7, 7 x 19	3/32"	8mm	8mm	272kg	£0.35	£0.31	£0.29
NIC87118J	3 and 3.5mm	HIRNIC51MJ	H	7 x 7, 7 x 19	1/8"	3mm	8mm	408kg	£0.36	£0.32	£0.30
NIC87119M	4mm	HIRNIC51MJ	H	7 x 7, 7 x 19	5/32"	4mm	10.7mm	544kg	£0.55	£0.49	£0.47
NIC87120M	5mm	HIRNIC51MJ	H	7 x 7, 7 x 19	3/16"	5mm	10.7mm	725kg	£0.72	£0.64	£0.60
NIC87122M	6mm		H	7 x 7, 7 x 19	7/32"	16mm	11mm	1133kg	£0.79	£0.71	£0.65

Black Nicopress® Stops

Black oxide coated copper stops for use with blackened steel wire rope.



NEW

code	suits metric wire	Tool	construction	wire ø	sleeve length	sleeve outside ø	typical strength	price	100+	1,000+
NIC8761CB	0.75mm	E	7 x 7, 7 x 19	1/16"	5.6mm	5.2mm	195kg	£0.30	£0.27	£0.25
NIC87618JB	1.5 and 2mm	H	7 x 7, 7 x 19	1/8"	7.9mm	8.3mm	408kg	£0.41	£0.37	£0.35
NIC87619MB	3 and 3.5mm	H	7 x 7, 7 x 19	5/32"	7.9mm	11mm	544kg	£0.61	£0.55	£0.52
NIC87620MB	5mm	H	7 x 7, 7 x 19	3/16"	7.9mm	11mm	725kg	£0.61	£0.55	£0.52
NIC87622MB	6mm	H	7 x 7, 7 x 19	7/32"	16mm	11mm	1133kg	£0.95	£0.85	£0.80

Type 51-MJ Stop Tool

Suitable for stop sleeves for 2.5, 3, 3.5, 4, 5 and 6 mm wire ropes using stop types 87117J, 87118J, 87119M, 87120M and 87122M. Can also be used on Type 283M oval sleeves for 3 - 3.5 mm wires. Supplied complete with instructions and check gauge. For compressing smaller stop sleeves please see the NIC17BA and the NIC17B4B tools [page 187], and NIC32VCVG and the NIC64CGMP on the following page. Spare head available - suitable for use with both this tool, and the bench mounted handle on the next page.



Scan the QR code to watch the video

code	description	Type	check gauge?	weight	tool length	price	code	description	price	5+
NIC51MJ	Stop Tool	51-MJ	Yes	2.3kg	480mm	£305.00	NIC51MJHEAD	Spare Head	£158.00	£275.00



C Type 32-VCVG

Suitable for crimping 1.5, 2.0 and 2.5 mm wire ropes using oval sleeves type NIC281C, NIC4282VC, NIC428F2VC, NIC282G, NIC6181CB and NIC4283VG. Also fits the 1.5 mm stop sleeve type NIC8711C.

D Type 33V-CGB4

Suitable for crimping 1.0, 1.2, 1.5, 2.0 and 2.5 mm wire ropes using oval sleeve types NIC42815VB4, NIC281C, NIC4282VC, NIC428F2VC, NIC282G, NIC6181CB and NIC4283VG.



G Type 510

Bench Mount. If you are workshop-based, it is easier to crimp with bench-mounted tools as you can hold the assembly in one hand while making the compression with the other hand. This bench mount will take the heads type 63VXPM, 64CGMP, 51MJ and all the type 51 tools. The picture shows the bench mount with a head fitted.



E Type 64-CGMP

Suitable for crimping 1.5, 2.0, 2.5, 3.0, 3.5 and 4.0 mm wire ropes using oval sleeve types NIC281C, NIC4282VC, NIC282G, NIC4283VG, NIC283M, NIC4284VM, NIC4285VP, NIC6181CB, NIC6183MB, NIC6184PB and NIC284P. Also suitable for 1.5 mm stops type NIC8711C. Can also be supplied with a powerful cable cutter giving very clean results on wire rope up to 5 mm Ø. Type 63V-XPM Suitable for crimping 3.0, 3.5, 4.0

F Type 63V-XPM

Suitable for crimping 3.0, 3.5, 4.0 and 5 mm wire ropes using oval sleeve types NIC283M, NIC4284VM, NIC284P, NIC4285VP, NIC286X, NIC6183MB, NIC84PB, NIC6186XB and NIC4286VX. Also available with a wire cutter. Supplied complete with instructions and check gauge.

Type 63 and Type 64 Fitted with a Cutter

This is a useful optional extra to enable the tool to also be used as a powerful wire-rope cutter.



J Type 51F2850 for 6mm Wire Ropes

This single groove hand tool is for use with NIC4287VF2, NIC6188F2B, or NIC288F2 ferrules on 6 mm stainless steel or galvanised wire ropes with a 7 x 7 or 7 x 19 construction.

	code	description	Type	no. of grooves	check gauge?	weight	tool length	wire Ø	suits ferrule	suits stop	price	price
C	NIC32VCVG	Medium Tool Type 32	32-VCVG	2 [C,G]	Yes	1.1kg	292mm	1.5 and 2mm	NIC4282VC, NIC428F2VC, NIC281C	NIC8711C [1.5 mm only]	£245.00	£220.00
								2.5mm	NIC4283VG, NIC282G			
D	NIC33VCGB4	Medium Tool Type 33	33V-CGB4	3 [B-4,C,G]	Yes	1.1kg	292mm	1 and 1.2mm	NIC42815VB4	NIC8711C [1.5 mm only]	£275.00	£248.00
								1.5mm and 2mm	NIC4282VC, NIC281C			
								2.5mm	NIC4283VG, NIC282G			
E	NIC64CGMP	Large Tool Type 64	64-CGMP	4 [C,G,M,P]	Yes	2.7kg		1.5 and 2mm	NIC4282VC, NIC281C		£355.00	£319.50
								2.5mm	NIC4283VG, NIC282G			
								3 and 3.5mm	NIC283M, NIC4284VM			
								4mm	NIC4285VP, NIC284P			
	NIC64CGMPCT	Type 64 With Cutter	64-CGMPCT	4 [C,G,M,P]	Yes	3.2kg	508mm	as above	as above		£427.89	£385.10
	NIC64HEAD	Type 64 Head Only	64-HEAD	4 [C,G,M,P]	Yes			as above	as above		£199.95	£179.95
F	NIC63VXPM	Large Tool Type 63	63V-XPM	3 [X,P,M]	Yes	2.7kg	508mm	3 and 3.5mm	NIC283M, NIC4284VM		£357.00	£322.00
								4mm	NIC284P, NIC4285VP			
								5mm	NIC286X, NIC4286VX			
G	NIC510	Bench Handle Type 510	510	n/a	No	2.7kg	533mm	n/a	n/a		£289.00	£260.00
H	NIC51F2850	Hand Tool for Type 51	51-F2850	1 [F2]	Yes	2.38kg	463mm	NIC4287VF2, NIC288F2			£316.00	£284.40

Check Gauges

Go/No-go check gauges are supplied with all Nicopress® toggle action tools. We stock spare ones in case you lose one. Of course you could always make up a lanyard for your gauge with your Nicopress® tool!



code	description	price
NIC2930	For Types 51 [not 51MJ], 63, 64, and 3 tools	£33.40
NIC2931	For Type 51MJ only	£26.75

NICOPRESS® TOOLS / OTHER FERRULES & CRIMPERS

NICOPRESS® BATTERY OPERATED TOOL

Battery Powered Compression Tool

This model features an increased range for Nicopress® ferrules up to $\frac{3}{8}$ " or 10 mm. The tool is ideal for work in confined spaces where traditional tools cannot be opened. The slim body shape is now fitted with an LED light for dark areas and it can be operated single-handed. Nicopress® are currently adding a cable cutter and embossing dies to the product range. The tool weighs just 3.7 kg [with battery] and its length is 560 mm. Flints brings these tools in to order so please allow 14 days for delivery. Ask for our Rigging Manager for more information.

code	description	price
NIC5606	Tool with charger, carry case and two batteries	£2,945.00
NIC5606DIE6	Dies [up to 10 mm]	£171.82
NIC5606BAT	Spare battery	£335.88
NIC5606CH	Replacement charger	£347.22



OTHER FERRULES & CRIMPERS

FERRULES

The following ferrules comply with EN 13411-3. We no longer stock the ferrules to the old British Standard BS 5281. The most important factor when using ferrules to terminate a wire rope is to ensure the ferrule correctly matches the wire rope. Care must be taken because wire ropes with a steel core use a larger ferrule than those with a fibre core. The dies on the crimping machine should be perfectly aligned. A good compression will produce a thin fin on either side of the ferrule which should be easy to remove normally with one stroke of a file. The tail of the wire must be visible at the end of the ferrule, either flush or slightly protruding. The ferrules finished diameter should be measured to ensure it complies with the regulations. Take care not to allow the ferrule to touch the thimble, there should be a little room for movement.

Copper Ferrules to EN 13411-3

Suitable for stainless steel wire ropes. The stainless ropes in our catalogue are wire core so choose from the wire core column. The code used on dies refers to the fibre rope size. [eg. a Code 3.5 die would be used on a 3 mm steel core wire rope]. BS ferrules to order only.

code	fibre core Ø	wire core Ø	pressed Ø	die code	price	100+
WIR114EN	1mm	N/A	3mm	1	£0.10	£0.09
WIR115EN	1.5mm	1mm	3.8mm	1.5	£0.15	£0.12
WIR116EN	2mm	1.5mm	4mm	2	£0.16	£0.14
WIR119EN	2.5mm	2mm	5mm	2.5	£0.20	£0.17
WIR117EN	3mm	2.5mm	6mm	3	£0.21	£0.18
WIR120EN	3.5mm	3mm	7mm	3.5	£0.35	£0.32
WIR118EN	4mm	3.5mm	8mm	4	£0.39	£0.35
WIR124EN	4.5mm	4mm	9mm	4.5	£0.65	£0.58
WIR125EN	5mm	4.5mm	10mm	5	£0.73	£0.66
WIR126EN	6mm	5mm	12mm	6	£1.05	£0.94
WIR127EN	6.5mm	6mm	13mm	6.5	£1.42	£1.28



Aluminium Ferrules to EN 13411-3

For use with galvanised wire ropes. Take care to choose the correct ferrule for Fibre Core, Wire Rope or Steel-Core Wire Rope. The code used on dies refers to the fibre rope size. [eg. A Code 3.5 die would be used on a 3 mm steel-core wire rope]. BS ferrules to order only.

code	pressed length	pressed Ø	fibre core Ø	steel core Ø	die code	price	100+
WIR102EN	12mm	5mm	2.5mm	2mm	2.5	£0.08	£0.07
WIR101EN	14mm	6mm	3mm	2.5mm	3	£0.09	£0.08
WIR104EN	16mm	7mm	3.5mm	3mm	3.5	£0.11	£0.09
WIR103EN	18mm	8mm	4mm	3.5mm	4	£0.13	£0.11
WIR106EN	20mm	9mm	4.5mm	4mm	4.5	£0.20	£0.17
WIR105EN	23mm	10mm	5mm	4.5mm	5	£0.23	£0.20
WIR107EN	27mm	12mm	6mm	5mm	6	£0.27	£0.23
WIR108EN	29mm	13mm	6.5mm	6mm	6.5	£0.36	£0.29
WIR109EN	36mm	16mm	8mm	7mm	8	£0.48	£0.43
WIR110EN	40mm	18mm	9mm	8mm	9	£0.79	£0.63



HAND CRIMPERS

Hydraulic Crimper D- D31

Hand-held, single-handed operation, weighs only 1.5 kg, rotating die head, complete with carry case. Develops 35 kN force. Presses up to code 2.5 ferrules in a single bite and up to Code 5 ferrules in multibites. It is crucial that the die is correctly matched to the ferrule. Suitable for EN 13411-3 ferrules only. o Supplied in a plastic carry case. Dies need to be ordered separately.

NB: The Die Number etched on the side of the dies refers to fibre core rope. Example: To correctly crimp a 3 mm diameter wire rope with a steel core [7 x 19 construction] you will need a Code 3.5 Die and you should use WIR104EN ferrules for galvanised wire or WIR120EN ferrules for stainless wire rope. Please phone our Rigging Manager regarding bench mounted hydraulic presses capable of terminating larger wire diameters.



code	fibre core Ø	wire core Ø	die code	price
TOL1923				£741.60
TOL1924	1mm	1mm	1	£206.26
TOL1925	2mm	1.5mm	2	£206.26
TOL1926	2.5mm	2mm	2.5	£206.26
TOL1927	3mm	2.5mm	3	£206.26
TOL1928	3.5mm	3mm	3.5	£206.26
TOL1939	4mm	3.5mm	4	£206.26
TOL1940	4.5mm	4mm	4.5	£206.26
TOL1929	5mm	4.5mm	5	£206.26
TOL1950	6mm	5mm	6	£206.26

Hand Crimpers

For steel wire ropes. Make up your own wire rope assemblies either with a hard [thimble] eye or a soft eye, this simple compression tool facilitates the use of ferrules to give your wire rope a professional finish. NB: that sizes used for ferrules relate to Standard A size. The figures in brackets relate to EN 13411-3 ferrules [see previous page]. EN 13411-3 ferrules are slightly longer but have a thinner wall than the old British Standard ferrules. We do not recommend this tool for terminating lifting wires as it is difficult to achieve a compressed ferrule with the exact recommended final dimensions to achieve maximum loading. These tools are also available to hire (see page 405).



code	Type	tool length	handle length	price
TOL1920	TSC1	30"	24"	£167.23
TOL1921	TSC2	30"	24"	£167.23
TOL1922	TSC3	36"	30"	£210.13

THIMBLES

Thimbles are used to provide protection against crushing and abrasion for either wire rope or fibre ropes. It is important that the correct size thimble is used to ensure the correct curvature. The scope of EN 13411-1:2002 only covers thimbles for wire ropes of 8 mm to 60 mm. It states that the internal width of the thimble should be 2.5 to 3.5 x the diameter of the rope (d). The internal height of the thimble should be 1.5 to 2 x the internal width. The width of the supporting groove should be 1.1 x d and its depth should be 0.55 x d. Thimbles must be capable of being opened up to 1.5 x d. A small gap is permissible. While producing the EN standard, no doubt at great expense, no one was capable of deciding whether the ends of thimbles should be pointed or truncated so, not surprisingly, some are and some aren't. If you are thinking of buying the EN standard, don't bother, it will cost you about £80.00 for 12 pages, 10 of which are gobbledegook, one page is entirely blank, and the only page of any use is summarised above.

Galvanised Wire Rope Thimbles [DIN 6899]

Type BF. Used for making hard [thimble] eyes in galvanised wire rope. Best quality German manufacture.



code	internal length	width	wire Ø internal	price	100+
WIR122A	19mm	12mm	3mm	£0.34	£0.30
WIR122B	21mm	13mm	4mm	£0.38	£0.34
WIR123	23mm	14mm	5mm	£0.49	£0.43
WIR125	25mm	16mm	6mm	£0.58	£0.50
WIR127	32mm	20mm	8mm	£0.89	£0.80

Stainless Steel Thimbles [AISI 316 Grade]

Used for making thimble eyes in fibre ropes or stainless steel wire rope. Only suitable for 7 x 7 and 7 x 19 flexible construction wire rope.



code	internal length	internal width	rope Ø	price
BW110002	17mm	9mm	2mm	£0.33
BW110003	18mm	10mm	3mm	£0.37
BW110004	20mm	11mm	4mm	£0.57
BW110005	21mm	13mm	5mm	£0.61
BW110006	27mm	15mm	6mm	£0.89
BW110008	38mm	22mm	8mm	£1.88
BW110010	48mm	27mm	10mm	£3.46
BW110012	53mm	29mm	12mm	£4.02
BW110014	57mm	32mm	14mm	£5.69
BW110016	67mm	40mm	16mm	£6.82
BW110020	80mm	50mm	20mm	£18.95
BW110022	90mm	56mm	22mm	£24.50

Hot Dip Galvanised Fibre Rope Thimbles [BS 464]

For use with traditional cordage. For stainless steel fibre rope thimbles see above.



code	internal length	internal width	rope Ø min	rope Ø max	price
WIR130	33mm	22mm	8mm	8mm	£0.60
WIR131	38mm	25mm	10mm	10mm	£0.85
WIR132	44mm	32mm	12mm	13mm	£1.29
WIR134	59mm	41mm	16mm	16mm	£2.05
WIR135	73mm	51mm	19mm	20mm	£3.86
WIR136	82mm	57mm	22mm	22mm	£5.24
WIR137	108mm	70mm	24mm	26mm	£7.96

THIMBLES / WIRE ROPE GRIPS

Nylon Fibre Rope Thimbles

A lighter and quieter option for use with braided and three strand fibre ropes.



code	internal length	internal width	rope ø	price
WIRED804	20mm	11mm	4mm	£0.86
WIRED806	27mm	15mm	6mm	£1.20
WIRED808	38mm	22mm	8mm	£1.32
WIRED810	48mm	27mm	10mm	£1.35
WIRED812	53mm	29mm	12mm	£1.52
WIRED814	57mm	32mm	14mm	£1.64
WIRED816	67mm	40mm	16mm	£1.96

Barton High Load Eyes

Manufactured from marinegrade aluminium and finished in Barton's unique hard "Spectro" grey anodising. When used in conjunction with a Dyneema loop they make powerful Barber Haulers or brailing devices with minimal weight. They can also be used as purchase blocks for tensioning.



code	weight	external ø	rope ø	bore ø	price
BAR60452	24g	38mm	10mm	16mm	£13.27

Black Thimbles

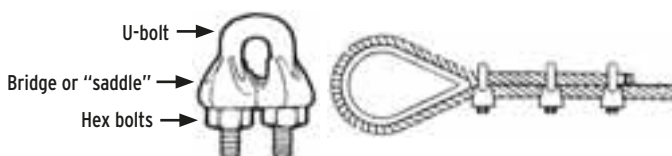
Use for making thimble eyes in black fibre ropes or our popular blackened steel wire rope. Manufactured to DIN 6899



code	internal length	internal width	rope ø	price	100+
WIR903B	19mm	12mm	3mm	£0.27	£0.24
WIR904B	20mm	13mm	4mm	£0.29	£0.26
WIR905B	22mm	13mm	5mm	£0.33	£0.30
WIR906B	26mm	16mm	6mm	£0.39	£0.39
WIR908B	32mm	19mm	8mm	£0.45	£0.41

WIRE ROPE GRIPS

"Dogs" provide a simple and effective means of making a loop or a thimble eye in wire rope. They consist of a U-bolt, bridge [also known as the "saddle"] and two hex nuts. The U-bolt should be fitted over the nonload bearing [short] tail of the loop [also known as the "dead" end hence "dead horse"]; the bridge over the load bearing longer part. Remembered by the mnemonic: "Never saddle a dead horse". The hex nuts should be tightened equally, using a nutspinner or a torque wrench as advised. The grips will settle after a while so they should be retightened to ensure the correct torque is maintained. Any PVC covering to wire rope must be stripped before applying the dogs. For heavier loads and when lifting always use grips to EN 13411-5 [DIN 1142] or Crosby Grips. Wire Rope Grips are also occasionally known as "Bulldog Clips".



Rope Size	Number of Rope Grips	Rope Fall Length
3 - 5mm	3	150mm
6mm	3	180mm
8mm	4	280mm
10mm	4	320mm

WIRE ROPE GRIPS – DOGS

Commercial Galvanised Wire Rope Grips [DIN 741]

Provide a simple, effective and economical means of making a loop or a thimble eye in wire rope. Consists of U-bolt, bridge and two hex nuts. The hex nuts should be tightened equally, using a nutspinner. For heavier loads or for lifting purposes use grips to EN 13411-5 [DIN 1142] or Crosby Grips.



code	grip size	nut size	wire rope ø	price	100+
WIR161	1/8"	7mm	3 -4mm	£0.24	£0.18
WIR163	3/16"	8mm	5mm	£0.28	£0.18
WIR165	1/4"	8mm	6mm	£0.33	£0.21
WIR167	5/16"	10mm	8mm	£0.35	£0.30
WIR169	3/8"	14mm	10mm	£0.39	£0.32

Galvanised Wire Rope Grips EN 13411-5 [DIN 1142]

These grips are of slightly heavier construction and the hex nuts are flanged. The scope of DIN 1142 only starts at 5 mm so if you are using wire-rope grips for lifting purposes with smaller wires it would be worth considering using the Crosby Grips which are listed on the next page. For torque wrenches see alongside.



code	nut size	wire rope ø	torque	price	100+
WIR163D	8mm	5mm	2Nm	£0.30	£0.24
WIR165D	10mm	6.5mm	3.5Nm	£0.32	£0.29
WIR167D	10mm	8mm	6Nm	£0.51	£0.46
WIR169D	13mm	10mm	9Nm	£0.58	£0.52

Stainless Steel Wire Rope Grips

These highly polished grips are designed for use with stainless steel wire rope. The 2 mm size is one of our best-selling grips. Made from 316 marinegrade stainless steel.



code	nut size	wire rope ø	price
WIR160	5.5mm	2mm	£1.14
WIR1601	7mm	3mm	£1.33
WIR1602	7mm	4mm	£1.76
WIR1603	8mm	5mm	£1.26
WIR1604	8mm	6mm	£1.52
WIR1605	10mm	8mm	£1.90

Forged Crosby Wire Rope Grips [G450]

The Federal Specification FF-C-450 Type 1 Class 1 covers wire rope grips which are 6 mm and over. This specification exceeds ISO DIN 1142. Crosby grips 6 mm and upwards comply with the specification. The smaller grips would comply if the specification had a wider scope. Each forged base has a product identification code. The grips are individually bagged with full instructions and they are fitted with a red U-bolt for instant visual recognition. For torque wrenches see below.



code	nut size	wire rope ø	no of grips	turnback	price
CRO4501	3/8"	3 - 4mm	3	83mm	£4.08
CRO4502	7/16"	5mm	3	95mm	£4.32
CRO4503	9/16"	6mm	3	120mm	£5.88
CRO4505	3/4"	10mm	3	165mm	£7.21

NUTSPINNERS AND TORQUE WRENCHES

Nutspinners

By far the fastest way to hand fasten small nuts. Useful for all sorts of fiddly applications and frequently purchased for tightening the fiddly nuts on wire rope grips. Top quality German manufacture. Picture shows the Flexi version - WER028150.

* Insufficient clearance between nuts to finally tighten down.



code	commercial type	din 1142	crosby	size	price
TOL1600	2 mm SS*mm	n/a	n/a	5.5mm	£10.78
TOL1597	3-4 mm and 3 mm SSmm	n/a	n/a	7mm	£10.77
WER028150	3-4 mm and 3 mm SSmm	n/a	n/a	7mm Flexi Shaft	£15.63
TOL1598	5-6 mm	5mm	n/a	8mm	£11.28
TOL1599	8 mm	6mm	3-4 mm*	10mm	£17.51

Torque Wrenches

To obtain efficiency ratings of 80% of the breaking load of the wire rope, dogged terminations have to be properly tightened and re-tightened after proof loading. Use the Norbar Torque Wrench for DIN 1142 dogs from 5 - 10 mm [length: 230mm]. The Roebuck wrench covers the torques for the larger dogs that we stock. For sockets and socket adapters see page 344.



code	Type	drive	torque min	torque max	price
TOL13830	Norbar TTi 20 1/4"	1/4"	4Nm	20Nm	£99.85
TOL15015	Roebuck Professional	1/2"	20Nm	100Nm	£155.80

GRIPPLES

Gripples - Lockable

Innovative lockable system for securing wire rope - quickly!

The Lockable Gripple makes catenary* and bracing wire rope installation easier and faster. Working on the same principle as the original standard Gripple, but with the additional feature of locking screws for extra security under outdoor conditions.

- ✓ Simple push fit assembly
- ✓ Automatic locking wedges
- ✓ Easy tensioning
- ✓ Secure locking screws
- ✓ The Lockable Gripple can be used with galvanised steel core and stainless steel core wire rope
- ✓ Ideal for overhead catenary wires* and promenade lighting*, aerial and marquee bracing, shade cloth bracing, tree bracing
- ✓ Exhibition Hall displays

Each bag is supplied with a simple "L" shape setting key

NB: Safety factor on the Gripple Lockable is 4:1. Locking screws should always be used. Never tension with locking screws in place. Do not reuse, for single use only. Always ensure 200 mm tail is left protruding from the Gripple prior to tensioning. When installing around structure, the distance between the Gripple and the structure should equal or exceed the width of the structure. Load ratings are based on a vertical suspension. When hanging at angles the load ratings are reduced. Do not use at an angle exceeding 60° as the load rating is reduced by 50%. Do not use for lifting, such as crane or pulley applications.

*If being used for catenary purposes, a full understanding of the forces imposed by applying weight to wires stretched between two horizontal points is needed. Very high loads can be imposed by adding weight to long wires stretched between two points. The loads can be greatly reduced by allowing the wire to sag by 10° or more from the horizontal. If in doubt seek the advice of a structural engineer. Use a 5.5 mm nutspinner to lock off the Gripples from 2-5 mm and an 8 mm nutspinner to lock the 6 mm version.



code	Constr.	qty per bag	wire rope ø	vertical WLL	per bag	16+
WIR182L	7 x 7	10	2mm	70kg	£96.44	£74.42
WIR183L	7 x 7, 7 x 19	10	3mm	150kg	£96.44	£74.42
WIR184L	7 x 19	5	4mm	300kg	£50.30	£40.41
WIR185L	7 x 19	5	5mm	400kg	£50.30	£40.41
WIR186L	7 x 19	4	6mm	500kg	£67.34	£50.51



code	description	suits gripple	price
WIRKEYFLAG	Gripple key size A	2 and 3mm	£1.87
WIRKEYHF45LK	Gripple key size B	4, 5 and 6mm	£3.13

ZIP CLIPS



Zip Clip RIZE

Quickly secures your wire ropes, even down to 1 mm wire! Produce your own made to measure wire suspension pieces. Extremely quick and easy installation, simply pass one end of the wire through the Zip Clip RIZE in the direction of the arrow shown, then through your fixing point. Then pass back at least 150 mm of the wire through the Zip Clip RIZE. Push the pins in the opposite direction to the arrows to secure. The 4 mm is able to connect to a fixing point and the suspension with just one Zip Clip RIZE, thanks to its double grip feature.

These clips are not suitable for use with dynamic loads, but we think they are particularly well suited for:

- ✓ Display work
- ✓ Temporary fixings to ease height placement thanks to easy adjustment
- ✓ Where the exact requirements / fixing point cannot be established in advance of arrival on-site
- ✓ Secondary lightweight supports

SPECIFICATION: The SWL has been calculated with a Safety Factor of 5:1.



Only the 4mm can achieve this!

code	size	SWL 5:1	price	10+
WIRZIPKL050	1mm	15kg	£2.05	£1.83
WIRZIPKL100	2mm	50kg	£2.33	£2.09
WIRZIPKL150	3mm	120kg	£3.38	£3.03
WIRZIPKL200	4mm	300kg	£6.98	£6.25

Zip Clip Wire

Zip Clips must be used with Zip Clip steel wire to meet its guarantee. 1 mm and 2 mm wires come in a very handy dispenser box. See from page 185 for our full range of wire rope.



code	Construction	length	size	MBL	price
WIRZIPR200G	7 x 7	200mm	1mm	78kg	£48.28
WIRZIPR100S	7 x 7	100mm	2mm	290kg	£29.61
WIRZIPR100Y	7 x 7	100mm	3mm	645kg	£47.36
WIRZIPR100P	7 x 19	100mm	4mm	2804kg	£69.99

Zip Clip STRUT-LOCK

Similar to the Reutlinger concept but much smaller. Strut-Lock is a safe, lockable solution for installing single and multi-tiered static loads that are supported vertically. When installed as part of a wire suspension system, the steel device delivers an impressive safety factor of 5:1, with weight loading of 45 kg per wire. Can be used for wrapping around existing steelwork. Ideal for long and varied suspension lengths and for secondary light supports. For use with 2 mm wire listed to the left. Quick to install and easy to adjust to desired height. Once the STRUT-LOCK is located in place with square washer and channel nut on the M8 thread, tighten into position using 15 mm spanner. Unscrew locking collar (not fully). Depress plunger, insert wire rope through the top of the device and tighten locking collar to lock. The STRUT-LOCK is versatile and is not just for use with unistrut as pictured.



depress plunger



insert wire rope



tighten collar to lock

code	SWL 5:1	price	10+
WIRZIPSLM8	45kg	£5.34	£4.68

Reutlinger® Cable Grippers for Event Rigging

These grippers have been developed in cooperation with the industry's top experts to provide a simple, neat and modern solution to rigging static loads. Simply press down the sprung plunger and slide the fitting along your wire to the desired place. Then just release the and the fitting will grip the wire rope. When you are satisfied with the position simply hand-tighten the safety cap to prevent accidental release. You can rest assured that the load will be secure as Reutlingers® not only have TÜV GS certification but also have the test seal of the DGV, Germany's umbrella organisation of accident insurers, which is only conferred after extensive examination of all load applications but also of most anticipated mis-applications. In fact, Reutlinger® 50, 66, and 80 ranges are the only load-bearing devices certified by DGV for use in touring productions.

- ✓ Quick, infinitely adjustable and re-usable!
- ✓ Just press down the sprung plunger and it will slide along the wire. Release it and it will grip
- ✓ One-handed operation!
- ✓ No tools needed!
- ✓ Non-reflecting black finish ensures the fittings are barely visible on stage
- ✓ Protected against accidental release by hand tightening the knurled safety cap
- ✓ Available with central or side cable exit and a choice of four different coupling parts
- ✓ Certified to TÜV-GS and BGV C1

Reutlingers® will not only speed up your installation times but they will provide a far smarter result. Use them for:

- ✓ Event rigging
- ✓ Truss installation
- ✓ Foyer and exhibition rigging
- ✓ Museum and shop display
- ✓ Art installations
- ✓ Sound system rigging
- ✓ Temporary and touring exhibitions
- ✗ Reutlingers have thousands of uses but they are not suitable for dynamic loads. You should not use them for flying moving scenery and they should not be used outdoors.



SAF50SVE
Eye



SAF50SVEZW
Eye with side exit



SAF50SVFZW
Fork with side exit



SAF50SVT
External thread



SAF50SVCZW
Coupler with side exit



Technical Data Summary for Type 50

Full technical drawings for each product including Types 66 and 80 can be found on our website www.flints.co.uk

Internal Thread Type: SAF50SVTZW3, Thread depth: 10 mm x M12

External Thread Type: SAF50SVT3, Thread length: 17 mm x M12

Eye Type: SAF50SVE3 and ZW3, Internal eye diameter: 30 mm [27 mm clear]

Fork Type: SAF50SVF3 and ZW3, Clevis pin diameter: 13.9 mm. Internal fork width: 14 mm, C/L pin to underside of fork 28 mm

Coupler Type: SAF50SVCZW3, Coupler type: Doughty T58081 48-51 mm Ø

	code	Type	price	10+
Type 50 for 4 and 5 mm wires	SAF50SVE3	Eye	£26.37	£23.55
	SAF50SVEZW3	Eye with side exit	£35.15	£33.39
	SAF50SVT3	M12 external thread	£19.95	£17.96
	SAF50SVTZW3	M12 internal thread and side exit	£28.15	£25.35
	SAF50SVF3	Fork	£34.36	£30.93
	SAF50SVFZW3	Fork with side exit	£36.44	£34.62
Type 66 for 6 mm and 1/4" wires	SAF50SVCZW3	Scaff Coupler with side exit	£58.59	£55.00
	SAF66SVE3	Eye	£41.10	£39.04
	SAF66SVEZW3	Eye with side exit	£54.47	£51.75
	SAF66SVCZW3	Scaff Coupler with side exit	£76.68	£72.85
		M16 external thread	available to order	
		M12 internal thread and side exit	available to order	
Type 80 for 6 and 8 mm wires		Fork with side exit	available to order	
	SAF80SVE3	Eye	£67.69	£60.93
	SAF80SVEZW3	Eye with side exit	£58.65	£52.79
	SAF80SVT3	M20 external thread	£48.55	£44.79
	SAF80SVFZW3	Fork with side exit	£64.25	£59.28

WLL GUIDE						
Suitable only for use with flexible steel wire rope and in accordance with Reutlinger's instructions.						
Wire	DGV WLL in kg 10:1 safety factor			TUV WLL in kg 5:1 safety factor		
	Type 50	Type 66	Type 80	Type 50	Type 66	Type 80
4mm	60kg	-	-	120kg	-	-
5mm	90kg	-	-	180kg	-	-
6mm	-	135kg	135kg	-	270kg	270kg
1/4"	-	150kg	-	-	300kg	-
8mm	-	-	-	-	-	480kg

OTHER TERMINATIONS

WIRE ROPE STOPPERS

Wire Rope Stoppers

These 316 marine-grade stainless steel stoppers have many uses. Often they are used for supporting display shelves hung on wires. They can also be used either side of track runners or bobbins on wire reeved curtain tracks such as Halls T60 to convert them into master runners. On yachts they can be placed under spreaders for support or forward of the cockpit stanchion to prevent the entire guardrail from sagging when the aft lashings or pelican hooks are released. They are now available in two types both of which can be inserted directly onto the wire without un-reeving. Type A has a slot to take the wire and a single grub screw which tightens onto the wire. Type B splits into two halves and is clamped onto the wire by means of two hex drive bolts. See page 210 for Stainless Steel Crossover Clamps.



Type A

Type B

code	Type	diameter	price	25+
WIR190	A	2mm	£6.95	£6.25
WIR191	A	3 - 4mm	£7.78	£7.00
WIR192	A	5 - 6mm	£8.51	£7.66
WIR190B	B	2mm	£3.12	£2.81
WIR191B	B	3mm	£3.43	£3.09
WIR192B	B	4mm	£3.65	£3.29
WIR193B	A	5mm	£3.55	£3.20

WEDGE SOCKETS

Wedge Sockets

These open wedge sockets are made according to DIN 15315. They are the preferred terminations in many industrial sectors and are popular in the theatre industry. Prices include wedge, socket and clevis pin. On US Federal approved wedge sockets the advice is to never put a wire-rope grip securing the dead end to the standing loaded wire rope, however on these DIN 15 315 wedge sockets the advice is to put one cable grip across the dead and live parts with the saddle on the loaded wire. When using wedge sockets in conjunction with Flints Hanging Clamps [page 373] you will need to use the Hanging Clamp Toggle as the jaw width of the wedge sockets will not fit over the clamp itself [not suitable for the size 3 wedge socket]. Also available in black. [For Split Pins see page 273] They are not rated for use with wires with a nominal strength greater than 1,770 N/mm².
✓ Suitable for dynamic lifting applications



code	Type	width between forks	nominal size	wire Ø min	wire Ø max	price
WIR5WS	Standard	12mm	5mm	4mm	5mm	£15.98
WIR65WS	Standard	10mm	6.5mm	5mm	6.5mm	£17.83
WIR8WS	Standard	14mm	8mm	6mm	8mm	£20.01
WIR5WSB	Black	12mm	5mm	4mm	5mm	£14.91
WIR8WSB	Black	14mm	8mm	6mm	8mm	£23.07

KLEIN HAVEN GRIPS

Klein Haven Grips

These popular grips allow a temporary hauling line or tackle to be attached to a steel cable. Often used for rigging catenary wires or for making adjustments to flown pieces without de-rigging. Not to be used for permanent anchorage. Weights: 450 g and 1.14 kg.



Without Latch

With Latch

code	Type	wire Ø min	wire Ø max	price
WIR160410	Without Latch	1.52mm	6.35mm	£85.60
WIR160420L	With Latch	3.18mm	12.7mm	£139.00

ECONOMICAL WIRE ROPE CUTTER

Economy Wire Rope Cutter

An economical yet very serviceable tool. With hard carbon steel blades, that are tempered and polished. The handles have a safety lock, are vinyl-coated for comfort, and spring-loaded for cutting strength.



code	length	cuts up to Ø wire rope	cuts up to Ø spring steel	price
TOL1904B	190mm	5mm	1.5mm	£17.97

RATCHET WIRE ROPE CUTTER

Ratchet Wire Rope Cutter

These cutters are becoming more and more popular, especially with engineers who appreciate the ability to trim off wire ropes in hard to access places. For instance, it is easy to cut through the excess of a large diameter wire rope from a counterweight cradle by squeezing just one hand between obstructing beams. It would be impossible to achieve this with large traditional wire-rope cutters. Using the ratchet principle these cutters can cut through fine stranded flexible wire ropes up to 13 mm diameter. Very little effort is required and as the tool is operated single-handed it is a great safety feature when working at height.

✓ One-handed operation

✓ Will cut wires where other cutters cannot reach

NB: every cutter is tested once after manufacture. This will show as a slight mark on the blade. Designed for cutting wire rope only.

SPECIFICATION: Capacity: fine stranded flexible wire ropes up to 13 mm Ø, steel core wire ropes up to 10 mm Ø

NEW



code	cuts up to Ø wire rope max	price
TOLKS13	13mm	£198.00

BENCH-MOUNTED CUTTERS

Bench-Mounted Wire Cutters

Who would have known how difficult it is to source a simple bench-mounted wire cutter? We have decided to import these units. Bench-mounted cutters enable you to use your free hand to precisely position your wire to make more accurate and cleaner cuts. The cutting action is easier too, reducing fatigue. These are based on the Felco cutters and the spare handle is provided so you can always re-assemble the cutter for site work.

✓ More accurate, easier action, less fatigue

✓ They don't go walkies!



code	description	cuts up to Ø wire rope	price
TOLC9B	Bench-mounted Felco C9	9mm	£218.90
TOLC12B	Bench-mounted Felco C12	12mm	£288.45

FELCO WIRE ROPE CUTTERS

Felco Cutters

Generally regarded as the world leaders for hand cutters for steel wire rope. These top quality Swiss-made tools give a nice clean cut every time. Strong, simple and well-designed these cutters will last you a lifetime. Replacement blades are also available for all the tools except the small C7 cutters. NB: The maximum wire sizes listed on each tool should be taken as the absolute maximum. For comfortable working Flints would recommend the C7 up to 4 mm, C9 up to 6 mm, C12 up to 8 mm and the C16 up to 12 mm. If you are using these cutters in a salt water environment we would recommend coating the blades with Anhydrous Lanolin for details. The C7 is our biggest selling wire-rope cutter. It has the advantage of being singlehanded so it is ideal for working with the smaller diameter wires.



code	description	length	cuts up to Ø wire rope max	recomm.	price
TOL1900	C7	190mm	7mm	4mm	£58.92
TOL1901	C9	320mm	9mm	6mm	£135.35
TOL1902	C12	500mm	12mm	8mm	£214.62
TOL1903	C16	630mm	16mm	12mm	£299.00
Spare Blades [pair]		description	price		
TOL1902B		C12	£131.58		
TOL1901B		C9	£78.94		
TOL1903B		C16	£193.49		

WIRE TWISTING PLIERS

Wire Twisting Pliers

Also called mousing pliers, these simple-to-use wire twisting pliers are mainly used to wire lock fixings in safety-critical applications. Useful for any wire mousing operation, but particularly for shackles. Manufactured from chrome vanadium steel hardened, tempered with painted handles, chrome plated spiral screw assembly and polished faces.



code	length	twists up to Ø	cuts up to Ø	price
TOL38896	250mm	1.5mm	2mm	£38.25

Wire Rope Cutters vs Bolt Cutters

Please don't confuse wire cutters with bolt cutters! Never exceed the manufacturer's wire rope size. You will ruin them trying to cut high tensile bolts! For bolt cutters, see page 330.

Shackles

These simple devices are used to connect wires, chains or ropes to each other or to anchoring points. They consist of a U-shaped body and a pin, and are generally made of steel or stainless steel.

Choosing the correct shackle depends on the application:

- To join a single wire, chain or rope to an anchor point choose a **D-Shackle**.
- To join more than one wire, chain or rope to an anchor point choose a **Bow Shackle**.

Bow and D-Shackles can be supplied with Screw Pins, Clevis Pins or Bolts:

Screw Pins are by far the most common type used on stage. They are chosen when the shackle needs to be frequently fastened and unfastened. If the shackle is being left for long periods the pin should be secured with seizing wire to prevent it from accidentally unscrewing.

Clevis Pin shackles are generally used to connect directly to pulleys. We do not sell this type of shackle separately. The pins are secured with a split pin.

Bolt Type shackles are useful when frequent inspection is difficult. The nut is secured with a split pin. This type of shackle has the advantage that the pin can rotate slightly under load without it unscrewing making it a very secure shackle. They are not so convenient for frequent usage and are generally used for permanent installations. They are often called Anchor Shackles.

What is a lifting shackle?

For lifting operations you should choose a "Lifting Shackle". These are shown in our catalogue with the "Hook Symbol". A lifting shackle will be a steel shackle which either complies with the European Standard BS EN 13889 or the US Federal Specification RR-C-271b [which would meet the EN standard]. It was the influence of the oil industry that made US Fed Spec. shackles so popular. Hopefully, an international standard will be agreed in the future. All lifting shackles must be marked with their WLL, manufacturer's name or symbol, traceability code and grade mark. They should also have a CE mark. They should be supplied with either a Report of Thorough Examination or a EC Declaration of Conformity and instructions for use. You will notice that pins on Lifting Shackles are all slightly fatter than the material that makes the body of the shackle. This is because the modern WLL allows the load to be applied to the centre of the pin. Older legislation required the load to be evenly spread along the pin. Care should be taken to ensure these old shackles are no longer in service.

Please be aware that lifting shackles are marked with a Working Load Limit in kg [or tonnes] but Karabiners used for personal protection equipment are marked with the Breaking Load in kN.

Shackle Care

It is very important that the shackle is able to move freely in the axial direction of the load. Lifting shackles should be inspected before use and at six-monthly intervals [or in accordance to an examination scheme]. If the shackle is to be exposed to corrosion a little Anhydrous Lanolin applied to the pin will ensure a longer service life.

Why buy your shackles from Flints?

Flints registers every lifting shackle sold on our database. In the highly unlikely situation that there was a product recall we would be able to immediately contact you and advise you to withdraw the batch. Flints is a full member of the Lifting Equipment Engineers Association and we are British Standards ISO:9001 approved. Our staff frequently attend training courses, professional development symposiums and visit specialist trade shows to ensure we are able to offer up-to-date and reliable advice.



GREEN PIN® SHACKLES

Green Pin® D Shackles

The body and pins are made from high-tensile Grade 6 steel which is quenched and tempered. The finish is hotdipped galvanised with a green painted bolt. Marked with WLL, batch mark and CE mark. In accordance with EN 13889 and meets performance requirements of US Fed. Spec. RR-C-271 Type IVB Class 2, Grade A.



code	WLL	jaw width A	height L1	pin ø D	price
WIR2101GP	0.5t	12mm	26mm	8mm	£4.19
WIR2102GP	0.75t	13mm	32mm	10mm	£4.60
WIR2104GP	1t	17mm	38mm	11mm	£6.02
WIR2105GP	1.5t	19mm	44mm	13mm	£6.31

Green Pin® Bow Shackles

The bows and pins are made from high-tensile Grade 6 steel which is quenched and tempered. The finish is hotdipped galvanised with a painted green bolt. Marked with WLL, batch mark and CE mark. In accordance with EN 13889 and meets performance requirements of US Federal Specification RR-C-271 Type IVA Class 2, Grade A.



✓ Choose Bow shackles when the lift is from more than one rope

code	WLL	jaw width A	height L1	pin ø D	ø R	price
WIR2092GP	0.5t	12mm	33mm	8mm	20mm	£4.29
WIR2093GP	0.75t	13.5mm	37mm	10mm	22mm	£4.53
WIR2094GP	1t	17mm	42mm	11mm	26mm	£5.15
WIR2095GP	1.5t	20mm	49mm	13mm	29mm	£6.36
WIR2096GP	2t	22mm	60mm	16mm	32mm	£9.45
WIR2097GP	3.25t	27mm	74mm	19mm	43mm	£10.94

Black Green Pin® Theatre Shackles

Made from high-tensile Grade 6 steel, quenched and tempered, and hot dipped-galvanised to the same standard as the Green Pin® Bow Shackles above. Painted matt black. Marked with WLL, batch, and CE Mark. Cert: EN13889, RR-C-271 Type IVA Class 2, Grade A.



code	WLL	jaw width A	height L1	pin ø D	ø R	price
WIR2091B	0.33t	9.5mm	25mm	6mm	16mm	£4.43
WIR2092B	0.5t	12mm	33mm	8mm	20mm	£4.81
WIR2093B	0.75t	13.5mm	37mm	10mm	22mm	£5.37
WIR2094B	1t	17mm	42mm	11mm	26mm	£5.80
WIR2095B	1.5t	20mm	49mm	13mm	29mm	£7.08
WIR2096B	2t	22mm	60mm	16mm	32mm	£10.68
WIR2097B	3.25t	27mm	74mm	19mm	43mm	£12.92
WIR2099B	4.75t	31mm	87mm	22mm	51mm	£21.10

CROSBY® SHACKLES

A range of forged shackles that have been quenched and tempered to give strength and resilience, to meet the requirements of USA Federal Specifications with the Working Load Limit permanently shown on every shackle. Look out for the Red Pin, the mark of Crosby quality.

Crosby® are the major US manufacturer of rigging products. Contracts around the world state "Crosby® or equal" as their name is synonymous with quality. From their extensive range of products we have listed a selection of items that we think will be most useful for theatre applications. We are able to supply the entire range of Crosby® Fittings. Please call us if there is anything you require. NB: WLL stands for Working Load Limit and is defined as the maximum mass or force which the product is authorised to support in general service. Crosby® Shackle safety design factor is 6 to 1.



Screw Pin Shackles Bow G209 and D-Shackle G210

These meet the requirements of the Federal Specification RR-C-271D Type IVB, Grade A, Class 2. Even if you are lifting relatively light items it is often worth choosing the very popular 1t size which will be endlessly useful for future use.

✓ Choose Bow shackles when the lift is from more than one rope



Bow G209	WLL	jaw width	nominal size	pin Ø	price
CR02091	0.33t	9.65mm	4-5mm	6.35mm	£6.25
CR02092	0.5t	11.9mm	6mm	7.87mm	£6.31
CR02093	0.75t	13.5mm	8mm	9.65mm	£6.23
CR02094	1t	16.8mm	10mm	11.2mm	£7.19
CR02095	1.5t	19.1mm	11-12mm	12.7mm	£8.03
CR02096	2t	20.6mm	13mm	16mm	£10.20
CR02097	3.25t	26.9mm	16mm	19.1mm	£13.30
CR02099	4.75t	31.8mm	19mm	22.4mm	£18.20
D-Shackle G210	WLL	jaw width	nominal size	pin Ø	price
CR02102	0.5t	11.9mm	6mm	7.87mm	£7.81
CR02103	0.75t	13.5mm	8mm	9.65mm	£7.81
CR02104	1t	16.8mm	10mm	11.2mm	£7.36
CR02105	1.5t	19.1mm	11mm	12.7mm	£8.30
CR02106	2t	20.6mm	13mm	16mm	£10.70
CR02107	3.25t	26.9mm	16mm	19.1mm	£13.90
CR02109	4.75t	31.8mm	19mm	22.4mm	£18.60

Tonnes, tons, short tons, tuns?

Note: a metric tonne is a lower case t NOT an upper case T which is an imperial ton. They are both pronounced "tun". They are different weights!!! A metric tonne [t] is 1,000 kg but an imperial ton [T] is 2,240 lb or 1,016 kg if it is a "long ton" but if the item comes from America it could be a short ton which is just 907 kg. A tun is a unit of liquid capacity equivalent to 252 gallons – but let's not go there.

No wonder we have safety factors!

BLACK CROSBY® BOW SHACKLES

Screw Pin Shackle Bow in Black Finish S-209T

These shackles are produced by Crosby® to their exacting standards to provide the theatre industry with a fully certified shackle which is unobtrusive in the grid. They are proving to be very popular.

✓ Choose these shackles for rigs within sightlines



code	WLL	jaw width	nominal size	pin Ø	price
CR02094B	1t	16.8mm	10mm	11.2mm	£7.79
CR02095B	1.5t	19.1mm	11-12mm	12.7mm	£9.38
CR02096B	2t	20.6mm	13mm	16mm	£13.20
CR02097B	3.25t	26.9mm	16mm	19.1mm	£18.40
CR02099B	4.75t	31.8mm	19mm	22.4mm	£24.90

BOLT TYPE ANCHOR SHACKLES

Bolt Type Shackles Bow G2130 and D-Shackle G2150 [Anchor Shackles]

These shackles have the most secure pin design. Meets the requirements of the U.S. Federal Specification RR-C-271D Type IVB, Grade A, Class 3.

✓ Choose these Bolt Shackles when the shackle pin is difficult to frequently inspect, typically permanently rigged applications



code	WLL	jaw width	nominal size	pin Ø	price
CR021303	0.75t	13.5mm	8mm	9.65mm	£12.90
CR021304	1t	16.8mm	10mm	11.2mm	£13.20
CR021305	1.5t	19.1mm	11-12mm	12.7mm	£13.80
CR021306	2t	20.6mm	13mm	16mm	£13.90
CR021307	3.25t	26.9mm	16mm	19.1mm	£20.50
CR021309	4.75t	31.8mm	19mm	22.4mm	£28.00

CROSBY® SLINGSAVER SHACKLES

Crosby® Sling Saver Shackles [S-281]

Designed to eliminate the bunching of slings caused by conventional shackles allowing 100% of the slings rated WLL to be achieved.

✓ Choose these Sling Saver Shackles whenever you need to anchor Synthetic Round Slings to Pad Eyes etc. [page 210]



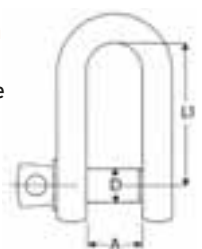
SAFETY	Min Breaking Load		Safety Factor	WLL
	14,750kg		5 to 1	2,950kg
code	WLL	width	jaw width A	price
CROS281	2950kg	50mm	26.9mm	£24.20

SHACKLES

GALVANISED COMMERCIAL SHACKLES

Galvanised Commercial Pattern D-Shackles

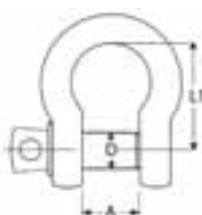
An economical general purpose D-shackle. Not to be used for lifting purposes.



code	pin Ø D	A width	L1 height	price
WIR201	5mm	10mm	22mm	£0.42
WIR202	6mm	14mm	29mm	£0.54
WIR203	8mm	17mm	34mm	£0.79
WIR204	10mm	18mm	44mm	£1.04
WIR205	12mm	27mm	57mm	£1.30

Galvanised Commercial Pattern Bow Shackles

An economical general purpose bow shackle. Bow shackles are used when more than one rope needs to be attached. Not to be used for lifting purposes.



code	pin Ø D	A width	L1 height	price
WIR210	5mm	10mm	22mm	£0.53
WIR211	6mm	13mm	29mm	£0.64
WIR212	8mm	17mm	34mm	£0.70
WIR213	10mm	18mm	44mm	£0.92
WIR214	12mm	25mm	57mm	£1.48

STAINLESS STEEL SHACKLES

All the Stainless Steel Shackles listed in this section are 316 grade. AISI 316 is the grade suitable for marine use due to its high corrosion resistance. For more information on stainless steel see page 186.

Strip Stainless Shackle

Useful in conjunction with our small stainless wire ropes. This design of shackle is used in the heads of some Barton Pulleys.



code	pin Ø D	width	length	price
BAR310	5mm	10mm	29mm	£4.43

Twisted Stainless Shackles

Occasionally a normal shackle will not sit neatly and a twisted shackle is required. More often than not this applies when they are used with webbing around the pin as with Jack Stays which need to lie flat on the ground.



code	pin Ø D	A width	L1 height	min BL KN	min BL KGF	price
WIR1625SS	5mm	10mm	30mm	9.1kN	927kg	£0.92
WIR1626SS	6mm	12mm	36mm	13.2kN	1345kg	£1.13
WIR1628SS	8mm	16mm	48mm	23.7kN	2416kg	£1.95

Key Pin Shackles with Bar

A useful shackle because it can be incorporated into a splice and will not get lost. The pin is also captive and requires no tool to fasten. Widely used on yacht halyards but also used by sound engineers for rigging microphones in tricky positions.



code	pin Ø D	A width	L1 height	min BL KN	min BL KGF	price
WIR1676SS	6mm	15mm	48mm	13.2kN	1346kg	£2.02
WIR1678SS	8mm	20mm	64mm	23.7kN	2416kg	£2.65

Stainless Steel Bow Shackles

Marine-grade shackles suited for use with our stainless wire rope. The smart appearance of these shackles also lends them to handrailing and display applications.

✓ Choose Bow shackles when the lift is from more than one rope



code	pin Ø D	A width	L1 height	R internal Ø	min BL KN	price
WIR1214SS	4mm	8mm	16mm	14mm	5.8kN	£0.80
WIR1215SS	5mm	10mm	20mm	17mm	9.1kN	£1.18
WIR1216SS	6mm	12mm	24mm	21mm	13.2kN	£1.16
WIR1218SS	8mm	16mm	32mm	28mm	23.7kN	£1.63
WIR12110SS	10mm	20mm	40mm	35mm	37.8kN	£2.28
WIR12112SS	12mm	24mm	48mm	42mm	54.9kN	£3.20

Stainless Steel D-Shackles

Marine grade shackles suited for use with our stainless wire rope. The smart appearance of these shackles also lends them to handrailing and display applications.



code	pin Ø D	A width	L1 height	min BL KN	min BL KGF	price
WIR1224SS	4mm	8mm	16mm	5.8kN	591kg	£0.87
WIR1225SS	5mm	10mm	21mm	9.1kN	927kg	£0.86
WIR1226SS	6mm	12mm	25mm	13.2kN	1346kg	£1.04
WIR1228SS	8mm	16mm	36mm	23.7kN	2416kg	£1.80
WIR12210SS	10mm	20mm	41mm	37.8kN	3853kg	£1.95
WIR12212SS	12mm	24mm	48mm	54.9kN	5596kg	£2.95

Stainless Hex Head D-Shackles

Marine-grade shackles ideal for use when an ordinary screw pin would be liable to catch on fittings. Typically used joining chain to rope but their clean appearance lends them to handrailing and display applications.



code	pin Ø D	A width	L1 height	min BL KN	min BL KGF	price
WIR1268SS	8mm	16mm	32mm	23.7kN	2416kg	£1.89
WIR12610SS	10mm	20mm	40mm	37.3kN	3853kg	£2.60

Stainless Long D-Shackles

Marinegrade shackles in a long pattern suited to reaching anchoring holes which are set a long distance from the edge, typically plastic sheets etc., where a good edge distance helps maintain strength.



code	pin Ø D	A width	L1 height	min BL KN	min BL KGF	price
WIR1614SS	4mm	8mm	32mm	5.8kN	591kg	£0.85
WIR1615SS	5mm	10mm	40mm	9.1kN	927kg	£0.95
WIR1616SS	6mm	12mm	48mm	13.2kN	1346kg	£1.60
WIR1618SS	8mm	16mm	64mm	23.7kN	2416kg	£1.85

CARBINE HOOKS AND SNAP HOOKS

Carbine [Snap] Hooks

These simple connecting hooks with a spring-loaded gate enable a very quick connection of light loads. Commercial snap hooks could fail if subjected to heavy loads. They can find a use as a sacrificial weak point in certain rope assemblies. The 50 mm snap hook is one of our biggest selling connectors. Not to be used for lifting purposes. Some sizes now available in Black, and one with a screwgate for extra security.



Central carbine shows eyelet

code	Type	Finish	length A	gate opening B	hook C ø	price	100+
WIR3113SS		Stainless	30mm	5mm	3mm	£0.82	£0.74
WIR3114SS		Stainless	40mm	6mm	4mm	£0.84	£0.76
WIR228B		Black	40mm	6mm	4mm	£1.11	
WIR220		BZP	50mm	6.5mm	5mm	£0.91	£0.60
WIR229B		Black	50mm	7mm	5mm	£1.19	
WIR221		BZP	60mm	7.5mm	6mm	£1.01	£0.69
WIR261	+Eyelet	BZP	60mm	7.5mm	6mm	£1.34	£0.87
WIR227B	+Eyelet	Black	60mm	7.5mm	6mm	£1.75	
WIR222		BZP	70mm	9mm	7mm	£1.13	£0.74
WIR223		BZP	80mm	10.5mm	8mm	£1.33	£0.88
WIR230B		Black	80mm	10mm	8mm	£2.40	
WIR224		BZP	100mm	12.5mm	10mm	£2.07	£1.05
WIR225		BZP	120mm	15.5mm	11mm	£2.60	£1.33
WIR226B	+Eyelet	Black	60mm	7.5mm	6mm	£1.25	

Stainless Steel Screwgate Carbine Hooks

Suitable for heavier loads. The screwgate prevents accidental opening. Also available with a captive eye, ideal for use with lanyards etc. as it will prevent the carabiner hook getting lost. Not for lifting purposes.



code	Type	length A	gate opening B	hook C ø	min BL KN	min BL KGF	price	10+
WIR3136SS		60mm	8mm	6mm	5.1kN	520kg	£1.95	£1.75
WIR3146SS	+Eyelet	60mm	8mm	6mm	5.1kN	520kg	£1.95	£1.75
WIR3138SS		80mm	9mm	8mm	7.8kN	795kg	£3.50	£3.15
WIR3148SS	+Eyelet	80mm	9mm	8mm	7.8kN	795kg	£2.45	£2.20
WIR31310SS		100mm	12mm	10mm	11.8kN	1203kg	£4.85	£4.36
WIR31410SS	+Eyelet	100mm	12mm	10mm	11.8kN	1203kg	£3.68	£3.31

SPECIALISED SPRING HOOKS

Spring Hooks to Crue

The end can be squeezed closed to form a permanent connection onto a chain link. Black powder coated. A zinc coated version is also available, please ask for a quote.

code	length	price
WIR482	60mm	£2.45
WIR483	75mm	£2.11

Swivel Spring Hooks

A useful clip for attaching small accessories. Black powder coated. Zinc-coated are also available, please ask for a quote.

code	length	price
WIR400	50mm	£2.35
WIR401	75mm	£2.75

S-Biners

Black, made of stainless steel, these double-ended karabiners are for securing small tools, keys, loop pins etc. to a belt or screw eye. They are surprisingly useful. However, although they are made from stainless steel, they are not suitable for marine use. Available in two sizes.

code	length	size	min BL	price
SAFSB30301	67mm	3	11kg	£3.53
SAFSB40301	89mm	4	33kg	£3.96

Giant S-Biner

Why have we introduced yet another black S-Biner? Because it's massive that's why. Made from fibre glass, with stainless steel gate opening, it's lightweight and very strong. Hook it over scaffold tube or handrails and use it to tidy up ropes, hang up ladders or extension cords.

code	length	size	min BL	price
SAFSBP100301BG	265mm	10	45kg	£9.99

Lockable S-Biners

Black, made of stainless steel, these S-biners have two hinged gates that can be locked independently. The patent-pending SlideLock™ design is simple but clever: there is a hook and the gate pops over that; there is a notch in the body of the S-biner and when the plastic slider fits into the notch the gate is good and locked. Not suitable for marine use. Available in two sizes.

code	length	size	min BL	price
SAFLSB201R3	49.9mm	2	4.5kg	£3.52
SAFLSB401R3	90mm	4	34kg	£4.40

Wichard Snap Hooks

A smooth patented design made from special marine-grade stainless steel that will deform before breaking. Designed by Wichard. These are the genuine article stamped with the logo. This design of snap is very quick to use and can be useful if an attachment needs to be made by performers during a show. Available in three lengths.

code	length	hole ø	body ø	min BL	price
WIR2480	50mm	6mm	8mm	300kg	£11.09
WIR2481	75mm	10mm	12mm	700kg	£17.98

CARBINE HOOKS & OTHER SNAPS

Petzl MINO

Lightweight Non PPE accessory carabiner from Petzl for attaching lightweight items to your harness or belt. Comes with 2 useful accessories to adapt this clip, the CAPTIV accessory slides on creating a captive eye and the LOCK accessory prevents the gate from accidentally opening. Working Load Limit: 400 kg [yes you read that right 400kg WLL on an accessory carabiner, we're sure this must be a mistake!], 13 mm gate opening, Weight: 11g. Good luck hanging 400 kg off your belt and if you can think of any good fish jokes please let MINn0w.

code	gate opening	price
PETM007BA00	13mm	£9.00



NEW

SOMETHING FOR THE DOG

Swivel Harness Snap Hook

Your dog will recognise these.



code	description	price
WIR3364349	one labrador	£2.65

S-HOOKS

S Hooks Stainless Steel

A good quality hook, suitable for hanging items from rods and wires or as a link for light loads on small chains. 316-grade stainless steel. Suitable for marine use.



code	wire gauge	internal height	price	100+
WIR4353SS	3mm	24mm	£0.23	£0.21
WIR4354SS	4mm	32mm	£0.38	£0.34
WIR4355SS	5mm	40mm	£0.55	£0.50
WIR4356SS	6mm	48mm	£0.72	£0.65
WIR4358SS	8mm	64mm	£1.52	£1.37

Wichard Quick Release Snap Shackle "HR"

This patented design allows the shackle to open immediately by means of a control line.



SAFETY	Breaking Load	Safety Factor	WLL
	2,000kg	1.56 to 1	1,280kg

code	overall length	Ø inside release	inside swivel bail	price
WIRWD2774	90mm	16mm	23mm	£72.03

Wichard Fixed Eye Snap Shackle "HR"

The plunger is set captive into the hook and cannot become dislodged. We can supply other sizes and types of snap shackles.



SAFETY	Breaking Load	Safety Factor	WLL
	2,500kg	2.08 to 1	960kg

code	overall length	Ø inside release	inside lower eye	price
WIRWD2471	50mm	16mm	10mm	£33.62

KEY RING ATTACHMENTS

Detachable Key Ring

Useful if you're a stage manager. A simple press and the keys you need are separated from the rest. We found that at 18.5 kg the split ring pulled apart but the connection still held, so pretty strong, but that's uncertified. Split ring Ø: 25 mm



code	description	price	100+
WIRKR30N	40 mm [ex. split rings]	£1.15	£0.99

Bit Pits

We really love these - allows the user to keep on hand a little hex bit, and not lose it in a pocket. Held in place with a magnet, and attached to a key ring.



code	description	price	5+
TOLBPBHS	holds one hex bit	£6.99	£6.00

QUICK LINKS [MAILLON RAPIDES]

Maillon Rapides EN 12275:1998 and EN362

If you are wondering why Quick Links are often called by their French name, "Maillon Rapides", it's because they are made by a very safety-conscious family firm in France. We have expanded our range of these reliable connectors which are suitable for PPE. Each connector is supplied with user instructions [in English!]. They are all galvanised mild steel except the PPEG0107 which is stainless steel. Breaking load is 5 x WLL [major axis].



Standard Pattern Black



code	Type	gate opening	WLL	bar Ø	price
WIR250B	PPENZ08N	11mm	700kg	8mm	£5.74
WIR251B	PPENZ10N	12mm	1100kg	10mm	£7.38

Long Opening Pattern



code	Type	gate opening	WLL	bar Ø	price
WIR246SS	PPEG0107	16mm	800kg	7mm	£11.84
WIR246	PPEG0207	16mm	500kg	7mm	£3.87
WIR245	PPEG0210	20.5mm	1000kg	10mm	£5.95

CARBINE HOOKS & OTHER SNAPS / KARABINERS

Delta Pattern

The black 8 mm Delta is the preferred connector to link the Petzl Absorbica to the Jane Lanyard [page 355].



code	bar Ø	Type	gate opening	WLL	price
WIR252B	8mm	PPEDZ08N	10mm	550kg	£6.88
WIR247	10mm	PPEDZ10	12mm	900kg	£6.16
WIR249	12mm	PPEGZ12	15mm	1100kg	£9.22

COMMERCIAL QUICK LINKS

Commercial Quick Links

These are untested quick links which are not suitable for lifting purposes but make a useful lightweight and secure fastening for small chains and accessories.



code	bar Ø	Finish	price
WIR230	3.5mm	BZP	£0.62
WIR231	4mm	BZP	£0.63
WIR232	5mm	BZP	£0.79
WIR232B	5mm	Black	£0.88
WIR233	6mm	BZP	£0.91
WIR233B	6mm	Black	£0.92
WIR234B	7mm	Black	£1.16

KARABINERS

Standards

Connectors used for work positioning and fall arrest should comply with EN 362 which states a minimum strength of 15 kN along the major axis with the gate closed and unlocked and 20 kN for the gate closed and locked. The mountaineering standard EN 12275 exceeds the requirements of EN 362.

Take care

Please ensure that lines connecting karabiners do not get twisted or tangled, especially around the latch, as it is possible, in very rare circumstances, for a twisted line to disengage the safety button and twist the gate to the open position. It is good practice to ensure all lines to any fittings [shackle, rigging screw, lanyard connectors etc.] pull in the required direction along the major axis before applying loads.

STEEL GENERAL PURPOSE KARABINERS TO EN362

Foin D Karabiners 25 kN

Economical steel connectors which comply to EN 362 for use in work positioning or fall arrest. Available with Twistlock or the very popular screwgate. Overall height: 105 mm, overall width: 57 mm.



Screwgate

Twistlock

code	Type	gate opening	min BL major axis	price
SAF4247	Twistlock	16mm	25kN	£21.41
SAF4249	Screwgate	18mm	25kN	£8.18

Offset D Screwgate Karabiner 45 kN [C812]

These steel karabiners are suitable for fall arrest and work positioning purposes. CE marked to EN 362:2004/B 45 kN.



code	gate opening	min BL major axis	price
SAFC812	18mm	45kN	£17.55

Captive Eye Karabiners 50 kN [KH301SG]

This steel karabiner is fitted with a screwgate. Suitable for fall arrest and work positioning. CE Marked to EN 362:2004/T 50 kN.

✓ Ideal for use as a robust end connector for a lanyard



code	gate opening	min BL major axis	price
SAFKH301SG	18mm	50kN	£19.77

ALLOY GENERAL PURPOSE KARABINERS

OK Screw Lock Black M33ASLN

Ideal for use with pulleys and hauling systems. The symmetrical oval aluminium H profile frame facilitates pulley use; ideal for clipping anchors [easy to flip over]. The compact shape is easy to use with one hand. Keylock System ensures a snag-free body/gate interface. CE EN 362, EAC.

✓ Great with Fixe and Pro Traxion Pulleys and Ascension Rope Clamps

✓ Red band visual warning indicates if karabiner is not fully locked



Unlocked

code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETM33ASLN	22mm	25kN	7kN	8kN	£14.00

Am'D Ball Lock Karabiner

The D-ball system offers a quicker one-handed operation. The D-ball system is easy to use indoors but not so good with cold gloved hands where a screwgate or twistlock would be preferred. Now fitted with an alloy barrel. CE marked EN 362 and EN 12275 type B/K.



code	gate opening	min BL major axis	price
PETM34ABL	22mm	28kN	£20.00

Am'D Screw Lock Karabiner

A multipurpose karabiner for connecting devices to a harness or to use at the end of a lanyard. Asymmetric shape for exceptional weight to strength ratio. When loaded the karabiner is oriented in the optimal working axis. CE marked EN 362 and EN 12275 type B.



code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETM34ASL	22mm	28kN	8kN	7kN	£16.00

Any unit that has arrested a falling weight should be replaced immediately.

KARABINERS

HMS KARABINERS

HMS Strike Triple Karabiner

A matt black triple-locking karabiner ideal for use in belay systems. Height: 100 mm, width: 70 mm. Complies to EN 362:2004, EN 12275.



PPE

CE

code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
SAF88262	21mm	22kN	7kN	8kN	£17.50

What does HMS mean?

Well, it means Halbmaster-sicherung! This is the German name for a Munter Hitch [Italian Hitch] which is similar to half a clove hitch and is used for controlled descent in belay systems. The wider shape of the karabiner is useful in this application to prevent bunching.

SPECIAL PURPOSE KARABINERS

Petzl OMNI

This is the recommended connector for use with any harness having two attachment points that must be joined with a connector. Designed to be loaded on all three axes

Available in screw lock or TRIACT-LOCK.

These conform to CE EN 362 and CE EN 12275 type B, UKCA



code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETM037AA00	15mm	20kN	7kN	15kN	£24.00
PETM037BA00	15mm	20kN	7kN	15kN	£28.00

Revolver A277 Locksafe Karabiner

Suitable for fall protection, rescue, rope access and arborist purposes. The built-in sheave makes this a great choice for deviating lines. Fitted with a very neat revolving sheave for emergency use. Approved to EN 362:2004 B.



PPE

CE

code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
WIRA277	15mm	24kN	8kN	8kN	£33.85

Twister

Twister is a compact lightweight connector that has an integrated swivel feature, making it very useful when there is a need to manage twisting cables or when it is necessary to rotate the load relative to the anchor. The Twister can be used as a connector on fall arresters as it can remain captive on a system yet allows rotation by the user and is quick, easy and secure when connected. Fitted with "Super Safe" Lift, turn, open gate. CE0120 EN 362 04T.



PPE

CE

code	gate opening	min BL major axis	price
SAFKH255SS	15mm	27kN	£31.58

Kong Ovalone DNA Twistlock Karabiner

Special "helical" karabiner that allows the 90 rotation of the connected article. Smooth circular profile. CE EN 362/B.



CE

code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
TOL414110	19mm	40kN	12kN	15kN	£24.55

PULLEY KARABINERS

These Petzl ROLLCLIP pulley-karabiners would be a valuable addition to any rigger's kit. The two types are differentiated not only by their shape, but also by the gate opening direction. The Petzl ROLLCLIP A opens "downwards" with the opening next to the roller, and the Petzl ROLLCLIP Z opens "upwards" with the opening away from the roller. The H cross-section of both improves the strength-to-weight ratio, and protects markings from abrasion. Highly compact and lightweight solution compare to carrying a pulley and a shackle/connector.

ROLLCLIP A

These Petzl ROLLCLIP pulley-karabiners would be a valuable addition to any rigger's kit. The two types are differentiated not only by their shape, but also by the gate opening direction. The Petzl ROLLCLIP A opens "downwards" with the opening next to the roller, and the Petzl ROLLCLIP Z opens "upwards" with the opening away from the roller. The H cross-section of both improves the strength-to-weight ratio, and protects markings from abrasion. Highly compact and lightweight solution compare to carrying a pulley and a shackle/connector. Designed to be used as a pulley that is pre-attached to an anchor point prior to installing the rope. It can be locked into position on the anchor using a CAPTIV positioning bar, which also favours the loading along the major axis and limits the risk of flipping. The sheave is mounted on sealed ball bearings for excellent efficiency. The gate opens "downwards" - next to the roller for easy installation of the rope. TRIACTlock for peace of mind.

SPECIFICATION: Material: Aluminium, Rope Ø: 7-13 mm, Sheave Ø: 18 mm, Max. Working Load: 2 x 2 = 4 kN, Efficiency: 85%. Certification: CE EN 362, EN 12275, EN 12278, EAC.



PPE

CE

code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETP74TL	22mm	25kN	7kN	8kN	£42.00

ROLLCLIP Z

Designed to be used as a fast movable connection to an anchor point or device. It would be ideal for using as a positioning aid on a horizontal line by inverting it and placing the roller on the line; the item can then hang below and easily dragged into horizontally into position. Screwlock with red security band for easy visual check if unlocked.

SPECIFICATION: Material: Aluminium, Rope Ø: 7-13 mm, Sheave Ø: 18 mm, Max. Working Load: 2 x 2 = 4 kN, Efficiency: 85%. Certification: CE EN 362, EN 12278, EAC.



PPE

CE

code	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETP75SL	21mm	25kN	7kN	8kN	£38.00

ULTRALIGHT KARABINERS

Spirit Curved Gate

This ultralight smooth action sports karabiner has a bent non-locking gate to make clipping a breeze. For rapid attachment - not for PPE

Certification: CE EN 12275 Type B



NEW

code	Colour	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETM061AB02	Grey	24mm	23kN	8kN	7kN	£10.00
PETM061AB06	Yellow	24mm	23kN	8kN	7kN	£10.00

BRAKING KARABINER

Freino

This karabiner has an extra friction spur to help control descent. It allows the rope to be quickly redirected over the friction spur and removed with one hand. Ideal for use with the RIG, I'D, Stop and Huit [pages 360]. CE EN 362, CE EN 12275 type B, UIAA 121.

✓ For extra control during descents



PPE

CE

code	weight	gate opening	min BL major axis	min BL open gate	min BL minor axis	price
PETM42	85g	15mm	25kN	9kN	10kN	£36.00

BS EN 362

This is the standard relating to Personal Protective Equipment against falls from a height: Connectors.

SCAFFOLD KARABINERS TO EN 362

PETZL MGO OPEN 60

This brilliant connector from Petzl features a gated connection point [like the open ring, page 210] that allows the user to switch the lanyard out to vary the length, or replace if damaged, without replacing the connector. Any unit which has arrested falling weights should be replaced immediately. CE EN 362, EAC

✓ Special connection point helps keep the karabiner loaded on the major axis

✓ Ergonomic unlocking handle



PPE

CE

code	Material	gate opening	min BL major axis	price
PETMG0060	Aluminium	63mm	25kN	£60.00

Alloy Scaffold Hooks [captive eye]

Tested to 25 kN. 60 mm wide dual action opening for ease of operation. Ergonomically shaped unlocking handle. Available in black. Suitable for fall arrest provided it is used according to instructions. Any unit which has arrested falling weights should be replaced immediately. Conforms to CE EN 362.



PPE

CE

code	Type	gate opening	min BL major axis	price
WIR228	Standard	60mm	25kN	£46.98
SAFE3787B	Black	60mm	25kN	£39.55

Scaffold Carbine

This large, tested carbine will clip directly over 50 mm diameter tube making securing lanyards, rigging rope ladders and blocks a quick, safe operation. Also useful for securing tool bags, paint kettles and buckets to scaffold towers. A pin is provided to form a captive eye if it is needed. Suitable for fall arrest provided they are used according to instructions. Any unit which has arrested falling weights should be replaced immediately. CE marked EN 362:2004/T.



PPE

CE

code	Material	length	fits tube ø	min BL	price
WIR229	Steel	230mm	50mm	35kN	£41.31

KONG FROG FAST CONNECTORS

Kong Frogs

These are super fast connectors with a 13 mm jaw width. Just touch the Frog against cable, rope or another connector and the patented end design slams shut instantly grabbing the item and you have a secure connection able to withstand 23 kN! [26 kN for the Kong Frog Cable]. The Kong Frog eliminates fiddling with karabiner gates while trying to make an awkward connection. Use it to reach for a flying wire for brailing purposes. Use it for action onstage when a clean instant pick up is needed. Really well thought out and useful bits of rigging kit. CE Marked. Conformity: EN 362:2004/A/T, EN 12275. The Kong Frog comes in two types:

Kong Frog with a short 94 mm web stop which can be used to connect to any karabiner, shackle or brail line.

Kong Frog Cable which has no stop, but does have an 11 mm Ø hole for your own lanyard attachment.

thumbs up

cup of tea

PPE

CE



11m Ø hole for attachment

Frog with short web stop

Diagram detailing the mechanism

code	description	jaw width	min BL	price
TOLFROGN	Kong Frog [with web stop]	13mm	23kN	£19.98
TOLFROGC	Kong Frog cable	13mm	26kN	£22.69

SKY HOOKS

Sky Hook

We can't see what use these would be in the theatre but the next time the young apprentice gets asked to order some sky hooks from Flints their line manager will get a shock when the invoice arrives.



code	price
PETP06	£15.00

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."

We are 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. We have 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 [next page] 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. 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.



code	thread Ø	length BB	WLL	price
WIR2263	3/8"	6"	540kg	£13.57
WIR2264	1/2"	6"	1000kg	£20.86

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.



code	thread Ø	length BB	WLL	price
WIR2283	3/8"	6"	540kg	£16.54
WIR2285	1/2"	9"	1000kg	£28.96

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.



code	thread Ø	length BB	WLL	price
WIR2273	3/8"	6"	540kg	£15.40
WIR2274	1/2"	6"	1000kg	£23.26

CROSBY STRAINING SCREWS

authorised
Crosby
distributor

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.



code	thread Ø	length BB	WLL	price
CRO2262	5/16"	4 1/2"	360kg	£45.10
CRO2263	3/8"	6"	540kg	£54.10
CRO2264	1/2"	6"	1000kg	£55.50

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.



code	thread Ø	length BB	WLL	price
CRO2282	5/16"	4 1/2"	360kg	£54.30
CRO2283	3/8"	6"	540kg	£58.60
CRO2285	1/2"	6"	1000kg	£71.40

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.



code	thread Ø	length BB	WLL	price
CRO2272	5/16"	4 1/2"	360kg	£49.20

Lock Nuts for Crosby Rigging Screws

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



code	thread Ø	hand	price
CRO1075516	5/16"	Left	£2.19
CRO1075534	3/8"	Left	£2.86
CRO10755701	1/2"	Left	£4.36
CRO1075133	5/16"	Right	£1.67
CRO1075151	3/8"	Right	£1.92
CRO1075197	1/2"	Right	£2.13

VAN BEEST GREEN PIN TURNBUCKLES

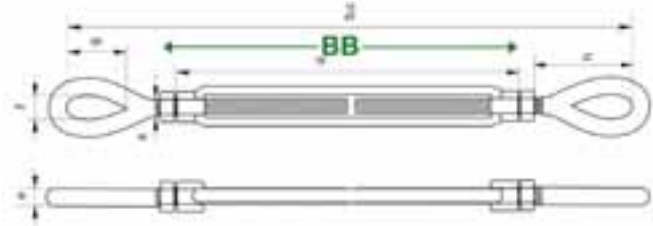


Since stocking their shackles, we've been highly impressed with the quality of Green Pin® products - especially with the clean finish and clear batch marking. Made from drop forged high tensile steel, with a hot-dipped galvanised finish for long-term durability.

Eyes are elongated to facilitate fitting. The length specified for straining screws is the maximum take up of the item shown in the illustration below. The Minimum Break Load is five times the stated WLL. All of these are supplied with the locking nuts in place. Table below details the full spec of each type/size according to the provided diagrams.

Green Pin® Turnbuckle Eye to Eye G-6311

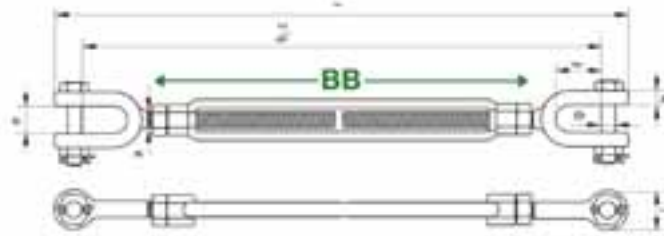
To ASTM F1145-92, formerly U.S. Federal Specification FF-T-791b Straining screws should be used for a straight or in-line pull only.



code	thread Ø	length BB	WLL	price
WIR2263GP	3/8"	6"	0.54t	£22.51
WIR2264GP	1/2"	6"	1t	£27.85

Green Pin® Turnbuckle Jaw to Jaw G-6323

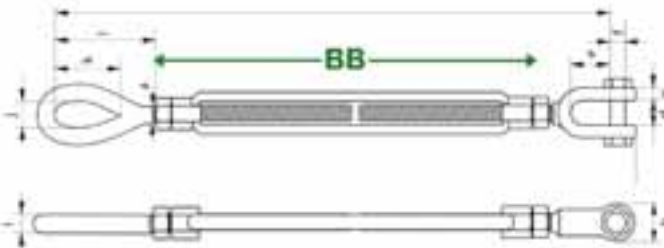
To ASTM F1145-92, formerly U.S. Federal Specification FF-T-791b Straining screws should be used for a straight or in-line pull only.



code	thread Ø	length BB	WLL	price
WIR2283GP	3/8"	6"	0.54t	£17.33
WIR2285GP	1/2"	6"	1t	£20.92

Green Pin® Turnbuckle Jaw to Eye G-6315

To ASTM F1145-92, formerly U.S. Federal Specification FF-T-791b Straining screws should be used for a straight or in-line pull only.



code	thread Ø	length BB	WLL	price
WIR2273GP	3/8"	6"	0.54t	£24.08
WIR2274GP	1/2"	6"	1t	£29.62

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 [see next page] 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.



code	size	length closed	length open	min BL KN	min BL KGF	price
WIR2514SS	M4	115mm	175mm	4.1kN	417kg	£4.75
WIR2515SS	M5	135mm	195mm	4.6kN	468kg	£4.65
WIR2516SS	M6	160mm	230mm	9.1kN	927kg	£6.95

Welded Fork Rigging Screws

These rigging screws represent fantastic value for a marine-grade 316 stainless steel product.

Flints can order larger sizes up to M20.



code	size	length closed	length open	min BL KN	min BL KGF	price
WIR2714SS	M4	110mm	170mm	3.4kN	346kg	£3.65
WIR2715SS	M5	130mm	190mm	5.6kN	570kg	£3.77
WIR2716SS	M6	150mm	220mm	7.7kN	784kg	£4.68
WIR2718SS	M8	165mm	240mm	13.9kN	1416kg	£6.00
WIR27110SS	M10	190mm	280mm	21.8kN	2222kg	£7.95
WIR27112SS	M12	245mm	360mm	32kN	3261kg	£12.06

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.



code	description	spool length	wire Ø	price
WIR080	Spool	10m	0.9mm	£11.03

RIGGING SCREWS / RINGS & SWIVELS

PELICAN HOOKS

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.



code	description	min BL KN	min BL KGF	price
WIR3548SS	Type 354 [M8 right-hand thread]	16.3kN	1661kg	£4.95

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.



code	width	height	bar Ø	fixing	price
WIR97815SS	50mm	18mm	5mm	4mm csk	£0.36
WIR97826SS	60mm	22mm	6mm	4.5mm csk	£0.46
WIR97838SS	63mm	24mm	8mm	5mm csk	£0.75

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 209]. We now also stock these pad eyes complete with ring.



No Ring	fixing Ø	length	width	height	bar Ø	price
WIR9815SS	M4 [4.5]	45mm	15mm	20mm	5mm	£0.89
WIR9816SS	M4 [4.5]	60mm	20mm	26mm	6mm	£1.25
WIR9818SS	M6 [6.2]	80mm	26mm	32mm	8mm	£1.50
WIR9819SS	M6 [6.2]	100mm	36mm	39mm	9mm	£2.50
With Ring	fixing Ø	length	width	int ring Ø	bar Ø	price
WIR9895SS	M4 [4.5]	45mm	15mm	30mm	5mm	£1.29
WIR9896SS	M4 [4.5]	60mm	20mm	35mm	6mm	£2.25
WIR9898SS	M6 [6.2]	80mm	26mm	45mm	8mm	£2.85
WIR9899SS	M6 [6.2]	100mm	36mm	50mm	9mm	£4.35

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 included can be used when folded flat. Also available in titanium.



SAFETY	MANUFACTURER STATED		
	Breaking Load	Safety Factor	WLL
	5,000kgf	2.1 to 1	2,400kgf

code	width of d-ring	fixing Ø	weight	price
WIR6605	59mm	8mm	165g	£36.95

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. We're 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 198.



code	description	length	price
WIR4103SS	To fit 3 mm wire rope	19mm	£1.38
WIR4104SS	To fit 4 mm wire rope	21mm	£1.65
WIR4105SS	To fit 5 mm wire rope	23mm	£1.80
WIR4106SS	To fit 6 mm wire rope	25mm	£1.95

RINGS & SWIVELS

RINGS

Petzl Ring Open

An aluminium manual locking attachment with massive scope as a semi-permanent connection for PPE, or for joining wires or ropes. The plastic spacer unfastens using the supplied 3 mm Allen key and leaves an 11 mm opening wide enough to take rope with sewn terminations. Tighten the pin following maker's instructions for 23 kN on all axes. Conformity: CE EN 362: 2004/M



code	opening	external Ø	internal Ø	min BL on all axes	price
PETP28	11mm	70mm	45mm	23kN	£18.00

Steel Welded Rings [self-colour]

Useful for a multitude of purposes including lightweight multi-legged suspension, heavyduty curtain rings and useful securing points when used with Grummets [page 168]. They are supplied self-colour so they can be welded directly to steel work or cut open and re-welded. For lifting purposes use Rated Shackles [page 200] or Masterlinks [page 215].



code	mat Ø	internal Ø	price
WIR465	6mm	32mm	£1.14
WIR466	5mm	38mm	£0.81
WIR462	8mm	50mm	£1.19
WIR467	9.5mm	63.5mm	£1.98

Bright Nickel-Plated Rings

A lighter weight ring ideal for curtains.



code	mat Ø	internal Ø	price	100+
WIR600	3.24mm	19mm	£0.29	£0.26
WIR602	4.06mm	25mm	£0.31	£0.28
WIR604	4.06mm	32mm	£0.35	£0.32
WIR606	4.06mm	50mm	£0.50	£0.44

Nylon 6 Rings

These rings are tough and much quieter and lighter than steel rings. The breaking strain was determined on a test rig and all the rings proceeded to elongation and necking rather than cracking. They will not break when hit with a sledgehammer in a vice.



code	mat Ø	external Ø	internal Ø	min BL	price	100+
WIRN6R43	12.6mm	68.5mm	43.3mm	1550kg	£0.50	£0.36
WIRN6R58	14.5mm	86.5mm	58.4mm	1850kg	£0.60	£0.43

Stainless Steel Welded Rings

Made from 316 marine-grade stainless steel. These rings have a very smooth profile.



code	mat Ø	external Ø	internal Ø	min BL KN	min BL KGF	price	100+
WIR436430SS	4mm	38mm	30mm	3kN	305kg	£0.45	£0.41
WIR436640SS	6mm	52mm	40mm	7kN	713kg	£0.90	£0.81
WIR436850SS	8mm	66mm	50mm	12.4kN	1264kg	£1.45	£1.39
WIR4361060SS	10mm	80mm	60mm	19.4kN	1977kg	£1.95	£1.98

Split Rings

Bright nickel-plated. For keys, curtains and attaching light-duty lanyards. Our split rings have smooth tapered ends so they do not catch the material.



code	external Ø	internal Ø	price	100+
WIR904	19mm	12mm	£0.13	£0.11
WIR905	25mm	22mm	£0.17	£0.11
WIR907	38mm	34mm	£0.32	£0.22
WIR909	50mm	46mm	£0.73	£0.56

DELTA RINGS & D-RINGS

Delta Rings and D-Rings

316 marine-grade stainless steel delta and D rings with a multitude of uses such as clew plates, multiple pulley arrangements and terminating webbing.



Delta D Ring



code	Type	mat Ø	int. width	int. height	min BL kN	min BL kg/KGF	price
WIR1773	Delta	6mm	50mm	44mm		4000kg	£4.98
WIR1781	Delta	8mm	50mm	50mm		5000kg	£10.38
WIR437315SS	D	3mm	15mm	12mm	1.8kN	183kgf	£0.27
WIR437420SS	D	4mm	20mm	17mm	3kN	305kgf	£0.37
WIR437525SS	D	5mm	25mm	22mm	4.8kN	489kgf	£0.49
WIR437630SS	D	6mm	30mm	27mm	7kN	713kgf	£0.76

SWIVELS

Petzl Swivels

Prevents ropes from twisting when the load is turning. With the exception of the Micro, they are all mounted on sealed ball bearings. Available in four types. Micro [CE, EAC certified], Small [CE certified] and Gated [CE, NFPA 1983 Technical Use and EAC certified] are for one-person. Micro and Gated open to avoid the need for extra connectors. Large is for two-person use [CE and NFPA 1983 General Use certified].



code	description	weight	min BL	price
PETP58XS0	Micro	75g	23kN	£50.00
PETP58S	Small	95g	23kN	£53.00
PETP58S0	Gated	130g	23kN	£69.00
PETP58L	Large	150g	36kN	£65.00

Stainless Steel Swivels

316 marine-grade stainless steel. Available as jaw-to-jaw or eye-to-eye types. Not certified for lifting purposes.



Eye to eye Jaw to jaw



Eye to eye swivels	length	internal width	min BL KN	min BL KGF	price
WIR4215SS	60mm	13mm	6.4kN	652kg	£1.45
WIR4216SS	65mm	15mm	9.2kN	937kg	£1.95
WIR4218SS	90mm	20mm	16.3kN	1661kg	£2.95

Jaw to jaw swivels	length	internal width	min BL KN	min BL KGF	price
WIR4235SS	60mm	11.5mm	6.4kN	652kg	£1.65
WIR4236SS	66mm	12mm	9.2kN	937kg	£2.24
WIR4238SS	94mm	16mm	16.3kN	1661kg	£3.95

EYE BOLTS & EYE NUTS

Eye Bolts - some common problems

Eye bolts are widely used for a variety of purposes including lifting operations. However, many people misunderstand the limitations of eye bolts and this can cause dangerous situations to arise. All eye bolts are held in place by the thread. Obviously, the length of the thread engagement is important but also the type of thread. Fine threads are unsuitable for lifting purposes as they provide insufficient landing area. A common error is to over-tighten eye bolts which **should only be tightened by hand**. Even tightening by hand can stress small diameter threads so for lifting purposes a minimum thread diameter of **12 mm** is recommended. The collar must be properly seated against the substrate. For this reason the tread on lifting eye bolts is relieved with a small recess at the junction of the collar to the thread to ensure a totally flat mating surface. Dynamo eye bolts were originally designed to be fixed into the tapped hole on the top of dynamos. The hole was in the centre of gravity and they were designed only to ever take a straight pull. Off axis loading by just 5° can stress the eye bolt. Collared eye bolts can take reduced loads at angles but **only in the plane of the eye**. If the eye bolts are to be used for bridles it will be unlikely that hand-tightening the eyes will result in alignment of the plane of the eyes within 5°. In this case fine shims will need to be added until the eye bolts align. To avoid this alignment problem Flints stocks the Starpoint VRS eye bolt that adjusts to the direction of the load and is an excellent solution for lifting items where the alignment may change during rigging [speaker cabinets or permanently installed multi-purpose lifting points etc.].

All lifting operations should be carried out by a competent person.

Weight Loadings

Flints uses the information supplied by the manufacturers to give you an indication of the strength of the product. It can get a bit confusing! Generally speaking the Safe Working Load [SWL] is the same as the Working Load Limit [WLL], never more. The Working Load Limit is the maximum design load of the product, you may enforce a lower SWL for certain applications. This is generally expressed in kilogrammes [kg] or tonnes [t]. Some manufacturers express the strength as the Minimum Breaking Load MBL. We use Min BL because occasionally manufacturers use a "mean" breaking load. This is sometimes expressed as kilonewtons [kN] a unit of force. This can be converted to kg but strictly speaking it is kgf - kilogram force. You will then need to apply your own safety factor.

Adjusting ratings for non-vertical loads

If it is stated that a load may be applied at an angle then the working load limit should be reduced as follows. If the direction of the pull is 45° the adjusted working load will be 30% of rated load. If the pull is 90° the adjusted working load will be 25% of the rated load. N.B. The pull must be in the same plane as the eye [+/- 5°]. N.B. For lifting purposes choose eye bolts M12 or greater.

EYE BOLTS

Drop Forged Collared Long and Short Shank Eye Bolts

Tested and certified. Unlike Dynamo eye bolts these may be used with loads applied at angles although the pull must be in the same plane as the eye. Suitable for trunnion lifting. Safe working loads will be reduced, see box. Choose M12 threads for lifting purposes. Self-colour. The above eye bolts comply to British Standards as follows: Short Shank code WIR15112 to BS 4278 Part 1 1984. [The scope of this standard starts at M12 - the M10 is machined from an M12 forging].

* Long Shank code WIR15662 did conform to BS 529 Part 1 1944 but this standard has now been withdrawn.

code	thread Ø	thread length	vertical SWL	internal eye Ø	price
WIR15110	M10	18mm	250kg	14mm	£2.18
WIR15112	M12	18mm	400kg	14mm	£2.81
WIR15662	M12	178mm	400kg	18mm	£12.60



Crosby Forged Steel Rated Eye Bolts With Nuts [Type G277]

Made from forged steel, then hot-dip galvanised. Supplied with a hot-dip galvanised heavy hex nut. UNC Thread. These bolts are supplied with fitting instructions. The ultimate load is five times the manufacturer's working load. Loads may be applied at an angle [in the plane of the eye] but in these cases the collars of the bolts must be secured flush to the load surface. The rating must be reduced as shown in the information box at the top of this column. For vertical loads the shank may protrude. Although the bolts are supplied with nuts we also stock spare nuts as replacements or as locking nuts.



code	thread Ø	thread length	vertical WLL	internal eye Ø	price
CRO2776	3/8"	114mm	700kg	19.1mm	£20.10
CRO2778	1/2"	152mm	1180kg	25.4mm	£28.90
code	thread Ø				price
CRO88317	3/8"				£3.25

Crosby Forged Steel- Rated Short Shank Eye Bolts [Type M279]

Made from quenched and tempered forged steel. Designed to be inserted into a tapped hole of at least the tapped length plus one half the diameter of the bolt. These bolts are supplied with fitting instructions. The ultimate load is five times the manufacturer's working load. Loads may be applied at an angle in the plane of the eye but ratings must be reduced as shown in the information box.



code	thread Ø	thread length	vertical WLL	internal eye Ø	price
CRO2792	M6	13mm	200kg	19.1mm	£22.90
CRO2796	M10	17mm	640kg	25.4mm	£29.60
CRO2798	M12	20.5mm	1000kg	30.2mm	£35.00

DYNAMO EYE BOLTS

Long Shank Dynamo Eye Bolts

Commercial quality drop forged eye bolts, intended to fix through a surface material with a hex nut to provide a single fixing point. The load must be a vertical pull and the bolt must be tightened down to the shoulder. Self-colour.



code	thread length	thread Ø	internal eye Ø	vertical SWL	price
WIR424	4"	3/8"	7/8"	250kg	£4.98
WIR425	4"	1/2"	1 1/8"	320kg	£6.60
WIR426	100mm	8mm	21mm	150kg	£3.93
WIR427	100mm	10mm	21mm	250kg	£3.97
WIR429	100mm	12mm	28mm	320kg	£4.99



Short Shank Dynamo Eye Bolts

These eye bolts are primarily designed to go into tapped holes. The manufacturer's SWL will only apply if the tap depth is the full threaded length plus one half the diameter. The ultimate load is four times the manufacturer's vertical SWL. Suitable for vertical loads only. Self-colour.

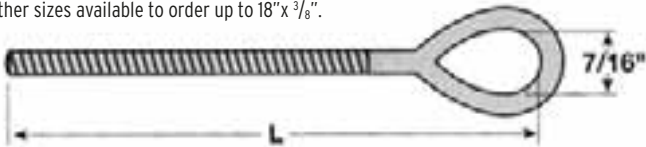


code	thread Ø	thread length	vertical SWL	internal eye	price
WIR420	3/8"	3/4" BSW	5cwt	13/16"	£5.95
WIR421	1/2"	1" BSW	10cwt	1 1/8"	£6.05
WIR419	8mm	18mm	150kg	21mm	£1.90
WIR422	10mm	18mm	250kg	21mm	£1.54
WIR423	12mm	18mm	320kg	21mm	£2.07

COMMERCIAL FOLDED AND WELDED EYE BOLTS

Folded and Welded Eye Bolts

A commercial quality straining eye bolt suitable for light duty non-lifting applications. Supplied with nut and washer. Zinc-plated. Other sizes available to order up to 18" x 3/8".



code	thread Ø	nom length +/- 5%	price
FIX3075	1/4"	6"	£1.38
FIX3073	5/16"	6"	£1.21
FIX3071	3/8"	6"	£1.38

EYE NUTS

Eye Nuts

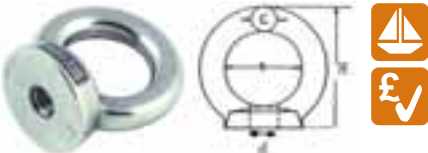
Made from C15 carbon steel to Din 582 with a safety factor of 4:1. Other sizes available to order. Self-colour.



code	thread Ø	WLL	internal D³	price
WIR17306	M6	70kg	20mm	£1.23
WIR17308	M8	140kg	20mm	£1.86
WIR17310	M10	230kg	25mm	£2.44
WIR17312	M12	340kg	30mm	£2.99

Stainless Steel Eye Nuts

Made to Din 582 from AISI 316 marine-grade stainless steel.



code	thread Ø	height H	int. eye Ø b	min BL KN	min BL KGF	price
WIR103206	M6	28mm	16mm	6.2kN	632kg	£1.15
WIR103208	M8	33mm	20mm	8.2kN	836kg	£1.20
WIR103210	M10	42mm	25mm	13.5kN	1376kg	£2.39
WIR103212	M12	51mm	30mm	20kN	2039kg	£3.45

STAINLESS STEEL EYE BOLTS

Small Stainless Steel Eye Bolts

Smart collared eye bolt from AISI 304 marine-grade stainless steel ideal for securing small handrail or display wires.



code	thread Ø	thread length	int. eye Ø	min BL KGF	price
WIR370650	M6	50mm	13mm	1300kg	£8.21
WIR370600	M6	100mm	13mm	1300kg	£8.63
WIR370850	M8	50mm	15mm	2400kg	£9.24
WIR370800	M8	100mm	15mm	2400kg	£11.03

Short Shank Stainless Steel Eye Bolts

Manufactured to Japanese Industrial Standard [JIS B 1168] from AISI 316 marine-grade stainless steel.



code	thread Ø	thread length	int. eye Ø	min BL KN	min BL KGF	price
WIR8316SS	M6	10mm	15mm	8.2kN	835kg	£1.50
WIR8318SS	M8	15mm	20mm	14.5kN	1478kg	£1.55
WIR83110SS	M10	18mm	25mm	22.6kN	2303kg	£2.41
WIR83112SS	M12	22mm	30mm	32.6kN	3323kg	£3.30

Long Shank Stainless Steel Eye Bolts

Made from AISI 316 marine-grade stainless steel. Supplied with nut and washer.



code	thread Ø	thread length	int. eye Ø	min BL KN	min BL KGF	price
WIR812660SS	M6	60mm	15mm	8.2kN	835kg	£2.05
WIR812880SS	M8	80mm	20mm	14.5kN	1478kg	£2.13
WIR81210100SS	M10	100mm	25mm	22.6kN	2303kg	£3.85
WIR81212120SS	M12	120mm	30mm	32.6kN	3323kg	£5.65

Stainless Steel Eye Bolts with Ring

Made from AISI 316 marinegrade stainless steel. Supplied with nut and washer.



code	thread Ø	thread length	int. ring Ø	min BL KN	min BL KGF	price
WIR8136100SS	M6	74mm	35mm	7kN	713kg	£2.25
WIR8138100SS	M8	60mm	45mm	12.4kN	1264kg	£2.95
WIR81310150SS	M10	90mm	50mm	19.4kN	1977kg	£3.83

EYE BOLTS & EYE NUTS

SPECIALITY EYE BOLTS

Starpoint VRS F

Often referred to as "Pink Ladies". The pull on most eye bolts has to be restricted to the plane of the eye but the Starpoint VRS adjusts through 360° to align with the direction of pull. The star-shaped design and striking fluorescent pink powder coating clearly distinguishes it from other eye bolts. Each bolt has a clear WLL indication for the most unfavourable load direction. Made from high tensile and annealed forged material 1.6541. 100% electromagnetic crack detected to EN 1677-1. With a 4:1 design factor. Refer to flints.co.uk/downloads for data sheets.

- ✓ Ideal for bridle applications as there is no need for shims
- ✓ Safest option for hanging points when the final pull direction can not be pre-determined
- ✓ Clearly visible pink marking for reassurance
- ✓ Rated to the most unfavourable load



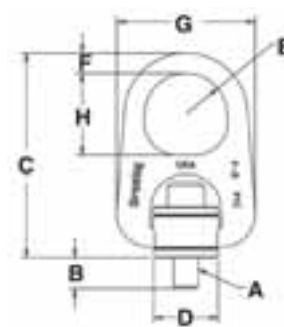
code	description	thread ø	WLL	List Price
WIR7104029	VRS-F-M10	M10	400kg	£43.75
WIR7101313	VRS-F-M12	M12	750kg	£53.99

HOIST RINGS

Crosby® HR-1000M Heavy Lift Swivel Hoist Rings

This heavy duty hoist ring will self-adjust to the load direction without compromising the WLL. The larger eye on this ring will allow for a bigger component to connect than a typical eyebolt - eg the user could easily hook on a chain hoist, without needing additional components. RFID equipped for easy identification and security for sites with the necessary infrastructure. Individually stamped with Crosby® or "CG", PIC [Product Identification Code], WLL, and recommended torque value for traceability and ease of use. They are also individually proof tested to 2.5 x stated WLL. We've opted to stock two sizes, but all Crosby® products are available to order. Please note, the full thread length must be fully engaged with the work piece, rather than passed through and secured with a nut - they should be fitted using a torque wrench set to the recommended torque. The user should always follow manufacturer's assembly and safety guidance.

For torque wrenches see page 195.

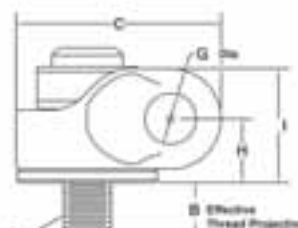
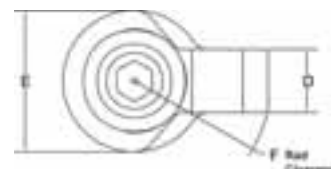


code	size [A]	B	C	D	E(r)	F	G	H	WLL [5:1]	torque	price
CRO1068325	M12	15.5	162	49.8	31.8	19.1	107	63.5	1050kg	38Nm	£202.09

Crosby® HR-1200M Side Pull Hoist Rings

The primary benefit of using these is that the user can gain extra height when positioning a work piece compared to a top mounted ring; they are rated at 100% WLL for angles up to 90°. Simply use a shackle to connect to a wire rope/sling, passing the pin through the ring for maximum security and loading. Crosby® recommend using their own red pin shackles (page 201) and we have listed the recommend sizes and codes below. Individually stamped with a PIC [Product Identification Code] for material traceability, along with the WLL. They are individually proof tested to 2.5 x stated WLL. We've opted to stock two sizes, but all Crosby® products are available to order. Please note, the full thread length must be fully engaged with the work piece rather than passed through and secured with a nut - they should be fitted using a torque wrench set to the recommended torque. The user should always follow manufacturer's assembly and safety guidance.

To see the full spec and pricing of the compatible shackles recommended by Crosby® see page 201. For torque wrenches see page 195.



Shown here with
a Crosby shackle
in place



code	description	size [A]	B	C	D	E	F	G	H	I	WLL [5:1]	torque	price
CRO1067803	Crosby Compatible Shackles 2 t CRO2096 / 3.25 t CRO2097	M8	16.9	49	18.3	25.4	39.6	20.3	21.6	36.3	300kg	10Nm	£123.29
CRO1067811	Crosby Compatible Shackles 3.25 t CRO2097 / 4.75 t CRO2109	M12	16.9	49	18.3	25.4	39.6	20.3	21.6	36.3	400kg	16Nm	£149.25

Chain Grades

Chain comes in various grades. Before high-grade steels were available it was found that a chain made from 1" diameter mild steel would break at 30 tons. A mild steel chain became known as Grade 30 chain. A chain made to the same dimensions from Grade 60 steel would break at 60 tons – twice as strong. Nowadays most lifting chain is Grade 80, although even higher grades are available. One problem with these high-grade chains is that they would be susceptible to hydrogen embrittlement if they were galvanised. This is why most anchor chains which need to be galvanised are still made from grade 30 or grade 40 steel [although grade 70 galvanised chain is obtainable – please ask our Rigging Manager for details]. Due to the reliability of modern manufacturing the safety factor on lifting chains has been reduced to 4:1. Lifting chains will have the grade embossed on every 20th link of every metre.

Why choose chain?

Chain is very robust and will withstand harsh treatment. Unlike wire or rope it will self-store in a very small area and it doesn't require careful coiling or winding onto a reel. Assemblies can be easily made up using specially designed fittings which do not need expensive machines or lengthy training to fit. Modern chains are very strong and reliable. Choose chain whenever you need a lifting assembly to perform reliably in tough conditions.

MASTERLINKS

Crosby Masterlinks A344

Made from alloy steel, quenched and tempered, then proof-tested at 2.5 times Working Load Limit [4:1]. Each link has an identification code for traceability. Masterlinks are used to create linked assemblies, such as multi-legged slings. Supplied with certification. Use 4:1 factor for chain.



code	WLL 5:1	WLL 4:1	int. width	int. height	thickness	price
CRO34413	2.5t	2.12t	60mm	120mm	13mm	£13.50
CRO34417	4t	3.15t	90mm	160mm	17mm	£17.70
CRO34419	6.5t	5.3t	90mm	160mm	19mm	£27.00

GRADE 80 HOOKS

Crosby Eye Chain Hooks with Latch M-315A

Made from forged alloy steel, quenched and tempered, then proof tested at 2.5 times Working Load Limit. Also meets proposed ASTM and Euronorm standards for Grade 80 chain fittings. Features large throat opening and integrated heavy-duty latch.

See also the stainless steel chain grab hooks.



code	WLL	length	width	chain size	price
CROS315A6	1.12t	114mm	66mm	6mm	£22.50
CROS315A10	3.15t	200mm	111mm	10mm	£51.70

Stainless Steel Eye Chain Hooks

Allows a temporary hauling line to be attached anywhere along a length of short link nominal 8 mm chain [which will only accept shackles on the final links]. Widely used on anchor chains to prevent snubbing by attaching a length of stretchy nylon rope which takes the strain while a loop of slack chain hangs below. Now available with a plunger. See also shortening clutches [see previous page].



code	description	slot width	chain size	min BL	price
WIR871	Standard	10mm	8mm	2800kg	£14.00

CROSBY CONNECTING LINKS

Crosby "Missing Link®" Replacement Links G-335

Made from forged steel, quenched and tempered. Integral rivets join the two halves. After the connection is made the rivets must be peened. These joining links are not suitable for Grade 80 or 100 chain or for overhead lifting purposes. Meets or exceeds the performance requirements of US Fed. Spec. RRC-271D, Type II, except for those provisions required of the contractor. Often used to extend or join anchor chains.



code	chain size	length	width	price	10+
CROG33510	10mm	52.5mm	35.1mm	£14.40	£12.96

CHAINS

Short Link Chain DIN 766 Grade 30 & 40

These chains are welded, tested and certified and are suitable for general purposes – typically moorings. The short links mean that it is not possible to shorten the chain using shackles. Our 60 m length is fitted with an oversized end link.

SPECIFICATION: Chain size: 8 mm.

Inside link size [l x w]: 24 mm x 10 mm.

Weight per metre: Grade 30 1.35 kg,

Grade 40 1.4 kg. Other sizes and types are available to order.



Per metre	Type	Grade	WLL	BL	price
WIR872	Self-colour	30	800kg	32kN	£9.90

Long Link Welded Chain

Please note that the link size specifies the diameter of the wire and then the inside length of the link. MRL = maximum recommended load. Available black japanned or bright zinc-plated. Use short link Grade 80 chain for lifting purposes.



30m drums	Type	30m drums	Type	int. link length	wire gauge	MRL	per m	drum price
WIR823	Black	WIR803	BZP	19mm	2.5mm	30kg	£1.65	£1.49
WIR825	Black	WIR805	BZP	21mm	3mm	50kg	£2.17	£1.96
WIR827	Black	WIR807	BZP	19mm	4mm	100kg	£3.20	£2.88
WIR829	Black	WIR809	BZP	26mm	4mm	85kg	£3.32	£2.99
25m drums	Type	25m drums	Type	int. link length	wire gauge	MRL	per m	drum price
WIR831	Black	WIR811	BZP	28mm	5mm	130kg	£4.22	£3.80
15m drums	Type	15m drums	Type	int. link length	wire gauge	MRL	per m	drum price
WIR833	Black	WIR813	BZP	33mm	6mm	140kg	£5.77	£5.20
WIR835	Black	WIR815	BZP	36mm	6.5mm	150kg	£5.98	£5.39

Polythene Chain

A lightweight display chain.



code	Colour	int. link length	wire gauge	per m	25 m+
WIR34476WC	White	45mm	8mm	£2.50	£1.95
WIR34476JC	Black	45mm	8mm	£2.95	£2.38

Single Jack Chain

An open-link steel chain, formed in a figure eight. Bright zinc-plated. Used principally for weighting the bottom pocket of theatre drapes and cloths.



code	wire gauge	Type	length	approx weight	price
WIR861	4mm	8 Gauge	10m	2.8kg per 10 m	£19.95
WIR862	2.5mm	12 Gauge	10m	1.1kg per 10 m	£11.85

SAFETY BONDS

Safety Bonds

Used as a fail-safe should the primary suspension fixing fail. Use for all suspended fixings, including lighting and sound equipment, particularly where items are suspended over people's heads. Try to ensure there is as little slack in the bond as possible as the loads given are based on static loads rather than dropped loads. A 3 mm Ø soft loop will pass through the hole in the Electro Kabuki. See also Safety Lanyards for personal protection [pages 356]. See Small Tool Lanyards [page 357].

GENERAL PURPOSE BONDS

General Purpose Bond

These black wire rope assemblies can be fitted with your own connector to perform a wide range of functions.

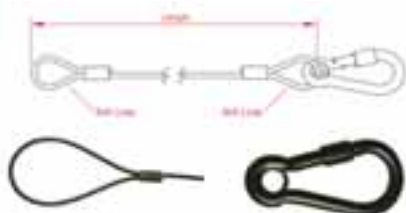


code	Connectors	length	WLL	wire Ø	price
DOUT2849001	N/A	600mm	100kg	3mm	£4.21
DOUT2852001	N/A	600mm	175kg	4mm	£7.33

ACCESSORY BONDS

Accessory Bond with Carbine

These popular lightweight bonds are fitted with a captive eye carbine hook. Designed for lightweight lighting accessories.



code	Connectors	length	WLL	wire Ø	price
DOUT2841001	One M6 x 60	600mm	20kg	2mm	£9.26

Accessory Bond with Swivel

These shorter lightweight bonds are fitted with a swivel hook. Designed for lightweight lighting accessories.



code	Connectors	length	WLL	wire Ø	price
DOUT2840001	One M6 x 60	600mm	5kg	2mm	£7.64

SAFETY CHAINS

"Safety" Chains

The traditional theatre lantern safety chain made of black enamelled 21 x 3 mm chain fitted with a spring hook at one or both ends. Suitable for lightweight items only, use CE marked accessory or safety bonds for heavier items.

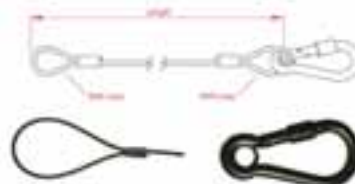


code	Connectors	length	price
FHS121	Spring hook one end	600mm	£2.22
FHS121D	Spring hook both ends	600mm	£3.35

SAFETY BONDS

Safety Bond with Carbine

These 3 mm wire bonds are fitted with a captive eye carbine hook at one end or both ends.



code	Connectors	length	WLL	wire Ø	price
DOUT22001	One carbine hook	600mm	15kg	3mm	£4.66
DOUT22101	Two carbine hooks	600mm	15kg	3mm	£7.03

Safety Bond with Moving Light Hook

These 4 mm wire bonds are fitted with a captive asymmetric Moving Light Hook.



code	Connectors	length	WLL	wire Ø	price
DOUT2844001	One moving light hook	600mm	36kg	4mm	£23.58
DOUT2844501	One moving light hook	1000mm	36kg	4mm	£24.83

TV SPEC BONDS

TV Spec Bond with Karabiner

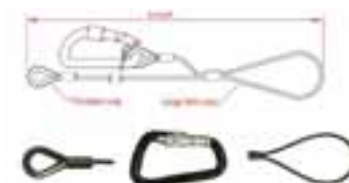
These heavier wire bonds are fitted with a captive karabiner at one end. They conform to BBC TV 168A.



code	Connectors	length	WLL	wire Ø	price
DOUT2820501	Karabiner	700mm	50kg	4mm	£28.37
DOUT2830501	Karabiner	700mm	75kg	5mm	£29.39

TV Spec Bonds with Karabiner [large loop]

These heavier wire bonds are fitted with a captive karabiner on the tail of a large loop. They conform to BBC TV 168A.



code	Connectors	length	WLL	wire Ø	price
DOUT2820001	Karabiner	480mm	50kg	4mm	£27.02
DOUT2830001	Karabiner	480mm	75kg	5mm	£27.75

Fibre Ropes

For most theatre operations rope is used in some form. The rope may be of natural fibre, man-made fibre or wire rope.

Natural fibre ropes have traditionally been used in "Hemp House" theatres, i.e. to fly scenery above a stage where there is no counterweight system and all lifting is done by direct manual effort. It should be noted that the word "hemp" is often misused. Although in the past ropes made from hemp were normally used, it is more common nowadays to use either "flax hemp" or manila. Sisal is an inferior rope and rarely used. British Standards cover the manufacture and use of manila ropes. Use of manmade fibre ropes, such as polyester, is widespread in many applications where previously natural fibre ropes would have been used. Polyester is resistant to oil, chemicals, and changes in ambient temperature and humidity and is smoother to the touch than manila, which has led it to becoming a preferred counterweight line.

The most common application using two types of rope is in counterweight flying systems where the load is suspended by wire rope attached to a counterweight cradle which is restrained to move vertically on the stage side wall. The movement of a balanced counterweight set is by manual hauling of a fibre rope attached to the counterweight top and bottom. Wire ropes are normally used for all power-operated systems such as scenery and lighting hoists. Beware of using ropes made from different materials or of differing sizes of the same material in the same lifting assembly, as the stretch of the rope varies with the material from which it is made. This may result in an unsafe situation, depending on the safe working load of the weakest material.

Natural fibre ropes should comply with BS EN 698, Grade 1 special quality manila or equivalent. Synthetic ropes should comply with BS EN 697 [polyester]. The use of polyamide [nylon] and polypropylene ropes for flying is not recommended as they are susceptible to changes in humidity and temperature.

Load bearing ropes used for "hemp" or counterweight flying should be not less than 16 mm diameter, be of 3-strand construction and be free from serious defects arising from previous use or other cause. Smaller sizes of rope may be used for other purposes e.g. trick lines. Ropes should be stored protected from damp, heat, and the effects of sunlight [either directly or through glass]. The hanging of ropes on wooden or cast cleats permits adequate ventilation.

Where ropes are terminated in a loop or thimble, the splicing shall conform to good commercial practice i.e. not less than 3* full tucks for natural rope and 4* full tucks for synthetic ropes, which shall be against the lay of the rope, each with all the yarns in the strand. [*Please note that the Lifting Equipment Engineers Association recommends 4 full tucks for natural ropes and five full tucks for most artificial ropes].

All ropes should be in one continuous length and free from joints. Any free end of rope should be whipped to prevent unlaying.

All ropes and any associated equipment should have an identification and the safe working load marked thereon and be subject to inspection and registration in accordance with safe practice and the appropriate regulations, if any. See our Rope Label System [page 226].

All ropes should have a factor of safety of not less than 8 based on the maximum rope tension when related to the minimum breaking load of the rope.

This information is based on the ABTT Code of Practice for Flying.

Why 220m?

220 metres is 120 fathoms which was the British Navy's minimum requirement to anchor a ship. Ropes are still made on "Rope Walks" that are 120 fathoms long.

FIBRE ROPES

Flax Hemp

The price of real hemp is so high that our manufacturers have changed to using a flax yarn. The strength of this rope is similar to real hemp and it has the same soft feel. Flax hemp is much easier to handle than manila and is therefore the natural rope of choice for hauling lines on counterweight cradles. When the front cloth of The Lion King rises, the flyman is hauling on our 22 mm flax hemp. See also our 4-strand hauling line below. Certification: BS EN ISO 1181:2004

See our Eye Splicing Service [page 225].



code	per m	code	per 220 m full coil	diameter	breaking strain
ROP304	£1.86	ROP304D	£255.07	12mm	1120kg
ROP305	£3.36	ROP305D	£472.01	16mm	1900kg
ROP306	£3.81	ROP306D	£561.66	18mm	2350kg
ROP307	£4.51	ROP307D	£688.40	20mm	2910kg
ROP308	£5.10	ROP308D	£735.51	22mm	3490kg
ROP309	£6.43	ROP309D	£950.97	24mm	4140kg

Manila Rope

These 3-strand ropes are manufactured to BS EN ISO 1181:2004 which has replaced BS EN 698, Grade 1. The ropes of 16 mm and above are suitable for hand-hauled flying in theatres and for control lines on counterweight cradles. Manila is hard on the hands and tends to leave small fibre splinters in soft skin. Flax hemp [see above] is a softer option if the ropes are to be used frequently. Manila has about one-third the strength of polyester but it will not melt when left near a hot lamp [burns at 711° F]. Manila has poor resistance to shock loads because of its low stretch properties. The natural appearance of the rope makes them useful for set dressings.

See our Eye Splicing Service [page 225].



code	per m	code	per 220 m full coil	diameter	breaking strain
ROP150	£0.26	ROP150D	£40.68	6mm	350kg
ROP151	£0.48	ROP151D	£74.58	8mm	545kg
ROP153	£0.59	ROP153D	£95.30	10mm	705kg
ROP155	£0.98	ROP155D	£155.97	12mm	1065kg
ROP157	£1.19	ROP157D	£200.02	14mm	1450kg
ROP159	£1.78	ROP159D	£275.51	16mm	2030kg
ROP160	£2.08	ROP160D	£325.38	18mm	2440kg
ROP161	£2.59	ROP161D	£399.98	20mm	3250kg
ROP163	£3.50	ROP163D	£387.95	22mm	3860kg
ROP165	£3.79	ROP165D	£474.20	24mm	4570kg

Counterweight Hauling Rope

This is a 4-strand rope sometimes referred to as "Shroud Laid" rope. It will be found to be slightly firmer than 3-strand rope and it presents a smoother and rounder outside surface which can be helpful in rope locks or if traction is required around a pulley sheave. Ironically this rope comes in 200 m coils, not sure why!

✓ Ideal for counterweight hauling lines and climbing ropes



code	per m	code	per 200 m full coil	diameter	weight	breaking strain
ROP3074	£4.63	ROP3074D	£648.92	20mm	316g/m	2610kg

FIBRE ROPES

COTTON ROPE

Cotton Rope

A lightweight soft 3-strand rope often used for decorative purposes. It can easily be dyed [page 34] and flame-proofed [page 78]. Cotton rope is rather stretchy due to its soft lay up and is not normally used for lifting purposes. It is, however, very comfortable to handle and so it is very popular with aerialists. Some traditional small boats still like to use cotton mainsheets. See also our specialist aerial splicing [page 225].

- ✓ Very soft to handle
- ✓ Excellent decorative rope



code	per m	code	per 55 m full coil	diameter
ROP405	£1.65	ROP405D	£75.63	12mm
ROP407	£3.35	ROP407D	£162.48	18mm
ROP409	£5.45	ROP409D	£265.00	24mm
code	per m	code	per 110 m full coil	diameter
ROP410	£4.15	ROP410D	£358.15	28mm
ROP411	£5.50	ROP411D	£475.55	32mm

ARTIFICIAL HEMP

Artificial Hemp

A natural coloured 3-strand synthetic rope with a similar feel to hemp but the strength and rot resistance of synthetics. This type of artificial hemp is made from spun polypropylene with a natural hemp colour. It is UV resistant, does not rot, floats on water and is easy to splice.

- ✓ Easy to splice
- ✓ Economical
- ✓ Floats

Specifications: Melting point: 165-175 °C. Resistance to short term heat: 80 °C. For Historic 3 mm Twine on 15 m reels see page 223.



code	per m	code	per 100 m full reel	diameter	breaking strain
ROP190	£0.37	ROP190D	£31.11	6mm	350kg
ROP191	£0.51	ROP191D	£45.52	8mm	600kg
ROP195	£0.78	ROP195D	£64.75	10mm	900kg
ROP192	£1.04	ROP192D	£88.08	12mm	1340kg
ROP193	£1.40	ROP193D	£116.05	14mm	1740kg
ROP194	£1.83	ROP194D	£154.40	16mm	2180kg
ROP196	£2.27	ROP196D	£190.72	18mm	2730kg
ROP1965	£2.57	ROP1965D	£212.87	20mm	3420kg
ROP197	£3.58	ROP197D	£303.16	24mm	4830kg

The Biggest Difference between Natural and Artificial Ropes?

Apart from the obvious, there is a very fundamental difference. Natural fibres are short, generally only a few inches long. The ropes are made by twisting these together, there is no glue, just the friction between the fibres providing the strength. Artificial ropes use continuous fibres running the length of the rope.

LOW-LOAD PULLEY FOR LARGE-DIAMETER ROPES!

Big Block 32

This brilliant new pulley has been made especially for us by Barton Marine [see their other excellent pulleys from page 230]. Quite often when working on stage the designer requires a much larger rope than is actually required in regards to the weight it has to lift - to make it look more 'real', or to exaggerate the perceived weight. As such, a heavy duty pulley is not necessarily required, and the expense of one not justified, thus this pulley was born!

- ✓ Up to 32 mm rope capacity
- ✓ Swing Cheeks; allows the block to be inserted onto pre-rigged lines and the over large hole will take any connector.
- ✓ Economical

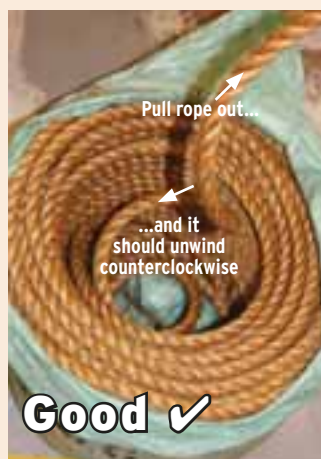
- ✓ Good for all large diameter ropes

SPECIFICATION: Takes up to 32 mm Ø rope. WLL 225 kg [4:1 safety factor]. 316 grade stainless steel with a "Spectro" anodised aluminium sheave. CE marked.



code	sheave Ø	max rope Ø	WLL	price
FHSSC32	72mm	32mm	225kg	£123.41

Taking Rope from a Coil



The inside of a new coil is in the form of a round tunnel. At one end of the tunnel is the inside end of the line. This inside end always comes out first, usually from the bottom of the tunnel and up through the tunnel. Reach through the tunnel until you find the end, and determine on which end to set the coil so the line will uncoil in a **counterclockwise** direction. It can be hard to find the end but it will be there. It is well worth getting this right!

Reach in, draw the end up through the tunnel, and the entire coil will run off without a kink. The important point to bear in mind is

that when you pull on the inside end, the line must uncoil in a counterclockwise direction or it will end up in a mess!

You must always coil in a clockwise direction and **uncoil in a counterclockwise direction**.

...and Coiling 3-Strand Rope

As you coil a rope it will encourage a slight twist. Sometimes, if the rope is long, these twists will build up and the rope will get tighter and tighter until it buckles or kinks. This happens when the rope is coiled the wrong way. Right hand lay rope [and virtually all rope is right hand lay] must be **coiled in a clockwise direction**. This will open up the lay slightly and prevent it from misbehaving. See our videos on youtube/flintstheatre. There are other methods, such as the gasket coil (this is the preferred technique of Julian Anderson who teaches the ABTT Bronze Course Knot & Splicing day), or the figure-of-eight coiling method. Regardless of which method you use, just make sure it's kink-free!

3-STRAND POLYESTER

Classic 3-Strand Polyester

This is a wonderful rope, soft in feel, easy to coil, natural coloured with all the advantages of modern materials. Made from matt polyester worsted yarn which provides an historic look and excellent grip.

- ✓ A well behaved rope with a soft hand
- ✓ A joy to handle
- ✓ A good choice for use onstage by actors

Larger diameters available to order.
See our Eye Splicing Service [page 225].



Left or Right Hand Lay?

Put the rope in your right palm and a right hand lay rope will point in the direction of your thumb. Easy.

code	per m	code	per 100 m full reel	diameter	breaking strain
ROP117206	£0.53	ROP117206D	£46.75	6mm	350kg
ROP117208	£0.96	ROP117208D	£83.91	8mm	730kg
ROP117210	£1.60	ROP117210D	£137.50	10mm	1100kg
ROP1172112	£2.10	ROP1172112D	£184.60	12mm	1300kg

Black 3-Strand Polyester

This is a 100% pure polyester rope that is very easy to splice, extremely tensile and abrasion resistant and will not stiffen up. Available in very large diameters. Conformity: DIN 3331/EN 697 4 Working stretch greater than 15%

- ✓ Very easy to splice
- ✓ Heat set
- ✓ Pure deep black
- ✓ Soft to handle, easy to coil
- ✓ Good choice for spliced barrier ropes etc.

Our Pipe and Large Rope Cutter [page 330] will cut through ropes between 24 and 42 mm diameter.



code	per m	code	per 100 m full reel	diameter	breaking strain
ROP11104	£0.59	ROP11104D	£34.30	4mm	400kg
ROP11106	£0.85	ROP11106D	£72.15	6mm	800kg
ROP11108	£1.34	ROP11108D	£107.19	8mm	1400kg
ROP11110	£1.92	ROP11110D	£153.85	10mm	2000kg
ROP11112	£2.38	ROP11112D	£212.25	12mm	2600kg
ROP11114	£2.94	ROP11114D	£385.25	14mm	3600kg
ROP11116	£4.45	ROP11116D	£339.02	16mm	5000kg
ROP11118	£4.75	ROP11118D	£380.00	18mm	6000kg
		ROP11120D	£452.01	20mm	7000kg
		ROP11124D	£654.15	24mm	10500kg
		ROP11130D	£917.89	30mm	14800kg

BRAIDED (KERNMANTLE) ROPES

Braided or Kernmantle ropes are basically both the same thing. This type of rope construction consists of a core [German "kern" = core] protected by a sheave [German "mantel" = shell]. The core generally provides the strength while the sheave offers protection. They work well with climbing gadgets and tend to coil up easily. Braided ropes are the preferred type for industrial rope access and sport climbing. The main drawback is that they are rather difficult to splice compared to 3-strand ropes.

Why buy your ropes from Flints?



You will be joining thousands of clients who source their rope from us. Flints sells thousands of metres of rope every week! We are extremely discerning regarding the quality of the ropes that we supply and we have the buying power to specify that the rope is made to suit the exacting needs of our industry. The rope you buy from us will be of a consistent quality. We are able to negotiate on price to pass on real value. Typically our rope is much cheaper than buying from marine suppliers and the quality is absolutely the best. Our main manufacturers have over 100 years

of experience and are DIN EN 9001:2000 certified and approved. They're able to produce ropes to tolerances of 0.1 mm or better, with heat treatment within +/-1°C. You can be assured of the best quality with real value.

Which knot to use?

Any knot will reduce the strength of your rope. It is generally agreed that the Figure-of-Eight Loop is one of the strongest knots giving around 75% of the strength of the rope. The Clove Hitch gives around 60% and the Bowline fails between 50% and 60% [scarily it's been recorded to fail as low as 30% in some higher tech ropes]. Anyone working backstage should be able to fluently tie a Bowline and Clove Hitch (secured with an additional half hitch) as the industry standard knots. Be aware that other factors could have a greater effect on the rope's strength, and the reductions stated here are not applicable to all ropes. Tying off your rope around a large diameter smooth cylinder will have little effect on its strength but tying onto a karabiner or anything that forces the rope into a tight bend will weaken the rope. So called "High-Tech" ropes [page 221] should also be treated with caution and never knotted, but always terminated with a spliced eye. For more knot information see our range of rigging books on page 402.

Black Herkules

A very resilient multi-functional polyester rope of the highest quality, very durable and low stretch. Cover: spin dyed 1:1 plaited polyester. Core: High tenacity braided polyester. A very popular hauling rope.

- ✓ Working stretch is less than 5%
 - ✓ Absolutely non-kinking
 - ✓ Excellent adhesion to winch drums
 - ✓ Withstands hard winch usage
 - ✗ Knot holding not quite as good as our matt polyester
- Other sizes from 4 mm to 28 mm are available to order by the full reel.



code	per m	code	per 100 m full reel	diameter	breaking strain
ROP155008	£1.79	ROP155008D	£145.71	8mm	1600kg
ROP155010	£2.50	ROP155010D	£203.95	10mm	2500kg
ROP155012	£3.76	ROP155012D	£315.29	12mm	3500kg
ROP155016	£6.89	ROP155016D	£541.67	16mm	5000kg

FIBRE ROPES

Matt Black Braided Polyester

A very strong multipurpose rope which is comfortable to handle and easy to coil. The ropes that we supply have a matt cover which, although more expensive than shiny polyester ropes, considerably adds to comfort and grip and it also helps to ensure that knots do not accidentally work loose. Polyester is marginally less strong than nylon but it does have better chafe resistance, less stretch, and it does not weaken when wet. Synthetic ropes are not ideally suited for permanent dead hanging of equipment in theatres as the rope might weaken if brought into contact with hot lamps or if a fire occurred. Available in pure black or [unflecked] white and now also in classic hemp colour. The 8 mm x 8-plait rope is the ideal hauling line for 3-Way Track, Unitrack, and Unirail tab tracks. Use 6 mm x 8-plait in Halls T60 tracks. Conformity: BS 4928 DIN EN 697. Flints can eye splice the 16-plait braided ropes, please see page 225 for prices.



- ✓ Comfortable to handle
 - ✓ Easy to coil
 - ✓ Matt black finish or pure white
 - ✓ Unflecked finish
 - ✓ Fantastic value
 - ✓ Long-lasting durability
 - ✓ Low working stretch – less than 7%
 - ✓ Will not rot
 - ✓ Unaffected by moisture
 - ✓ Good knot holding
 - ✓ Excellent chafe resistance
 - ✓ Very good strength
 - ✓ Very good electrical insulation
 - ✓ Very good UV resistance
 - ✓ Wide range of sizes
 - ✓ Resistant to acid
- Also available as Small Cords [page 223].

code	per m	code	per 100 m full reel	10+ reels	dia.	breaking strain	plait
ROP120	£1.14	ROP120D	£80.09	£72.08	6mm	520kg	8
ROP122	£1.40	ROP122D	£105.35	£94.81	8mm	1000kg	16
ROP124	£2.19	ROP124D	£180.21	£162.19	10mm	1900kg	16
ROP126	£2.69	ROP126D	£220.26	£198.23	12mm	2400kg	16
ROP128	£3.16	ROP128D	£287.33	£258.60	14mm	2900kg	24
ROP130	£4.35	ROP130D	£379.12	£341.21	16mm	3500kg	24
ROP134	£5.50	ROP134D	£481.90	£433.71	20mm	5300kg	24

Pure Matt White Polyester Rope

The Matt Braided Polyester Ropes are also stocked in pure unflecked white. Yacht ropes normally have coloured marker flecks on them but theatre designers like their white ropes white. Flints has these ropes specially made.



code	per m	code	per 100 m full reel	10+ reels	dia.	breaking strain	plait
ROP120W	£1.14	ROP120WD	£80.09	£72.08	6mm	520kg	8
ROP122AW	£1.40	ROP122AWD	£107.45	£96.70	8mm	1000kg	8
ROP122W	£1.40	ROP122WD	£107.45	£96.70	8mm	1000kg	16
ROP124W	£2.19	ROP124WD	£180.21	£162.19	10mm	1900kg	16
ROP126W	£2.69	ROP126WD	£220.26	£198.23	12mm	2400kg	16
ROP128W	£3.16	ROP128WD	£287.33	£341.21	14mm	2900kg	24
ROP130W	£4.35	ROP130WD	£379.12	£341.21	16mm	3500kg	24
ROP134W	£5.50	ROP134WD	£481.90	£433.71	20mm	5300kg	24

Polyester Ropes in Pure Colours

Flints can supply blue, yellow, green and red matt polyester. These ropes are made especially for us and are pure colour without the usual marker flecks so they can be used for digital keying effects. We can have other diameters made but subject to minimum quantity restrictions. Please phone for details.



code	per m	code	per 100 m full reel	10+ reels	dia.	Colour	breaking strain	plait
ROP122B	£1.53	ROP122BD	£126.39	£113.75	8mm	Blue	1000kg	16
ROP122Y	£1.53	ROP122YD	£126.39	£113.75	8mm	Yellow	1000kg	16
ROP122G	£1.53	ROP122GD	£126.39	£113.75	8mm	Green	1000kg	16
ROP122R	£1.53	ROP122RD	£126.39	£113.75	8mm	Red	1000kg	16
ROP124B	£2.40	ROP124BD	£197.73	£177.96	10mm	Blue	1900kg	16
ROP124Y	£2.40	ROP124YD	£197.73	£177.96	10mm	Yellow	1900kg	16
ROP124G	£2.40	ROP124GD	£197.73	£177.96	10mm	Green	1900kg	16
ROP124R	£2.40	ROP124RD	£197.73	£177.96	10mm	Red	1900kg	16

Classic Polyester Braided

All the advantages of a modern braided rope but in a traditional natural colour. The outer braid is made from matt polyester yarn which gives excellent grip. The core is plaited polyester. The 20 mm Ø would make for an excellent counterweight line.

- ✓ Traditional appearance
 - ✓ Easy to handle
 - ✓ Excellent grip
- Larger diameters available to order



code	per m	code	per 100 m full reel	dia.	breaking strain	plait
ROP117306	£0.74	ROP117306D	£64.50	6mm	520kg	16
ROP117308	£1.17	ROP117308D	£102.72	8mm	1000kg	16
ROP117310	£1.90	ROP117310D	£166.68	10mm	1900kg	16
ROP117312	£2.39	ROP117312D	£210.04	12mm	2400kg	24
ROP117314	£3.31	ROP117314D	£289.98	14mm	2900kg	24
ROP117316	£4.48	ROP117316D	£392.97	16mm	3500kg	24

Problems with rope sizes?

Take care when choosing a rope to fit existing pulleys. Rope diameters will reduce when a load is applied. Short lengths of 3-strand rope will expand when cut off a coil as the tension is released. Natural fibre ropes will sometimes vary in dimensions slightly from batch to batch. If you think the rope that you need is going to be a close fit please seek advice or ask for a sample before placing an order.

HIGH TECH ROPES

Technora Rope

A modern paraaramid fibre rope widely used on camera dollies for accurate positioning.

- ✓ Eight times stronger than steel (weight for weight)
- ✓ Extremely low stretch – ideal for accurate positioning.
- ✓ Does not burn or melt
- ✓ Survives brief exposure up to 400°C.
- ✗ Degrades rapidly when exposed to UV light



code	per m	code	per 100 m full reel	dia.	breaking strain
ROP15806	£4.01	ROP15806D	£339.81	6mm	2600kg
ROP15808	£6.16	ROP15808D	£522.42	8mm	4000kg
ROP15810	£9.50	ROP15810D	£805.55	10mm	6300kg

Dyneema® D-Pro

With this technical line you will achieve optimised breaking strengths with minimal creep due to the Liros Heat Stretch System. Resistance to abrasion, low weight, and ease of splicing are features that make this line the optimum for any application where very high strength and very low stretch are desired. Black.

- ✓ Good choice for high load tab tracks or scenery carriers as it has no outer cover to cause slippage on rope clamps
- ✓ Working stretch less than 1.3% therefore no whiplash
- ✓ Generally higher breaking strength than wire rope with minimal weight
- ✗ Not suitable for knots - must be terminated with a spliced eye



code	per m	code	per 100 m full reel	dia.	breaking strain
ROP150501	£0.74	ROP150501D	£51.03	1mm	195kg
ROP1505015	£0.80	ROP1505015D	£60.49	1.5mm	230kg
ROP150502	£1.01	ROP150502D	£81.67	2mm	410kg
ROP150503	£1.52	ROP150503D	£126.19	3mm	950kg
ROP150504	£2.31	ROP150504D	£192.45	4mm	1300kg
ROP150505	£3.38	ROP150505D	£281.46	5mm	2600kg
ROP150506	£5.53	ROP150506D	£463.43	6mm	4300kg
ROP150508	£7.05	ROP150508D	£597.42	8mm	5300kg
ROP150510	£10.68	ROP150510D	£838.75	10mm	9000kg

Matt Black Dyneema® Rope [polyester cover]

These matt pure black Dyneema® ropes have exceptional strength with a low stretch of less than 1.5%. They are covered with a high quality matt 16-plait polyester cover so that they are comfortable to handle. Unlike Kevlar, these ropes are not prone to catastrophic failure and can be run around sheaves with a diameter just five times the rope diameter. The low stretch properties can be very helpful to avoid sagging return lines on long tab tracks.



code	per m	code	per 100 m full reel	dia.	breaking strain
ROP433	£1.28	ROP433D	£104.73	3mm	400kg
ROP436	£2.64	ROP436D	£220.00	6mm	1000kg
ROP438	£4.45	ROP438D	£323.60	8mm	1500kg
ROP4310	£5.95	ROP4310D	£450.00	10mm	2400kg

A Word of Warning

High Tech ropes are immensely strong but that doesn't necessarily mean they are a better choice for all applications. If a falling weight is arrested by a nylon or polyester rope, the rope will stretch and absorb a great deal of the shock loading.

If a falling weight is arrested by a Dyneema® line there will be virtually no stretch and huge impact forces are liable to break the line or tear out the anchor point. We have seen many examples of "weaker" ropes successfully arresting falling weights while much "stronger" Dyneema® ropes have failed. On the plus side, there will be no whiplash which is why many tug drivers are choosing Dyneema® for their tow lines. So choose Dyneema® when the loads are constant and the lack of stretch is advantageous.

High tech ropes can be useful because of the smaller diameter to strength ratio, provided their limitations are taken into account.

Generally these ropes should be treated as one would treat wire ropes and only terminated with a spliced eye. If in doubt as to the suitability of the rope for the application, check.

Dynamic, Semi-Static or Static?

Ropes used for industrial access, climbing and fall arrest can be classified as three types:

- Dynamic = elongation at break above 40%
- Semi-Static = elongation at break 35 - 40%
- Static = elongation at break below 35%

As nylon [polyamide] is the most stretchy rope it is used almost exclusively as dynamic and semi-static lines. But nylon in its yarn state stretches only 16 - 27% so extra stretch is added by braiding and by heat treatments to ensure a 40% stretch is achieved.

The stretch is an important safety factor as the G-force of a falling object can be roughly calculated by the fall distance divided by the arrest distance. Therefore a person falling 2 m being arrested by a nylon rope which stretched 200 mm would be subjected to a G-force of 10 but if the rope was Dyneema® with just 2 mm stretch the G-force would be 1,000 and possibly fatal.

Dynamic and semi-static lines are classed as PPE [Personal Protective Equipment] Category 3, C-type inspection. They must be made by an ISO 9001 registered company.

Uncoiling Hanks



Climbing and industrial access ropes are often supplied as hanks. Be careful because the method of manufacture and hanking varies with different manufacturers. Some have made them more user-friendly but normally if you just grab a new hank of a climbing rope and throw it on the floor you will be in for a very unpleasant surprise! You will end up with a kinked-up mess which could take an hour to sort out. **Always read the instructions** before unwrapping the rope. Generally, the way

to uncoil a new hanked climbing rope is to slip both your arms through it and then unwind it as if it is rotating on a drum. You will need two people. Don't forget that many semi-static ropes require soaking before they are unwound.

Read the instructions!

For demo videos of coiling techniques visit our YouTube channel – <http://www.youtube.com/FlintsTheatre> or simply scan the QR code



FIBRE ROPES

INDUSTRIAL ROPE ACCESS

Beal Dynamic Apollo 11mm diameter

This popular industrial rope is manufactured to the exacting standards you would expect. Supplied as 50 m hanks. They are constructed to withstand an "F2" fall [page 356]. Dynamic ropes are also designed to reduce the impact of a fall. UIAA norm states the impact must be less than 1,200 daN – this rope will transmit 840 daN. EN 892.



code	diameter	Type	Colour	length	price
ROPBC11A50R	11mm	Rope	Red	50m	£149.36

Cow's Tails

This dynamic rope is for creating anchor lanyards (Cow's Tails) for the attachment of the user's harness to an anchor point. Check with the harness manufacturer which harness points are suitable for cow's tails. This dynamic rope must not be used to make a fall arrest lanyard in conjunction with an energy absorber. The knots used must have a minimum static strength of 15 kN. Tests have proved that a correctly tied figure-of-eight knot gives a minimum static strength in excess of 15 kN. Other knots may increase energy absorption but not meet the 15 kN strength. Only trained persons should tie knots to create Cow's Tails. CE EN 892.



code	Type	Colour	length	size	price
ROPLICT4A	Cow's Tail	varies	4m	11mm	£25.01
ROPLICT5A	Cow's Tail	varies	5m	11mm	£28.58

Semi-Static

These ropes are ideal for fixed rigging used exclusively for descender-descent and ascender-ascent. Minimum elasticity is desirable yet the ropes are semi-static to protect against "F1" falls [page 356]. Soak the ropes before use and dry [expect 5% shrinkage]. The ropes are constructed from 100% nylon [polyamide]. Suitable for use with the ASAP Mobile Fall Arrester [page 359]. Conformity: EN 1891 Type A. SPECIFICATION: Breaking load: 3,263 kgf [3,200 daN]. Breaking load with Figure-of-Eight knot: 2,141 kgf [2,100 daN].



code	diameter	Type	Colour	length	price
ROPBCST1150	11mm	industry	White	50m	£100.68
ROPBCSTN1150	11mm	Intervention	Black	50m	£126.87
ROPBCSTN1100	11mm	Intervention	Black	100m	£249.18
ROPBCSTN11200	11mm	Intervention	Black	100m	£498.37

Orange Rescue Rope

Beal's bright orange Rescue Rope. Highly visible semi-static rope designed especially for easy location in rescue situations. This rope features a polyester sheath. Conformity: EN 1891 Type A. SPECIFICATION: Breaking load: 3,000 daN [kg]. Strength with sewn terminations: 2,400 daN [kg]. Weight: 65 g per metre.



code	diameter	length	price
ROPBCSR105050	10.5mm	50m	£114.18

SASH CORDS

Originally made to counterbalance sash windows. Sash cords were made of natural jute but they were sometimes waxed to help prevent rot. The stiff waxed type was not suitable for stage use. Years ago there wasn't much choice when it came to small cords and jute sash was very popular. Then black cotton "Sash" arrived to fill a need for a black small cord. Pure black polyester "Sash" is now readily available. Polyester is much stronger than jute and less stretchy than cotton. It will not rot but it is more expensive. Matt black polyester sash is listed on page 220. The 6 mm size [ROP120] is the equivalent of No 4, and the 8 mm size [ROP122A] is the equivalent of No 6. So now there's a choice!

Jute Sash Cord

A natural coloured multipurpose cord suitable for non-load bearing applications. No 6 is the standard cord for throw lines. Widely used in tab tracks [Halls T60 uses No 4] although many people now prefer to use matt polyester [page 220]. Please note: to find the approximate diameter of the cord add 2 mm to the size of rope quoted [e.g. No 4 sash is approximately 6 mm diameter]. Some clients prefer to order their sash cord in traditional hanks as they find it easier to divvy up the cord amongst the crew. We also stock eight 12.5 m hanks joined to make 100 m. The size 8 is now available in black.



code	diameter	description	length	price
ROP042MD100	6mm	No. 4 Jute Sash [economical option for T60]	100m	£36.52
ROP044MD100	8mm	No. 6 Jute Sash [economical option for T70]	100m	£58.41
ROP046MD100	10mm	No 8 Jute Sash	100m	£65.15
ROP060BD100	8mm	Black No 6 Jute Sash	100m	£59.83
ROP044JSJHK	8mm	Joined Hanks of No 6 Jute Sash	8 x 12.5m	£60.99

Black Cotton Sash Cord

A very soft natural cotton braided cord dyed black. Rather stretchy but soft to handle. See also 8 mm Matt Black Polyester [page 220.]



code	diameter	description	per m
ROP052M	8mm	No 6 Cotton Sash	£1.69
code	diameter	description	per 100 m
ROP052MD100	8mm	No 6 Cotton Sash	£109.67

Working at Height?

To see our full range of harness, ascenders, rope grabs, lanyards and fall arrest equipment, see our Working at Height section on page 352.

Petzl ASTRO®
BOD FAST



Petzl RIG



CORDS AND STRINGS

Nylon Cord

A very strong braided cord. Useful for trip lines and lacing. Nylon has high stretch characteristics when under heavy load. If stretch could pose a problem then choose polyester below or Dyneema® [page 221]. Ends can be sealed with a hot knife. Available in black or white. Polyamide and nylon are

two names for the same material. NB: the breaking strain is 10% less when wet.

For extreme use with constant loads we list pure Dyneema® with a higher breaking strength than wire of the same diameter and with a stretch of less than 1.3%.



black	price	white	price	10+	dia.	length	breaking strain [when dry]
ROPNC10B	£14.95	ROPNC10W	£14.66	£13.45	1mm	100m	35kg
ROPNC15B	£17.75	ROPNC15W	£17.40	£15.97	1.5mm	100m	40kg
ROPNC20B	£19.37	ROPNC20W	£18.99	£17.43	2mm	100m	100kg
ROPNC25B	£20.95	ROPNC25W	£20.54	£18.85	2.5mm	100m	140kg
ROPNC30B	£25.82	ROPNC30W	£25.31	£23.24	3mm	100m	180kg
ROPNC35B	£28.56	ROPNC35W	£28.05	£25.70	3.5mm	100m	260kg
ROPNC40B	£30.58	ROPNC40W	£29.98	£27.52	4mm	100m	340kg

Matt Polyester Cord

These matt polyester cords which have less stretch than nylon and hold their knots perfectly. They make ideal ties for lacing, tying up cables and general use where natural string or sash line would not be strong enough. Available in black or white. Conformity: EN 697.



code	per m	code	per 100 m reel	dia.	Colour	breaking strain
ROP117	£0.66	ROP117D	£54.96	3mm	Black	110kg
ROP117W	£0.66	ROP117WD	£54.96	3mm	White	110kg
ROP118	£0.80	ROP118D	£64.35	4mm	Black	170kg
ROP118W	£0.80	ROP118WD	£64.35	4mm	White	170kg
ROP119	£0.83	ROP119D	£67.02	5mm	Black	300kg
ROP119W	£0.83	ROP119WD	£67.02	5mm	White	300kg

Boxes of Coloured Polyester Line

Handy boxes of 10 2 mm or 3 mm diameter reels of brightly coloured polyester line which is very UV resistant, will not stiffen up and is very flexible. Each box has an assortment of red, yellow, green, black and blue. We also sell the 3 mm cords as individual reels.



code	diameter	Colour	length	price
ROP10402	2mm	multiple	10 x 30m	£56.10
ROP10403	3mm	multiple	10 x 15m	£45.54
ROP1043188	3mm	Black	15m	£5.50
ROP1043228	3mm	White	15m	£5.50
ROP1043171	3mm	Red	15m	£5.50
ROP1043010	3mm	Blue	15m	£5.50
ROP1043086	3mm	Green	15m	£5.50
ROP1043059	3mm	Yellow	15m	£5.50

NATURAL STRINGS

Sisal

A useful traditional ball of string. How long is a ball of string? Twice the distance from one end to the centre.



code	approx length	weight	price
ROP058	33m	250g	£2.79
ROP055	330m	2.5kg	£12.58

Tarred Marlin

A wonderful dark brown natural twine which smells of old ships. Heaven. We've sourced the same quality but at a much lower price. See below for historic-looking cord.



code	approx diameter	description	weight	price
ROP250WT	1mm	Whipping Twine	250g	£15.43
ROP250ST	3mm	Serving Twine	250g	£14.40

3-STRAND POLYESTER CORD

3-Strand Polyester Cord

Hemp performance, but softer, more weather resistant, and with a higher load performance. Made from spun polyester. Ideal for whipping, lashing and model boat rigging. This is a 3mm version of the Classic 3 Strand Polyester Rope [page 219].



code	diameter	length	price	10+
ROPHC3N10	3mm	10m	£6.90	£6.21

FISHING LINE

Flints Nylon Monofilament Fishing Line

Use for suspending when wire isn't appropriate and you want the thread to be inconspicuous. Can also be used for fishing. Natural nylon colour.



code	diameter	breaking strain	length	price
ROPFL03	0.3mm	4kg	100m	£2.50
ROPFL06	0.6mm	14kg	100m	£2.75
ROPFL12	1.2mm	48kg	100m	£3.25

FIBRE ROPES

BRAIDED LOOPS

Braided Loops

These loops are made from black 8 mm polyester braided cord. They are 450 mm long [circumference 900 mm]. When used with a Clummet® they are very useful for keeping your ropes and cables organised. Just trap a loop under the Clummet®, draw it through the coil of rope to be hung up and then hook the loop back over the Clummet®. For Clummetts® see page 167.



code	diameter	description	EWL	price
FHS006LOOP	8mm	Loop	450mm	£3.62

ECONOMY ROPE AND STAKES

Ropes and Stakes

Economy grade polypropylene rope suitable for fencing off outdoor areas at festivals and show grounds. Two coil sizes. The stakes are steel and sold singly. To complete the job you may need Club Hammers [page 319] and Line Marking Chalk Sprays [page 76].



code	description	diameter	length	price
ROPBC30	Blue Rope	10mm	30m	£14.04
ROPBC220	Blue Rope	10mm	220m	£84.54
ROPSTAKE	Stake			£5.25

SHOCK CORD LOOPS

Spanfixes – shock cord loops

These loops of shock cord with a nylon hook at one end are hugely popular. They are perfect for stretching projection screens but also useful for awnings, banners and cloths. The elastic will exert a constant tension giving a totally wrinkle-free cloth even under variable heat, humidity and weather conditions. The loops are made from 5 mm diameter shock cord and measure 250 mm end to end. They will stretch by 100% [+/-10%]. In black or white. Supplied in bags of 10



code	Colour	length	qty	price	10+	100+
ROP090	Black	250mm	10 per bag	£10.40	£9.36	£8.76
ROP090W	White	250mm	10 per bag	£10.40	£9.36	£8.76

Spaniflex – adjustable shock cord loops

A quickly adjustable black shock cord loop. Made from 5 mm shock cord approx. 500 mm long. Will make a maximum loop of 200 mm. Useful for touring situations when the distance between the cloth and the eyelet can be variable.

We can supply custom Bungee Straps made to your requirements!



The shock cord is pulled down into the toothed groove and held firmly in place.



code	length	qty	price	10+ bags
ROP090S10	500mm	10 per bag	£15.75	£14.17

BUNGEE SHOCK CORD

Bungee Shock Cord

Highly elastic rubber with excellent stretch characteristics. The cover is braided out of abrasion resistant and highly resilient polyester. Core from high quality latex rubber. Available in black or white. When the Dangerous Sports Club were on trial for bungee jumping off the Clifton Suspension Bridge the judge was undecided whether to give them a suspended sentence or a long stretch. Supplied by the metre or in a full drum which is 100 m.



code	per m	code	100 m full drum	diameter	Colour
ROP072M	£0.39	ROP072MD	£26.12	3mm	Black
ROP074M	£0.59	ROP074MD	£40.76	5mm	Black
ROP076M	£0.89	ROP076MD	£57.47	7mm	Black
ROP078M	£0.99	ROP078MD	£61.65	8mm	Black
ROP080M	£1.57	ROP080MD	£103.98	10mm	Black
ROP072	£0.39	ROP072D	£26.12	3mm	White
ROP074	£0.59	ROP074D	£40.76	5mm	White
ROP076	£0.89	ROP076D	£57.47	7mm	White
ROP078	£0.99	ROP078D	£61.65	8mm	White
ROP080	£1.57	ROP080D	£103.98	10mm	White

BUNGEE CLIPS

Bungee Clips

Two styles of black clip to terminate your bungee. Type A is held with a knot which hides in the recess and Type B has a collar that clips into place to neatly secure the bungee.



code	Style	bungee size	price
ROP085	Knot Type A	5-6mm	£0.71
ROP086	Knot Type A	7-8mm	£0.79
ROP081	Collar Type B	5-6mm	£0.92
ROP083	Collar Type B	7-8mm	£1.07

SPLICING SERVICE

Flints can hand splice 3-strand and braided ropes. Our splices are carried out to a very high standard and are in accordance with the Lifting Equipment Engineers Association's recommendations and the rope manufacturer's advisory notes. Natural fibre ropes are slightly more costly to splice because of the requirement to whip all the tails whereas artificial ropes can be sealed with a hot knife. Try to avoid the need for splices at each end of a rope, especially matched pairs. It is very difficult to splice rope to exact lengths and some settling can occur. If Flints is making up sets of spliced lines we will cut them from the same coil or batch of coils. Flints can also make up wire rope drifts with full certification.

All Splices

For every splice you will need to add the cost of the rope plus one metre for each splice and the cost of the Thimble chosen [page 193].

Splices in Natural Fibre Ropes

This covers splices in manila, flax and cotton ropes. Splices in ropes up to and including 16 mm Ø will have four full tucks. All tails will be whipped and the thimble secured with two lashings. Splices in ropes over 16 mm Ø will have four full tucks plus an additional tuck with at least 50% of the yarn and all the tails whipped.



code	description	strands	price
SPLICENF16	Up to and including 16 mm Ø	3	£8.00
SPLICENFL	16 mm to 24 mm Ø	3	£12.00
SPLICECHR	20 mm Ø	4	£15.00
SPLICECRA	Aerialist splice in cotton	3	£20.00

Splices in Artificial Fibre 3-Strand Ropes

This covers splices in 3-strand artificial hemp, classic polyester and black polyester. Splices in ropes up to and including 16 mm Ø will have five full tucks. All tails will be fused back with a hot knife and the thimble secured with two lashings. Splices in ropes over 16 mm Ø will have five full tucks plus an additional tuck with at least 50% of the yarn. All the tails will be fused with a hot knife.



code	description	strands	price
SPLICEAF16	Up to and including 16 mm Ø	3	£6.00
SPLICEAFL	16 mm to 24 mm Ø	3	£8.00

Splices in Braided Ropes

This covers splices in braided ropes [matt polyester, classic polyester, Herkules and Dyneema® Pro] but excludes 8-plait ropes. The ropes will be spliced in accordance with the manufacturer's instructions. We can also arrange sewn terminations for climbing ropes – please ask our Rigging Manager.



code	description	Material	price
SPLBR812	8 mm to 12 mm Ø	polyester	£10.00
SPLBR1220	12 mm to 20 mm Ø	polyester	£12.00
SPLBRDP	3 mm to 10 mm Ø	Dyneema® Pro	£6.00

SPLICING GEAR

Splicing 3-strand ropes is relatively easy. If you can find a knowledgeable person to show how it is done, then that is the best way to learn, but if no one is available then why not purchase one of our splicing books such as "Knots Step by Step" by Des Pawson [MBE]. Books are listed on page 399.

Whipping Twine

Black, white or natural waxed twine in two sizes. For the heavier natural tarred twines which are more suitable for decorative work reminiscent of old ships [page 223].



code	diameter	Type	Colour	length	price
ROP200M	1mm	Medium	White	30m	£3.90
ROP200L	1.5mm	Heavy	White	20m	£3.58
ROP200LB	1.5mm	Heavy	Black	20m	£4.60
ROP200N08	0.8mm	Medium	Natural	41m	£6.16

Palms and Needles

Left- and right-handed leather palms with a needle-proof section for forcing through heavyweight materials or ropes. The needles are proper sailmaker's needles capable of heavy work. Whipping threads are often drawn through a beeswax cake to waterproof and seal the thread. Right-handed people tend to use righthanded palms.



code	description	price
ROP201	Sailmaker's Palm [left hand]	£12.85
ROP201R	Sailmaker's Palm [right hand]	£12.85
ROP202	Sailmaker's Needles [Pack of 5 assorted]	£8.23
ROP2025	Sailmaker's Needles [Pack of 22 assorted]	£23.66
ROP206	Beeswax Cake [for waterproofing thread]	£8.23

Marlin Spikes

A solid steel spike for opening up tight ropes.



code	size	price
ROP212	6"	£19.54
ROP213	10"	£23.09

Currency Spike

For stabbing naan bread plus a useful shackle key.



code	size	price
ROP211	7 3/4"	£14.20

Swedish Fids

These fids are hollow so that strands can be passed through the gap while the fid is still inserted.



code	size	price
ROP203	6 3/4"	£8.55
ROP204	1 1/4"	£13.25

Selmas

Selmas are special hollow needles from Norway for splicing braided ropes. Supplied in sets of four to suit ropes up to about 12 mm. Also see "Knots, Splices and Ropework" for detailed splicing instructions [page 402].



code	inside Ø max	qty	inside Ø min	price
ROP1435000	10mm	4	4mm	£53.09

SPLICING KIT

Splicing Kit

We have put together this handy kit supplied in a Flints Canvas Zipper Bag. The kit comprises of Knots Step by Step, a right- or left-hand sailmaker's palm, a 6" Swedish fid, beeswax, a pack of 5 sailmaker's needles, a reel of 1 mm whipping twine, a length of braided rope to practice knots, a length natural 3-strand rope, and a length of 3-strand artificial hemp to practise splicing.



code	description	price	Price if bought separately
FHSSPLR	Right-hand kit	£49.50	£63.08
FHSSPLL	Left-hand kit	£49.50	£63.08

Liros Rigger's Bag

A high spec splicing kit with all the tools and accessories necessary to complete braided and 3-strand splices.

All packed in a handy special zipper bag, includes:

- 1 x Liros Whipping needle
- 1 x Swedish Fid
- 1 x Liros splicing CD
- 1 x Liros wet notes book
- 3 x Splicing needles [5.5, 7.5, 10 mm]
- 1 x Liros brochure
- 1 x Liros tape
- 1 x Dyneema® whipping twine
- 1 x Pen
- 1 x Lighter

Also see Knot Books [page 402] and Ditty Bags [page 346].



code	price
ROPLRB	£101.98

EQUIPMENT MANAGEMENT SYSTEM

Equipment Management System

We know you are all mega organised and could quickly lay your hands on the certificate of conformity for that lanyard you bought last year. We're sure all your harness inspection records are neatly filed so you won't be needing to purchase this splendid Equipment Management System which resolves every problem associated with recording and storing the essential data needed to comply with LOLER regulations.

Why not buy a robust and well-designed Ortlieb Bag [page 347] to look after your PPE?



code	description	price
BKSEMS		£51.00
BKSEMSB	Extra booklets for multi-users	£3.59

HOT KNIVES

Hot Knife

This industrial quality hot knife heats up quickly to cut and seal the ends of artificial ropes. Fitted with a light to illuminate the cutting area. The blade is also available as a separate item. 240 V AC.



code	description	price
ROPHOTKK	Knife complete with blade	£129.95
TOLHSGB	Knife blade only [Type R]	£26.45

Economy Hot Knife

A economical hot knife supplied complete with a blade ideal for cutting modern synthetic ropes. Packed with a hex key and wire brush. 220 V AC 50 Hz. Power: 60 W. Power lead length: 2.5 m. Weight: 1.5 kg



code	description	price
ROPK857	Knife complete with blade	£107.30
ROPK857B	Knife blade only [Type R]	£17.44

ADHESIVE-LINED HEAT SHRINK

Adhesive-Lined Heat Shrink Tubing

We found that conventional heat shrink tubing would eventually slip off the rope, especially manila, and we got into the habit of applying a squirt of UHU glue to secure it. Now we stock this heat shrink tubing with a hot melt glue inside. As you heat it the glue melts and the tubing shrinks by four times to form a really secure termination. Ideal for sealing the ends of natural ropes without needing to whip them. Also great for preventing water ingress to electrical terminations. Use a hot air gun to shrink it [page 58]. Choose a size plenty big enough, you will struggle to get a 32 mm diameter shrink over a 32 mm rope but it will go nicely onto a 24 mm rope.

✓ Great for securing webbing loops to tools for lanyard attachment points. See also the Ergodyne Squids® system on page 357

Also see Rescue Tape [page 301].



code	diameter	shrinks to	price	6m+
ROPDWA123	12mm	3mm	£4.77	£4.05
ROPDWA246	24mm	6mm	£7.90	£6.72
ROPDWA328	32mm	8mm	£10.40	£8.84

ROPE LABELLING

Rope Labelling Pack

This useful kit provides a special white tape and clear heat shrink to enable the ends of ropes to be clearly marked, especially when they are cut from a reel. It is designed for use with the dynamic and semi-static ropes (see page 222) but would be suitable for any ropes around 10 mm diameter. Enough for 50 labels. Also see Rescue Tape [page 301].



code	price
ROPBRE	£16.00

ONE WRAP

One Wrap

This is one of the most useful products in the catalogue. It is a hook-and-loop fastener that is double sided so it will stick to itself. Cut it to any length to make reusable cable ties. Use it around folded cloths, sorting extension leads etc. Available on rolls or by the metre. Amazingly useful. Black.



code	per m	code	per 25 m	width
GEN244	£1.70	GEN244D	£34.03	16mm
GEN245	£1.96	GEN245D	£40.08	20mm
GEN246	£2.17	GEN246D	£48.14	25mm
GEN248	£3.63	GEN248D	£88.22	50mm

CABLE TIES

Cable Ties

Self-extinguishing nylon 6.6. Working temperature from -40° to +85°. Available in black and natural. Remarkable value.



black	price	natural	price	10+	length	width	qty
GEN233	£0.64	GEN233N	£0.64	£0.45	100mm	2.5mm	100
GEN232	£1.95	GEN232N	£1.95	£1.55	200mm	4.8mm	100
GEN231	£3.80	GEN231N	£3.80	£2.85	300mm	4.8mm	100
GEN234	£8.76	GEN234N	£8.76	£6.30	370mm	7.6mm	100
GEN235	£19.60	GEN235N	£19.60	£17.85	780mm	9mm	100

Releasable Cable Ties

Finger latch to release for re-use. Each pack contains 100 cable ties. Black.



code	Colour	length	width	qty	price	10+
GEN232R	Black	200mm	4.8mm	100	£3.85	£3.50
GEN234R	Black	370mm	7.6mm	100	£8.35	£7.50

WRAP BACK TIES

Wrap Back Ties

Fed up with nylon cable ties blocking stage tracks? Fed up with cutting your hands on the sharp edges left from nylon ties or with peeling sticky tape from your shoes? Why not try our wrap back ties. They have a hook-and-loop fastener which is repositionable, reusable, and more environmentally sound. They are kinder on the cables [especially data and fibre optic cables] and hands. Also useful for tidying air hoses, extension leads and hemp lines. Flints has these made in two useful sizes: Small – ideal for fixing cables to flying bars. Large – Ideal for tidying hoses etc. Black.



code	description	Colour	length	width	price
GEN241	Small size	Black	300mm	25mm	£4.60
GEN242	Large size	Black	400mm	25mm	£4.60

WEBBING

Webbing

Black or white polyester webbing for reliable performance and excellent abrasion resistance. Polyester has lower stretch than nylon and maintains its strength when wet. Also see Webbing Links and Seddon Links [page 183] and Ratchet Straps and Tie Off Webbing [page 382].



code	per m	code	per 100 m full reel	Colour	width	breaking strain
ROPPW25	£0.99	ROPPW25D	£78.50	Black	25mm	1500kgf
ROPPW38	£1.98	ROPPW38D	£153.95	Black	38mm	3000kgf
ROPPW50	£1.69	ROPPW50D	£95.00	Black	50mm	5000kgf

Stainless Steel Bridge

Neat bridges for holding webbing in place.



code	weBBing width	price
ROP0596	25mm	£1.63
ROP0597	40mm	£2.28

TREEFIX CABLE WRAPS

TreeFix Cable Wrap

Durable Rubber Cable wraps that can be used again and again. Great alternative to single use cable ties Available in 80 mm, 160 mm & 230 mm



code	length	price
GENTFW08	80mm	£5.95
GENTFW16	160mm	£11.11
GENTFW23	230mm	£25.50

BUCKLES

Quick Release Buckles

The top release suits 40 and 50 mm webbing. The quick release button is on the top. This buckle is a side squeeze type and takes 25 mm webbing. Both the buckles are black.



code	description	weBBing width	breaking strain	price
ROP5131K	Side Squeeze	25mm	97kg	£0.80
ROP1958	Top Release	40mm	300kg	£12.21
ROP1960	Top Release	50mm	300kg	£13.27

Stainless Steel Flat Buckles

3 bars and 2 slots.



code	weBBing width	thickness	price
ROP0810	40mm	3.2mm	£5.89

General Pulley Information

The breaking load of pulleys is normally determined by attaching the head fixing of the block to one end of a testing machine while both legs of a U-bolt [or a loop of rope] are placed over the sheave and attached to the other end of the machine. The machine then pulls apart the head and the sheave until it fails. If the pulley fails at 1,000 kg then that is generally the manufacturer's stated breaking load.

However, if you attach the head of the pulley to your theatre grid and reeve a rope through it and attach one end to a **1,000 kg weight** on the floor you will need to exert **2,000 kg headload** to actually lift the weight because it will require a 1,000 kg pull while still suspending a 1,000 kg weight. Therefore, to determine a safe working load, Flints would recommend that the breaking load is immediately halved and then divided by eight [which is the ABTT code for wire rope]. For example: For our popular Opera Web Block, which would fail at 2,500 kg on a test bed, we give a working load limit of 156 kg $[2,500 \div 2 = 1,250 \div 8 = 156 \text{ kg}]$. The WLL is more than you would want to haul by hand but considerably below the breaking load.

Marine equipment tends to state the safe working load as half the breaking load, other suppliers use different calculations. We have tried to clarify the situation in this catalogue by giving the information as clearly and boldly as we can in the special safety boxes.

Choosing the correct pulley size

To obtain the maximum working life, strength and the least friction the pulley sheave diameter should be at least 8 times the diameter of the rope. In the case of wire ropes the sheave diameter should ideally be 30 times the diameter of the wire. However, there are many applications where these large diameter sheaves would be completely impractical in which case choose a pulley that fits the job but take into account a shorter working life and reduced breaking load. Regularly inspect the rope or wire for signs of wear. Be careful when choosing pulleys to fit fibre ropes. Rope diameters can vary, three-strand ropes often reduce in diameter when under load but can exceed their stated diameter when not under tension.

Bearings or not

Bearings are necessary to obtain highly efficient blocks. Small pulleys with bearings were originally developed for land yachts by Harken where there was a need for extremely rapid rope movement with low friction.

Choose blocks with bearings when your rope needs to run very fast or when a series of blocks are being used together and the combined friction will build up. The maximum rolling load on bearings is often below a plain bearing block.

Generally, a plain bearing is either a plain hole or a hole lined with a brass or Oilite bush. For most uses they are perfectly adequate and for pulleys subjected to long periods just supporting a static load they are the preferred choice. They are generally stronger, more reliable and cheaper.

It is important that any equipment purchased for lifting purposes is selected by a person competent to do so.

Is it a Block or is it a Pulley?

They're sometimes called "blocks" and sometimes "pulleys"; and sometimes both in the same paragraph. Halls and Doughty products are made up of multiple sheaves [aka "pulleys"] that rotate independently and when put with end plates are "blocks". "Block" is also used in marine environments, see the Barton pages [page 230]. "Pulley" is the short version of "pulley block". We'll keep using both terms so no one feels left out.

Fun and Games Ordering Pulleys

It all seems quite simple. You choose your blocks and you choose your brackets and place the order. That is fine until you order a 1-way pulley, a 2-way pulley and a 3-way pulley and two parallel mounting brackets and one across mounting bracket. We need to know which pulley has which bracket! Furthermore, Doughty will no longer supply the blocks and the brackets separately, they must be supplied assembled by an appropriately qualified person. This isn't because they don't trust you with bolts, spacers and a spanner, it is so they can label the assembled pulley with a SWL. So, in an ideal world this is what we would like:

Please supply:

One off 2-way 100mm fibre block DOUT42837 c/w DOUT42870 girder bracket and so on...

Probably best to leave a mobile number too!

Pulleys with Becket



A becket is simply an additional rope attachment point on a pulley. To make up a simple purchase system it is best to choose blocks fitted with a becket. The becket provides the most effective anchorage position for the line to be tied or spliced to. We hold stocks of certain blocks fitted with becket which are now listed together with the other pulleys of the same size. We can easily order other sizes – please phone our Rigging Manager for details.

Reverse Shackles

It's all about the pin. These products have a removable pin and shackle.

The pin and shackle dismantled.



The pin placed like this allows the block to move at a 90° angle to the sheave.



The pin placed like this allows the block to move inline to the sheave



MINI PULLEYS

Single and Double Mini Pulleys

Invaluable as guides for small trip lines. The pulleys can be secured with a small shackle [4 mm pin], Dyneema or polyester cord or even cable ties for light loads. The axles are hollow so they can be fixed with a screw for side mounting purposes. We also have a small upright block. Made from 316-grade stainless steel with acetal sheaves.

SAFETY

Breaking Load
275kg



Single

Double

Upright

code	description	sheave Ø	rope Ø	price
PUL530	Single	16mm	2-5mm	£4.98
PUL533	Double	16mm	2-5mm	£9.42
PUL534	Upright	16mm	2-5mm	£11.28

MINI PULLEYS FOR WIRE ROPE OR CORD

16 mm High Tension Blocks

This High Tension range is made from 316-grade stainless steel throughout giving incredible strength to weight ratios. The ball race is machined using the latest CNC technology which ensures absolute consistency in production. Ideal for use with 4 mm Dyneema Pro [page 221] or flexible wire ropes. Shackle pin: Ø 4 mm.

- ✓ Maximum sheave efficiency
- ✓ Minimum friction for all high load applications



Single

Double

SAFETY

Breaking Load
275kg

code	sheave Ø	rope Ø	description	price
HA4568	16mm	2-4mm	Single	£20.30
HA4569	16mm	2-4mm	Double	£43.43

25 mm High Tension Blocks

A larger and stronger version of the 16 mm blocks listed above. These incredible lightweight blocks are perfect for use with highly technical lines such as Dyneema Pro [page 221] or flexible wire ropes. Shackle pin: Ø 5 mm.

- ✓ Amazing strength with virtually no weight



Single

Double

SAFETY

Breaking Load
275kg

code	sheave Ø	rope Ø	description	price
HA4379	25mm	2-5mm	Single	£24.09
HA4679	25mm	2-5mm	Double	£52.47

Mini Upright Block

A small stainless steel block with a 25 mm diameter chromed brass sheave designed for small wire ropes or high tech ropes such as Dyneema. Useful for model theatre grids and working props. The maximum wire size is 4 mm [although the ABTT would have something to say about running a 4 mm wire around a 25 mm sheave!] The manufacturers only state the breaking load of a similar pulley in the range which is 950 kg. The breaking load of this pulley is dependent on the fixings through the lugs.



code	sheave Ø	max wire Ø	price
PULSS0108	25mm	4mm	£15.40

High Load Wire Rope Block

Side cheeks are made from 316-grade stainless steel. The brass sheave runs on a stainless steel centre bush. A useful pulley for unobtrusive guiding of small wire ropes, such as awning rigging etc.



SAFETY	Min Breaking Load	Safety Factor	WWL
	750kg	2 to 1	375kg

code	sheave Ø	max wire Ø	description	price
BAR91301	45mm	5mm	Fixed eye	£34.88

Aluminium Wire Rope Cheek Block

Side cheeks are made from marine-grade aluminium grey anodised for durability. The sheaves are precision turned from aluminium bar which is then silver anodised. They run on nylon bearings to reduce friction under load. The rivets are 316-grade stainless steel. A similar pulley in this range has a break load of 1,750 kg but the strength of this block will depend on its fixings. For maximum strength, fixings should pass through the hollow centres of the rivets. Fastening diameter: 5 mm. Base size: 103 x 53 mm.

For a full range of Rope Cheek Blocks see page 231.



code	sheave Ø	max wire Ø	price
BAR91650	51mm	4mm	£64.01

Barton Pulleys

This range of tough lightweight blocks is made from the highest quality materials to ensure ultimate efficiency and long working life. The plain brass bearing ensures free running even under high loads. They are available with a swivel head or a reverse shackle which allows the block to be fixed in parallel or at right angles. Blocks can also be supplied with ball bearing sheaves to order.

Alasdair personally vouched for the reliability of these Barton blocks as he has used them in demanding applications on his luxury yacht for well over 20,000 nautical miles over the last 21 years with no failures or even signs of wear.

And he's not the only one impressed. In the German magazine *Die Yacht* they tested Barton Size 4 and a Barton Cruiser block against 14 other blocks from eight leading manufacturers. Both the Barton blocks finished in the top five and the Barton Cruiser block won overall for "its smooth running under maximum load and attractive price". *Voiles et Voiliers* magazine was also full of praise "both Barton pulleys were least expensive on offer, yet performed most satisfactorily under load". A sad note in the reports was that many of the blocks by other leading manufacturers failed well below the manufacturer's stated breaking load. Well done Barton! Made in Whitstable!

SMALL BARTON BLOCKS

Size 0 Blocks

A strong and lightweight range of blocks for use with lines up to 5 mm. Fitted with plain bearings for greater load capacity and good static loading. SPECIFICATION: Sheave size: 20 x 8 mm. Max rope Ø: 5 mm.



SAFETY	Min Breaking Load	Safety Factor	WWL
	750kg	2 to 1	375kg

code	description	price
BARN00110	Single Fixed Eye	£5.71
BARN00130	Single Swivel	£16.37
BARN00131	Single Swivel with Becket	£17.73
BARN00210	Double Fixed Eye	£14.55
BARN00230	Double Swivel	£24.40
BARN00231	Double Swivel with Becket	£26.03
BARN00310	Triple Fixed Eye	£24.29
BARN00330	Triple Swivel	£33.22
BARN00331	Triple Swivel with Becket	£34.58

MEDIUM-DUTY YACHT BLOCKS

Size 1 Blocks

Hugely popular general purpose blocks. Flints holds very large stocks of these pulleys. Swivels now fitted with mini shackle for easy attachment. SPECIFICATION: Sheave size: 30 x 12 mm. Max rope Ø: 8 mm. See also page 157 for economical Cloth Stretching Runners.



Single Fixed Eye Single Fitted with Becket Double Swivel Triple Fixed Eye

SAFETY	Min Breaking Load	Safety Factor	WWL
	710kg	2 to 1	355kg

code	description	price
BARN01110	Single Fixed Eye	£7.91
BARN01130	Single Swivel	£13.19
BARN01131	Single Swivel with Becket	£16.18
BARN01210	Double Fixed Eye	£13.17
BARN01230	Double Swivel	£24.34
BARN01310	Triple Fixed Eye	£20.32
BARN01330	Triple Swivel	£23.25

Size 2 Blocks

The slightly larger sheave diameter on these blocks will help reduce friction and rope wear. Choose them in preference to Size 1 blocks for more demanding applications.

SPECIFICATION: Sheave size: 35 x 12 mm. Max rope Ø: 8 mm.



SAFETY	Min Breaking Load	Safety Factor	WWL
	740kg	2 to 1	370kg

code	description	price
BARN02110	Single Fixed Eye	£9.86
BARN02130	Single Swivel	£14.48
BARN02131	Single Swivel with Becket	£17.59
BARN02210	Double Fixed Eye	£15.42
BARN02230	Double Swivel	£27.05
BARN02231	Double Swivel with Becket	£30.21
BARN02310	Triple Fixed Eye	£28.10
BARN02330	Triple Swivel	£30.13

Size 3 Blocks

SPECIFICATION: Sheave size: 45 x 13 mm. Max rope Ø: 10 mm.



SAFETY	Min Breaking Load	Safety Factor	WWL
	800kg	2 to 1	400kg

code	description	price
BARN03110	Single Fixed Eye	£11.31
BARN03130	Single Swivel	£15.95
BARN03210	Double Fixed Eye	£19.06
BARN03230	Double Swivel	£30.92
BARN03310	Triple Fixed Eye	£29.67
BARN03330	Triple Swivel	£35.62

Size 5 Blocks

Great value and capable of handling up to 12 mm diameter ropes.
SPECIFICATION: Sheave size: 54 x 17 mm. Max rope Ø: 12 mm.



SAFETY	Min Breaking Load	Safety Factor	WWL
	1,500kg	2 to 1	750kg

code	description	price
BARN05130	Single Swivel	£38.02
BARN05120	Single Reverse Shackle	£25.51
BARN05131	Single Swivel with Becket	£42.86
BARN05230	Double Swivel	£45.35
BARN05220	Double Reverse Shackle	£37.09
BARN05231	Double Swivel with Becket	£49.95
BARN05330	Triple Swivel	£55.84
BARN05320	Triple Reverse Shackle	£44.80

HEAVY-DUTY YACHT BLOCKS

Size 6 Blocks

This range of rugged quiet high load blocks are made from injection moulded side plates with all load-bearing components in 316-grade stainless steel. The acetal sheaves run smoothly under extremely high loads on a stainless steel centre pin with a brass bush. Ball bearing versions are available to order.
SPECIFICATION: Sheave size: 64 x 17 mm. Max rope Ø: 12 mm



Single Swivel

Double Reverse Shackle

Triple Reverse Shackle

SAFETY	Min Breaking Load	Safety Factor	WWL
	2,000kg	2 to 1	1,000kg

code	description	price
BARN06130	Single Swivel	£51.88
BARN06120	Single Reverse Shackle	£34.94
BARN06220	Double Reverse Shackle	£44.96
BARN06320	Triple Reverse Shackle	£54.02

Size 7 Blocks

Toughest yacht pulleys we hold in stock. Capable of demanding work.
SPECIFICATION: Sheave size: 70 x 20 mm. Max rope Ø: 14 mm



SAFETY	Min Breaking Load	Safety Factor	WWL
	2,500kg	2 to 1	1,250kg

code	description	price
BARN07130	Single Swivel	£64.41
BARN07120	Single Reverse Shackle	£42.65
BARN07220	Double Reverse Shackle	£53.04
BARN07320	Triple Reverse Shackle	£18.73

UPRIGHT YACHT BLOCKS

Upright Yacht Blocks

A range of well-made, quiet, upright blocks which are competitively priced and will give years of reliable service. Please note that the breaking loads given below will depend on the strength of the fixings.
SPECIFICATION: Fastenings: 4 off 5 mm Ø on all sizes.



code	description	sheave Ø	max rope Ø	min BL	price
BARN01150	Single Size 1	30mm	8mm	710kg	£16.80
BARN01250	Double Size 1	30mm	8mm	710kg	£20.97
BARN03150	Single Size 3	45mm	10mm	800kg	£21.23
BARN03250	Double Size 3	45mm	10mm	800kg	£28.97
BARN04150	Single Size 4	54mm	12mm	1500kg	£31.18
BARN04250	Double Size 4	54mm	12mm	1500kg	£44.21

SIDE MOUNTING CHEEK BLOCKS [SINGLE & DOUBLE]

Side Mounting Turning Blocks [Cheek Blocks]

These economical quiet and tough blocks can be mounted directly to timber, steel or alloy battens. Supplied with a plastic base shield to isolate dissimilar metals [necessary in salt water environments]. Flints has some of these blocks specially made for us as doubles.
SPECIFICATION: Fastenings: 5 mm Ø on all sizes except size 1 which requires 4 mm Ø.



BARN01160 looks like this... ...all the others look like this.

code	description	base plate length	base plate width	max rope Ø	min BL	price
BARN01160	Single Size 1	55mm	30mm	8mm	710kg	£7.46
BARN02160	Single Size 2	79mm	43mm	8mm	740kg	£14.66
BARN99554	Double Size 2	79mm	43mm	8mm	740kg	£12.40
BARN03160	Single Size 3	92mm	52mm	10mm	800kg	£17.32
BARN99556	Double Size 3	92mm	52mm	10mm	770kg	£19.66
BARN04160	Single Size 4	107mm	66mm	12mm	1500kg	£25.59
BARN99557	Double Size 4	107mm	66mm	12mm	1260kg	£27.92

Changes to the Barton Pulley Range

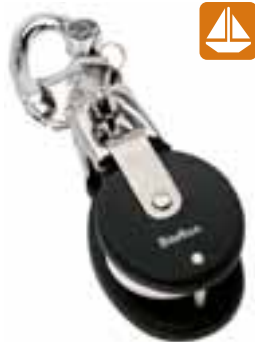
A few years ago Barton updated their range of pulleys. The new pulleys are still manufactured in the UK, and have been developed to meet the existing design endurance and reliability. With a sleek dark graphite sheave, they look stylish and clean in situ. The specifications are not significantly different from previous ranges, though in some cases the WLL is improved, and the weight reduced. See also the BIG BLOCK 32 on page 218 for large diameter ropes. NB: The Size 4 blocks have now transitioned to Size 5 blocks - except for the side-mounted cheek blocks - it's all a bit complicated!



SNATCH BLOCKS

Snatch Blocks

The sides of these blocks hinge open allowing them to be inserted into previously rigged lines making them useful for brailing purposes. The rugged blocks that we supply are excellent value. We now stock a smaller version for ropes up to 12 mm Ø. See also the Petzl Rescue Pulley [page 233].



SAFETY		Min Breaking Load	Safety Factor	WWL
	BARCW1451	1,300kg	2 to 1	660kg
	BARCW1452	1,100KG	2 to 1	550KG

code	description	max rope Ø	price
BARCW1451	Fitted with Stainless D Shackle	14mm	£99.75
BARCW1452	Fitted with Stainless Snap Shackle	14mm	£96.84

ROPE ORGANISERS

Rope Organisers

Useful for tidying up complicated rope arrangements and for guiding ropes into clutches. Fixings should go through the axle of the sheaves with 6 mm machine screws [not supplied]. Takes rope up to 12 mm diameter and the sheaves are grooved to accept wire as well.



code	description	max rope Ø	price
BAR584	4-way	12mm	£62.32

SNATCHET BLOCKS

Harken Snatchet Block

Harken quality pulley with combined carabiner. Two versions available; one is ratcheting, one is not! Snatchet pulleys can be inserted into the middle of an existing rig eliminating the need to take the load off a loaded line and rerig. The ratcheting version can grip loaded hauling lines to help relieve the operator of much of the strain! SPECIFICATION: Height: 72 mm. Width: 146.5 mm. Weight: 178 g. Maximum line Ø: 14 mm. Breaking load: 38 kN. Maximum working load: 10 kN



code	description	price
HARSN65R	Ratcheting	£228.50
HARSN65	Non-Ratcheting	£180.52

TACKLE

Quadruple Purchase Tackle

Tackles can solve many lifting problems. They are much faster than hand winches and more economical. This tackle arrangement will give a quadruple purchase. The sheaves we have selected are fitted with ball races to reduce friction. They can be supplied with or without adjustable angle camlocks to temporarily hold the load. A useful general purchase tackle.



Fiddle swivel becket with cams

Fiddle swivel



With Rope Lock	description	price
BARN16631	Fiddle Swivel Becket Cam with bearings	£114.72
BARN16430	Fiddle Swivel with bearings	£79.80
BARRKITN1	Both together [15% less]	£141.48
Without Rope Lock	description	price
BARN16431	Fiddle Swivel Becket Cam with bearings	£82.97
BARRFKITN2	Both together [15% less]	£118.39

JAG SYSTEM

Jag System

This hauling kit provides optimal efficiency and compactness. The mesh cover prevents the hauling line from getting tangled. The sheaves are mounted on sealed ball bearings for extra efficiency. A versatile 4:1 advantage system allows for easy pickoffs, makes a releasable anchor, or provides tension in a system. When coupled with an I'D descender [page 360] it makes a reversible rescue kit to pickoff and rescue a victim. Extremely compact – the smallest version has a collapsed length of just 320 mm [1000 mm extended]. The Jag System comes with two Am'D Triact-Lock autolocking karabiners. The pulleys are also available for individual purchase so that longer hauling systems can be made. SPECIFICATION: Sheave Ø: 25 mm. Max rope Ø: 11 mm. Rope supplied: 8 mm. Efficiency: 91%.



Jag Pulley CE EN 12278

Jag Traxion CE EN 567



SAFETY		Min Breaking Load	Safety Factor	WWL
		16kN	2.66 to 1	6kN
code	description	collapsed length	extended length	price
PETP044AA00	Complete System	320mm	1000mm	£185.00
PETP044AA01	Complete System	340mm	2000mm	£200.00
PETP044AA02	Complete System	400mm	5000mm	£240.00
PETP45	Jag Pulley alone			£56.00
PETP54	Jag Traxion alone			£90.00

HARKEN® HEXARATCHETS [INDUSTRIAL & MARINE]

Harken® Hexaratchets

These popular ratchet blocks will grip loaded hauling lines to relieve the operator of much of the strain. The design of the sheave is such that when the rope is eased off it will slide around the sheave without the sheave turning. Hence a hefty lantern can be lifted and held in place without having to hold the full weight. It gives an 8:1 advantage with a 180° wrap. These blocks do NOT lock the rope so the load can be gently lowered against the fixed sheave.

Industrial version [HAR441549] is individually marked and supplied with instructions. Conformity: EN1315.

Marine version [HAR1549] is not certified.

- ✓ Very popular with professional riggers
- ✓ Now fully certified and individually marked
- ✓ The set screw in the 3-way head allows the head to be fixed parallel, at right angles or to freely swivel



SAFETY	Min Breaking Load	Safety Factor	WWL
	20kN	4 to 1	5kN [509kgf]

code	Type	turns	sheave Ø	max rope Ø	list price	Tradeline
HAR441549	Industrial	Clockwise	76mm	14mm	£204.29	£190.30
HAR1549	Marine	Clockwise	76mm	14mm	£209.01	£195.55

SELF-JAMMING

Micro Traxion

An ultralight compact progress capture pulley which is 50% lighter and smaller than the Mini Traxion. Ideal for work and rescue kits. Designed for crevasse rescue, hauling and self-rescue. It can also be used as an emergency ascender. The aluminium sheave is fitted with sealed ball bearings giving a remarkable 91% efficiency.

SPECIFICATION: Takes ropes from 8 - 11 mm Ø. CE EN 567, UIAA. Efficiency: 91%



PPE

SAFETY	Working Load Limit	Working Load Limit of Grab
	2 x 2.5kN = 5kN headload	2.5kN [254kgf]

code	weight	sheave Ø	max rope Ø	price
PETP53	85g	25mm	11mm	£72.00

BARTON RATCHET BLOCK 55MM

Barton Ratchet Block 55mm

55mm Ratchet Block from Barton made from high density nylon and glass fibre reinforced polymer with a high level of UV protection. Internal components are made from marine grade 316 stainless steel and the 12 faced aluminium sheave is anodised in gunmetal silver.



SAFETY	Min Breaking Load	Safety Factor	WWL
	1,200kg	4 to 1	300kg

code	sheave Ø	max rope Ø	price
BAR90500	55mm	11mm	£75.53

OPERA WEB BLOCK™

Opera Web Block

Flints designed this block to meet the need for a pulley which can be quickly rigged to flying bars for the purpose of hoisting lanterns and sound equipment into position before their final fixing. It is not acceptable under current health and safety legislation to carry items up a Tallscope, ladder or tower. By rigging this quick block, items can be raised into position by a crew member at stage level. The pulley is simply passed through its own tested CE marked web [EN 566] and it is ready to use. The sheave is fitted with a Delrin® ball race for low friction even at high loads. There is a becket underneath so that purchase arrangements can be made. It will take 14 mm rope but we would recommend hauling with 10 or 12 mm Matt Braided Polyester Rope [page 220]. A very useful and popular bit of kit at a competitive price.



SAFETY	Min Breaking Load	Safety Factor	WWL
	2,500kg	16 to 1	156kg

code	sheave Ø	max rope Ø	price	10+
PUL99002	70mm	14mm	£43.47	£39.91

LARGE PRUSSIK PULLEY

Large Single Prussik

We stock this pulley primarily to be used with the ALF - Auto Locking Fall Arrest Pulley [page 233] but it has many other heavy-duty uses. The large diameter sheave holds ropes apart which can be useful in hauling applications. Conformity: EN 12278.



SAFETY	Breaking Headload Limit
	70kN [7,138kgf]

code	weight	mbs	max rope Ø	price
SAFRP066	463g	70kN	16mm	£44.96

RESCUE BLACK

Rescue Black P50AN Pulley

With pivoting side plates so it can be inserted anywhere along a rope [see also Snatch Blocks page 232]. This is the most advanced rescue pulley, made for professionals. It will accept up to three karabiners and the sealed ball bearing yields a maximum efficiency of 95%. Designed for heavy loads and intensive use. The side plates are clearly marked showing both the WLL for the head [8 kN] and the WLL for the individual lines [4 kN]. Individually tested. Conformity: CE EN 12278, NFPA 1983 General Use.



SAFETY	Breaking Headload	Safety Factor	Working Headload
	3,669kgf	4.5 to 1	815kgf

code	weight	sheave Ø	rope Ø	price
PETP50AN	185g	38mm	7-13mm	£53.00

PULLEYS

OSCILLANTE

Oscillante Side Swing Pulley

A useful and very popular pulley for emergency use. Designed for occasional use when hauling or in a pulley system. Good strength to weight ratio. Nylon sheave and aluminium side plates.

Conformity: CE EN 12278, UIAA

SPECIFICATION: WLL: 4 kN [2 kN on one rope end]

Min BL: 15 kN. Efficiency: 71%.



SAFETY	Working Headload Limit
	407kgf

code	sheave Ø	rope Ø	weight	price
PETP02A	25mm	7-11mm	42g	£15.00

FIXE

Fixe Pulley Black

A pulley with fixed side plates to allow very quick installation onto a rope and karabiner. Ideal for use with any oval-shaped karabiner such as the OK Screw-lock Karabiner [page 205]. Compact and lightweight. Conformity: CE EN 12278, UIAA.

SPECIFICATION: WLL: 5kN. Efficiency: 71%.



SAFETY	Working Headload Limit
	4509kgf

code	sheave Ø	rope Ø	weight	price
PETP05WN	21mm	7-13mm	90g	£22.00

CLOTH STRETCHING PULLEYS

Cloth Stretching Pulley

Occasionally when stretching a cloth or gauze between two vertical wires it is preferable to use pulleys to run along the wires rather than Gauze Hanks [page 157]. This quiet smooth-running pulley has a removable clevis pin so it can be inserted onto made-up wires. Its weight and lack of friction helps the cloth fly in. The clevis pin can go straight through a well-placed eyelet in the cloth but, if there are no eyelets, why not take a look at Holdons [page 158] and Spaniflex, the useful adjustable bungee loops [page 224]?



Cloth Stretching Pulley attached to a Mini Holdon (not included)

code	price	50+
BARN99115	£5.58	£5.12

TRANSPORT

Tandems

In-line double pulleys for use as transport pulleys on ropes or cables. They can operate at speeds of up to 10 m/s. Great for adventure parks. Individually tested. Conformity: CE EN 12278.

SAFETY	Min Breaking Load	Safety Factor	Safe Working Load
	2,246kgf	2.4 to 1	1,019kgf

Tandem

Tandem is designed for fibre ropes up to 13 mm Ø with a maximum working efficiency of 71%.



code	max fibre Ø	price
PETP21	12mm	£41.00

Tandem Speed

Tandem Speed has stainless steel sheaves with sealed ball bearings and can be used on wire ropes up to 12 mm Ø [or fibre ropes up to 13 mm Ø] with a maximum working efficiency of 95%.



code	max fibre Ø	max wire Ø	price
PETP21SPE	13mm	12mm	£60.00

WOODEN BLOCKS

Traditional Ash Blocks

These blocks are strong, simple and functional. They are often used for period set dressings. Bindings are heavy-gauge stainless steel with a fixed eye head. Sheaves are a generous size made from Tufnol running on a stainless steel spindle. The shell is high quality ash formed into a smooth oval shape and varnished.

SPECIFICATION: Sheave Ø: 50 mm. Suits rope sizes: 10 - 12 mm. Other sizes for ropes up to 26 mm diameter are available to order.



Double with Becket

SAFETY	Type	Breaking Load	Safety Factor	SWL
	Single	3,500kg	2 to 1	1,750kg
	Single with Becket	3,500kg	2 to 1	1,750kg
	Double	4,000kg	2 to 1	2,000kg
	Double with Becket	4,000kg	2 to 1	2,000kg

code	description	price
PUL0610	Single	£108.95
PUL0611	Single with becket	£117.23
PUL0612	Double	£143.28
PUL0613	Double with becket	£159.86

LARGE DIAMETER ROPE PULLEYS

Big Block 32

This brilliant pulley has been made especially for us by Barton Marine [see their other excellent pulleys from page 230]. Quite often when working on stage the designer requires a much larger rope than is actually required in regards to the weight it has to lift - to make it look more 'real', or to exaggerate the perceived weight. As such, a heavy duty pulley is not necessarily required, and the expense of one not justified, thus this pulley was born!

- ✓ Up to 32 mm rope capacity
- ✓ Swing Cheeks; allows the block to be inserted onto pre-rigged lines and the over large hole will take any connector.
- ✓ Economical
- ✓ Good for all large diameter ropes [page 217]

SPECIFICATION: Takes up to 32 mm Ø rope. WLL 225 kg [4:1 safety factor]. 316 grade stainless steel with a "Spectro" anodised aluminium sheave. CE marked.

code	sheave Ø	WLL	max rope Ø	price
FHSSC32	72mm	225kg	32mm	£123.41



HALLS CLASSIC STYLE BLOCKS

Hall Stage Pulleys

Halls have been streamlining their pulley ranges recently and, for larger pulleys with a marked SWL, most customers are swapping to the Doughty alternative. However, the Classic Style Halls blocks that we are all familiar with are still available in smaller sizes for fibre ropes in sheave sizes up to 75mm. They remain popular for lighter applications.

Halls Recommended Sheave Sizes:

- A 38 mm diameter sheave takes fibre ropes up to 6 mm.
- A 50 mm diameter sheave takes fibre ropes up to 10 mm.
- A 75 mm diameter sheave takes fibre ropes up to 14 mm.
- A 75 mm diameter sheave takes wire ropes up to 4 mm.*

Awning Pulleys 245

Capable of being mounted to a variety of fixing points, this pulley type solves a variety of problems. It can be fixed via a shackle to eyebolts, girder clamps or chain, and always self-adjusts to find the correct pulling angle, regardless of irregular fixing points.



code	sheave Ø	Type	price
HAL235	38mm	1-way	£26.76
HAL240	50mm	1-way	£30.40
HAL245	75mm	1-way	£63.40

Awning Pulley for Wire Rope

This pulley takes 4 mm wire using an 18:1 D:d ratio. A pulley for 5 mm is available on special order.

code	Type	sheave Ø	price
HAL08278	1-way	75mm	£73.93

Side Fixing Pulleys 244

A useful pulley with a variety of uses. Fixed to the wall it is used for curtain tracks, safety curtain releases and scenery track lines. It can be used on the floor to divert ropes or it can be fixed to scenery for effect lines.



code	sheave Ø	Type	price
HAL220	38mm	1-way	£26.76
HAL225	50mm	1-way	£30.40
HAL230	75mm	1-way	£61.50
HAL221	38mm	2-way	£37.53
HAL226	50mm	2-way	£47.10
HAL231	75mm	2-way	£95.40
HAL222	38mm	3-way	£52.94
HAL227	50mm	3-way	£65.55
HAL232	75mm	3-way	£139.34

Ceiling Fixing Pulley 183

Intended for use either as a ceiling, wall or timber fixing pulley. These pulleys have bolted angle iron supports which are more substantial than the upright pulleys listed below.



code	sheave Ø	Type	price
HAL170	75mm	1-way	£79.89
HAL171	75mm	2-way	£94.82
HAL172	75mm	3-way	£131.44
HAL173	75mm	4-way	£164.34

Upright Guide Pulleys 243

A general purpose pulley with a variety of uses. Used principally for curtain track diverters or for release or operating cables.



code	sheave Ø	Type	price
HAL200	38mm	1-way	£26.76
HAL205	50mm	1-way	£30.40
HAL215	75mm	1-way	£61.50
HAL201	38mm	2-way	£37.43
HAL206	50mm	2-way	£47.10
HAL216	75mm	2-way	£95.40
HAL202	38mm	3-way	£52.94
HAL207	50mm	3-way	£65.55
HAL217	75mm	3-way	£139.34
HAL203	38mm	4-way	£70.20
HAL208	50mm	4-way	£82.24
HAL218	75mm	4-way	£182.42

DOUGHTY MEDIUM-DUTY PULLEYS

Doughty Medium and Heavy-Duty Pulleys

Doughty introduced this updated heavy-duty range of pulleys a few years ago. Both the Doughty pulley systems are of modular construction. Sheaves can be ordered for fibre or wire rope and various fixing arrangements can be supplied fitted to your block. All Doughty pulleys are supplied assembled to order by Doughty, and Certificates of conformity can be issued if required.

Doughty Medium-Duty Pulleys

The sheaves are plain bearing lubricated nylon and are profiled grooved for either fibre or wire rope. Conformity: BS 7905-1:2001, BS EN ISO 12100:2010



DOUGHTY MOUNTING OPTIONS

Doughty pulleys can no longer be supplied without the brackets, so please specify requirements when ordering

Multibeam Girder Brackets

Pair of 50 x 50 x 5 mm angle brackets universally drilled and suitable for mounting your pulleys to grids with hook bolts or coach screws. Picture shows brackets mounted – the price is just for the brackets.



code	description	length	price
DOUT42885	Multibeam Bracket [pair]	270mm	£51.59
DOUT42886	Multibeam Bracket [pair]	450mm	£59.88

Multifix Brackets

Pair of 30 x 30 x 3 mm angle brackets 150 mm long universally drilled and slotted.



Multifix Brackets with Across Mounting

Supplied with 48 mm diameter U-bolts to fit across a bar. NB: if you require the pulleys to run parallel with the tube you will need the parallel tube version shown below.

code	description	price
DOUT42860	Brackets [pair]	£14.32
DOUT42861	Brackets + 48 mm Ø U-bolts [set]	£18.46

Multifix Brackets with Parallel Tube Plates

Consists of the brackets listed above but fitted with a plate so that the pulley can be mounted parallel to the bar.



code	description	price
DOUT42890	Brackets [pair] + 48 mm Ø U-bolts + plate	£49.63

Girder Brackets

A drilled and slotted pressed channel supplied with M12 Lindapters to fit RSJ's. [Can be fitted to the pulleys of your choice on request]. For single or double sheave setups, just 1 is required, for triple or quad, 2 are required.



code	beam width min	beam width max	length	price
DOUT42870	3"	6"	270mm	£48.49
DOUT42872	6"	12"	450mm	£55.43

Side Plates

Converts your chosen block to a side mounted version ideal for wall mounting.

code	description	price
DOUT42897	To fit 100 mm basic pulley	£41.72
DOUT42898	To fit 150 mm basic pulley	£48.24
DOUT42899	To fit 180 mm basic pulley	£56.18



Awning Eye

A casting to convert basic pulleys to awning blocks. These castings have now been reduced in width to 16 mm so that they will take a Crosby 1 t bow or D shackle. They can be fitted to singles, doubles or triples but will be positioned to one side on double blocks which makes the block cant over slightly when loaded. Made to order.

code	price
DOUT42865	£20.74



SAFETY	Breaking Headload	Safety Factor	Safe Working Load
	450kg	3 to 1	150kg

code	sheave Ø	suits rope Ø	Type	no of grooves	price
DOUT42836	100mm	12mm	Fibre	1	£48.24
DOUT42837	100mm	12mm	Fibre	2	£91.35
DOUT42838	100mm	12mm	Fibre	3	£134.40
DOUT42839	100mm	12mm	Fibre	4	£177.44
DOUT42800	100mm	4mm	Wire	1	£48.24
DOUT42801	100mm	4mm	Wire	2	£91.35
DOUT42812	100mm	4mm	Wire	3	£134.40
DOUT42813	100mm	4mm	Wire	4	£177.44
DOUT42846	150mm	18mm	Fibre	1	£82.86
DOUT42847	150mm	18mm	Fibre	2	£155.35
DOUT42848	150mm	18mm	Fibre	3	£229.63
DOUT42849	150mm	18mm	Fibre	4	£302.94
DOUT42820	150mm	6mm	Wire	1	£82.86
DOUT42821	150mm	6mm	Wire	2	£155.35
DOUT42822	150mm	6mm	Wire	3	£229.63
DOUT42823	150mm	6mm	Wire	4	£302.94
DOUT42855	180mm	18mm	Fibre	1	£111.35
DOUT42856	180mm	18mm	Fibre	2	£210.36
DOUT42857	180mm	18mm	Fibre	3	£309.42
DOUT42858	180mm	18mm	Fibre	4	£408.57
DOUT42830	180mm	6mm	Wire	1	£111.35
DOUT42831	180mm	6mm	Wire	2	£210.36
DOUT42832	180mm	6mm	Wire	3	£309.42
DOUT42833	180mm	6mm	Wire	4	£408.57

Ordering Protocol

When ordering for more than one line please be aware that the system is modular: single sheaves will be put together as a double, triple or quadruple. Should you require your sheaves to operate in reverse directions please phone us and we will advise on a way of achieving your objective. When you are ordering we need to know which pulley has which bracket! So in an ideal world this is what we would like:

Please supply: One off: 2-way 100mm fibre block DOUT42837 c/w DOUT42870 girder bracket

DOUGHTY HEAVY-DUTY PULLEYS

Doughty Heavy-Duty Pulleys

The sheaves are constructed of MOS 2 nylon with ball races for smooth friction-free operation. The side plates are 5 mm thick steel to provide an immensely strong construction. The design has been tested to a stringent 10:1 ratio. As standard, the blocks are made up from single-, double- and triple grooved sheaves with the quadruple being assembled from two doubles. 5-way blocks are made from a triple and a double. Should you require your sheaves to operate in reverse directions please phone us and we will advise on a way of achieving your objective. To order, firstly choose your basic block then select one of the fittings shown alongside. Conformity: BS 7905-1:2001, BS EN ISO 12100:2010

*See the next page for information regarding D:d ratios.

NB: due to an unfortunate positioning of the bracket fixing bolts the 100 mm diameter pulleys can only be used with the bracket uppermost. All the other sizes below can be reeved either way.



code	sheave Ø	suits rope Ø	Type	no of grooves	price
DOUT42931	100mm	12mm	Fibre	1	£90.68
DOUT42932	100mm	12mm	Fibre	2	£127.35
DOUT42933	100mm	12mm	Fibre	3	£164.03
DOUT42934	100mm	12mm	Fibre	4	£200.73
DOUT42935	100mm	12mm	Fibre	5	£237.42
DOUT42901	100mm	4mm	Wire	1	£90.68
DOUT42902	100mm	4mm	Wire	2	£127.35
DOUT42903	100mm	4mm	Wire	3	£164.03
DOUT42904	100mm	4mm	Wire	4	£200.73
DOUT42905	100mm	4mm	Wire	5	£237.42
DOUT42941	150mm	18mm	Fibre	1	£142.80
DOUT42942	150mm	18mm	Fibre	2	£179.71
DOUT42943	150mm	18mm	Fibre	3	£224.67
DOUT42944	150mm	18mm	Fibre	4	£269.63
DOUT42945	150mm	18mm	Fibre	5	£322.80
DOUT42911	150mm	6mm	Wire	1	£142.80
DOUT42912	150mm	6mm	Wire	2	£179.71
DOUT42913	150mm	6mm	Wire	3	£224.67
DOUT42914	150mm	6mm	Wire	4	£269.63
DOUT42915	150mm	6mm	Wire	5	£322.80
DOUT42951	200mm	18mm	Fibre	1	£194.92
DOUT42952	200mm	18mm	Fibre	2	£247.03
DOUT42953	200mm	18mm	Fibre	3	£299.14
DOUT42954	200mm	18mm	Fibre	4	£351.25
DOUT42955	200mm	18mm	Fibre	5	£413.95
DOUT42921	200mm	6mm	Wire	1	£194.92
DOUT42922	200mm	6mm	Wire	2	£247.03
DOUT42923	200mm	6mm	Wire	3	£299.14
DOUT42924	200mm	6mm	Wire	4	£351.25
DOUT42925	200mm	6mm	Wire	5	£413.95

SAFETY

Ø	Breaking Load	Safety Factor	SWL
100mm	2,000kg	10 to 1	200kg
150mm	4,000kg	10 to 1	400kg
200mm	6,000kg	10 to 1	600kg

Ordering Protocol

When you are ordering we need to know which pulley has which bracket! So in an ideal world this is what we would like:

Please supply: One off: 3-way 100mm wire block DOUT42903 c/w DOUT42997 side mounting plate

DOUGHTY HEAVY-DUTY MOUNTING OPTIONS

Doughty pulleys can no longer be supplied without the brackets, so please specify requirements when ordering

Multibeam Brackets

A pair of universal drilled [13 mm Ø for M12] and slotted angle brackets. They can be used for upright, wall or ceiling fixings or used with 48 mm Ø U-bolts or half couplers to clamp to scaffold tubes. These brackets are tested to 600 kg WLL using the worst case of bolts utilising the end holes only.



code	fits beams min	fits beams max	length	price
DOUT42990	3"	6"	225mm	£58.57
DOUT42995	6"	12"	450mm	£57.48

U-Bolts and Saddle

Designed for use on Doughty Multibeam Brackets [page 236] but they have many other uses.



code	fits tube Ø	material Ø	price
DOUT56900	50mm	8mm	£1.86

Side Mounting Plates

Allows the blocks to be mounted against walls or on the floor to act as winch return pulleys. The price is for the mounting plate only. See also the Low Level Return Pulley [page 179]. Made to order with required block.



code	description	suits pulley Ø	price
DOUT42997	Side Mounting Plate for 100 m Ø	100mm	£24.12
DOUT42998	Side Mounting Plate for 150 m Ø	150mm	£27.30
DOUT42999	Side Mounting Plate for 200 m Ø	250mm	£30.53

Awning Profile

For use on the single, double and triple blocks only. Provides a centralised fixing point for a shackle enabling the pulley to cant to the desired position. Hole: Ø 16.5 mm for up to 2 t shackles. Made to order with required block.



code	description	price
DOUT42984	Awning Profile for 100 and 150 mm single	£30.92
DOUT42985	Awning Profile for 100 and 150 mm double	£32.94
DOUT42986	Awning Profile for 100 and 150 mm triple	£35.99
DOUT42987	Awning Profile for 200 mm single	£29.71
DOUT42988	Awning Profile for 200 mm double	£30.92
DOUT42989	Awning Profile for 200 mm triple	£35.63

Do you climb vertical ladders for your work? Have a look at the ALF Auto Locking Fall Arrest Pulley [page 233].

Choice of Sheaves

There is the "ideal world" and there is the "real world" and sadly they are often quite a long way apart.

Wire Ropes: The Association of British Theatre Technicians state that the diameter of a wire rope sheave [D] should be 30 times the diameter of the wire being used [d]. This ratio is referred to as the D/d ratio. In fact, there are a whole series of factors which will affect the pulley sheave choice. With a D/d ratio of 30, using a flexible wire rope you should expect to get about 93% of the wire's strength and a good service life. In a theatre grid there should be adequate space for large diameter sheaves. However, on a small piece of scenic machinery this may be impractical. A D/d ratio of 18 will still provide 90% of the wire's strength but the working life will be reduced. This is generally regarded as the lowest ratio that should be used. It enables a 5 mm wire to run around a 90 mm diameter sheave at 90% of its WLL for a reduced lifecycle. If smaller ratios are used, both the WLL's and the design life will need to be substantially reduced. Apart from the D/d ratio [the larger the better] it is important that the wire is correctly supported in the sheave's groove. If the groove is too tight the wire will be crushed and if it is too open then the inner strands of the wire will take higher loads. The wire may also become unstable, rolling from side to side until it jumps out of the groove in disgust. The correct groove diameter should be just 5% greater than the wire diameter. The groove angle is open to some debate. In the USA groove angles are 30°, in Germany 45°, in the UK 52° and the international standard is 60°. Flints' sheaves [FHS codes] have groove angles of 50°. The fleet angle of the wire entering a sheave must not exceed 5°. The pulleys must run freely. A sheave with bearings will be more efficient than a plain bearing sheave but plain bearings [they are either just holes or sleeved holes] are a good choice if the sheave is to remain under a static load for long periods.

Fibre Rope Sheaves: The minimum D/d ratio for fibre rope sheaves is generally regarded as 8 to 1 [with the exception of certain aramid fibres]. The rope should be supported in a round groove about 10% bigger than the rope diameter. Avoid using V grooves which will cause damage and add extra friction to the rope. Measuring the diameter of fibre ropes is not an exact science. A three strand rope will expand when it is cut off its coil and then reduce when under load. It may be worth ordering a sample pulley on a "sale or return" basis to check your rope is a good fit. Chafe will always be the major enemy so you should ensure any side plates are either clear of the rope or at least have smooth radiused edges.

ACETAL RESIN SHEAVES

Acetal Sheaves

An economical series of plain bearing sheaves ideally suited to polyester ropes. Updated to reflect the new dark grey sheaves seen on the new Barton pulleys [page 230].



code	sheave Ø	bore Ø	max rope Ø	width	price
BARN64804	35mm	8mm	8mm	12mm	£2.00
BARN64809	45mm	8mm	10mm	12mm	£3.60
BARN64814	64mm	13mm	12mm	18mm	£1.89
BARN64816	71mm	13mm	14mm	19mm	£9.10

Ultralegere

A very small and ultra-lightweight sheave often used to convert symmetrical karabiners [Petzl OK page 205] into emergency rescue pulleys. Nylon. Min BL: 1 kN. Weight: 10 g.



code	sheave Ø	bore Ø	max rope Ø	width	price
PETP00A	40mm	14.8mm	7-13mm	20mm	£6.00

NYLON SHEAVES

Nylon Sheaves with Bearings



[Nylon with Molybdenum Disulphide] These excellent nylon sheaves are designed for 5 and 6 mm wire ropes. Nylon has better impact and corrosion resistance and are much lighter than cast iron sheaves. They are excellent value. Fitted with bearings with side shields for free running. Widely used for the construction of stage machinery such as lift units etc. We have utilised large 20 mm bore bearings in the heavy-duty 230 mm sheaves [FHS070] so that they can be used in multiple groups on strong, large diameter, axles. All the wire grooves are the nominal wire Ø plus 5%. The groove angle is 50°. Maximum permissible fleet angle: 5°.



code	sheave Ø	bore Ø	wire Ø	width	price
FHS063	50mm	12mm	5mm	18mm	£26.15
FHS065	100mm	12mm	6mm	18mm	£30.34
FHS066	150mm	12mm	6mm	18mm	£35.44
FHS070	230mm	20mm	6mm	28mm	£60.90

MINIATURE SHEAVES

Mini Cassette

A very small but high load stainless steel sheave with stainless balls in a polypropylene cage. These small free-running sheaves are ideal for special effects using 1.5 or 2 mm stainless wire rope or nylon cords.



code	diameter	bore Ø	width	price
PUL531	25mm	8mm	6mm	£17.46

LOW LEVEL RETURN

Low Level Return Pulley



A 230 mm diameter aluminium sheave grooved to take 6 mm wire rope mounted in between two 300 mm square plates so that the overall thickness is just 18 mm. Fitted with an Oilite bush bearing and nylon side washers. These pulleys were designed by Flints to act as return pulleys for our truck winches and can be mounted within the thickness of a 19 mm ply floor. Fixings: four M10 coach screws which are accessed through large diameter holes in the top plate but are hidden within the 18 mm depth when tightened down. SPECIFICATION: Sheave Ø: 230 mm. Thickness: 18 mm. Max wire rope Ø: 6 mm.



code	description	weight	price
FHS503	Whole assembly	4.9kg	£111.50
FHS504	Sheave only	868g	£44.65

ROPE LOCK FRAME

Rope Lock Frame

This substantial rope lock frame has a return sheave for a 20 – 22 mm hauling line. The frame can be supplied with or without a rope lock to lock off the hauling line. Fitted with angles drilled with 13 mm Ø holes for bolting down to the stage.

SPECIFICATION: Length: 400 mm [outer edge of angles]. Depth: 300 mm. Height: 500 mm [excluding rope lock]. Sheave Ø: 230 mm. Fixings: M12 bolts or coach screws [sold separately].



code	description	price
FHS107K	Including rope lock	£795.00
FHS107P	Excluding rope lock	£595.00

COUNTERWEIGHT CRADLES

Temporary Counterweight Cradle [Double or single purchase]

A temporary counterweight cradle capable of taking 22 x 10 kg tongue and tongue counterweights giving an overall weight 250 kg. The cradle has been designed to be capable of converting to double purchase with the addition of our Header Sheave [FHS105S] and our Return Sheave [FHS106]. The main wires can be secured directly to two M12 high tensile machine screws which will pass through the eye of any standard thimble. The fibre rope hauling line attaches directly to the M20 bolts which also act as axles when the system converts to double purchase. This design make a very neat fixing point for both the wires and the hauling line. The guide wires can be threaded through the 10 mm Ø chamfered holes [390 mm hole centres] or, if the wires cannot be threaded, they can be attached to the holes by means of a twisted shackle [WIR1628SS] in which case the wire centres will be 430 mm.

SPECIFICATION: Length: 424 mm. Width: 150 mm.

Height: 1,565 mm. Sheave Ø: 230 mm. Weight: 35 kg.

SPECIFICATION HEADER SHEAVE: Nylon MDS sheave grooved for 4 x 6mm wires plus a central groove for 20-22 mm Ø rope. Sheave Ø: 230 mm..



code	description	price
FHS113	Single purchase	£319.00
FHS113DP	Double purchase	£765.60
FHS109	Counterweight 10 kg [see page 173 for bulk deals]	£39.90
WIR1628SS	Twisted shackles for guide wires [four needed]	£1.95
FHS105S	Header sheave only	£260.68
FHS106	Rope return sheave only	£198.00

ROPE LOCKS & CLUTCHES

THEATRE ROPE LOCKS

These traditional flyrail rope locks are used to clamp the counterweight hauling line once the balanced flying bar has been finally positioned. They are not designed to act as brakes on unbalanced bars.

Lever Rope Lock with Steel Jaws

Handles 20 mm diameter three or four-strand ropes. On this version the lever is raised to lock the rope.

SPECIFICATION: Rope centre to mounting channel: 90 mm. Mounting channel size: 100 x 50 mm. Fixings: 2 x M10 bolts at 94 mm centres.



code	description	price	10+
HAL267	Steel Jaws [up to lock]	£198.00	£178.20

Lever Rope Lock with Polyurethane Jaws

Handles 20 mm diameter three- or four-strand ropes. The polyurethane jaws have been designed to reduce damage to the hauling lines. On this version the lever is pushed down to lock the rope. It also has a clip to secure the handle in the free running position. Proof-tested to 100 kg using four-strand hemp.

SPECIFICATION: Rope centre to mounting channel: 90 mm. Mounting channel size: 100 x 50 mm. Fixings: 2 x M10 bolts at 94 mm centres.



code	description	price	10+
ROPPJ1	Lever Locks with Polyurethane Jaws	£220.10	£201.65

ROPE CLUTCHES

In any operation involving suspended items using clutches Flints would recommend ropes are finally secured onto a cleat to avoid any chance of accidental release.

Barton DO 550 Rope Clutches

Designed to offer a holding power of up to 550 kg and to control braided ropes up to 12 mm diameter. It requires little effort to use the clutches thanks to the ergonomically-designed handle and bolt-together construction, which also allows for ease of servicing. All three clutches utilise a "true clutch" mechanism which enables lines to be easily and accurately adjusted with maximum grip and minimal slippage when in locked position. Each clutch also allows steady and accurate release under load, with the specially designed teeth to reduce wear on ropes. The clutches have been produced using high-grade plastic components coupled with marine-grade aluminium cams and bases, resulting in lightweight products that provide exceptional strength and are extremely durable even in the harsh marine environment. Competitively priced. Length: 133 mm. Height: 68 mm.



code	description	weight	price
BAR81500	Single	343g	£63.84
BAR81501	Double	544g	£117.17

Rope Lock

Designed to lock hauling lines together to prevent cradle movement. Suitable for ropes up to 20 mm diameter. Larger sizes can be made to order subject to quote and minimum order quantity - please ask. SPECIFICATION: Length: 315 mm. Width: 145 mm. Finish: Black powder coated.



code	weight	price	10+
FHS04220	1372g	£63.93	£53.99

**Adding or replacing counterweight sets? We can supply all you need.
Call our Rigging Manager for friendly help and advice.**