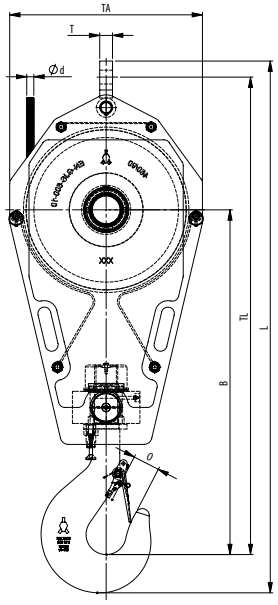
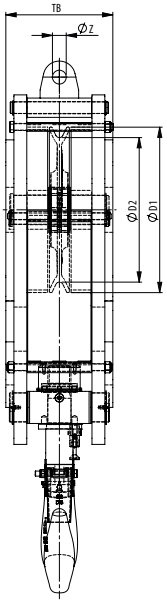
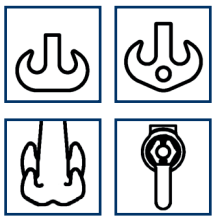
Fast Reeve **Crane Blocks**

1 sheave







anti-rotation hook locking device

Model Nr.	WLL UStons	For wire ød inch	Hook size	Dimensions (inch)									Weight lbs
				øD1	øD2	B	O	TA	TL	L	T	øZ	
FRB 225.xx.1.12,5.E	13.7	⅜ - 9⁄16	4	10.2	8.9	23.1	2.2	13.6	34	38.2	TBD	TBD	195
FRB 260.xx.1.12,5.E	13.7	7⁄16 - ⅝	4	11.8	10.2	25.7	2.2	15.7	36.9	41.9	TBD	TBD	220
FRB 225.xx.1.16.E	17.6	⅜ - 9⁄16	6	10.2	8.9	23.9	2.8	13.6	34.8	39.7	TBD	TBD	225
FRB 260.xx.1.16.E	17.6	7⁄16 - ⅝	6	11.8	10.2	27.3	2.8	15.7	38.5	43.4	TBD	TBD	265 | 325 | 375
FRB 285.xx.1.16.E	17.6	½ - ¾	6	12.6	11.2	28.5	2.8	16.5	40.3	45.2	TBD	TBD	350
FRB 320.xx.1.16.E	17.6	9⁄16 - ¾	6	14.4	12.6	28.7	2.8	17.7	41.8	16.8	TBD	TBD	350
FRB 355.xx.1.16.E	17.6	9⁄16 - ⅞	6	16.1	14	31	2.8	19.7	44.6	49.7	TBD	TBD	500 | 550
FRB 260.xx.1.20.E	22	7⁄16 - ⅝	8	11.8	10.2	29.4	3.1	15.7	40.7	46	TBD	TBD	285 | 375 | 425
FRB 285.xx.1.20.E	22	½ - ¾	8	12.6	11.2	30.6	3.1	16.5	42.4	47.8	TBD	TBD	350
FRB 320.xx.1.20.E	22	9⁄16 - ¾	8	14.4	12.6	30.2	3.1	17.7	43.3	48.7	TBD	TBD	350 | 425 | 475
FRB 355.xx.1.20.E	22	9⁄16 - ⅞	8	16.1	14	33.6	3.1	19.7	47.2	52.5	TBD	TBD	550 | 660
FRB 355.xx.1.25.E	27.5	9⁄16 - ⅞	8	16.1	14	33.4	3.1	19.7	47	52.5	TBD	TBD	550 | 750
FRB 400.xx.1.25.E	27.5	⅝ - 1	8	18.1	15.7	34.8	3.1	22.4	49.5	55.2	TBD	TBD	700 | 750
FRB 400.xx.1.26.E	28.5	⅝ - 1	8	18.1	15.7	34.8	3.1	22.4	49.5	55.2	TBD	TBD	1100
FRB 400.xx.1.29.E	32	⅝ - 1	8	18.1	15.7	34.8	3.1	22.4	49.9	55.6	TBD	TBD	800
FRB 450.xx.1.29.E	32	¾ - 1 ⅛	8	20.3	17.7	37.3	3.1	23.6	51.4	59.3	TBD	TBD	650 | 800
FRB 450.xx.1.32.E	35	¾ - 1 ⅛	10	20.3	17.7	39.5	3.5	23.6	56.1	62.7	TBD	TBD	1100 | 1320
FRB 528.xx.1.32.E	35	⅞ - 1 ¼	10	23.4	20.8	40.5	3.5	28	58.7	65.3	TBD	TBD	1100 | 1320 | 1500 | 1800
FRB 670.xx.1.32.E	35	1 - 1 ½	10	29.9	26.4	41.3	3.5	34.3	63.3	70.3	TBD	TBD	1700
FRB 450.xx.1.40.E	45	¾ - 1 ⅛	12	20.3	17.7	42.3	3.9	23.6	58.9	65.9	TBD	TBD	1300 | 1500
FRB 528.xx.1.40.E	45	⅞ - 1 ¼	12	23.4	20.8	43.9	3.9	28	62.7	69.7	TBD	TBD	1500 | 1700 | 1875 | 2000
FRB 450.xx.1.50.E	55	¾ - 1 ⅛	12	20.3	17.7	43.1	3.9	23.6	59.6	67.2	TBD	TBD	1300 | 1500
FRB 528.xx.1.50.E	55	⅞ - 1 ¼	12	23.4	20.8	43.7	3.9	28	62.6	70.1	TBD	TBD	1500 | 1700 | 1875 | 2000
FRB 575.xx.1.50.E	55	15⁄16 - 1 ¼	12	25.6	22.6	45	3.9	30.3	64.9	72.9	TBD	TBD	2200
FRB 630.xx.1.50.E	55	1 - 1 ⅜	12	27.9	24.8	43.6	3.9	35.4	64.7	72.1	TBD	TBD	1800 / 3500 / 5300*
FRB 670.xx.1.50.E	55	1 - 1 ½	12	29.9	26.4	44.1	3.9	34.3	66.3	73.7	TBD	TBD	2000 | 2600 | 3000
FRB 670.xx.1.64.E	70	1 - 1 ½	16	29.9	26.4	49.1	4.4	34.3	71.4	79.3	TBD	TBD	2200 | 2600 | 3000

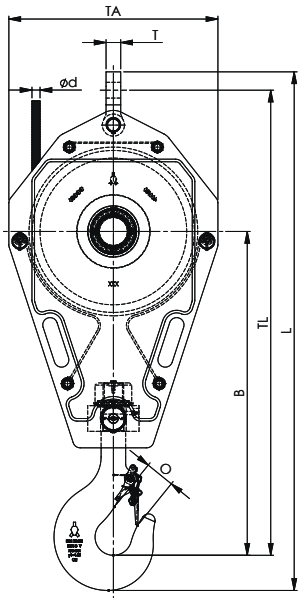
NOTE xx = to be replaced by metric wire size in final part number; TBD = these dimensions vary with wire size
* = blocks can be fitted with removable / interchangeable cheek weights

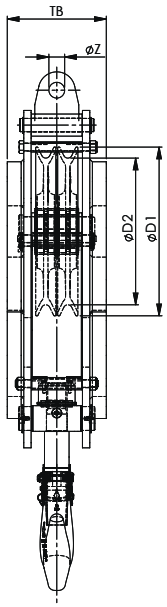
Minimum Ultimate Strength = 4 x WLL

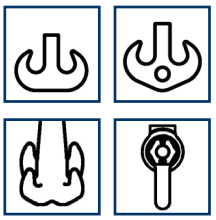
- The dimensions in this table are indicative only. A drawing will always be submitted prior to production and will be the leading document when discussing dimensions.
- Blocks shown here are standard models; other wire rope sizes available for each model upon request.
- Refer to wire rope manufacturers D/d ratio guideline.
- Hook locking pin included on all blocks 45UStons and higher.

Fast Reeve **Crane Blocks**

2 sheaves







- Double hook
- Double hook with shackle hole
- Quad hook
- Shackle stud eye

Model Nr.	WLL UStons	For wire ød inch	Hook size	Dimensions (inch)										Weight	Weight
				øD1	øD2	B	O	TA	TB	TL	L	T	øZ	kg	lbs
FRB 225.xx.2.16.E	17,6	⅜ - 9⁄16	6	10.2	8.9	23.9	2.8	13.6	7.1	34.8	39.7	TBD	TBD	105	265
FRB 260.xx.2.16.E	17,6	7⁄16 - ⅝	6	11.8	10.2	27.3	2.8	15.7	6.5	38.5	43.4	TBD	TBD	125	285
FRB 260.xx.2.20.E	22	7⁄16 - ⅝	8	11.8	10.2	29.4	3.1	15.7	6.5	40.7	46.0	TBD	TBD	130	285
FRB 260.xx.2.25.E	27,5	7⁄16 - ⅝	8	11.8	10.2	29.3	3.1	15.7	8.1	40.5	45.6	TBD	TBD	160	350
FRB 285.xx.2.20.E	22	½ - ¾	8	14.4	11.2	30.6	3.1	16.5	6.5	42.4	47.8	TBD	TBD	160	350
FRB 320.xx.2.20.E	22	9⁄16 - ¾	8	14.4	12.6	30.2	3.1	17.7	7.1	43.3	48.7	TBD	TBD	160	350
FRB 320.xx.2.25.EA	27,5	9⁄16 - ¾	8	14.4	12.6	30.0	3.1	17.7	9.1	43.1	48.5	TBD	TBD	205	450
FRB 320.xx.2.25.EB	27,5	9⁄16 - ¾	8	14.4	12.6	30.0	3.1	17.7	9.1	43.1	48.5	TBD	TBD	205	495
FRB 355.xx.2.29.E	32	9⁄16 - ⅞	8	16.1	14.0	33.4	3.1	19.7	8.9	47.0	52.5	TBD	TBD	265	585
FRB 400.xx.2.29.E	32	⅝ - 1	8	18.1	15.7	34.4	3.1	22.4	9.4	49.3	55.0	TBD	TBD	365	750
FRB 400.xx.2.32.E	35	⅝ - 1	10	18.1	15.7	38.3	3.5	22.4	9.4	53.1	59.1	TBD	TBD	364	800
FRB 450.xx.2.32.E	35	¾ - 1 ⅛	10	20.3	17.7	39.5	3.5	23.6	9.8	55.7	61.9	TBD	TBD	485	1100
FRB 450.xx.2.40.E	44	¾ - 1 ⅛	12	20.3	17.7	42.2	3.9	23.6	11.9	58.5	65.2	TBD	TBD	545	1200
FRB 450.xx.2.50.E	55	¾ - 1 ⅛	12	20.3	17.7	42.3	3.9	23.6	13.1	58.9	65.9	TBD	TBD	682	1500
FRB 450.xx.2.55.EB	60	¾ - 1 ⅛	16	20.3	17.7	42.3	4.4	23.6	14.3	58.9	66.5	TBD	TBD	728	1600
FRB 450.xx.2.55.E	60	¾ - 1 ⅛	16	20.3	17.7	42.3	4.4	23.6	14.3	58.9	66.5	TBD	TBD	680	2000
FRB 528.xx.2.55.E	60	⅞ - 1 ¼	12	23.4	20.8	43.8	3.9	28.0	14.7	62.6	70.1	TBD	TBD	909	2000
FRB 528.xx.2.70.E	77	⅞ - 1 ¼	16	23.4	20.8	47.3	4.4	28.0	15.1	65.2	72.8	TBD	TBD	1000	2200
FRB 528.xx.2.82.E	90	⅞ - 1 ¼	20	23.4	20.8	50.1	4.9	28.0	16.2	68.3	76.6	TBD	TBD	1065	2350
FRB 670.xx.2.55.E	60	1 - 1 ½	12	29.9	26.4	44.2	3.9	34.3	12.7	67.0	74.1	TBD	TBD	945	2080
FRB 670.xx.2.100.E	110	1 - 1 ½	20	29.9	26.4	52.4	4.9	34.3	19.0	74.7	83.5	TBD	TBD	2240	4930

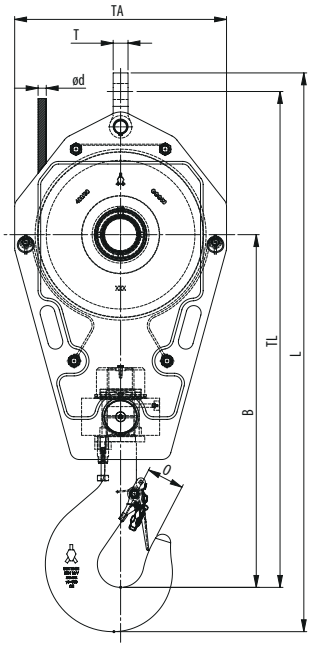
NOTE xx = To be replaced by metric wire size in final part number ■ TBD = These dimensions vary with wire size

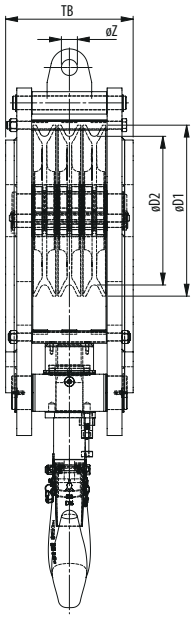
Minimum Ultimate Strength = 4 x WLL.

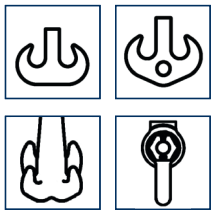
- The dimensions in this table are indicative only. A drawing will always be submitted prior to production and will be the leading document when discussing dimensions.
- Blocks shown here are standard models; inquiries for custom versions are welcome.
- Refer to wire rope manufacturers D/d ratio guideline.
- Hook locking pin included on all blocks 40M ton and higher

SEE OUR WARNINGS AND APPLICATION INSTRUCTIONS

3 SHEAVES







anti-rotation hook locking device

Model No.	WLL (UStons)	For wire ød (inch)	Hook size	Dimensions (inch)									Weight (lbs)
				øD1	øD2	B	O	TA	TL	L	T	øZ	
FRB 225.xx.3.20.E	22	⅜ - 9⁄16	8	10.2	8.9	28.3	3.1	13.6	39.1	44.4	TBD	TBD	410
FRB 260.xx.3.20.E	22	7⁄16 - ⅝	8	11.8	10.2	28.5	3.1	15.7	40.1	45.4	TBD	TBD	410
FRB 260.xx.3.25.E	27.5	7⁄16 - ⅝	8	11.8	10.2	27.5	3.1	15.7	39.1	44.4	TBD	TBD	465
FRB 285.xx.3.29.E	32	½ - ¾	8	12.6	11	27.7	3.5	16.5	39.9	45.2	TBD	TBD	460
FRB 320.xx.3.29.E	32	9⁄16 - ¾	8	14.4	12.6	30	3.1	17.7	43.1	48.5	TBD	TBD	505
FRB 260.xx.3.32.E	35	7⁄16 - ⅝	10	11.8	10.2	28.9	3.5	15.7	40.5	46.3	TBD	TBD	465
FRB 285.xx.3.32.E	35	½ - ¾	10	12.6	11	30	3.5	16.5	42.2	48	TBD	TBD	460 | 505
FRB 320.xx.3.32.E	35	9⁄16 - ¾	10	14.4	12.6	32.2	3.5	17.7	45.3	51.1	TBD	TBD	505 | 625
FRB 320.xx.3.37.E	40	9⁄16 - ¾	10	14.4	12.6	32.2	3.5	17.7	45.3	51.1	TBD	TBD	700
FRB 355.xx.3.37.E	40	9⁄16 - ⅞	10	16.1	14	34	3.5	19.7	48	53.7	TBD	TBD	700 | 825
FRB 360.xx.3.41.E	45	⅝ - ⅞	12	16.5	14.2	35.4	3.9	20.1	49.3	55.8	TBD	TBD	900
FRB 360.xx.3.46.E	50	⅝ - ⅞	12	16.5	14.2	35.4	3.9	20.1	49.3	55.8	TBD	TBD	900
FRB 400.xx.3.46.E	50	⅝ - 1	12	18.1	15.7	37.3	3.9	22.4	52.1	58.6	TBD	TBD	1000
FRB 360.xx.3.50.E	55	⅝ - ⅞	12	16.5	14.2	35.4	3.9	20.1	49.4	56.3	TBD	TBD	900 | 1200
FRB 400.xx.3.50.E	55	⅝ - 1	12	18.1	15.7	37.4	3.9	22.4	52.1	59.1	TBD	TBD	1100 | 1200 | 1350
FRB 360.xx.3.55.E	60	⅝ - ⅞	12	16.5	14.2	35.4	3.9	20.1	49.3	55.8	TBD	TBD	900 | 1200
FRB 400.xx.3.55.E	60	⅝ - 1	12	18.1	15.7	37.4	3.9	22.4	52.1	59.1	TBD	TBD	1100 | 1200 | 1350

>>

Minimum Ultimate Strength = 4 x WLL

- The dimensions in this table are indicative only. A drawing will always be submitted prior to production and will be the leading document when discussing dimensions.
- Blocks shown here are standard models; inquiries for custom versions are welcome.
- Refer to wire rope manufacturers D/d ratio guideline.
- Optional: Hook locking pin.

WARNING

2018

WARNING AND **SAFETY** INFORMATION

ROPEBLOCK

General warning, use, inspection, maintenance and safety information for lifting and running rigging components.

Warning: This document contains important information for the safe and proper installation and use of your Ropeblock components. Please keep this document for reference.

ROPEBLOCK

Lifting and running rigging

WARNING, USE, INSPECTION, MAINTENANCE AND SAFETY INFORMATION FOR LIFTING AND RUNNING RIGGING COMPONENTS

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Warning and safety information

General

This W&S document provides important information concerning the transport, installation, use, inspection, maintenance and safe use of your Ropeblock product.

This information is restricted to components used in lifting or running rigging systems. Components typically comprise a head fitting (hook, stud-eye, clevis) and possibly sheaves and are used for lifting, lowering or pulling by applying tension to a wire rope or rope.

Please examine your Ropeblock product, carefully read and understand the information presented and apply this information in practice. If you do not fully understand the information, DO NOT PUT YOUR PRODUCT INTO SERVICE. Please call your sales representative or Ropeblock B.V. directly. Please keep this information document for reference, or forward it with the product. DO NOT THROW AWAY.

Disclaimer

Your Ropeblock product is by default considered a tool or essential part of the intended application and therefore defined by the application or system designer or application owner. In accordance with Machine Directive 2006/42/EC, it is therefore supplied as standard without a CE mark and EC declaration. Where applicable, the product will become part of a CE-marked assembly. The product must then not be put into service until the full assembly has been declared to conform to the provisions of 2006/42/EC. Where the product is considered a lifting accessory, requiring an individual conformity declaration (IIA) or declaration of incorporation (IIB), it should be mentioned in the contract.

The party installing Ropeblock products shall be competent and qualified in the design, construction or maintenance of the relevant application and have the knowledge of the relevant regulations and standards concerning the application/equipment required for proper installation, or be declared competent by their employer.

The party using Ropeblock products shall be competent and qualified in the operation of the relevant application and have the knowledge of the relevant regulations and standards concerning the application/equipment required for proper operation, or be declared competent by their employer.

Ropeblock is not responsible for any misuse of the products or misinterpretation of this document.

In case of any doubt or problems, always contact your sales representative or Ropeblock B.V.

Warning and safety information

Manufacturer contact details

Ropeblock B.V.
PO Box 391
7570 AJ Oldenzaal
The Netherlands

Ropeblock B.V.
Kampenstraat 1
7575 ER Oldenzaal
The Netherlands

Phone: +31 (0)541 532 300
Fax: +31 (0)541 536 575
Email: sales@ropeblock.com

Contract information

Order confirmation is subject to Ropeblock's General Terms and Conditions of Sale and Delivery. These conditions are filed with the chamber of Commerce under number 060.78.445. Acceptance of our products implies acceptance of the Terms and Conditions in the contract.

Definitions

Safe Working Load (SWL)

The maximum load on the head fitting, as determined by a competent person, which an item of Lifting Equipment may raise, lower or suspend **under particular (operational/dynamic) service conditions.**

Allowable Line Pull (ALP)

The operational maximum line pull, as determined by a competent person, which an item of Lifting Equipment can be subjected to. For a single sheave block, this could also be referred to as SWL (as such, then not on the head fitting).

Working Load Limit (WLL)

The maximum load on the head fitting, as determined by the manufacturer, which an item of Lifting Equipment is designed to raise, lower or suspend **under ideal (static) service conditions** with a given safety factor calculated against the MBL.

Minimum Breaking Load (MBL)

The load, checked by the manufacturer against the minimum theoretical failure strength of the material, at which an item of Lifting Equipment is designed to fail or break. (Or determined empirically in a laboratory breaking load test.) Also referred to as Minimum Breaking Force (MBF).

Factor of Safety (FoS)

Factor determined as the ratio between MBL and WLL. Also referred to as the Safety Factor (SF), Design Factor (DF) or Design Safety Factor (DSF).*

Design Dynamic Factor (DDF)

The factor specified by the designer of the lifting appliance (e.g. crane). DDF is not the same as DAF, which is defined separately and applicable to a specific operation. DDF = Design load / SWL.

Design load

Load used for the purposes of design, derived by combining relevant characteristic load(s) (both static and dynamic) with appropriate load factor(s). The design load represents all foreseeable loads and combinations thereof (including all directions) that the lifting appliance will be

Warning and safety information

subject to. Design load shall not be confused with SWL.

Proof Load (PL)
The predetermined test load, greater than the SWL or WLL to which an item of lifting equipment is subjected before acceptance for use.

Design temperature
Reference temperature, specified by the designer of the lifting appliance, used as a criterion for the selection of material grades and properties.

Minimum operating temperature
Lowest temperature, determined by a competent person, the item of Lifting Equipment can be operated at without compromising safety.

Competent person
A competent person as defined in ISO 9927-1. To determine 'fit-for-use' the level 'Expert Engineer'** is required. Alternatively, a qualified person nominated as such by their employer.

** Note:*
The Factor of Safety is the actual MBL/WLL ratio the item itself has. The Design Factor is the MBL/WLL ratio required for the job the item is engineered to do. The FoS shall therefore be ≥ DF and is in most cases the same.

*** Note:*
An expert engineer is an engineer with experience in the design, construction or maintenance of cranes, sufficient knowledge of the relevant regulations and standards and the equipment necessary for carrying out the inspection. Furthermore, an expert engineer is an engineer who is in a position to judge the safe condition of the crane and to decide which measures shall be taken in order to ensure continued safe operation.

Particular service conditions are defined in combination with the applicable design standards or rules.

With regard to WLL, the client shall act as the competent person to establish fit-for-use under the given particular service conditions against the factor of safety of the item of lifting equipment.

With regard to MBL, the client shall act as the competent person to establish the SWL in conjunction with the given particular service conditions.

Health and safety warning

The party installing Ropeblock products shall be competent in the design, construction or maintenance of the relevant application and have the knowledge of the relevant regulations and standards concerning the application/ equipment required for proper installation, or be declared competent by their employer.

Warning and safety information

The party using Ropeblock products shall be competent in the operation of the relevant application and have the knowledge of the relevant regulations and standards concerning the application/equipment required for proper operation, or be declared competent by their employer.

NEVER USE THE PRODUCTS IF THE CONDITIONS STATED IN THIS DOCUMENT ARE NOT FULFILLED OR IF YOU DO NOT UNDERSTAND THE INFORMATION PRESENTED.

During transportation and handling, a crushing, shearing or dropping hazard exists.

Care shall be taken when installing, working with or repairing lifting or rigging equipment. If installed or used incorrectly or if a repair is executed incorrectly, loss of stability, falling objects, insufficient mechanical strength or failure of parts could occur and inflict injury or death.

Where your Ropeblock product has swiveling and moving parts, there are potential crushing, shearing or entanglement hazards.

When the product is in use do not put hands:

1. Between sheaves, side plates, guards, wire rope or other moving parts.
2. In the area of becket, hook, hook nut or cross head.

Workers must be made alert and wear proper safety gear at all times. Take great care to avoid clothing becoming trapped or snagged. Pay attention to sharp edges.

Repairs shall be carried out by competent and trained personnel only. Power shall be switched off and stored energy eliminated, before repair activities are carried out. Work shall only take place with the product on a firm surface with the product secured. Always follow local rules and regulations.

Limitations of use

General

NEVER STAND UNDER THE LOAD.

The Safe Working Load (SWL), Allowable Line Pull (ALP) and Working Load Limit (WLL) shall never be exceeded.

Unless otherwise stated, only fully reeved crane blocks may be loaded up to the rated SWL or WLL. For partial reeving, the load shall always be symmetrically distributed to eliminate tilt, fleet angles and consequent side loading. Reeving shall be carried out by competent personnel only. Always understand the weight you are lifting and the SWL or WLL of your system and components. The SWL or WLL shall exceed the weight of the intended load you plan to lift, including its rigging.

Warning and safety information

Swivels and overhaul balls may be loaded up to the rated SWL or WLL and should only be used with rotation-resistant wire ropes. If in doubt, contact your wire rope sales representative for further guidance.

Capacity ratings apply to new products or products considered to be in an 'as new' condition by a competent and qualified person. Capacity may be affected by wear, misuse, corrosion, impact deformation or modification. Hook blocks, overhaul balls and swivels shall be used only in vertical lift as they are only designed for this purpose. Side loading may create unacceptable stresses in the component. Swivels may be used in any orientation when specifically designed for this.

Rigging blocks shall be used in accordance with design specifications and are generally intended for tension and pulling. Blocks shall not be used for towing unless specifically designed and marked for that purpose.

Horizontal and vertical lead sheaves shall be used as indicated in the product description or drawings.

Shock or side loading shall not be applied unless the product is designed for this purpose. Skew loading shall be kept to a minimum for undetermined loads. The center of gravity of the load shall be aligned with the hook shank centerline. (See the section on lashing of the load.)

The load shall always be placed in the seat or bowl of the hook or eye. **NEVER AT THE POINT**. The latch shall never be allowed to carry the load.

Design

Your Ropeblock product was designed in accordance with the standards and design rules as stated in the contract and/or drawings and/or with knowledge of industry standards (in part or whole) where applicable and can as such be considered state-of-the-art.

Design parameters such as SWL or WLL, load group or factor of safety, wire rope size, weight and design or operating temperature must be visible on the product tag plate, or be engraved, or be traceable back from the certificate or contract by its serial number. DO NOT USE YOUR PRODUCT WITHOUT THIS INFORMATION.

WLL equipment is by default designed with a FoS of 4:1 unless specified otherwise on the tag plate.

Appropriate overhaul weight, if required, may vary due to crane design, geometrical design, materials, wire rope selection, and environmental circumstances such as temperature.

Sheave bearings should have separate lubrication channels if your Ropeblock product is to be used in a maritime, offshore, or otherwise significantly corrosion aggressive environment.

Warning and safety information

Service life
Generically designed products (WLL products) should meet their normal service life when used in their intended application. Check with your sales representative for information.

Specifically designed products (SWL products) should meet their intended service life according to the prescribed design standard or 3rd party rules from the application or system designer. The service life of Ropeblock products will significantly depend on the actual intensity of use, or possible misuse. Monitoring for wear and reduced capacity is essential for continued safe operation (see the section on inspection and maintenance).

Material
For generically designed products (WLL products), the operating temperature limits are -40°C / +80°C with steel or iron sheaves*. The structural materials in these blocks provide suitable ductility for use at the stated temperatures with 100% capacity and at normal speed of operation.

**** Note: -30°C / +50°C applies for equipment with nylon (Pa6G) sheaves.***

For use in applications or environments other than those originally intended, please contact your sales representative or Ropeblock B.V.

Products specifically designed in accordance with prescribed design standards or 3rd party rules (SWL products) will possess adequate ductility in their materials as specified at the reference design temperature in those standards or rules.

Components from grade 8 upwards must not be used in highly alkaline (>pH10) or acidic conditions (<pH6). Comprehensive and regular examination shall be carried out when they are used in severe or corrosion inducing environments to prevent hydrogen embrittlement and consequent severe loss of ductility and/or premature failure.

All Ropeblock products are asbestos-free.

If in doubt, please contact your Ropeblock sales representative for the relevant drawings and information.

Warnings and information on use

Transport
The products shall be handled with care. Depending on the surface it is placed on, the product may tilt and tip over, roll or slide. A potential crushing hazard exists. Lifting or lashing points shall be used for their intended purpose only. **NEVER USE IN OR WITH THE APPLICATION**. Use other lifting equipment to handle the product if required.

Installation and reeving
Always verify that the product is in its proper and intended condition suitable for your application. Reeving shall be performed on a firm surface to prevent the block from tipping over.

Warning and safety information

Only fully-reeved crane blocks may be loaded up to the rated SWL or WLL. For partial reeving, the loads shall always be symmetrically distributed to eliminate tilt, fleet angles and consequent side loading. Reeving shall be carried out by competent personnel only.

Typical efficiency losses for sheaves with roller bearings and wire rope are 2% per wire rope bend. Actual efficiency losses may vary due to crane design, load, block weight, geometrical design, material, wire rope selection and environmental conditions.

Admissible fleet angles shall be monitored according to the relevant standards. They are typically 4° for non-rotation resistant wire rope and 2° for rotation resistant wire rope.

The wire rope selected for your application shall be suitable for the Ropeblock product and the dimensional factors in your system. Reeving shall be in accordance with the crane or system designer's diagram.

The sheave groove geometry shall not hinder proper function with the prescribed wire rope. According to EN 13135, for a new build the radius should be within half the nominal wire rope size + min. 5% / + max. 12%. Check your actual sheave radius with the nominal wire rope size before installation.

Avoid wire rope from becoming damaged during installation. The wire rope shall be seated in the groove of the sheave before closing the reeve guides. Make sure all reeve guards are closed and secured.

Poor wire rope installation may affect the proper functioning of your Ropeblock product resulting in cabling (rotation of the block until the wire ropes are entangled).

Overhaul balls and swivels should only be used with rotation-resistant wire ropes. If in doubt, contact your wire rope sales representative for further guidance.

Ensure your end-of-line switch is functioning properly or other means have been implemented to prevent two-blocking. The lower block shall not come into contact with the upper block or sheave arrangement of the crane unless a receiver on the crane, the crane and the block itself were designed for this purpose.

Make sure all optional features (additional weights, sheaves, pins, etc.) are properly secured. If in doubt, contact your sales representative or Ropeblock.

Lifting points on optional features are designed for ONE unit only. NEVER PICK STACKED UNITS WITH ONE LIFTING POINT. Do not add components or mass to the product unless it has been designed by Ropeblock and intended for this purpose.

Warning and safety information

Operation

Always follow the prescribed inspection protocols and ensure that the product condition complies with the requirements for the job and the product has been properly maintained.

The Safe Working Load (SWL), Allowable Line Pull (ALP) or Working Load Limit (WLL) shall never be exceeded.

To ensure structural integrity of the product, only fully closed and properly fitted products may be put into operation in your system. All locks, pins and retainers shall be properly assembled and/or tightened prior to any operation to eliminate potential falling objects or loads that may inflict injury or death.

Always understand the weight you are lifting and the SWL or WLL of your system and components. The SWL or WLL shall exceed the weight of the intended load you plan to lift, including its rigging.

Crane blocks shall be used in vertical lift. Shock or side loading shall not be applied. Prevent your product from coming into contact with any structure or object during a lift since this could result in a loss of load.

Skew loading the hook shall be kept to a minimum for undetermined loads. The center of gravity of the load shall be aligned with the hook shank centerline.

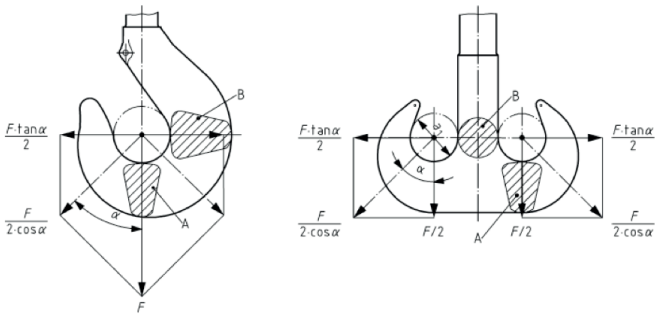
Ensure that the hook rotates freely under load, and that your reeving is able to generate the required counter momentum for the thrust bearing to prevent cabling.

Do not rotate hooks, eyes or other suspensions with only a washer (i.e. without a bearing) under load.

Ensure you are following the applicable local and national regulations.

Attaching the load

The lashing or rigging arrangement of the load shall be limited to a 90° included angle between two slings and the maximum single sling angle (from vertical) shall be less than 45° for single hooks and less than 60° for ramshorn hooks. Forces in slings shall be limited to the following:



Skew loading shall be avoided by adjusting the rigging arrangement below the hook to allow the center of gravity of the load to line up with the centerline of the hook shank. The hook shall receive symmetrical vertical loads to minimize additional stress due to the bending of the hook shank.

Warning and safety information

If there is foreseeable misuse of skew loading, this shall be limited to the maximum permitted fleet angles of the wire rope in your system. The skew load factor shall at all times be less than 1.25. (50/40 load distribution in a ramshorn hook.) Skew loading may induce poor hook swivelling performance.

When considered applicable to your application, detailed lashing limits analysis should be undertaken in accordance with EN 13001-3.5 and be communicated to the operators.

The lashing or rigging arrangement shall at all times be in accordance with acceptable practice and be appropriate to the application and intended lift.

The wire rope slings shall be selected to be appropriate to the hook and its seat-bending radius. This D/d radio shall be in accordance with acceptable practice. Depending on the wire rope, a D/d ≥ 1 typically applies for 6x19 or 6x37 Flemish eye slings (loop) and greater than this for basket hitches. Check the D/d ratio and the effect on sling capacity with your wire rope or sling manufacturer. Alternatively, use master links or other hardware to ensure your slings maintain the required strength for the lift. See e.g. ISO 8792 for further guidance.

We recommend using hardware that matches the shape of the hook to prevent damage to the hook seat or bowl.

The use of fibre slings should be verified with the manufacturer of the sling.

Latches shall be closed during the lift.
NEVER LOAD A LATCH.

Tugging
If there is tugging, this shall be such that the rigging, and consequently the Ropeblock product, is free from significant forces perpendicular to the vertical hoisting forces from the load. Perpendicular forces are a side load and create a bending moment. Unless specifically indicated, your product is not designed for this. Tugging lines are intended only to hold the product in position.

Certification

General
The following certificates or other documents, where applicable, have been provided with the product:

- Test report EN 10204 2.2 (Product proof loaded according to ILO 152)
- Hook certificate DIN 15404
- *Documents per contract*

Warning and safety information

Inspection and maintenance

Inspections and maintenance

Inspections should be carried out daily or weekly or, if your Ropeblock product is used infrequently, each time it is used by the operator.

Examination of the product by a competent and trained person should be carried out monthly to check for damage, corrosion and the free movement of sheave and safety latch. Thorough examination of the product by a competent and trained person should be carried out annually or periodically depending on usage intensity as seen fit by the application designer or owner.

Depending on local regulations, hook and hook-nut are to be dismantled, inspected and re-tested (proof loaded) at least every 4 or 5 years.

WITH THE MANDATORY DISMANTLING INSPECTION OF THE HOOK, THE OVERALL BLOCK AND COMPONENTS WITH SHEAVE AND BEARINGS SHOULD BE INSPECTED FOR PROPER FUNCTIONING AND CONDITION.

Particular attention shall be paid to the following:

- Wear in the hook, center pin, becket or threads of hook and nut.
- Play in the bearings.
- Spacer bolts, nuts and lynch pins.
- Cracks in welds.
- The condition of safety latch and grease nipples.
- Wear in holes in side plates and becket.
- Worn sheaves.
- Contamination (dust, dirt, humidity) or corrosion of the roller bearings.
- Deformed or missing items or the presence of secondary retention.

If cracks or heavy gouges are apparent, the crane block shall not be used and competent opinion sought. Repairs should be undertaken by grinding smooth in the surrounding area only. If it is grooved and its section reduced by more than 5% from its nominal dimension, the item shall be replaced.

NDT of hooks shall follow surface inspection in accordance with EN 10228-1 class 3.

The hook shall be replaced if its throat opening is enlarged by more than 10% from its certified dimension (Y-measurement).

Wear of sheaves should be evaluated against 5% wear of nominal section thickness and 0.15xd in accordance with the DIN 15063 standard.

Repair or modification by welding, flame torch, or other significant heat inducing method is strictly prohibited unless prior consent in writing has been obtained from Ropeblock.

Comprehensive and more intense regular examination must be carried out when your product is used in severe or corrosion inducing

Warning and safety information

environments. High-grade steels may be susceptible to hydrogen embrittlement and loss of ductility. Check for cracks. Where stainless steel bolting is used, check for cathodic corrosion. If your block was fitted with retaining or securing wires, check that these are present, intact and correctly fitted.

If the holes in the cross head, side plates, becket or eyes are enlarged by more than 5% from nominal, the part shall be replaced. Items that are out of original tolerance, bent, deformed or misaligned shall be replaced. Employ sound engineering practice to evaluate and decide. Contact your sales representative for advice.

Any replacement parts shall be purchased from Ropeblock B.V. All repairs shall be carried out by trained and competent personnel and great care shall be taken in the re-assembly of the equipment and fastening or securing parts such as grub screws, lynch pins, etc. Check and refit only correct sizes and threads. Nyloc nuts, should be replaced.

When properly maintained and kept at adequate grease levels, cylindrical roller bearings are designed to run one million cycles under their full dynamic catalogue rating and were selected to suit the perceived application. The thrust bearing is statically rated. Depending on the actual intensity of use and cumulative load throughout the product's life, fleet angles and environmental influences, the number of cycles could be higher or lower. With it, the effective life of the product itself compared to its original design life can be affected. Under severe (environmental, usage) conditions, more intense inspection and maintenance should be implemented.

As a general rule, sheaves, cross heads, bearings and bodies should be greased through nipples at these positions at least once a month or every 250 hours of service. Lubricate until new grease is visible. Heavy duty or high performance equipment should receive re-lubrication weekly. For sub-sea equipment, always remove the air-vent plug before the greasing operation to prevent jamming.

Bronze bearings should be greased every two weeks, or after 8 hours of continuous service. Check your product specifications or drawings for the location on your Ropeblock product.

Plain journal sheave bearings for submersible use must be greased less than one week prior to their first use. This is to reactivate the proper functioning of the bushing and combat potentially ageing and solidified grease.

Unless stated otherwise, re-lubrication, as well as maintenance, should be done with lithium or lithium/calcium based EP2 grease with a strong adherence to metallic surfaces, excellent protection against corrosion and resistance to wear and should be suitable for the required operating temperatures.

Warning and safety information

Retesting shall be done according to the requirements in the original test certificate and will only apply to a fully reeved component.

For spare parts or information, or in the event of any problems or doubt, always contact your sales representative or Ropeblock B.V.

Spare parts list

The recommended spare parts list indicates when the parts of the crane block should be replaced, or at least inspected and cleaned. If you do not have this, it is available on request.