PROlift®

lifting system

www.PROlift-lifting.com

S.C. FORUM INDUSTRY S.R.L. is a Romanian private equity company, which has been active on the national and European market since 2003, as a manufacturer of PRO*lift*® lifting system equipment and products (trademark registered).

PRO*lift*® is the most complete brand in Romania in terms of lifting systems. The products manufactured and / or distributed have been approved and certified to be used in the maritime field, port operations, civil constructions and industrial applications.

Types of products sold:

- manual, electric and pneumatic hoists with chain or wire rope;
- textile slings, for lifting loads and for anchoring goods;
- traction wire ropes, crane wire ropes, wire rope slings and accessories;
- ropes, willows and mooring lines for anchoring and towing;
- chains made of alloy steel and stainless steel, as well as accessories for chains (master links, connecting links, shortening clutches, hooks, lifting eyes, shackles);
- chain ratchet load binders and various wire rope turnbuckles;
- lifting clamps and industrial hooks;
- winches, wire rope hand hoists and pulleys;
- hydraulic and mechanical jacks, permanent industrial magnets and digital crane scales;
- pallet trucks, pallet forks and cargo trolleys;
- lifting beams, overhead cranes, various cranes and other load lifting and handling solutions, custom made.

Even since foundation of our company, our goal has been and will remain to ensure high-quality services and products in accordance with our customers needs as well as with all the applicable legal requirements and the safety regulations.
We are convinced that we will evolve only by meeting the expectations of our customers.

That is why, we use all the resources we have available to one end only - make a product of the highest quality.
Our equipment includes the largest hydraulic press for swaging wire ropes in Romania, with a maximum capacity of 2,000 tons force and a maximum swaging diameter of 102 mm (4 inches), 2 presses similar with a maximum capacity of 300 tons force, the largest mechanical testing bench installed in Romania, with the capacity of 300 tons of force, annealing machine for wire ropes as well as numerous other machines and equipments.
Since out of the more than 10,000 square meters of our main facility in Constanta, more than 8,000 square meters are allocated for the storage of goods, materials and manufacturing workshops, which allows us to prepare and deliver most of the orders received within one business day.

A satisfied customer is the best form of promotion. This is probably the reason for the fact that most of our new clients contact us because of the recommendation received from existing clients. It is something that we are very proud of, but which at the same time makes us mindful in maintaining the same high quality standards.

The PRO*lift*® team, made up of highly trained and experienced personnel, will answer to your request by finding a safe and suitable solution for the operation you want to perform, following an analysis of the applicability of the recommended products. Once you have purchased a PRO*lift*® brand product, you have joined a team of specialists who are aware of the safety standards imposed by this field, as well as the responsibility of selling such products. Also, the maintenance of products is provided by experienced personnel in the field of lifting and handling techniques.

Even if each client is unique, we always find the best solution for it. Therefore, we always stimulate the initiative and we search for those solutions that best fit the requirements of our clients.

„Safety and Quality.
Lie is more important than price!"

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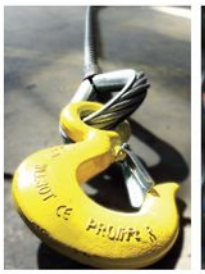
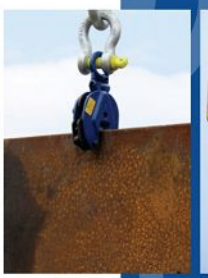
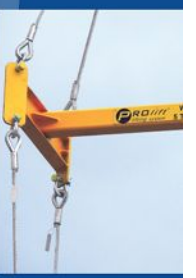
SERVICES

PRODUCTS



PROlift® lifting system

CERTIFICATIONS

BUREAU VERITAS Certification

FORUM INDUSTRY SRL
Bulevardul Aurel Vlaicu nr.125, 900154 Constanta, judetul Constanta, Romania

Bureau Veritas Certification certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

Producție, asamblare, testare și comercializare echipamente de ridicat și manipulat sarcini.

Manufacturing, assembly, testing and sale of lifting and handling equipment.

Original cycle start date: **01 August 2013**
Expiry date of previous cycle: **01 August 2019**
Recertification audit date: **26 July 2019**
Recertification cycle start date: **29 August 2019**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **31 July 2022**

Certificate No. RO2019.097.038Q Version : 1 Revision date: **29 August 2019**

Signed on behalf of BVCH SAS UK Branch

Certification body address: 5th Floor, 66 Prescot Street, London E1 8HG, United Kingdom
Local office: Decebal Tower, 62 Turturelelor street, 1st floor, 030882 Bucharest, Romania

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.
To check this certificate validity please call: +40 21 3183800

1 / 1

Bureau Veritas
ISO 9001:2015 Certificate

BUREAU VERITAS Certification

FORUM INDUSTRY SRL
Bulevardul Aurel Vlaicu nr.125, 900154 Constanta, judetul Constanta, Romania

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 14001:2015

Scope of certification

PRODUCȚIE, ASAMBLARE, TESTARE ȘI COMERCIALIZARE ECHIPAMENTE DE RIDICAT ȘI MANIPULAT SARCINI.

MANUFACTURING, ASSEMBLY, TESTING AND SALE OF LIFTING AND HANDLING EQUIPMENT.

Original cycle start date: **13 November 2019**
Expiry date of previous cycle: -
Certification audit date: **18 October 2019**
Certification cycle start date: **13 November 2019**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **12 November 2022**

Certificate No. RO2019.146.059E Version: **1** Revision date: **13 November 2019**

Signed on behalf of BVCH SAS UK Branch

Certification body address: 5th Floor, 66 Prescot Street, London E1 8HG, United Kingdom
Local office: Decebal Tower, 62 Turturelelor street, 1st floor, 030882 Bucharest, Romania
Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.
To check this certificate validity please call: +40 21 3183800

1 / 1

Bureau Veritas
ISO 14001:2015 Certificate

AUTORITATEA NAVALĂ ROMÂNĂ
ROMANIAN NAVAL AUTHORITY

Autorizare Nr.: 11242/1/AS/SAPNI-SP- DD

ACREDITARE LABORATOR DE ÎNCERCĂRI/TESTĂRI MECANICE ȘI TEHNOLOGICE

În baza HG 1133/2002 ptrivind organizarea și funcționarea Autorității Navale Române, a prevederilor normativului cod MT.RNR-NT 11/3 – 99 " Prescripții privind acreditarea laboratoarelor de încercări/probe și/sau analize în domeniul naval și industrial" aprobat prin OMT nr. 288 din 04.06.1999, se acreditează:

LABORATOR DE ÎNCERCĂRI/TESTĂRI MECANICE ȘI TEHNOLOGICE situat în Constanța, B-dul Aurel Vlaicu , nr.125, jud Constanța

aparținînd firmei:

S.C. FORUM INDUSTRY S.R.L. cu sediul în Reghin, str. Rodnei, Bl.6, ap.7, jud. Mureș

pentru a efectua următoarele încercări/testări mecanice și tehnologice:

1. **Încercarea/testarea la rupere;**
2. **Încercarea /testarea în sarcină;**
3. **Încercarea/testarea cu menținere în sarcină;**
4. **Încercarea/testarea ciclică,**

la produsele/echipamentele de ridicat și manipulat sarcini

navale și industriale

aflate sub supravegherea Autorității Navale Române

Autorizarea este valabilă până la 11 martie 2021 în condițiile respectării cerințelor Normei tehnice ANR cod, MT.RNR – NT 11/3 – 99 și în special a punctelor 5.2; 7.1; 7.4.7. și a Anexei 11.1 a acesteia.

București , 12 Martie 2018

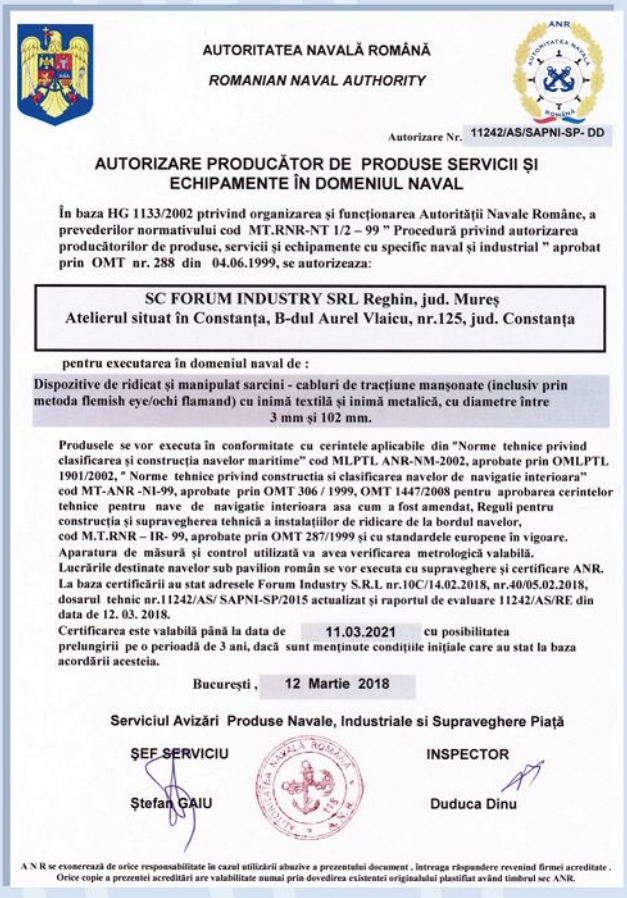
Serviciul Avizări Produse Navale, Industriale si Supraveghere Piață

ȘEF SERVICIU Ștefan GAIU

INSPECTOR Duduca DINU

A N R se exonerează de orice responsabilitate în cazul utilizării abuzive a prezentului document , întreaga răspundere revenind firmei acreditate . Orice copie a prezentei acreditări are valabilitate numai prin dovedirea existenței originalului plastifiat având timbrul sec ANR.

Romanian Naval Authority (ANR)
Mechanical Testing Laboratory Accreditation



AUTORITATEA NAVALĂ ROMÂNĂ
ROMANIAN NAVAL AUTHORITY

Autorizare Nr. 11242/AS/SAPNI-SP- DD

AUTORIZARE PRODUCĂTOR DE PRODUSE SERVICII ȘI ECHIPAMENTE ÎN DOMENIUL NAVAL

În baza HG 1133/2002 ptrivind organizarea și funcționarea Autorității Navale Române, a prevederilor normativului cod MT.RNR-NT 1/2 – 99 " Procedură privind autorizarea producătorilor de produse, servicii și echipamente cu specific naval și industrial " aprobat prin OMT nr. 288 din 04.06.1999, se autorizeaza:

SC FORUM INDUSTRY SRL Reghin, jud. Mureș
Atelierul situat în Constanța, B-dul Aurel Vlaicu, nr.125, jud. Constanța

pentru executarea în domeniul naval de :

Dispozitive de ridicat și manipulat sarcini - cabluri de tracțiune manșonate (inclusiv prin metoda flemish eye/ochi flamand) cu inimă textilă și inimă metalică, cu diametre între 3 mm și 102 mm.

Produsele se vor executa în conformitate cu cerintele aplicabile din "Norme tehnice privind clasificarea și construcția navelor maritime" cod MLPTL ANR-NM-2002, aprobate prin OMLPTL 1901/2002, " Norme tehnice privind constructia si clasificarea navelor de navigatie interioara" cod MT-ANR -NI-99, aprobate prin OMT 306 / 1999, OMT 1447/2008 pentru aprobarea cerintelor tehnice pentru nave de navigatie interioara asa cum a fost amendat, Reguli pentru construcția și supravegherea tehnică a instalațiilor de ridicare de la bordul navelor, cod M.T.RNR – IR- 99, aprobate prin OMT 287/1999 și cu standardele europene în vigoare. Aparatura de măsură și control utilizată va avea verificarea metrologică valabilă. Lucrările destinate navelor sub pavilion român se vor executa cu supraveghere și certificare ANR. La baza certificării au stat adresele Forum Industry S.R.L. nr.10C/14.02.2018, nr.40/05.02.2018, dosarul tehnic nr.11242/AS/ SAPNI-SP/2015 actualizat și raportul de evaluare 11242/AS/RE din data de 12. 03. 2018.
Certificarea este valabilă până la data de 11.03.2021 cu posibilitatea prelungirii pe o perioadă de 3 ani, dacă sunt menținute condițiile inițiale care au stat la baza acordării acesteia.

București , 12 Martie 2018

Serviciul Avizări Produse Navale, Industriale si Supraveghere Piață

ȘEF SERVICIU Ștefan GAIU

INSPECTOR Duduca Dinu

A N R se exonerează de orice responsabilitate în cazul utilizării abuzive a prezentului document , întreaga răspundere revenind firmei acreditate . Orice copie a prezentei acreditări are valabilitate numai prin dovedirea existentei originalului plastifiat având timbrul sec ANR.

Romanian Naval Authority (ANR)
Naval and Industrial Manufacturer Certificate

CERTIFICATIONS

CEPROM
PRODUCT CERTIFICATION BODY
Notificare Comisia Europeană
NB 1802

CEPROM ® S.A.
440240 Satu Mare, str. Fântânele, Romania
tel. +40.0361.804795; fax +40.0361.804796
www.ceprom.ro; e-mail: ceprom@ceprom.ro

acreditat pentru CERTIFICARE
RENAR
SR EN 45011:2001
CERTIFICAT DE ACREDITARE Nr. ON 017/1/2013

CERTIFICAT DE EXAMINARE CE DE TIP
Nr. 085-ET-12014

Dosar tehnic nr. *085-ET-12014*

Solicitant:	Producător
S.C. FORUM INDUSTRY S.R.L. *545300 Reghin, str. Rodnei, Bl. 6, ap. 7, jud. Mureș, Romania.*	*S.C. FORUM INDUSTRY S.R.L.* *545300 Reghin, str. Rodnei, Bl. 6, ap. 7, jud. Mureș, Romania.*

Descrierea produsului:

Produsul: *CABLURI DE LEGĂTURĂ DIN OȚEL MANȘONATE*
Model/tip: *FC, IWRC (inclusiv prin metoda "ochi flamand")*
Diametru cablu *Ø3 mm...Ø102 mm*

Procedura de certificare: *Examinare CE de tip*

Standard de referință: *SR EN 13414-1+A2:2009, SR EN 13414-2+A2:2009 SR EN 13411-3+A1:2009*

În baza evaluării efectuate confirmăm că produsul este în conformitate cu cerințele tehnice ale standardului de mai sus și îndeplinește pe deplin cerințele esențiale de sănătate și securitate din
Directiva Mașini 2006/42/CE
Marcajul CE prezentat alăturat poate fi utilizat sub responsabilitatea producătorului sau importatorului după completarea Declarației de Conformitate și în conformitate cu Directiva de mai sus.

CE

Acest certificat este valabil numai pentru produsul în configurația descrisă în anexă și cu respectarea tuturor reglementărilor legale aplicabile produsului.
Menținerea certificării se face în baza respectării cerințelor din contractul de certificare.

Anexă: *Identificare produs – 5 file*

Data emiterii: *16.12.2014*

UNIUNEA EUROPEANĂ
Satu Mare, România

DIRECTOR GENERAL
ing. Cristian SOPONOȘ

Manager CEPROM–CERT
ing. Vasile ZELE

T.S.

Prezentul Certificat de Examinare CE de tip este valabil numai dacă este publicat pe site-ul www.ceprom.ro
Partial reproduction of this certificate is not allowed

CE Machinery Directive
type Certificate - Wire Rope Slings

CEPROM
PRODUCT CERTIFICATION BODY
Notificare Comisia Europeană
NB 1802

CEPROM ® S.A.
440240 Satu Mare, str. Fântânele, f.n., Romania
tel. +40.0361.804795; fax +40.0361.804796
www.ceprom.ro; e-mail: ceprom@ceprom.ro

acreditat pentru CERTIFICARE
RENAR
SR EN ISO/CEI 17065:2013
CERTIFICAT DE ACREDITARE Nr. ON 017/2017

CERTIFICAT DE EXAMINARE CE DE TIP
Nr. 183-ET-12019

Dosar tehnic nr. *183-ET-12019*

Solicitant:	Producător
S.C. FORUM INDUSTRY S.R.L. *545300 Reghin, str. Rodnei, Bl. 6, ap. 7, jud. Mureș, Romania.*	*S.C. FORUM INDUSTRY S.R.L.* *545300 Reghin, str. Rodnei, Bl. 6, ap. 7, jud. Mureș, Romania.*

Descrierea produsului:

Produsul: *CHINGI TEXTILE RIDICARE*
Modele: *Tip A (PRO-EN), Tip B (PRO-W)*

Procedura de certificare: *Examinare CE de tip*

Standard de referință: *SR EN 1492-1+A1:2009*

În baza evaluării efectuate confirmăm că produsul este în conformitate cu cerințele tehnice ale standardului de mai sus și îndeplinește pe deplin cerințele esențiale de sănătate și securitate din
Directiva Mașini 2006/42/CE
Marcajul CE prezentat alăturat poate fi utilizat sub responsabilitatea producătorului sau importatorului după completarea Declarației de Conformitate și în conformitate cu Directiva de mai sus.

CE

Acest certificat este valabil numai pentru produsul în configurația descrisă în anexă și cu respectarea tuturor reglementărilor legale aplicabile produsului.
Menținerea certificării se face în baza respectării cerințelor din contractul de certificare.

Anexă: *Identificare produs – 2 file*

Data emiterii: *29.10.2019*
Data expirării: *28.10.2024*

UNIUNEA EUROPEANĂ
Satu Mare, România

DIRECTOR GENERAL
ing. Cristian SOPONOȘ

Manager CEPROM–CERT
ing. Vasile ZELE

T.S.

Prezentul Certificat de Examinare CE de tip este valabil numai dacă este publicat pe site-ul www.ceprom.ro
Partial reproduction of this certificate is not allowed

CE Machinery Directive
type Certificate - Polyester Webbing Slings

MINISTERUL ECONOMIEI, COMERȚULUI ȘI RELAȚIILOR CU MEDIUL DE AFACERI
INSPECȚIA DE STAT PENTRU CONTROLUL CAZANELOR, RECIPIENTELOR SUB PRESIUNE ȘI INSTALAȚIILOR DE RIDICAT
INSPECȚIA TERITORIALĂ I.S.C.I.R. BUCUREȘTI

ISCIR

Nr. B/CR4/C,O/33/1756/3/02.08.2016

ACTUALIZARE A AUTORIZAȚIEI
nr. B/CR4/C,O/33/1756/2/14.05.2015
(conform procesului–verbal nr. 30C–063 din 02.08.2016)

1. **Persoana juridică :**

FORUM INDUSTRY S.R.L.
Reghin, str. Rodnei, bl. 6, sc. 6, ap. 7, județul Mureș,
CUI: 15757939; J26/1201/2003
Tel./Fax: 0241.610.476

Subdiviziunea care desfășoară activitatea : punct de lucru
Constanța, bd. Aurel Vlaicu, nr. 125, jud. Constanța

2. **Domeniul de autorizare :**

REPARARE, ÎNTREȚINERE ȘI REVIZIE la:
Mecanisme de ridicat având $S_n \leq 500$ t.

3. **Personal tehnic de specialitate :**
- **Responsabil cu supravegherea lucrărilor (RSL): Nicola Cristian;**
- **Responsabil tehnic cu sudura (RTS): Nicola Cristian.**

4. **Mențiuni :**
Orice modificare care conduce la neîndeplinirea cerințelor în baza cărora s-a acordat actualizarea autorizației trebuie anunțată la ISCIR de către persoana juridică autorizată, în termen de cel mult 15 zile de la data la care aceasta s-a produs.
Persoana juridică, prin reprezentanții săi legali împreună cu personalul nominalizat în actualizarea autorizației răspunde de respectarea prevederilor legale în domeniu.

Iulian-Dragoș Diaconescu
Inspector Șef

Ergean Nasurla
Inspector de Specialitate

Str. Sf. Elefterie nr. 47-49, sector 5
Cod 050524, BUCUREȘTI - ROMÂNIA
Telefon: (+4021) 411.81.70
Fax: (+4037B) 102.323
Web: www.iscir.ro
Email: bucuresti@iscir.ro

Cod fiscal: 9731330
Banca : Trezoreria Operativă Sector 5
Cont IBAN: RO65TREZ7055032XXX008683 (facturare a veniturilor pentru bugetul de stat)
Operator de date cu caracter personal nr. 17290

ISCIR - Lifting Equipments Maintenance,
Repair and Overhaul Authorization

MINISTERUL ECONOMIEI, COMERȚULUI ȘI RELAȚIILOR CU MEDIUL DE AFACERI
INSPECȚIA DE STAT PENTRU CONTROLUL CAZANELOR, RECIPIENTELOR SUB PRESIUNE ȘI INSTALAȚIILOR DE RIDICAT
INSPECȚIA TERITORIALĂ I.S.C.I.R. BUCUREȘTI

ISCIR

Nr. B/CR4/C,O/24,25,26/1754/3/02.08.2016

ACTUALIZARE A AUTORIZAȚIEI
nr. B/CR4/C,O/24,25,26/1754/2/14.05.2015
(conform procesului–verbal nr. 30C–061 din 02.08.2016)

1. **Persoana juridică :**

FORUM INDUSTRY S.R.L.
Reghin, str. Rodnei, bl. 6, sc. 6, ap. 7, județul Mureș,
CUI: 15757939; J26/1201/2003
Tel./Fax: 0241.610.476

Subdiviziunea care desfășoară activitatea : punct de lucru
Constanța, bd. Aurel Vlaicu, nr. 125, jud. Constanța

2. **Domeniul de autorizare :**

REPARARE, ÎNTREȚINERE ȘI REVIZIE la:
Macarale deplasabile pe căi fără șine de rulare având $S_n \leq 1000$ t;
Macarale deplasabile pe căi cu șine de rulare având $S_n \leq 1000$ t;
Macarale cu braț și/sau platformă rotitoare care lucrează la punct fix sau deplasabile pe căi fără șine de rulare având $S_n \leq 500$ t.

3. **Personal tehnic de specialitate :**
- **Responsabil cu supravegherea lucrărilor (RSL): Nicola Cristian;**
- **Responsabil tehnic cu sudura (RTS): Nicola Cristian.**

4. **Mențiuni :**
Orice modificare care conduce la neîndeplinirea cerințelor în baza cărora s-a acordat actualizarea autorizației trebuie anunțată la ISCIR de către persoana juridică autorizată, în termen de cel mult 15 zile de la data la care aceasta s-a produs.
Persoana juridică, prin reprezentanții săi legali împreună cu personalul nominalizat în actualizarea autorizației răspunde de respectarea prevederilor legale în domeniu.

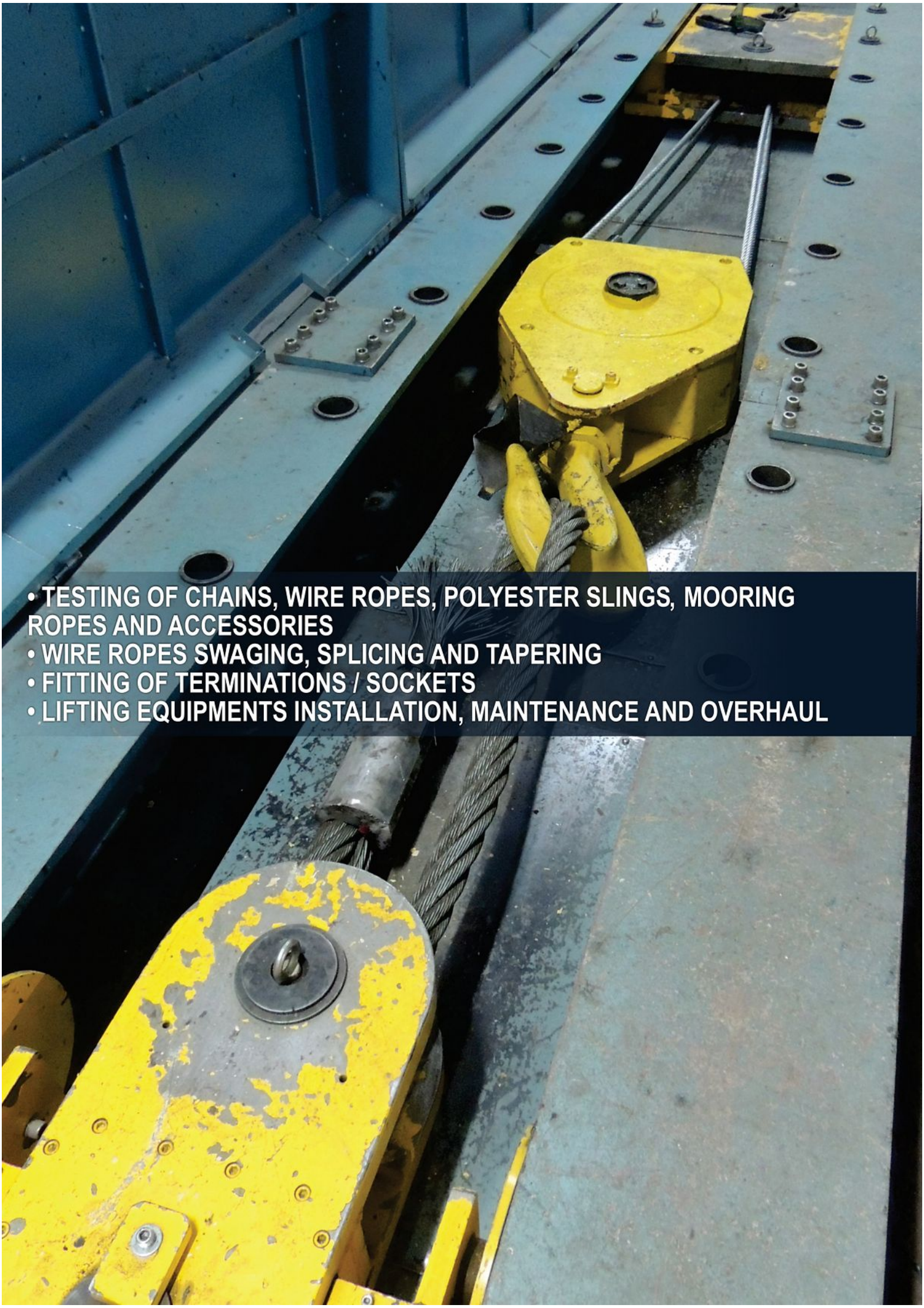
Iulian-Dragoș Diaconescu
Inspector Șef

Ergean Nasurla
Inspector de Specialitate

Str. Sf. Elefterie nr. 47-49, sector 5
Cod 050524, BUCUREȘTI - ROMÂNIA
Telefon: (+4021) 411.81.70
Fax: (+4037B) 102.323
Web: www.iscir.ro
Email: bucuresti@iscir.ro

Cod fiscal: 9731330
Banca : Trezoreria Operativă Sector 5
Cont IBAN: RO65TREZ7055032XXX008683 (facturare a veniturilor pentru bugetul de stat)
Operator de date cu caracter personal nr. 17290

ISCIR - Cranes Manintenance,
Repair and Overhaul Authorization



- TESTING OF CHAINS, WIRE ROPES, POLYESTER SLINGS, MOORING ROPES AND ACCESSORIES
- WIRE ROPES SWAGING, SPLICING AND TAPERING
- FITTING OF TERMINATIONS / SOCKETS
- LIFTING EQUIPMENTS INSTALLATION, MAINTENANCE AND OVERHAUL

TESTING OF CHAINS, WIRE ROPES, POLYESTER SLINGS AND ACCESSORIES

We have installed since November 2013 in our main facility in Constanta, the first test bed in Romania with a maximum load test capacity of 300 tons-force and a maximum usable length of 12 meters. With this test bed we can perform, as per customer request, destructive or non-destructive mechanical tests of load chains, mooring ropes, webbing slings, industrial magnets and also for any other wire rope and chain accessories (hooks, shackles, sockets).

After the testing procedure is completed it is followed by the issuing of a Testing Certificate, which will contain all the data required by the employed method such as: certificate issuer, the customer's name, the performed testing type, the applied load, the elongation of the tested item, preset breaking test value and actual breaking load, the testing chart and the test results.

This service provided by us enables the customer to test both new and old products. In case the tested products have an expired certificate, after passing the testing procedure, the operator in charge of the supervision and technical inspection of thos equipments can safely issue a new technical bulletin for the tested products, thus getting a prolonged lifespan for those products with minimum costs, in a easy and 100% safe way.

The destructive tests can be performed on the following items:

- wire ropes up to 65 mm diameter (1960 N/mm2 tensile strength)
- wire ropes up to 68 mm diameter (1770 N/mm2 tensile strength)
- chains (grade 80) up to 48 mm in diameter;
- webbing slimgs with a minimum breaking load up to 300 tons;
- mooring ropes with a minimum breaking load up to 300 tons;

The non-destructive tests can be performed on the following items:

- wire ropes up to 102 mm in diameter
- chains (grade 80) with link maximum diameter of 68 mm;
- webbing slings with working load limit of maximum 150 tons;
- any grade 80 accessories with a working load limit of 150 tons and below;

The proof load test is the most common type of test required by our customers. The target load is set by entering the working load limit (WLL) and by choosing a multiplying (design) factor.

We are usually performing these kind of tests with a design factor of 2 times the rated WLL, in accordance with ASME B30.9 standard but is possible to use different design factors.

At customer request, testing can be performed either to the breaking point of the tested item or the item can be released after reaching the target load.

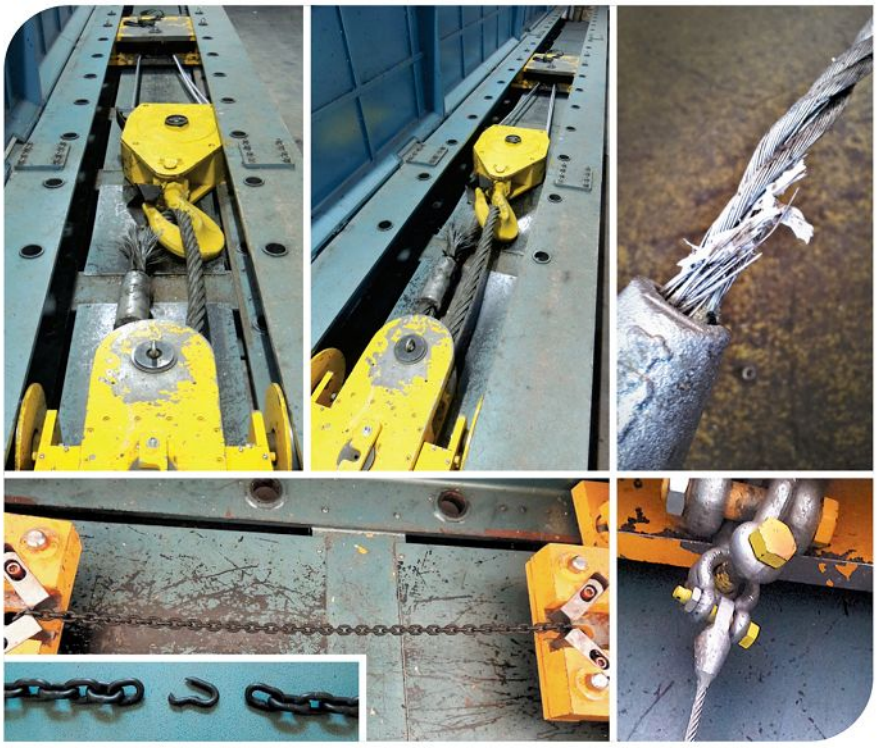
The breaking test mode will push the tested item to destruction at the desired speed, set by PROlift's operator. Results will be compared with theoretical limits or manufacturers certificates.

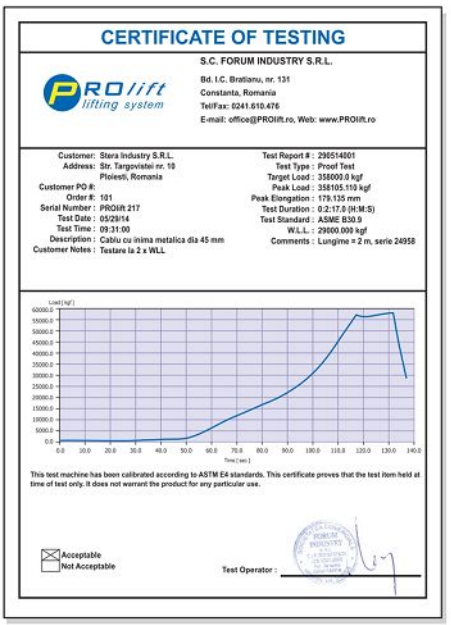
The cyclic test parameters include test speed, upper and lower load limit, upper and lower load hold time and number of cycles. This method is very useful to simulate real life scenarios and behavior of lifting sets on different load values.

The hold test setting allow the operator to set the target load (holding

The testing certificate states in an explicit and easy to read manner all data related to the test performed.

Our mechanical testing laboratory is accredited by Romanian Naval Authority.





CERTIFICATE OF TESTING

S.C. FORUM INDUSTRY S.R.L.

PROlift lifting system

Bd. I.C. Bratianu, nr. 131
Constanta, Romania
Tel/Fax: 0241.610.476
E-mail: office@PROlift.ro, Web: www.PROlift.ro

Customer:	Stera Industry S.R.L.	Test Report # :	290514001
Address:	Str. Targovistei nr. 10 Ploiesti, Romania	Test Type :	Proof Test
Customer PO #:		Target Load :	358000.0 kgf
Order #:	101	Peak Load :	358105.110 kgf
Serial Number :	PROlift 217	Peak Elongation :	179.135 mm
Test Date :	05/29/14	Test Duration :	0:2:17.0 (H:M:S)
Test Time :	09:31:00	Test Standard :	ASME B30.9
Description :	Cablu cu inima metalica dia 45 mm	W.L.L. :	29000.000 kgf
Customer Notes :	Testare la 2 x WLL	Comments :	Lungime = 2 m, serie 24958

This test machine has been calibrated according to ASTM E4 standards. This certificate proves that the test item held at time of test only. It does not warrant the product for any particular use.

Acceptable
Not Acceptable

Test Operator :

SWAGING, SPLICING AND TAPERING OF WIRE ROPES

We are operating the largest hydraulic swaging machine for mechanically spliced wire ropes in the South East of Europe, with a maximum capacity of 2000 tons-force and also two hydraulic swaging machines with a maximum capacity of 300 tons-force.
By using these machines we can manufacture wire rope slings with special terminations (swaged sockets) or eyes at both ends, with or without thimbles, by swaging with cylindrical or conical aluminum or steel sleeves (Flemish Eye method), for any wire rope diameters starting with 3 mm (0.01") diameter and up to 102 mm (4"), in compliance with European standards in our field of expertise.

Swaging using aluminium ferrules

Swaging using aluminium conical ferrules

Swaging using steel conical ferrules (Flemish Eye type)

Wire rope slings made by PROlift have Romanian Naval Authority (ANR) Authorization and CE type Approval (European Machinery Directive).

The main feature of conical steel ferrules is that they allow the plaiting of the wire rope eye and swaging under the sleeve, to prevent the wire ends from becoming disheveled.

By using this type of ferrules we can manufacture "Flemish Eye" wire rope slings that have approx. 7% higher working load limits for the same types of rope then compared to using the aluminium sleeves swaging.
We are able also to provide annealed and tapered wire ropes.

WIRE ROPE TERMINATIONS (SOCKETS) FITTING

Beside the classic wire ropes end connections (eye formed with wire rope clips, braided or swaged) there are various other ropes end connections such as sockets.

Terminating a wire rope with this kind of end connections can be achieved by using a swaging machine, inner socket wedges or synthetic resin.

Fitting using the swaging machine

Fitting using inner wedges

Fitting using synthetic resin

The wire rope end connections that are fitted using a swaging machine are characterized by a sleeve which is slid onto the wire rope's end and it is fitted to the wire rope using a swaging machine.
The swaged socket is mainly used for small diameters wire ropes.

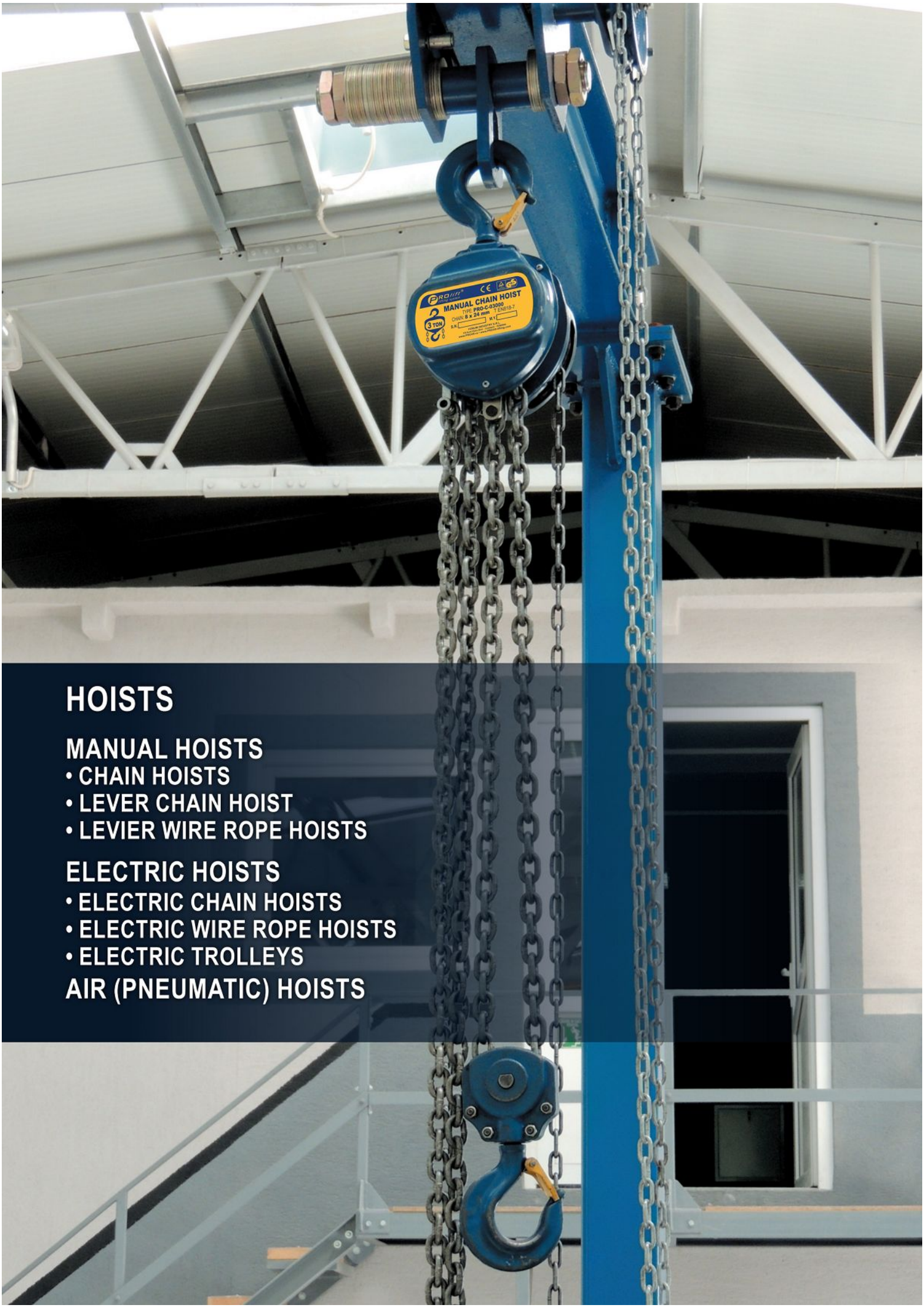
The wire rope end connections that are mounted using inner wedges can easily be fitted on site. By using a wedge the wire rope's end is jammed into a tapered socket. As the load increases, the wedge is pulled deeper into the socket and it exercises normal clamping force on the rope. The loose end of the wire rope is then secured with a wire clip. The use of this kind of socket is highly popular as an end connection for the hoisting ropes on mobile cranes.

The wire rope end connections that are fitted using synthetic resin are very reliable and efficient wire rope end connections. In a pull test they achieve the highest breaking loads compared to other terminations and furthermore, tension-tension fatigue endurance is excellent.
They are used extensively in applications which require the end connections to withstand high, continuos tension-tension stresses, as it is the case with the suspension ropes of the crane boom (ship mounted winches, bridges).

INSTALLATIONS, MAINTENANCE, REPAIRS AND OVERHAUL

Our company has been authorized by ISCIR (State Inspection for Controlling Boilers, Pressure Vessels and Lifting Equipment) to perform the following services:

- repairing, maintenance and overhaul of lifting equipment with a SWL <500t;
- repairing, maintenance and overhaul of self propelled forklifts with a SWL <50t;
- installation, repairing, maintenance and overhauling of moving cranes:
  1. without rails, with a SWL <1000t,
  2. without rails, with a SWL <1000t,
  3. boom and/or rotating platform cranes, both fixed and moving on rails, with a SWL <500t.



HOISTS

MANUAL HOISTS
- CHAIN HOISTS
- LEVER CHAIN HOIST
- LEVIER WIRE ROPE HOISTS

ELECTRIC HOISTS
- ELECTRIC CHAIN HOISTS
- ELECTRIC WIRE ROPE HOISTS
- ELECTRIC TROLLEYS

AIR (PNEUMATIC) HOISTS

The lifting hoists are industrial lifting devices that use wire ropes or chains in order to lift and / or maneuver a load. They can be placed in a fixed position or on special designated trolleys to ensure lateral movements of the load. The hoists can also be attached to cranes or other lifting devices.

Depending on their operating principle, the lifting hoists are divided into manual, electric, hydraulic or air hoists.
In order to properly choose your requested hoist, please take into account the following:
A. The weight of the load: It is strictly forbidden to use a hoist with a lower WLL (Working Load Limit) than the weight of the load it needs to lift;
B. The shape and sizes of the load: at all times the positioning of the hoist must be directly above the center of mass of the lifted load;
C. Maneuvering space: to take into account the free space needed around the load, as well as the lifting height of the load;
D. The features of the hoists: usage frequency, lifting / lowering speed, maneuvering accuracy, etc.
E. The hoist's working cycle:

- the number of operations completed per hour;
- the total number of operations completed per shift;
- the number of shifts per working day;
- the maximum number of starts/stops per hour;
- the average weight of the lifted loads;
- the maximum weight of the lifted load;
- the lifting height.

F. Special working conditions:

- potentially explosive atmospheres;
- activities with hygiene and cleaning high demands;
- humid, salty, alkaline or caustic environments;
- very hot (the temperature is frequently above 50 degrees Celsius) or very cold (the temperature is frequently below minus 10 degrees Celsius) environments;
- synchronized with other hoists, trolleys, carriages or slide bridges;
- acoustic and/or visual signaling special requirements;

The hoists operators need to be properly instructed about the equipment they operate on and it is very important to be accustomed to other types of lifting equipment as well.

Unfortunately, most accidents are due to the lack of proper training of the lifting operators that sometimes are oblivious to the dangers to which they expose themselves and those around .

Before you begin lifting a load please make sure that:

- the load you have to lift does not exceed the hoist's rated WLL;
- the hoist is secured in its holding place;
- the hook is not twisted around the lifting chain(s) - for the hoists that have multiple lifting chains lines (see fig. 1);
- the hoist is positioned directly above the center of mass of the load to be lifted (see fig. 2);
- the lifting chains / wires are properly attached to the hook and do not show visible fatigue signs or worn out traces;
- during the lifting operation make sure there are no persons under the load or near the load's moving direction (if applicable);
- the lifting of the load will be performed smoothly, without any swinging;
- the hooks do not show any deformations and the wear signs are within safety limits.

Prior to any use the hoist must be visually inspected by the operator in order to find any cracks, deformations or any other flaws that might affect its proper use or would present a safety hazard for the operator or any other flaws that might affect its proper use or would present a safety hazard for the operator or any other people.

If such problems are spotted and the hoist's condition is altered it is strictly forbidden to use it and the safety inspectors need to be duly informed.

It is advisable to perform maintenance tasks on the hoists both after the completion of each using cycle as well as on a scheduled basis by authorized trained personnel.

Before passing along any hoist to be used take the time to perform a minimum training for the operators in order to get them acquainted with the equipment and also hand them the instructions manual that accompanies the product.

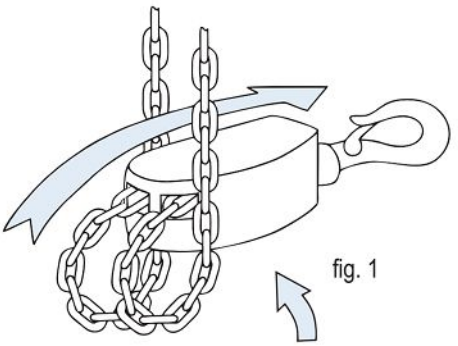


fig. 1

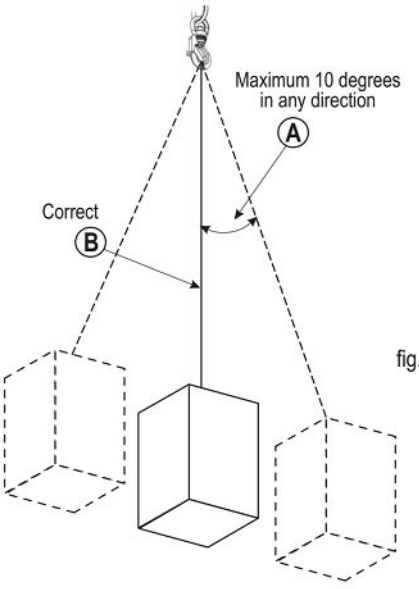


fig. 2

PRO-C MANUAL CHAIN HOIST

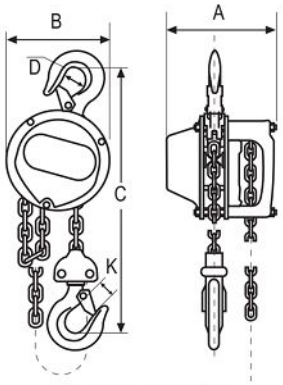
These are robust hoists, with a modern design and may perform various tasks.
Their working temperature range varies between minus 10° Celsius and 50° Celsius.
They are made in compliance with EN 13157 standard.

Constructive features of the PRO-C type hoists:

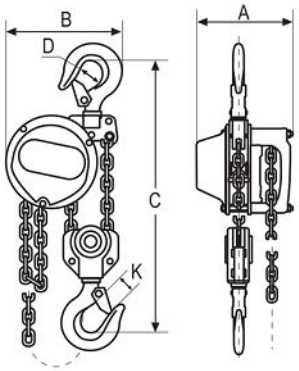
- both the suspension and the load hooks are built to withstand incidental overloads, they will bend if overloaded and never break, being made of high quality steel;
- both hooks are fitted with sturdy joints that allow them to spin 360 degrees;
- all the components that perform spin moves are mounted on bearings, leading to the reduction of friction, increased efficiency and reliability;
- the brake is automatic, with friction disks made from asbestos-free materials;
- two steps reducer for the lifting mechanism;
- the supply chain's guidance system is seamlessly incorporated into the casing, its dimensions provide handling the hoist with high accuracy;
- the load chain's guide rollers endure a perfect alignment of the chain, regardless of any tilting angle of the hoist;
- grade 80 alloy load chains, according to EN 818-7 standard;
- both load and handling chains are galvanized;

All PROlift hoists are tested by the factory at 1.5 times their rated capacity.

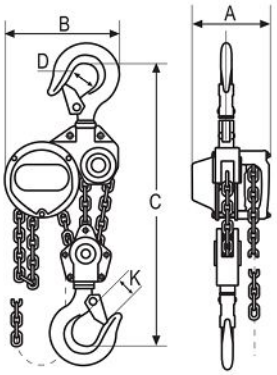
On demand, the hoists can be supplied with overload protection and rated capacities up to 100 tons.



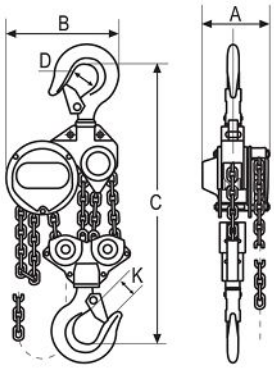
0.5 t, 1 t, 1.5 t, 2 t



3 t, 5 t



10 t



20 t, 30 t, 50 t

Model/ Features		PRO-C-00500	PRO-C-01000	PRO-C-01500	PRO-C-02000	PRO-C-03000	PRO-C-05000	PRO-C-10000	PRO-C-20000	PRO-C-30000	PRO-C-50000
Load capacity (t)		0.5	1	1.5	2	3	5	10	20	30	50
Lifting height (m)		**On demand, hoist can be fitted with any length of chain.**									
Running test load (kN)		7.5	15	22.5	30	45	75	150	250	–	–
Required effort to lift maximum load (N)		221	304	343	410	343	414	414	414 x 2	402.78 x 2	402.78 x 2
Chain strands		1	1	1	1	2	2	4	8	12	22
Chain size (mm)		6 x 18	6 x 18	8 x 24	8 x 24	8 x 24	10 x 30	10 x 30	10 x 30	10 x 30	10 x 30
Dimensions (mm)	A	113	126	141	141	141	163	163	191	350	406
	B	125	147	183	183	183	215	404.5	595	680	962
	C	255	306	368	368	486	616	750	1000	1380	2578
	D	36	40	45	50	58	64	85	110	110	170
	K	30	34	38	41	48	52	64	85	85	130
Net weight (kg)		8.5	11	18	18	27	42	83	193	253	1120
Extra weight / each lifting height meter (kg)		1.7	1.7	2.3	2.3	3.7	5.6	9.7	19.4	–	–

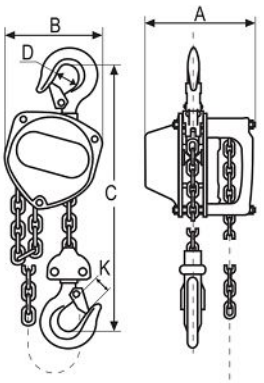
PRO-B MANUAL CHAIN HOIST

These are robust hoists, equipped with strong Grade 80 chains, suitable for intensive handling of heavy loads in complete safety and with a relatively low effort to the lifting load ratio.
The hoists operating temperature range is between minus 10° Celsius and 50° Celsius. They are made in compliance with EN 13157 standard. Operation is simple and safe, ensured by their robust and compact design.

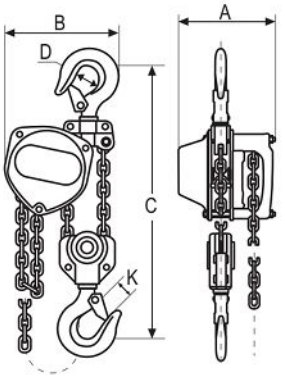
Constructive features of the PRO-B type hoists:

- grade 80 alloy load chains, according to EN 818-7;
- compact overall dimensions;
- self-locking safety brake that allows attaching of the load at any desired height while safely protected against external factors;
- protected against external factors assured by heat processed enamel paint;
- if incidentally overloaded, the hook will bend and it will not break;
- both hooks are made of cast steel and are fitted with safety latches;
- all the rotating parts are mounted on bearings, which allow easy operation;

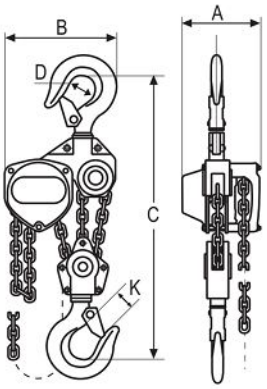
All PROlift hoists are tested by the factory at 1.5 times their rated capacity.



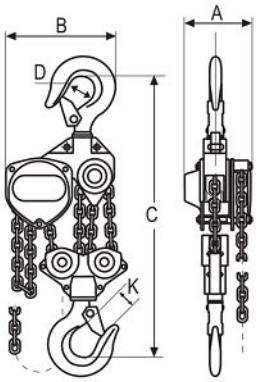
0.5 t, 1 t, 1.5 t, 2 t



3 t, 5 t



10 t



20 t

Model/ Features		PRO-B-00500	PRO-B-01000	PRO-B-01500	PRO-B-02000	PRO-B-03000	PRO-B-05000	PRO-B-10000	PRO-B-20000
Load capacity (t)		0.5	1	1.5	2	3	5	10	20
Lifting height (m)		**On demand, hoist can be fitted with any length of chain.**							
Running test load (kN)		7.5	15	22.5	30	45	75	150	250
Required effort to lift maximum load (N)		231	309	320	360	340	414	414	414 x 2
Chain strands		1	1	1	1	2	2	4	8
Chain size (mm)		6 x 18	6 x 18	8 x 24	8 x 24	8 x 24	10 x 30	10 x 30	10 x 30
Dimensions (mm)	A	131	140	161	161	161	186	207	215
	B	127	158	174	187	199	253	398	650
	C	270	317	399	414	465	636	798	890
	D	35	35.5	45	42.5	50	64	85	110
	K	30	28	36	33.5	40	50	64	85
Net weight (kg)		10	12	19	20	27	45.5	83	193
Extra weight / each lifting height meter (kg)		1.7	1.7	2.3	2.3	3.7	5.6	9.7	19.4

PRO-A MANUAL LEVIER CHAIN HOIST

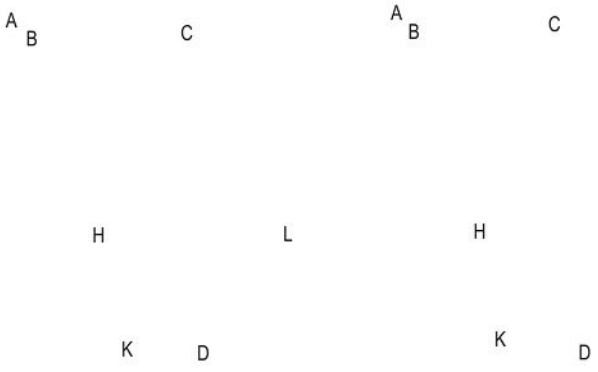
Different of the manual chain hoist, the hand lever chain hoist can be used horizontally in a similar way as a pulling hoist.

Their working temperature range varies between minus 10°C and 50°C. They are made in compliance with EN 13157 standard.

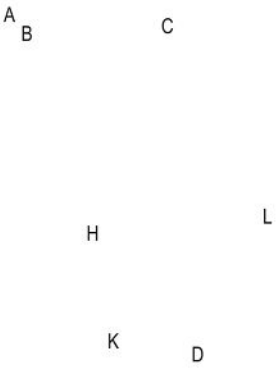
As opposed to using a manual chain hoist, the advantages of using a hand lever hoist are the following:

- it can be used horizontally, as a pulling hoist;
- it can be used in various operations, such as repairing machines or pretensioning of various parts;
- it is usable in all positions, both in workshops and on working sites;
- it allows the possibility of free movement of the chain when is not loaded, thus helping to position hook faster.

On demand, the hoists can be supplied with overload protection.



0.75 t, 1.5 t, 3 t



6 t

9 t

Model/ Features		PRO-A -07500	PRO-A -15000	PRO-A -30000	PRO-A -60000	PRO-A -90000
Load capacity (t)		0.75	1.5	3	6	9
Lifting height (m)		On demand, hoist can be fitted with any length of chain.				
Running test load (kN)		11	22.5	37.5	75	112
Required effort to lift maximum load (N)		140	240	320	340	360
Chain strands		1	1	1	2	3
Chain size (mm)		6 x 18	8 x 24	10 x 30	10 x 30	10 x 30
Dimensions (mm)	A	155	180	215	215	215
	B	95	105	130	130	130
	C	135	155	200	200	330
	D	37	45	50	64	85
	H	320	380	480	600	700
	L	285	370	410	410	410
	K	30	36	40	50	58
Net weight (kg)		7.7	11.8	21	32	47
Extra weight / each lifting height meter (kg)		0.8	1.4	2.2	4.4	6.6

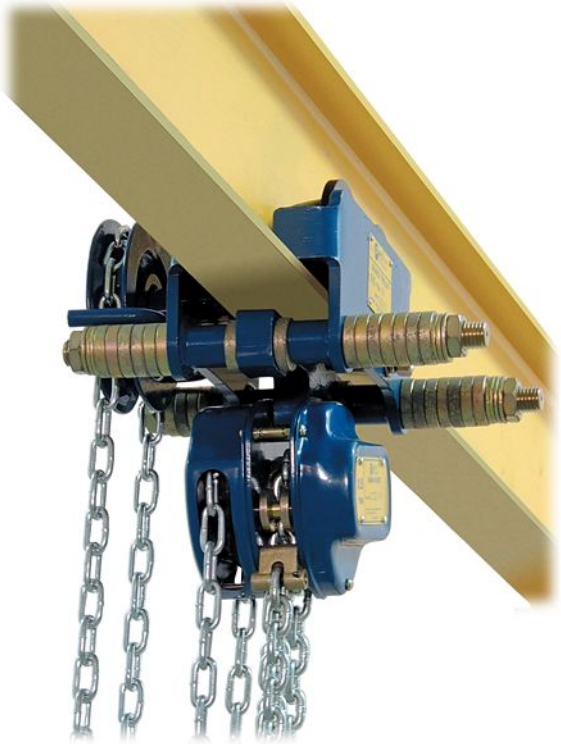
PRO-T MANUAL CHAIN HOIST WITH PULL TROLLEY

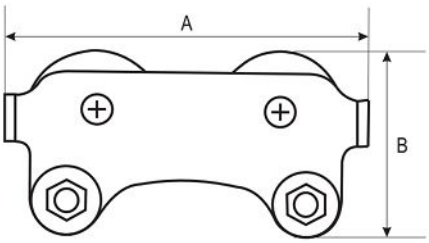
They are easy to operate hoists, thanks to the specially shaped rollers mounted on bearings inside.
The main advantage of these trolleys is their ease in adjusting to different beam widths, which is made simply by changing the number of side spacers.
The rollers are made to match the profile of the beam.
The trolleys are equipped with protections to avoid falling from the beam.

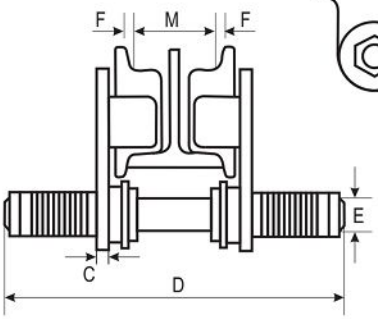
Their working temperature range varies between minus 10° Celsius and 50° Celsius.
They are manufactured in compliance with EN 13157 standard.

In the standard version, PRO-T hoists are equipped with 3 meters of chain but, upon request, they can be fitted with various length of chain.

On demand, the hoists can be supplied with overload protection.



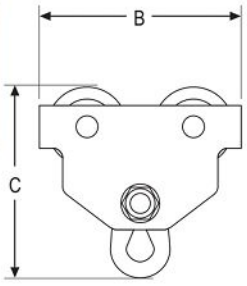


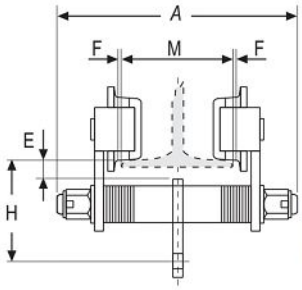


Model/ Features		PRO-T -00500	PRO-T -01000	PRO-T -02000	PRO-T -03000	PRO-T -05000
Load capacity (t)		0.5	1	2	3	5
Minimum curvature radius (m)		0.9	1	1.2	1.4	1.6
Lifting height (m)		On demand, hoist can be fitted with any length of chain.				
Dimensions (mm)	A	238	277	302	363	436
	B	137	170	194	230	260
	C	8	10	12	14	18
	D	278	283	295	304	330
	E	M18	M22	M27	M30	M42
	F	aprox. 3	aprox. 3	aprox. 3	aprox. 3	aprox. 3
Beam width (mm)	M	64 - 140	64 - 140	76 - 165	76 - 203	88 - 203

PRO-PT PULL TROLLEY

They can be used for any type of "I" or "H" profiles.
Their working temperature range varies between minus 10° Celsius and 50° Celsius.
They are manufactured in compliance with EN 13157 standard.

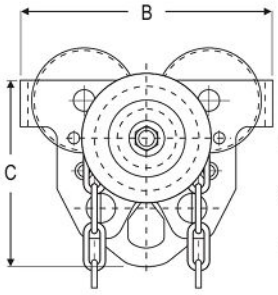


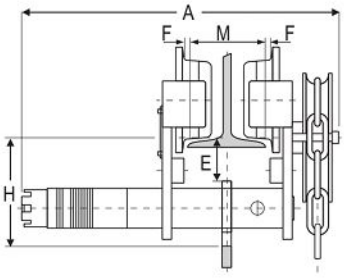


Model/ Features		PRO-PT -005	PRO-PT -010	PRO-PT -020	PRO-PT -030	PRO-PT -050	PRO-PT -100	PRO-PT -200
Load capacity (t)		0.5	1	2	3	5	10	20
Beam width (mm)	M	64 - 140	64 - 140	76 - 165	76 - 203	88 - 203	125 - 203	136 - 203
Dimensions (mm)	A	230	254	294	344	360	403	475
	B	212	255	302	344	378	455	642
	C	198.5	231.5	278	338	393	490	622
	E	12	9	6	10	12	13.5	13.5
	F	3	3	3	3	4.5	4.5	4.5
	H	113	128	152	186	219	275.5	315
Net weight (kg)		7	12	22	30	55	93	235
Min. curvature radius (m)		0.9	1	1.1	1.3	1.4	1.7	4.7

PRO-GT GEARED TROLLEY

They can be used for any type of "I" or "H" profiles and ensure an easy horizontal movement of the loads due to their handling chain.
Their working temperature range varies between minus 10° Celsius and 50° Celsius.
They are manufactured in compliance with EN 13157 standard.

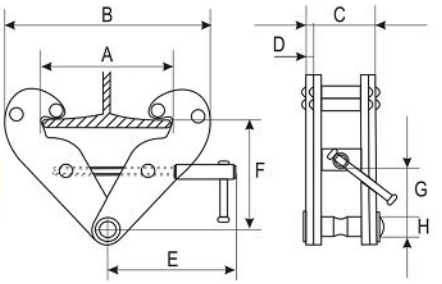




Model/ Features		PRO-GT -005	PRO-GT -010	PRO-GT -020	PRO-GT -030	PRO-GT -050	PRO-GT -100	PRO-GT -200	PRO-GT -300
Load capacity (t)		0.5	1	2	3	5	10	20	30
Beam width (mm)	M	55 - 140	55 - 140	76 - 165	76 - 203	88 - 300	125 - 300	136 - 300	250 - 300
Dimensions (mm)	A	308.5	328.5	361.5	428.5	434	487.5	547	642
	B	212	255	302	344	378	455	642	655
	C	198.5	231.5	278	338	393	490	622	622
	E	12	9	6	10	12	13.5	13.5	13.5
	F	3	3	3	3	4.5	4.5	4.5	4.5
	H	113	128	152	186	219	275.5	315	312
Net weight (kg)		14	19	29	40	65	103	245	260
Min. curvature radius (m)		0.9	1	1.1	1.3	1.4	1.7	4.7	4.7

PRO-BC BEAM CLAMP

Beam clamps are used for fixed point suspension of a hoist to a steel beam.
They have a sturdy steel construction, a compact design and also they are lightweight.
They are easy to mount on any type of I or H beam, depending on the beam size.
Their working temperature range varies between minus 10° Celsius and 50° Celsius.
They are made in compliance with EN 13157 standard.



Model/ Features		PRO-BC -010	PRO-BC -020	PRO-BC -030	PRO-BC -050	PRO-BC -100
Load capacity (t)		1	2	3	5	10
Running test load (kN)		19.6	39.2	58.8	98	196
Beam width (mm)		75 - 220	75 - 220	80 - 320	80 - 320	90 - 320
Dimensions (mm)	A	< 260	< 260	< 354	< 354	< 365
	B	180 - 360	180 - 360	235 - 490	235 - 490	320 - 505
	C	64	74	103	110	120
	D	5	6	8	10	12
	E	215	215	260	260	280
	F	102 - 155	102 - 155	140 - 225	140 - 225	170 - 235
	G	> 25	> 25	> 45	> 45	> 50
	H	22	22	24	28	40
Net weight (kg)		4.5	5	10.5	11	16

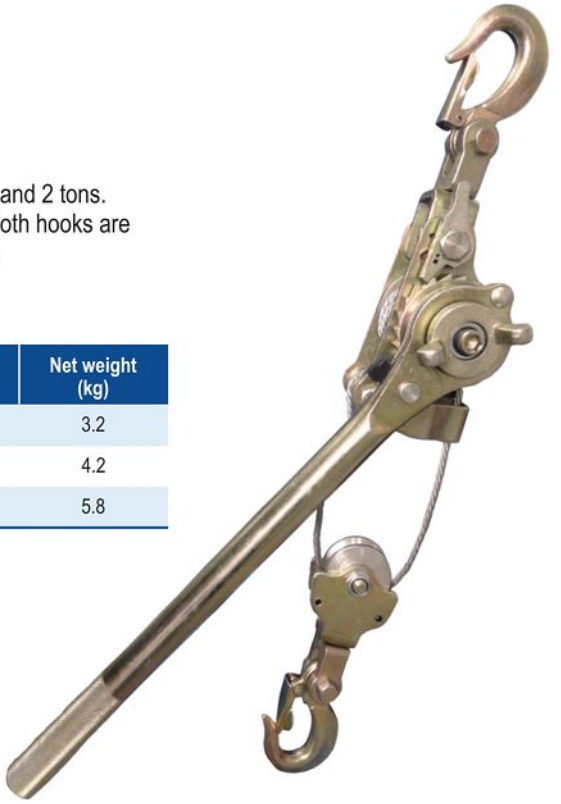
PRO-HS MANUAL LEVER WIRE ROPE HOIST

They are manual lever wire hoists with pulling capacities ranging between 1 and 2 tons.
They have an open design, which allows for daily inspection and cleaning. Both hooks are made of forged steel, equipped with safety pins and allow free 360° rotation.
They are used for pulling only.

Model / Features	Capacity (t)	Wire rope diameter (mm)	Maximum length (mm)	Minimum length (mm)	Net weight (kg)
PRO-HS-10	1	5	1210	410	3.2
PRO-HS-15	1.5	6	1400	480	4.2
PRO-HS-20	2	8	1900	520	5.8

Important: They are used for pulling / tensioning only.

Not for lifting!



PRO-TCR AIR CHAIN HOIST

These hoists have a cast steel body, thus being resilient to incidental blows.
As a standard feature is fitted with an operational speed control via a fail-safe control valve.
The mechanical stroke limiter provides a very safe exploitation of the pneumatic (air) hoists.
The bottom hook (fitted with a safety latch) is mounted on low friction bearings enabling it to rotate even under full load.

The pneumatic hoist may be used in the CENELEC 2 hazardous areas, whilst other types are also available for use in the CENELEC Zone 1 hazardous areas.

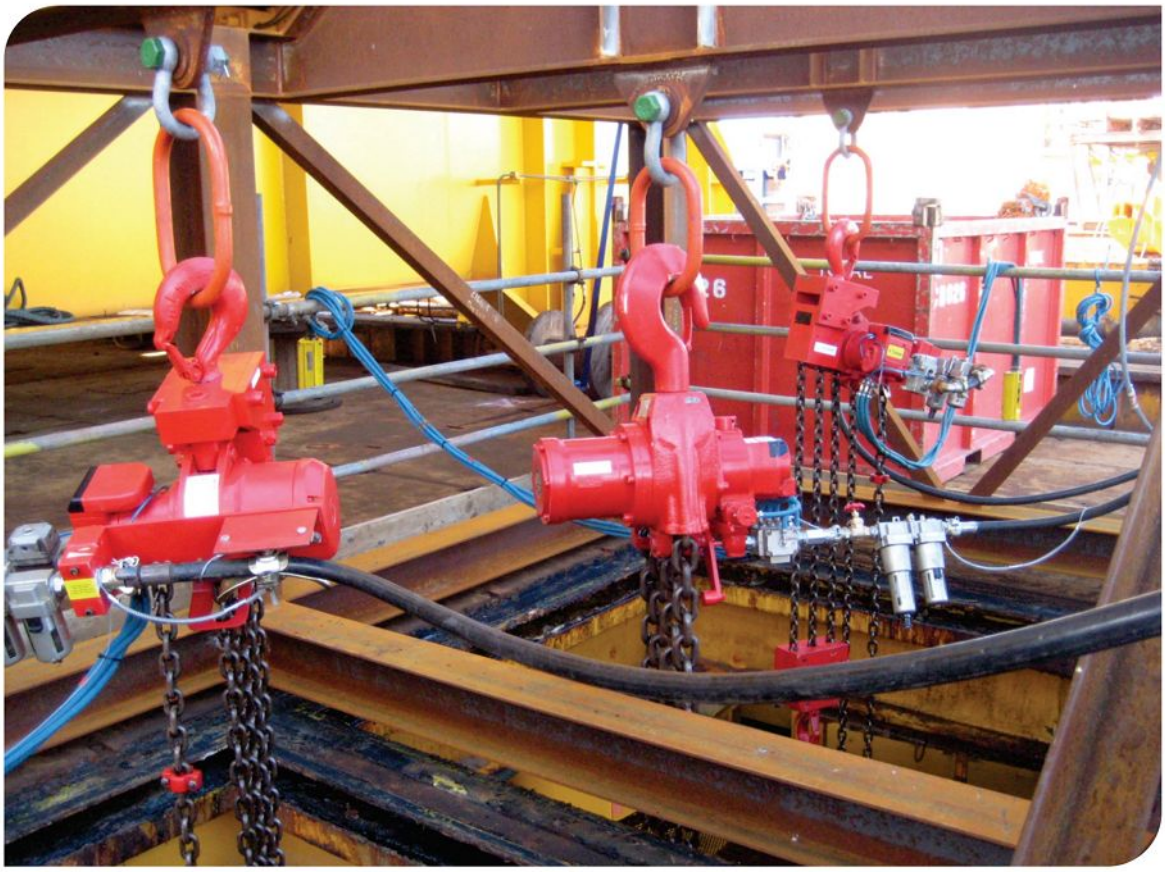
The hoists are also available in the "Clean Area" variant, suitable for use in the pharmaceutical, medical, food and research industries.

The pneumatic hoists are available up to 100 tons capacity, on demand.

Yokota

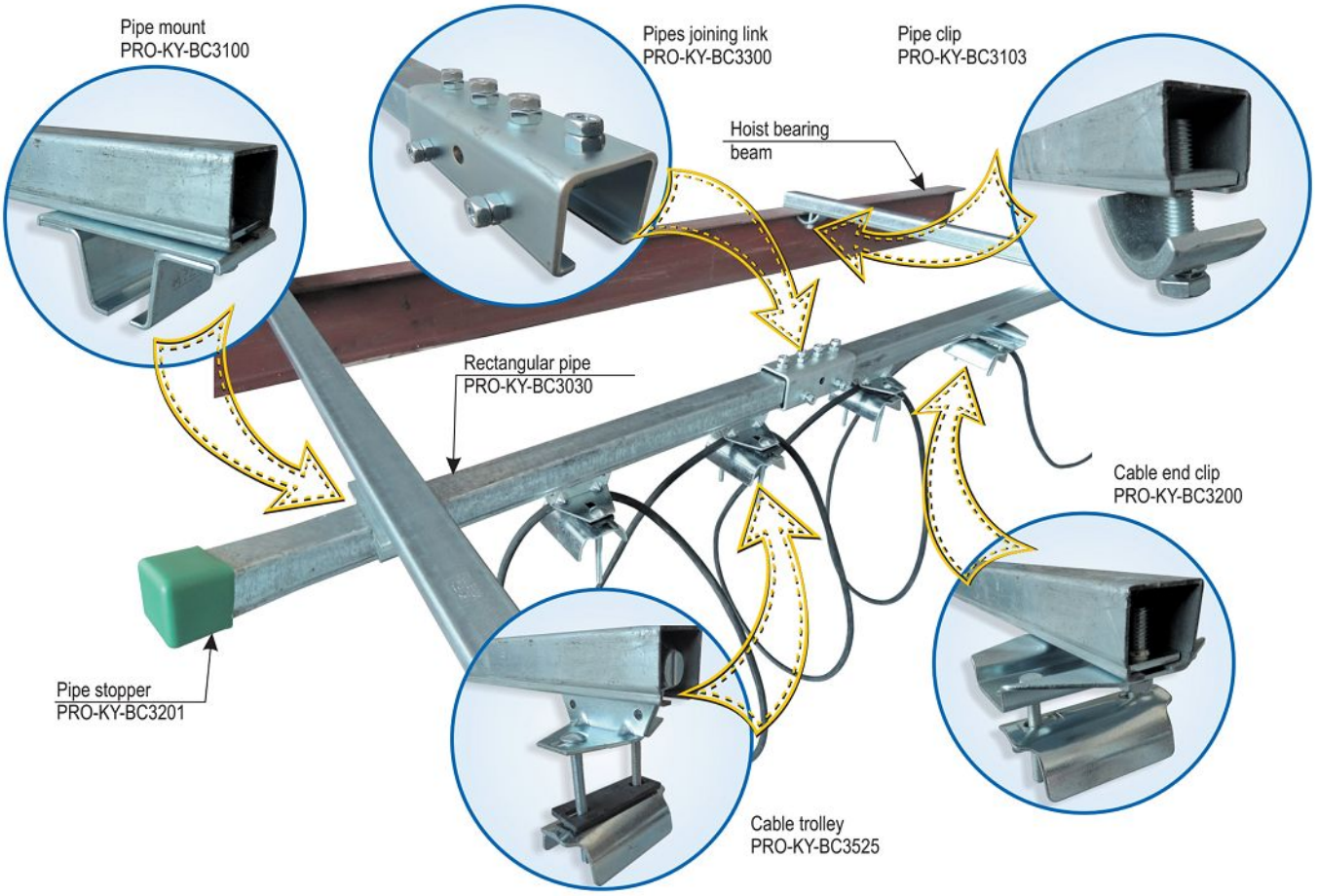
Model/ Features	Load capacity (t)	Lifting speed at full load (m/min)	Maximum lifting speed (m/min)	Net weight (kg)
PRO-TCR-250 CP	0.25	4	19	21.6
PRO-TCR-500 CP	0.5	10.5	20.5	31
PRO-TCR-1000/2 CP	1	5.3	10.3	34
PRO-TCR-1000 CP	1	6	11.3	35
PRO-TCR-2000/2 CP	2	3	5.7	40
PRO-TCR-3000 CP	3	2.8	5.4	69
PRO-TCR-6000/2 CP	6	1.4	2.9	90

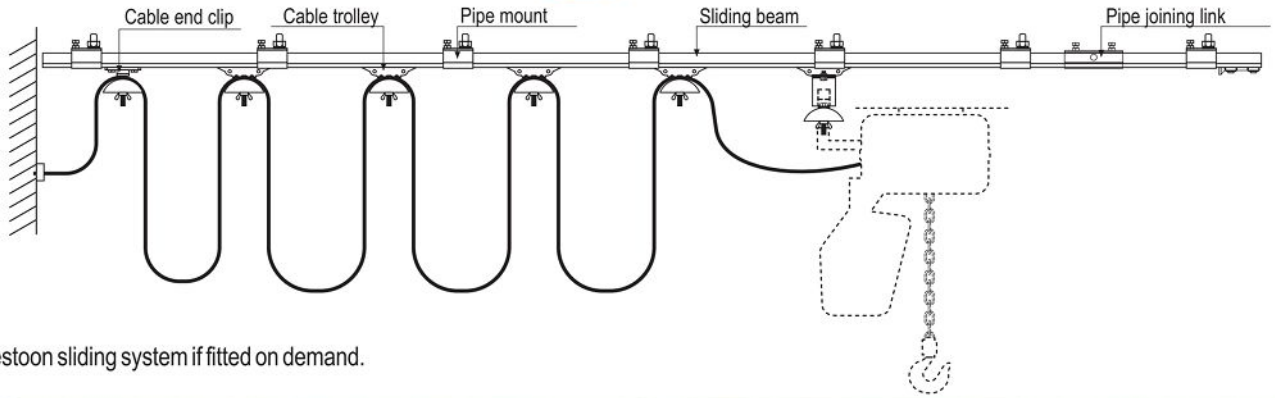
On demand, hoists can be fitted with any length of chain.



PRO-KY POWER SUPPLY CABLE SLIDING SYSTEM (FESTOON)

In case that there is a large distance for the trolley's horizontal movement to cover an additional power supply cable hanging system can be fitted to the beam, to prevent the power supply cable from becoming entangled or to have an uncontrolled movement.





Festoon sliding system if fitted on demand.

THREE-PHASE ELECTRIC CHAIN HOIST. CONCEPTS

The PRO*lift*® electric chain hoists are able to handle any load lifting operations, either at a fixed location or moving on a fixed steel beam.
For the translational movements the electric chain hoists can be fitted to special trolleys, either electrically powered or hand operated (chain equipped).

The PRO*lift*® electric chain hoists' main advantages:

- They have the highest lifting speed, as well as providing the greatest power compared to similar products;
- Equipped with heavy duty hoist motors with class H insulation according to ASME HST;
- Standard voltage is set for 380V/50Hz; other voltages available upon request;
- Sealed electrical enclosure;
- They have a high working rating of 360 starts per hour;
- Overload protection due to an advanced external slip clutch;
- A paddle-type stroke limiter is fitted on the lifting chain to avoid lifting or lowering the load in excess of drum limitations;
- They use grade 80 super alloy load chain with a 6:1 safety factor;
- Supplied with standard chain container for 10 meters of chain;
- The single D.C. brake does not interrupt the kinetic bond between the holding brake and the lifted load;
- The brake design also includes a manual release mechanism in case of power failure;
- Pendant remote control, double insulated and ergonomically designed; standard 48-volt low-voltage control (24 volts optional);
- The remote control is fitted with an emergency stop button;
- Motorized trolley includes D.C. disc brake and control. When the trolleys come with the hoist, the standard pendent remote control comes with four buttons.

380V

Load capacity (t)		0.5	1	1.5	2	2.5	3	5	7.5	10	15
Lug type	with Hook	PRO-CTS-151.001	PRO-CTS-30F.001	PRO-CTS-451.001	PRO-CTS-302.001	PRO-CTS-751.001	PRO-CTS-303.001	PRO-CTS-752.001	PRO-CTS-753.001	PRO-CTS-754.001	PRO-CTS-756.001
			PRO-CTS-30F.003		PRO-CTS-302.003		PRO-CTS-303.003				
		PRO-CTS-151.003	PRO-CTS-301.001	PRO-CTS-451.003	PRO-CTS-601.001	PRO-CTS-751.003	PRO-CTS-452.001	PRO-CTS-752.003	PRO-CTS-753.003	PRO-CTS-754.003	PRO-CTS-756.003
			PRO-CTS-301.003		PRO-CTS-601.003		PRO-CTS-452.003				
Trolley type	with Chain trolley	PRO-CTZ-151.001	PRO-CTZ-30F.001	PRO-CTZ-451.001	PRO-CTZ-302.001	PRO-CTZ-751.001	PRO-CTZ-303.001	PRO-CTZ-752.001	PRO-CTZ-753.001	PRO-CTZ-754.001	PRO-CTZ-756.001
			PRO-CTZ-30F.003		PRO-CTZ-302.003		PRO-CTZ-303.003				
		PRO-CTZ-151.003	PRO-CTZ-301.001	PRO-CTZ-451.003	PRO-CTZ-601.001	PRO-CTZ-751.003	PRO-CTZ-452.001	PRO-CTZ-752.003	PRO-CTZ-753.003	PRO-CTZ-754.003	PRO-CTZ-756.003
			PRO-CTZ-301.003		PRO-CTZ-601.003		PRO-CTZ-452.003				
	with Electric trolley	PRO-CTD-151.001	PRO-CTD-30F.001	PRO-CTD-451.001	PRO-CTD-302.001	PRO-CTD-751.001	PRO-CTD-303.001	PRO-CTD-752.001	PRO-CTD-753.001	PRO-CTD-754.001	PRO-CTD-756.001
			PRO-CTD-30F.003		PRO-CTD-302.003		PRO-CTD-303.003				
		PRO-CTD-151.003	PRO-CTD-301.001	PRO-CTD-451.003	PRO-CTD-601.001	PRO-CTD-751.003	PRO-CTD-452.001	PRO-CTD-752.003	PRO-CTD-753.003	PRO-CTD-754.003	PRO-CTD-756.003
			PRO-CTD-301.003		PRO-CTD-601.003		PRO-CTD-452.003				

The short time rating indicates how long the hoist can be operated continuously at its rated capacity as shown in the cycle below, assuming continuous operation for a short time span (fig. 1).
- single speed - 60 min.
- dual speed - 30/10 min.

Classification: ASME HST H4, ISO-M5, FEM 2m.

Intermittent rating % ED (maximum number of starts per hour) indicates the allowable ratio between the time the motor is running and the time the motor is off and the number of motor starts per hour for a hoist operated continuously at 63% of its rated capacity as shown in the cycle below, for continuous operation or repeated starting over a long time span (fig. 2).

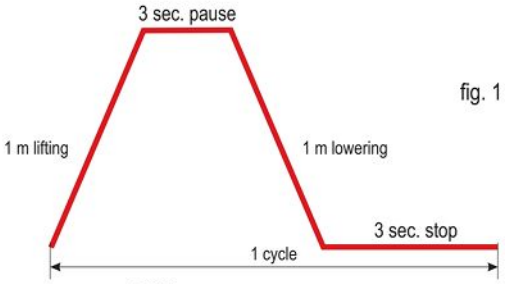


fig. 1

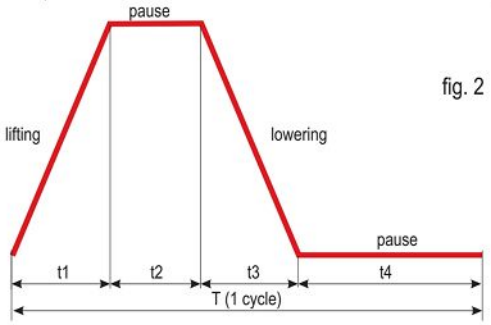


fig. 2

Example (for single speed):

$$\%ED = \frac{\text{Started engine (t1+t3)}}{\text{T(1 cycle)}} \times 100$$, where T = 1 cycle (t1+t2+t3+t4) and it does not exceed 10 minutes.

The CT hoist motor ratings
- single speed: 60 % ED, 360 starts/hr;
- double speed 40/20% ED, 120/240 starts/hr.

Note: Intermittent rating reduced to: 240 SH 40% ED at 125% rated capacity.

Frame and housing - The load-supporting frame is an aluminum alloy (for the C 015 and C 030 type frames) or modular cast iron (for the C 050, C 060 and C 075 type frames) gravity die-casted as one piece to ensure structural integrity. Lightweight modular design has fewer parts and it is easy to install and maintain. IP55 protection class and the baked enamel painting gives the frame superior resistance to harmful environments.


fig. 3

Hoist brake (fig. 3)
The disc brake mechanism has two flat-faced asbestos free brake discs with a lifespan of more than 1 million cycles. Since the brake discs are slightly oversized this gives them a prolonged life, without frequent adjustments. The holding brake can be manually released without any special tools to safely lower the load in case of power failure or any malfunction.

Electric panel
Hoists are equipped with specifically chosen magnetic contactors for extra heavy-duty service and have a rated lifespan of more than 1 million cycles. The standard control power transformer operates at 48 Volts, low voltage (24 Volts optional).

The gear box it is a Multi-Stage high performance gear train, with the gear teeth accurately machined for long life and quiet operation. A planetary gear drive is used for the final high torque reduction, so that all forces are balanced. Lubricated for life.

The push button station it has an ergonomic design and it is also reinforced with high insulation plastic that makes it impact, weather, corrosion and fire resistant. Housing is double insulated design. Push switches are mechanically interlocked for additional safety.

True modular design - Hoist's motor can be removed even with a maximum load attached to the hook. Also the chain sprocket can be removed without disassembling the gear box and the load limiting clutch can be serviced without opening the gearbox.

The motor has a squirrel-cage parallel rotor and it is designed specifically for hoisting duties. The modular design facilitates maintenance and the hoist's motor can be removed when the hoist is fully loaded for testing and replacement.
Separate mounting of the motor and brake prevents excess local heat build-up. The motor housing is extruded from aluminum alloy and cooling fins with increased surface are used for maximum heat evacuation. The Class H 180 C insulation protection is supplied as standard and it protects the motor beginning from 40°C ambient temperature. The hoists are also equipped with thermal protection at 145°C and an overload protection switch embedded in the motor windings. Duty rating is 60% ED, with 360 starts per hour for the single speed three-phased hoists, equal to HMI Classification H4. TENV and IP54 totally enclosed construction can withstand harsh environments (IP55 optional).

The limit switches have built-in chain guides to safely stop the load in the event of a twisted or damaged chain and will also prevent non-vertical lifting. Upper and lower limit switches can be adjusted to stop the hook in any position.

The hook it is drop forged from steel alloy and heat-treated for strength and toughness; it will not break but open slowly when over-loaded. Equipped with safety latch and a 360° swivel.

The load chain made from Grade 80 super alloy, heat-treated for long life and precisely calibrated. It's safety factor exceeds 6:1.

The chain sprocket Alloy steel made and heat treated for maximum performance. The high precision machined chain sprocket has more than 5 times the life span of an investment cast sprocket. Advanced modular design enables the replacement of the lifting sprocket without dismantling the hoist gearbox and without the use of special tools.

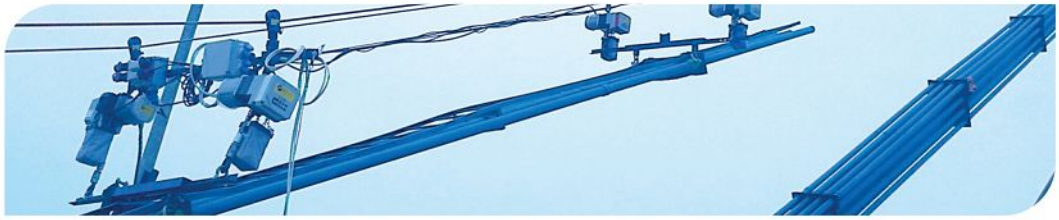
The overload limit - The load-limiting clutch does not break the kinetic bond between the holding brake and the lifted load. External access is easy since gearbox does not have to be disassembled.

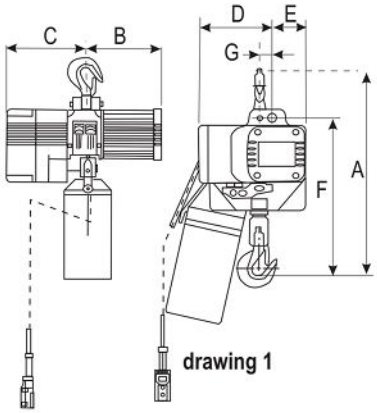
Notes:
1. Standard voltage is 380V/50Hz. The motor's thermal overload protection via a thermostatic switch that is embedded in motor windings.
2. Single and double speed hoists are supplied with a regular motion two-button (up/down) and a „Red Mushroom" emergency stop button pendent remote control, 1.2 meters (4 ft) power cord. The pendant remote controls for the motorized trolleys coming with the hoists are the five-buttons type, four of which control the up/down/left/right movements and the fifth being the „Red Mushroom" type emergency stop button.
3. Standard pendent remote control cable are 3 meters long; longer cables available on demand.
4. Both the hoists and the motorized trolleys are available in single or two-speed variants. For the double speed type, slow speed is 1/3 of the high speed (3:1 ratio).
5. The hoists can be fitted with the length of chain needed by the customer.
6. The chain bag is suitable for chain lengths up to 10 meters and it comes as standard; bigger bags for longer chains are available on demand.

PRO-CTS THREE-PHASE ELECTRIC CHAIN HOIST

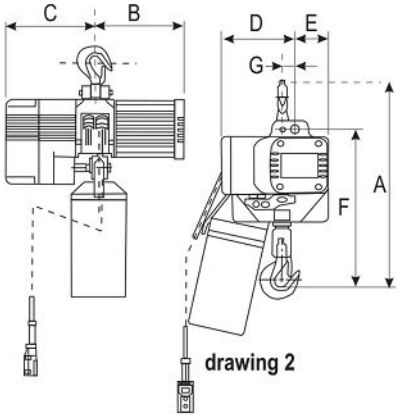
It is used in places where there is no need to have a horizontal movement of the load. It is equipped with Grade 80 load chain and standard bag for the chain. Standard voltage: 380V / 50Hz; optionally, it can be provided for other voltages.

The termination 001 in the product code represents the single speed hoist and the termination 003 represents the double speed hoist.

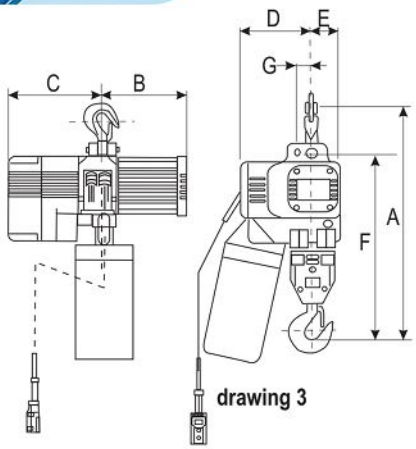




drawing 1



drawing 2



drawing 3

Model/ Features	Load capacity (t)	Speed (m/min) 50 Hz	Engine power (CP)	Drawing	Chain strands	Dimensions (mm) A	B	C	D	E	F	G	Net weight (kg)
PRO-CTS-151.001	0.5	8	1.25	1	1	410	215	264	158	105	319	38	37
PRO-CTS-151.003		8 - 2.7	1.25 - 0.42				255						39
PRO-CTS-30F.001	1	4	1.25			450	215	264	158	105	338	38	41
PRO-CTS-30F.003		4 - 1.3	1.25 - 0.42				255						43
PRO-CTS-301.001		8	2.5			542	229	265	161	124	430		52
PRO-CTS-301.003		8 - 2.7	2.5 - 0.84				269						57
PRO-CTS-302.001	2	4	2.5		2	654	229	256	194	91	514	33	57
PRO-CTS-302.003		4 - 1.3	2.5 - 0.84				269						62
PRO-CTS-601.001		8	5.0		1	697	290	297	200	143	557		118
PRO-CTS-601.003		8 - 2.7	5.0 - 1.67				331						122
PRO-CTS-303.001	3	2.7	2.5	2	3	744	229	256	258	102	578	–	62
PRO-CTS-303.003		2.7 - 0.9	2.5 - 0.84				269						67
PRO-CTS-452.001		4.8	5.0	1	2	834	290	297	247	96	668		132
PRO-CTS-452.003		4.8 - 1.6	5.0 - 1.67				331						136
PRO-CTS-752.001	5	3.7	6.0			867	310	297	247	96	697	47	146
PRO-CTS-752.003		3.7 - 1.2	6.0 - 2.0				360						150
PRO-CTS-753.001	7.5	2.5	6.0	2	3	–	–	–	–	–	–	–	151
PRO-CTS-753.003		2.5 - 0.8	6.0 - 2.0 (2x)				–						155
PRO-CTS-754.001	10	3.7	6.0	3	4	–	–	–	–	–	–	–	305
PRO-CTS-754.003		3.7 - 1.2	6.0 - 2.0 (2x)				–						313
PRO-CTS-756.001	15	2.5	6.0		6	–	–	–	–	–	–	–	365
PRO-CTS-756.003		2.5 - 0.8	6.0 - 2.0 (2x)				–						373

380V

On demand, hoists can be fitted with any length of chain.

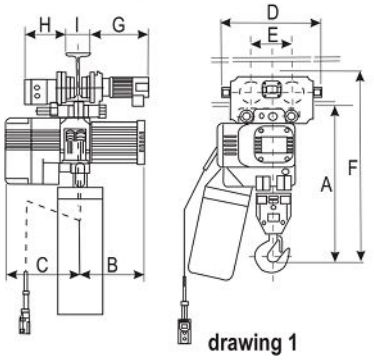
For horizontal movement (traveling), choose model type PRO-CTZ, resulted by joining electric chain hoist PRO-CTS and geared trolley PRO-GT.

PRO-CTD THREE-PHASE ELECTRIC CHAIN HOIST WITH ELECTRIC TROLLEY

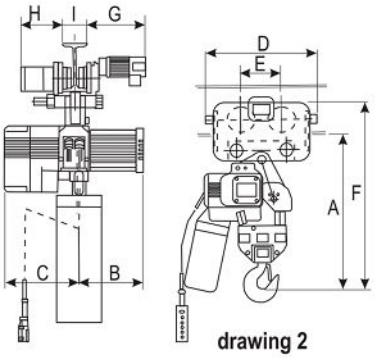
It is used where horizontal movement is necessary.
The horizontal movement of the load is achieved using an electric remote controlled trolley.
It is equipped with Grade 80 load chain and a standard bag for the chain.

The PRO-CTD type chain hoist is composed of a PRO-CTS electric chain hoist and a PRO-CV type monorail electric trolley.

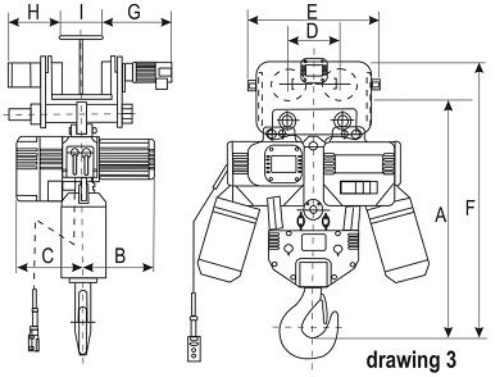
Standard voltage: 380V / 50Hz; optionally, it can be provided for other voltages. The termination 001 in the product code represents the single speed hoist and the termination 003 represents the double speed hoists.



drawing 1



drawing 2



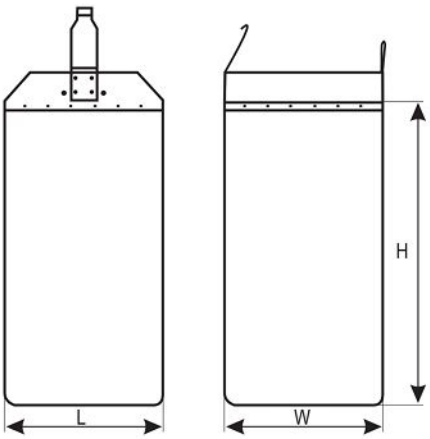
drawing 3

Model/ Features	Load capacity (t)	Lifting height (m)	Speed (m/min) 50 Hz	Engine power (CP)	Drawing	Chain strands	Dimensions (mm) A Integrated	A With hook	B	C	D	E	F Integrated	F With hook	G	H	I	Net weight (kg)
PRO-CTD-151.001	0.5	OPTIONAL	8	1.25	1	1	379	470	215	264	344	120	478	569	250	150	75 - 175	71
PRO-CTD-151.003			8 - 2.7	1.25 - 0.42					255									73
PRO-CTD-30F.001	1		4	1.25			404	516	215	264	390	300	537	618	300	200		82
PRO-CTD-30F.003			4 - 1.3	1.25 - 0.42					255									84
PRO-CTD-301.001			8	2.5			486	664	229	265	390	138	587	765	300	200		93
PRO-CTD-301.003			8 - 2.7	2.5 - 0.84					269									98
PRO-CTD-302.001	2		4	2.5		2	579	792	229	256	445	183	699	912	300	200	100 - 175	105
PRO-CTD-302.003			4 - 1.3	2.5 - 0.84					269									110
PRO-CTD-601.001			8	5.0		1	621	841	290	297	510	214	772	992	300	200		166
PRO-CTD-601.003			8 - 2.7	5.0 - 1.67					331									170
PRO-CTD-303.001	3		2.7	2.5	2	3	705	904	229	256	510	214	856	1028	350	250	100 - 200	135
PRO-CTD-303.003			2.7 - 0.9	2.5 - 0.84					269									140
PRO-CTD-452.001			4.8	5.0	1	2	732	1004	290	297	510	214	883	1155	350	250		205
PRO-CTD-452.003			4.8 - 1.6	5.0 - 1.67					331									209
PRO-CTD-752.001	5		3.7	6.0			766	1074	310	297	586	240	964	1272	350	250	125 - 200	266
PRO-CTD-752.003			3.7 - 1.2	6.0 - 2.0					360									270
PRO-CTD-753.001	7.5		2.5	6.0	2	3	949	–	310	297	660	244	1148	–	350	250	150 - 200	326
PRO-CTD-753.003			2.5 - 0.8	6.0 - 2.0 (2x)					360									330
PRO-CTD-754.001	10		3.7	6.0	3	4	1088	–	310	297	670	260	1310	–	350	250	150 - 200	540
PRO-CTD-754.003			3.7 - 1.2	6.0 - 2.0 (2x)					360									548
PRO-CTD-756.001	15		2.5	6.0		6	1300	–	310	297	1364	260	1520	–	350	250	150 - 200	600
PRO-CTD-756.003			2.5 - 0.8	6.0 - 2.0 (2x)					360									608

On demand, hoists can be fitted with any length of chain.

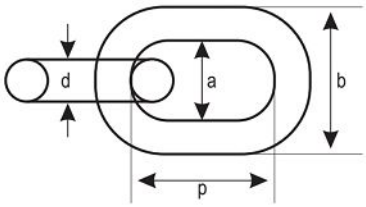
The chain bag dimensions

Model/ Features	15A 30A	15B 30B	15C 30C	50A	50B	50C	50D	50E	50F
Length L (mm)	147	147	147	197	197	197	197	197	197
Width W (mm)	147	147	147	197	197	197	197	197	197
Height H (mm)	250	400	550	320	370	470	570	620	720



Standard dimensions of calibrated chains used for electric hoists

Model/ Features	151	30F 301 302 303	452 601	752 753 754 756
Diameter **d** (mm)	5.6	7.1	10	11.2
Pitch **p** (mm)	17	20.2	30	34
Inside width **a** (mm)	7	8.9	12.5	14
Outside width **b** (mm)	18.6	23.2	33.2	37.2
Weight (kg/m)	0.7	1.12	2.18	2.73

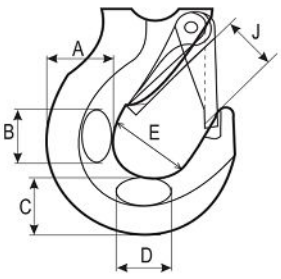


Guideline for chain bag

Hoist type		151	30F	301	302	601	303	452	752	753	754	756
Load capacity (t)		0.5	1	1	2	2	3	3	5	7.5	10	15
Link diameter (mm) x strands no.		5.6 x 1	7.1 x 1		7.1 x 2	10 x 1	7.1 x 3	10 x 2	11.2 x 2	11.2 x 3	11.2 x 4	11.2 x 6
Chain length (m)		Lifting * 1 + 0.6			Lifting * 2 + 1	Lifting * 1 + 0.8	Lifting * 3 + 1.3	Lifting * 2 + 1.2	Lifting * 2 + 1.3	Lifting * 3 + 1.7	Lifting * 4 + 2.6	Lifting * 6 +5.2
Chain bag type	3	15A	15A	30A	30A	50A	30B	50A	50B	50D	50B * 2	Per request
	4											
	5				30B		30C	50C	50D	50F	50D * 2	
	6											
	7		15B	30B	30C	50C	–	50E	50F	–	50F * 2	
	8	15B										
	9											
	10				–			–	–		–	
	11											
	12											
	13		15C	30C		50E						
	14											
	15											
	16											
	17											
	18											
	22	15C										

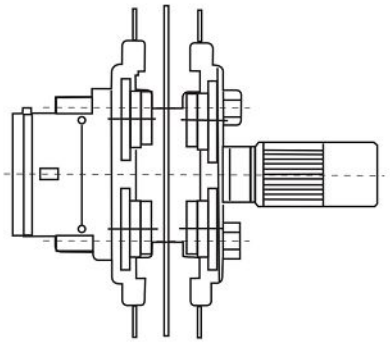
Standard dimensions of lifting hook

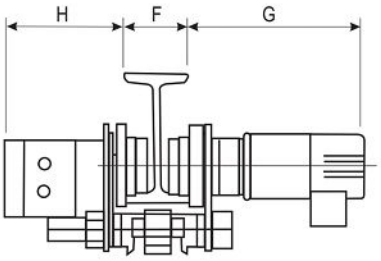
Load capacity (t)		0.5	1	2	3	5	7.5	10	15
Dimensions (mm)	A	31	37	47	55	68	75	100	122
	B	20	23	30	35	41	56	70	88
	C	27	31	40	47	57	75	95	110
	D	20	23	30	35	41	56	66	86
	E	32	40	50	56	60	80	100	120
	J	25	31	37	41	43	57	67	86

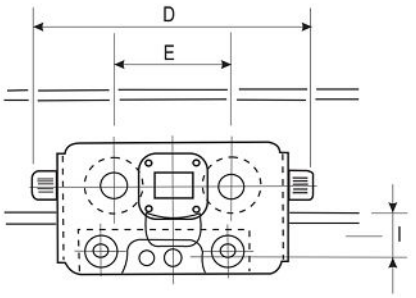


PRO-CV MONORAIL ELECTRIC TROLLEY

It is equipped with standard brake discs.
It is fixed around the frame with safety rollers.
The trolley wheels allows to be used on **I** or **H** type beams.
Optionally, it can be equipped with a soft "start/stop" engine system.
Product code last digit with value *1* represents the single speed trolley variant; last digit *3* represents the double speed trolley.







Model/ Features	Load capacity (t)	Speed (m/min) 50 Hz	Engine power (CP)	Beam width F min-max (mm)	Minimum curvature radius r (mm)	Dimensions (mm) G	H	D	E	I	Net weight (kg)
PRO-CV-0E1	0.5	24	0.25	75 - 175	800	325	222	344	120	70	35
PRO-CV-0E3		24 - 8	0.2 - 0.07			365					37
PRO-CV-011	1	21	0.33	75 - 175	800	334	231	390	138	70	42
PRO-CV-013		21 - 7	0.3 - 0.1			374					45
PRO-CV-021	2	21	0.33	100- 175	800	345	239	510	214	82	50
PRO-CV-023		21 - 7	0.3 - 0.1			385					53
PRO-CV-031	3	16.7	1	100 - 200	1000	345	239	510	214	82	50
PRO-CV-033		16.7 - 5.5	0.75 - 0.1			385					53
PRO-CV-051	5	17.5	1	125 - 200	1800	354	247	586	240	110	125
PRO-CV-053		17.5 - 5.8	0.75 - 0.1			394					128
PRO-CV-071	7.5	16.7	1	150 - 200	2500	396	246	660	244	163	180
PRO-CV-073		16.7 - 5.5	0.75 - 0.1			436					183
PRO-CV-101	10	17.5	1	150 - 200	2500	362	222	670	260	190	240
PRO-CV-103		17.5 - 5.8	0.75 - 0.1			460	320		259		242
PRO-CV-151	15	16.7	2	150 - 200	2500	386	253	136	260	220	243
PRO-CV-153		16.7 - 5.5	2 - 0.7			426					263

PRO-CV trolley fitted with PRO-CTS electric chain hoist

THREE-PHASE ELECTRIC CHAIN HOIST. FEATURES.

Motor Housing
- Aluminum alloy casting, features rigid structure and light weight.
- Motor framed with radiant cooling fins, permits 40% (dual speed 40% / 20%) duty cycle.

Motor Brake
- Electromagnetic Brake Controller - unique design in its field, patented, features simultaneous braking upon release of P.B. even under full load.

Limit Switch
- Fitted at both top and bottom ends, shuts off power automatically to prevent load chain from running out.

Load Chain
- Grade 80 case hardened alloy steel chain.

Hook
- Hot forged high tensile steel, rigid and durable 360° swivel, fitting with safety latch to assure safe lifting.

Hoist Bracket
- Double high-tensile alloy steel plate bracket, features rugged and durable construction.

Mechanical Brake
- Advanced design, assure secure banking even under overload. In conjunction with motor brake, features DOUBLE BRAKE SYSTEM for safety and durability in hoist operation.

Transformator
- Power to pendant control reduced to 24V or 48V for safer operation.

Magnetic Contactor
- High performance non-fuse circuit breakers allow frequent trouble cycling with free operation.

Phase Error Relay
- A specially designed electric board prevents motor from running at it reverse phased.

Pendant with Long Life Buttons
- Offers light and durable switching controls.

ON DEMAND: RADIO CONTROLLER

Electric chain hoists models and types grouped by work load and speed:

Load capacity (ton)	Code	0.5T	1T	2T	3T	5T	7.5T	10T	15T	20T	30T
Single Speed Type	PRO-YSL	YSL-050	YSL-100	YSL-200	YSL-300						
	PRO-YSH	YSH-050	YSH-100	YSH-200	YSH-300						
	PRO-YSS			YSS-200	YSS-300	YSS-500	YSS-750	YSS-1000	YSS-1500	YSS-2000	YSS-3000
Double Speed Type	PRO-YSLD	YSLD-050	YSLD-100	YSLD-200	YSLD-300						
	PRO-YSHD	YSHD-050	YSHD-100	YSHD-200	YSHD-300						
	PRO-YSSD			YSSD-200	YSSD-300	YSSD-500	YSSD-750	YSSD-1000	YSSD-1500	YSSD-2000	YSSD-3000

On demand, the hoists can be fitted with any length of chain.

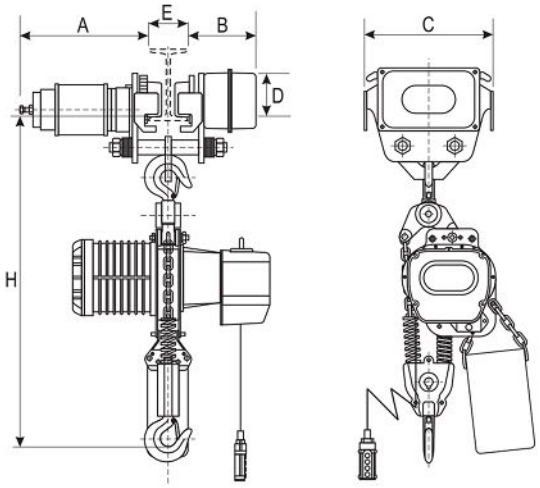
Hoists features:

- Pendant control voltage transformed into 24V/48V to eliminate possible accident caused by circuit short and assure safe operation in wet environments.
- Limit switches hold load chain from running out.
- Advanced phase error relay keeps motor motionless at incorrect power connection.
- Automatic motor brake system features simultaneous braking upon power failure or switching off.
- Dual brake system assures safe operation.
- Emergency stop features incorporated.
- Electronic overload protection incorporated.
- Class F insulated motor (155°C).
- Colors: Anthracite Gray.

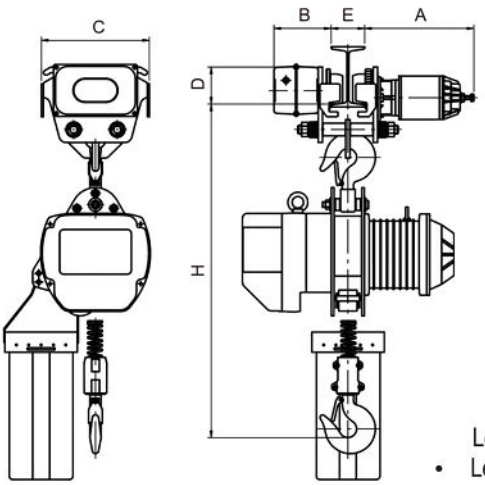
IP Code: IP 54 - Hoists - YSS(D), Trolleys
IP 42 - Hoists - YSL(D), YSH(D)

Classification: ISO M5 / FEM 2m

THREE-PHASE ELECTRIC CHAIN HOIST DRIVEN BY ELECTRIC TROLLEY



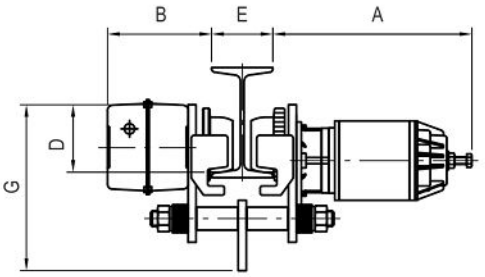
PRO-YSL(D)M / PRO-YSH(D)M



PRO-YSS(D)M

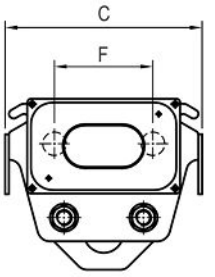
Legend:
- Letter “D” describe double speed models;
- Letter “M” describe trolley driven models;

Model / Load Capacity (ton)		Trolley Type	Dimensions (mm)					
			H	A	B	C	D	E
PRO-YSL(D)M PRO-YSH(D)M	0.5, 1	MT-050, 100	705	328	173	294	98	75 - 125
	2	MT-200	935	328	173	322	111	100 - 150
	3	MT-300	1030	368	180	356	117	125 - 175
PRO-YSS(D)M	2	MT-200	995	328	173	322	111	100 - 150
	3	MT-300	1120	368	180	356	117	125 - 175
	5	MT-500	1200	372	184	386	127	125 - 175
	7.5	MT-750	1300	381	193	454	167	150 - 200
	10	MT-1000	1415	471	193	560	205	150 - 200
	15	MT-1500	1490	576	212	702	220	190
	20	MT-2000	1820	705	211	882	295	200



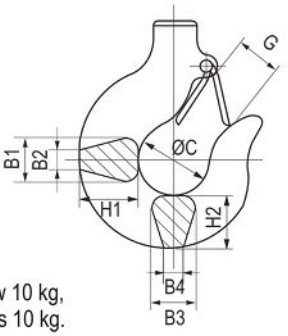
Three-phase electric trolleys models

Load (ton)	Type	Dimensions (mm)							Speed (m/min)	Motor (kW)	Poles (P)	Curvature radius (m) (minimum)	Weight (kg)
		A	B	C	D	E	F	G					
1	MT-100 MTD-100	328	173	294	98	75 - 125	149	246	20 20 / 7	0.25, 0.17 0.25 / 0.08	4, 6 4 / 12	1.3	40
2	MT-200 MTD-200	328	173	322	111	100 - 150	161	272	20 20 / 7	0.25, 0.17 0.25 / 0.08	4, 6 4 / 12	1.5	45
3	MT-300 MTD-300	368	180	356	117	125 - 175	172	297	20 20 / 7	0.6, 0.4 0.6 / 0.2	4, 6 4 / 12	1.8	65
5	MT-500 MTD-500	372	184	386	127	125 - 175	183	320	20 20 / 7	0.6, 0.4 0.6 / 0.2	4, 6 4 / 12	2.0	89
7.5	MT-750 MTD-750	380	193	454	167	150 - 200	229	400	13 13 / 6.5	0.9 0.9 / 0.45	6 6 / 12	3.0	155
10	MT-1000 MTD-1000	471	193	560	205	150 - 200	278	450	15 15 / 5	1.5 1.5 / 0.5	4 4 / 12	3.5	218
15	MT-1500 MTD-1500	576	212	702	220	190	360	520	12 12 / 4	1.5 1.5 / 0.5	4 4 / 12	-	350
20	MT-2000 MTD-2000	705	211	882	295	200	440	604	12 12 / 4	2.2 2.2 / 0.73	4 4 / 12	-	575



Model / Features	Load (ton)	Upper /Lower	Dimensions (mm)								Pressure (kg/mm2)	Weight (kg)
			H1	B1	B2	H2	B3	B4	C	G		
PRO-YSL	0.5 / 1	S / I	33	23	9	29	23	9	40	28	70	*10
PRO-YSH	2	S / I	45	31	10	41	31	10	46	36	70	*10
	3	S / I	55	34	19	48	34	19	52	40	70	*10
PRO-YSS	2 / 3	S / I	55	34	19	48	34	19	52	40	70	*10
	5	S / I	67	45	23	60	45	23	62	45	70	20
	7.5	I	75	48	16	68	48	16	75	55	100	40
	10	I	100	70	28	95	65	28	100	70	70	70
	15	I	120	85	32	110	83	32	120	82	70	140
	20	I	140	100	38	130	95	38	140	105	70	270
	30	I	140	98	38	130	94	38	140	105	100	350

Load (lifting) hook dimensions



* All hook weights below 10 kg, have been calculated as 10 kg.

THREE-PHASE ELECTRIC CHAIN HOIST WITH HOOK

IP 42	Load capacity (ton)	0.5	1	2	3
Lifting height (m)		Hoists can be fitted with any length of chain			
Load chain type (mm)		Ø7.1			
Single Speed (m/min)	PRO-YSL	6.7	4.7	2.3	1.5
	PRO-YSH	9.2	6.7	3.3	2.2
Double Speed (m/min)	PRO-YSLD	6.7 / 2.2	4.7 / 1.6	2.3 / 0.8	1.5 / 0.5
	PRO-YSHD	9.2 / 3.1	6.7 / 2.2	3.3 / 1.1	2.2 / 0.7
Motor (kW)	(single speed)	1.5 (YSL) / 1.8 (YSH)		1.8	
Motor (kW)	(double speed)	1.8 / 0.6			
Chain fall number		1		2	3
Net weight (kg)		50.5		61	73
Dimensions L x I x H (cm)		60 x 57 x 33			62 x 52 x 50

The hoists are equipped with standard chain bag and they are controlled with a 2+1 buttons pendant 2+1, fitted with required electric cable.
On demand, wired pendant can be replaced by a radio controller.

Double speed models have *D* letter at the end of product code.

IP enclosure: first character is for intrusion protection rating, the second is for moisture protection rating.

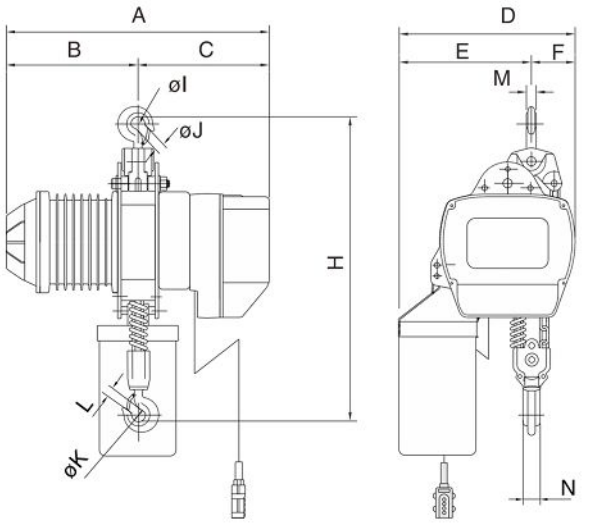
- IP 42 - Protection against solid objects larger than 1mm (wires, nails, screws, larger insects and other potentially invasive small objects such as tools/small etc.) / Protection against water droplets deflected up to 15° from vertical.
- IP 54 - Partial protection against dust that may harm equipment / Protected against water splashes from all directions.

IP 54	Load capacity (ton)	2	3	5	7.5	10	15	20	30
Lifting height (m)		Hoists can be fitted with any length of chain, on demand.							
Load chain (mm)		Ø10		Ø11.2					
Single Speed	PRO-YSS (m/min)	6.6	4.3	2.6	1.8	2.6	1.8	1.3	0.9
Double Speed	PRO-YSSD (m/min)	6.6 / 2.2	4.3 / 1.4	2.6 / 0.9	1.8 / 0.6	2.6 / 0.9	1.8 / 0.6	1.3 / 0.43	0.9 / 0.3
Motor (kW)	(single speed)	3.7				3.7 x 2	5.0 x 2		
Motor (kW)	(double speed)	3.7 / 1.2				3.7 / 1.2 x 2	5.0 / 1.7 x 2		
Chain fall number		1		2	3	4	6	8	12
Net weight (kg)		122		140	195	410	510	890	1035
Dimensions L x I x H (cm)		73 x 57 x 51				73 x 70 x 70	140 x 85 x 97	170 x 105 x 167	175 x 110 x 185

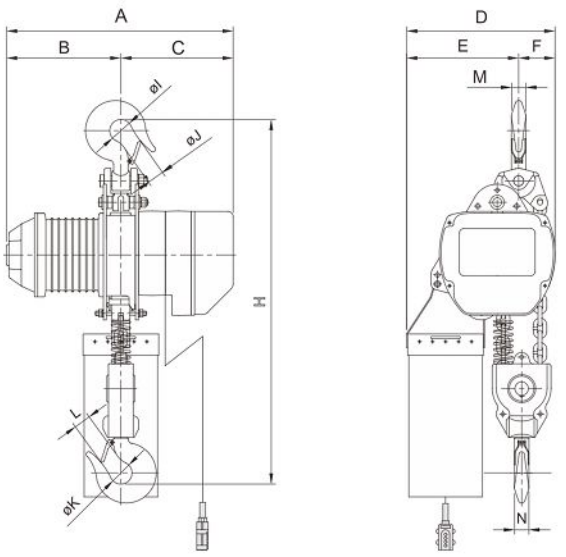
Estimated duty E.D. = 40% (models with single speed) and 40/20% (models with double speed)

Load capacity (ton)	Model / Features	Dimensions (mm)														
		H	A Single Speed	B Single Speed	A Double Speed	B Double Speed	C	D	E	F	I	J	K	L	M	N
0.5 / 1	PRO-YSL(D) / YSH(D)	595	505	245	548	288	260	240	115	125	40	28	40	28	23	23
2	PRO-YSL(D) / YSH(D)	745	505	245	548	288	260	240	175	65	46	36	46	36	31	31
3	PRO-YSL(D) / YSH(D)	880	505	245	548	288	260	280	175	105	52	43	52	43	34	34
2	PRO-YSS(D)-200	835	640	326	689	375	314	448	278	170	52	43	52	43	34	34
3	PRO-YSS(D)-300	960	640	326	689	375	314	448	340	108	52	43	52	43	34	34
5	PRO-YSS(D)-500	1030	640	326	689	375	314	448	356	92	62	45	62	45	45	45
7.5	PRO-YSS(D)-750	1150	640	326	689	375	314	587	388	199	72	40	75	57	84	48
10	PRO-YSS(D)-1000	1270	640	326	689	375	314	970	485	485	72	40	100	68	92	60
15	PRO-YSS(D)-1500	1365	679	365	724	410	314	1360	680	680	80	40	120	90	169	85
20	PRO-YSS(D)-2000	1950	866	433	866	433	433	1472	736	736	82	82	140	95	164	95
30	PRO-YSS(D)-3000	2000	924	462	924	462	462	1472	736	736	92	92	140	95	221	95

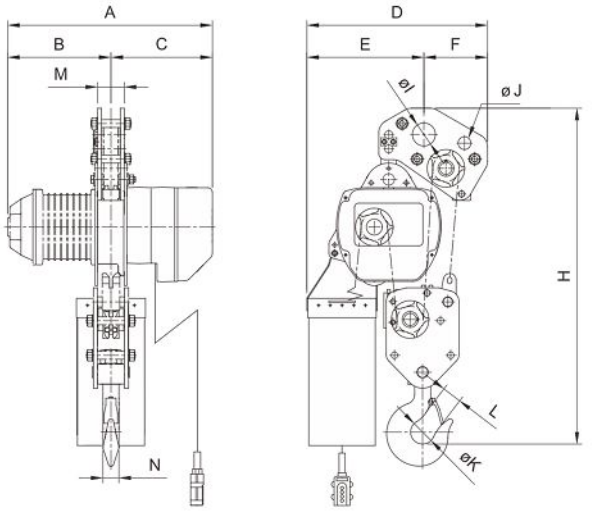
Other three-phase chain hoist models available on demand - different load capacities, better IP classes, better E.D. ratings, low headroom models, etc.



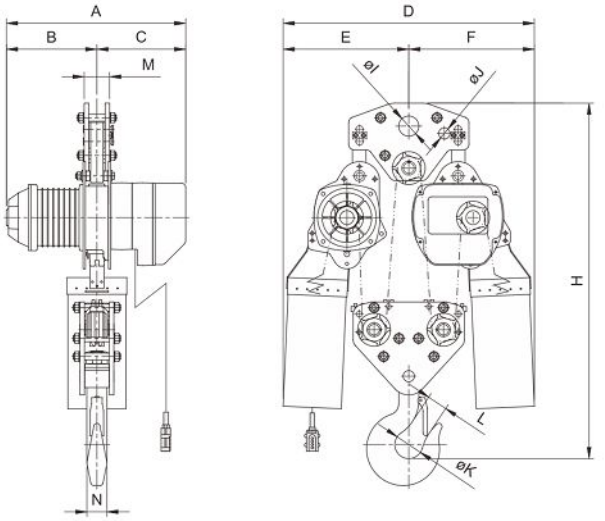
PRO-YSL / PRO-YSLD (0.5/1/2 t)
PRO-YSH / PRO-YSHD (0.5/1/2 t)
PRO-YSS-200 / PRO-YSSD-200
PRO-YSS-300 / PRO-YSSD-300



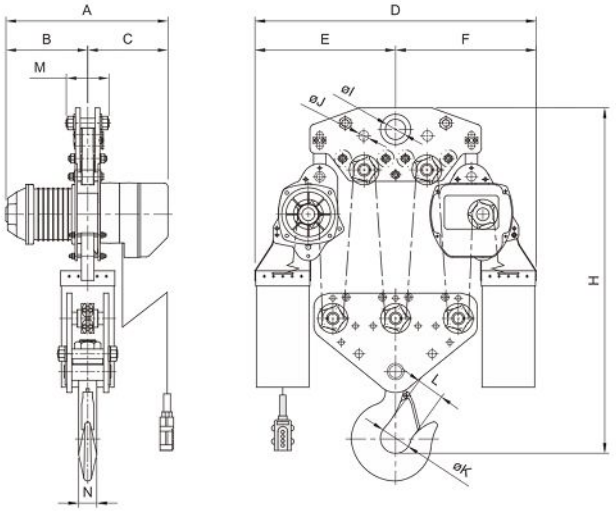
PRO-YSS-500 / PRO-YSSD-500



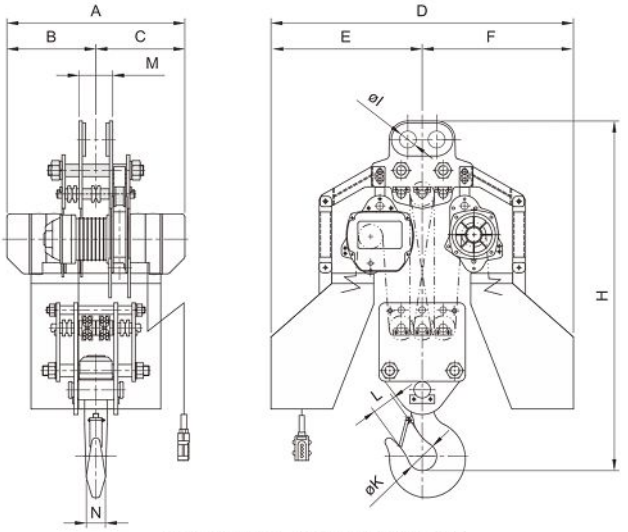
PRO-YSS-750 / PRO-YSSD-750



PRO-YSS-1000 / PRO-YSSD-1000



PRO-YSS-1500 / PRO-YSSD-1500



PRO-YSS-2000 / PRO-YSSD-2000
PRO-YSS-3000 / PRO-YSSD-3000

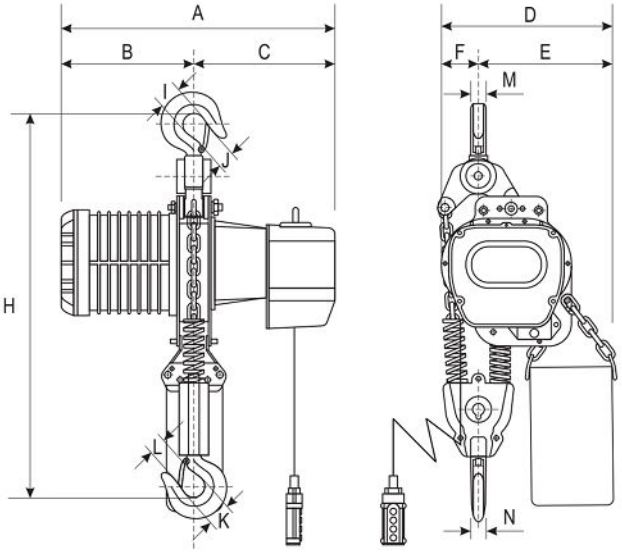
PRO-YSF SINGLE-PHASE ELECTRIC CHAIN HOIST WITH HOOK

It is a reliable and robust hoist type, with single speed and motor estimated duty of 15% .
The hoist is fitted with Grade 80 load chain and proper chain bag.
It can be fitted with any length of chain, as per requested.
Standard supply voltage required is 230 V / 50 Hz.

Main features:

- Aluminum alloy casting, features rigid structure and light weight.
- Motor framed with radiant cooling fins.
- Electromagnetic brake controller - unique design in its field, patented, features simultaneous braking upon release of P.B. even under full load.
- Fitted at both top and bottom ends with load limiters, shuts off power automatically to prevent load chain from running out.
- Hot forged high tensile steel, rigid and durable 360° swivel, fitting with safety latch to assure safe lifting.
- Double high-tensile alloy steel plate bracket, features rugged and durable construction.
- Brake - an advanced design, assure secure banking even under overload. In conjunction with motor brake, features DOUBLE BRAKE SYSTEM for safety and durability in hoist operation.
- Two buttons (up/down) pendant controlled and on demand, radio controlled, both with third safety emergency button.
- *No fuse breaker* fuses, with high performance magnetic contacts and phase error relay.
- IP42 class and duty class FEM 1Dm.

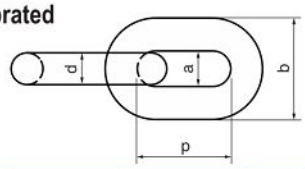
Manufactured according to *Machinery Directive* (2006/42/EC) and *Low Voltages Directive* (2006/95/EC).



On demand, hoists can be fitted with any length of chain.

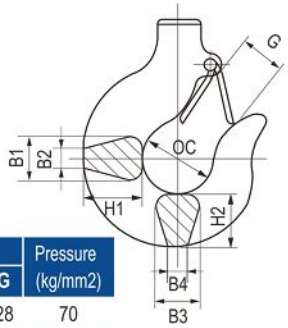
Model/ Features	Load capacity (t)	Speed (m/min)	Chain fall number / size: (7.1x20.2 mm)	Dimensions (mm)													Net weight (kg)
				H	A	B	C	D	E	F	I	J	K	L	M	N	
PRO-YSF-050	0.5	6.7	1	595	548	288	260	240	115	125	40	28	40	28	23	23	55
PRO-YSF-100	1	4.7	1	595	548	288	260	240	115	125	40	28	40	28	23	23	55
PRO-YSF-200	2	2.3	2	745	548	288	260	240	115	65	46	36	46	36	31	31	65

Dimensions of Calibrated Load Chain



Diameter d (mm)	Pitch p (mm)	Inner width a (mm)	Outer width b (mm)	MBL (kn)
7.1	20.2	8.2	23.2	63

Dimensions of Lifting Hooks



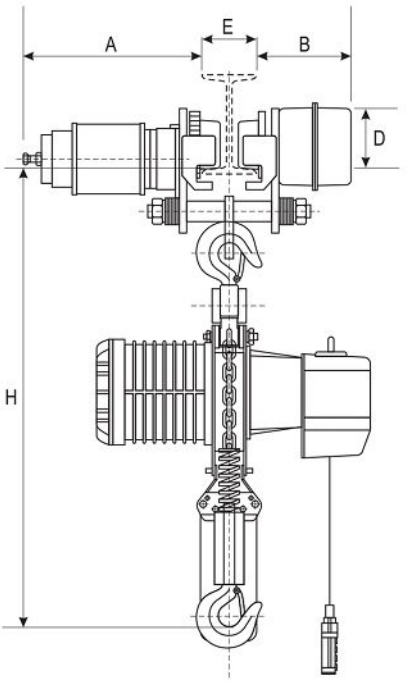
Load (tone)	Upper /Lower	Dimensions (mm)								Pressure (kg/mm2)
		H1	B1	B2	H2	B3	B4	C	G	
0.5 / 1	S / I	33	23	9	29	23	9	40	28	70
2	S / I	45	31	10	41	31	10	46	36	70

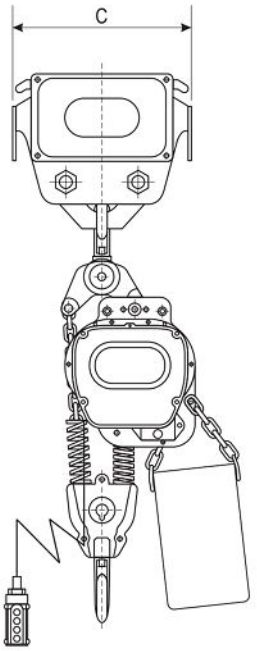
PRO-YSM SINGLE-PHASE ELECTRIC CHAIN HOIST WITH ELECTRIC TROLLEY

It is made of a single-phase electric chain hoist type **PRO-YSF** and for horizontal movement (traveling) is fitted with a MT electric trolley, powered by a 4-poles 0.25 kW motor.
It is controlled with a wired pendant and it can be fitted, on demand, with a radio controller.

Grade 80 load chain and proper bag chain are provided also.
Electric power supply required is 230 V / 50Hz.
Motor estimated duty value is 15%.
Ingress protection code IP42 and duty cycle class ISO M1 / FEM 1Dm.

This chain hoist is manufactured according with *Machinery Directive* (2006/42/EC) and *Low Voltages Directive* (2006/95/EC).

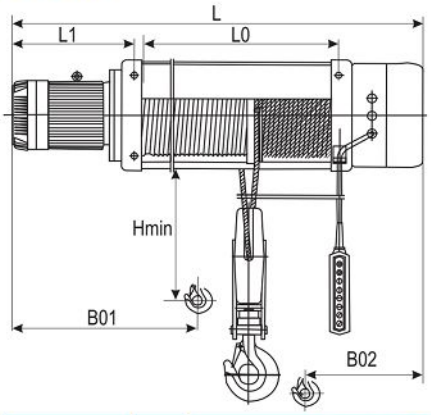


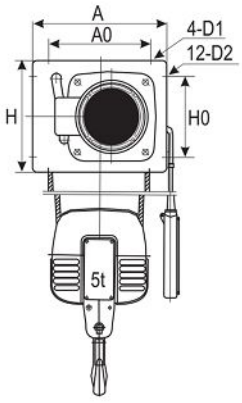


Model/ Features	Load capacity (t)	Lifting speed (m/min) 50 Hz	Trolley speed (m/min) 50 Hz	Chain fall number and chain size (7.1x20.2 mm)	Beam width E (mm)	Dimensions (mm)					Curvature Radius (m) (minimum)	Net weight (kg)
						H	A	B	C	D		
PRO-YSM-050	0.5	6.7	20	1	75 - 125	705	328	173	294	98	1.3	95
PRO-YSM-100	1	4.7	20	1	75 - 125	705	328	173	294	98	1.3	95
PRO-YSM-200	2	2.3	20	2	100 - 150	935	328	173	322	111	1.5	110

On demand, hoists can be fitted with any length of chain.

PRO-HF THREE-PHASE ELECTRIC WIRE ROPE CHAIN HOIST WITH HOOK





It has a flexible installation procedure due to its multiple types of connections and it is ideal for renovation or modernization works.

It ensures an optimal use of space due to its compact design and enables rapid handling due to its high lifting speed.

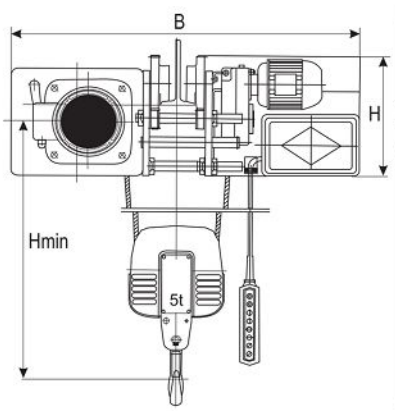
The vibration levels are low and the action of the brake is quick. The gearbox is lubricated for life thanks to the hermetically closed case. It is equipped with overload protection and remote control. The working power supply voltage is 380V.

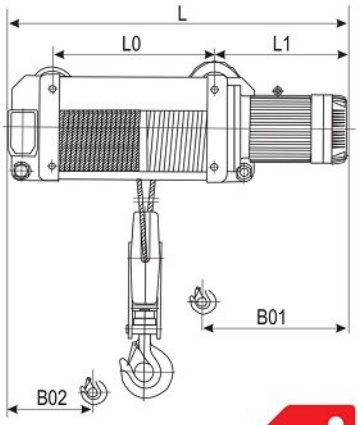
Model/ Features	Load capacity (t)	Dimensions (mm)								Lifting height (m)						
		A	A0	H	H0	D1	D2	B01	H min	Dimensions (mm)	6	9	12	18	24	30
										L	1165	1275	1385	1605	1825	2045
PRO-HF-032	3.2	425	320	345	240	24	22	627	680	L0	365	475	585	805	1025	1245
										B02	428	483	538	648	758	868
										L	1230	1335	1445	1660	1875	2090
PRO-HF-050	5	500	380	415	300	26	26	646	785	L0	400	505	615	30	1045	1260
										B02	472	524	579	689	794	902
										L	1440	1495	1600	1805	2015	2225
PRO-HF-100	10	660	500	550	550	30	26	751	980	L0	455	510	615	820	1030	1240
										B02	561	589	641	744	849	954

On demand, the hoists can be fitted with any length of wire rope and available for different load capacities.

PRO-HL THREE-PHASE ELECTRIC WIRE ROPE HOIST WITH ELECTRIC TROLLEY

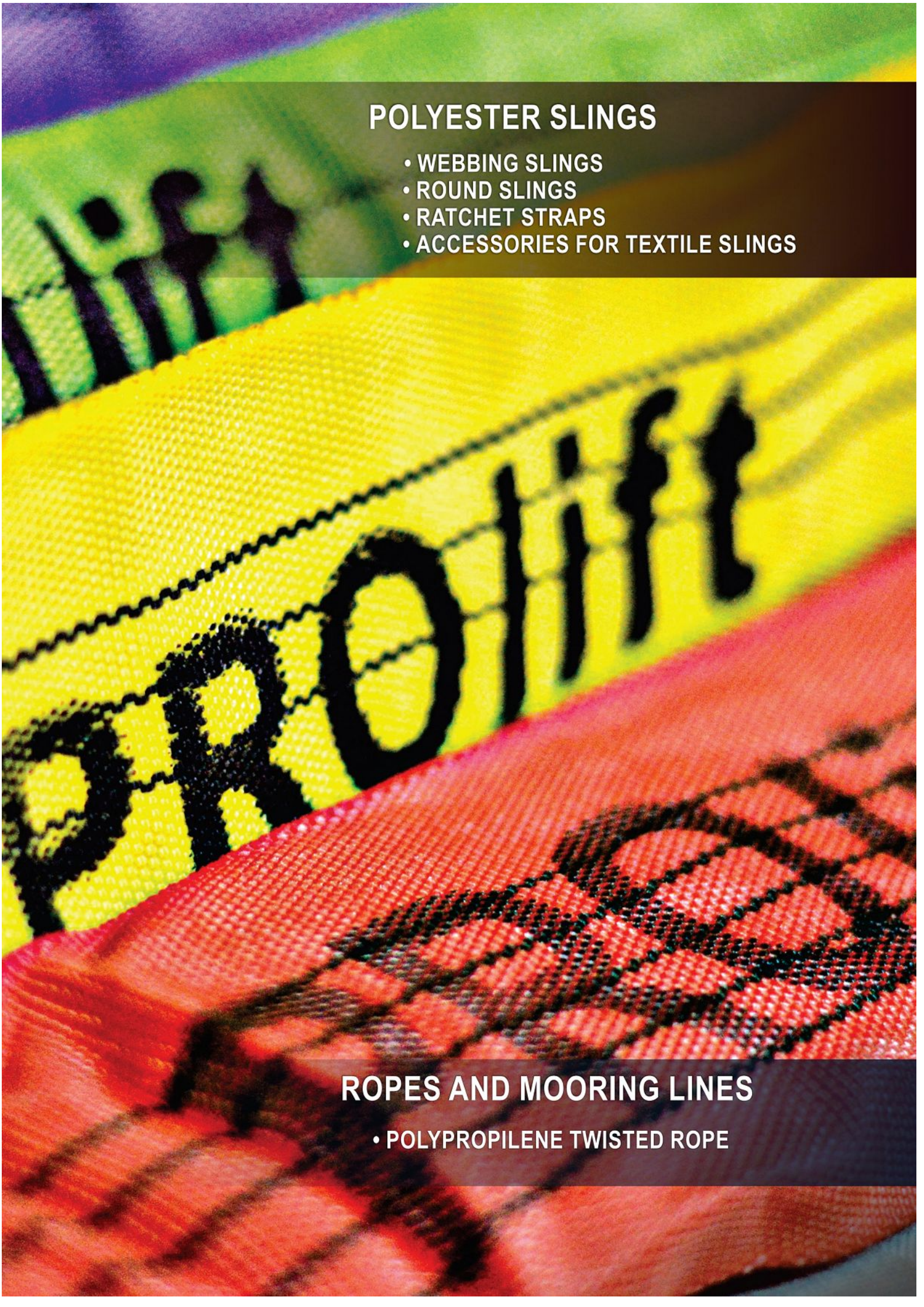
It has a compact design, monorail, equipped with an engine for horizontal movement. The trolley is adjustable to different sizes of the beam.
Operating temperature range is between –10°C and +50°C.
They are made according to EN 13157 standard.
Power supply required is 380V/50Hz.



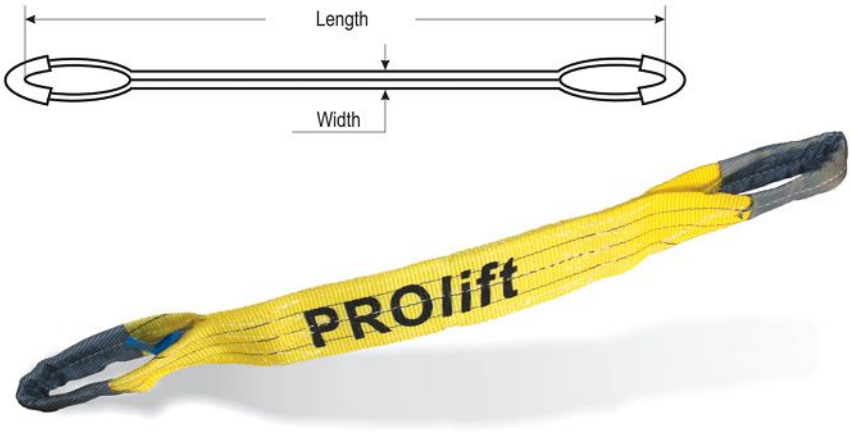


Model/ Features	Load capacity (t)	Dimensions (mm)					Lifting height (m)						
		B	H	L1	B01	H min	Dimensions (mm)	6	9	12	18	24	30
							L	1045	1155	1265	1485	1705	1925
PRO-HL-032	3.2	1120 - 1144	387	514	616	760	L0	365	475	585	805	1025	1245
							L	1090	1195	1305	1520	1735	1950
PRO-HL-050	5	1318 - 1342	466	519	648	890	L0	400	505	615	830	1045	1260
							B02	332	385	440	547	655	762
							L	1282	1137	1442	1647	1857	2067
PRO-HL-100	10	1695 - 1733	618	620	762	1150	L0	455	510	615	820	1030	1240
							B02	383	411	463	566	671	776

On demand, the hoists can be fitted with any length of wire rope and available for different load capacities.


POLYESTER SLINGS
• WEBBING SLINGS
• ROUND SLINGS
• RATCHET STRAPS
• ACCESSORIES FOR TEXTILE SLINGS
ROPES AND MOORING LINES
• POLYPROPILENE TWISTED ROPE

PRO-W WEBBING SLING



The webbing slings are made from high quality synthetic fibers, with up to 4 layers of polyester and strengthened mesh.

They have a minimum potential elongation and they are available for working load limits ranging between 1 and 50 tons.

They are made in compliance with EN 1492-1 and are color coded.

Their working temperature range is between –40°C and +100°C.

The safety factor is 7:1, on demand we can provide slings with different safety factor.

Standard type provided is B2 (double ply); on demand, we can produce type B1 (one ply) and type C (webbing slings fitted with steel accessories).

Model / Features	W.L.L. (t)	Thickness aprox. (mm)	Width aprox. (mm)	Length (m) min	Length (m) max	Eye length aprox. (mm)	Weight (kg/m)
PRO-W-01	1	7.5	50	1	100	300	0.22
PRO-W-02	2	7.5	60	1	100	300	0.45
PRO-W-03	3	7.5	90	1	100	350	0.71
PRO-W-04	4	7.5	120	2	100	500	1.02
PRO-W-05	5	7.5	150	2	100	550	1.21
PRO-W-06	6	7.5	180	2	100	600	1.42
PRO-W-08	8	7.5	240	2	100	700	1.89
PRO-W-10	10	7.5	300	3	100	800	2.34
PRO-W-12	12	10	300	3	100	900	2.98
PRO-W-16	16	15	240	3	100	700	3.78
PRO-W-24	24	20	300	3	100	850	7.95

Webbing slings PRO-W made by PROlift have CE type Approval (European Machinery Directive).

Webbing sling identification example:
PRO-W-0305

W - sling type
03 - 3 ton (working load limit WLL)
05 - 5 meters (sling length)

PRO-BANDA WEBBING STRAP

It is used for the manufacturing of all webbing slings, including custom manufacturing of the non-standard sizes and types / models. It can be used as an additional layer of protection for the webbing slings.

Model/ Features	M.B.L. (t)	Weight (kg/m)	Max. Length (m)	Width (mm)
PRO-BANDA-1	4.375	0.095	100	50
PRO-BANDA-2	8.75	0.175	100	60
PRO-BANDA-3	13.125	0.260	100	90
PRO-BANDA-4	17.5	0.360	100	120
PRO-BANDA-5	22.5	0.455	100	150
PRO-BANDA-6	30.0	0.535	100	180
PRO-BANDA-8	36.5	0.720	100	240
PRO-BANDA-10	43.75	0.900	100	300

Material: Poliester (PES)

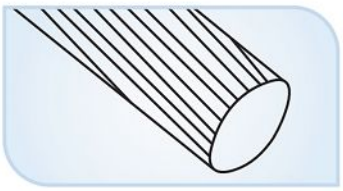
Webbing Sling Sleeves

To secure webbing slings against any friction and abrasion that may lead to cutting or breaking the fibers, we recommend protecting the slings accordingly by using suitable PVC or vinyl sleeves.

PRO-01 VINYL SLEEVE

Model/ Features	Width (mm)	Thickness (mm)	Length (m)	Net weight (kg)
PRO-01-060	60	2	0.5 - 40	0.18
PRO-01-070	70			0.19
PRO-01-150	150			0.39
PRO-01-180	180			0.45
PRO-01-200	200			0.50
PRO-01-260	260	3		0.84
PRO-01-300	300			0.93

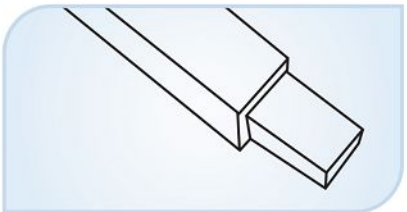
Antiabrasion



PRO-PS PVC WEBBING SLING SLEEVE

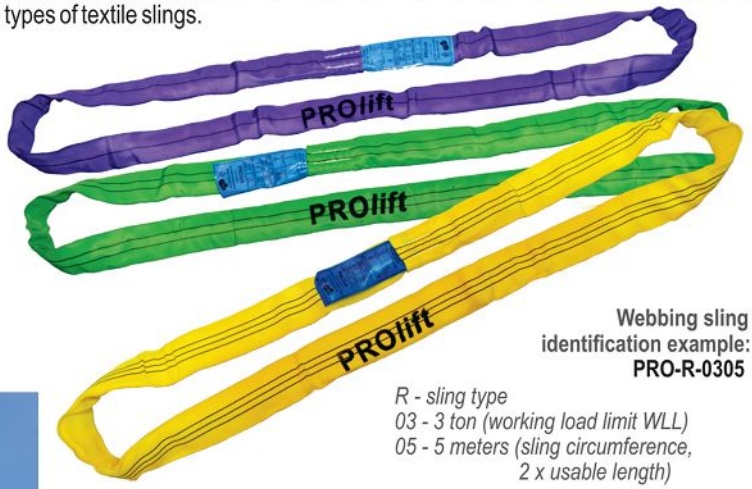
Model/ Features	Outer width (mm)	Inner width (mm)	Thickness (mm)	Sling width (mm)	Length (m)	Net weight (kg)
PRO-PS-25	45	35	5	25	1	0.66
PRO-PS-50	70	60		50		0.96
PRO-PS-75	95	85		75		1.26
PRO-PS-100	120	110		100		1.56
PRO-PS-125	145	135		125		1.86
PRO-PS-150	170	160		150		2.16
PRO-PS-200	220	210		200		2.76
PRO-PS-250	270	260		250		3.36
PRO-PS-300	320	310		300		3.96

Anticutting



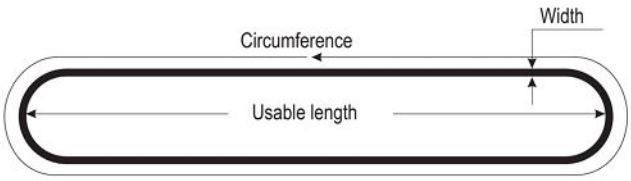
PRO-R ROUND SLING

They are made of very high quality polyester yarns and manufactured in compliance with EN 1492-2 standard, with 7:1 safety standard. They have a compact design and are color coded, according to standard specs.
The low weight and high nominal load (up to 1000 tons) are the main advantages of these types of textile slings.



Webbing sling identification example: PRO-R-0305

R - sling type
03 - 3 ton (working load limit WLL)
05 - 5 meters (sling circumference, 2 x usable length)



Model/ Features	W.L.L. (t)	Thickness aprox. (mm)	Width aprox. (mm)	Usable length (m)		Weight (kg/m)	
				min	max	SF 7 : 1	SF 6 : 1
PRO-R-01	1	6	40	0.5		0.35	0.3
PRO-R-02	2	7	50	0.5		0.52	0.44
PRO-R-03	3	8	60	0.5		0.74	0.65
PRO-R-04	4	9	70	0.5		0.91	0.83
PRO-R-05	5	11	75	0.5		1.29	1.01
PRO-R-06	6	12	80	1		1.39	1.19
PRO-R-08	8	13	90	1		1.75	1.5
PRO-R-10	10	15	100	2		2.28	1.95
PRO-R-12	12	16	110	2		2.87	2.46
PRO-R-15	15	18	125	2		3.47	2.97
PRO-R-20	20	20	150	2.5		5.44	4.66
PRO-R-25	25	24	180	2.5		6.82	5.84
PRO-R-30	30	32	200	2.5		10.8	9.23
PRO-R-40	40	40	200	2.5	80	14.2	12.1
PRO-R-50	50	45	220	2.5		16.3	14.1
PRO-R-60	60	65	240	4		20.2	17.3
PRO-R-80	80	70	260	4		25.9	22.2
PRO-R-100	100	80	290	4		30.3	26
PRO-R-200	200	120	450	5		74.6	64
PRO-R-300	300	160	525	5		92.2	79
PRO-R-400	400	200	670	5		114.8	98.4
PRO-R-500	500	220	750	8		141.4	121.2
PRO-R-600	600	240	820	8		169.2	145
PRO-R-700	700	260	870	8		196.0	168
PRO-R-800	800	280	930	9		224.0	192
PRO-R-900	900	300	990	9		250.1	215
PRO-R-1000	1000	320	1050	9		277.7	238

PRO-INVELIS ROUND SLING WRAP

These polyester straps (wraps) are used as an additional protection to prevent premature damage of the round slings.

Model / Features	For sling with W.L.L. (t)	Maximum length (m)	Width (mm)
PRO-INVELIS-1	1	100	45
PRO-INVELIS-2	2		50
PRO-INVELIS-3	3		60
PRO-INVELIS-4	4		70
PRO-INVELIS-5	5		80
PRO-INVELIS-6	6		90
PRO-INVELIS-8	8		100
PRO-INVELIS-10	10		110
PRO-INVELIS-12	12		125
PRO-INVELIS-20	20		150
PRO-INVELIS-30	30		200
PRO-INVELIS-50	50		220
PRO-INVELIS-100	100		290
PRO-INVELIS-200	200		450

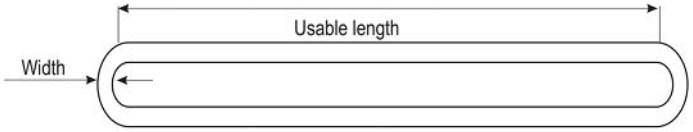
PRO-EN ENDLESS ROUND SLING

These are disposable polyester webbing straps, used for multimodal transport. Made in compliance with EN 1492-1 standard as A2 type (one ply) and A4 (double ply).

Webbing slings PRO-EN made by PROlift have CE type Approval (European Machinery Directive).

Webbing sling identification example:
PRO-EN-0305

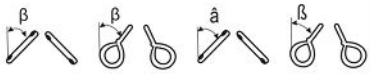
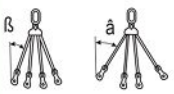
EN - sling type
03 - 3 ton (working load limit WLL)
05 - 5 meters (sling circumference, 2 x usable length)



Model/ Features	WLL (t)	Thickness aprox. (mm)	Width - aprox. (mm)			Length (m)		Weight (kg/m)		
			SF 7 : 1	SF 6 : 1	SF 5 : 1	min	max	SF 7 : 1	SF 6 : 1	SF 5 : 1
PRO-EN-01	1	4	50	30	25	0.5	100	0.20	0.18	0.16
PRO-EN-02	2		60	50	50	1		0.60	0.39	0.35
PRO-EN-03	3		90	75	75	1		0.78	0.73	0.52
PRO-EN-04	4		120	100	100	1.5		0.90	0.84	0.80
PRO-EN-05	5		150	125	125	1.5		1.14	0.96	0.85
PRO-EN-06	6		180	150	150	1.5		1.33	1.12	0.96
PRO-EN-08	8		240	200	200	2		1.85	1.65	1.34
PRO-EN-10	10		300	250	250	2		2.05	1.84	1.64
PRO-EN-12	12		300	300	300	2		2.70	2.06	1.86

WORKING LOAD LIMITS IN VARIOUS CONFIGURATIONS FOR POLYESTER SLINGS

Workloads determined according to EN 1492-1 and EN 1492-2 standard specs.

W.L.L. (t)	Maximum load for one sling (t)							Maximum load for 2-leg system (t)				Maximum load for 3 or 4 leg system (t)	
Webbing slings													
Round slings													
Slings with accessories													
Vertical angle (degrees)	β = 0°			0°<β<45°	45°<β<60°	0°<β<45°	45°<β<60°	0°<β<45°	0°<β<45°	45°<β<60°	45°<β<60°	0°<β<45°	45°<â<60°
Load factor	1	0.8	2	1.4	1	0.7	0.5	1.4	1.12	1	0.8	2.1	1.5
1	1	0.8	2	1.4	1	0.7	0.5	1.4	1.12	1	0.8	2.1	1.5
2	2	1.6	4	2.8	2	1.4	1	2.8	2.24	2	1.6	4.2	3
3	3	2.4	6	4.2	3	2.1	1.5	4.2	3.36	3	2.4	6.3	4.5
4	4	3.2	8	5.6	4	2.8	2	5.6	4.48	4	3.2	8.4	6
5	5	4	10	7	5	3.5	2.5	7	5.6	5	4	10.5	7.5
6	6	4.8	12	8.4	6	4.2	3	8.4	6.72	6	4.8	12.6	9
8	8	6.4	16	11.2	8	5.6	4	11.2	8.96	8	6.4	16.8	12
10	10	8	20	14	10	7	5	14	11.2	10	8	21	15
12	12	9.6	24	16.8	12	8.4	6	16.8	13.44	12	9.6	25.2	18
15	15	12	30	21	15	10.5	7.5	21	16.8	15	12	31.5	22.5
20	20	16	40	28	20	14	10	28	22.4	20	16	42	30
25	25	20	50	35	25	17.5	12.5	35	28	25	20	52.5	37.5
30	30	24	60	42	30	21	15	42	33.6	30	24	63	45
40	40	32	80	56	40	28	20	56	44.8	40	32	84	60
50	50	40	100	70	50	35	25	70	56	50	40	105	75
60	60	48	120	84	60	42	30	84	67.2	60	48	126	90
80	80	64	160	112	80	56	40	112	89.6	80	64	168	120
100	100	80	200	140	100	70	50	140	112	100	80	210	150
200	200	160	400	280	200	140	100	280	224	200	160	420	300
300	300	240	600	420	300	210	150	420	336	300	240	630	450
400	400	320	800	560	400	280	200	560	448	400	320	840	600
500	500	400	1000	700	500	350	250	700	560	500	400	1050	750
600	600	480	1200	840	600	420	300	840	672	600	480	1260	900
700	700	560	1400	980	700	490	350	980	784	700	560	1470	1050
800	800	640	1600	1120	800	560	400	1120	896	800	640	1680	1200
900	900	720	1800	1260	900	630	450	1260	1008	900	720	1890	1350
1000	1000	800	2000	1400	1000	700	500	1400	1120	1000	800	2100	1500

PRO-LS RATCHET STRAPS

Ratchet straps are composed from the strap itself, the end fittings and the tensioning device (the ratchet buckle). The end fittings can be supplied according to customer's specification. These straps are used for anchoring and lashing various cargo during transport, regardless of shape and size due to the added safety they provide, their reduced weight and easy installing.
They are made in compliance with EN 12195-2 standard requirements.

Model/ Features	LC (daN)	BF_{min} (daN)	Weight (kg)	STF (daN)	LGF (mm)	LGL (mm)	Length (m)	Width (mm)
PRO-LS-00806	400	800	0.49	75	5600	400	6	25
PRO-LS-01506	750	1500	0.83	150	5600	400	6	25
PRO-LS-02506	1250	2500	1.35	300	5500	500	6	35
PRO-LS-02510	1250	2500	1.60	300	9500	500	10	35
PRO-LS-0504	2500	5000	2.00	350	3500	500	4	50
PRO-LS-0506	2500	5000	2.25	350	5500	500	6	50
PRO-LS-0508	2500	5000	2.50	350	7500	500	8	50
PRO-LS-0510	2500	5000	2.69	350	9500	500	10	50
PRO-LS-0512	2500	5000	2.92	350	11500	500	12	50
PRO-LS-1010	5000	10000	8.15	750	9500	500	10	100
PRO-LS-1012	5000	10000	8.77	750	11500	500	12	100

Maximum elongation < 7% of LC. SHF : 50 daN. 1daN ≈ 1.02kg

Different lengths available, on demand.

PRO-ERGO-0512 LASHING STRAP CU OVERSIZED RATCHET

Lashing straps with oversized ratchet, for easier handling.

Model/ Features	LC (daN)	BF_{min} (daN)	Weight (kg)	STF (daN)	LGF (mm)	LGL (mm)	Length (m)	Width (mm)
PRO-ERGO-0512	2500	5000	3.65	500	11500	500	12	50

Maximum elongation < 7% of LC. SHF : 50 daN. 1daN ≈ 1.02kg

LASHING STRAPS NOTATIONS

BF_{min}	Minimum Breaking Force
LC	Lashing Capacity
STF	Standard Tensioning Force
SHF	Standard Hand Force
LGF	Adjustable Part Length
LGL	Fixed Part Length

PRO-LSA WHEELS TIE-DOWN RATCHET STRAPS

This kind of ratchet strap is a 3-point lashing, used to tie down a car wheel. It is equipped with rubber protections that are ribbed for a better grip on the tires thus avoiding the premature wear off of the strap.

Model/ Features	LC (daN)	BF_{min} (daN)	Weight (kg)	STF (daN)	LGF (mm)	LGL (mm)	Length (m)	Width (mm)
PRO-LSA-05022	2500	5000	3.00	350	2200	300	2.2 + 0.3	70/50

Maximum elongation < 7% of LC. SHF : 50 daN. 1daN ≈ 1.02kg

PRO-BAN POLYESTER STRAP

Alongside the ratchet buckle and the end fittings, this polyester strap is used to make a ratchet strap customized to the length required by the customer.
It is also used to tie down goods along with the suitable buckles.

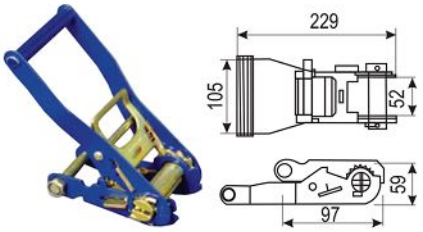
Model / Features	MBL (t)	Weight (kg/m)	Lenght (m)	Width (mm)
PRO-BAN-25 (1.5)	1.5	0.037	100	25
PRO-BAN-32 (2.3)	2.3	0.055	250	32
PRO-BAN-35 (3)	3	0.063	100	35
PRO-BAN-35 (4.5)	4.5	0.092	100	35
PRO-BAN-50 (5)	5	0.103	100	50
PRO-BAN-50 (6.3) *	6.3	0.120	100	50

*** Different lenghts available, on demand.**

PRO-CA RATCHET BUCKLES

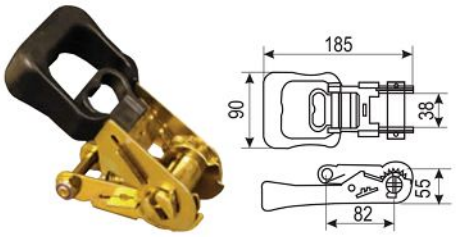
They are tensioning devices of the ratchet straps used to anchor / strap various goods or to tie down vehicles on platforms.

For 50 mm width straps



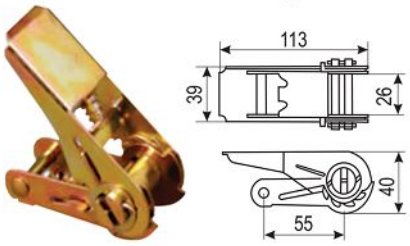
Weight 0.91 kg/pc

For 35 mm width straps



Weight 0.98 kg/pc

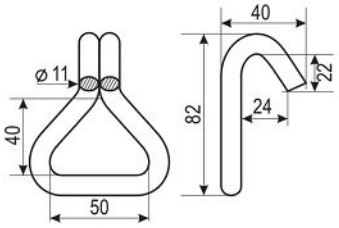
For 25 mm width straps



Weight 0.95 kg/pc

PRO-JJ-50 RATCHET STRAP HOOKS

They are used for 50 mm width and 5 tons breaking force ratchet straps.
Different sizes available on demand.



Weight 0.235 kg/pc

PRO-POL POLYESTER STRAP

It is made of synthetic polyester fibers, with very high tensile strength. Together with the tensioning device, the buckles and the protection brackets or PVC webbing slings protections, it can be quickly and safely assembled, thus making the final product the ideal solution for strapping paper, foil and cardboard bales.

Model / Features	Length (m)	Width (mm)
PRO-POL-13	1100	13
PRO-POL-19	400	19
PRO-POL-25	500	25

PRO-TEN TENSIONING DEVICE FOR POLYESTER STRAP

It is used to tension the polyester strap, 19 up to 50 mm wide.
The jointing is made with various buckles.

PRO-TEN-25

For 19-25 mm width strap.

PRO-TEN-50

For 25-50 mm width strap.

PRO-BUCK / BUCKLES STRAP BUCKLES

They are forged or welded buckles that are used for jointing of the polyester straps, for anchoring / mooring goods.

PRO-BUCKLES

Welded Forged

For 32, 38-40 & 50 mm wide strap.

Weight (aprox.): aprox. 0.18 kg/pc (32 mm)
0.22 kg/pc (38-40 mm) | 0.36 kg/pc (50 mm)

PRO-BUCK

Galvanized

For 19, 25 & 30-35 mm width strap.

Weight (100 pcs): 0.85 kg (19 mm)
3.54 kg (25 mm) | 8.62 kg (30-35 mm)

PRO-COLTAR PROTECTION BRACKETS

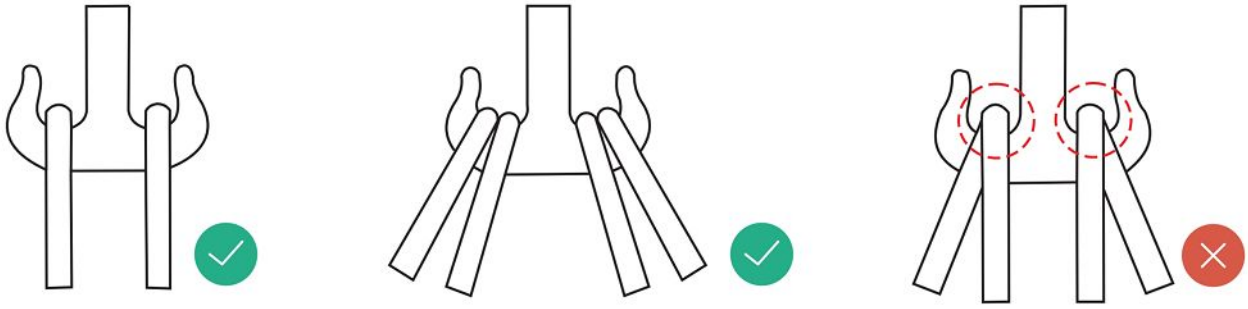
They are used to protect the polyester strap when it is placed over sharp or cutting edges.
The brackets are available for 25-32, 50 and 100 mm wide polyester straps.

Weight (100 pcs): 0.88 kg (25-32 & 50 mm) | 7 kg (100 mm)

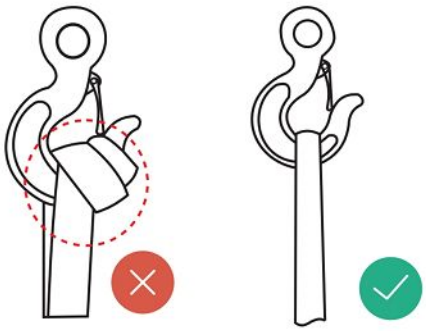
BRACKET

USER GUIDE FOR POLYESTER SLINGS

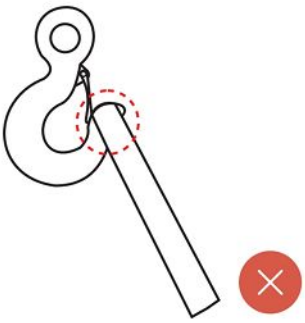
1. Overloading (using at higher loads than rated W.L.L.) the slings is strictly forbidden!



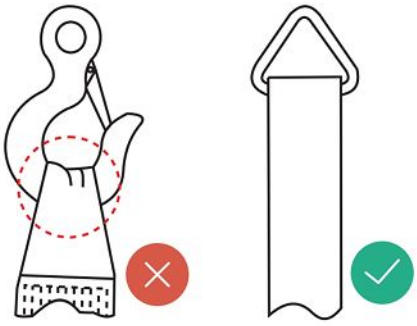
2. Make sure to place the sling in the center of the hook. When using two slings together on the same hook make sure that they do not overlap or press on each other.



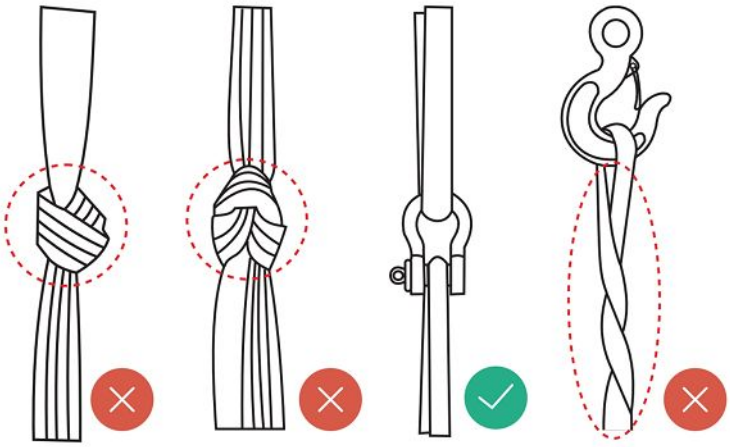
3. Do not wrap the sling around the hook.



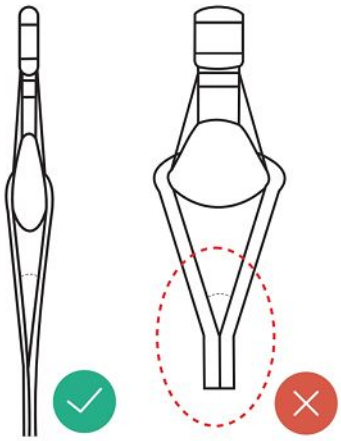
4. Do not hang the sling from the tip of the hook.



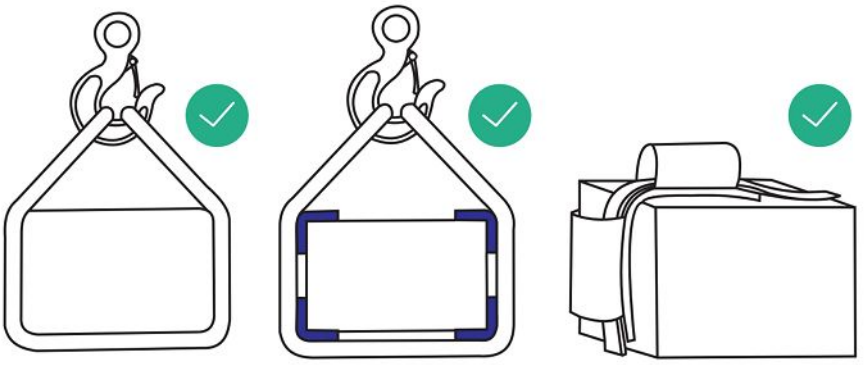
5. The curved shape of the hook makes the tensile force to spread unevenly within the fibers of the sling. For hooks with a low curvature radius it is recommended to use additional accessories (i.e. master links or shackles) to attach the sling to the hook.



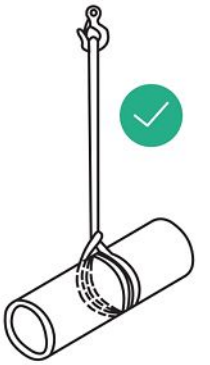
6. Knotting or straining the slings is strictly forbidden. Joining the sligs is made only with shackles or dedicated links.



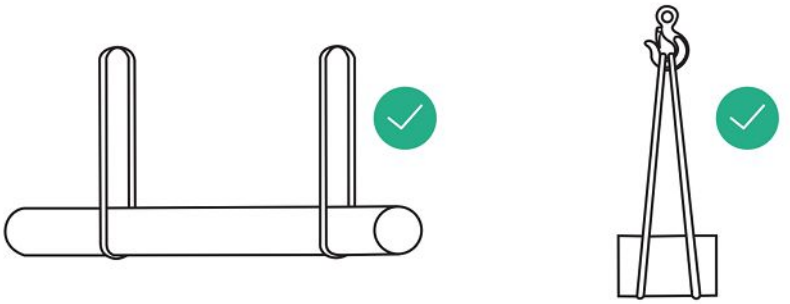
7. The angle formed by the arms of the sling's loop must not exceed 20 degrees, in order to avoid tearing it apart.



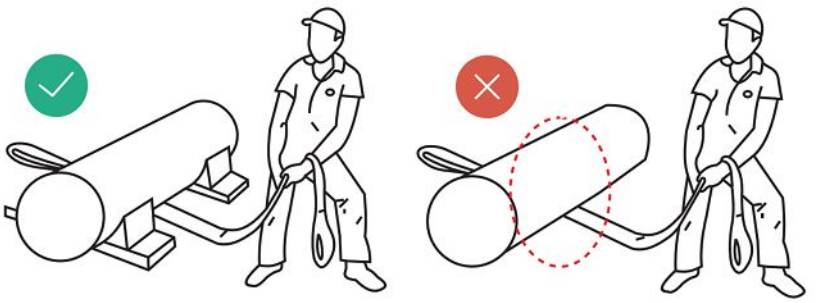
8. In order to prolong the life span of the textile slings, adequate protections usage is advisable. It is forbidden to use textile slings without proper protections over sharp edges or on abrasive surfaces.



9. When chocking cylindrical shaped objects (pipes, bars. etc.) a double twinning of the sling is safer and advisable.

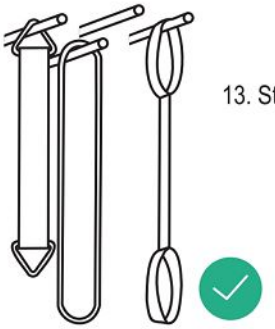


10. When using textile slings for lifting cylindrical shaped objects (pipes, bars, etc.) always choose a proper lifting configuration to prevent incidents.



11. Never place the load over the sling, you risk damaging it. Do not forcibly pull the sling under heavy objects. The loads should be lifted and/or supported to get the sling out from underneath them when there is enough space.

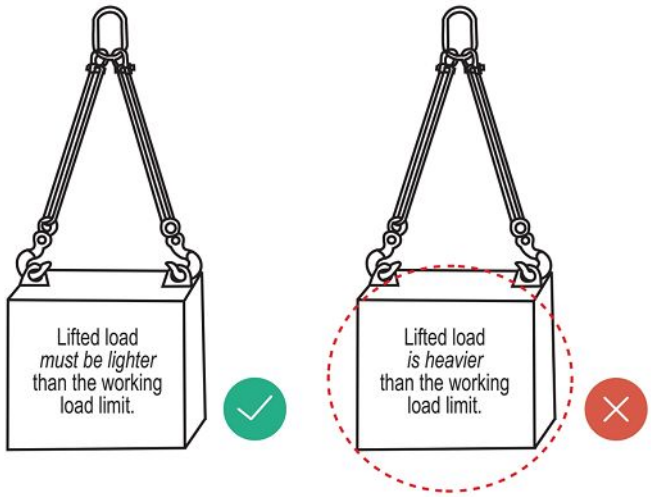
12. Do not pull the sling on abrasive surfaces.



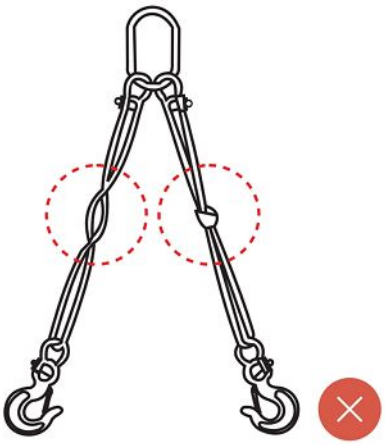
13. Store the sling properly after using them.

USER GUIDE FOR POLYESTER SLINGS (PART 2)

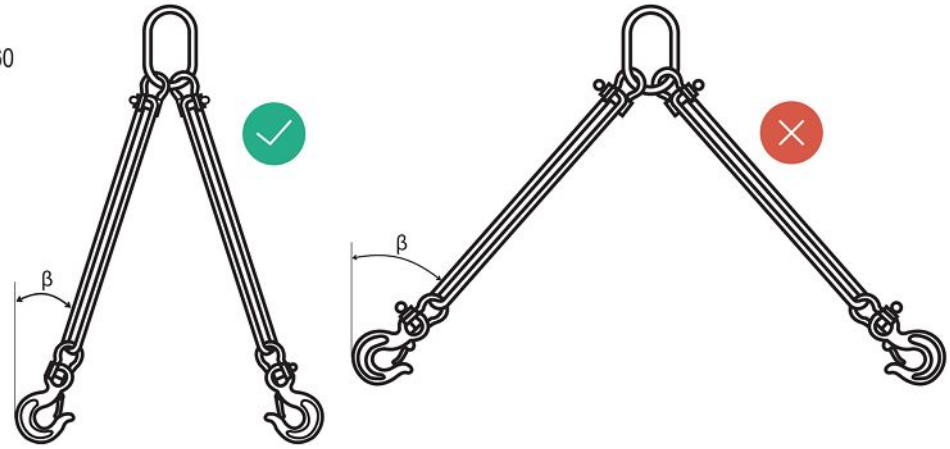
1. Do not overload the slings. The weight of the load should never exceed the sling's rated load.



2. If multiple slings are used at once be careful not to cross or knot them.

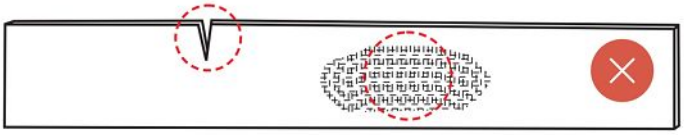


3. Vertical angle (β) should be less than 60 degrees.



Do not use polyester slings in case of:

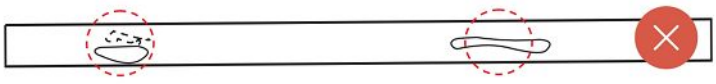
1. ... they are severely scratched, cut or they show loose strands



2. ... due to severe abrasion, portions of the sling have lost more than 10% of their initial thickness.

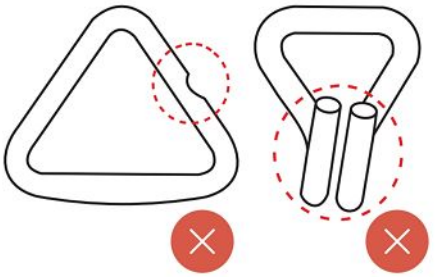
3. ... due to the aging process, the color of the slings fades away, they get wear traces on the surface, even after the lighter uses, the synthetic fibers starts to break, elasticity decreases.

4. ... the surfaces of slings were attacked by chemicals (acids, alkaline) or have been accidentally burned.

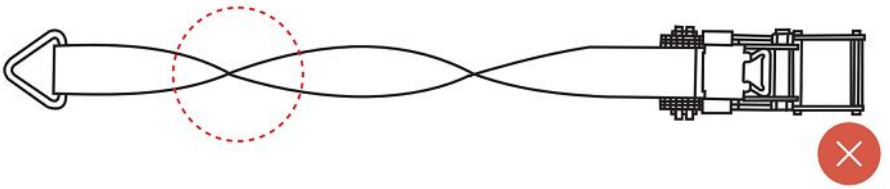


LASHING STRAPS USER GUIDE

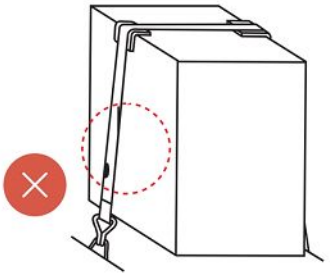
1. Ratchet straps cannot be used for lifting purposes.
2. Proper selection of the fastening solution requires special attention. If loads can be bolted in place (i.e. by using screws) it is advisable to choose this method.
3. Straps with visible flaws cannot be used.



4. Crossing, twisting or knotting the lashing straps is not allowed when used.

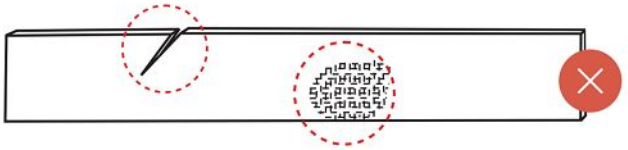


5. All the ratchet straps should be tensioned even if more of them are being used to tie down the same load.
6. Faulty straps are not allowed to be used. When you're lashing objects with sharp / cutting edges, protecting brackets must be used.
7. If proper lashing is not achieved at first try, release the ratchet strap and try again.
8. When the straps are released make sure the cargo is stable and does not slip or roll to prevent any danger to the operator.



All lashing straps must be replaced in the following cases:

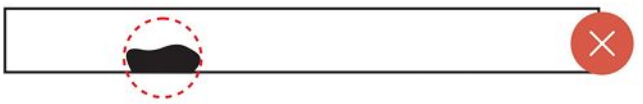
1. If cut, highly worn out or showing broken fibers.



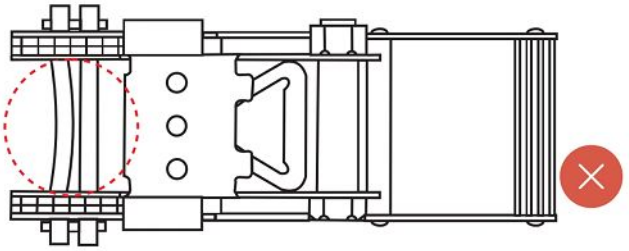
2. If due to severe abrasion portions of the sling have lost more than 10% of their initial thickness.

3. Due to the aging process the sling's color fades away, they get wear traces on the surface even after lighter uses, elasticity decreases and the synthetic fibers stiffen and begin to break.

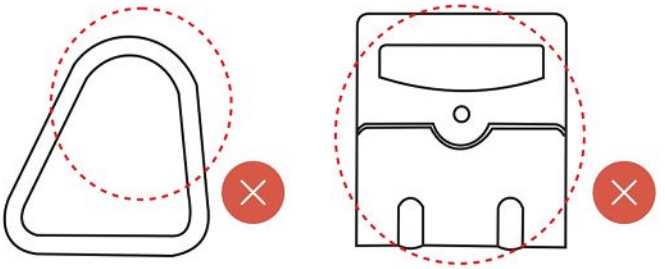
4. If the surfaces of slings have been affected by chemicals (acids, alkaline) or accidentally burned.



5. If the metallic parts are damaged.



6. If the metallic parts are heavily corroded.



They are made of high quality synthetic fibers produced by using advanced braiding equipments. According to their construction they are divided into: 3 , 6, 8 or 12 strands ropes.
The raw materials used in fabrication are polypropylene, polyester, polyamide, polyethylene, manilla and dyneema (kevlar).

According to their lay, they are classified as twisted, braided, woven or knitted ropes. The nominal diameter range is from 4 mm up to 140 mm.
The main features of the ropes are as follows: high tensile strength, minimum elongation, anti friction, corrosion proof, high flexibility, heat resistant, minimum liquids absorbing, UV resistant, chemical substances resistant, chemical substances resistant, high buoyancy, easy to handle.

They provide a high safety degree in use and are lightweight when compared to chains or wire ropes. The main fields of use for these products are the shipping and fishing industries, various harbor operations, oil rigging, sports, leisure or other miscellaneous uses.

PRO-S POLYPROPYLENE ROPE

You an find below the technical details of the twisted polypropylene (PP) ropes, with 3 or 8 strands lay, these being the most commonly used ropes.

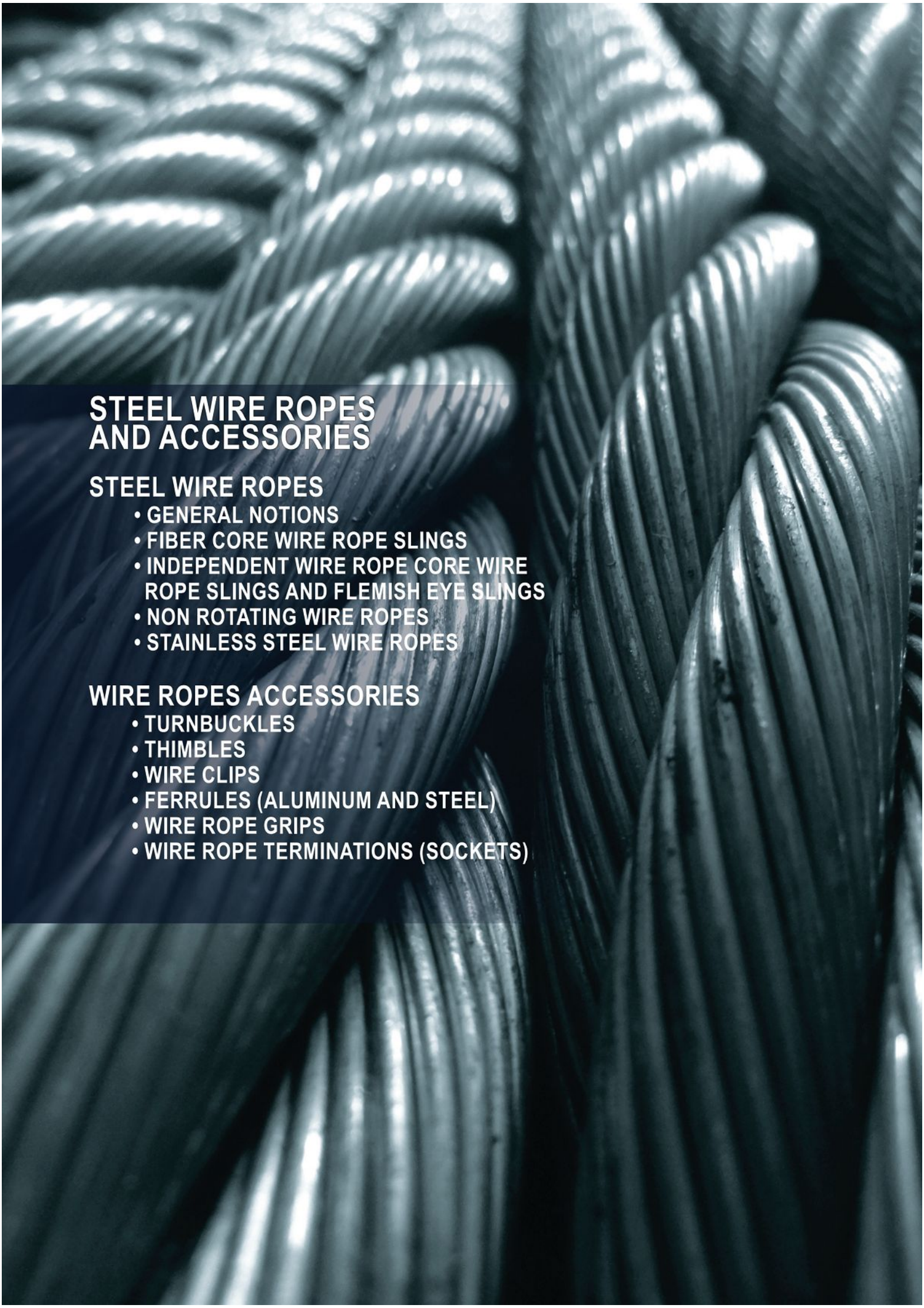
For any other types of raw material ropes, different construction types or other diameters than those listed here, please contact us.

3 strands polypropylene twisted rope

Model/ Features	Diameter (mm)	Linear density (g/m)	Minimum breaking load M.B.L. (kgf)
PRO-S-0304	4	6	214.14
PRO-S-0306	6	17	601.63
PRO-S-0308	8	30	1060.50
PRO-S-0310	10	45	1560.16
PRO-S-0312	12	65	2212.78
PRO-S-0314	14	90	3048.95
PRO-S-0316	16	115	3772.95
PRO-S-0318	18	148	4813.06
PRO-S-0320	20	180	5802.18
PRO-S-0322	22	220	6954.46
PRO-S-0324	24	260	8127.13
PRO-S-0326	26	305	9401.78
PRO-S-0328	28	355	10696.82
PRO-S-0330	30	405	12216.20
PRO-S-0332	32	460	13490.85
PRO-S-0336	36	585	16917.09

8 strands polypropylene twisted rope

Model/ Features	Diameter (mm)	Linear density (g/m)	Minimum breaking load M.B.L. (kgf)
PRO-S-0840	40	720	20496.30
PRO-S-0844	44	880	24626.15
PRO-S-0848	48	1049	28592.84
PRO-S-0852	52	1220	33089.79
PRO-S-0856	56	1420	37831.47
PRO-S-0860	60	1630	43256.36
PRO-S-0864	64	1850	48946.38
PRO-S-0872	72	2340	61458.30
PRO-S-0880	80	2900	75591.56
PRO-S-0888	88	3510	90703.76
PRO-S-0896	96	4170	107070.20
PRO-S-08104	104	4900	122814.60
PRO-S-08112	112	5700	141740.60
PRO-S-08120	120	6500	162746.70
PRO-S-08128	128	7400	183732.50
PRO-S-08136	136	8400	206859.60
PRO-S-08140	140	8890	218678.10



STEEL WIRE ROPES AND ACCESSORIES

STEEL WIRE ROPES

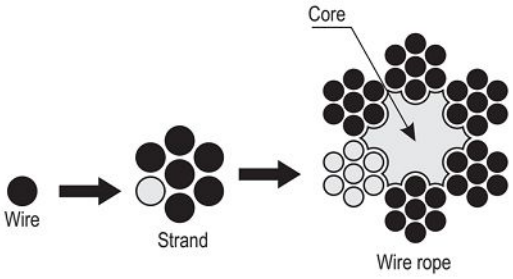
- GENERAL NOTIONS
- FIBER CORE WIRE ROPE SLINGS
- INDEPENDENT WIRE ROPE CORE WIRE ROPE SLINGS AND FLEMISH EYE SLINGS
- NON ROTATING WIRE ROPES
- STAINLESS STEEL WIRE ROPES

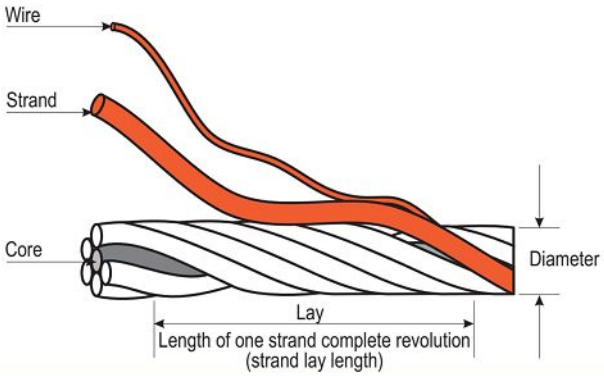
WIRE ROPES ACCESSORIES

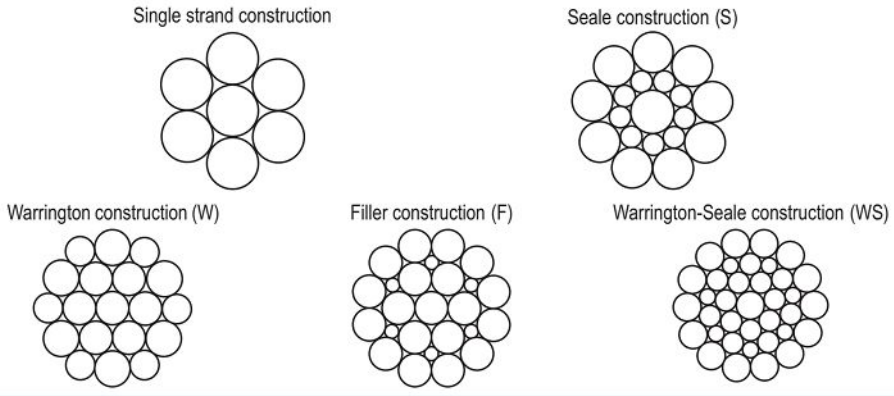
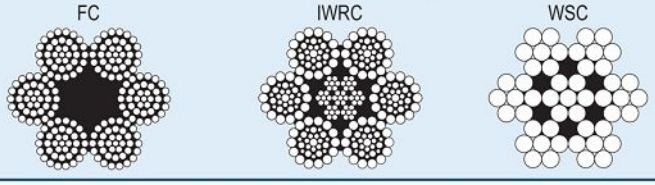
- TURNBUCKLES
- THIMBLES
- WIRE CLIPS
- FERRULES (ALUMINUM AND STEEL)
- WIRE ROPE GRIPS
- WIRE ROPE TERMINATIONS (SOCKETS)

Description	Explication
Standard	The wire ropes are made according to the EN 12385-4 standard.
Diameter d	The diameter is commonly denominated in millimeters (mm) or inches (“) (1 inch = 25.4 mm)
Length L	The length is usually denominated in meters (m) or feets (ft) (1 ft = 0.3048 m)
Working load limit W.L.L.	The wire rope maximum working load limit is determined by manufacturer and is denominated in tons (t)
Minimum breaking load MBL	The wire rope minimum breaking load, denominated in tones (t) or kilonewtons (kN)
Minimum safety working load S.W.L.	The wire rope safe working load, denominated in tones (t) or kilonewtons (kN) (1 kN = 101.97 kg)
Minimum breaking force M.B.F. sau Fmin	For wire ropes with diameters ≤ 60 mm: $F_{min}(kN) = \frac{d^2 \cdot R_r \cdot K}{1000}$, where: d - diameter of wire rope; R_r - wire tensile class; K - breaking force factor (K = 0,295 ÷ 0,360, depending of wire rope type and construction) For wire ropes with diameters > 60 mm: $F_{min}(kN) = 8{,}55d + 0{,}592\,d^2 - 0{,}000615d^3$ kN where: d - wire rope diameter
Safety factor	For wire ropes the safety factor is 5:1 and it can be determined by de M.B.L. / W.L.L. ratio. There are specific lifting applications which require safety factors as 6:1, 7:1 or even 8:1.

Wire rope parts





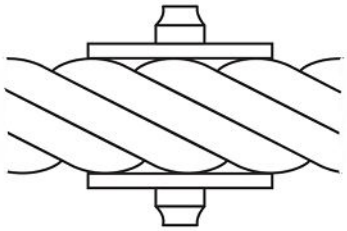
Construction	
Core	It represents the core of the wire ropes around which the other strands are helically laid. The core types are as follows: • fiber core - FC, subtypes NFC and SFC; • metallic - IWRC (independent wire rope core); • metallic - WSC (wire strand core); • PVC ingrained wire rope core. 

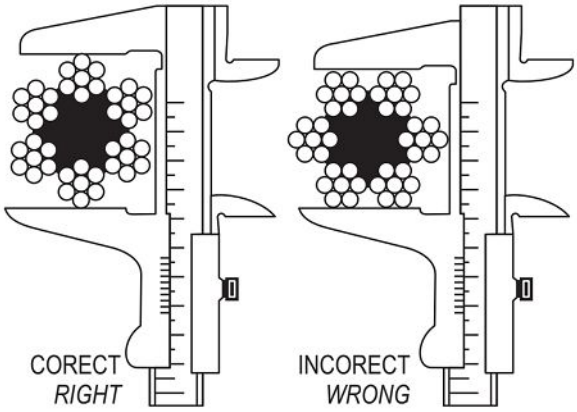
Description	Explication
Tensile class R_r	The tensile strength classes admitted by the international standards are the following: • 1570 N/mm or PS (160 kg/mm); • 1960 N/mm or EIPS (200 kg/mm); • 1770 N/mm or IPS (180 kg/mm); • 2160 N/mm or EEIPS (220 kg/mm). The tensile class is directly proportional with minimum breaking load (MBL), for the same diameter.
Lay types	Cross / ordinary lay (zS or sZ) The strands twist around the core in the opposite direction that wires do.  Counterclockwise cross lay (zS) — Clockwise cross lay (sZ) Înfășurare paralelă (sS or zZ) Both the strands and the wires twist the same direction around the core.  Counterclockwise parallel lay (sS) — Clockwise parallel lay (zZ) The first letter represents the strand's lay direction and the next letter represents the wire rope lay's direction: • right lay wire, cross lay (sZ): RHOL / RHRL • left lay wire, cross lay (zS): LHOL / LHRL • right lay wire, parallel lay (zZ) : RHLL • left lay wire, parallel lay (sS): LHLL
Protective coating	According to the protective coating type, the wire ropes can be: • ungalvanized (without protective coating); • galvanized (zinc alloy protected); • ungalvanized and vaseline lubricated; • galvanized and vaseline lubricated; • stainless steel manufactured.
Wire rope identification example	Diametru 22 mm, 6x36WS-IWRC, 1960 N/mm^2, sZ, mat gresat: • 22 mm - diametrul; • 1960 N/mm^2 - clasa de rezistenţă; • 6x36WS- construcţia (6 toroane a câte 36 fire, Warrington Seale); • sZ - tipul şi sensul de înfăşurare (înfăşurare în cruce spre dreapta); • IWRC - inimă metalică; • mat gresat - acoperirea de protecție.
Non-rotating properties	Non-rotating wire ropes have strands twisted around the core and the lay direction for outer strands is opposite to immediately inner strands. The outer rotational force of the rope will counteract the rotational force of the inner strands, leaving a wire rope that is resistant to rotating. They have an extra flexibility, long life and will maintain its lifting strength during an operation. There are 3 major types of non rotating wire ropes: • wire ropes with minimum 14 outer strands and at least 3 layers of strands (for example **35×7** wire rope); they have the best non-rotating properties. • rotation-resistant wire ropes with 11 up to 13 outer strands and 2 layers of strands (for example **18×7** wire rope); they have good non-rotating properties. • wire ropes with maximum 8-10 outer strands and 2 layers of strands (for example **8x19** wire rope); they have medium non-rotating properties.
Conversion table inch-millimeters **1 inch = 1" = 25.4 mm**	

inch	mm	inch	mm	inch	mm
1/4	6.35	1-3/8	34.90	2-7/8	73.0
5/16	7.94	1-1/2	38.10	3	76.2
3/8	9.53	1-5/8	41.30	3-1/8	79.4
7/16	11.11	1-3/4	44.50	3-1/4	82.6
1/2	12.70	1-7/8	47.60	3-3/8	85.7
9/16	14.30	2	50.08	3-1/2	88.9
5/8	15.90	2-1/8	54.00	3-3/4	95.3
3/4	19.00	2-1/4	57.20	4	101.6
7/8	22.20	2-3/8	60.30	4-1/4	107.9
1	25.40	2-1/2	63.50	4-1/2	114.3
1-1/8	28.60	2-5/8	66.70	4-3/4	120.7
1-1/4	31.80	2-3/4	69.90	5	127.0

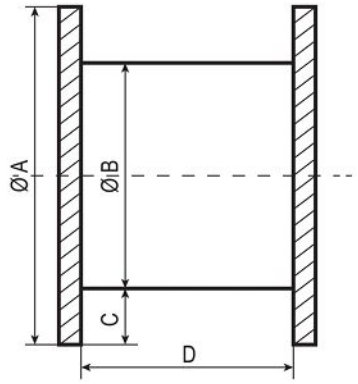
The proper measurement of the wire rope diameter

It is made using an accurate instrument (slide ruler, caliper, etc.) by moving it and finally fitting it on the wire rope circumference. The measurement must be carried out on the wire rope circumference's outer limits.





The wire rope length on the drum



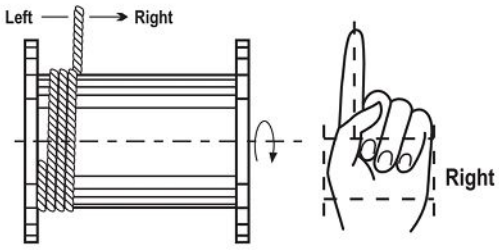
A, B, C, D = drum size (cm)
d = wire rope diameter (mm)
L = wire rope length (m)

Drum capacity $L = \frac{C \times D \times (B+C)}{d^2} \times \pi \times 0.9$

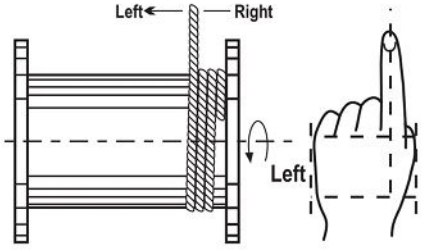
0.9 ≈ 10% safety margin in case on improper wire rope positioning

The proper lay on drum

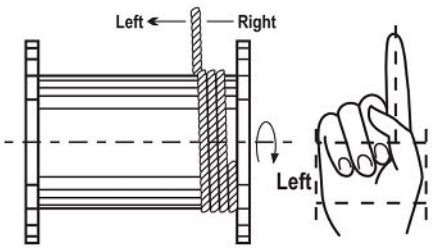
Wire rope lay: to the left (S)
Lay on the drum: from the left to the right
Lay position: under the drum



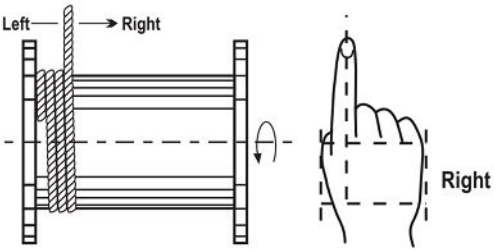
Wire rope lay: to the left (S)
Lay on the drum: from the right to the left
Lay position: over the drum



Wire rope lay: to the right (Z)
Lay on the drum: from the right to the left
Lay position: under the drum



Wire rope lay: to the right (Z)
Lay on the drum: from the left to the right
Lay position: over the drum



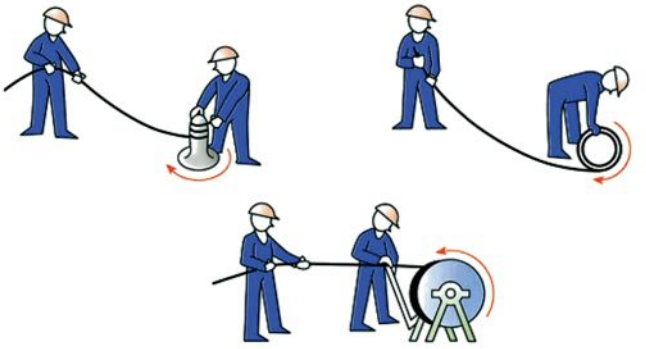
Proper wire rope unreeling and winding

Wire rope tends to kink during uncoiling or unreeling, especially if it has been in service for a long time.

In order to unreeling the wire rope is to run a steel pipe or strong rod through the center and mount the reel on drum jacks or other supports so the reel is off the ground. In this way, the reel will turn as the rope is unwound, and the rotation of the reel will help keep the rope straight.

During unreeling, pull the rope straight forward and avoid hurrying the operation. As a safeguard against kinking, never unreel wire rope from a stationary reel.

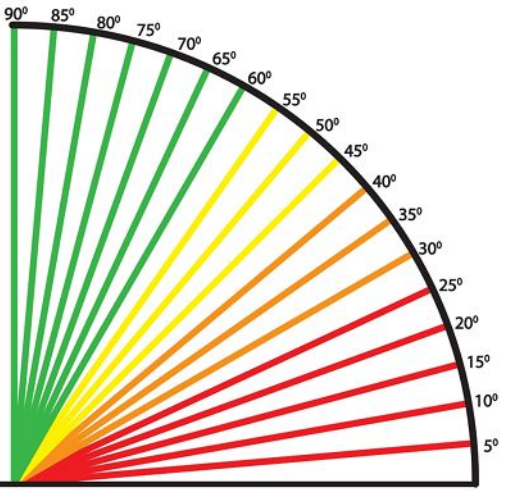
To uncoil a small coil of wire rope, simply stand the coil on edge and roll it along the ground. Never uncoil it by pulling on the end because such practice can kink or twist the rope.



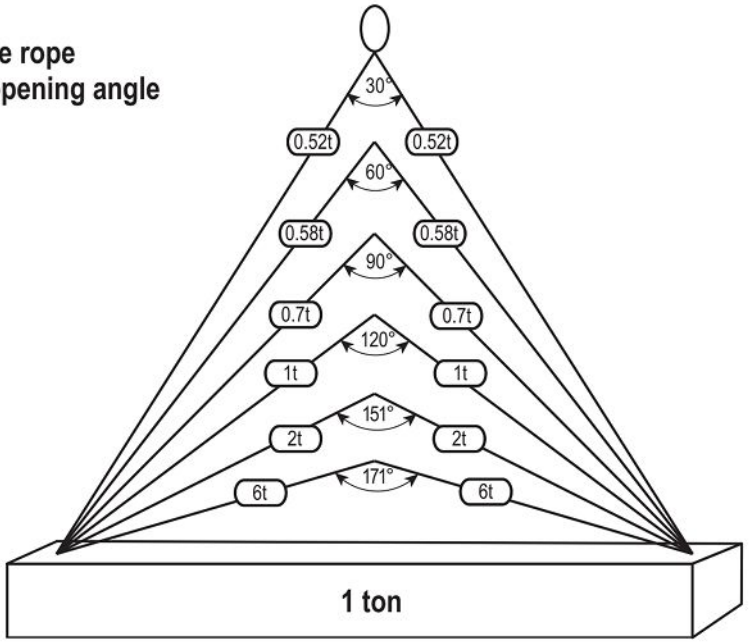
To rewind wire rope back onto a reel or a drum, remember that it tends to roll in the direction opposite the lay.

Wire rope status depending on the sling-to-load angle

Slide-to-load angle	Multiply coefficient	Status
90º	1,000	GOOD
85º	1,004	
80º	1,015	
75º	1,035	
70º	1,064	
65º	1,104	
60º	1,155	
55º	1,221	ACCEPTABLE
50º	1,305	
45º	1,414	
40º	1,555	ATTENTION
35º	1,742	
30º	2,000	
25º	2,364	DANGER
20º	2,924	
15º	3,661	
10º	5,750	
5º	11,49	



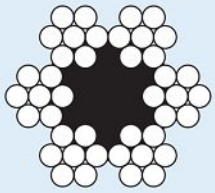
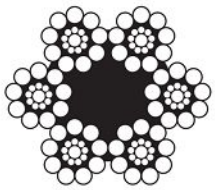
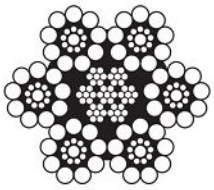
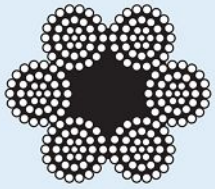
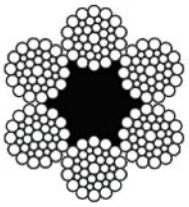
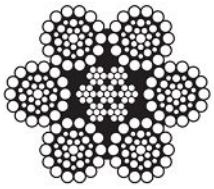
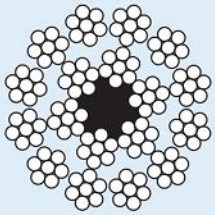
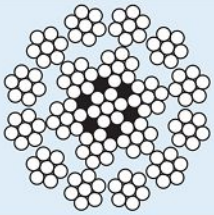
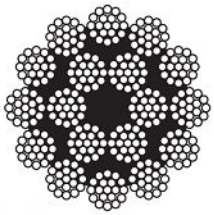
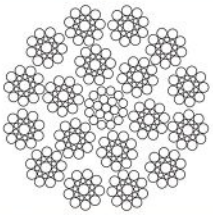
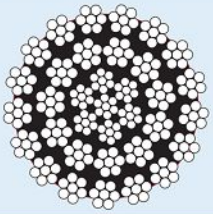
The load on the wire rope depending on the opening angle



Beside wire rope slings, we are a reliable supplier for various lifting wire ropes, with different constructions and diameters.

Wire ropes can be fitted with wire clips, special end terminations (sockets), mounted on site to equipment's drum or braided.

Find below common wire rope constructions marketed and available:

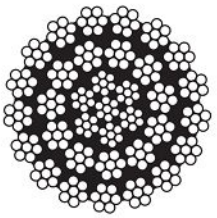
Category	Fiber Core type	Independent Wire Rope Core type
General use	6x7-FC 	
	6x19S-FC 	6x19S-IWRC 
	6x37-FC 	
	6x36WS-FC 	6x36WS-IWRC 
Non-rotating	18x7-FC 	18x7-WSC 
	18x19-FC 	18x19-WSC 
		35x7-WSC 

We can also provide different wire rope types, constructions and tensile classes (1770, 1960 and 2160 N/mm²).

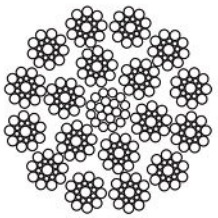
PROlift® provides suitable wire ropes for your lifting jobs, including non-rotating and special wire ropes (compact / plastic filled types).

Non-rotating wire ropes are used for various onshore and offshore cranes, special equipments, winches and trolleys, oilfields, industrial, civil and infrastructure constructions and development, ground and underground mining operations, fishing industry, forestry logging and numerous other industries or tasks.

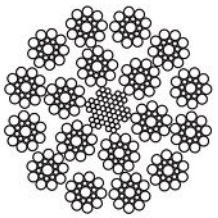
The most common non-rotating wire ropes constructions supplied are:



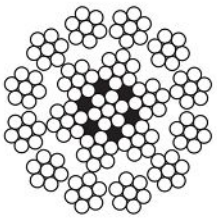
35x7-WSC



18x19S-IWSC



18x19S-IWRC



18x7-WSC

When loaded, every wire rope will develop torque; that is it has the tendency - to unravel itself unless both rope ends are secured against rotation. Both torque and rotation speed increase directly with load applied.
Non-rotating wire ropes are designed so that the wire-rope outer rotational force naturally counteracts the inner strands rotational force in the event of a load applied.

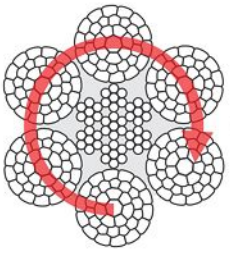
Rather than all wires and strands being laid in the same direction,a rotation resistant wire rope consists of inner strands being laid in the opposite direction to the outer layers, for example the inner may be constructed in left hand lay whilst the outer layer is in right hand lay. This construction means that torsional forces on the inner and outer wires / strands will counteract each other and so minimize the risk of unraveling.

Using an ordinary lifting wire rope for a job or equipment which demand a non-rotating wire rope si very dangerous and it presents the following risks:
- violent twisting and even unravel during loads maneuvering;
- spin the load, possible out of control;
- decrease of minimum breaking load;
- fatigue of wire rope and premature disposal;

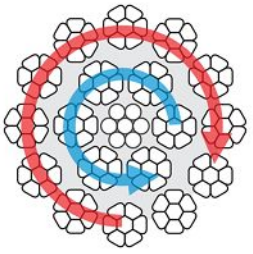
It is very important during replacing a non-rotating wire rope to know outer strands direction; the new wire rope will have the same outer strands direction and the same construction (diameter, strands, wires per strands, breaking load, lubrication, inner filling or protective coating).

Rotational resistant and non-rotating properties of a wire rope increase with number of outer strands and number of layers of strands in section.

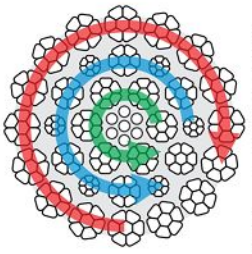
Thus, a wire rope with at least 14 outer strands and at least 3 layers is a very good non-rotating wire rope (see above rule for opposite lay's direction of adjacent strands lays).
Wire ropes with 11-13 outer strands and 2 layers of strands have good non-rotating properties.
Wire ropes with 8-10 outer strands and 2 layers of strands have medium non-rotating properties.



1 layer strand



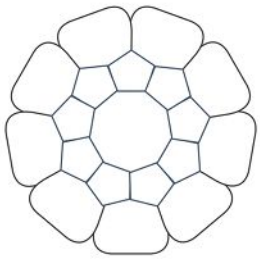
2 layers strands



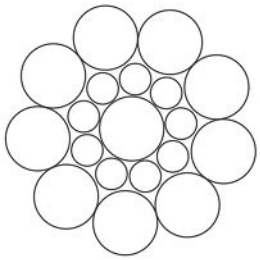
3 layers strands

Statistical, a non-rotating wire rope with 2 layers of strands and a free end, develop between 55% and 75% of minimum breaking load force, while a 3 layers strands develop between 95% and 100% of this force.
This parameter is named spinning loss factor.

For tower cranes and other larger cranes, using non-rotating wire ropes with 3 layers strands it is recommended.



Compact



Conventional

Main advantage using a compact wire ropes is a higher fatigue resistance when using on a crane / trolley / winch / pulley drum or wheel.

These wire ropes lay easily and unobstructed on a drum surface or wheel sheave. Because the contact area is larger, there will be less fatigue and inner tension of the wire rope. If during exploitation the wire rope wear is the result of abrasion between the strands and the drum / wheel, it is recommended to use another compact wire rope - one with much more outer strand wires.

Choosing a wire rope for different equipments / jobs

Different than ordinary lifting wire ropes like 6x19S, 6x36WS, 6x37 constructions, with fiber core or metallic core - special wire ropes like non-rotating wire ropes or/and compact wire ropes are designed to work only with specialized equipments or specific tasks.

Choosing the proper wire rope begins always with the equipment manual or handbook check, in order to find wire rope type delivered initially or the best substitute.

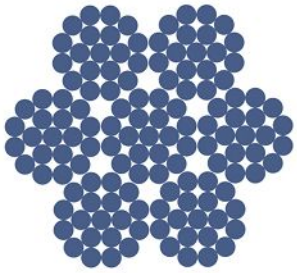
STAINLESS STEEL WIRE ROPES

On demand, we can supply stainless steel AISI 316 or AISI 304/302 wire ropes tensile class 1570, for lifting or towing jobs. These kind of wire ropes are demanded due to various sanitary restrictions or higher corrosion resistance properties .
It is very important to acknowledge that stainless steel have lower breaking loads and lower working load limits than ordinary steel wire ropes, for the same diameter.

But they are accepted for lifting tasks in pharmaceutical industry and healthcare equipments, food and fish industry, water and sewage utility plants, private and commercial boats and marina's, but also for residential constructions (outside or interior) .

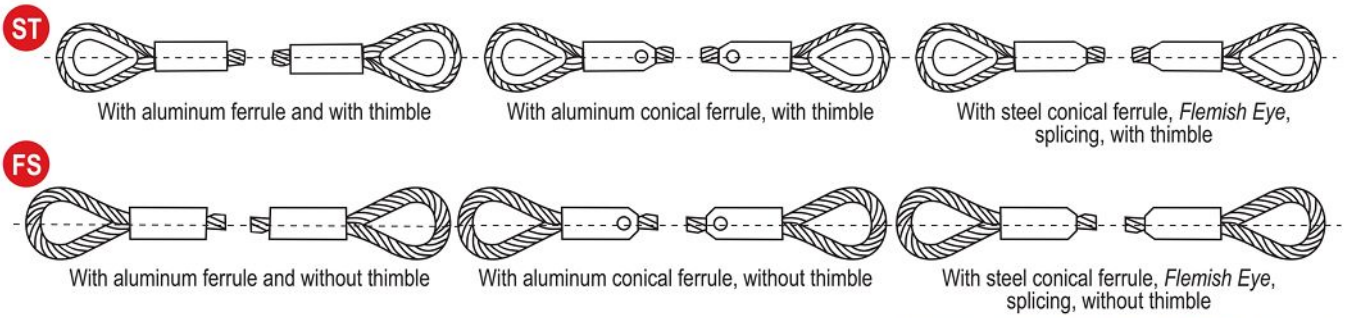
We can supply also thimbles, wire clips, shackles and turnbuckles made from stainless steel (see *Stainless Steel* chapter).

7x7 stainless steel

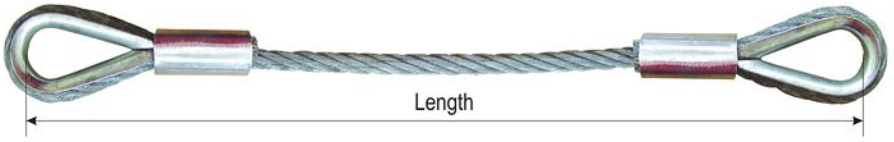


7x19 stainless steel

Swaging types

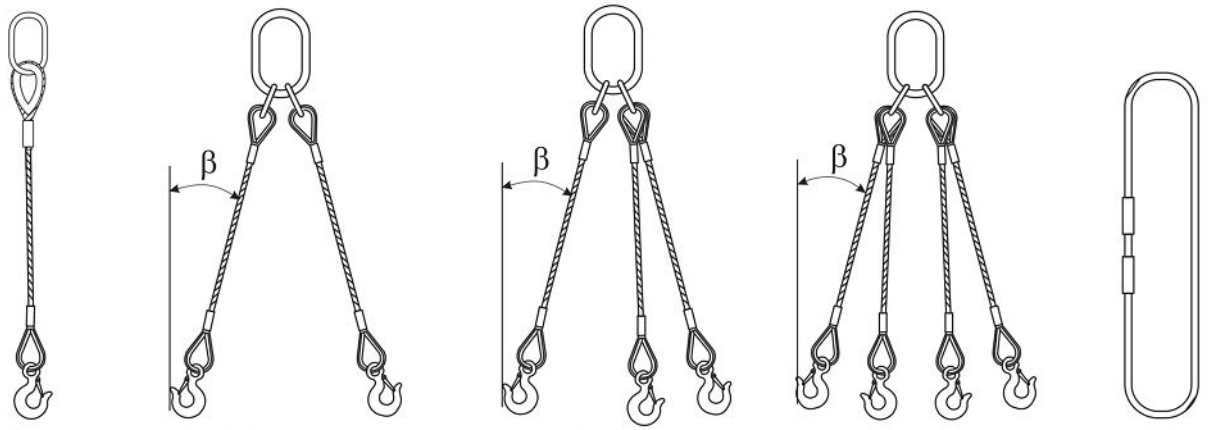


Important: When forming a wire rope sling, take into account that the length of the eye without thimble (FS - soft eye) is greater than the length of an eye with a thimble (ST - hard eye).



În funcţie de necesităţile utilizatorului şi greutatea sarcinii de manipulat, se pot forma sisteme de cabluri cu 1, 2, 3 sau 4 braţe, simple sau care pot fi prevăzute la capete cu diverse tipuri de ocheţi şi cârlige.
Toate sistemele sunt prevăzute standard cu o plăcuţă de identificare pe care sunt trecute datele de identificare ale sistemului (sarcina maximă de lucru, diametrul, numărul de braţe, lungimea, seria, data) şi sunt livrate împreună cu Declaraţia de conformitate CE a produsului.

Wire rope slings made by PROlift have CE type Approval (European Machinery Directive) and Romania's *National Naval Registry* approval.



1 leg set **2 legs set** **3 legs set** **4 legs set** **annular set**

Manufactured according to EN 13414-1 & EN 13411-3 standards, they are available as non-galvanized, lubricated non-galvanized or galvanized, for different wire rope constructions and diameters.
On the following pages you will find tables with working load limits for lifting slings and sling sets made from the most used fiber core and metallic core wire ropes, values calculated according to EN 13414-1 standard requirements.
All slings and sets are provided with an identification tag which states all required information (W.L.L., number of legs, leg's length, serial number, harmonized standard, CE mark) and a *Declaration of Conformity*.

Eficiency rating of end terminations:

Efficiency of an end termination is directly proportional with breaking load force of wire rope used:

- wire clips termination: 80%
- braided wire rope: 80%
- swaged wire rope: 90%
- fitting with a socket and resin (*OSS*, *CSS*): 100%
- *FOSS* swaged socket: 100%
- fitting with an inside wedge (*CWS*, *OWS*): 80%

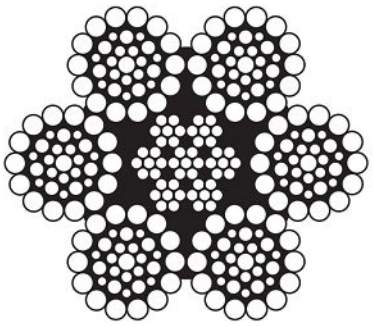
ALUMINUM FERRULES SWAGING - METALLIC CORE

Slings manufactured according to EN 13414-1 standard specs and available as 6x36WS or 6x19S construction, galvanized, independent wire rope core, with diameters starting from 6 mm and up to 102 mm.

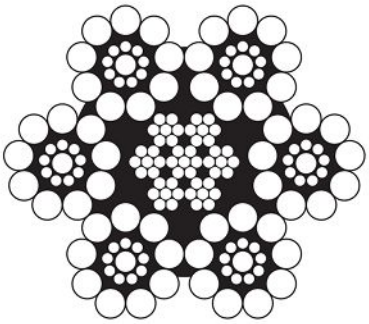
Galvanized slings have a better corosion resistance.
For slings made with different wire rope constructions, please contact us.

A flexible and with a superior lifespan wire rope, 6x36WS construction is usually used for:

- slings and lifting / towing sets;
- mooring and rescue boats;
- winches and trolleys;
- onshore and offshore oil fields;



6x36WS - IWRC



6x19S - IWRC

Find below work load limits for slings and sets made from IWRC wire ropes.

Work load limits adjusted and calculated according to EN 13414-1 standard.

For *2160* wire rope tensile class, the work load limit (WLL) will be calculated by multiplying corresponding table cell with *1.102*.

Set type (number of legs)	1 leg sling set	2 legs sling set		3 or 4 legs sling set		Annular sling set	Minimum breaking load MBL (kN)
Vertical angle (degrees)	β = 0°	0 < β < 45°	45° < β < 60°	0 < β < 45°	45° < β < 60°	ß = 0°	
Load factor	1	1.4	1	2.1	1.5	1.6	
Diameter (mm)	Work load limit WLL (t) - 6x19S-IWRC or 6x36WS-IWRC, tensile class 1960						
6	0.46	0.65	0.46	0.98	0.70	0.74	25.3
8	0.83	1.16	0.83	1.73	1.24	1.32	45.0
9	1.04	1.45	1.04	2.18	1.56	1.66	56.5
10	1.28	1.79	1.28	2.69	1.92	2.05	69.8
11	1.55	2.17	1.55	3.25	2.32	2.48	84.4
12	1.84	2.57	1.84	3.85	2.75	2.94	100
13	2.17	3.03	2.17	4.55	3.25	3.47	118
14	2.51	3.52	2.51	5.28	3.77	4.02	137
15	2.88	4.03	2.88	6.05	4.32	4.61	157
16	3.29	4.60	3.29	6.90	4.93	5.26	179
17	3.71	5.19	3.71	7.79	5.56	5.93	202
18	4.15	5.81	4.15	8.71	6.22	6.64	226
19	4.63	6.48	4.63	9.71	6.94	7.40	252
20	5.12	7.17	5.12	10.8	7.68	8.19	279
22	6.20	8.69	6.20	13.0	9.31	9.93	338
24	7.38	10.3	7.38	15.5	11.1	11.8	402
26	8.66	12.1	8.66	18.2	13.0	13.9	472
28	10.0	14.1	10.0	21.1	15.1	16.1	547
30	11.5	16.1	11.5	24.2	17.3	18.4	628
32	13.1	18.4	13.1	27.6	19.7	21.0	715
34	14.8	20.7	14.8	31.1	22.2	23.7	807
36	16.6	23.2	16.6	34.8	24.9	26.6	904
38	18.5	25.9	18.5	38.9	27.8	29.6	1008
40	20.6	28.8	20.6	43.2	30.8	32.9	1120
42	22.6	31.6	22.6	47.4	33.9	36.2	1231
44	24.8	34.7	24.8	52.0	37.2	39.6	1350
46	27.1	37.9	27.1	56.9	40.6	43.3	1476
48	29.6	41.4	29.6	62.1	44.3	47.3	1610
50	32.0	44.8	32.0	67.2	48.0	51.2	1744
52	34.7	48.6	34.7	72.9	52.0	55.5	1890
54	37.4	52.3	37.4	78.4	56.0	59.8	2035
56	40.2	56.3	40.2	84.4	60.3	64.3	2190
60	46.1	64.5	46.1	96.7	69.1	73.7	2510
64	52.5	73.4	52.5	110	78.7	83.9	2858

For different diameters or different IWRC wire ropes construction types, please contact us.

FLEMISH EYE SPLICING (SUPERLOOP)

When making a Flemish Eye wire rope sling, it is recommended to use an IWRC wire rope, construction 6x36WS.

Set type (number of legs)	1 leg	2 legs sling set		3 or 4 legs sling set	
Vertical angle	β = 0°	0 < β < 45°	45° < β < 60°	0 < β < 45°	45° < β < 60°
Load factor	1	1.4	1	2.1	1.5
Diameter (mm)	Work load limit WLL (t) - 6x36WS-IWRC Tensile class 1960				
6	0.50	0.69	0.50	1.04	0.74
8	0.88	1.23	0.88	1.85	1.32
9	1.11	1.55	1.11	2.32	1.66
10	1.37	1.91	1.37	2.87	2.05
11	1.65	2.31	1.65	3.47	2.48
12	1.96	2.74	1.96	4.11	2.94
13	2.31	3.23	2.31	4.85	3.47
14	2.68	3.75	2.68	5.63	4.02
15	3.07	4.30	3.07	6.46	4.61
16	3.50	4.91	3.50	7.36	5.26
18	4.42	6.20	4.42	9.29	6.64
19	4.93	6.91	4.93	10.4	7.40
20	5.46	7.65	5.46	11.5	8.19
22	6.62	9.27	6.62	13.9	9.93
24	7.87	11.0	7.87	16.5	11.8
26	9.24	12.9	9.24	19.4	13.9
28	10.7	15.0	10.7	22.5	16.1
30	12.3	17.2	12.3	25.8	18.4
32	14.0	19.6	14.0	29.4	21.0
34	15.8	22.1	15.8	33.2	23.7
36	17.7	24.8	17.7	37.2	26.6
38	19.7	27.6	19.7	41.4	29.6
40	21.9	30.7	21.9	46.0	32.9
42	24.1	33.7	24.1	50.6	36.2
44	26.4	37.0	26.4	55.5	39.6
46	28.9	40.5	28.9	60.7	43.3
48	31.5	44.1	31.5	66.2	47.3
50	34.1	47.8	34.1	71.7	51.2
52	37.0	51.8	37.0	77.7	55.5
54	39.8	55.8	39.8	83.7	59.8
56	42.9	60.0	42.9	90.0	64.3
60	49.1	68.8	49.1	103.0	73.7
64	55.4	77.5	55.4	116.3	83.1
70	66.3	92.8	66.3	139.2	99.4
73	70.1	98.2	70.1	147.3	105.2
76	78.1	109.3	78.1	164.0	117.1
80	86.6	121.2	86.6	181.8	129.9
83	92.6	129.6	92.6	194.4	138.8
86	98.8	138.4	98.8	207.5	148.2
90	109.5	153.3	109.5	230.0	164.3
93	114.9	160.8	114.9	241.3	172.3
102	135.9	190.3	135.9	285.4	203.8

Diameter (inch / mm)		Work load limit WLL (t) - 6x36WS-IWRC Tensile class 1960				
5/16	7.94	0.86	1.21	0.86	1.81	1.29
3/8	9.53	1.23	1.73	1.23	2.59	1.85
7/16	11.11	1.68	2.35	1.68	3.52	2.51
1/2	12.7	2.21	3.10	2.21	4.65	3.32
9/16	14.2	2.80	3.92	2.80	5.88	4.20
3/4	19.0	4.95	6.94	4.95	10.4	7.43
7/8	22.2	6.72	9.40	6.72	14.1	10.1
1	25.4	8.77	12.3	8.77	18.4	13.2
1-1/8	28.6	11.1	15.5	11.1	23.3	16.7
1-1/4	31.8	13.8	19.3	13.8	28.9	20.6
1-3/8	34.9	16.7	23.3	16.7	35.0	25.0
1-1/2	38.1	19.7	27.6	19.7	41.4	29.6
1-3/4	44.5	27.0	37.8	27.0	56.7	40.5
2	50.8	35.3	49.4	35.3	74.0	52.9
2-1/4	57.2	44.4	62.1	44.4	93.2	66.5
2-1/2	63.5	54.8	76.7	54.8	115	82.2

For different diameters or different wire rope constructions please contact us.

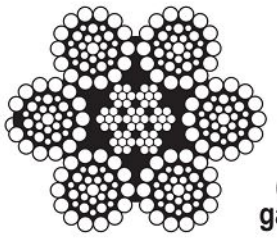
Flemish Eye wire rope slings are suitable to be used at temeratures between –60°C and 400°C. If using at temperatures above 250°C, working load limit (W.L.L.) should be decreased at 75% of initial rated value.

It has been proven that a 7 strands wire rope provides maximum lifting efficiency, using a wire rope with more strands does not provide additional advantage.

The eye is formed by slicing the wire rope into two groups, one consisting of 3 strands and the other of 4 strands (core included). The furthest point to where the wire rope is spliced determines the length of the eye.

Even without swaging, the Flemish Eye wire rope slings transfer approximately 70% of the breaking force to the wire rope.

This is achieved only by the friction that takes place between the wire rope strands. Swaging the sleeve onto the wire further enhances this result.



6x36WS galvanized

To be noted

Flemish eye splicing allow better work load limits than classic aluminium ferrules swaging, for the same wire rope.

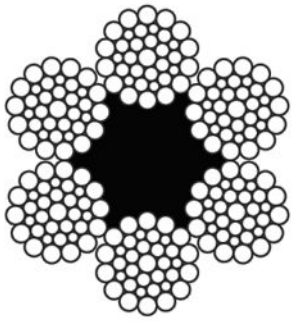
For the same wire rope type (6x36WS, IWRC), but with 2160 tensile class, work load limit (W.L.L.) to be calculated by multiplying the corresponding table cell value with 1.102.

ALUMINUM FERRULES SWAGING - FIBER CORE

A flexible and with a superior lifespan wire rope, 6x36WS fiber core construction is usually used for:

- ordinary lifting operations;
- slings and lifting / towing sets;
- rescue boats;
- mooring and maritime pilotage;

Find below work load limits for wire rope sling sets made from fiber core 6x36WS, tensile class 1960, which provide higher work load limits than 6x7, 6x19 or 6x37 fiber core constructions.



6x36WS - FC

Work load limits adjusted and calculated according to EN 13414-1

Set type (number of legs)	1 leg sling set	2 legs sling set		3 or 4 legs sling set		Annular sling set	Minimum breaking load MBL (kN)
Vertical angle (degrees)	β = 0°	0 < β < 45°	45° < β < 60°	0 < β < 45°	45° < β < 60°	ß = 0°	
Load factor	1	1.4	1	2.1	1.5	1.6	
Diameter (mm)	Work load limit WLL (t) - 6x36WS-FC, tensile class 1960						
8	0.75	1.05	0.75	1.58	1.13	1.20	41
9	0.97	1.36	0.97	2.04	1.46	1.56	53
10	1.19	1.67	1.19	2.50	1.79	1.91	65
11	1.45	2.03	1.45	3.05	2.18	2.32	79
12	1.71	2.39	1.71	3.59	2.56	2.73	93
13	2.02	2.83	2.02	4.24	3.03	3.23	110
14	2.33	3.26	2.33	4.90	3.50	3.73	127
16	3.05	4.27	3.05	6.40	4.57	4.88	166
18	3.84	5.37	3.84	8.06	5.75	6.14	209
19	4.28	5.99	4.28	8.98	6.42	6.84	233
20	4.75	6.65	4.75	9.98	7.13	7.61	259
22	5.75	8.04	5.75	12.1	8.62	9.19	313
24	6.83	9.56	6.83	14.3	10.2	10.9	372
25	7.45	10.4	7.45	15.7	11.2	11.9	406
26	8.02	11.2	8.02	16.8	12.0	12.8	437
28	9.31	13.0	9.31	19.5	14.0	14.9	507
30	10.7	15.0	10.7	22.4	16.0	17.1	582
32	12.2	17.0	12.2	25.5	18.2	19.4	662
34	13.7	19.2	13.7	28.8	20.6	22.0	747
36	15.4	21.5	15.4	32.3	23.1	24.6	838
38	17.1	24.0	17.1	36.0	25.7	27.4	934
40	19.0	26.6	19.0	39.9	28.5	30.4	1035
42	20.9	29.3	20.9	44.0	31.4	33.5	1141
44	23.0	32.2	23.0	48.3	34.5	36.8	1252
46	25.2	35.3	25.2	53.0	37.9	40.4	1375
48	27.3	38.3	27.3	57.4	41.0	43.8	1490
50	29.7	41.6	29.7	62.3	44.5	47.4	1617
52	32.1	44.9	32.1	67.4	48.1	51.3	1748
54	34.6	48.5	34.6	72.7	51.9	55.4	1886
56	37.2	52.1	37.2	78.2	55.8	59.6	2028
58	39.9	55.9	39.9	83.9	59.9	63.9	2176
60	42.7	59.8	42.7	89.7	64.1	68.4	2328
64	48.6	68.0	48.6	102	72.9	77.8	2648

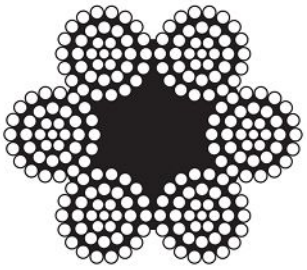
For different diameters or different fiber core wire ropes construction types, please contact us.

ALUMINUM FERRULES SWAGING - FIBER CORE

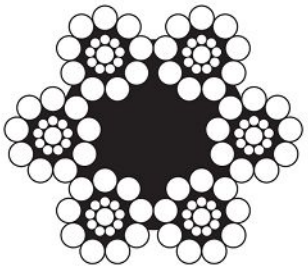
Fiber core 6x37 construction is more flexible than fiber core 6x19 construction because the number of wires in a strand is almost double.
It is important to remember that this construction has a less good abrasion resistance than 6x19, for the same wire rope diameter.

Fiber core 6x7 construction is used for small diameter wire ropes. Choose galvanized type for an extra corrosion resistance.

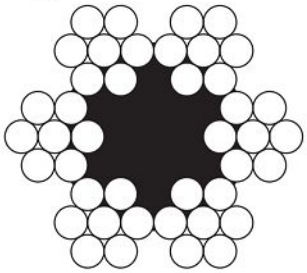
Fiber core 6x37 construction is usually used for:
- ordinary lifting operations;
- excavations and digging;
- forestry and wood processing;



6x37 - FC



6x19 - FC



6x7 - FC

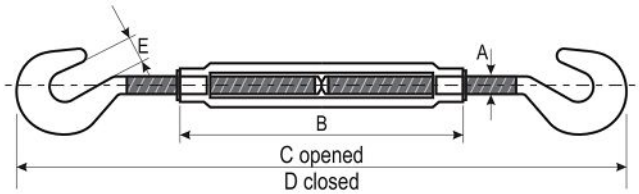
Set type (number of legs)	1 leg sling set	2 legs sling set		3 or 4 legs sling set		Annular sling set
Vertical angle (degrees)	β = 0°	0 < β < 45°	45° < β < 60°	0 < β < 45°	45° < β < 60°	ß = 0°
Load factor	1	1.4	1	2.1	1.5	1.6
Diameter (mm)	Work load limit WLL (t) - Constructions 6x37-FC, 6x19-FC, 6x7-FC tensile class 1770.					
3	0.10	0.14	0.10	0.21	0.15	0.16
4	0.16	0.22	0.16	0.34	0.24	0.26
5	0.25	0.35	0.25	0.52	0.37	0.40
6	0.39	0.55	0.39	0.82	0.58	0.62
7	0.53	0.74	0.53	1.11	0.79	0.85
8	0.69	0.97	0.69	1.45	1.03	1.10
9	0.87	1.22	0.87	1.83	1.30	1.39
10	1.07	1.50	1.07	2.25	1.60	1.71
11	1.30	1.82	1.30	2.73	1.95	2.08
12	1.55	2.17	1.55	3.26	2.32	2.48
13	1.81	2.53	1.81	3.80	2.71	2.90
14	2.10	2.94	2.10	4.41	3.15	3.36
15	2.40	3.36	2.40	5.04	3.60	3.84
16	2.75	3.85	2.75	5.78	4.12	4.40
17	3.10	4.34	3.10	6.51	4.65	4.96
18	3.47	4.86	3.47	7.29	5.20	5.55
19	3.87	5.42	3.87	8.13	5.80	6.19
20	4.30	6.02	4.30	9.03	6.45	6.88
21	4.75	6.65	4.75	9.98	7.12	7.60
22	5.20	7.28	5.20	10.9	7.80	8.32
23	5.70	7.98	5.70	12.0	8.55	9.12
24	6.20	8.68	6.20	13.0	9.30	9.92
25	6.70	9.38	6.70	14.1	10.0	10.7
26	7.25	10.1	7.25	15.3	10.9	11.6
27	7.85	11.0	7.85	16.5	11.8	12.6
28	8.40	11.8	8.40	17.6	12.6	13.4
29	9.00	12.6	9.00	18.9	13.5	14.4
30	9.70	13.6	9.70	20.4	14.5	15.5
31	10.3	14.4	10.3	21.6	15.5	16.5
32	11.0	15.4	11.0	23.1	16.5	17.6
33	11.7	16.4	11.7	24.6	17.6	18.7
34	12.4	17.4	12.4	26.0	18.6	19.8
36	13.9	19.5	13.9	29.2	20.9	24.8
38	15.5	21.7	15.5	32.6	23.3	22.2
40	17.2	24.1	17.2	36.1	25.8	27.5
42	18.9	26.5	18.9	39.7	28.4	30.2
44	20.8	29.1	20.8	43.7	31.2	33.3
46	22.7	31.8	22.7	47.6	34.0	36.3
48	24.8	34.7	24.8	52.1	37.2	39.7
50	26.8	37.5	26.8	56.3	40.2	42.9
52	29.0	40.6	29.0	60.9	43.5	46.4
54	31.3	43.8	31.3	65.6	46.9	50.0
56	33.6	47.0	33.6	70.6	50.4	53.8
58	36.1	50.5	36.1	75.7	54.1	57.7
60	38.6	54.0	38.6	81.1	57.9	61.8

TURNBUCKLES

They are manufactured according to DIN 1480 (the eye-eye, eye-hook and hook-hook types) and DIN 1045 (jaw-jaw type) from galvanized steel.
We recommend using them for straight line tensioning only. The turnbuckles are available in the following configuration: eye-eye, eye-hook, hook-hook or jaw-jaw.

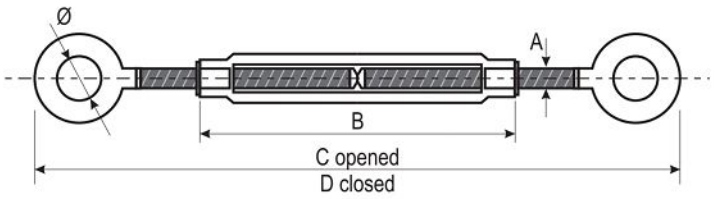
Turnbuckles must be used only for straight line tensioning and not for lifting!

PRO-CC HOOK-HOOK TYPE TURNBUCKLE



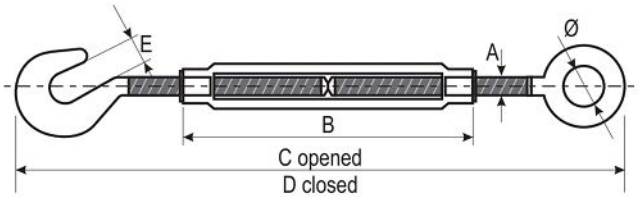
Model/ Features	WLL (t)	Dimensions (mm)					Net weight (kg/buc)
		A	B	C opened	D closed	E	
PRO-CC-M6	0.23	M6	82	180	130	8	0.08
PRO-CC-M8	0.42	M8	110	230	160	9	0.15
PRO-CC-M10	0.66	M10	125	260	190	12	0.20
PRO-CC-M12	0.95	M12	140	290	220	12	0.35
PRO-CC-M14	1.35	M14	140	330	250	15	0.70
PRO-CC-M16	1.80	M16	155	390	300	17	1.12
PRO-CC-M20	2.75	M20	220	440	330	19	1.50
PRO-CC-M22	3.26	M22	220	500	370	26	2.50
PRO-CC-M24	4.00	M24	255	580	430	26	3.00
PRO-CC-M27	5.03	M27	255	580	440	28	4.00
PRO-CC-M30	6.37	M30	255	580	440	30	4.50

PRO-OO EYE-EYE TYPE TURNBUCKLE



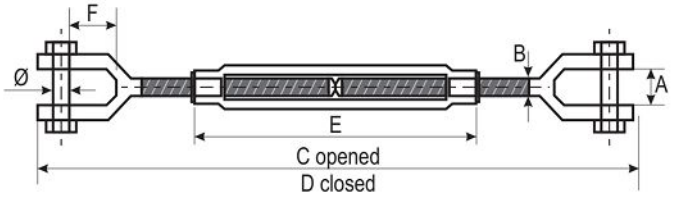
Model/ Features	WLL (t)	Dimensions (mm)					Net weight (kg/buc)
		A	B	C opened	D closed	Ø	
PRO-OO-M6	0.23	M6	105	235	130	9	0.078
PRO-OO-M8	0.42	M8	105	235	160	10	0.148
PRO-OO-M10	0.66	M10	125	278	190	13	0.294
PRO-OO-M12	0.95	M12	140	305	207	15	0.363
PRO-OO-M14	1.35	M14	155	344	260	18	0.50
PRO-OO-M16	1.80	M16	170	430	384	21	0.91
PRO-OO-M20	2.75	M20	215	495	345	22	1.56
PRO-OO-M22	3.26	M22	240	537	377	28	2.00
PRO-OO-M24	4.00	M24	255	544	380	30	3.25
PRO-OO-M27	5.03	M27	255	490	482	33	3.50
PRO-OO-M30	6.37	M30	255	584	423	34	4.15

PRO-OC EYE-HOOK TYPE TURNBUCKLE



Model/ Features	WLL (t)	Dimensions (mm)						Net weight (kg/buc)
		A	B	C opened	D closed	E	O	
PRO-OC-M6	0.23	M6	105	235	155	8	9	0.078
PRO-OC-M8	0.42	M8	105	235	164	9	10	0.148
PRO-OC-M10	0.66	M10	126	290	200	12	13	0.294
PRO-OC-M12	0.95	M12	138	302	210	12	15	0.363
PRO-OC-M14	1.35	M14	170	368	264	15	18	0.536
PRO-OC-M16	1.80	M16	190	433	298	17	21	0.910
PRO-OC-M20	2.75	M20	218	494	345	19	22	1.56
PRO-OC-M22	3.26	M22	240	548	390	26	28	2.08
PRO-OC-M24	4.00	M24	255	556	395	26	30	3.25
PRO-OC-M27	5.03	M27	255	640	480	28	33	4.15
PRO-OC-M30	6.37	M30	255	612	442	30	34	5.95

PRO-FF JAW-JAW TYPE TURNBUCKLE

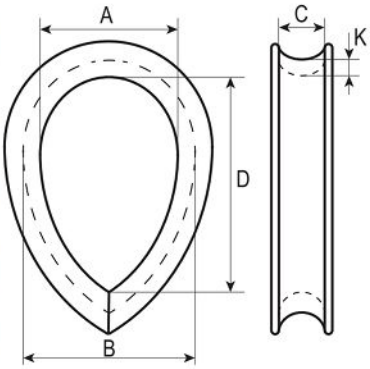


Model/ Features	WLL (t)	Dimensions (mm)							Net weight (kg)
		B x E		A	C opened	D closed	F	Ø	
		inch	mm						
PRO-FF-1/4 x 4"	0.23	1/4 x 4	6.35 x 102	11.4	280	200	15.7	6	0.18
PRO-FF-5/16 x 4-1/2"	0.36	5/16 x 4-1/2	7.94 x 114	12.7	330	230	22.1	6	0.26
PRO-FF-3/8 x 6"	0.54	3/8 x 6	9.53 x 152	13.7	410	280	22.1	8	0.42
PRO-FF-1/2 x 12"	1.00	1/2 x 12	12.7 x 305	14	740	460	26.9	10	1.00
PRO-FF-3/4 x 6"	2.36	3/4 x 6	19.1 x 152	26.2	510	380	38.1	16	2.12
PRO-FF-3/4 x 18"	2.36	3/4 x 18	19.1 x 457	26.2	1110	690	38.1	16	3.29
PRO-FF-7/8 x 18"	3.24	7/8 x 18	22.2 x 457	31.2	1160	720	44.5	18	5.19
PRO-FF-1 x 24"	4.54	1 x 24	25.4 x 610	33.3	1500	920	52.5	22	8.44
PRO-FF-1-1/4 x 24"	6.90	1-1/4 x 24	31.8 x 610	47.2	1570	990	71.5	28	14.15
PRO-FF-1-1/2 x 12"	9.71	1-1/2 x 12	38.1 x 305	57	1000	730	71.5	34	16.10
PRO-FF-1-1/2 x 24"	9.71	1-1/2 x 24	38.1 x 610	52.3	N/A	N/A	71.4	34	19.70
PRO-FF-1-3/4 x 18"	12.7	1-3/4 x 18	44.5 x 457	64	1250	970	87	40	23.77
PRO-FF-1-3/4 x 24"	12.7	1-3/4 x 24	44.5 x 610	66	1670	1100	85	40	27.70
PRO-FF-2 x 24"	16.8	2 x 24	51 x 610	66	1780	1220	94	51	52.16
PRO-FF-2-1/2 x 24"	27.2	2-1/2 x 24	63.5 x 610	76	1900	1320	113	57	90.71
PRO-FF-2-3/4 x 24"	34	2-3/4 x 24	70 x 610	92	1900	1400	106	70	112.49
PRO-FF-2-2/3 x 24"	34	2-3/4 x 24	70 x 610	93	N/A	N/A	106	70	90.10

PRO-BS THIMBLES BS 464

Model/ Features	Wire rope diameter (mm)	Dimensions (mm)					Net weight (kg/pc)
		A	B	Cmin	D	Kmin	
PRO-BS-5/16"	7.94	22.2	30.1	7.9	33.4	4	0.043
PRO-BS-3/8"	9.53	25.4	35	10.3	38	4.8	0.08
PRO-BS-7/16"	11.11	28.6	38	12.7	41.3	4.8	0.11
PRO-BS-1/2"	12.70	31.7	42.9	14.3	44.5	5.5	0.15
PRO-BS-9/16"	14.29	31.7	42.9	14.3	44.5	5.5	0.15
PRO-BS-5/8"	15.88	41.3	56	15.9	58.8	7.9	0.26
PRO-BS-11/16"	17.46	44.5	60.4	19	66.6	7.9	0.43
PRO-BS-3/4"	19.05	50.8	69.8	20.6	73	9.5	0.45
PRO-BS-13/16"	20.64	50.8	69.8	21.6	73	9.5	0.56
PRO-BS-7/8"	22.23	56	76.2	22.8	82.5	9.5	0.62
PRO-BS-15/16"	23.81	64	84	25.4	92	10.3	0.80
PRO-BS-1"	25.40	69.8	90.5	27	108	10.3	0.91
PRO-BS-1-1/8"	28.58	76.2	102	28.6	112	12.7	1.27
PRO-BS-1-1/4"	31.75	95	121	33.4	133	12.7	1.60
PRO-BS-1-3/8"	34.93	105	137	38	152	15.9	2.30
PRO-BS-1-1/2"	38.10	114	149	41.3	165	17.5	3.29
PRO-BS-1-5/8"	41.28	114	149	42.9	165	17.5	3.29
PRO-BS-1-3/4"	44.45	127	178	50.8	178	25.4	6.30
PRO-BS-1-7/8"	47.63	133	190	60.4	190	28.6	7.50
PRO-BS-2"	50.80	140	197	64	203	28.6	7.90
PRO-BS-2-1/8"	53.98	140	197	64	203	28.6	8.30
PRO-BS-2-1/4"	57.15	146	206	66.6	216	30.1	8.50
PRO-BS-2-1/2"	63.50	159	222	69.8	242	31.7	17.0
PRO-BS-3"	76.20	230	270	95	360	20	N/A

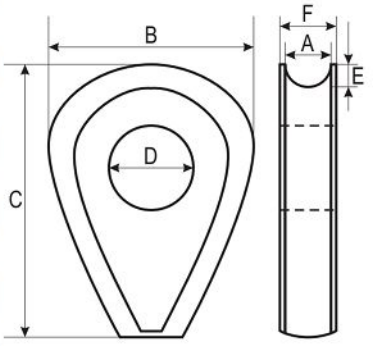
Robust thimbles used especially for *Flemish Eye* spliced slings. They are made from forged steel, according to BS 464 standard and galvanized afterwards.



PRO-ROD THIMBLES DIN 3091

They are used to protect the inner eye area of a wire rope sling when subjected to high friction forces. They are made from steel, according to DIN 3091 standard.

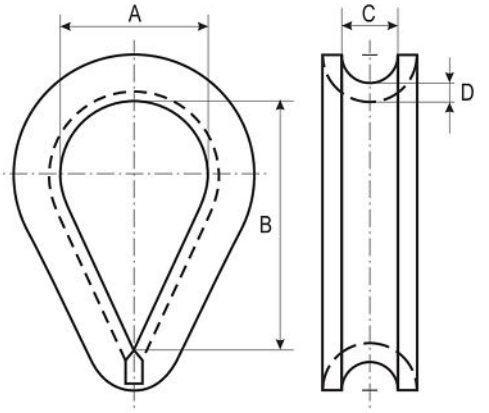
Model/ Features	Wire rope diameter (mm)	Dimensions (mm)						Net weight (kg/pc)
		A	B	C	D	E	F	
PRO-ROD-8	8	9	40	66	14	4.5	15	0.18
PRO-ROD-10	10	11	50	82	18	6	17.5	0.32
PRO-ROD-12	12	13	60	98	21	7.5	20	0.52
PRO-ROD-14	14	16	70	114	25	9	23.5	0.80
PRO-ROD-16	16	18	80	130	28	10.5	26	0.90
PRO-ROD-18	18	20	90	145	31	12	28.5	1.21
PRO-ROD-20	20	22	100	161	35	13.5	31	1.61
PRO-ROD-22	22	24	110	177	38	15	33.5	2.11
PRO-ROD-24	24	26	120	193	41	16.5	36	2.71
PRO-ROD-26	26	29	130	209	44	18	39.5	3.55
PRO-ROD-28	28	31	140	224	47	20	42	4.20
PRO-ROD-32	32	35	160	256	53	23	47	6.30
PRO-ROD-36	36	40	180	288	59	26	53	8.84
PRO-ROD-40	40	44	200	320	65	29	58	11.0
PRO-ROD-44	44	48	220	352	70	32	63	15.0
PRO-ROD-48	48	53	240	384	76	35	69	20.0



PRO-RO THIMBLES DIN 6899 B

They are used to protect the inner eye area of a wire rope sling when subjected to high friction forces. They are molded from steel according to DIN 6899B standard and galvanized afterwards.

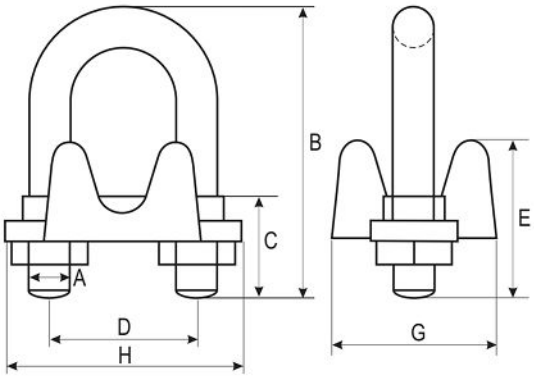
Model/ Features	Wire rope diameter (mm)	Dimensions (mm)				Net weight (kg/pc)
		A	B	C	D	
PRO-RO-3	3	12	19	3	1.6	0.006
PRO-RO-4	4	14	23	5	1.9	0.010
PRO-RO-6	6	18	28	7	2.4	0.019
PRO-RO-8	8	21	33	8	3.0	0.043
PRO-RO-10	10	26	41	12	3.2	0.068
PRO-RO-12	12	29	46	14	3.3	0.100
PRO-RO-14	14	32	51	16	3.7	0.145
PRO-RO-16	16	38	61	18	4.7	0.20
PRO-RO-18	18	45	72	20	5.7	0.29
PRO-RO-20	20	50	80	22	5.7	0.32
PRO-RO-22	22	56	90	24	6.5	0.47
PRO-RO-24	24	62	99	26	6.8	0.59
PRO-RO-26	26	62	99	26	6.8	0.80
PRO-RO-28	28	75	120	30	8.0	1.10
PRO-RO-30	30	80	128	32	8.0	1.23
PRO-RO-32	32	95	152	34	8.5	1.56
PRO-RO-34	34	100	160	36	8.5	1.76
PRO-RO-36	36	110	176	38	8.5	1.92
PRO-RO-38	38	115	184	40	10.5	2.92
PRO-RO-40	40	120	192	42	10.5	3.20
PRO-RO-42	42	150	240	44	10.5	3.64
PRO-RO-44	44	150	248	46	13.0	3.75
PRO-RO-48	48	163	255	52	13.0	5.25
PRO-RO-52	52	163	280	57	15.0	7.50
PRO-RO-56	56	180	290	60	17.0	8.50
PRO-RO-58	58	180	290	63	18.0	N/A
PRO-RO-64	64	180	310	66	18.0	N/A
PRO-RO-66	66	195	340	67	19.0	N/A



PRO-US FORGED WIRE CLIPS

They are designed to achieve a removable joining of two wire ropes, under heavy operating conditions.

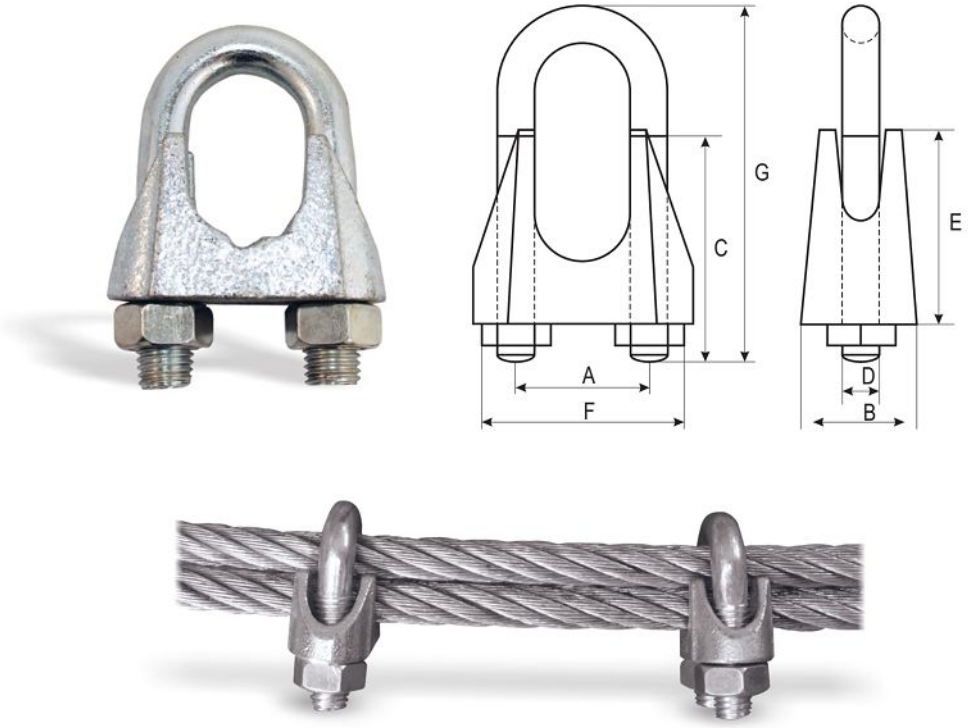
They are made from forged steel according to EN 13411-5 standard specs.



Model/ Features	Wire rope diameter (mm)	Dimensions (mm)								Net weight (kg/pc)
		A	B	C	D	E	F	G	H	
PRO-US-1/8"	3-4	6	18	11	12	10	10	21	24	0.027
PRO-US-3/16"	5	6	25	13	15	13	11	24	29	0.045
PRO-US-1/4"	6 - 7	8	26	14	19	17	14	30	37	0.086
PRO-US-5/16"	8	10	35	19	22	18	18	33	43	0.127
PRO-US-3/8"	9-10	11	38	19	25	23	19	41	49	0.218
PRO-US-7/16"	11	13	48	25	30	26	22	46	58	0.354
PRO-US-1/2"	12 - 13	13	48	25	30	29	22	49	58	0.363
PRO-US-9/16"	14 - 15	14	57	32	33	31	24	52	64	0.494
PRO-US-5/8"	16	14	60	32	33	34	24	52	64	0.499
PRO-US-3/4"	18	16	70	37	38	36	27	57	72	0.640
PRO-US-7/8"	20 - 22	19	79	41	44	40	32	62	80	0.960
PRO-US-1"	24 - 26	19	89	46	48	45	32	67	88	1.14
PRO-US-1-1/8"	28 - 30	19	99	51	51	49	32	71	91	1.28
PRO-US-1-1/4"	32 - 34	22	108	54	59	56	37	80	105	1.99
PRO-US-1-3/8"	36	22	118	59	60	59	37	80	106	2.00
PRO-US-1-1/2"	38	22	125	60	66	62	37	87	113	2.47
PRO-US-1-5/8"	41 - 42	25	135	67	70	68	41	92	121	3.19
PRO-US-1-3/4"	44 - 46	29	146	70	78	75	46	97	134	4.24
PRO-US-2"	48 - 52	32	164	76	86	83	51	113	149	5.90
PRO-US-2-1/4"	56 - 58	32	181	81	99	81	51	114	162	7.26
PRO-US-2-1/2"	62 - 65	32	195	87	105	94	51	103	168	8.62
PRO-US-2-3/4"	68 - 72	32	211	90	111	124	51	127	175	10.43
PRO-US-3"	75 - 78	38	233	99	121	119	60	149	194	14.06
PRO-US-3-1/2"	85 - 90	38	273	114	140	152	60	157	213	18.14

PRO-BRD WIRE CLIPS DIN 741

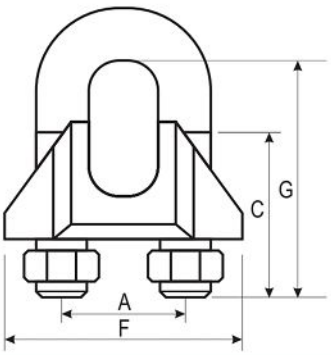
They are designed to achieve a removable joining of two wire ropes. They are made from forged steel, according to DIN 741 standard specs.

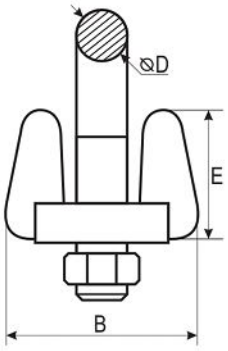


Model/ Features	Wire rope diameter (mm)	Dimensions (mm)							Clips needed for wire termination	Fastening moment (Nm)	Net weight (kg/pc)
		A	B	C	D	E	F	G			
PRO-BRD-3	3	9	10	12	M4	10	21	20	3	2	0.007
PRO-BRD-5	5	11	11	13	M5	10	23	24	3	2	0.015
PRO-BRD-6.5	6.5	13	12	15	M5	11	26	28	3	3.5	0.019
PRO-BRD-8	8	16	14	19	M6	15	30	34	4	6	0.032
PRO-BRD-10	10	19	18	22	M8	17	34	42	4	9	0.066
PRO-BRD-12	12	20	19	22	M8	18	36	44	4	14.5	0.071
PRO-BRD-13	13	24	23	30	M10	21	42	55	4	26.5	0.125
PRO-BRD-14	14	25	23	30	M10	22	44	57	4	33	0.140
PRO-BRD-16	16	29	26	33	M12	26	50	63	4	49	0.205
PRO-BRD-20	19	32	29	38	M12	30	54	75	4	68	0.308
PRO-BRD-22	22	37	33	44	M14	34	61	85	5	107	0.357
PRO-BRD-26	26	41	35	45	M14	37	65	95	5	147	0.569
PRO-BRD-30	30	48	37	50	M16	43	74	110	6	212	0.618
PRO-BRD-34	34	52	42	55	M16	50	80	120	6	296	0.868
PRO-BRD-40	40	58	45	60	M16	55	88	140	6	363	1.09
PRO-BRD-45	45	67	49	65	M18	65	112	165	N/A	N/A	1.48
PRO-BRD-50	50	69	51	67	M18	67	121	170	N/A	N/A	1.95

PRO-1142 WIRE ROPE CLIPS DIN 1142

They are designed to achieve a removable joining of two wire ropes. They are made from forged steel, according to DIN 1142.



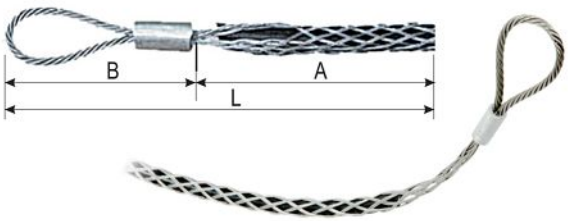


Model/ Features	Wire rope diameter (mm)	Dimensions (mm)							Net weight (kg/pc)
		A	B	C	D	E	F	G	
PRO-1142-5	5	12	13	13	5	13	25	20	0.025
PRO-1142-6,5	6.5	14	16	17	6	14	30	26	0.043
PRO-1142-8	8	18	20	20	8	18	39	33	0.08
PRO-1142-10	10	20	20	24	8	21	40	38	0.09
PRO-1142-12	12	24	25	28	10	24	50	46	0.17
PRO-1142-13	13	27	28	30	12	29	55	52	0.26
PRO-1142-14	14	28	30	31	12	28	59	54	0.29
PRO-1142-16	16	32	32	35	14	35	65	64	0.40
PRO-1142-19	19	36	32	36	14	40	68	69	0.48
PRO-1142-22	22	40	34	40	16	44	74	80	0.66
PRO-1142-26	26	46	38	50	20	51	84	91	1.10
PRO-1142-30	30	54	41	55	20	59	95	107	1.34
PRO-1142-34	34	60	45	60	22	67	105	119	1.90
PRO-1142-40	40	68	49	65	24	77	117	135	2.60

PRO-CIA WIRE SOCKS

Model/ Features	Wire rope diameter (mm)	Dimensions (mm)			WLL (kg)	Weight (kg)
		A	B	L		
PRO-CIA-8-11	8 - 11	350	140	490	600	N/A
PRO-CIA-11-13	11 - 13	400	190	590	1200	N/A
PRO-CIA-13-16	13 - 16	500	190	690	1200	N/A
PRO-CIA-16-21	16 - 21	550	220	770	1500	0.38
PRO-CIA-21-25	21 - 25	750	220	970	2000	0.49
PRO-CIA-25-30	25 - 30	750	250	1000	3000	0.50
PRO-CIA-30-35	30 - 35	900	300	1210	3500	1.23
PRO-CIA-35-42	35 - 42	1000	360	1360	4000	1.75
PRO-CIA-42-50	42 - 50	1300	360	1660	4500	2.00

These products are used to ease replacing the wire ropes of various equipments by towing; the sock is attached to one of the ends of the old wire and the new wire rope and as the old one is reeled off, the new one replace it.

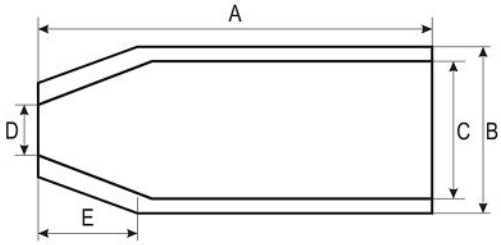


PRO-CAB WIRE SOCKS

Model/ Features	Wire rope diameter (mm)	Dimensions (mm) L	WLL (kg)	Weight (kg)
PRO-CAB-8-11	8 - 11	750	600	N/A
PRO-CAB-11-13	11 - 13	900	1200	N/A
PRO-CAB-13-16	13 - 16	1200	1200	N/A
PRO-CAB-16-21	16 - 21	1300	1500	0.25
PRO-CAB-21-25	21 - 25	1600	2000	0.50
PRO-CAB-25-30	25 - 30	1700	3000	0.67
PRO-CAB-30-35	30 - 35	2000	3500	0.73
PRO-CAB-35-42	35 - 42	2250	4000	1.65
PRO-CAB-42-50	42 - 50	2700	4500	2.30

Type PRO-CIA has one end opened (free) and the other end swaged; type PRO-CAB has both ends opened (free).

PRO-MET STEEL FERRULES FOR FLEMISH EYE



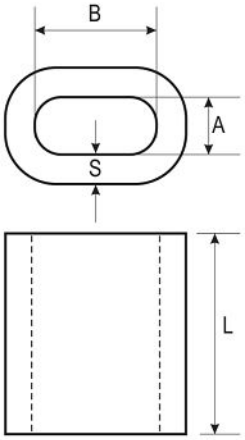
They are designed to achieve a permanent joining of two wire ropes or to terminate with an eye the same wire by swaging on a hydraulic press.
The main feature of these ferrules is that they allow the splicing of the wire rope eye and swaging it under the sleeve, to prevent the wire from becoming un-plaited.

We are using this type of ferrules to swag Flemish Eye slings and thus achieving working loads limits higher than swaging using aluminum sleeves.

Model/ Features	Wire rope diameter (mm)	Dimensions (mm)					Net weight (kg/pc)
		A	B	C	D	E	
PRO-MET-1/4"	6 - 7	25	16.76	11.94	7.87	7.11	0.023
PRO-MET-5/16"	8	38	23.11	15.74	9.65	11.18	0.064
PRO-MET-3/8"	9 - 10	38	23	16.7	11.9	9.9	0.072
PRO-MET-7/16"	11	51	31	21.4	14.3	16.5	0.15
PRO-MET-1/2"	12 - 13	51	31	23	15.9	14.2	0.15
PRO-MET-9/16"	14	70	37.3	26.2	17.8	16	0.29
PRO-MET-5/8"	16	70	37.3	27.8	19.1	16	0.26
PRO-MET-3/4"	18 - 19	81	43.7	32.5	23.1	21.3	0.40
PRO-MET-7/8"	22	90	51.6	38.9	26	25.4	0.60
PRO-MET-1"	25 - 26	102	58	43.7	30	29	0.89
PRO-MET-1-1/8"	28 - 29	122	63.5	49.2	33	32	1.18
PRO-MET-1-1/4"	31 - 32	132	70.6	54.8	37	36	1.61
PRO-MET-1-3/8"	35	148	76.2	60.3	40	40	1.95
PRO-MET-1-1/2"	38	159	82.6	66.7	44	43	2.27
PRO-MET-1-3/4"	44	184	97.6	79.4	50	50	3.67
PRO-MET-2"	51	216	111	92.1	58	57	5.10
PRO-MET-2-1/4"	56 - 57	243	128	102.4	64	65	8.62
PRO-MET-2-1/2"	64	267	140	114.3	70	72	10.43
PRO-MET-2-3/4"	68 - 70	292	146	120	76	79	12.70
PRO-MET-3"	76 - 77	305	152	127	83	86	13.34
PRO-MET-3-1/2"	87 - 89	356	178	148	99	100	21.05
PRO-MET-3-3/4"	93 - 95	381	191	160	103	108	24.95
PRO-MET-4"	100 - 102	406	206	173	111	114	30.78

PRO-MAL ALUMINUM FERRULES

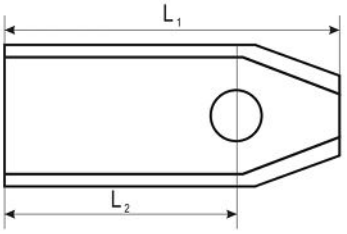
They are designed to achieve a permanent joining of two wire ropes or to terminate with an eye the same wire by swaging on a hydraulic press, according to EN 13411-3 standard specs.



Model/ Features	Wire rope diameter (mm)	Dimensions (mm)				Net weight/ 100 pcs (kg)
		A	B	S	L	
PRO-MAL-015	1.5	1.7	3.4	0.75	6	0.021
PRO-MAL-020	2	2.2	4.4	0.85	7	0.024
PRO-MAL-025	2.5	2.7	5.4	1.05	9	0.05
PRO-MAL-030	3	3.3	6.6	1.25	11	0.084
PRO-MAL-035	3.5	3.8	7.6	1.5	13	0.132
PRO-MAL-040	4	4.4	8.8	1.7	14	0.181
PRO-MAL-045	4.5	4.9	9.8	1.9	16	0.261
PRO-MAL-050	5	5.5	11	2.1	18	0.357
PRO-MAL-060	6	6.6	13.2	2.5	21	0.586
PRO-MAL-065	6.5	7.2	14.4	2.7	23	0.755
PRO-MAL-070	7	7.8	15.6	2.9	25	0.953
PRO-MAL-080	8	8.8	17.6	3.3	28	1.37
PRO-MAL-090	9	9.9	19.8	3.7	32	1.98
PRO-MAL-100	10	10.9	21.8	4.1	35	2.64
PRO-MAL-110	11	12.1	24.2	4.5	39	3.58
PRO-MAL-120	12	13.2	26.4	4.9	42	4.58
PRO-MAL-130	13	14.2	28.4	5.4	46	5.97
PRO-MAL-140	14	15.3	30.6	5.8	49	7.35
PRO-MAL-160	16	17.5	35	6.7	56	11.1
PRO-MAL-180	18	19.6	39.2	7.6	63	15.9
PRO-MAL-200	20	21.7	43.4	8.4	70	21.7
PRO-MAL-220	22	24.3	48.6	9.2	77	29.2
PRO-MAL-240	24	26.4	52.8	10	84	37.6
PRO-MAL-260	26	28.5	57	10.9	91	48.1
PRO-MAL-280	28	31	62	11.7	98	60.3
PRO-MAL-300	30	33.1	66.2	12.5	105	73.9
PRO-MAL-320	32	35.2	70.4	13.4	112	89.7
PRO-MAL-340	34	37.8	75.6	14.2	119	108
PRO-MAL-360	36	39.8	79.6	15	126	128
PRO-MAL-380	38	41.9	83.8	15.8	133	149
PRO-MAL-400	40	44	88	16.6	140	173
PRO-MAL-420	42	46.2	92.4	17.5	147	202
PRO-MAL-440	44	48.4	96.8	18.3	154	231
PRO-MAL-460	46	50.6	101.2	19.2	161	256
PRO-MAL-480	48	52.8	105.6	20	168	301
PRO-MAL-500	50	55	110	20.8	175	340
PRO-MAL-520	52	57.2	114.4	21.6	182	381
PRO-MAL-540	54	59.4	118.8	22.5	189	412
PRO-MAL-560	56	61.6	123.2	23.3	196	477
PRO-MAL-580	58	63.8	127.6	24.2	203	520
PRO-MAL-600	60	66	132	25	210	588
PRO-MAL-620	62	66.5	133	25	217	N/A
PRO-MAL-640	64	68.5	137	27	224	650
PRO-MAL-660	66	70.5	141	27.9	231	700
PRO-MAL-700	70	74.5	149	28.8	245	825
PRO-MAL-760	76	79.5	158	30.1	268	N/A
PRO-MAL-780	78	83	166	32	273	1200

PRO-BSC ALUMINUM CONICAL FERRULES

They are designed to achieve a permanent joining of two wire ropes or to terminate with an eye the same wire by swaging on a hydraulic press.
Specific for these sleeves is that, after swaging, the excess wire remains covered under the sleeve, forming a tapered portion that allows handling the wire rope slings more easily when they are pulled back from under the handled load.



Model/ Features	Wire rope diametru (mm)	Dimensions (mm)		Net weight (kg/pc)
		L1	L2	
PRO-BSC-8	8	43	34	0.019
PRO-BSC-10	10	53	42	0.035
PRO-BSC-11	11	59	46.7	0.052
PRO-BSC-12	12	65	50.2	0.064
PRO-BSC-13	13	70	54.7	0.083
PRO-BSC-14	14	85	58.2	0.107
PRO-BSC-16	16	96	66.5	0.149
PRO-BSC-18	18	96	75	0.207
PRO-BSC-20	20	106	83	0.290
PRO-BSC-22	22	116	91	0.398
PRO-BSC-24	24	126	99.5	0.497
PRO-BSC-26	26	136	107.2	0.664
PRO-BSC-28	28	147	115.5	N/A
PRO-BSC-30	30	158	125	N/A
PRO-BSC-32	32	168	132	N/A
PRO-BSC-34	34	179	140	N/A
PRO-BSC-36	36	190	148	N/A

PRO-WRG WIRE ROPE GRIP

This device is used for gripping and pulling of wire ropes.
It is attached on pulled wire rope, thus allowing a safe grip.

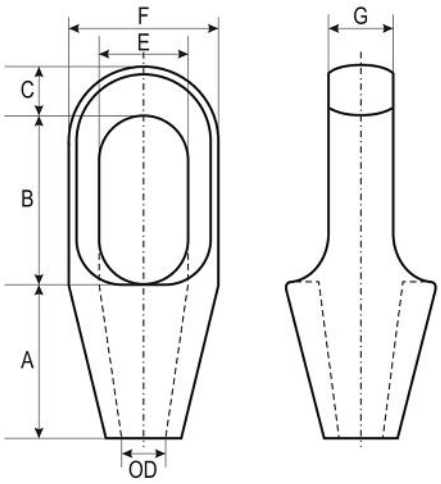
Model/ Features	WLL (t)	Wire rope diameter (mm)	Net weight (kg)
PRO-WRG-05	0.5	1 - 10	0.4
PRO-WRG-10	1	2.6 - 15	0.7
PRO-WRG-20	2	4 - 22	1.3
PRO-WRG-30	3	16 - 32	2.4

The wire rope terminations that require fitting by using the synthetic resin are very safe and especially effective, permitting long term exploitation.

When they were proof load tested, these kinds of sockets have reached a higher breaking force level compared to other kind of terminations (swaged eyes, braided eyes, wire clips terminated eyes).

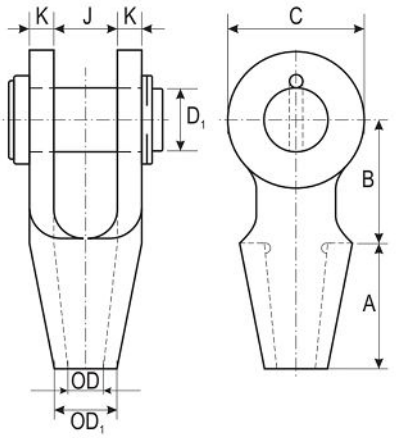
Therefore, they are commonly used for lifting jobs that subject the wire rope ends to continuous and elevated stress level, like harbor cranes or heavy loads excavators.

PRO-CSS SOCKET TYPE *CSS* (CLOSED)



Model/ Features	Wire rope diameter		MBL (t)	Dimensions (mm)							Weight (kg)
	mm	inch		A	B	C	D	E	F	G	
PRO-CSS-6-7	6 - 7	1/4	3	51	46	11	8	20	36.5	13	0.3
PRO-CSS-8-10	8 - 10	5/16 - 3/8	6	51	52.5	14	11	24	43	16	0.4
PRO-CSS-11-13	11 - 13	7/16 - 1/2	12	63.5	59	17.5	14	28.5	51	22	0.8
PRO-CSS-14-16	14 - 16	9/16 - 5/8	24	76.5	65	20.5	17.5	35	66.5	25.4	1.4
PRO-CSS-18-19	18 - 19	3/4	32	90	75	26	21	42	75	31	2.1
PRO-CSS-20-22	20 - 22	7/8	45	101	90	33	24	47	92	38	4.0
PRO-CSS-23-26	23 - 26	1	70	114	103	36	28	57	104	44	6.5
PRO-CSS-27-30	27 - 30	1 1/8	100	127	116	39	32	63	114	51	7.5
PRO-CSS-31-36	31 - 36	1 1/4 - 1 3/8	125	139	130	43	38	70	127	57	11
PRO-CSS-37-39	37 - 39	1 1/2	150	152	155	51	41	79	136	63	13
PRO-CSS-40-42	40 - 42	1 5/8	200	165	171	54	44	82	146	70	17
PRO-CSS-43-48	43 - 48	1 3/4 - 1 7/8	260	190	198	55	51	89	171	76	24
PRO-CSS-49-54	49 - 54	2 - 2 1/8	280	216	224	62	57	96	193	82	36.5
PRO-CSS-55-60	55 - 60	2 1/4 - 2 3/8	360	228	247	73	63	108	216	92	50
PRO-CSS-61-68	61 - 68	2 1/2 - 2 5/8	450	248	270	79	73	140	241	102	65
PRO-CSS-69-75	69 - 75	2 3/4 - 2 7/8	480	279	286	79	79	159	273	124	93
PRO-CSS-76-80	76 - 80	3 - 3 1/8	520	305	298	83	86	171	292	133	110
PRO-CSS-81-86	81 - 86	3 1/4 - 3 3/8	600	330	311	102	92	184	311	146	142
PRO-CSS-87-93	87 - 93	3 1/2 - 3 5/8	700	356	330	102	99	197	330	159	170
PRO-CSS-94-102	94 - 102	3 3/4 - 4	875	381	356	108	108	216	362	178	225
PRO-CSS-108-115	108 - 115	4 1/2	1100	450	425	120	125	235	405	190	340
PRO-CSS-122-130	122 - 130	5	1250	500	475	120	138	260	515	210	579
PRO-CSS-140-155	140 - 155	5 1/2 - 6	1400	580	550	150	160	300	510	250	654
PRO-CSS-158-167	158 - 167	6 1/2	1600	675	600	175	175	325	600	300	1063

PRO-OSS SOCKET TYPE OSS (OPENED)

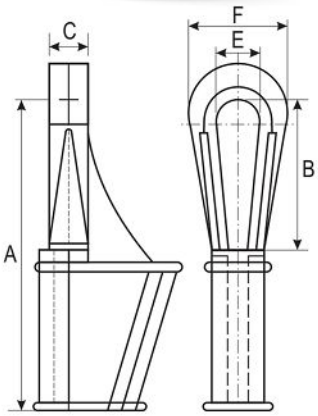


Model/ Features	Wire rope diameter		MBL (t)	Dimensions (mm)							Weight (kg)
	mm	inch		A	B	C	D	E	F	G	
PRO-OSS-6-7	6 - 7	1/4	3	52	39.5	33.5	8	17.5	17.5	8	0.4
PRO-OSS-8-10	8 - 10	5/16 - 3/8	6	58	44.5	39.5	11	20.5	20.5	11	0.6
PRO-OSS-11-13	11 - 13	7/16 - 1/2	12	63.5	51	49	14	25.5	25.5	12	1.3
PRO-OSS-14-16	14 - 16	9/16 - 5/8	24	76.5	63.5	62	17.5	30	32	14	1.9
PRO-OSS-17-19	17 - 19	3/4	32	89	76	80	21	35	38	16	3.2
PRO-OSS-20-22	20 - 22	7/8	45	101	89	90	24	41	44	19	4.7
PRO-OSS-23-26	23 - 26	1	70	114	101	120	28	51	51	22	7.5
PRO-OSS-27-30	27 - 30	1 1/8	100	127	114	130	32	57	57	25	11.6
PRO-OSS-31-36	31 - 36	1 1/4 - 1 3/8	125	139	127	144	38	63	63	28	16.8
PRO-OSS-37-39	37 - 39	1 1/2	150	152	162	160	41	70	76	30	24.0
PRO-OSS-40-42	40 - 42	1 5/8	200	165	165	176	44	76	76	33	27.5
PRO-OSS-43-48	43 - 48	1 3/4 - 1 7/8	260	190	178	200	51	89	89	39	40.5
PRO-OSS-49-54	49 - 54	2 - 2 1/8	280	216	228	216	57	95	101	46	60.5
PRO-OSS-55-60	55 - 60	2 1/4 - 2 3/8	360	228	250	236	63	108	113	53	90
PRO-OSS-61-68	61 - 68	2 1/2 - 2 5/8	450	248	273	264	73	121	127	60	122
PRO-OSS-69-75	69 - 75	2 3/4 - 2 7/8	480	279	279	276	79	127	133	73	157
PRO-OSS-76-80	76 - 80	3 - 3 1/8	520	305	286	284	86	133	146	76	195
PRO-OSS-81-86	81 - 86	3 1/4 - 3 3/8	600	330	298	296	92	140	159	79	221
PRO-OSS-87-93	87 - 93	3 1/2 - 3 5/8	700	356	318	340	99	152	171	83	281
PRO-OSS-94-102	94 - 102	3 3/4 - 4	875	381	343	362	108	178	191	89	397
PRO-OSS-108-115	108 - 115	4 1/2	1100	460	480	440	125	190	208	101	570
PRO-OSS-122-130	122 - 130	5	1250	500	500	560	138	250	210	120	980
PRO-OSS-140-155	140 - 155	5 1/2 - 6	1400	580	500	600	160	275	230	140	1295
PRO-OSS-158-167	158 - 167	6 1/2	1600	675	600	650	175	290	230	175	1950

The wire rope sockets that are fitted by using an inside wedge are the easiest to fit of all this kind of wire rope terminations. They are fitted by rolling the wire rope's end around the fixing wedge and then clipping the loose end of the wire rope with a wire clip.
These sockets are most commonly used for mobile cranes.

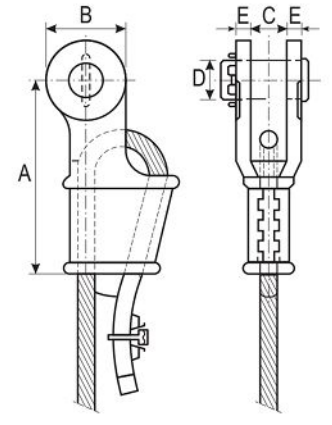
PRO-CWS SOCKET TYPE *CWS* (CLOSED)

Model/ Features	Wire rope diameter		MBL (t)	Dimensions (mm)					Weight (kg)
	mm	inch		A	B	C	E	F	
PRO-CWS-17-19	17 - 19	3/4	32	220	100	34	40	90	7
PRO-CWS-20-22	20 - 22	7/8	45	225	115	42	47	110	9
PRO-CWS-23-26	23 - 26	1	70	290	130	50	55	125	14
PRO-CWS-27-29	27 - 29	1 1/8	100	325	145	60	70	152	22
PRO-CWS-30-33	30 - 33	1 1/4	125	360	160	68	75	165	30
PRO-CWS-34-36	34 - 36	1 3/8	125	400	180	68	75	165	38
PRO-CWS-37-40	37 - 40	1 1/2	150	500	240	72	80	185	49
PRO-CWS-41-43	41 - 43	1 5/8	200	600	310	80	90	210	65
PRO-CWS-44-48	44 - 48	1 3/4 - 1 7/8	260	640	325	90	100	225	100
PRO-CWS-49-53	49 - 53	2	280	720	375	100	110	245	150
PRO-CWS-56	56	2 1/4	360	775	400	110	120	265	175
PRO-CWS-63	63	2 1/2	450	900	470	120	130	290	230
PRO-CWS-75	75	3	520	1000	500	130	150	330	300
PRO-CWS-75	75	3	520	1125	550	135	165	360	425



PRO-OWS SOCKET TYPE *OWS* (OPENED)

Model/ Features	Wire rope diameter		MBL (t)	Dimensions (mm)					Weight (kg)
	mm	inch		A	B	C	D	E	
PRO-OWS-9-10	9 - 10	3/8	10	145	47	20.5	20.6	11	1.6
PRO-OWS-11-13	11 - 13	1/2	16	146	57	25	25	12	2.1
PRO-OWS-14-16	14 - 16	5/8	25	176	70	31	30	15	3.7
PRO-OWS-17-19	17 - 19	3/4	32	212	80	38	35	16	5.8
PRO-OWS-20-22	20 - 22	7/8	45	240	96	44	41	19	9.0
PRO-OWS-23-26	23 - 26	1	70	274	114	51	51	22	14.8
PRO-OWS-27-29	27 - 29	1 1/8	100	310	130	57	57	25	22.0
PRO-OWS-30-33	30 - 33	1 1/4	125	350	146	63	64	28	28.3
PRO-OWS-34-36	34 - 36	1 3/8	125	400	148	69	64	28	38.0
PRO-OWS-37-40	37 - 40	1 1/2	150	450	160	76	70	30	51.0
PRO-OWS-41-43	41 - 43	1 5/8	200	500	174	76	76	33	60.7
PRO-OWS-44-48	44 - 48	1 3/4 - 1 7/8	260	550	200	89	89	39	94.5
PRO-OWS-49-53	49 - 53	2	280	650	200	101	95	46	120.6
PRO-OWS-56	56	2 1/4	360	660	250	114	108	54	172.3
PRO-OWS-63	63	2 1/2	450	840	270	127	121	60	271
PRO-OWS-75	75	3	520	1000	300	146	133	76	437

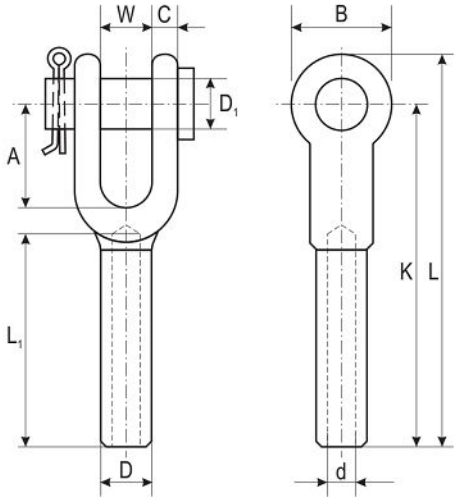


PRO-FOSS SOCKET TYPE *FOSS*

The wire rope terminations that require swaging on a hydraulic press are designed as a hollow shank where the wire rope is going to be fitted into and swaged afterwards. The shank presents a reduced machined area at the bottom end which is equal to the proper diameter obtained after swaging.

The open swage sockets are forged from special quality carbon steel bar; it's hardness is obtained by spheroid annealing.
When properly applied, the open swage sockets have an efficiency rating (fabrication) of 100%, based on the standard manufacturer's given strength for the wire rope.

These sockets are recommended for use with 6x19S / 6x36WS and only with other metallic core wire rope construction types (it is not recommended to be used with fiber core wire ropes).

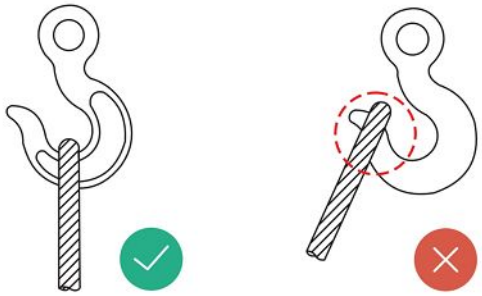


Model/ Features	Wire rope diametru (mm)	Dimensions (mm)										Maximum diameter after clamping (mm)	Weight (kg)
		A	B	C	D	D1	d	K	L	L1	W		
PRO-FOSS-6-7	6 - 7	38	35	9	13	18	7	102	122	55	17	12	0.2
PRO-FOSS-8	8	45	42	12	20	21	9	135	159	80	20	18	0.7
PRO-FOSS-9-10	9 - 10	45	42	12	20	21	10	135	159	80	20	18	0.6
PRO-FOSS-11-12	11 - 12	50	50	14	25	25	12	174	199	110	25	23	1.2
PRO-FOSS-13	13	50	50	14	25	25	14	174	199	110	25	23	0.9
PRO-FOSS-14-15	14 - 15	70	60	17	32	30	16	210	240	135	31	30	2.1
PRO-FOSS-16	16	57	60	17	32	30	17	210	240	135	31	30	2.1
PRO-FOSS-18-20	18 - 20	70	70	20	39	35	21	256	295	161	38	36	3.8
PRO-FOSS-22-23	22 - 23	82	80	24	43	41	24	300	340	189	45	40	5.4
PRO-FOSS-24-25	24 - 25	98	100	26	50	51	27	345	395	216	50	46	8.8
PRO-FOSS-28	28	108	103	30	57	57	30	383	442	238	57	52	12.6
PRO-FOSS-32	32	120	113	34	64	64	34	419	484	269	63	59	17.2
PRO-FOSS-35-36	35 - 36	132	127	35	71	64	37	463	534	297	64	65	20.8
PRO-FOSS-38	38	146	140	43	78	70	41	502	581	315	76	72	26.5
PRO-FOSS-44-45	44 - 45	171	170	54	86	89	47	584	674	378	89	78	40.3
PRO-FOSS-48-51	48 - 51	203	203	60	100	95	54	682	798	431	101	91	66.4

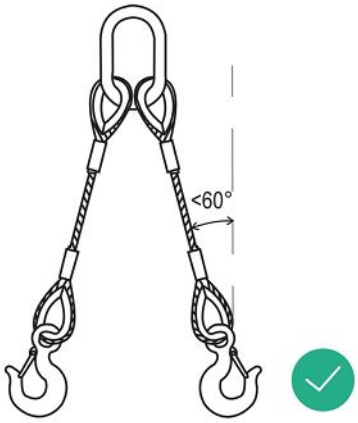
USER GUIDE FOR WIRE ROPE SLINGS

1. Before using the sling, identify its W.L.L. and use only the appropriate slings to prevent overloading.

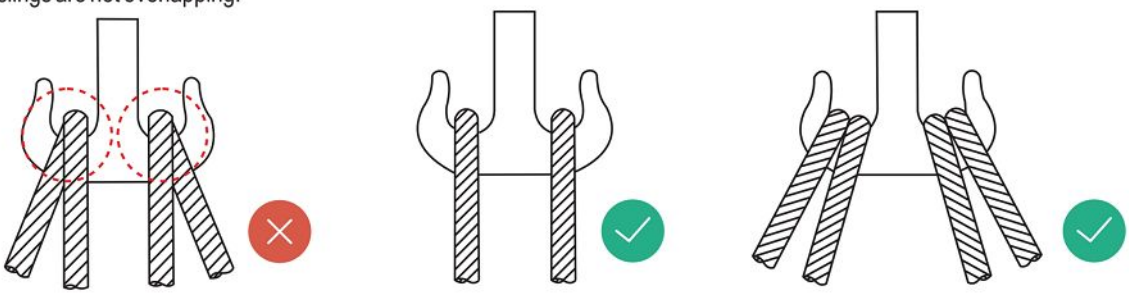
2. The wire rope eye should be placed on the center of the hook, hanging it by the tip of the hook is forbidden.



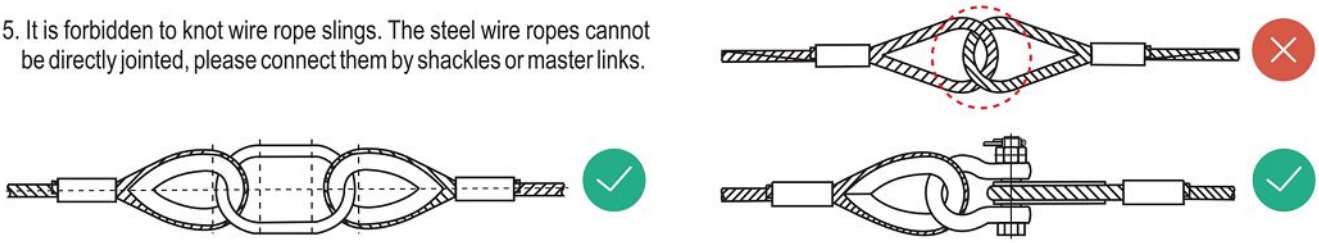
3. When lifting with a multi-leg set, avoid having lifting angles over 60°.

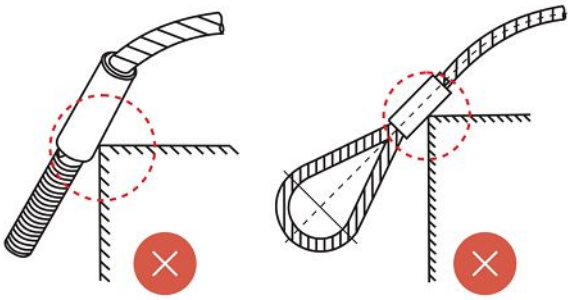


4. When two wire rope slings are used on a double hook make sure that each is placed separately on the load centers of the hook. When using four slings on a double hook make sure that the slings are not overlapping.



5. It is forbidden to knot wire rope slings. The steel wire ropes cannot be directly jointed, please connect them by shackles or master links.



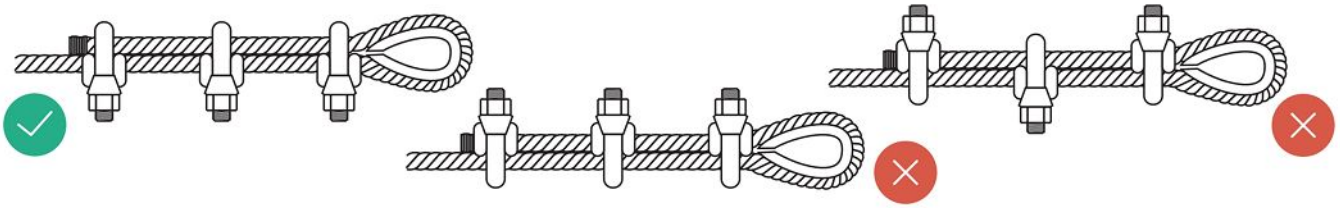


6. If during the use of the wire rope slings they are producing unusual noises, lifting should be safely stopped immediately and have the slings inspected by an authorized person.

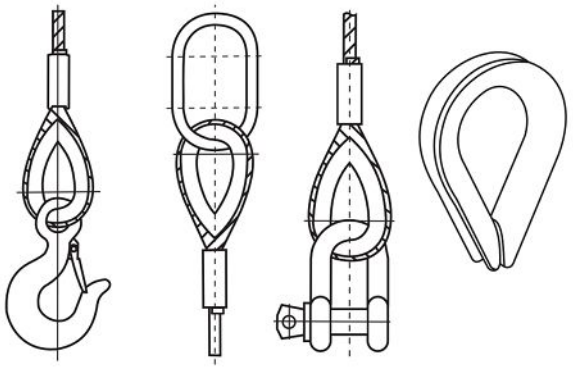
7. Keep away from the wire rope slings when lifting loads. It is strictly forbidden for people to stand under the hanging loads.

8. It is forbidden during lifting to use unprotected wire ropes on sharp / cutting edges or abrasive surfaces.

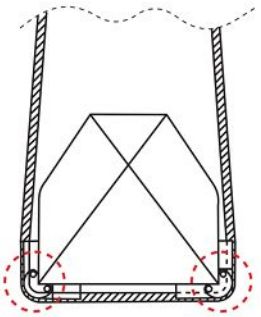
9. Pay attention to the wire clips positioning. If improperly positioned, the wire rope sling may become undone.



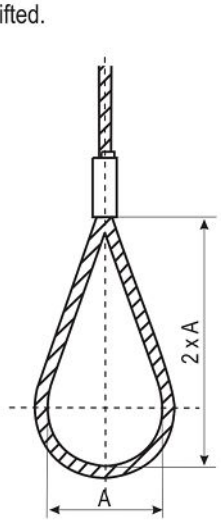
1. Ways to use thimbles to protect the wire rope slings.

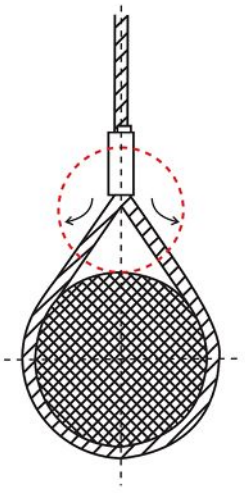


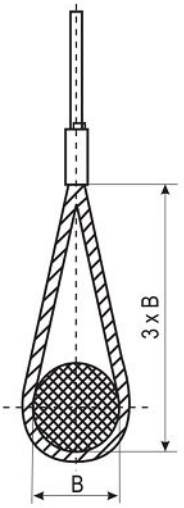
2. When using wire rope slings over sharp corners or abrasive edges, it is advisable to protect them with brackets in order to prevent an incidental cutting of the sling.



3. The standard length of the eye is twice as large as is width. If the customer needs it, larger eyes can be made in order to achieve a smaller opening angle. In this case, the opening of the eye is not going to stress the aluminum ferrule, a stress that may lead to the failure of the ferrule.
For these situations it is advisable to make the eye length 3 times longer than the width of the load to be lifted.

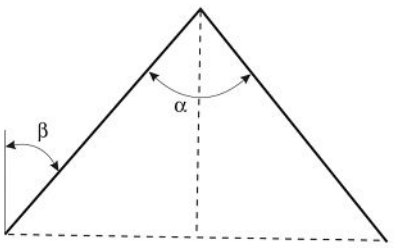


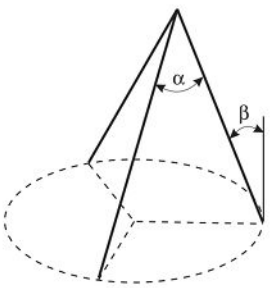


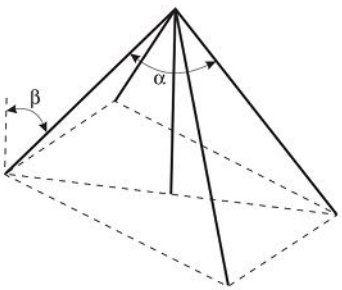


4. Prior to the lifting, the wire rope slings should be tested to be sure they align with the center of mass of the load (testing is performed at a maximum height of 200 mm between the load and the ground).

5. Ways to check the lifting angle in order to prevent overloading:



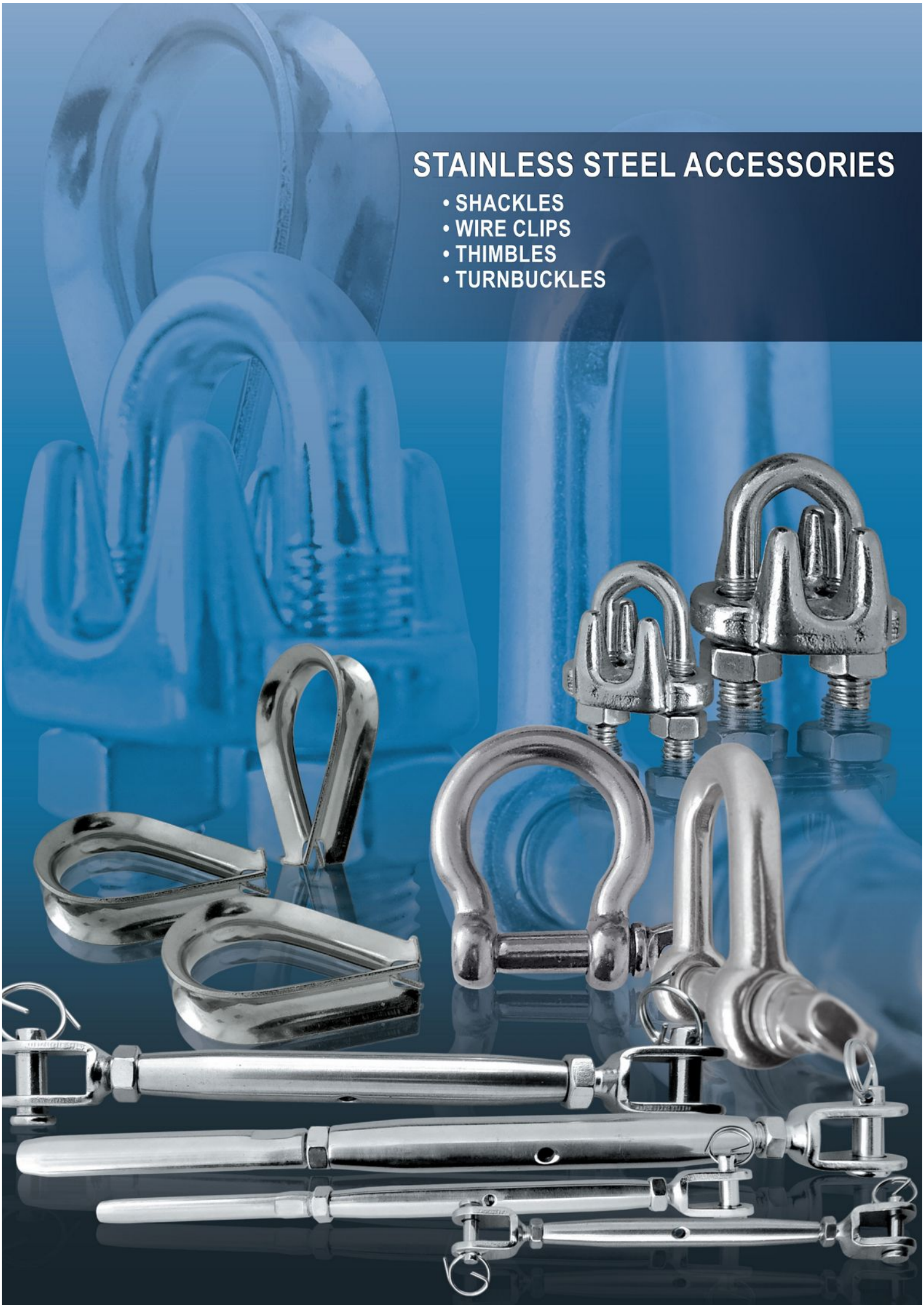




Opening angle α	Vertical angle β	Load factor	
		2 legs	4 legs
α ≤ 90°	β ≤ 45°	1.4	2.1
90° < α ≤ 120°	45° < β ≤ 60°	1	1.5

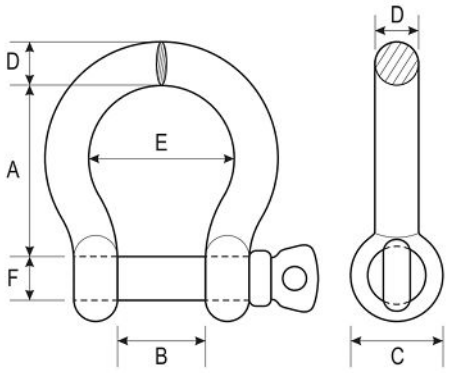
STAINLESS STEEL ACCESSORIES

- SHACKLES
- WIRE CLIPS
- THIMBLES
- TURNBUCKLES



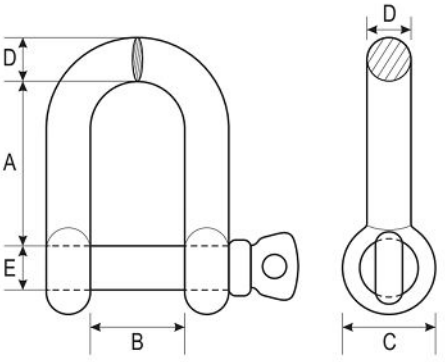
Stainless steel lifting and pulling accessories made from AISI 316 steel, for specific jobs with higher standards for corrosion resistance, hygiene or esthetic requirements: pharmaceutical industry, food and fishing industries, water and sewage plants, design and construction, boats, marina's and agreement.
Use it with stainless steel wire ropes or chains.

PRO-INOX-CT.01 STAINLESS STEEL OMEGA (ANCHOR) SHACKLE



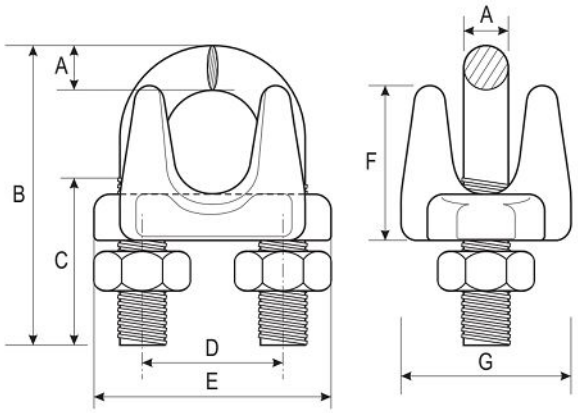
Model/ Features	WLL (t)	Wire rope diameter (mm)	Dimensions (mm)						Net weight (kg/pc)
			A	B	C	D	E	F	
PRO-INOX-CT.01-4	0.055	4	16	8	8	4	13	4	0.009
PRO-INOX-CT.01-6	0.1	6	24	13	11	6	19	6	0.03
PRO-INOX-CT.01-8	0.2	8	32	16	16	8	26	8	0.065
PRO-INOX-CT.01-10	0.32	10	40	20	20	10	33	11	0.12
PRO-INOX-CT.01-12	0.52	12	49	25	24	12	41	12	0.25
PRO-INOX-CT.01-16	0.8	16	60	34	32	16	49	16	0.52
PRO-INOX-CT.01-20	1.1	20	78	40	40	20	64	20	0.93

PRO-INOX-CT.02 STAINLESS STEEL CHAIN (DEE) SHACKLE



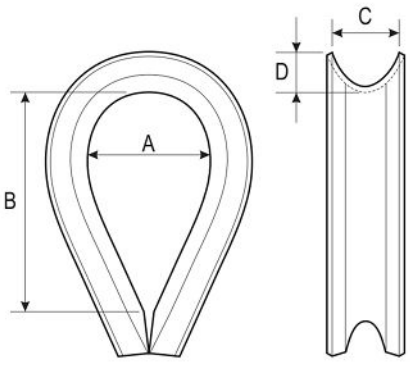
Model/ Features	WLL (t)	Wire rope diameter (mm)	Dimensions (mm)					Net weight (kg/pc)
			A	B	C	D	E	
PRO-INOX-CT.02-4	0.055	4	16	8	8	4	4	0.008
PRO-INOX-CT.02-6	0.1	6	24	12	12	6	6	0.027
PRO-INOX-CT.02-8	0.2	8	32	16	17	8	8	0.064
PRO-INOX-CT.02-10	0.32	10	41	20	20	10	11	0.12
PRO-INOX-CT.02-12	0.52	12	47	25	24	12	13	0.21
PRO-INOX-CT.02-16	0.8	16	65	34	31	16	16	0.50
PRO-INOX-CT.02-20	1.1	20	73	40	40	19.5	20	0.88

PRO-INOX-BRD STAINLESS STEEL WIRE CLIPS



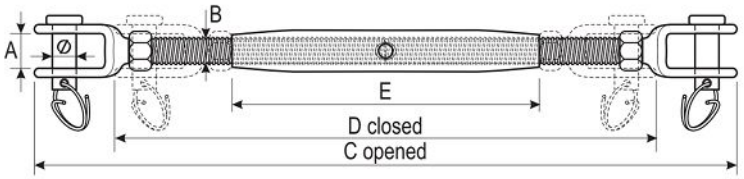
Model/ Features	Wire rope diameter (mm)	Dimensions (mm)							Net weight (kg/100pcs)
		A	B	C	D	E	F	G	
PRO-INOX-BRD-3	3	3	25	13	8	16	10.5	14	0.345
PRO-INOX-BRD-4	4	4	25	14	10	18.5	12.5	16.5	0.45
PRO-INOX-BRD-6	6	6	36	17	15.5	29	15	24	0.46
PRO-INOX-BRD-8	8	8	42	20	17.5	33.5	20	26	0.69
PRO-INOX-BRD-10	10	10	51	26	22	42	23.5	32.5	1.11
PRO-INOX-BRD-12	12	12	62.5	34	27	50	26.5	37	1.15

PRO-INOX-RO STAINLESS STEEL THIMBLES



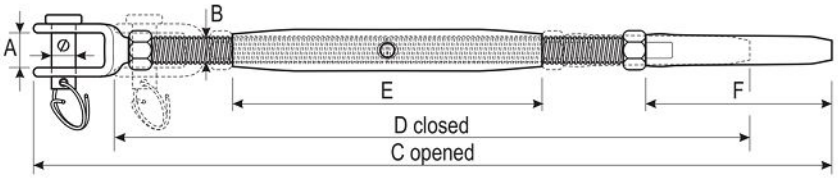
Model/ Features	Wire rope diameter (mm)	Dimensions (mm)				Net weight (kg/100pcs)
		A	B	C	D	
PRO-INOX-RO-3	3	10	15	4.5	2.5	0.38
PRO-INOX-RO-4	4	11	19	4.5	3	0.53
PRO-INOX-RO-6	6	15	28	7	4	0.96
PRO-INOX-RO-8	8	19.5	32	9.5	4.5	2.05
PRO-INOX-RO-10	10	24	43	11	5.5	3.30
PRO-INOX-RO-12	12	26.5	45	14.5	7	5.50

PRO-INOX-FF STAINLESS STEEL JAW-JAW TURNBUCKLE



Model/ Features	WLL (t)	Wire rope diameter (mm)	Dimensions (mm)						Net weight (kg/100pcs)
			A	B	C deschis	D închis	E	Ø	
PRO-INOX-FF-4	0.16	4	6.5	4	172	117	70	4	3.2
PRO-INOX-FF-6	0.35	6	8	6	235	159	95	6	8.7
PRO-INOX-FF-8	0.55	8	11	8	260	180	105	8	15.9
PRO-INOX-FF-10	0.865	10	12.5	10	310	213	125	9	28.0
PRO-INOX-FF-12	1.25	12	14	12	390	268	150	12	52.0

PRO-INOX-FS STAINLESS STEEL JAW-STUD TURNBUCKLE



Model/ Features	WLL (t)	Wire rope diameter (mm)	Dimensions (mm)							Net weight (kg/100pcs)
			A	B	C deschis	D închis	E	F	Ø	
PRO-INOX-FS-M6x3	0.25	3	8	6	260	180	95	51	6	7.6
PRO-INOX-FS-M6x4	0.3	4	8	6	270	195	95	62	6	8.3
PRO-INOX-FS-M10x6	0.55	6	13	9	355	262	125	85	10	40.8
PRO-INOX-FS-M12x8	1	8	15	11	445	315	150	100	12	54.2

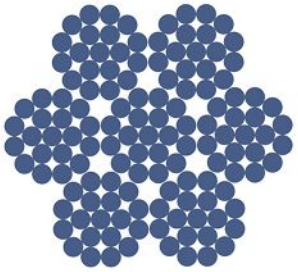
Stainless steel turnbuckles are manufactured from AISI 316 type stainless steel and have a safety factor of 4.

STAINLESS STEEL WIRE ROPES

We can provide, on demand, AISI 316 or AISI 304/302 stainless steel wire ropes, wire tensile class of 1570, for ordinary lifting / pulling jobs, required in various industries or tasks which cannot allow ordinary lifting wire ropes due to high corrosion conditions.

Stainless steel wire rope have lower work loads limits for the same diameter than ordinary lifting wire ropes but they are accepted for lifting or pulling in high humidity environments (water and sewage plants, outdoor constructions, food industry, agreement and marina's) and also in all domains with hygiene and cleaning requirements (food and fish industries, hospitals, pharmaceutical and medical devices industries).

7x7 stainless steel



7x19 stainless steel

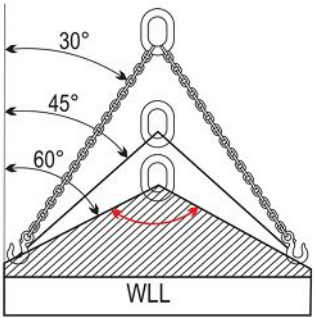
Contact us for other stainless steel wire rope's constructions.

CHAINS AND ACCESSORIES FOR CHAINS, WIRE ROPES AND WEBBING SLINGS

- GRADE 80 LOAD CHAINS
- GRADE 80 ACCESSORIES
  - MASTER LINKS
  - CONNECTING LINKS
  - HOOKS
  - LASHING AND RATCHET LOAD BINDERS
- LIFTING EYES
- SHACKLES
- GRADE 100 LOAD CHAINS
- GRADE 100 ACCESSORIES
  - MASTER LINKS
  - CONNECTING LINKS
  - HOOKS
  - RATCHET LOAD BINDERS

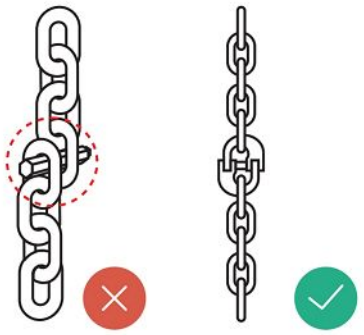
LOAD CHAINS USER GUIDE

Prior to using chains consider the following:

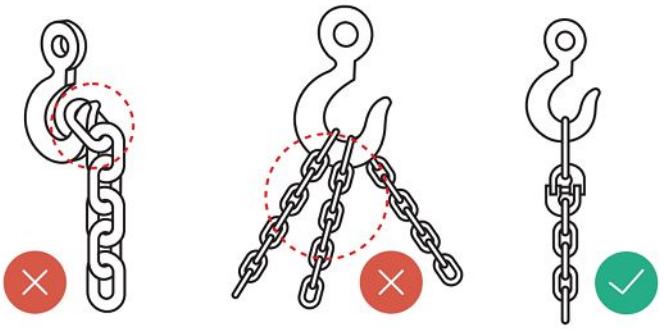


1. Before using the chains you should know the maximum working load limit (W.L.L.) and you must perform a thorough visual inspection. Overloading is forbidden.
2. The opening angle can dramatically influence the W.L.L. when lifting. The angle shown in dashed area of the picture should not exceed 120°, otherwise the tension within each leg will exceed the rated W.L.L. of the respective leg of the system.

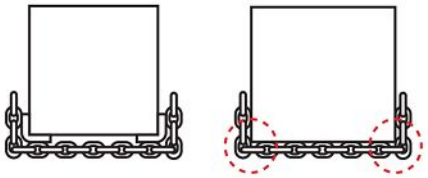
3. The connection shown below is not allowed.



4. The lifting chain should not be hung directly by or twisted around the lifting hook of the crane.



5. When lifting an object without lugs, is advisable to use adequate protection to avoid damaging it.



6. Take in consideration the temperature influence on rated loads:

Temperatures domain	W.L.L. influenced by temperatures domain
-40 °C - +200°C	100% W.L.L.
+200 °C - +300°C	90% W.L.L.
+300 °C - +400°C	75% of W.L.L.
+400 °C & over	Not allowed. Should not be used.

7. The load center of crane's lifting hook should be in a straight line with the center of mass of the lifted object, to keep it balanced.
8. Twisting the chains during lifting is not allowed.
9. When lifting heavy objects upwards and downwards movements as well stopping will be performed slowly and steady. Be sure to maintain the center of mass of the lifted object balanced and by doing so avoid altering the working load limit. Keeping heavy loads hanging by the chains for a long time is not recommended.
10. A chain sling system with one or more legs can be used as a choker sling. If the lifted object is cylindrical shaped such as a tube or a pipe, the chains can be wrapped around it one or more times
11. Lifting chains must be handled and positioned with care.
12. The chain slings should be cleaned and visually checked after use. They should be stored on shelves in dry and well aired places.
13. Never pull the chain slings sideways when lifting .

Do NOT use the chains if:

1. If the diameter of the chain link has decreased by more than 10% of initial thickness.

2. If chain link width link has decreased by 3% of its initial width, this means that the link has elongated by at least 5%.

3. If one of the chain links shows cracks.

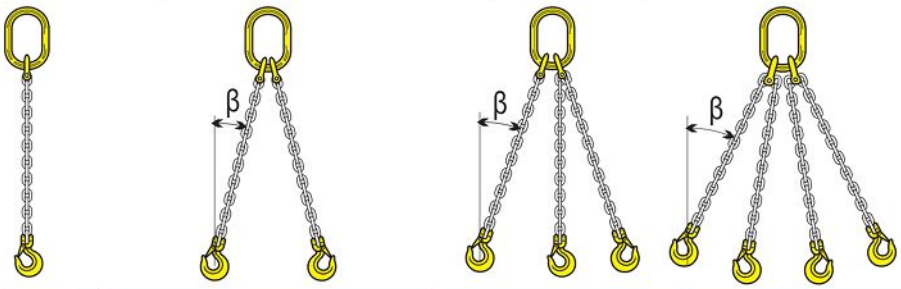
4. If the chain links are distorted due to exposure to high temperature.
5. If the chains shows abrasions due to prior uses.

LOAD CHAINS AND LIFTING SETS

Chain lifting systems are the most suitable systems for handling various loads in hard working conditions and many times they are preferred over wire rope sling systems. They are resistant to cutting and abrasion. Their rated lifting capacities are maintained at high working temperatures (up to 200°C), without decreasing. However, if used above this temperature, the lifting capacity is incrementally decreasing. Being manufactured of high quality steel alloy, the lifting chain systems are usually made from Grade 80 steel, which is considered *de facto* standard in industry. Grade 100 and even 120 chains are starting to be more widely used lately, being lighter than Grade 80 for the same chain link size and in addition offering higher load limits for the same chain diameter.

Another advantage of the chain lifting systems is the large variety of systems that can be configured and also the wide range of accessories which can be fitted to these systems, in order to create the most suitable tool for every user's necessity.

Note: For 2, 3 or 4 legs sets, the working load limits from below table are based on equal length of the legs and symmetrical positioning of legs.
Working loads limits calculated according to EN 818-4 standard specs.



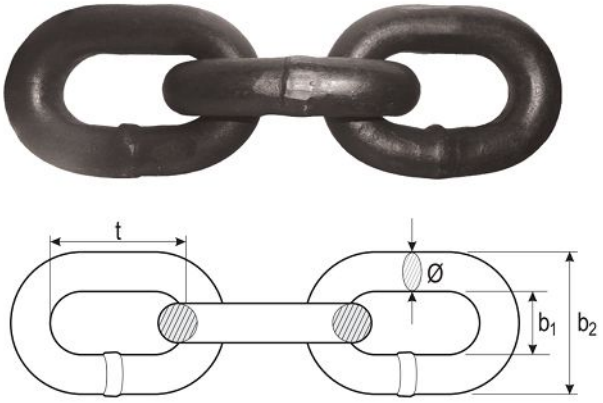
System (set) type	1 leg set	2 legs set		3 or 4 legs set	
Vertical angle (degrees)	β = 0°	0° < β < 45°	45° < β < 60°	0° < β < 45°	45° < β < 60°
Load factor	1	1.4	1	2.1	1.5
Chain diameter (mm)	Working load limit (W.L.L.) (t)				
4	0.5	0.7	0.5	1.05	0.75
5	0.8	1.12	0.8	1.68	1.2
6	1.12	1.6	1.12	2.36	1.7
7	1.5	2.12	1.5	3.15	2.24
8	2	2.8	2	4.25	3
10	3.15	4.25	3.15	6.7	4.75
13	5.3	7.5	5.3	11.2	8
16	8	11.2	8	17	11.8
18	10	14	10	21	15
19	11.2	15.7	11.2	23.5	16.8
20	12.5	17	12.5	26.5	19
22	15	21.2	15	31.5	22.4
26	21.2	30	21.2	45	31.5
32	31.5	45	31.5	67	47.5

Chain diameter (mm)	1 leg set PRO-OS	2 legs set PRO-OS	3 or 4 legs set PRO-OD	PRO-KL	PRO-KLO	PRO-KKS
4	PRO-OS-01.60	PRO-OS-01.60	PRO-OD-02.36	PRO-KL-06.06	PRO-KLO-06.06	PRO-KKS-06.06
5	PRO-OS-01.60	PRO-OS-01.60	PRO-OD-02.36	PRO-KL-06.06	PRO-KLO-06.06	PRO-KKS-06.06
6	PRO-OS-01.60	PRO-OS-01.60	PRO-OD-02.36	PRO-KL-06.06	PRO-KLO-06.06	PRO-KKS-06.06
7	PRO-OS-01.60	PRO-OS-02.12	PRO-OD-03.15	PRO-KL-07.08	PRO-KLO-07.08	PRO-KKS-07.08
8	PRO-OS-02.12	PRO-OS-03.15	PRO-OD-04.25	PRO-KL-07.08	PRO-KLO-07.08	PRO-KKS-07.08
10	PRO-OS-03.15	PRO-OS-05.30	PRO-OD-06.70	PRO-KL-10.10	PRO-KLO-10.10	PRO-KKS-10.10
13	PRO-OS-05.30	PRO-OS-08.00	PRO-OD-11.20	PRO-KL-13.13	PRO-KLO-13.13	PRO-KKS-13.13
16	PRO-OS-08.00	PRO-OS-11.20	PRO-OD-17.00	PRO-KL-16.16	PRO-KLO-16.16	PRO-KKS-16.16
18	PRO-OS-11.20	PRO-OS-14.00	PRO-OD-21.20	PRO-KL-18.20	PRO-KLO-18.20	PRO-KKS-18.20
19	PRO-OS-11.20	PRO-OS-17.00	PRO-OD-26.50	PRO-KL-18.20	PRO-KLO-18.20	PRO-KKS-18.20
20	PRO-OS-14.00	PRO-OS-17.00	PRO-OD-26.50	PRO-KL-18.20	PRO-KLO-18.20	PRO-KKS-18.20
22	PRO-OS-17.00	PRO-OS-21.20	PRO-OD-31.50	PRO-KL-22.22	–	PRO-KKS-22.22
26	PRO-OS-21.20	PRO-OS-31.50	PRO-OD-45.00	PRO-KL-26.26	–	–
32	PRO-OS-31.50	PRO-OS-45.00	PRO-OD-63.00	PRO-KL-32.32	–	–

PRO-L LIFTING CHAIN GRADE 80

Manufactured according to EN 818-2 standard.
Safety (design) factor for Grade 80 lifting chain is 4:1.
All PROlift's® chains are batch marked.

Lifting chains are used for lifting and for lashing. They can be fitted with accessories like master links, connecting and shortening links, hooks, shackles etc., thus can form a wide range of lifting devices, depending of requirements.



Model/ Features	Lifting	MBL (t)	Dimensions (mm)				Lashing and Mooring	Weight (kg/m)
	WLL (t)		Ø	t	b1	b2	Lashing capacity - LC (kN)	
PRO-L-04.12	0.5	2	4	12	5.2	14.8	9.8	0.35
PRO-L-05.15	0.8	3.2	5	15	6.5	18.5	15.7	0.50
PRO-L-06.18	1.12	4.48	6	18	7.8	22.2	22	0.80
PRO-L-07.21	1.5	6	7	21	9.1	25.6	30	1.10
PRO-L-08.24	2	8	8	24	10.4	29.6	40	1.40
PRO-L-10.30	3.15	12.6	10	30	13	37	63	2.20
PRO-L-13.39	5.3	21.2	13	39	16.9	48.1	100	3.80
PRO-L-16.48	8	32	16	48	20.8	59.2	160	5.60
PRO-L-18.54	10	40	18	54	23.4	66.6	200	7.40
PRO-L-19.57	11.2	44.8	19	57	24.7	70.3	219.7	8.10
PRO-L-20.60	12.5	50	20	60	26	74	250	8.60
PRO-L-22.66	15	60	22	66	28.6	81.4	300	10.2
PRO-L-26.78	21.2	84.8	26	78	33.8	96.2	415.8	14.9
PRO-L-32.96	31.5	126	32	96	41.6	118	617.8	22.3





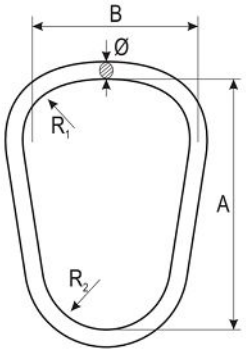


PRO-KS	PRO-KO	PRO-KRA	PRO-KOA	PRO-KT	PRO-KSL	PRO-KAL
PRO-KS-06.06	PRO-KO-00.50	PRO-KRA-01.12	PRO-KOA-01.12	PRO-KT-06.06	PRO-KSL-06.06	PRO-KAL-06.06
PRO-KS-06.06	PRO-KO-01.00	PRO-KRA-01.12	PRO-KOA-01.12	PRO-KT-06.06	PRO-KSL-06.06	PRO-KAL-06.06
PRO-KS-06.06	PRO-KO-01.00	PRO-KRA-01.12	PRO-KOA-01.12	PRO-KT-06.06	PRO-KSL-06.06	PRO-KAL-06.06
PRO-KS-07.08	PRO-KO-01.50	PRO-KRA-02.00	PRO-KOA-02.00	PRO-KT-06.06	PRO-KSL-07.08	PRO-KAL-07.08
PRO-KS-07.08	PRO-KO-02.00	PRO-KRA-02.00	PRO-KOA-02.00	PRO-KT-10.10	PRO-KSL-07.08	PRO-KAL-07.08
PRO-KS-10.10	PRO-KO-03.00	PRO-KRA-03.15	PRO-KOA-03.15	PRO-KT-10.10	PRO-KSL-10.10	PRO-KAL-10.10
PRO-KS-13.13	PRO-KO-05.00	PRO-KRA-05.30	PRO-KOA-05.30	PRO-KT-13.13	PRO-KSL-13.13	PRO-KAL-13.13
PRO-KS-16.16	PRO-KO-07.00	PRO-KRA-08.00	PRO-KOA-08.00	PRO-KT-16.16	PRO-KSL-16.16	PRO-KAL-16.16
PRO-KS-18.20	PRO-KO-11.00	PRO-KRA-12.50	PRO-KOA-12.50	PRO-KT-20.20	PRO-KSL-18.20	PRO-KAL-20.20
PRO-KS-18.20	PRO-KO-11.00	PRO-KRA-12.50	PRO-KOA-12.50	PRO-KT-20.20	PRO-KSL-18.20	PRO-KAL-20.20
PRO-KS-18.20	PRO-KO-15.00	PRO-KRA-12.50	PRO-KOA-12.50	PRO-KT-20.20	PRO-KSL-18.20	PRO-KAL-20.20
PRO-KS-22.22	PRO-KO-15.00	PRO-KRA-15.00	PRO-KOA-15.00	PRO-KT-22.22	PRO-KSL-22.22	PRO-KAL-22.22
PRO-KS-26.26	PRO-KO-22.00	PRO-KRA-21.20	PRO-KOA-21.20	–	PRO-KSL-26.26	PRO-KAL-26.26
PRO-KS-32.32	PRO-KO-30.00	PRO-KRA-31.50	PRO-KOA-31.50	–	PRO-KSL-32.32	PRO-KAL-32.32

All the PROlift® lifting accessories are batch numbered and marked accordingly.

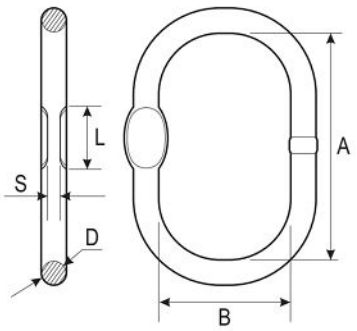
Manufacturing standard for the master links is EN 1677-4.

PRO-OM CRANE MASTER LINK (PEAR TYPE)



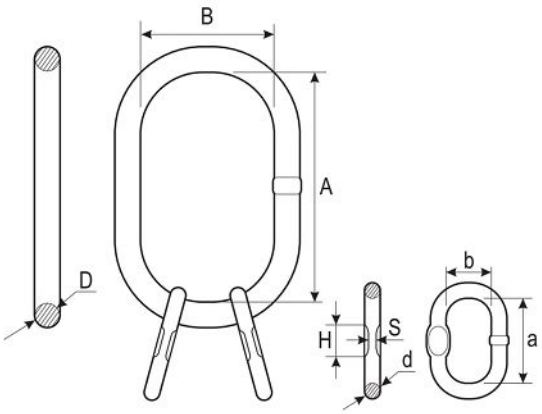
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	R1	R2	Ø	
PRO-OM-04.00	4	20	243	155	45	50	22	2.13
PRO-OM-05.00	5	25	240	156	52	60	25	3.2
PRO-OM-05.50	5.5	27.5	275	175	45	50	25	2.78
PRO-OM-08.00	8	40	320	215	70	70	32	6.15
PRO-OM-09.00	9	45	280	175	52	60	32	5.4
PRO-OM-15.00	15	75	280	175	52	60	38	7.77
PRO-OM-20.00	20	100	320	220	70	70	45	12.7

PRO-OS MASTER LINK



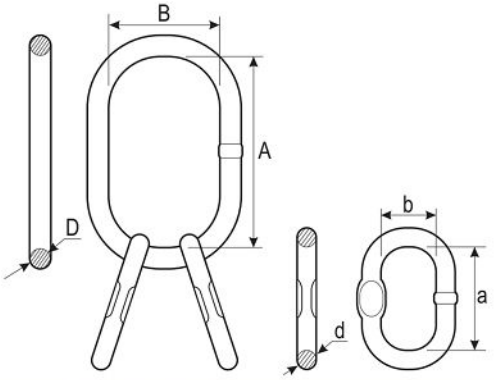
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	D	L	S	
PRO-OS-01.60	1.6	6.4	109	60	14.5	30	6.2	0.34
PRO-OS-02.12	2.12	8.48	111.5	58.5	16	31	7.5	0.54
PRO-OS-03.15	3.15	12.6	134	75	18	37	8	0.82
PRO-OS-05.30	5.3	21.2	160	88	22.5	43	11	1.5
PRO-OS-08.00	8	32	185	97	25	49.5	13	2.32
PRO-OS-11.20	11.2	44.8	200	110	32	45	19	3.95
PRO-OS-14.00	14	56	260	140	35	56.5	20	6.34
PRO-OS-17.00	17	68	307	165	40	60	22	8.96
PRO-OS-21.20	21.2	84.8	340	180	45	N/A	N/A	12.8
PRO-OS-31.50	31.5	126	350	190	50	N/A	N/A	16.55
PRO-OS-45.00	45	180	400	200	56	N/A	N/A	23.28
PRO-OS-56.00	56	224	350	200	55	N/A	N/A	20.54
PRO-OS-70.00	70	280	375	210	60	N/A	N/A	26.15
PRO-OS-90.00	90	360	450	250	70	N/A	N/A	42.45
PRO-OS-100.00	100	400	450	260	80	N/A	N/A	57.14

PRO-OD MASTER LINK ASSEMBLY



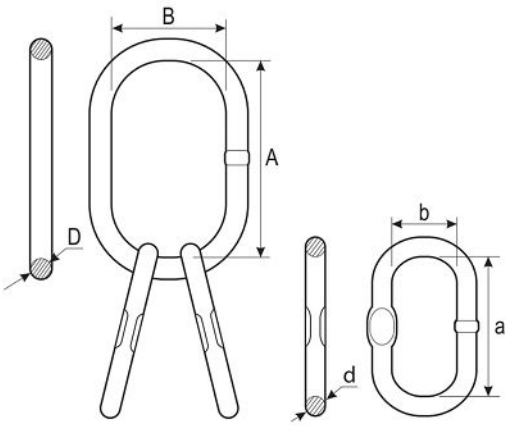
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)								Weight (kg/pc)
			A	B	D	H	a	b	d	s	
PRO-OD-02.36	2.36	9.44	135	73	19	25	53	26	14	7	1.18
PRO-OD-03.15	3.15	12.5	134	72	18	25	60	37	14	7	1.24
PRO-OD-04.25	4.25	17	160	88	22	25	70	33	16	9	2.2
PRO-OD-06.70	6.7	26.8	184	96	26	33	85	40	18	9	3.4
PRO-OD-11.20	11.2	44.8	200	107	32	41	118	50	22	13	6.1
PRO-OD-17.00	17	68	260	137	36	47	141.5	64	26	15.5	9.98
PRO-OD-21.20	21.2	84.8	340	180	47	60	180	100	32	22	18.9
PRO-OD-26.50	26.5	106	350	190	50	63	180	100	32	22	22.6
PRO-OD-31.50	31.5	126	350	190	50	56	180	100	36	23	25.2
PRO-OD-45.00	45	180	400	200	56	N/A	200	110	40	N/A	34.3
PRO-OD-50.00	50	200	430	220	63	N/A	200	110	45	N/A	47.1
PRO-OD-63.00	63	252	460	250	72	N/A	200	110	50	N/A	66.5

PRO-ODM MTC MASTER LINK ASSEMBLY



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	D	a	b	d	
PRO-ODM-02.30	2.3	11.5	149	90	20.5	60	39	14.5	1.45
PRO-ODM-04.25	4.25	21.25	154	95	22	71.5	44	16	2.24
PRO-ODM-06.70	6.7	33.5	204	121	29	90	54.5	20.5	4.88
PRO-ODM-11.20	11.2	56	240	140	34	140	65	25	8.66
PRO-ODM-17.00	17	85	250	150	40	180	100	32	14.9
PRO-ODM-28.00	28	134	300	200	50	190	110	38	26
PRO-ODM-31.50	31.5	157.5	350	200	55	190	110	40	32.2
PRO-ODM-45.00	45	225	350	200	60	200	110	45	39.9
PRO-ODM-67.00	67	335	450	250	70	200	120	50	63.9

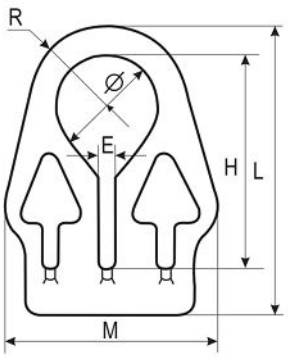
PRO-ODMT MT MASTER LINK ASSEMBLY



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	D	a	b	d	
PRO-ODMT-03.50	3.5	14	150	86	20	119	69	14	1.9
PRO-ODMT-05.00	5	20	158.5	95	22	140	82	18.5	3
PRO-ODMT-11.50	11.5	46	200	120	30	158	94	22	6.5
PRO-ODMT-17.00	17	68	250	150	41	200	122	30	14.9
PRO-ODMT-28.00	28	112	300	200	50	200	123	32	23.2
PRO-ODMT-35.00	35	140	310	205	55	245	150	39	32.8
PRO-ODMT-53.00	53	212	305	200	55.5	255	150	38.5	45.6
PRO-ODMT-70.00	70	280	450	250	71	290	160	50	70.2
PRO-ODMT-90.00	90	360	450	260	82.5	300	168	55	91.2

PRO-TRI MASTER LINK WITH SHORTENING ELEMENTS

Use this master link for chain shortening or use it to make a temporary 2 legs set without cutting the chain and using only one piece of chain.
Manufacturing standard for this product is EN 1677-1.

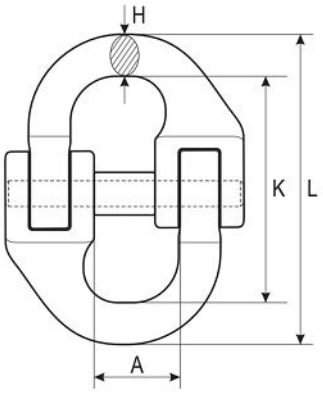


Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			E	H	L	M	R	Ø	
PRO-TRI-1.5	1.5	6	10	150	198	134	56.8	78.6	1.03
PRO-TRI-3.2	3.2	12.8	12	146.5	234	170	69.5	81	1.89

Connecting links are used to connect all chain accessories without *clevis* type fastening system. Manufactured according to EN 1677-1 standard specs.

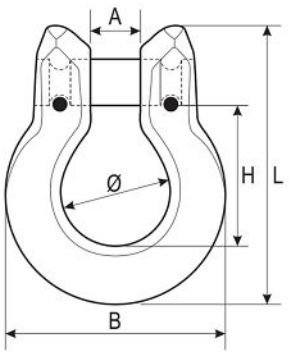
PRO-KL CONNECTING LINK (EUROPEAN TYPE)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)				Weight (kg/pc)
			A	H	K	L	
PRO-KL-06.06	1.12	4.48	16	8	42	57	0.08
PRO-KL-07.08	2	8	20.7	9.5	58	76.5	0.15
PRO-KL-10.10	3.15	12.6	28.5	12.5	71	95.3	0.3
PRO-KL-13.13	5.3	21.2	30	15.5	85.5	116	0.7
PRO-KL-16.16	8	32	36.5	20.5	104.5	144.5	1.1
PRO-KL-18.20	12.5	50	44	25	114.5	168	1.8
PRO-KL-22.22	15	60	50	27.5	138.5	193.5	3.2
PRO-KL-26.26	21.2	84.8	57.5	32	154.5	220	4.5
PRO-KL-32.32	31.5	126	68	38.5	200	281	9



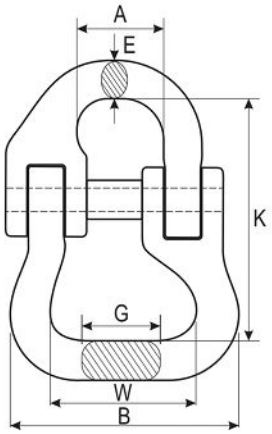
For this type of connecting link, the bolt and the pin are also available as spare parts.

PRO-KLO CLEVIS OMEGA CONNECTING LINK (US TYPE)



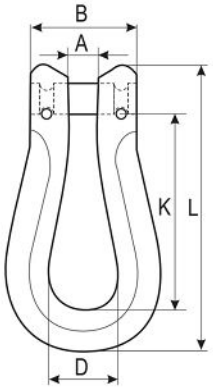
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	H	L	Ø	
PRO-KLO-06.06	1.12	4.48	8	41	25	52	20	0.12
PRO-KLO-07.08	2	8	11.5	51.5	34	67	23	0.22
PRO-KLO-10.10	3.15	12.6	13	62	40.5	87	30	0.36
PRO-KLO-13.13	5.3	21.2	15	80	52	109	40	0.71
PRO-KLO-16.16	8	32	21.5	98.5	61	128	47.5	1.3
PRO-KLO-18.20	12.5	50	23	116.7	73.5	152	57	2.2

PRO-KLC WEBBING SLINGS CONNECTING LINK



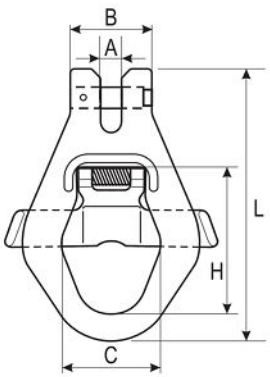
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	E	G	K	W	
PRO-KLC-06	1.12	4.48	15	59	7	18	56	36	0.2
PRO-KLC-08	2	8	22	61	9.5	23	62.5	36	0.3
PRO-KLC-10	3.15	12.6	25	66	12	30	81	36.5	0.68
PRO-KLC-13	5.3	21.2	31	87	16.5	35.5	94.5	52	1.47
PRO-KLC-16	8	32	38.5	107	21.8	44.5	118	63	2.3
PRO-KLC-20	12.5	50	44.5	127.3	23.8	53	134	78	3.3

PRO-KLL CLEVIS EGG LINK (US TYPE)



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	D	K	L	
PRO-KLL-06.06	1.12	4.48	8	28	20	47.5	75	0.12
PRO-KLL-07.08	2	8	10.5	32.5	25	59	92	0.17
PRO-KLL-10.10	3.15	12.6	13	45.5	30	78.5	123	0.43
PRO-KLL-13.13	5.3	21.2	15	57.5	46	94	154	1

PRO-KON CLEVIS SKID LINK WITH SIDE SAFETY LATCH



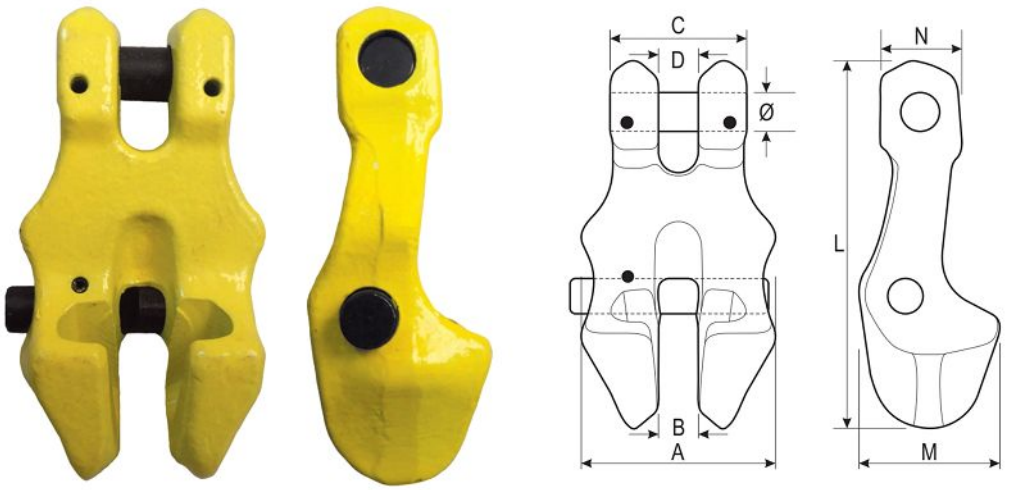
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	C	H	L	
PRO-KON-13.13	5.3	21.2	15.5	60	70	102	195	1.9

Shortening clutches are used for non-destructive chain length adjusting - in 1, 2, 3 or 4 legs sets.
Manufacturing standard is EN 1677-1.

PRO-KKS CLEVIS CHAIN CLUTCH

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	C	E	L	
PRO-KKS-06.06	1.12	4.48	8	8	33	30	73	0.17
PRO-KKS-07.08	2	8	10	9.5	45	36	101	0.41
PRO-KKS-10.10	3.15	12.6	14	14	55	49	137	0.97
PRO-KKS-13.13	5.3	21.2	16	16	75	59	175	2.01
PRO-KKS-16.16	8	32	20	20	93	73	220	3.32
PRO-KKS-18.20	12.5	50	22	25	100	80	238	6.2
PRO-KKS-22.22	15	60	25.5	25.5	117	97	295	8.5

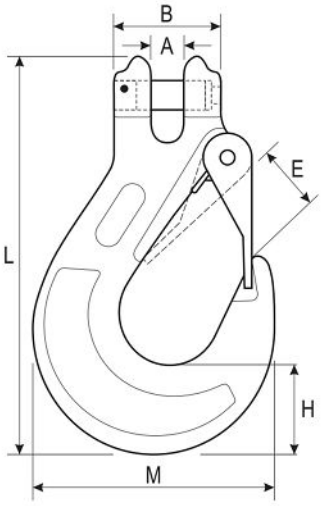
PRO-GSS CLEVIS CHAIN CLUTCH WITH SAFETY PIN



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)								Weight (kg/pc)
			A	B	C	D	L	M	N	Ø	
PRO-GSS-07.08	2	8	50	10	32.5	9.5	90	32	22	9.2	0.41
PRO-GSS-10.10	3.15	12.6	59	11.5	43	12.5	112	40	25	13	0.75
PRO-GSS-13.13	5.3	21.2	79	15	56	17	149	53	34	16.3	1.67

The hooks are lower end accessories for wire rope, webbing or chain lifting sets and there are several types available (clevis, eye, self-locking, etc.).
Manufacturing standards for hooks are EN 1677-1, EN 1677-2 and EN 1677-3.

PRO-KSL CLEVIS HOOK WITH LATCH



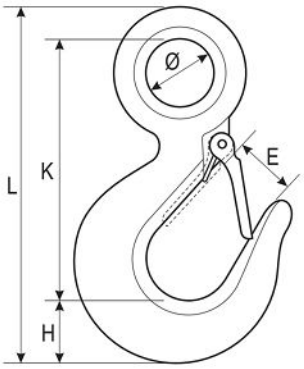
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	E	H	L	M	
PRO-KSL-06.06	1.12	4.48	8	32	20	21	106	68	0.3
PRO-KSL-07.08	2	8	9.5	38.5	25.5	26	128	86	0.55
PRO-KSL-10.10	3.15	12.6	13	48	30	37	160	104	0.96
PRO-KSL-13.13	5.3	21.2	17	57	38	43	196	130	1.52
PRO-KSL-16.16	8	32	19.7	66.5	51	49	236	152	3.43
PRO-KSL-18.20	12.5	50	24	91.5	58	53	283	180	6
PRO-KSL-22.22	15	60	28	90	77	66	315	225	10.4
PRO-KSL-26.26	21.2	84.8	34	113.5	94	77	382	250	14.5
PRO-KSL-32.32	31.5	126	40	145	110	97	480	305	27

For this type of clevis hook, the bolt and the pin are also available as spare parts.

PRO-SIG SPARE LATCH FOR PRO-KSL CLEVIS HOOK

Model	Corresponding hook
PRO-SIG-6	PRO-KSL-06.06
PRO-SIG-7.8	PRO-KSL-07.08
PRO-SIG-10	PRO-KSL-10.10
PRO-SIG-13	PRO-KSL-13.13
PRO-SIG-16	PRO-KSL-16.16
PRO-SIG-20	PRO-KSL-18.20
PRO-SIG-22	PRO-KSL-22.22
PRO-SIG-26	PRO-KSL-26.26
PRO-SIG-32	PRO-KSL-32.32

PRO-KO EYE HOOK WITH LATCH

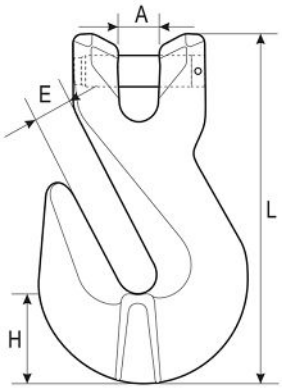


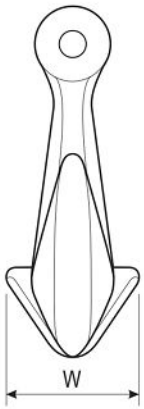
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			E	H	K	L	Ø	
PRO-KO-00.50	0.5	2.5	17	20	70	97	16	0.21
PRO-KO-01.00	1	5	22	21	80	111	19	0.28
PRO-KO-01.50	1.5	7.5	23	22	92	123	23	0.4
PRO-KO-02.00	2	10	24	27	103	140.5	27.5	0.65
PRO-KO-03.00	3	15	30	30	117.5	164	31	0.94
PRO-KO-05.00	5	25	34	42	142	205	38	1.95
PRO-KO-07.00	7	35	43	48	184	254	50	3.77
PRO-KO-11.00	11	55	57	61	225	315	62	6.8
PRO-KO-15.00	15	75	65	72	259	360	73	9.8
PRO-KO-22.00	22	110	83	83	315	434	89	16.25
PRO-KO-30.00	30	150	90	103	360	495.5	90	27.2

PRO-SIGC SPARE LATCH FOR EYE HOOK WITH LATCH

Model	Corresponding hook
PRO-SIGC-1	PRO-KO-01.00
PRO-SIGC-1.5	PRO-KO-01.50
PRO-SIGC-2	PRO-KO-02.00
PRO-SIGC-3	PRO-KO-03.00
PRO-SIGC-5	PRO-KO-05.00
PRO-SIGC-7	PRO-KO-07.00
PRO-SIGC-11	PRO-KO-11.00
PRO-SIGC-15	PRO-KO-15.00
PRO-SIGC-22	PRO-KO-22.00
PRO-SIGC-30	PRO-KO-30.00

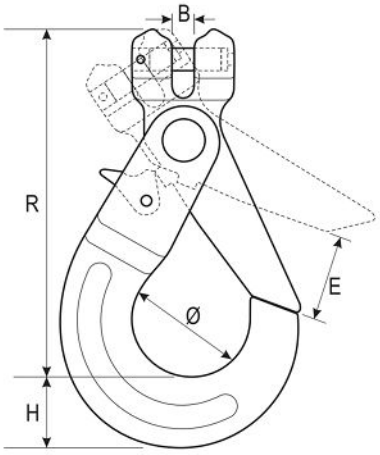
PRO-LKS SHORTENING CLEVIS HOOK

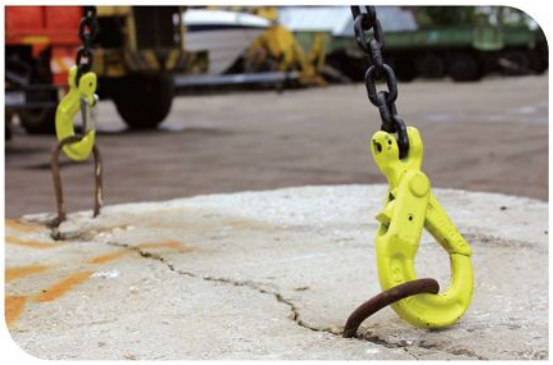




Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	E	H	L	W	
PRO-LKS-06.06	1.12	4.48	8	8	18.5	78	22	0.25
PRO-LKS-07.08	2	8	9.5	10	22.5	90	33.5	0.32
PRO-LKS-10.10	3.15	12.6	13.5	12	31	126	47	0.73
PRO-LKS-13.13	5.3	21.2	16	16	42	163.5	57.5	1.6
PRO-LKS-16.16	8	32	19	19	45	178	72	2.8
PRO-LKS-18.20	12.5	50	23	24	56	219	74	5
PRO-LKS-22.22	15	60	27	27	68.5	254	90	6.3
PRO-LKS-26.26	21.2	84.8	30	30	77	309	102	14.5

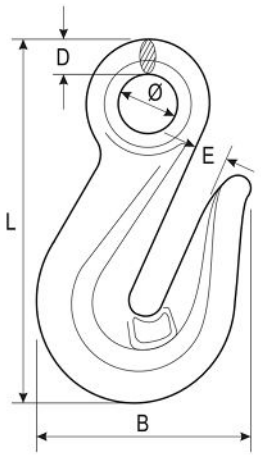
PRO-KAL SELF-LOCKING CLEVIS HOOK





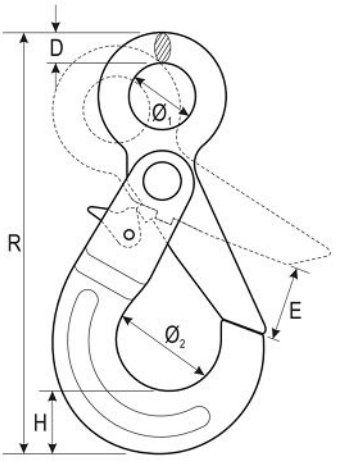
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			B	E	H	R	Ø	
PRO-KAL-06.06	1.12	4.48	8.5	29	22	111	32.5	0.5
PRO-KAL-07.08	2	8	9.5	43	27	132	40	0.8
PRO-KAL-10.10	3.15	12.6	13	45	31	162	54	1.5
PRO-KAL-13.13	5.3	21.2	16.5	52.5	41	204	67	2.8
PRO-KAL-16.16	8	32	19.7	64	52	253	82	5.6
PRO-KAL-18.20	12.5	50	25	91	57.5	270	95	7.5
PRO-KAL-22.22	15	60	24	81	69	317	91.5	11.5
PRO-KAL-26.26	21.2	84.8	36	100	75	360	103	18.5
PRO-KAL-32.32	31.5	126	43	150	100	570	170	49.6

PRO-KS SHORTENING EYE HOOK



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			B	D	E	L	Ø	
PRO-KS-06.06	1.12	4.48	42	8	8	74.5	12.5	0.25
PRO-KS-07.08	2	8	58	9.5	11	105	16	0.4
PRO-KS-10.10	3.15	12.6	70	12	13	124	20	0.6
PRO-KS-13.13	5.3	21.2	100	16	16	156	24	1.2
PRO-KS-16.16	8	32	120	19	19	190	27	2.7
PRO-KS-18.20	12.5	50	145	20	25	224	36	4.3
PRO-KS-22.22	15	60	166	25	26	269	42	6.4
PRO-KS-26.26	21.2	84.8	178	34	29	300	47	10
PRO-KS-32.32	31.5	126	225	40	37	367	56	33

PRO-KOA SELF-LOCKING EYE HOOK



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			D	E	H	R	Ø1	Ø2	
PRO-KOA-01.12	1.12	4.48	11	28	20	140	22	33	0.5
PRO-KOA-02.00	2	8	13	34	29	176	25	42	0.8
PRO-KOA-03.15	3.15	12.6	16	44	32	213	34	54	1.55
PRO-KOA-05.30	5.3	21.2	19.5	48	42	265	40.5	65	3.2
PRO-KOA-08.00	8	32	27	65	52.5	330	50	81	5.74
PRO-KOA-12.50	12.5	50	27.8	87	58	354	63	97.5	8.5
PRO-KOA-15.00	15	60	32	80	70	413	68	94	13
PRO-KOA-21.20	21.2	84.8	36	100	78	465	78	110	18
PRO-KOA-31.50	31.5	126	45	149	97	605	103	160	44.5

REPAIRING KIT FOR SELF-LOCKING PRO-KAL HOOK

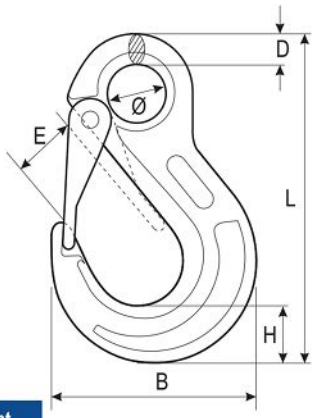
Hook's parts which ensure self-loking they may lose their properties over time because of wear, rust, dust impregnation or chemical substances attack.
This repairing kit is available for PRO-KAL hooks, models for chain diameter of 6 mm (PRO-KAL-06.06) and up to 20 mm (PRO-KAL-18.20).

BOLT AND PIN FOR SLEF-LOCKING HOOKS

Bolt and pin set used to replace lost or wear parts. Available for self locking hooks types PRO-KAL (chain) and PRO-KOA / PRO-KRA (wire rope).

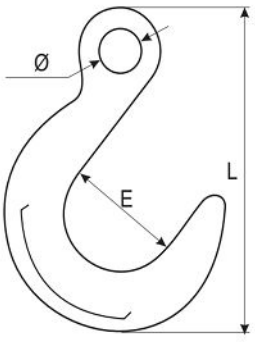
Model	PRO-KAL chain hook	PRO-KOA wire rope hook	PRO-KRA wire rope hook
BOLT & PIN 06.06	PRO-KAL-06.06	PRO-KOA-01.12	PRO-KRA-01.12
BOLT & PIN 07.08	PRO-KAL-07.08	PRO-KOA-02.00	PRO-KRA-02.00
BOLT & PIN 10.10	PRO-KAL-10.10	PRO-KOA-03.15	PRO-KRA-03.15
BOLT & PIN 13.13	PRO-KAL-13.13	PRO-KOA-05.30	PRO-KRA-05.30
BOLT & PIN 16.16	PRO-KAL-16.16	PRO-KOA-08.00	PRO-KRA-08.00
BOLT & PIN 18.20	PRO-KAL-18.20	PRO-KOA-12.50	PRO-KRA-12.50

PRO-KE EYE HOOK WITH LATCH (EUROPEAN TYPE)



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			B	D	E	H	L	Ø	
PRO-KE-01.12	1.12	4.48	68	9	20	22	109	20.5	0.3
PRO-KE-02.00	2	8	84	11	26	30	133.5	25	0.55
PRO-KE-03.15	3.15	12.6	102.5	14	31	34	167.5	34	1.05
PRO-KE-05.30	5.3	21.2	126.5	17.5	40	42	207.5	42.5	1.75
PRO-KE-08.00	8	32	153	24	51	50	253	50	3.2
PRO-KE-12.50	12.5	50	187	26	62.5	60	300	62	5.3

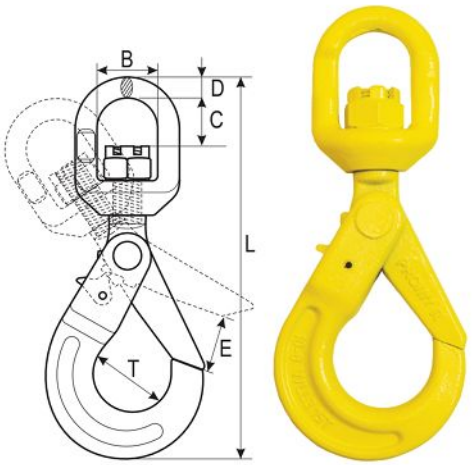
PRO-KT EYE FOUNDRY HOOK



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)			Weight (kg/pc)
			E	L	Ø	
PRO-KT-06.06	1.58	6.32	62	163	17	2.4
PRO-KT-10.10	3.2	12.8	74.5	200	22	4
PRO-KT-13.13	5.4	21.6	86.5	238	27	7.1
PRO-KT-16.16	8.2	32.8	100	278	32	12.2
PRO-KT-18.20	12.8	51.2	110	325	38	19.3
PRO-KT-22.22	15.5	62	125	359	43	26.3

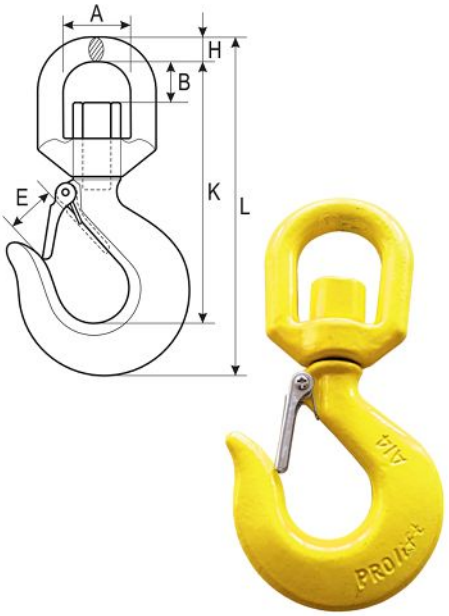
PRO-KRA SELF-LOCKING SWIVEL HOOK

Model/ Caracteristici	WLL (t)	MBL (t)	Dimensiuni (mm)						Greutate netă (kg)
			B	C	D	E	L	T	
PRO-KRA-01.12	1.12	4.48	32.5	23.5	12.5	29	183	31	0.71
PRO-KRA-02.00	2	8	35.5	27.5	12.5	34	225	46	1.1
PRO-KRA-03.15	3.15	12.6	42	34	15	44	260	54	2
PRO-KRA-05.30	5.3	21.2	50	40	17	53	317	63	4
PRO-KRA-08.00	8	32	69	56	22	62	400	82	7.3
PRO-KRA-12.50	12.5	50	71	55.5	26	89	435	95.5	11.6
PRO-KRA-15.00	15	60	97	95	34.5	80	565	95	16
PRO-KRA-21.20	21.2	84.8	122	115	43	100	640	110	21.5
PRO-KRA-31.50	31.5	126	140	146	52	150	777	166	79



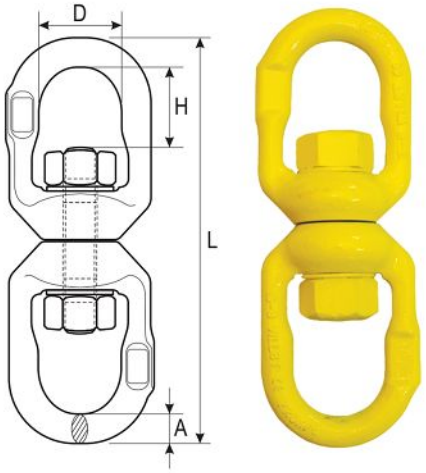
PRO-KRS SWIVEL HOOK

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	E	B	H	K	L	
PRO-KRS-01.00	1	5	36	22	33	12.5	128	165	0.34
PRO-KRS-02.00	2	10	44	26	35	16.5	166	206	1.02
PRO-KRS-03.00	3	15	48	28	42.5	18.5	188	246	1.24
PRO-KRS-05.00	5	25	60	35	51.5	25.5	242	310	2.25
PRO-KRS-07.50	7.5	37.5	69	43	56	29	278	367	4.66
PRO-KRS-10.00	10	50	77	55	63	33	322	401	7.4
PRO-KRS-15.00	15	75	104	61	110	42	425	530	10.6
PRO-KRS-20.00	20	100	105	81	92	42	464	588	21.4
PRO-KRS-31.50	31.5	126	105	82.5	90	40	460	580	32

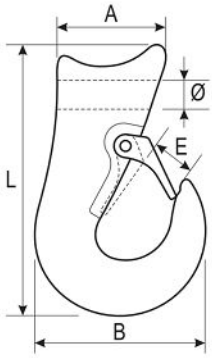


PRO-VR FORGED REGULAR SWIVEL

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)				Weight (kg/pc)
			A	D	H	L	
PRO-VR-07.08	2	8	14	35.5	25.5	163	0.6
PRO-VR-10.10	3.15	12.6	15	42	37.5	193.5	1.5
PRO-VR-13.13	5.3	21.2	18	49	43.5	214	1.75
PRO-VR-16.16	8	32	21.5	60	67	292	4.52



PRO-KC SLIDING CHOKER HOOK FOR WIRE ROPE SLINGS



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	E	L	Ø	
PRO-KC-01.60	1.6	8	49	70	18	130	17	0.68
PRO-KC-02.00	2	10	62	78	18	149.5	22	1.21
PRO-KC-03.00	3	15	68	102	26	165	28	1.99
PRO-KC-05.00	5	25	83	133	38	210	32.5	4.18

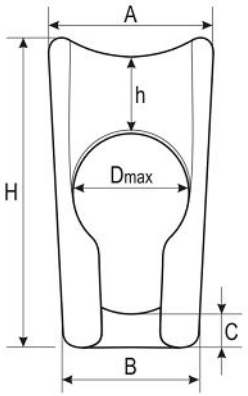
This type of hook slides on a wire rope sling's usable length and it allows creating a *choker*, formed with one of the sling's eye.

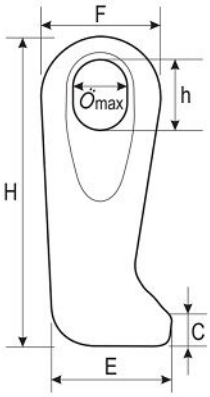
PRO-SIGURANTA SPARE LATCH FOR SLIDING CHOKER HOOK

Model	Corresponding hook
PRO-SIGURANTA-01.60	PRO-KC-01.60
PRO-SIGURANTA-02.00	PRO-KC-02.00
PRO-SIGURANTA-03.00	PRO-KC-03.00
PRO-SIGURANTA-05.00	PRO-KC-05.00

PRO-CL-03 SLIDING CHOKER ADJUST ELEMENT FOR WIRE ROPE SLING

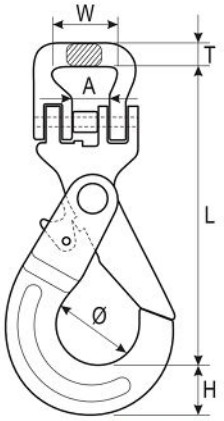
This sliding element is placed on a wire rope sling with a special termination at one end and it enables the user to create a variable size choker. By doing so it allows safe handling operations for cylindrical shaped loads with various diameters (logs, pipes, etc.).





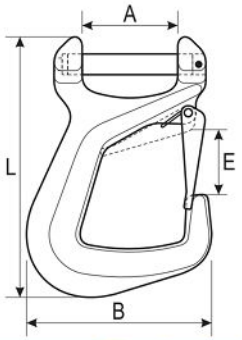
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)									Weight (kg/pc)
			A	B	C	h	Dmax	E	F	H	Ømax	
PRO-CL-03	2	8	50	41	13	28	33	37	37	96	18	3

PRO-KAC SELF-LOCKING HOOK FOR WEBBING SLINGS



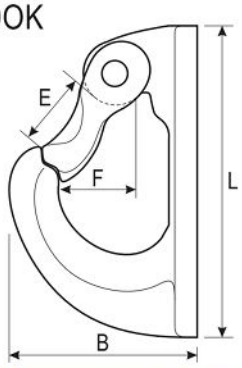
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	H	L	T	W	Ø	
PRO-KAC-10.10	3.15	12.6	24	30	200.5	17	47	54	1.8
PRO-KAC-13.13	5.3	21.2	29	41	306	19	50	67	3.52

PRO-KCC CLEVIS HOOK FOR WEBBING SLINGS



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)				Weight (kg/pc)
			A	B	E	L	
PRO-KCC-22	2.2	8.8	61	117.5	38	168	1.47

PRO-SD WELDABLE HOOK



Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)				Weight (kg/pc)
			B	E	F	L	
PRO-SD-01.1	1.1	5.5	55	20	19	85	0.35
PRO-SD-02.0	2	10	63.5	26	21	110.5	0.55
PRO-SD-03.2	3.2	16	76.5	32	33.5	126	0.87
PRO-SD-05.3	5.3	26.5	92	36.5	30	157.5	1.75
PRO-SD-08.0	8	40	105	40	36	177	2.98
PRO-SD-12.5	12.5	62.5	139	49	37	232	6.16

PRO-CONT HOOKS FOR CONTAINERS LIFTING

This type of lifting hook is a special shape designed hook used for ISO containers corner holes fastening.

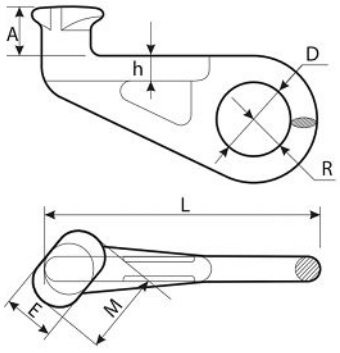
Due to special shape of hook inferior part, fastening in any container side corner hole is easy and firmly.

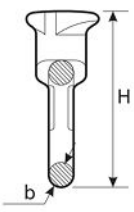
Lifting will always be made with four hooks, taking care of hooks side positioning (left or right, as will the hook inferior part will fit in the container corner hole).

The easiest setup is using four universal (no side dependable) hooks, which can be used on every side ISO container's corner hole.

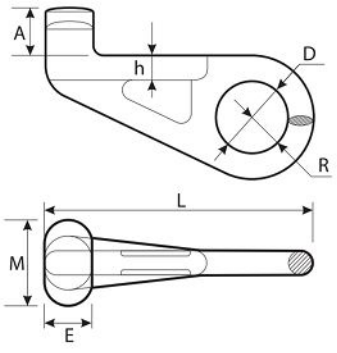
Manufacturing standard for this hooks is EN 1677-1. Safety factor is 4.

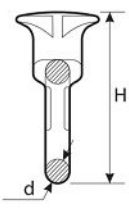
left *direct* *right*



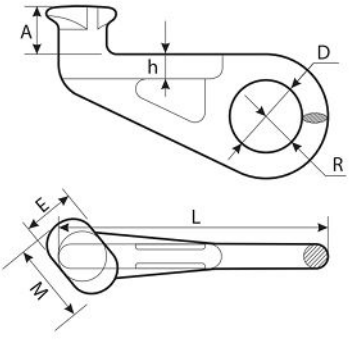


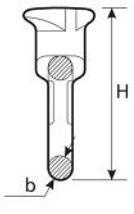
ST (left)





DIR (direct)

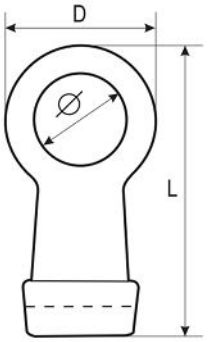




DR (right)

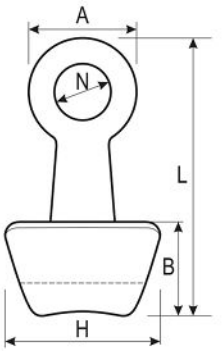
Model/ Features	WLL (t)	Dimensions (mm)									Weight (kg/pc)
		A	M	H	h	E	R	D	d	L	
PRO-CONT DIR-12.50	12.5	42	75	166	26	48	34.5	69	25	265	4
PRO-CONT ST-12.50	12.5	42	75	166	26	48	34.5	69	25	265	4
PRO-CONT DR-12.50	12.5	42	75	166	26	48	34.5	69	25	265	4

PRO-KB BARREL HOOK



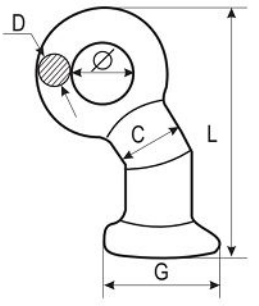
Model/ Caracteristici	WLL (t)	MBL (t)	Dimensiuni (mm)			Greutate netă (kg)
			D	L	Ø	
PRO-KB-01	1	4	71	118.5	38	0.55
PRO-KB-02	2	8	66	128	40	0.7

PRO-KTE PIPE LIFTING HOOK



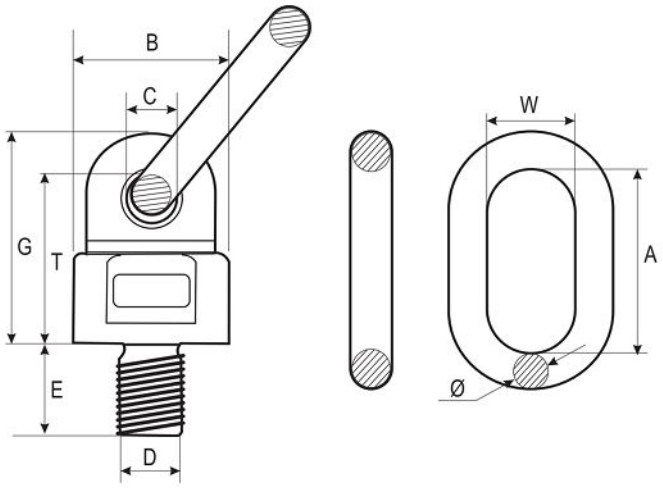
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	N	H	L	
PRO-KTE-05	5	20	139	130	73	111.5	308.5	9.18
PRO-KTE-10	10	40	205	180	110	145	405	21.8

PRO-KP ELEPHANT FOOT EYE HOOK



Model/ Caracteristici	WLL (t)	MBL (t)	Dimensiuni (mm)					Greutate netă (kg)
			C	D	G	L	Ø	
PRO-KP-05	5	20	30	16	52.5	116	28	0.67

PRO-303 ELEMENT DE PRINDERE ROTATIV

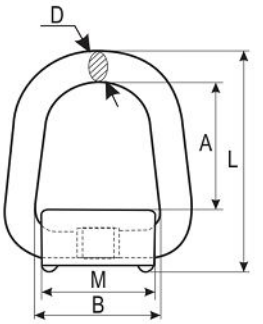


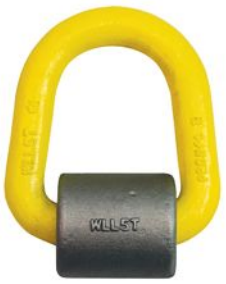
Lifting points must only be used for the assembly at the load or at lifting object. They are intended to be hinged into lifting object and can be turned under load, but not under full load, especially not in the 90° direction.
Lifting points can also be used as lashing points to attach lashing objects.

Model/ Features	WLL (t)		Dimensions (mm)								Weight (kg/pc)
	0°	90°	A	B	C	D x E	G	T	W	Ø	
PRO-303-08.13	0.6	0.3	55	36	15	M8 x 13	51	41	30	13	0.41
PRO-303-10.18	0.9	0.45	53	36	17	M10 x 18	53	44	31	14	0.43
PRO-303-12.18	1	0.5	55	36	15	M12 x 18	51	41	30	13	0.44
PRO-303-12.45	1	0.5	52	36	17	M12 x 45	54	45	30	14	0.47
PRO-303-12.110	1	0.5	53	36	17	M12 x 110	53	44	30	14	0.53
PRO-303-14.20	2	1.12	55	36	15	M14 x 20	51	41	30	13	0.45
PRO-303-16.20	2	1.12	52	36	17	M16 x 20	53	44	30	14	0.48
PRO-303-16.120	2	1.12	52	36	17	M16 x 120	53	45	30	14	0.60
PRO-303-20.30	4	2	70	49.5	19	M20 x 30	70	60	35	16.5	0.96
PRO-303-20.120	4	2	71.5	49.5	19	M20 x 120	70	60	33	16	1.17
PRO-303-24.30	6.3	3.15	84	57.5	22.5	M24 x 30	82	68	40	18	1.45
PRO-303-24.90	6.3	3.15	85	57	22	M24 x 90	78	65.5	40	18	1.66
PRO-303-24.120	6.3	3.15	84	57.5	22.5	M24 x 120	82	68	40	18	1.74
PRO-303-27.35	6.3	3.15	84	57	22	M27 x 35	82	68	38	18	1.47
PRO-303-30.35	10.6	5.3	85	66	23.5	M30 x 35	96.5	80.5	40	20	2.17
PRO-303-30.38	10.6	5.3	85	66	23.5	M30 x 38	96.5	80.5	40	20	2.18
PRO-303-30.120	10.6	5.3	85	66	23.5	M30 x 120	96.5	80.5	40	20	2.65
PRO-303-30.35	11.8	8	115	80	28	M30 x 35	112	92	50	22	2.17
PRO-303-30.38	11.8	8	115	80	28	M30 x 38	112	92	50	22	2.18
PRO-303-30.120	11.8	8	115	80	28	M30 x 120	112	92	50	22	2.65
PRO-303-36.50	11.8	8	115	80	27	M36 x 50	109	89.5	50	22	3.55
PRO-303-36.90	11.8	8	115	80	27	M36 x 90	109	89.5	40	22	4.17
PRO-303-36.120	11.8	8	115	80	27	M36 x 120	109	89.5	50	22	4.50
PRO-303-36.400	11.8	8	115	80	27	M36 x 400	109	89.5	50	22	6.41
PRO-303-39.50	11.8	8	115	80	27	M39 x 50	109	89.5	50	22	3.65
PRO-303-39.90	11.8	8	115	80	27	M39 x 90	109	89.5	50	22	3.71
PRO-303-42.50	15	10	116	80	28	M42 x 50	114	92.5	50.5	25	3.62
PRO-303-48.50	15	10	116	80	28	M48 x 50	112.5	92.5	50.5	25	4.02

PRO-D-RING D-RING WITH SPRING

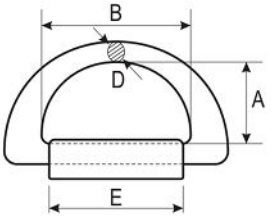
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			A	B	D	L	M	
PRO-D-RING-01	1	4	53	53	14	95.7	50	0.55
PRO-D-RING-03	3	12	48	63	17	97	58	0.9
PRO-D-RING-05	5	20	72	73	22	145	64	1.8
PRO-D-RING-08	8	32	64	68	27	143	65	2.5
PRO-D-RING-15	15	60	85	96	34	190	90	5.79





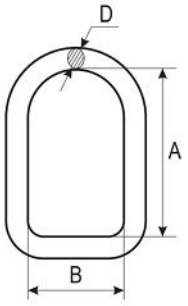
PRO-DIR FORGED D-RING

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)				Weight (kg/pc)
			A	B	D	E	
PRO-DIR-9	9	36	77	126	23	121	2.75
PRO-DIR-12.5	12.5	50	80	138	27	132	4.48



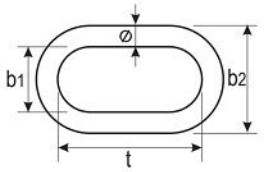
PRO-INEL-D WEBBING SLINGS LINK

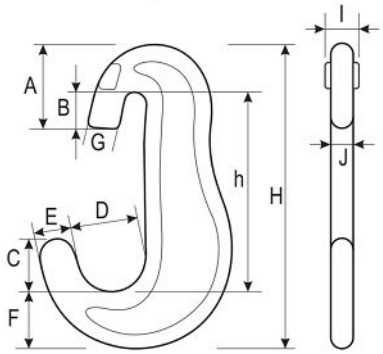
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)			Weight (kg/pc)
			A	B	D	
PRO-INEL-D-01	1	4	109	65	13	0.37
PRO-INEL-D-02	2	8	128	64	17	0.64
PRO-INEL-D-03	3	12	138	109	19	0.99
PRO-INEL-D-04	4	16	132.5	127.5	24	1.56



GOODS MOORING WITH GRADE 80 ACCESSORIES

PRO-LSC-13 LASHING CHAIN ASSEMBLY

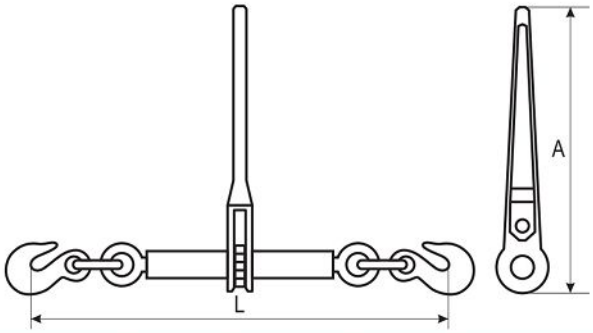




These assemblies include a long link chain piece, a tensioning lever and two special “C” type hooks. The chain is cut at the customer’s requested length (standard is 6 m). It is used especially in the shipping industry to tie down various cargo during transportation.

Model/ Features	LC (kN)	Chain dimensions (mm)				Hook dimensions (mm)										
		t	b1	b2	Ø	A	B	C	D	E	F	G	H	h	I	J
PRO-LSC-13	100	80	24	50	13.5	55.5	26	37	49.5	23.5	36	20	198	134	30	16.5

PRO-K RATCHET TYPE LOAD BINDER



This type of ratchet binder is used with lashing chain systems, to secure various cargo. Manufactured according to EN 12195-3 standard.

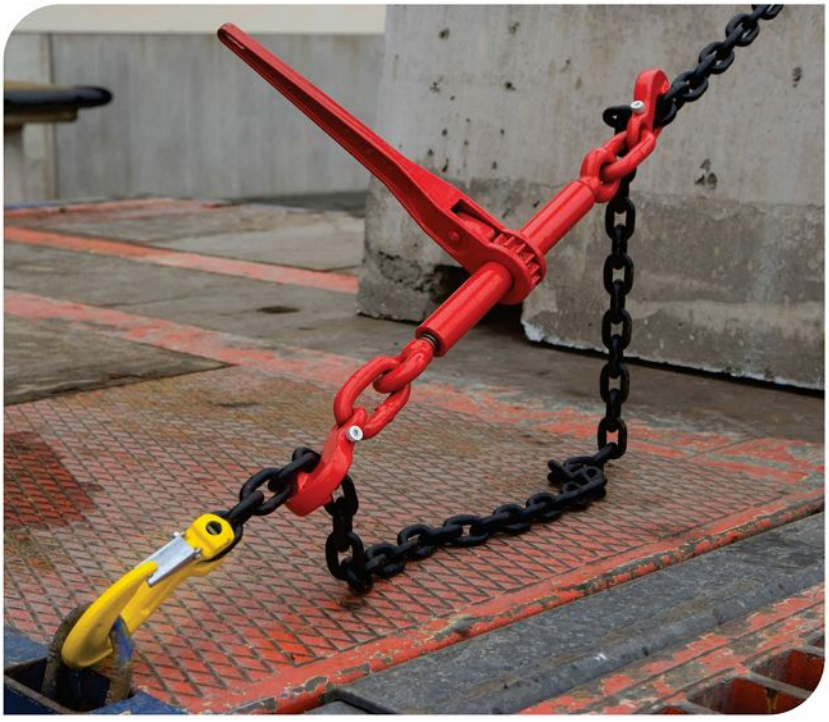
Model/ Features	Chain Diameter (mm)	Lashing capacity LC (daN)	Breaking force BF (daN)	Dimensions (mm)			Weight (kg/pc)
				A	L min	L max	
PRO-K-6.8	6 - 8	4000	8000	385	420	520	1.6
PRO-K-8.10	8 -10	6300	12600	385	570	730	4.76
PRO-K-10.13	10 -13	10600	21200	385	590	750	5.85
PRO-K-13.16	13 -16	16000	32000	385	690	850	6.52

S_{TF} = 30% of LC

PRO-INT RATCHET TYPE LOAD BINDER WITH SAFETY PIN HOOKS

Model/ Features	Chain Diameter (mm)	Lashing capacity LC (daN)	Breaking force BF (daN)	Dimensions (mm)			Weight (kg/pc)
				A	L min	L max	
PRO-INT-08	8	4000	8000	210	550	730	4.9
PRO-INT-10	10	6300	12600	275	600	770	5.9
PRO-INT-13	13	10600	21200	360	710	880	7.5
PRO-INT-16	16	16000	32000	390	750	900	11

S_{TF} = 30% of LC



It has the same use as the PRO-K type ratchets. In addition to the PRO-K type ratchet, the cradle grab hooks at the ends are equipped with safety pins to enhance operational safety.

Manufactured according to EN 12195-3 standard.

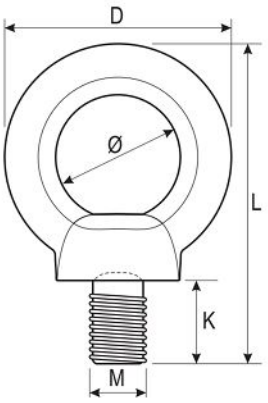
Both PRO-K and PRO-INT ratchet type load binder can be used with EN 818-2 standard manufactured lifting chain Grade 80.

For proper chain size, use PRO-L table at page 81.

PRO-580 EYE BOLT (DIN 580)

Model/ Features	WLL (t)		Dimensions (mm)					Weight (kg/pc)
	45°	90°	D	K	L	Ø	M	
PRO-580-M6	0.05	0.075	36.5	13	50	19	6	0.05
PRO-580-M8	0.095	0.14	36.5	13.5	50	20	8	0.06
PRO-580-M10	0.17	0.23	45	16.5	63	25	10	0.11
PRO-580-M12	0.24	0.34	54	21	75	30	12	0.18
PRO-580-M14	0.32	0.46	63	27	89.5	35	14	0.28
PRO-580-M16	0.50	0.70	63	27.5	90	34	16	0.285
PRO-580-M18	0.65	0.83	72	30	103.5	39	18	0.42
PRO-580-M20	0.83	1.20	72.5	30	103.5	39	20	0.45
PRO-580-M22	1.05	1.50	81	35	116.5	44	22	0.67
PRO-580-M24	1.27	1.80	90	36	128	48.5	24	0.87
PRO-580-M27	1.83	2.50	90	38	128	50	27	0.88
PRO-580-M30	2.60	3.60	109.5	45	154	60	30	1.66
PRO-580-M33	3.20	4.50	108	45	154	60	33	1.72
PRO-580-M36	3.70	5.10	126	55	183	68	36	2.65
PRO-580-M39	4.30	6.00	126	55	183	70	39	2.8
PRO-580-M42	5.00	7.00	144	65	212	77	42	4.03
PRO-580-M45	5.50	7.50	144	65	212	80	45	4.25
PRO-580-M48	6.10	8.60	166	70	238	90	48	6.38
PRO-580-M52	7.30	9.00	166	70	238	90	52	6.6
PRO-580-M56	8.30	11.80	184	80	267	100	56	8.8

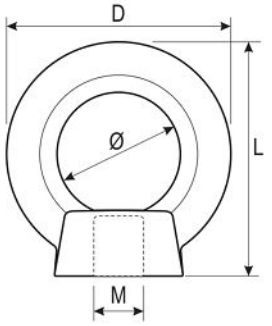
Manufacturing standard DIN 580



PRO-582 EYE NUT (DIN 582)

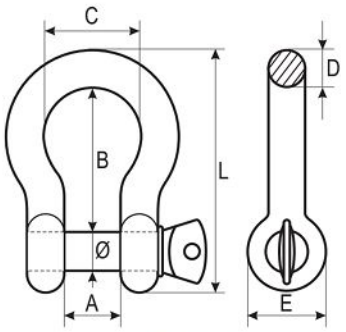
Model/ Features	WLL (t)		Dimensions (mm)				Weight (kg/pc)
	45°	90°	D	L	Ø	M	
PRO-582-M6	0.05	0.075	37	37	20	6	0.049
PRO-582-M8	0.095	0.14	36	37	19	8	0.05
PRO-582-M10	0.17	0.23	45	45	24.5	10	0.09
PRO-582-M12	0.24	0.34	54	54	30	12	0.16
PRO-582-M14	0.32	0.46	63	62	35	14	0.2
PRO-582-M16	0.5	0.7	63	63.5	35	16	0.24
PRO-582-M18	0.65	0.83	72	70	38	18	0.34
PRO-582-M20	0.83	1.2	72	70	39	20	0.36
PRO-582-M22	1.05	1.5	71	70	39	22	0.58
PRO-582-M24	1.27	1.8	90	90	49	24	0.72
PRO-582-M27	1.83	2.5	90	90	50	27	0.7
PRO-582-M30	2.6	3.6	108	113	59	30	1.32
PRO-582-M33	3.2	4.5	108	109	60	33	1.3
PRO-582-M36	3.7	5.1	126	136	70	36	2.08
PRO-582-M39	4.3	6	126	128	70	39	2.02
PRO-582-M42	5	7	144	147	80	42	3.11
PRO-582-M45	5.5	7.5	144	147	80	45	3.04
PRO-582-M48	6.1	8.6	166	168	90	48	5.02
PRO-582-M52	7.3	9	166	168	90	52	4.95
PRO-582-M56	8.3	11.8	184	187	100	56	6.69
PRO-582-M64	11	16	206	208	110	64	9.3

Manufacturing standard DIN 582



PRO-CT.01 SCREW TYPE OMEGA (ANCHOR) SHACKLE

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)							Weight (kg/pc)
			A	B	C	D	E	L	Ø	
PRO-CT.01.00.33	0.33	1.98	10	22	16	5	16	37.5	6	0.03
PRO-CT.01.00.50	0.5	3	12	29	19	6.5	16	46	7	0.05
PRO-CT.01.00.75	0.75	4.5	14	31	21	8.5	18.5	53	9.5	0.08
PRO-CT.01.01.00	1	6	17	36	25	10	22	62.5	11.5	0.14
PRO-CT.01.01.50	1.5	9	19	42	29	11.5	26.5	74	13.5	0.19
PRO-CT.01.02.00	2	12	21	47	32	14.5	29	84	16	0.29
PRO-CT.01.03.25	3.25	19.5	27.5	59	42	18	37	104.5	19.5	0.61
PRO-CT.01.04.75	4.75	28.5	32	72	50	21	46.5	123	21.5	1
PRO-CT.01.06.50	6.5	39	37	85	57	25	52	144	24	1.54
PRO-CT.01.08.50	8.5	51	40.5	94	65	28.5	59	157	26.5	2.21
PRO-CT.01.09.50	9.5	57	46	108	72	32	68	185	29.7	3.22
PRO-CT.01.12.00	12	72	53	117	82	35	74	205	36	4.54
PRO-CT.01.13.50	13.5	81	57	135	90	35	82	228	39	6
PRO-CT.01.17.00	17	102	59	145	96	40	90	249	40	7.8
PRO-CT.01.25.00	25	150	75	175	122	57	104	310	48	13.5
PRO-CT.01.35.00	35	210	80	190	142	60	120	340	56	20.5
PRO-CT.01.55.00	55	330	102	255	178	64	150	430	70	37
PRO-CT.01.85.00	85	510	125	300	197	77	163	515	80	59

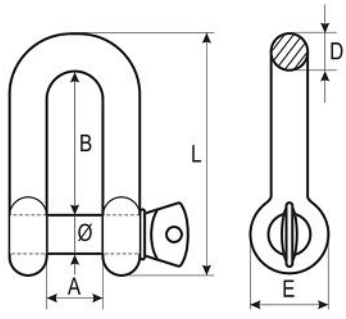


For all PROlift's shackles the safety factor is 6.

Manufacturing standard for maximum 25 tons working load limit shackles is EN 13889.

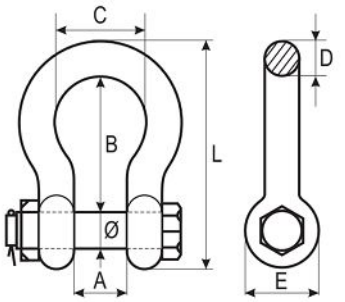
PRO-CT.02 SCREW TYPE CHAIN (DEE) SHACKLE

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	D	E	L	Ø	
PRO-CT.02.00.33	0.33	1.98	10	18	5	15	32	6	0.02
PRO-CT.02.00.50	0.5	3	12	25	7	18	44	8	0.04
PRO-CT.02.00.75	0.75	4.5	13	26.5	9	18.5	48.5	9.7	0.06
PRO-CT.02.01.00	1	6	17	31	10	22.5	57	11.5	0.13
PRO-CT.02.01.50	1.5	9	19	36	13	26	67.5	13	0.18
PRO-CT.02.02.00	2	12	21	41	13.5	30	76	15	0.27
PRO-CT.02.03.25	3.25	19.5	28	50.5	18	37	95	19.5	0.59
PRO-CT.02.04.75	4.75	28.5	32	63	21	45	115	22	0.98
PRO-CT.02.06.50	6.5	39	36.5	70	25	52	133	24	1.47
PRO-CT.02.08.50	8.5	51	43	82	27.5	59	150	27	2.03
PRO-CT.02.09.50	9.5	57	47	90	32	67.5	170	30	3.13
PRO-CT.02.12.00	12	72	53	98	32	76.5	190	36	4.54
PRO-CT.02.13.50	13.5	81	57	110	35	82	204	39	5.44
PRO-CT.02.17.00	17	102	60	124	41	90	225	41	7.33
PRO-CT.02.25.00	25	150	72	144	54	105	290	48	13
PRO-CT.02.35.00	35	210	83	164	61	130	320	56	19.5
PRO-CT.02.55.00	55	330	116	200	65	151	370	70	30.5
PRO-CT.02.85.00	85	510	126	215	77.5	163	425	85	48.5



PRO-CT.03 NUT AND BOLT TYPE OMEGA (ANCHOR) SHACKLE

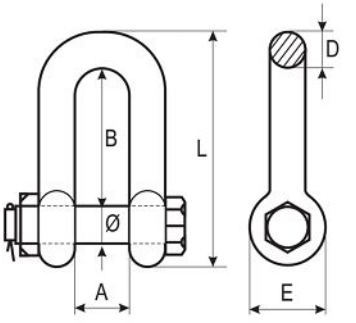
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)							Weight (kg/pc)
			A	B	C	D	E	L	Ø	
PRO-CT.03.00.33	0.33	1.98	9.3	27.8	14.9	5	13.6	37.8	6	0.03
PRO-CT.03.00.50	0.5	3	11.7	28.5	19.5	6.3	15	46	7.5	0.05
PRO-CT.03.00.75	0.75	4.5	14	30	21	8	21.8	53.5	9.7	0.09
PRO-CT.03.01.00	1	6	17	36	25.8	11	25.3	64	11	0.16
PRO-CT.03.01.50	1.5	9	20	43	29	11	26	73	13.3	0.2
PRO-CT.03.02.00	2	12	21	47.5	32.5	13	29	81.5	15.4	0.33
PRO-CT.03.03.25	3.25	19.5	27	59	42	16	37	104	19	0.68
PRO-CT.03.04.75	4.75	28.5	32	71	49	20	45	124	21	1.09
PRO-CT.03.06.50	6.5	39	36	85.5	56	22.5	52	145	24	1.7
PRO-CT.03.08.50	8.5	51	42	94	65	26	59	165	27	2.37
PRO-CT.03.09.50	9.5	57	46	109	72.5	30	67	185	30	3.41
PRO-CT.03.12.00	12	72	49	120	81	33.5	75	205	36	4.71
PRO-CT.03.13.50	13.5	81	56	135	89	35	82	235	40	6.98
PRO-CT.03.17.00	17	102	60	145	100	41.5	90	250	40	9
PRO-CT.03.25.00	25	150	75	180	127	48	107	310	48	15
PRO-CT.03.35.00	35	210	82	195	145	52	122	345	56	23.7
PRO-CT.03.55.00	55	330	110	255	185	62	147	435	70	37.5
PRO-CT.03.85.00	85	510	126	300	199	76	160	523	78	60
PRO-CT.03.120.0	120	720	136	370	223	97	204	635	97	109
PRO-CT.03.150.0	150	900	144	380	255	100	236	655	107	149



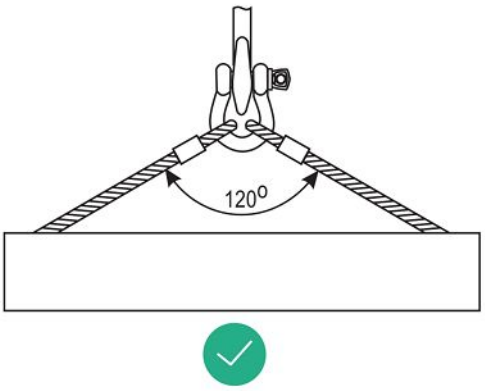
IMPORTANT: The nut and the bolt increase the level of safety!

PRO-CT.04 NUT AND BOLT TYPE CHAIN (DEE) SHACKLE

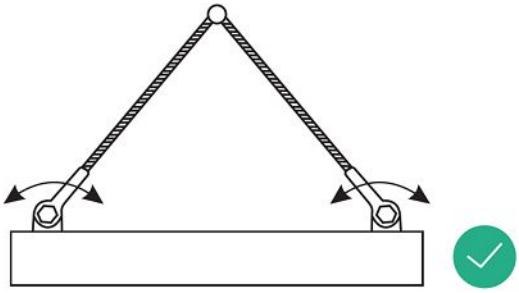
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	D	E	L	Ø	
PRO-CT.04.00.50	0.5	3	12	22	6	15	40	7.5	0.05
PRO-CT.04.00.75	0.75	4.5	13	26	8	18	48	9.5	0.08
PRO-CT.04.01.00	1	6	16	31.5	10	26	57	11	0.14
PRO-CT.04.01.50	1.5	9	20	37	11	26	67	12.5	0.18
PRO-CT.04.02.00	2	12	20	42	13.5	29	77	15	0.31
PRO-CT.04.03.25	3.25	19.5	27	51	17	37	96	19	0.64
PRO-CT.04.04.75	4.75	28.5	32	63	19	45	114	22	1.01
PRO-CT.04.06.50	6.5	39	39	72	25	53	135	24	1.67
PRO-CT.04.08.50	8.5	51	43	821	27	58	150	27	2.38
PRO-CT.04.09.50	9.5	57	49	95	29	67	170	32	3.14
PRO-CT.04.12.00	12	72	51	99	35	75	186	36	4.93
PRO-CT.04.13.50	13.5	81	58	109	36	84	206	39	6.24
PRO-CT.04.17.00	17	102	60	122	41	90	225	39	8.4
PRO-CT.04.25.00	25	150	74	145	54	105	271	48	14.2
PRO-CT.04.35.00	35	210	84	170	57	128	317	56	21.2
PRO-CT.04.55.00	55	330	106	203	68	150	380	68	31.5
PRO-CT.04.85.00	85	510	126	214	77	163	425	84	54.5

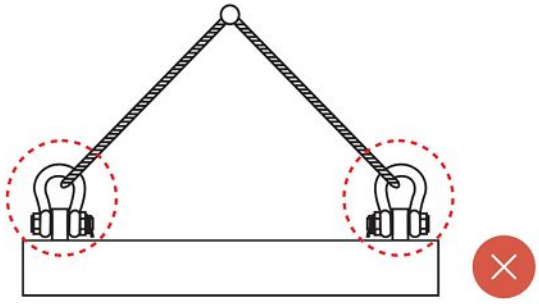


SHACKLES USER GUIDE

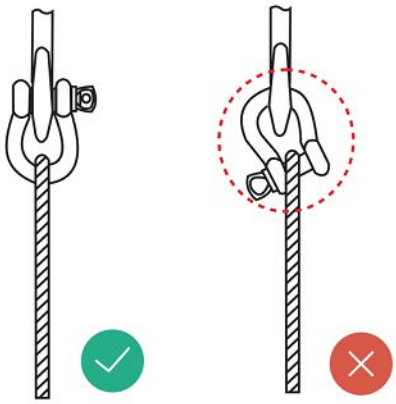


1. Prior to use check the shackles and the connecting points (lugs) of the load to be lifted.
2. It is forbidden to use a simple screw or a metal bar instead of the shackle bolt.
3. Jerking or hitching during lifting is forbidden.
4. Be careful not to obstruct the bolt's holes!
5. It is strictly forbidden to use the shackles in such a manner that tension forces may accumulate in the body of the shackle. This situation is prevented by keeping the lifting points level.
6. When such a setting is not possible, the shackles working load limit should be adjusted accordingly.
7. The opening angle between 2 slings connected by the same shackle should be smaller than 120 degrees.
8. The shackles must be properly placed for safe maneuvering, thus avoiding having them deformed or bent (see figure below):

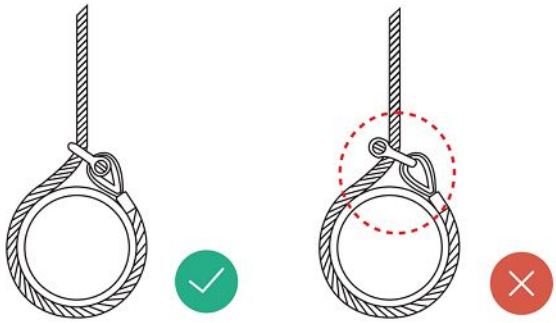




9. It is forbidden to improperly place the slings.



10. The shackles will be periodically inspected according to their use frequency, but no later than every 6 months. Each inspection must be performed by qualified personnel.



11. If used in a high temperature environment, please see the next table for working load limit calculation:

Temperature	Adjusted W.L.L.
-40 °C - +200 °C	100% WLL
+200 °C - +300 °C	90% WLL
+300 °C - +400 °C	75% WLL
over +400 °C	Not allowed. Not to be used.

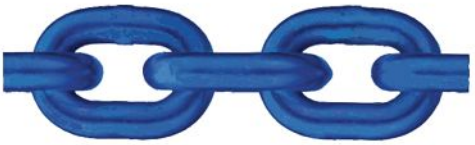
Do not use the shackles if:

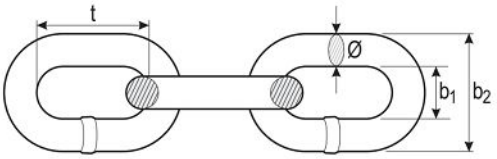
... they show visible in-depth cracks;
... the magnetic particles inspections and ultrasonic testings reveal in-depth cracks in the material;
... the body shows any deformations;
... the body of the shackle has suffered dimension alterations (due to corrosion, for example) larger than 10%;
... they show very large corroded areas.

PRO-GR100-L LIFTING CHAIN GRADE 100

Manufactured according to ASTM A973 and EN 818-2 standards, they are used both for lifting and lashing or mooring.

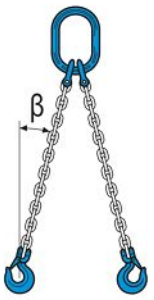
They can be fitted at the ends with various accessories thus forming a wide range of lifting systems (sets). The main difference when compared to Grade 80 is higher working load limit for the same diameter of chain.

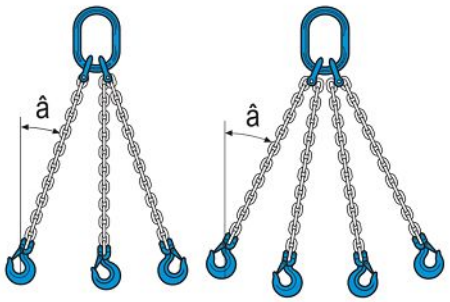




Model/ Features	Lifting WLL (t)	MBL (t)	Dimensions (mm) Ø	t	b1	b2	Lashing and Mooring Lashing capacity - LC (kN)	Weight (kg/m)
PRO-GR100-L-06.18	1.4	5.6	6	18	7.8	22.2	27.5	0.8
PRO-GR100-L-08.24	2.5	10	8	24	10.4	29.6	49	1.5
PRO-GR100-L-10.30	4	16	10	30	13	37	78.5	2.4
PRO-GR100-L-13.39	6.7	26.8	13	39	16.9	48.1	131.4	4
PRO-GR100-L-16.48	10	40	16	48	20.8	59.2	196.1	6
PRO-GR100-L-18.54	13	52	18	54	23.4	66.6	255	7.3
PRO-GR100-L-20.60	16	64	20	60	26	74	313.8	9.2
PRO-GR100-L-22.66	19	76	22	66	28.6	81.4	372.7	11.4
PRO-GR100-L-26.78	26.5	106	26	78	33.8	96.2	519.8	14.9
PRO-GR100-L-32.96	39.4	157.5	32	96	41.6	118	772.3	22.3

Note: For 2, 3 or 4 legs sets, the working load limits from below table are based on equal length of the legs and symmetrical positioning of legs.
Working loads limits calculated according to EN 818-4 standard specs.

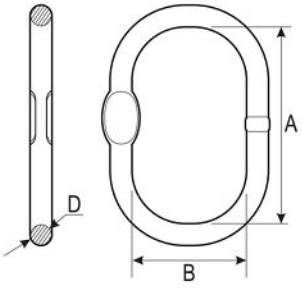




System (set) type	1 leg set	2 legs set		3 or 4 legs set	
Vertical angle (degrees)	â = 0°	0°<β<45°	45°<β<60°	0°<β<45°	45°<β<60°
Load factor	1	1.4	1	2.1	1.5
Chain diameter (mm)	Working load limit (W.L.L.) (t)				
6	1.4	1.96	1.4	2.94	2.1
8	2.5	3.5	2.5	5.25	3.75
10	4	5.6	4	8.4	6
13	6.7	9.38	6.7	14.1	10.1
16	10	14	10	21	15
18	13	18.2	13	27.3	19.5
20	16	22.4	16	33.6	24
22	19	26.6	19	39.9	28.5
26	26.5	37.1	26.5	55.65	39.75
32	39.4	55.16	39.4	82.74	59.1

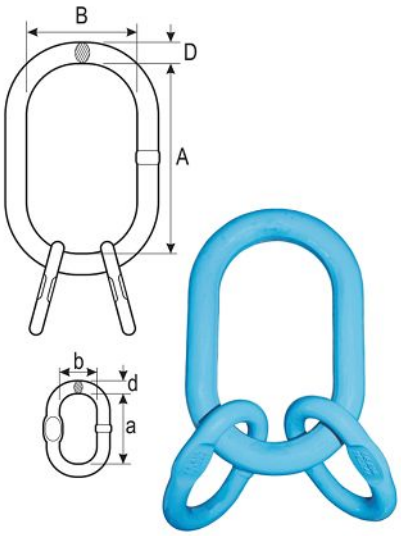
PRO-GR100-OS MASTER LINK (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	D	Chain diameter Ø (mm)			
						1 leg	2 legs	3 or 4 legs	
PRO-GR100-OS-01.40	1.4	5.6	81	50	10.5	5	5	N/A	0.14
PRO-GR100-OS-02.30	2.3	9.2	112	60	14	6 - 7	6	5	0.34
PRO-GR100-OS-03.50	3.5	14	111	60	16	8	7	N/A	0.53
PRO-GR100-OS-05.00	5	20	136.5	75	18	10	8	6	0.86
PRO-GR100-OS-07.60	7.6	30.4	160	88	23	13	10	7 - 8	1.6
PRO-GR100-OS-10.00	10	40	180	98	27.5	16	13	10	2.46
PRO-GR100-OS-14.00	14	56	204	112	31.5	19	16	13	4.14
PRO-GR100-OS-25.10	25.1	100.4	265	137	37	22	19	16	6.22
PRO-GR100-OS-30.80	30.8	123.2	340	180	45	26	22	N/A	12.85
PRO-GR100-OS-40.00	40	160	353	190	51.5	32	26	19 - 22	16.22
PRO-GR100-OS-60.00	60	240	400	200	60	N/A	32	26	27.01
PRO-GR100-OS-81.50	81.5	326	460	250	70	N/A	N/A	32	45



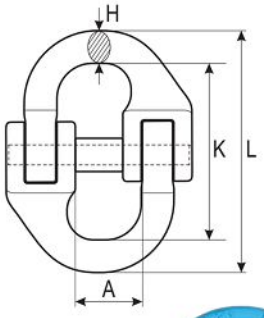
PRO-GR100-OD MASTER LINK ASSEMBLY (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	D	a	b	d	
PRO-GR100-OD-03.00	3	12	135	75	18	55.5	26.7	14	1.3
PRO-GR100-OD-05.30	5.3	21.2	157	88	21.5	73	34.2	16.5	2.33
PRO-GR100-OD-08.00	8	32	178	98	27.5	85	40	18	3.7
PRO-GR100-OD-14.00	14	56	200	110	33	114	53.5	22	6.5
PRO-GR100-OD-21.20	21.2	84.8	260	137	36	145	67	27	10.1
PRO-GR100-OD-33.60	33.6	134.8	350	190	51.5	182	88	32	22.8
PRO-GR100-OD-39.90	39.9	159.6	350	190	50	182	100	36	26



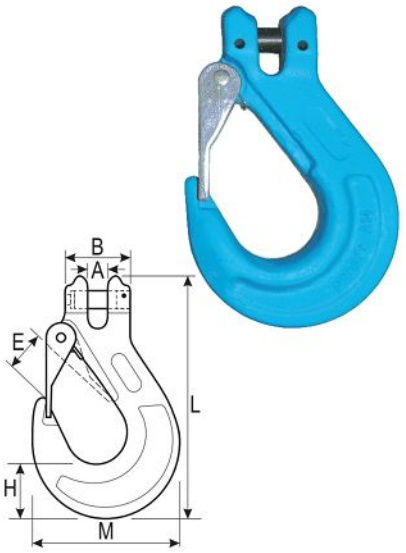
PRO-GR100-KL CONNECTING LINK - EUROPEAN TYPE (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)				Weight (kg/pc)
			A	H	K	L	
PRO-GR100-KL-06.06	1.4	5.6	14	7.6	44.5	60	0.1
PRO-GR100-KL-07.08	2.5	10	18.5	10.5	62	82	0.22
PRO-GR100-KL-10.10	4	16	23	13.5	68.5	94.7	0.45
PRO-GR100-KL-13.13	6.7	26.8	27.5	16.8	88	127	1.15
PRO-GR100-KL-16.16	10	40	34.6	21	103	144	1.75
PRO-GR100-KL-18.20	16	64	42	29.5	113.5	178	2.7
PRO-GR100-KL-22.22	19	76	48.5	27.5	134	193	4.02
PRO-GR100-KL-26.26	26.5	106	60	32.7	164	230	5.1
PRO-GR100-KL-32.32	39.3	157.2	79	40	194	274	8.5



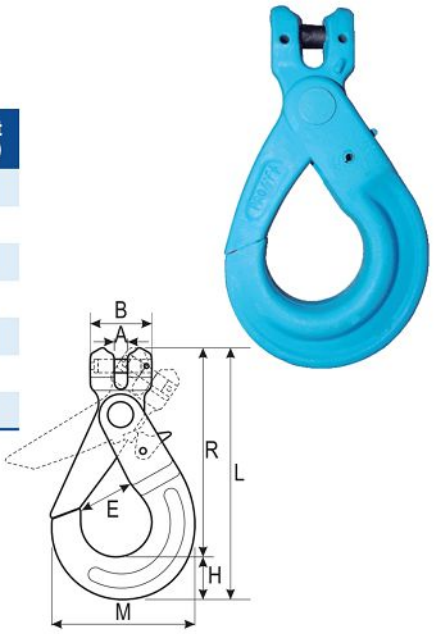
PRO-GR100-KSL CLEVIS HOOK WITH LATCH (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)						Weight (kg/pc)
			A	B	E	H	L	M	
PRO-GR100-KSL-06.06	1.4	5.6	7.5	32	18.5	21	107	69.5	0.33
PRO-GR100-KSL-07.08	2.5	10	9.5	37	25	27.5	135	86.5	0.7
PRO-GR100-KSL-10.10	4	16	12	48	27	33.5	159.5	104	1.3
PRO-GR100-KSL-13.13	6.7	26.8	15	59	38	43	200	131	2.3
PRO-GR100-KSL-16.16	10	40	18.5	71	46	52	249	157.5	3.6
PRO-GR100-KSL-18.20	16	64	26	84	52	58	301	196	7.3
PRO-GR100-KSL-22.22	19	76	29	98.5	73	62	322	220	12.1



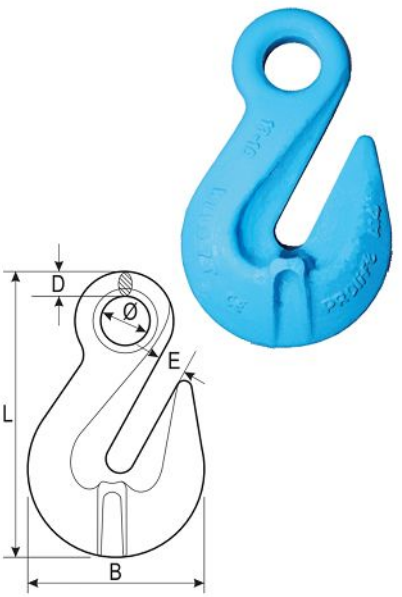
PRO-GR100-KAL SELF-LOCKING CLEVIS HOOK (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)							Weight (kg/pc)
			A	B	E	H	L	M	R	
PRO-GR100-KAL-06.06	1.4	5.6	7.5	32	31	20.5	131	70	110.5	0.5
PRO-GR100-KAL-07.08	2.5	10	10.2	37	37.5	25	163	90	138	0.9
PRO-GR100-KAL-10.10	4	16	12	46	45	30	196.5	109	144	1.6
PRO-GR100-KAL-13.13	6.7	26.8	16.5	61	53.5	40.5	251	138.5	210.5	2.9
PRO-GR100-KAL-16.16	10	40	20	72	63	51.5	306	170.5	254.5	5.8
PRO-GR100-KAL-18.20	16	64	27	82.5	81	57.5	330	192.5	272.5	8.6
PRO-GR100-KAL-22.22	19	76	27.5	95.5	83.5	66	389	205	323	12.1



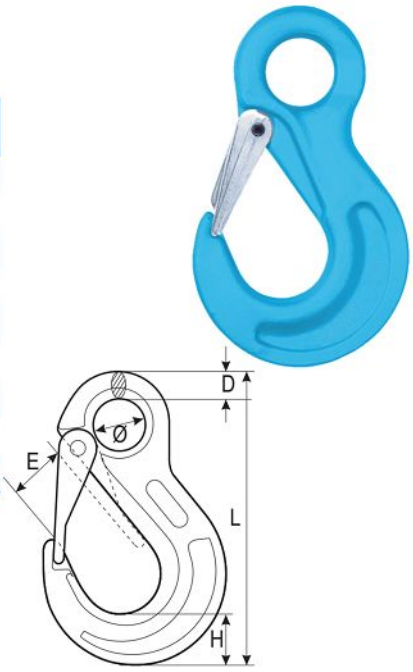
PRO-GR100-KS SHORTENING EYE HOOK (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			D	E	M	Ø	L	
PRO-GR100-KS-06.06	1.4	5.6	9	8	42.5	14	72.5	0.2
PRO-GR100-KS-07.08	2.5	10	10	10	53	18	90	0.28
PRO-GR100-KS-10.10	4	16	14	13	72	22.5	126	0.72
PRO-GR100-KS-13.13	6.7	26.8	16.3	16	94	27	161	1.6
PRO-GR100-KS-16.16	10	40	19	18.7	106	36	183	2.45
PRO-GR100-KS-18.20	16	64	23	23	135	42.5	230	4.72
PRO-GR100-KS-22.22	19	76	26.5	25	157.5	48.5	265.5	8.2



PRO-GR100-KE EYE HOOK WITH LATCH (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)					Weight (kg/pc)
			D	E	H	L	Ø	
PRO-GR100-KE-01.40	1.4	5.6	10	20	21	110	20.5	0.32
PRO-GR100-KE-02.50	2.5	10	11	28	27.5	137.5	25	0.6
PRO-GR100-KE-04.00	4	16	16	30	34	172	34	1.2
PRO-GR100-KE-06.70	6.7	26.8	20	38	43.5	219	41	2.2
PRO-GR100-KE-10.00	10	40	24.5	44	53	260	49	3.5
PRO-GR100-KE-16.00	16	64	27.5	52	57	298	54	7.15
PRO-GR100-KE-19.00	19	76	29	66	62	330	60	11.5
PRO-GR100-KE-26.50	26.5	106	35	73	75	376	70	12.2
PRO-GR100-KE-39.30	39.3	157.2	39	87	89	458	81.5	17.5

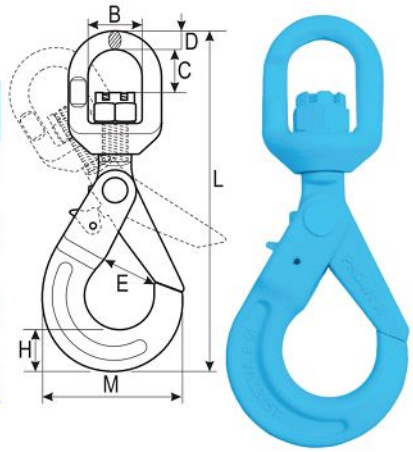


PRO-GR100-KOA SELF-LOCKING EYE HOOK (GRADE 100)

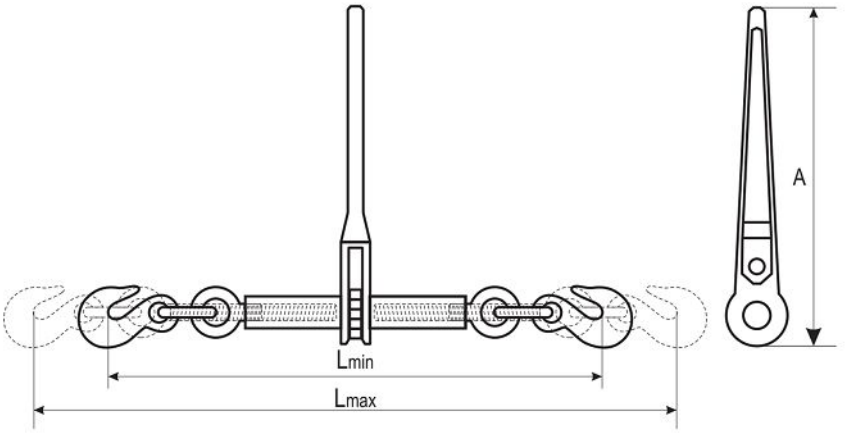
Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)							Weight (kg/pc)
			D	E	H	L	M	R	Ø	
PRO-GR100-KOA-06.06	1.4	5.6	43	28	20	141	70	110	21	0.5
PRO-GR100-KOA-07.08	2.5	10	51	35.5	26	175	90	137	27	0.9
PRO-GR100-KOA-10.10	4	16	64.5	45	30	212.5	108	169	34.5	1.5
PRO-GR100-KOA-13.13	6.7	26.8	80	53.5	40.5	270	138.5	209	40	2.7
PRO-GR100-KOA-16.16	10	40	104	62	50.5	331	170.5	254	50	5.7
PRO-GR100-KOA-18.20	16	64	120	76.5	62	369	192.5	277	60	7.9
PRO-GR100-KOA-22.22	19	76	134	80	66	417	205	319.5	70	11.2

PRO-GR100-KRA SELF-LOCKING SWIVEL HOOK (GRADE 100)

Model/ Features	WLL (t)	MBL (t)	Dimensions (mm)							Weight (kg/pc)
			B	C	D	E	H	L	M	
PRO-GR100-KRA-06.06	1.4	5.6	32.5	23	11.5	28	20	184	70	0.6
PRO-GR100-KRA-07.08	2.5	10	36	26	13	35.5	26.5	224	90	1.1
PRO-GR100-KRA-10.10	4	16	41	36	16	45	31	269	107.5	2
PRO-GR100-KRA-13.13	6.7	26.8	49	41	17	53.5	40.5	330	137	4
PRO-GR100-KRA-16.16	10	40	69	55	21.5	62	51.5	410	172.5	6.8
PRO-GR100-KRA-18.20	16	64	72	62	26	76.5	62	463	192.5	12.5
PRO-GR100-KRA-22.22	19	76	97	94	33	80	66	572	205	17.1



PRO-GR100-INT RATCHET TYPE LOAD BINDER WITH SAFETY PIN HOOKS



This type of ratchet binder is used with lashing chain sets for tying down / securing loads.

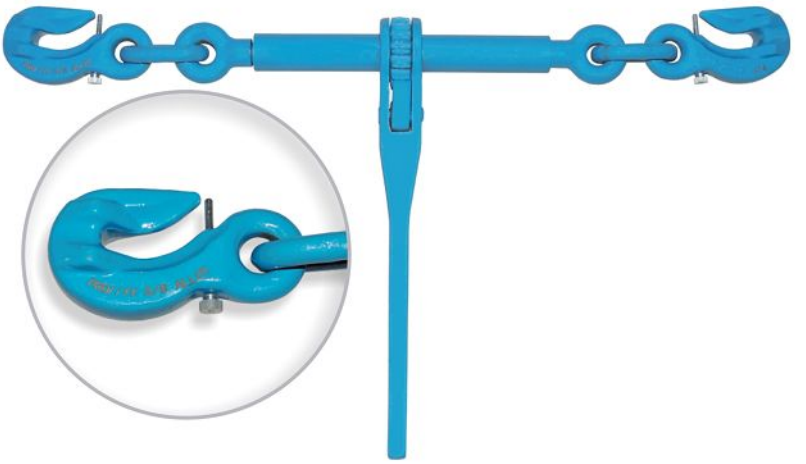
The cradle grab hooks at the ends are equipped with safety pins to enhance operational safety.

Manufactured according to EN 12195-3 standard.

For proper chain size, see Grade 100 lifting chain table on page 105.

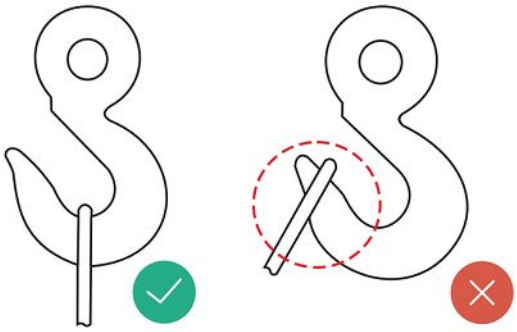
Model/ Features	Chain diameter (mm)	Lashing capacity LC (daN)	Breaking force BF (daN)	Dimensions (mm)			Greutate netă (kg)
				A	L min	L max	
PRO-GR100-INT-08	8	5000	10000	383	580	740	3.71
PRO-GR100-INT-10	10	8000	16000	390	640	800	5.85
PRO-GR100-INT-13	13	13400	26800	392.5	740	900	9.34

STF = 30% din LC



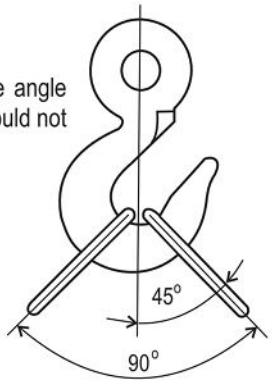
HOOKS USER GUIDE

1. The slings must be connected to the hook center. Never hang them by its tip!

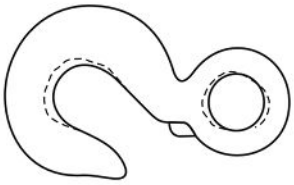


2. Repairing cracks by welding is forbidden.

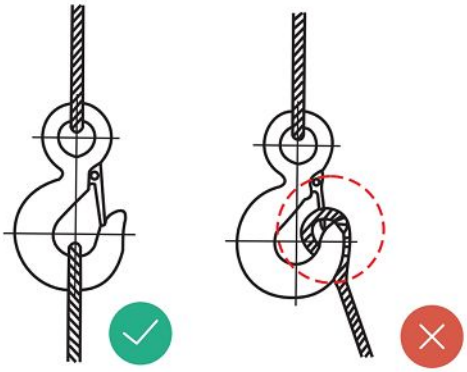
3. When two slings are placed on one hook, the angle between each sling and the hook center line should not exceed 45 degrees.



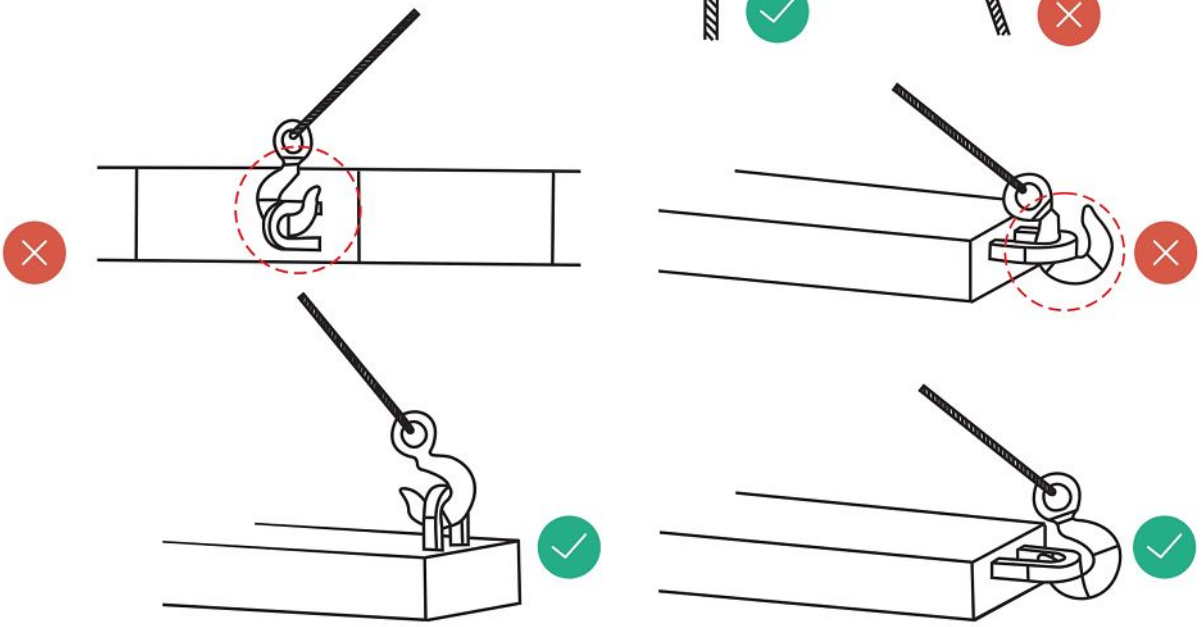
4. Do not use the hook if it shows major worn off signs.



5. Make sure the sling is properly placed in the hook.



6. Right and wrong ways of using hooks:



Do not use the hooks if:

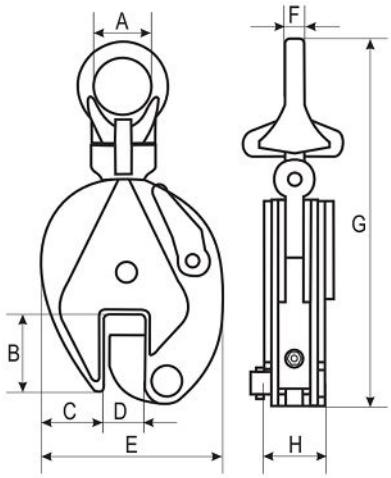
1. If the body of the hook has worn off more than 10% of its original size.
2. Whenever you see cracks on the body of hook.
3. If the hook's opening has become wider than it was before or if the tip of the hook or any of its other parts has been deformed over 10%.

LIFTING CLAMP

- PLATE CLAMPS
- PIPE CLAMPS
- BARREL CLAMPS
- RAILROAD CLAMPS
- SPECIAL HOOKS

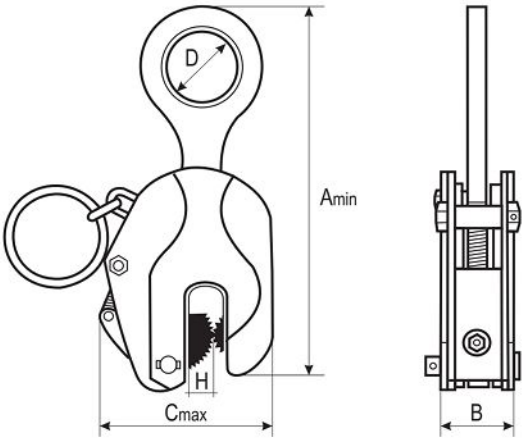
Manufactured according to EN 13155 standard.

PRO-UP UNIVERSAL PLATE CLAMP



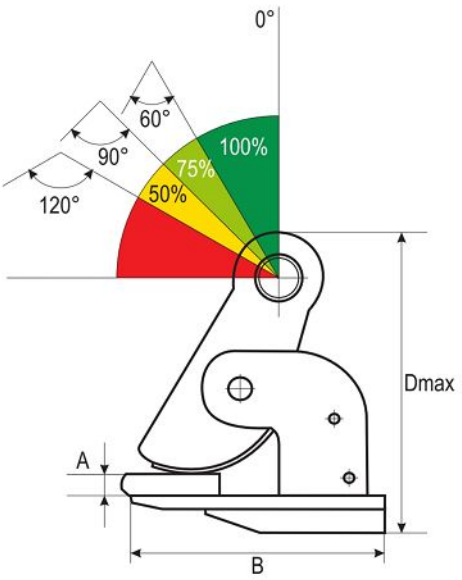
Model/ Features	WLL (t)	Tested load (kN)	Opening (mm)		Dimensions (mm)								Weight (kg/pc)
			min.	max.	A	B	C	D	E	F	G	H	
PRO-UP-005	0.5	9.8	0	15	30	43	34.5	17	103	10	212	36	2.0
PRO-UP-01	1	19.6	0	20	48	63	51	22	138	12	294	50	4.8
PRO-UP-02	2	39.2	0	25	68	76	59	27	164	16	370	52	6.5
PRO-UP-03	3	58.8	0	30	74	85	56	32	193	20	418	78	15
PRO-UP-05	5	98	0	50	80	90	65	52	240	22	450	88	23
PRO-UP-08	8	156.8	0	45	85	112	77	60	364	22	606	100	37
PRO-UP-12	12	235.2	50	90	90	145	100	150	390	25	702	110	50

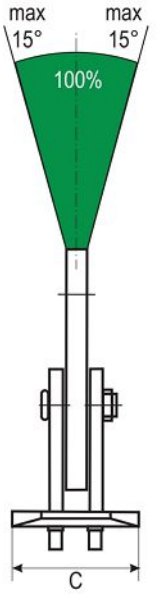
PRO-VE VERTICAL PLATE CLAMP



Model/ Features	WLL (t)	Load test (kN)	Opening (mm)		Dimensions (mm)					Weight (kg/pc)
			min.	max.	A	B	C	D	H	
PRO-VE-01	1	19.6	0	22	220	52	155	50	0-24	3.6
PRO-VE-02	2	39.2	0	30	250	60	155	60	0-35	6.0
PRO-VE-03	3	58.8	0	35	296	68	176	60	0-40	9.2
PRO-VE-05	5	98	0	50	350	78	218	65	0-50	16.5

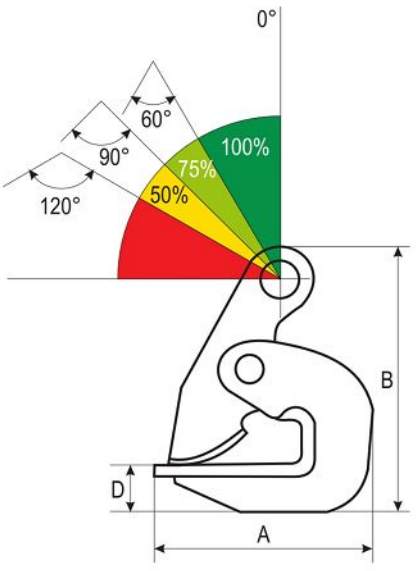
PRO-OR HORIZONTAL PLATE CLAMP

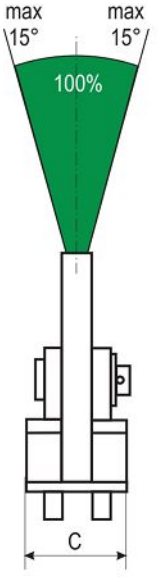




Model/ Features	WLL/ (t)	Tested load (kN)	Opening (mm)		Dimensions (mm)						Weight (kg/pc)
			min.	max.	A min.	A min.	B	C	D	E	
PRO-OR-075	0.75	14.7	0	50	0	52	127	100	218	30	4.3
PRO-OR-150	1.5	29.4	0	50	0	52	220	110	270	36	7.7
PRO-OR-250	2.5	49	0	60	0	62	260	130	315	40	14.1
PRO-OR-400	4.0	78.4	0	100	0	103	290	165	426	40	30.5

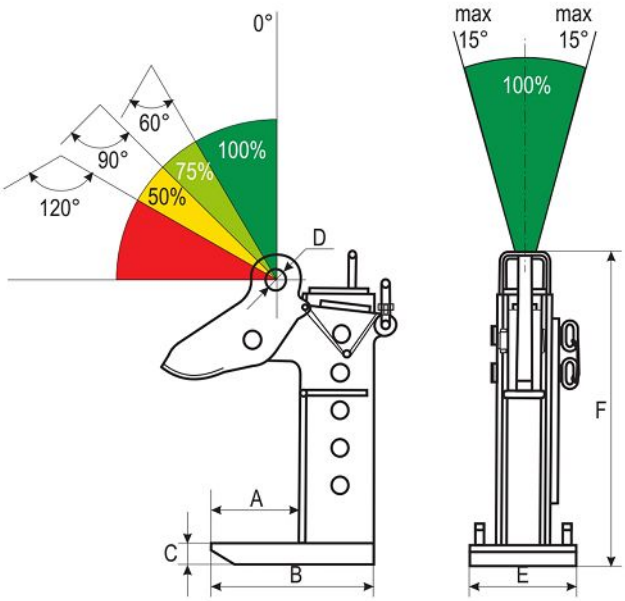
PRO-DN HORIZONTAL PLATE CLAMP





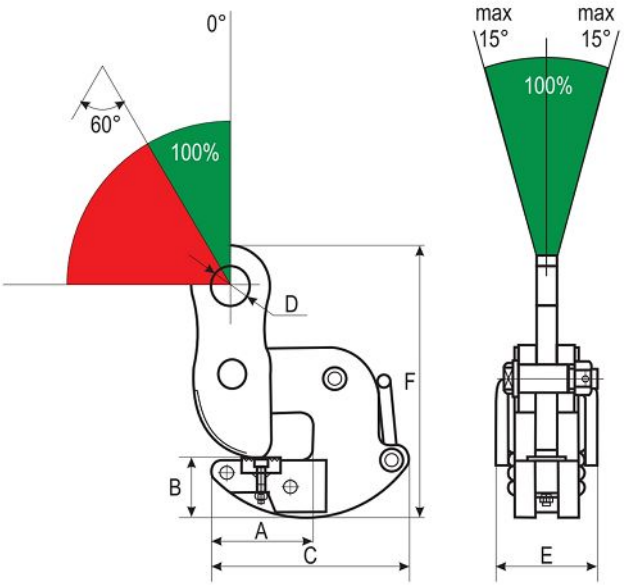
Model/ Features	WLL/pair (t)	Plate thickness (mm)	Dimensions (mm)					Weight (kg/pc)
			A	B	C	D	Ø	
PRO-DN-02	2	0 - 20	127	156	56	29	21	2.12
PRO-DN-03	3	0 - 30	152	190	64	31	28	3.4
PRO-DN-05	5	20 - 60	220	293	70	54	34	8.5
PRO-DN-08	8	50 - 100	277	375	86	59	40	16.2
PRO-DN-10	10	60 - 125	296	421	86	66	50	20.2

PRO-PD HORIZONTAL PLATE CLAMP



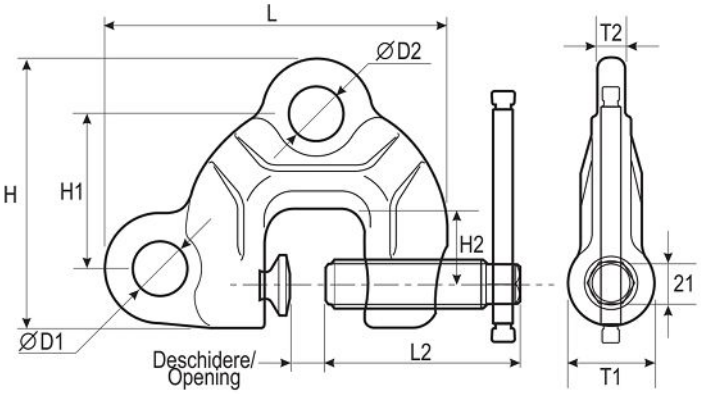
Model/ Features	WLL/pair (t)	Plate thickness (mm)	Dimensions (mm)						Weight (kg/pc)
			A	B	C	D	E	F	
PRO-PD-03	3	20 - 160	110	210	25	26	140	380	20
PRO-PD-05	5	40 - 240	130	240	30	30	158	450	29
PRO-PD-08	8	40 - 240	180	300	60	40	200	520	50
PRO-PD-15	15	40 - 240	180	300	75	50	235	530	72

PRO-DF HORIZONTAL PLATE CLAMP

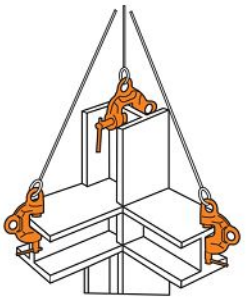


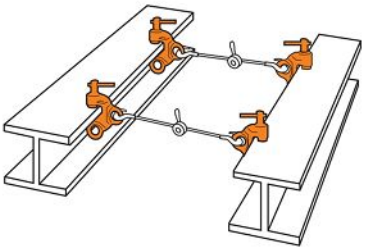
Model/ Features	WLL (t)	Plate thickness (mm)	Dimensions (mm)						Weight (kg/pc)
			A	B	C	D	E	F	
PRO-DF-15	1.5	0 - 20	80	43	153	30	80	205	5.2
PRO-DF-25	2.5	0 - 30	105	52	190	35	90	270	8.7
PRO-DF-50	5	10 - 40	136	82	247	46	114	380	25
PRO-DF-100	10	20 - 50	160	85	300	60	129	410	35

PRO-SDC PLATE CLAMP WITH SCREW



Model/ Features	WLL (t)	Opening (mm)		Dimensions(mm)									Weight (kg/pc)
		min.	max.	L	L2	H	H1	H2	D1	D2	T1	T2	
PRO-SDC-0.5N	0.5	0	25	146	89	119	69	30	27	27	46	15	1.9
PRO-SDC-1.0N	1	0	40	199	121	157	90	45	32	32	50	16	3.4
PRO-SDC-1.5WN	1.5	10	50	214	121	164	96	45	36	32	50	18	6.0
PRO-SDC-2.0N	2	0	40	215	121	169	96	45	36	32	55	19	4.5
PRO-SDC-3.0N	3	0	40	237	136	181	103	50	45	35	60	20	5.9
PRO-SDC-3.0WN	3	35	75	270	136	191	113	50	45	35	60	20	7.8
PRO-SDC-5.0N	5	0	50	270	146	215	123	55	50	37	80	43	11





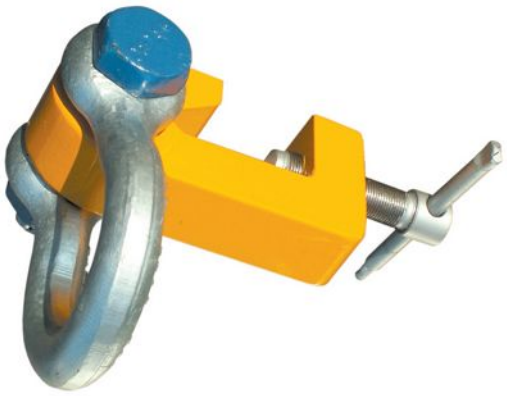
Horizontal clamps working load limit is influenced both by the vertical angle of chain legs with clamps at lower ends and by symmetrical positioning of the load on the clamps pair.

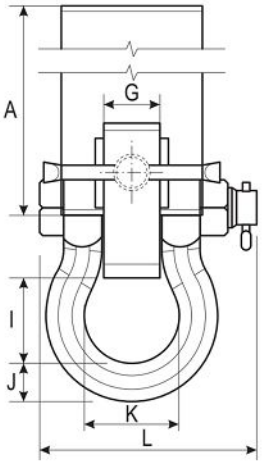
PRO-LC RAILROAD TRACK CLAMP

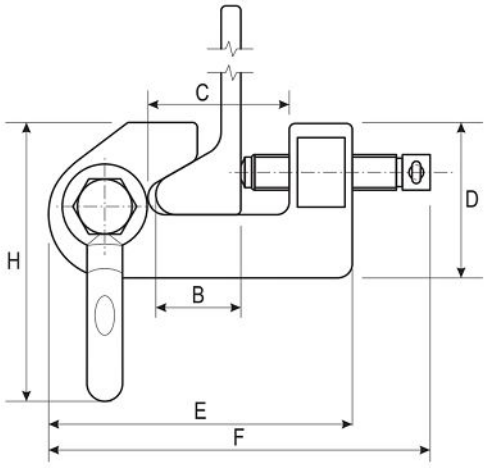
Model/ Features	WLL (t)	Opening (mm)		Weight (kg/pc)
		min.	max.	
PRO-LC-010	1	20	100	8

PRO-PC SCREW CLAMP FOR NAVAL PROFILE

These clamps are used in shipyards to lift HP type steel profiles.

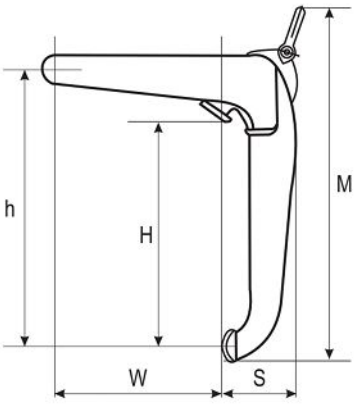






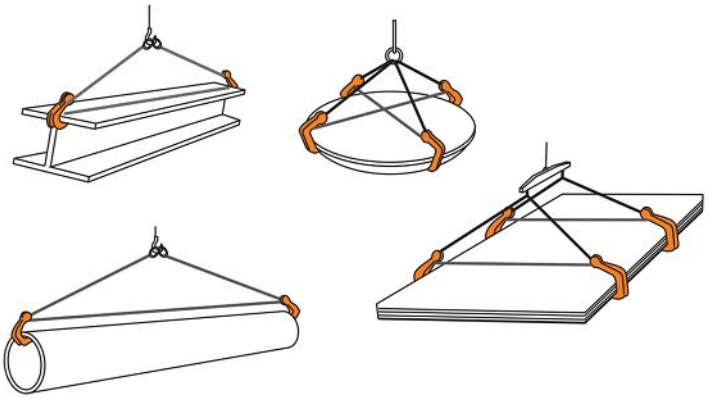
Model/ Features	WLL (t)	HP profile (mm)	Dimensions (mm)											Weight (kg/pc)
		A	B	C	D	E	F	G	H	I	J	K	L	
PRO-PC-1.5	1.5	100 - 240	22.5 - 46	75	75	165	191 - 211	40	177	75	27	67	154	5.6
PRO-PC-3.0	3	160 - 320	29 - 60	100	100	221	250 - 275	45	216	74	32	74	170	10.5
PRO-PC-6.0	6	300 - 430	54 - 82.5	135	135	260	306 - 340	60	231	64	32	74	170	14.5

PRO-BT DRUM LIFTING CLAMP

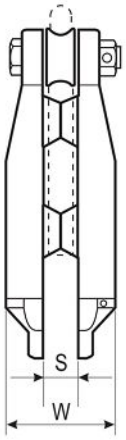


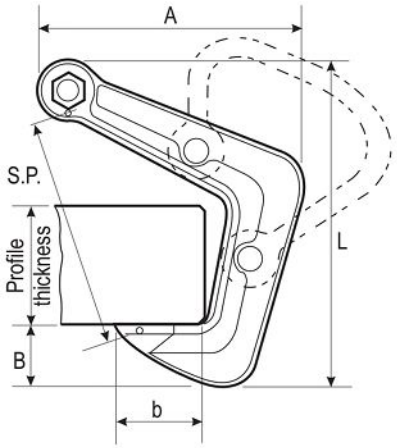
Model/ Features	WLL (t)	Opening (mm)		Dimensions (mm)					Weight (kg/pc)
		min.	max.	H	h	M	S	W	
PRO-BT-06	0.6	30	0 - 30	350	420	570	105	260	6.5

PRO-HHC PLATE CLAMP FOR METAL PROFILE



PRO-HHC clamps are fitted along a circular chain set, on which it slides freely, thus allowing free positiong according to the size of the lifted load.





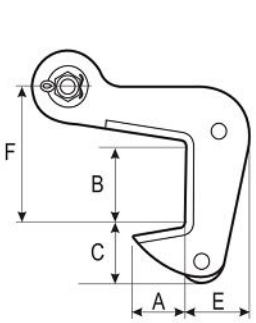
Model/ Features	WLL/pair (t)	Profile thickness (mm)	Dimensions (mm)							Weight (kg/pc)
			L	A	B	b	S	W	SP	
PRO-HHC-3	3	95	264	215	49	73	65	125	187	7.8
PRO-HHC-5	5	125	342	279	60	96	85	160	243	16.5

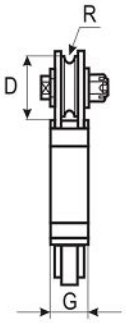
PRO-DLC DRUM LIFTING CLAMP

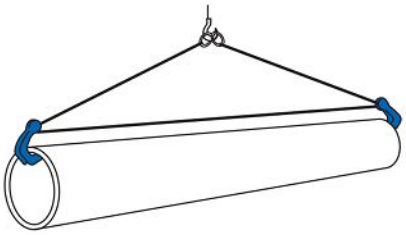
Model/ Features	WLL (t)	Test load (kN)	Opening (mm)		Weight (kg/pc)
			min.	max.	
PRO-DLC	0.5	9.8	0	17	1.6

Manufactured according to EN 13155 standard.

PRO-DC PIPE CLAMP







Model/ Features	WLL/pair (t)	Opening (mm)		Dimensions (mm)								Weight (kg/pc)
		min.	max.	A	B	C	D	E	F	G	R	
PRO-DC-04	4	40	100	72	102	70	74	82	179	60	10	7
PRO-DC-06	6	40	120	91	129	89	100	107	263	73	12	14
PRO-DC-10	10	120	210	134	213	133	130	148	367	90	15	32

PRO-TF TEFLON PIPE CLAMP

Model/ Features	WLL/pair (t)	Opening (mm)	Weight (kg/pc)
PRO-TF-1.5	1.5	40	2
PRO-TF-3.0	3	40	3
PRO-TF-4.0	4	50	3.5
PRO-TF-6.0	6	50	4.5
PRO-TF-8.0	8	70	6.5
PRO-TF-12.0	12	70	12
PRO-TF-16.0	16	70	17

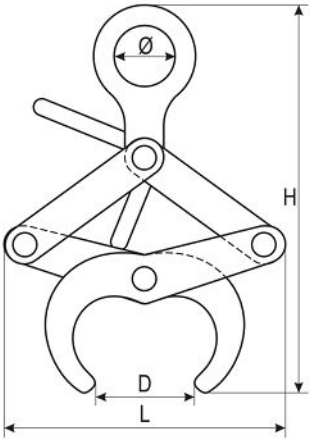
This clamp has a teflon element with protects both the clamp and the steel sheet surface or margin.

PRO-CL CEMENT PIPE CLAMP

Note that working load limit for these clamps is calculated always for a 3 leg chain set use.The chain legs are equidistant positioned.

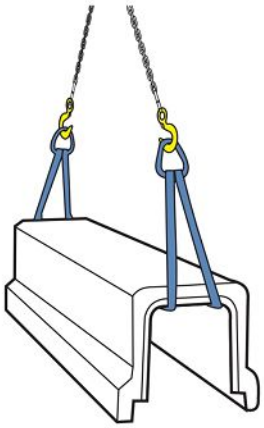
Model/ Features	WLL/ 3 clamps (t)	Opening (mm)		Weight (kg/3pcs)
		min.	max.	
PRO-CL-40.120	1.5	40	120	33
PRO-CL-50.180	3	50	180	58
PRO-CL-90.220	3	90	220	77

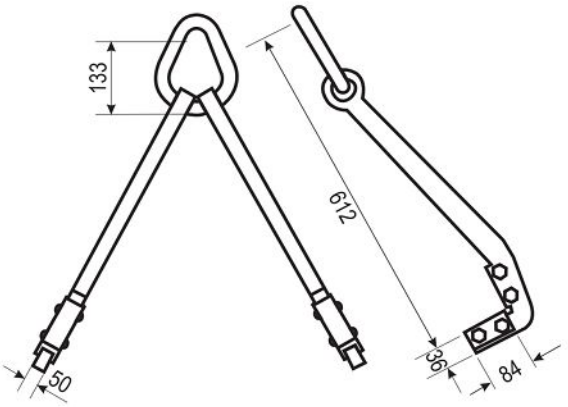
PRO-RLC PIPE CLAMP



Model/ Features	WLL (t)	Opening D (mm)		Height H (mm)		Width L (mm)		Ring diameter Ø (mm)	Weight (kg/pc)
		min.	max.	min.	max.	min.	max.		
PRO-RLC-05	0.5	50	100	330	385	150	190	45	3.2
PRO-RLC-10	1	50	100	305	385	150	170	45	4.1
PRO-RLC-20	2	80	130	400	530	265	330	50	16
PRO-RLC-30	3	120	220	520	670	280	355	55	32
PRO-RLC-50	5	200	320	750	980	460	580	75	104

PRO-HHC-1W PIPE HOOKS ASSEMBLY

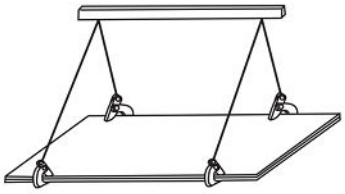




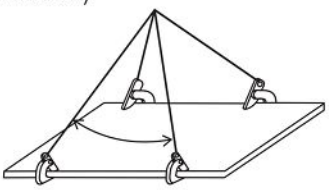
Model/ Features	WLL/pair (t)	Steel sheet maximum thickness (mm)	Weight (kg/pc)
PRO-HHC-1W	1	100	10

PLATE CLAMPS USER GUIDE

1. When lifting horizontal loads (plates), the clamps must be symmetrically positioned (see picture below).



2. When metallic plates are lifted in low headroom conditions, use a 4 leg sling set, fitted with horizontal lifting clamps that must fulfill the load factors (see picture below).

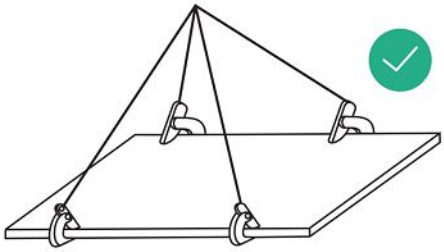


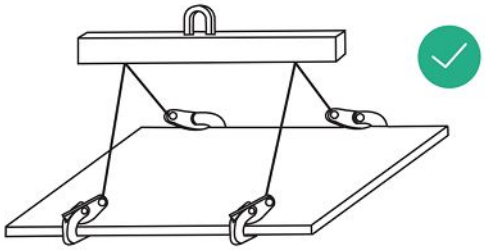
3. Choosing the clamps must be made according to the weight and thickness of the steel plate - overloading is strictly forbidden.

4. Select carefully the location of handling taking into account the thickness of the clamps - it must be enough space between the steel plate and the ground, to permit the safe placing and removing of the clamps.

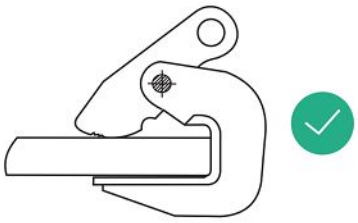
How to use horizontal clamps

1. Single plate lifting.

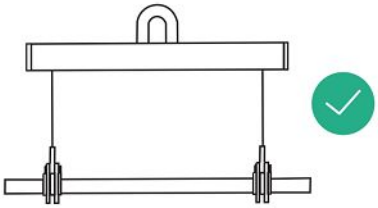




2. The steel plate must be placed on the base of the clamp.

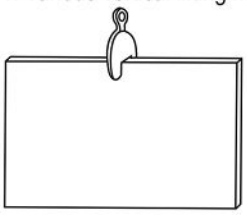


3. The handled plates should be placed perfectly horizontal during lifting to avoid dropping the load.

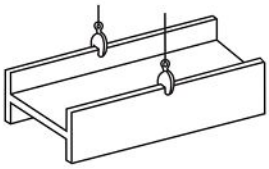


How to use vertical (universal) clamps

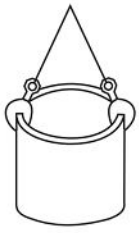
1. Various vertical lifting methods:



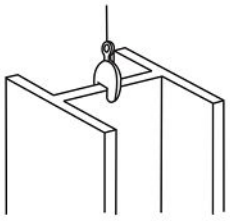
One clamp
plate lifting



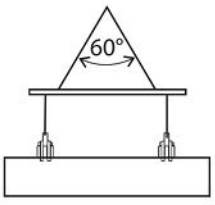
Two-clamps
H-profile lifting



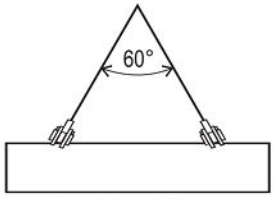
Two-clamps
cylinder lifting



One clamp
H-profile lifting



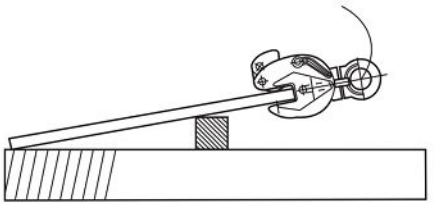
Steel plate lifting
using a beam



Steel plate lifting
using a 2 leg sling set

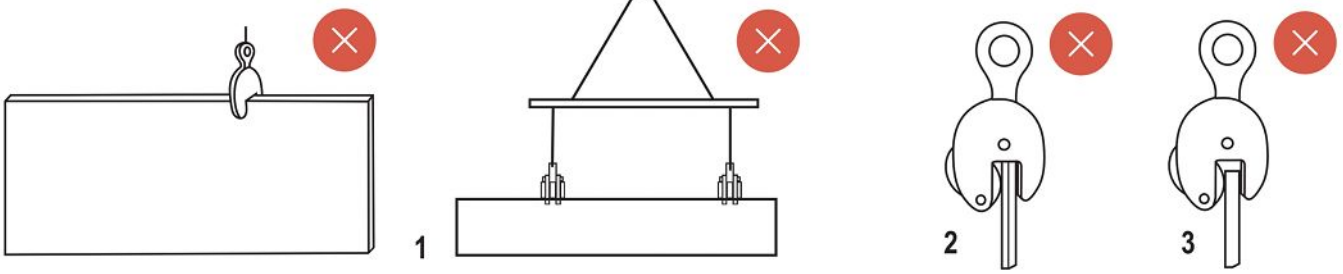
Important note when use vertical / universal plate clamps

1. Not to be used to lift less than 20% of working load limit!
example: one pair of 2 ton clamps should be used only for lifting loads with a weight at least 0.4 ton!



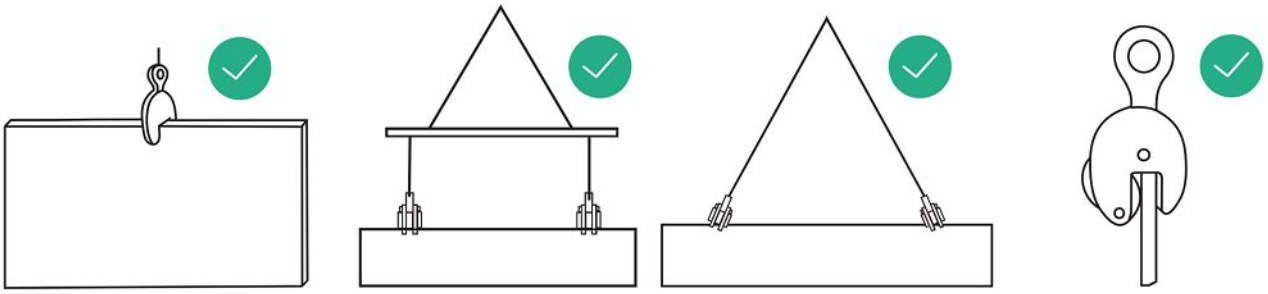
1. In order to ensure optimal use of the clamps you should know exactly the weight of the load.
2. Carefully place the clamp onto the plate to be lifted.

Wrong ways to use vertical plate clamps



1. Pay attention to the positioning of clamps; unbalanced loads lifting is not advisable.

2. Use the clamp to lift only one plate.
3. The plate should be properly fitted and blocked in clamp before lifting.

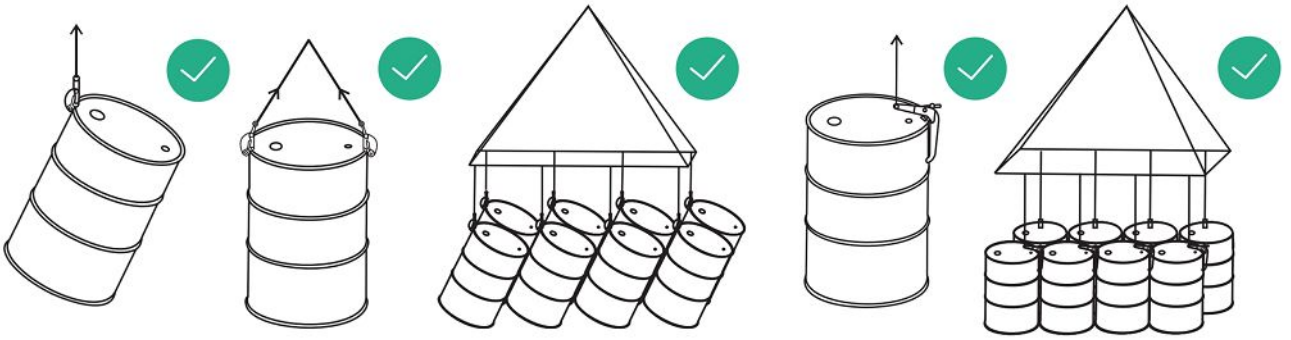


During lifting with vertical clamps

1. Load colliding is strictly forbidden.
2. Staying under the load is strictly forbidden.
3. Using clamps that shows oil traces on the gripping area should be avoided.

During lifting of drums

1. The clamps must be chosen according to the drums weight to avoid overloading.
2. Colliding the drums is strictly forbidden during the lifting operation.
3. Staying under the drums is strictly forbidden.

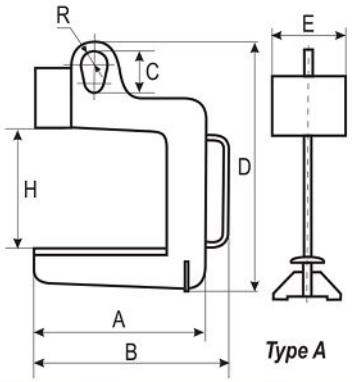


Don not use the clamps if / when:

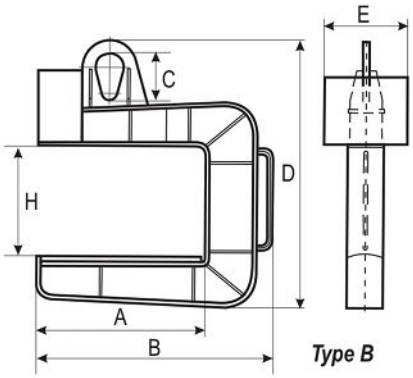
1. The clamp's opening has been deformed more than 5%, reported to their initial condition.
2. The suspension lug of the clamp is worn off more than 10% of its original size.
3. The clamp's jaw has been deformed more than 2.5%.
4. The clamp's body shows any cracks.
5. The clamp is rusty and it presents jammed parts.

PRO-CRC C-TYPE STEEL COIL HOOK

These hooks are used for handling large steel coils. Type A is used of handling loads up to 3.2 tons weight and the type B is used for loads over 3.2 tons. All dimensions listed below are informative since these products can be customized as per client's request. Product images are for presentation purposes.



Type A



Type B

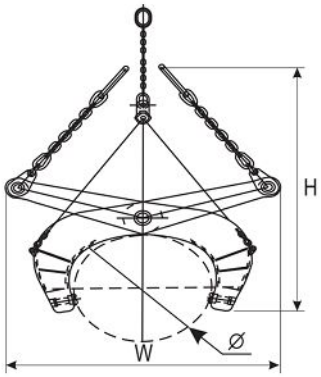
WLL (t)	Coil width (mm)	Coil diameter (mm)	Dimensions (mm)							Weight (kg/pc)
			A	B	C	D	E	H	R	
3.2	< 300	≥ 400	300	590	155	845	250	430	50	85
	350 - 500	≥ 400	500	725	155	924	250	450	50	130
5	750 - 900	≥ 400	900	1225	200	1144	324	500	60	350
	900 - 1100	≥ 500	1100	1450	200	1331	318	600	60	420
	1100 - 1300	≥ 500	1300	1670	200	1332	375	600	60	530
10	750 - 900	≥ 500	900	1290	300	1555	435	650	90	570
	900 - 1120	≥ 500	1120	1555	300	1767	477	850	90	790
	1100 - 1300	≥ 500	1300	1758	300	1722	478	750	90	795
	1300 - 1500	≥ 500	1500	1955	300	1854	467	850	90	1120
16	900 - 1100	≥ 600	1100	1540	310	1850	594	850	90	1140
	1100 - 1250	≥ 600	1250	1710	310	1871	533	850	90	1250
25	900 - 1100	≥ 600	1100	1570	370	1982	633	860	110	1800
	1100 - 1300	≥ 700	1300	1810	370	2058	716	860	110	2130
32	1400 - 1660	≥ 700	1660	2240	550	2450	700	850	130	2950

Note: All C-type hooks are manufactured as per customer's request, using the dimensions and working loads limits needed.

PRO-MRL STEEL INGOT HOISTING MECHANISM

ilt is used for handling steel ingots or bars using the self-locking principle. It has a simple construction, it is safe and robust.

All dimensions are informative, the hoisting mechanisms can be customized per customer's request.



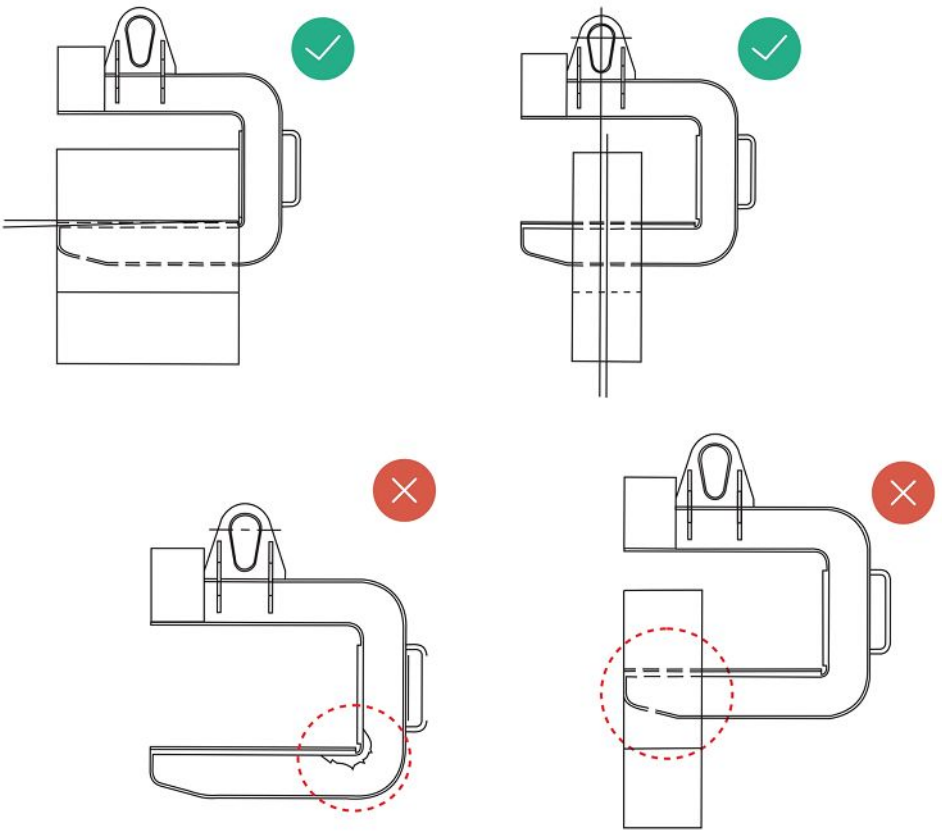
WLL (t)	Ingot diameter Ø (mm)	Maximum opening (mm)		Weight (kg/pc)
		W	H	
25	0-1750	4100	8300	5500
63	400-3500	6300	10000	13800
150	700-3500	8000	12500	32000
350	0-4800	8000	11500	47000
550	3000-5000	9300	11500	103000

C-TYPE HOOKS USER GUIDE

Important:

The proper use of the C-type hooks will insure safe operations an will extend their life span.

1. Prior to the first use of the C type hooks read carefully the operating instructions.
2. Do not overload the "C" hook! Make sure that the load is balanced when lifting.
3. Before using a "C" hook, check the entire surface of it for open joints, deformed or broken parts.
4. Do not change the construction, the shape, do not add or remove parts of it.
5. Control the lifting speed, prevent and avoid sudden moves or swinging of the load during lifting.
6. The load (the steel roll) is "secured" due to the position of the lifting lug; this places the center of mass of the load inside the hook.
7. When lifting smaller coils, their center of mass must be placed 30 to 80 mm towards the inside of the hook from the hoisting point.



8. The traveling crane must keep the load in a continued balance to avoid dropping the lifted coil and also to prevent hitting the hook.
9. Store "C" hooks in a dry, corrosion free environment.
10. These hooks must be handled by a trained operator, who must be aware of all the safety operations specifications and requirements.

Safety inspections of special hooks

1. Please check the hook before use. If the hook has cracks or open joints, please advise the safety inspector / competent person for checking.
2. **Montly inspection.** The authorized safety inspector on site should check during this monthly inspection if all the components are being operated according to the safety standards and to make records of their condition.
3. **Yealy inspection.** Once a year is advisable to have the hooks inspected by a specialized company to detect the eventual hidden flaws that may not be observed during visual inspections. Non-destructive testing is advisable.

WINCHES, TIRFORS AND PULLEYS

WINCHES

- HAND WINCHES
- PNEUMATIC (AIR) WINCHES
- ELECTRIC WINCHES

WIRE ROPE PULLING HOIST (TIRFOR)

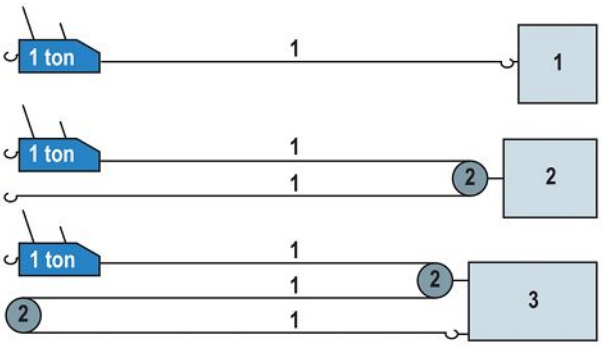
PULLEYS

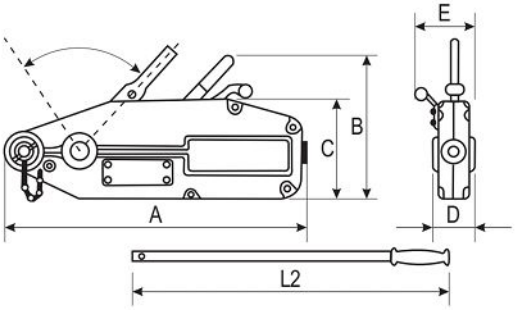
PRO-AL WIRE ROPE PULLING HOIST (TIRFOR)

It is used for the lifting, pulling or tensioning of traction wire ropes; it can be used for tensioning of wire ropes too.

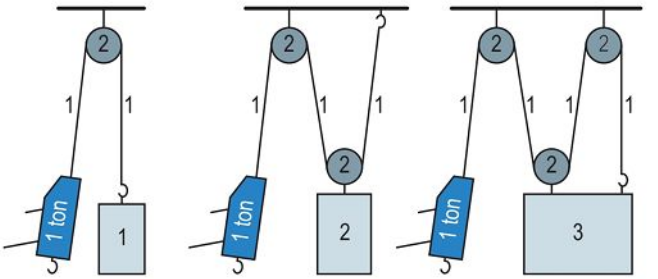
Working temperature range is between – 10 °C and +50 °C.
They are made in accordance with EN 13157-2010 standard.

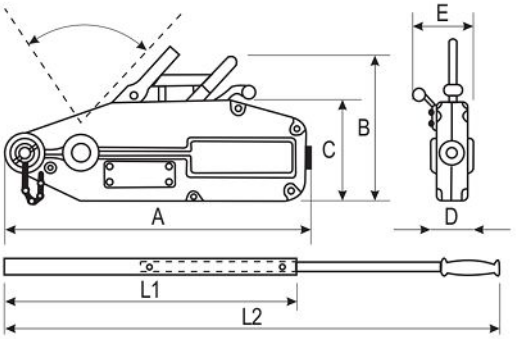
Main features:
- aluminum casing;
- telescopic levers;
- standard fitted with 20 m of lifting wire rope; optionally, it can be equipped with the length required by customer.



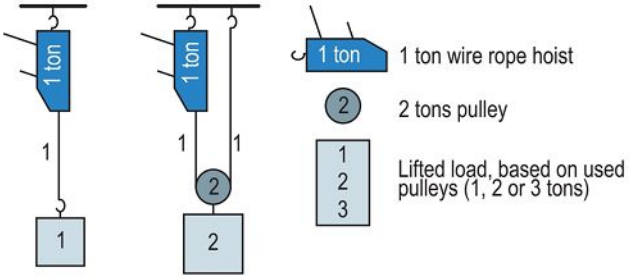


800 KG





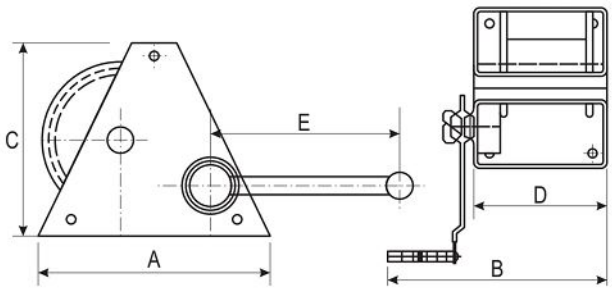
1600 KG
3200 KG
5400 KG



Model/Features		PRO-AL-08	PRO-AL-16	PRO-AL-32	PRO-AL-54
Lifting capacity (t)		0.8	1.6	3.2	5.4
Line pull capacity (t)		1.25	2.4	4.8	8.1
Lever stroke (mm)		60	60	40	30
Handling effort (kg)		25	30	50	N/A
Wire rope diameter (mm)		8.3	11	16	20
Standard wire rope length (m)		20	20	20	20
Net weight without wire rope (kg)		7	14	23	58
Dimensions (mm)	A	426	545	660	930
	B	235	280	325	480
	C	168	190	230	N/A
	D	60	72	91	N/A
	E	64	97	116	152
L1		70	80	80	68
L2		80	120	120	112

PRO-WA / PRO-WB HAND WINCH

They have a robust construction, made from forged steel and they are equipped with self-locking system, with the possibility of manually releasing brake. They allow stopping the load at the desired length / height.

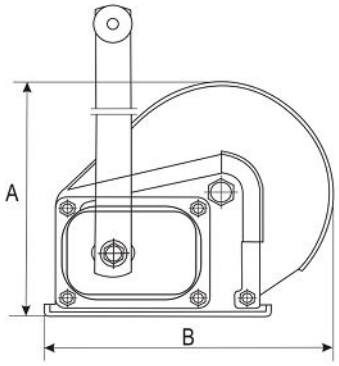


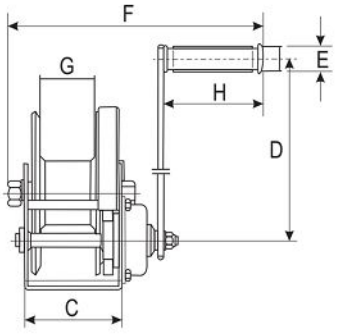
Model/ Features	WLL (kg)	Wire rope diameter (mm)	Wire rope maximum length (m)	Dimensions (mm)					Weight (kg/pc)
				A	B	C	D	E	
PRO-WA-500	500	6	25	240	385	200	200	250	17
PRO-WB-250	250	5	20	240	385	200	200	250	10
PRO-WB-500	500	6	25	240	385	200	200	250	16
PRO-WB-1000	1000	8	35	412	485	300	300	350	40

PRO-WC HAND WINCH

PRO-WC-2000 / PRO-WC-3000

PRO-WC-550 / PRO-WC-850 / PRO-WC-1200

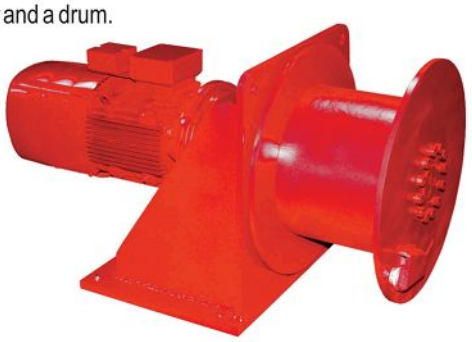




Model/ Features	Pulling capacity (kg)	Lifting capacity (kg)	Wire rope diameter (mm)	Wire rope maximum length (m)	Dimensions (mm)								Weight (kg/pc)
					A	B	C	D	E	F	G	H	
PRO-WC-550	550	275	6	40	156	184	88	210	27	272	51	109	3.7
PRO-WC-850	850	425	6	40	203	256	107	319	27	283	60	109	7.7
PRO-WC-1200	1200	600	8	40	216	293	127	319	27	305	63	109	10.1
PRO-WC-2000	2000	1000	9	40	230	300	235	360	27	490	195	128	25.1
PRO-WC-3000	3000	1500	13	40	296	365	245	380	27	549	205	128	44.3

PRO-SBY PNEUMATIC (AIR) WINCH

It has a classic design and construction, consisting of a motor, planetary reducer and a drum.
Maximum capacity can be up to 20 tons.



Standard features:
- planetary reducer;
- pneumatic drive motor with control valve, local or remotely operated;
- steel drum with a wire rope restraint system on the side flange;
- two mounts for the drum;
- FEM T3-L3-M4 class;

Optional features:
- IP56 electric motor with cast iron housing, for maritime applications;
- explosion proof engine protection;
- brakes on drum;
- alternating speeds;
- different power voltages;
- drum protection;
- threaded wire rope drum;
- manual handling system in case of emergency;
- different drum sizes;
- painted for maritime use.

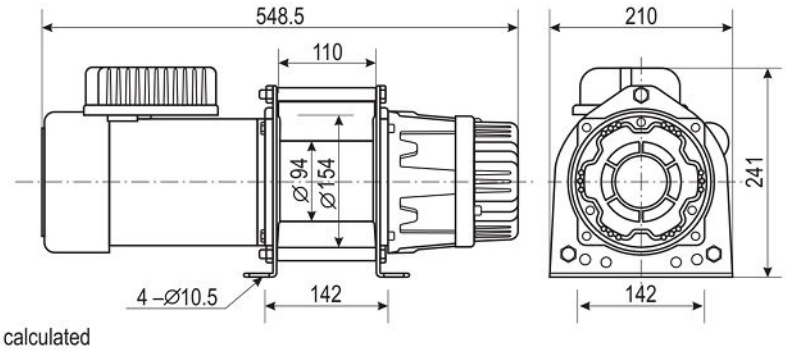
Optional control systems:
- IP55 or IP 66 protection class control panel with operating buttons and safety emergency button, as per NEN 1010;
- low voltages remote control (pendant), class IP 65, as per NEN 1010;
- infrared or radio controller;
- load limiter (mandatory for devices with working load limits exceeding 1 ton, in accordance with EU rules);
- frequency inverter for variable speed control;
- stroke limiter (electric, hydraulic or pneumatic);
- damaged wire rope warning (electric, hydraulic or pneumatic);
- speed control valve, local or remotely operated (hydraulic or pneumatic).

Model/ Type	Diameter of wire rope (mm)	WLL 1st layer(kg)	WLL 5th layer(kg)	Average Speed (m/min)	Drum Capacity 1st layer (m)	Drum Capacity 5th layer (m)	Flow (l/sec)
PRO-SBY-300	10	1200	845	18 - 23	26	168	100
PRO-SBY-301	12	2100	1435	10 - 15	24	157	100
PRO-SBY-303	14	2500	1740	8.5 - 11	26	165	100
PRO-SBY-304	14	3100	2160	22 - 42	26	165	300
PRO-SBY-305	16	4000	2770	17 - 33	25	161	300
PRO-SBY-306	18	5500	3970	12 - 23	28	181	300
PRO-SBY-307.10	22	7000	4960	10 - 18	26	171	300
PRO-SBY-307.16	22	7000	4960	15 - 23	26	171	350
PRO-SBY-309.10	26	9000	3285	7 - 13	24	163	300
PRO-SBY-309.16	26	9000	3285	11 - 18	24	163	350
PRO-SBY-310	28	12000	8460	8 - 13	24	168	350
PRO-SBY-311	34	16000	10665	6 - 10	19	144	350
PRO-SBY-313	38	20000	13610	5 - 8	19	151	350

PRO-CP300 ELECTRIC WINCH

It is built according to the following standards and European Directives:
- EN 14492-1 *Power. Driven Winches*;
- *Machinery Directive* 2006/42/EC;
- *Electromagnetic Compatibility Directive* (EMC) 2004/108/EC;
- *Low Voltages Directive* (LVD) 2006/95/EC.

Features:
- light weight and compact design;
- easy installation;
- electromagnetic safety brake;
- planetary gearing for increased efficiency;
- cast steel housing;
- high efficiency bearings all over the rolling surface;
- locking flange to prevent jamming the wire between the drum and the mount;
- remote control unit with two functions - up/down;
- silent operation;



Line pull capacities from below table are calculated for first layer; also, the pulling is made on flat and clean surfaces, with low friction forces.

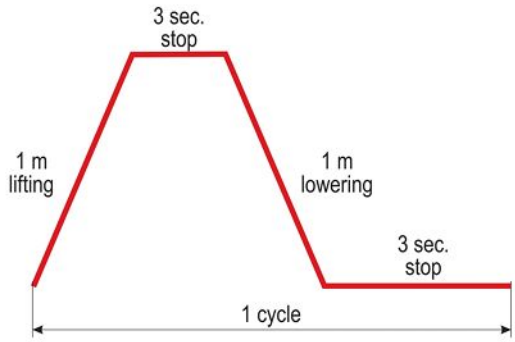
Sling-to-load angle	Line pull capacity (kg)
0%	2500
10%	1340
20%	970
40%	620
60%	490
80%	410
90%	300

Technical specifications:
- lifting capacity: 300 kg;
- lifting speed: 10-15 m/min at 50 Hz;
- motor: 1.15 kW x 4 poles;
- wire rope: 6 mm x 30 m;
- maximum lifting height: 29 m;
- drum diameter: 94 mm;
- drum flange diameter: 154 mm;
- distance between flanges: 110 mm;
- mounting plate size: 142 x 142 mm;
- weight: 40 kg;
- protection class: IP44;
- power supply: 230 V.

Standard accessories:
- traction wire rope: 6 mm x 30 m;
- pendant cord: 1,25 mm^2 x 3 m x 5 wires;
- power cord: 1,5 mm^2 x 3 m x 3 wires.

Notes:
1. **Warning! DO NOT use for moving or lifting people.**
2. For each layer winded out of the drum the lifting capacity increases by approx. 10%.
3. The traction wire rope is not covered by the warranty.
4. The line pull capacity is substantially influenced by the friction forces.

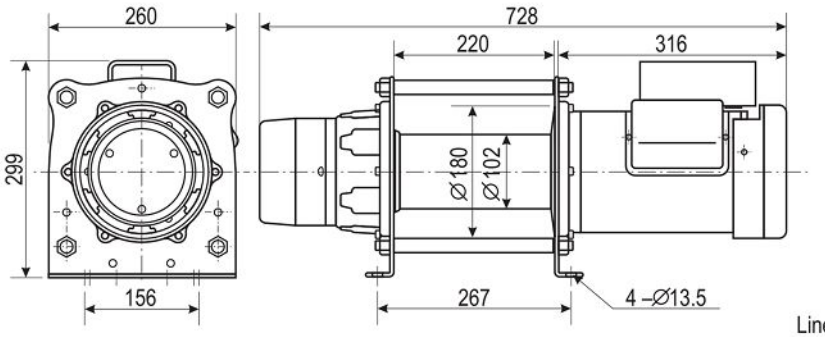
Layer	Lifting capacity (kg)	Lifting speed (m/min)	Maximum length of wire on drum (m)
1	444	10	5.4
2	396	11.3	11.5
3	358	12.5	18.3
4	327	13.8	25.7
5	300	15	30



PRO-CP500 ELECTRIC WINCH

It is built according to the following standards and European Directives:
- EN 14492-1 *Power. Driven Winches*;
- *Machinery Directive* 2006/42/EC;
- *Electromagnetic Compatibility Directive* (EMC) 2004/108/EC;
- *Low Voltages Directive* (LVD) 2006/95/EC.

Features:
- light weight and compact design;
- easy installation;
- electromagnetic safety brake;
- planetary gearing for increased efficiency;
- cast steel housing;
- high efficiency bearings all over the rolling surface;
- locking flange to prevent jamming the wire between the drum and the mount;
- remote control unit with two functions - up/down;
- silent operation; .



Technical specifications:
- lifting capacity: 500 kg;
- lifting speed: 10-15 m/min at 50 Hz;
- motor: 1.8 kW x 4 poles;
- wire rope: 7 mm x 30 m;
- maximum lifting height: 58 m;
- drum diameter: 102 mm;
- drum flange diameter: 180 mm;
- distance between flanges: 220 mm;
- mounting plate size: 267 x 156 mm;
- weight: 57 kg;
- protection class: IP44;
- power supply: 230 V.

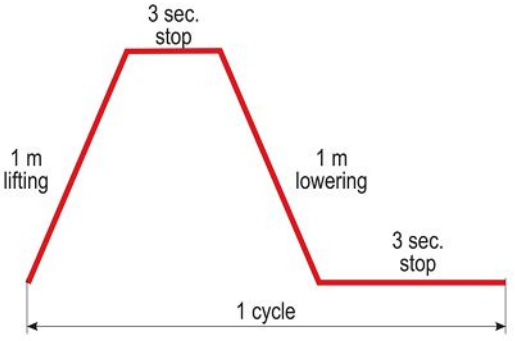
Standard accessories:
- traction wire rope: 7 mm x 30 m;
- pendant cord: 3,25 mm^2 x 6 m x 5 wires;
- power cord: 3,5 mm^2 x 3 m x 3 wires.

Line pull capacities from below table are calculated for first layer; also, the pulling is made on flat and clean surfaces, with low friction forces.

Sling-to-load angle	Line pull capacity (kg)
0%	4170
10%	2230
20%	1620
40%	1040
60%	810
80%	690
90%	500

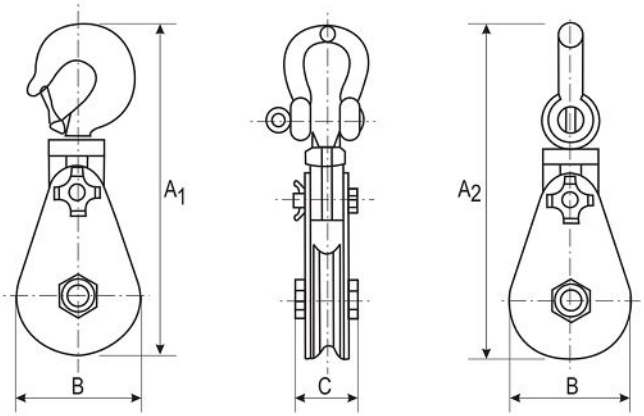
Notes:
1. **Warning! DO NOT use for moving or lifting people.**
2. For each layer winded out of the drum the lifting capacity increases by approx. 10%.
3. The traction wire rope is not covered by the warranty.
4. The line pull capacity is substantially influenced by the friction forces

Layer	Lifting capacity (kg)	Lifting speed (m/min)	Maximum length of wire on drum (m)
1	757	10	10
2	671	11.6	22
3	602	12.9	35
4	546	14.2	50
5	500	15	60

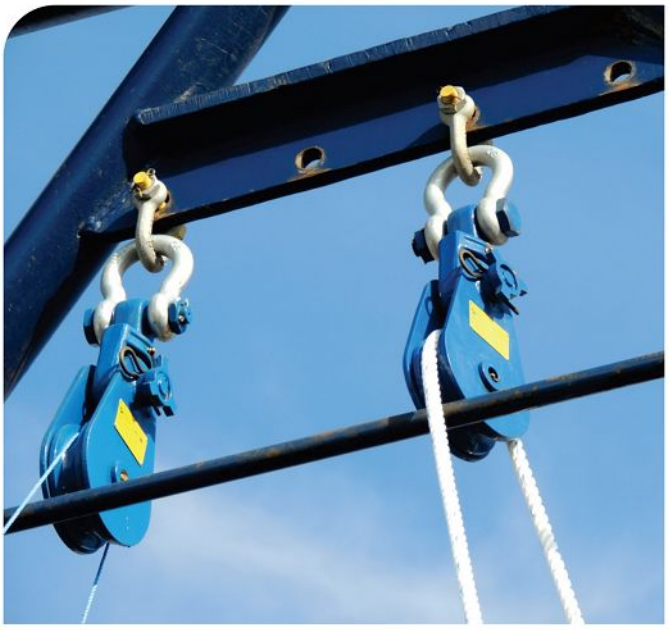


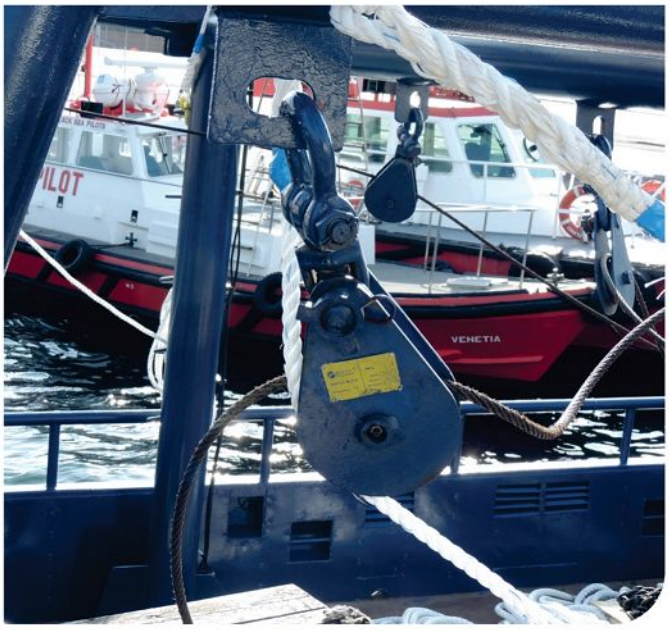
PRO-HB / PRO-SB HEAVY DUTY PULLEYS

They are suitable for handling large and very large loads and help reducing high efforts.
Depending on the user's needs, they are provided with either a hook or a shackle as attaching accessories.

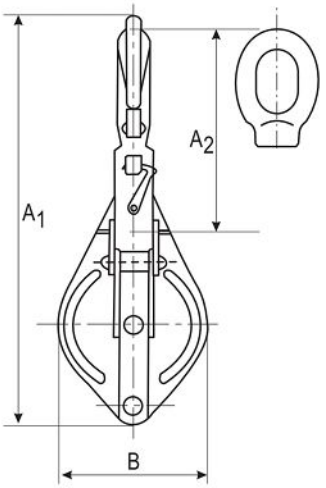


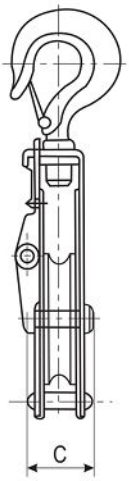
Model/Features		Wheel diameter (mm)	WLL (t)	Dimensions(mm)				Wire rope diameter (mm)	Weight (kg/pc)
				Hook	Shackle				
Hook	Shackle			A1	A2	B	C		
PRO-HB-07502	PRO-SB-07502	75	2	292	286	82	70	7-9	3.9
PRO-HB-11504	PRO-SB-11504	115	4	358	345	120	70	10-12	6.2
PRO-HB-15004	PRO-SB-15004	150	4	412	399	160	70	16-18	8.4
PRO-HB-15008	PRO-SB-15008	150	8	498	475	160	93	20-22	14.1
PRO-HB-20008	PRO-SB-20008	200	8	549	528	210	93	20-22	19
PRO-HB-20015	PRO-SB-20015	200	15	672	663	230	102	22-24	34
PRO-HB-25010	PRO-SB-25010	250	10	695	679	260	115	22-24	36
PRO-HB-25012	PRO-SB-25012	250	12	701	679	260	115	24-26	36
PRO-HB-30012	PRO-SB-30012	300	12	797	787	310	133	24-26	56
PRO-HB-30015	PRO-SB-30015	300	15	797	884	310	133	26-28	58
PRO-HB-35522	PRO-SB-35522	355	22	960	952	365	140	28-32	112
PRO-HB-40022	PRO-SB-40022	400	22	1027	1019	415	140	28-32	122
PRO-HB-40030	PRO-SB-40030	400	30	1085	1126	415	155	32-35	170
PRO-HB-50030	PRO-SB-50030	500	30	1177	1256	514	162	32-35	213

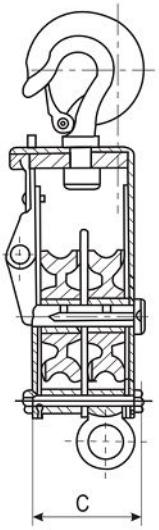




PRO-HS / PRO-HD LIGHT DUTY PULLEYS WITH HOOK





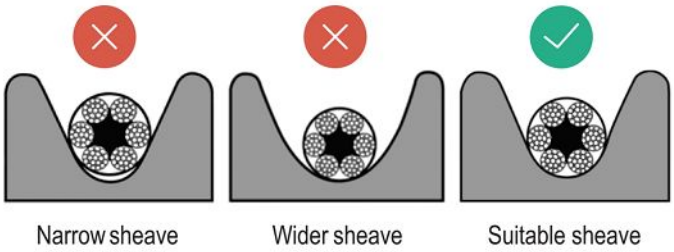


Model/Features		Wheel diameter (mm)	WLL (t)	Dimensions (mm)								Wire rope diameter (mm)
Hook				Single wheel				Double wheel				
Single wheel	Double wheel			A1	B	C	Weight (kg/pc)	A1	B	C	Weight (kg/pc)	
PRO-HS-075005	PRO-HD-075005	75	0.5	268	87	50	1.6	268	87	77	2.8	8
PRO-HS-100010	PRO-HD-100010	100	1	311.5	112	55.5	3.5	311.5	112	88	4.3	10
PRO-HS-125015	PRO-HD-125015	125	1.5	370	140	63.5	4.6	370	140	100	7.8	13
PRO-HS-150020	PRO-HD-150020	150	2	442.5	168	101	7.7	442.5	168	146	12.2	16
PRO-HS-180030	PRO-HD-180030	180	3	498	204	107	11	498	204	157	18.5	19
PRO-HS-200040	PRO-HD-200040	200	4	590.5	226	128	19.3	590.5	226	188	31	22
PRO-HS-250050	PRO-HD-250050	250	5	706.5	276	147	33.8	706.5	276	220	49.8	25
PRO-HS-300060	PRO-HD-300060	300	6	795	330	162	48	795	330	238	72	26
PRO-HS-350100	PRO-HD-350100	350	10	934	395	178	66	934	395	260	102	28

PRO-ES / PRO-ED LIGHT DUTY PULLEYS WITH SHACKLE

Model/Features		Wheel diameter (mm)	WLL (t)	Dimensions (mm)								Wire rope diameter (mm)
Shackle				Single wheel				Double wheel				
Single wheel	Double wheel			A2	B	C	Weight (kg/pc)	A2	B	C	Weight (kg/pc)	
PRO-ES-075005	PRO-ED-075005	75	0.5	227	87	50	1.6	227	87	77	2.8	8
PRO-ES-100010	PRO-ED-100010	100	1	284.5	112	55.5	3.5	284.5	112	88	4.3	10
PRO-ES-125015	PRO-ED-125015	125	1.5	344	140	63.5	4.6	344	140	100	7.8	13
PRO-ES-150020	PRO-ED-150020	150	2	417	168	101	7.7	417	168	146	12.2	16
PRO-ES-180030	PRO-ED-180030	180	3	478	204	107	11	478	204	157	18.5	19
PRO-ES-200040	PRO-ED-200040	200	4	556	226	128	19.3	556	226	188	31	22
PRO-ES-250050	PRO-ED-250050	250	5	651	276	147	33.8	651	276	220	49.8	25
PRO-ES-300060	PRO-ED-300060	300	6	775	330	162	48	775	330	238	72	26
PRO-ES-350100	PRO-ED-350100	350	10	898	395	178	66	898	395	260	102	28

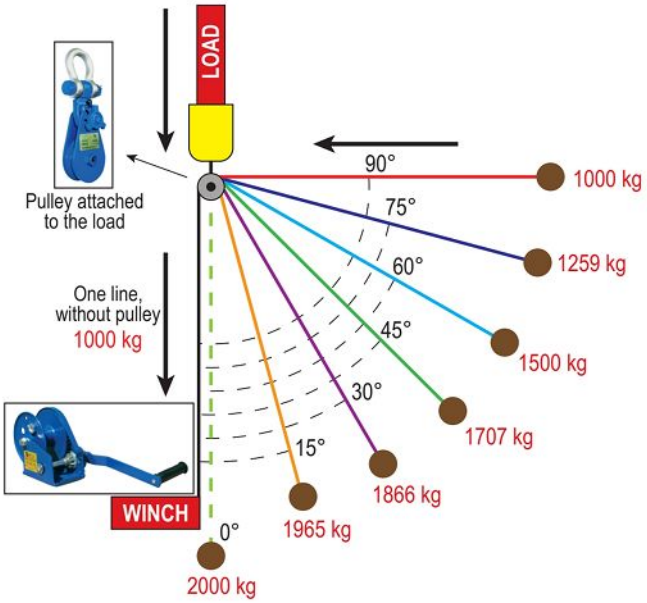
PULLEYS USER GUIDE



CHOOSING THE RIGHT WIRE ROPE

Simple rule: in order to choose the right wire rope for your pulley, be sure that one third of wire rope circumference will fit on wheel sheave.

How to increase the line pulling capacity of a winch by using a pulley



The end of the line is invariably attached to a fix point.

Calculation formula:

FA = CW + (CW x *cos* of angle)

where:
FA - the force applied to the load
CW - line pull capacity of the winch
cos - *cosinus* value

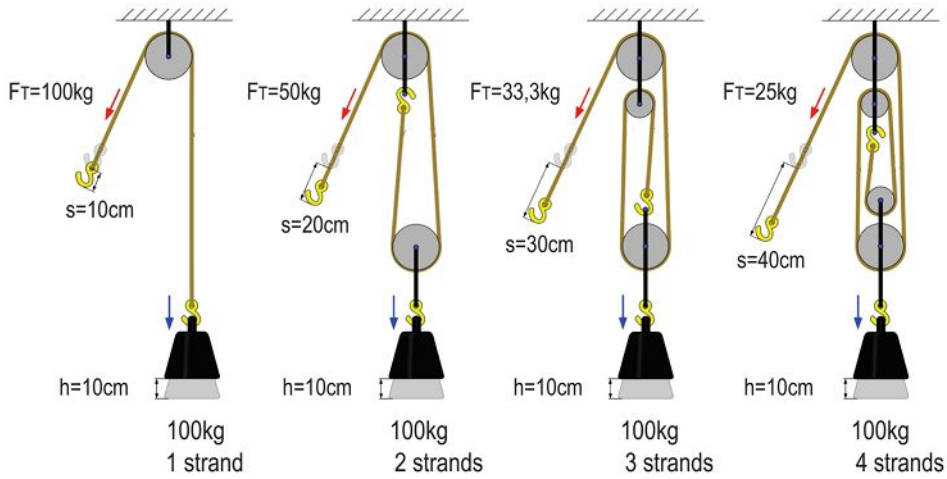
Cosinus values:
0 degress: 1
15 degress: 0.9653
30 degrees: 0.866
45 degrees: 0.7071
60 degrees: 0.5
75 degrees: 0.2588
90 degrees: 0

Example for a 60 degrees angle

CW = 1.000 kg
FA = 1.000 + (1000 x 0.5)
FA = 1.500 kg applied to the load

● = the end of the line attached to an fixed anchorage point

The more pulleys used in series, the lower the pull force, but the displacement increases depending on the number of maneuver lines available.



FT x *s* = G x *h*

Legend:
FT – pulling force;
G – load weight (in this example 100 kg);
s – displacement;
h – lifting height.


CRANE SCALE
STB
HOLD
lb
kg
0
ZERO
TARE
Cap.5000kg
CE
ON/OFF
ZERO
TARE
HOLD
2ND
JACKS
• HYDRAULIC JACKS
• MECHANICAL JACKS
PERMANENT MAGNETS
DIGITAL SCALES
Cap.15000kg
PROlift®
lifting system
HYDRAULIC
BOTTLE JACK
5 TON PRO-HJ-05
S.N.
M.Y.
CE
Caution
Never exceed the jack's rated load capacity (WLL).
The base of the jack should always rest on a firm and stable surface.
Never stay under the lifted load without additional supporting mounts.
FORUM INDUSTRY S.R.L.
125 Aurel Vlaicu Blvd. - Constanta - ROMANIA
www.PROlift.ro
www.PROlift-lifting.com
HYDRAULIC
BOTTLE JACK
8 TON PRO-HJ-08
HYDRAULIC
BOTTLE JACK
15 TON PRO-HJ-15

PRO-HJ CRIC HIDRAULIC TIP BUTELIE

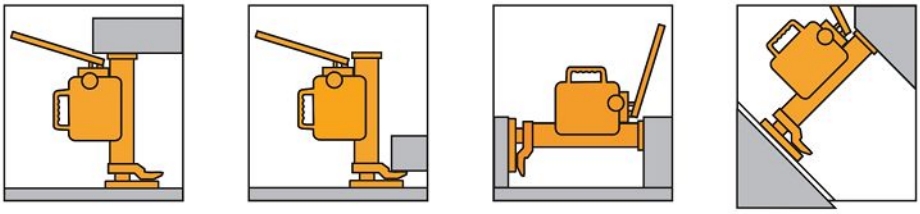
They are high quality professional jacks, robust, equipped with a threaded extension to quickly adjust the height.
These jacks are also equipped with a safety valve and a two parts folding lever.

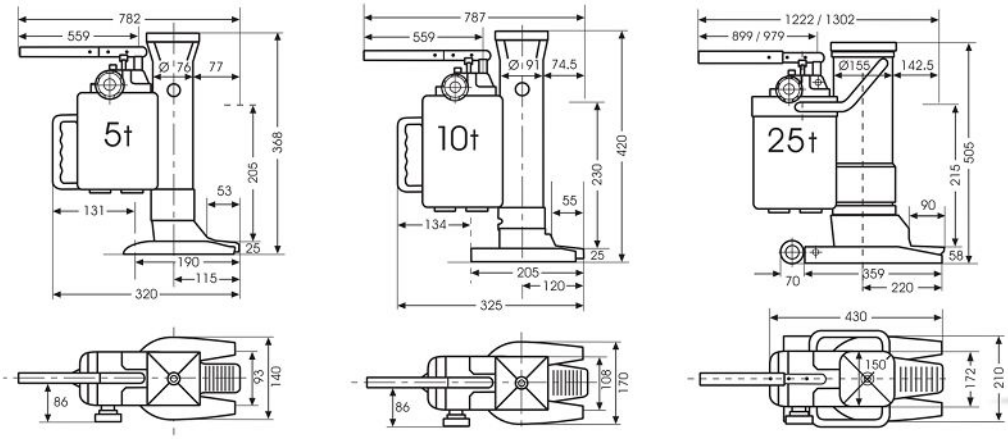
Model/ Features	WLL (t)	Jack height (mm)	Holder adjustment (mm)	Maximum lifting height (mm)	Weight (kg/pc)
PRO-HJ-02	2	160	60	320	2.3
PRO-HJ-03	3	195	60	385	3.3
PRO-HJ-05	5	200	60	390	4.4
PRO-HJ-08	8	200	60	400	5.4
PRO-HJ-10	10	205	60	400	6.2
PRO-HJ-12	12	210	60	420	7.4
PRO-HJ-15	15	230	60	445	8.5
PRO-HJ-20	20	240	60	465	11.5
PRO-HJ-30	30	290	N/A	475	17.6
PRO-HJ-50	50	300	N/A	485	36
PRO-HJ-100	100	340	N/A	490	80

PRO-HLJ HYDRAULIC TOE JACK

They are ideal for repairs, maintenance and installation of heavy equipment. They can be used both in horizontal and in vertical plane, for many types of works which require lifting heavy objects.

Main features:
- compact construction;
- 360° rotation;
- overload protection;
- easy adjustable lowering speed;
- detachable lever;
- able to sustain the loads from low heights.



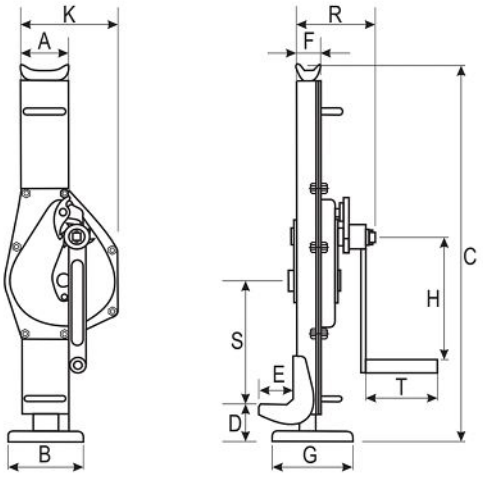


The model PRO-HLJ-25 has handling wheels.

Model/ Features	WLL (t)	Base plate lifting height(mm)	Tip lifting height (mm)	Maximum lever pull (kg)	Weight (kg/pc)
PRO-HLJ-05	5	25 - 230	368 - 573	38	25
PRO-HLJ-10	10	25 - 255	420 - 650	40	35
PRO-HLJ-25	25	58 - 273	505 - 720	40	102

PRO-RJ RACK JACK

They are made in accordance with DIN 7355 standard from high quality steel, making them safe in operation and long lasting. They have a high lifting speed and a minimum required driving force of the lever. All jacks are overload tested at 1.25 of their rated load.



Model/ Features	WLL (t)	Tested load (kN)	Required effort to lift maximum load (N)	Dimensions (mm)												Weight (kg/pc)
				A	B	C	D	E	F	G	H	K	R	S	T	
PRO-RJ-015	1.5	18.4	150	81	100	600 - 900	60 - 360	55	46	110	225	147	119	175	113	16
PRO-RJ-030	3	36.8	280	83	130	735 - 1075	70 - 425	60	45	38	249	170	140	235	128	20
PRO-RJ-050	5	61.3	280	108	140	730 - 1075	80 - 425	71	68	170	249	190	155	217	128	28
PRO-RJ-100	10	122.5	560	124	140	800 - 1190	100 - 490	86	76	170	300	252	185	187	250	46
PRO-RJ-200	20	245	640	135	150	860 - 1180	100 - 420	80	85	180	380	275	220	208	250	75

PRO-EJ FARM JACK

They are characterized by a basic, sturdy construction, consisting of a metal rod designed with holes on its entire length and a manual operating mechanism.
This operating mechanism can be moved from one end to the other of the metal rod by using a pair of fixing bolts.
This jack can be used for both lifting and pulling, as well for pushing or clamping.

Model/ Features	Size		WLL (t)	Lifting height (mm)		Weight (kg/pc)
	inch	mm		min	max	
PRO-EJ-048	48	1219	3	155	1070	14
PRO-EJ-060	60	1524		155	1350	15

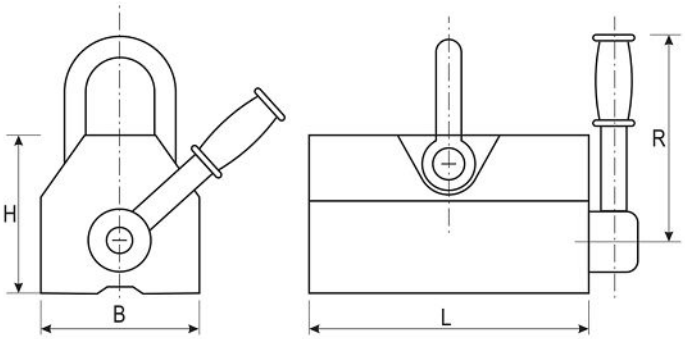
PRO-ML MAGNET PERMANENT

It is used to lift and manipulate steel plates or cylindrical parts made of ferrous materials without lifting lugs.

The magnet generates a high, stable magnetic field, thus allowing the lifting of the magnetized item. It is manufactured of *Nd-Fe-B* alloy.

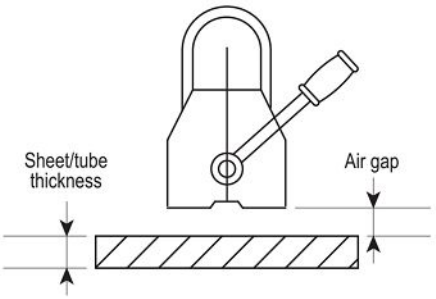
When the magnet is switched „ON", the part of the magnet that makes contact with the handled load generates a pair of longitudinal magnetic poles, evenly distributed all over the topside of the load.

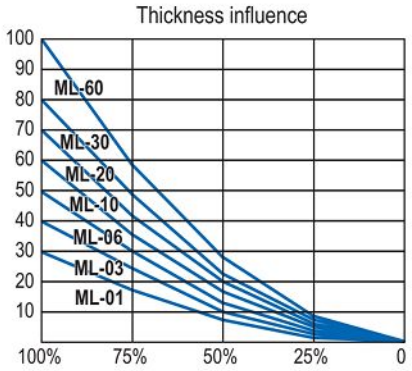
Main features:
- low operating costs;
- high level of safety and reliability;
- without residual magnetism;
- extended lifting capacity, even if there might appear less than 0.5 mm wide clearances or air gaps between the magnet and the surface of the load;
- safety factor minimum 3:1.

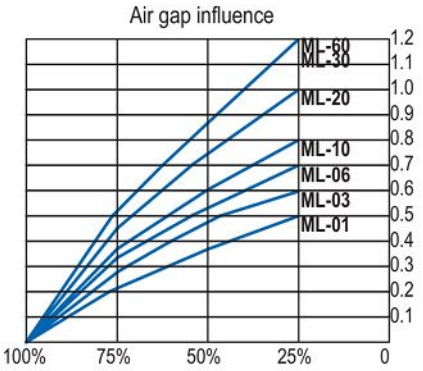


Model/ Features	WLL (steel sheet) (kg)	WLL (pipe/tube) (kg)	Dimensions (mm)				Support force (kg)	Weight (kg/pc)
			L	B	H	R		
PRO-ML-01	100	30	92	62	67	126	350	3
PRO-ML-03	300	100	162	92	91	150	1050	10
PRO-ML-06	600	200	232	122	117	196	2100	24
PRO-ML-10	1000	300	258	176	163	284	3500	50
PRO-ML-20	2000	600	378	234	212	426	7000	125
PRO-ML-30	3000	1000	458	286	264	521	10500	220
PRO-ML-60	6000	2000	600	430	355	700	21000	390

Note: Use permanent magnetic lifters with working load limits as close as possible to the mass of the load in order to avoid any potential residual magnetism.



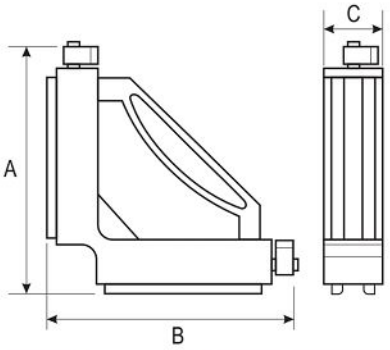




PRO-MAG-90S WELDING MAGNET

The two independent switches controls each part of the magnet separately, thus magnet's positioning is easily and the product is easier to handle. This magnet is suitable for fixing magnetizable metal elements, for welding at right angles. It is used for professional jobs which requires high holding forces and it holds metallic flat and round elements.

- Two switches START/STOP for independent control.
- Position the magnet with the switch in the OFF position for attachment; switch to START when you are ready to proceed.
- Easy and safe to use.



Packed in euro-hole blister

Model/ Features	Maximum pulling force (kg)	Dimensions (mm)			Angle (degrees)	Weight (kg/pc)
		A	B	C		
PRO-MAG-90S	50	148	148	38	90	1.1

PRO-CT DIGITAL SCALE

Digital crane scale for industrial and construction tasks. Its housing is casted from aluminum, thus having a robust design and a long life span.

Main features:

- 30 mm wide monochrome LCD display;
- heavy duty hanging shackle and load hook;
- short time and high capacity rechargeable battery;
- wide range remote control;

Model/ Features	WLL (t)	Division (kg)	Weight (kg/pc)
PRO-CT-01	1	0.5	12
PRO-CT-02	2	1	13
PRO-CT-03	3	1	15
PRO-CT-05	5	2	24
PRO-CT-10	10	5	43
PRO-CT-15	15	5	61
PRO-CT-20	20	10	64

HANDLING AND MOVING EQUIPMENTS

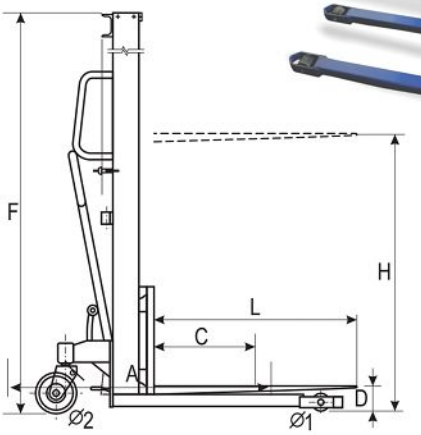
- PALLET TRUCKS
- CARGO TROLLEYS
- PALLET HANDLING FORKS

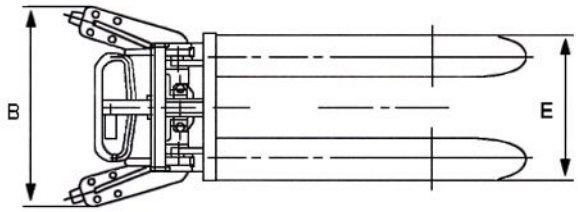
PRO-MSA PALLET TRUCK (1 TON)

This type of pallet truck may be used for lifting and lowering loads as well as transporting them over short distances. Since it does not produce any sparks and it does not generate an electromagnetic field, it can be safely used for loading / unloading flammable or explosive materials.

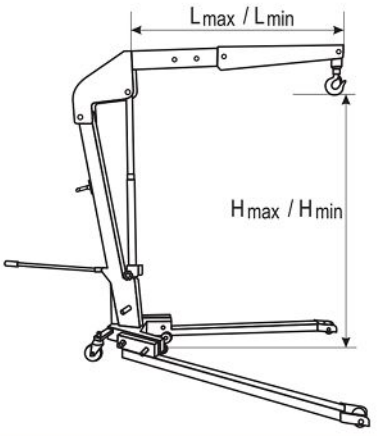
It is very stable, easy to turn around and it provides a comfortable and safe operation. Available in 2 variants: 1.6 m lifting height and 2.5 m lifting height.

Model/Features	PRO-MSA-1600	PRO-MSA-2500
WLL (t)	1	1
Load center *C* (mm)	600	600
Maximum lifting height *H* (mm)	1600	2500
Minimum forks height *D* (mm)	90	90
Forks length *L* (mm)	1100	1100
Maximum forks width *E* (mm)	550	550
Maximum pallet truck height *F* (mm)	2000	1800
Lifting speed (mm/sec)	>20	>20
Maximum pallet truck width *B* (mm)	740	740
Maximum pallet truck length *A* (mm)	1640	1640
Front wheels dimensions *Ø1* (mm)	80 x 60	80 x 60
Rear wheels dimensions *Ø2* (mm)	180 x 50	180 x 50
Weight (kg/pc)	230	276
Curvature radius *R* (mm)	1400	1400





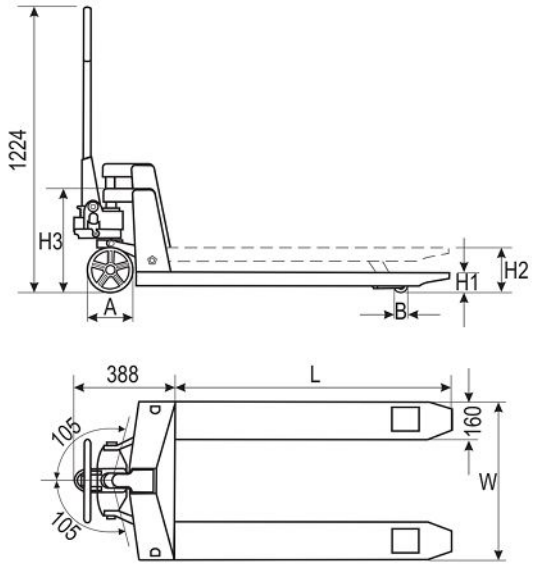
PRO-MG WORKSHOP CRANE



Model/Features	PRO-MG-05	PRO-MG-10	PRO-MG-20
WLL (t)	0.5	1	2
Maximum beam length *Lmax* (mm)	1095	1570	1595
Minimum beam length *Lmin* (mm)	895	1270	1295
Maximum lifting height *Hmax* (mm)	2170	2500	2550
Minimum lifting height *Hmin* (mm)	295	250	175
Weight (kg/pc)	80	118	165

PRO-PT-BF PALLET TRUCK (2.5 TONS)

Main features:
- high performance lifting hydraulic system;
- bolts coupling between the axle of the steering wheels and the hydraulic pump ensure an easy replacement of the steering wheels;
- easy to handle, with a steering wheels turning angle of 210°;
- controlled lowering system;
- the wheels are made of polyurethane; optionally, we can provide forklifts with nylon or rubber whels;



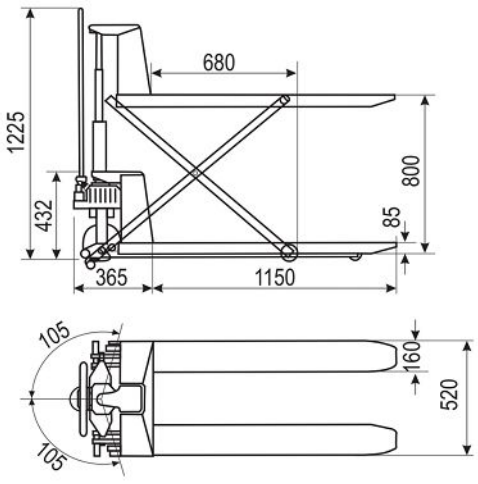
Model/Features	PRO-PT-BF
WLL (t)	2.5
Minimum fork height *H1* (mm)	85
Maximum lifting height *H2* (mm)	200
Steering lever height *H3* (mm)	431.5
Forks length *L* (mm)	1150
Forks width *W* (mm)	550
Steering (front) wheels *A* (mm)	Ø180 / Ø25 / 50
Rear wheels *B* (mm)	Ø82 / Ø20 / 70
Weight (kg/pc)	75

PRO-PT-JF PALLET TRUCK WITH 800 MM LIFTING HEIGHT (1 TON)

Having an innovative design, this type of pallet truck offers various employment possibilities since it can be used both as a pallet truck and also as a working table.

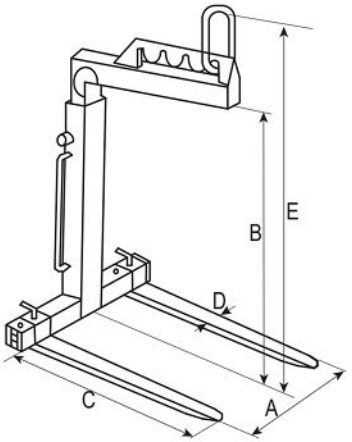
Due to the telescopic hydraulic jack composed of 3 segments, the required lifting force is relatively low. It has a high rigidity due to its scissor-type legs, which ensures safe operations by hindering the movement of pallet truck when the load is lifted or lowered, thus protecting the operator.

In case of heavy loads operations, the lowering speed is reduced automatically, to prevent potential cargo damages. It is easy to handle due to the 210° turning angle of the steering wheels.



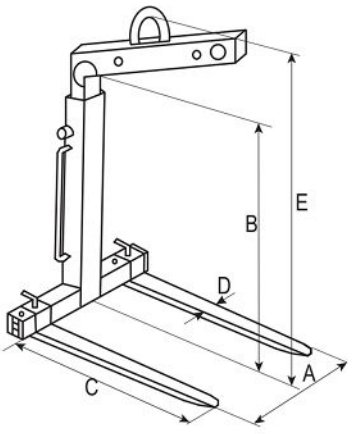
Model/Features	PRO-PT-JF
WLL (t)	1
Minimum fork height (mm)	85
Maximum lifting height (mm)	800
Steering level height - *Hmax* (mm)	1225
Forks length (mm)	1150
Forks width (mm)	520
Steering (front) wheels (mm)	Ø150 / Ø20 / 40
Rear whels (mm)	Ø75 / Ø20 / 50
Weight (kg/pc)	90

PRO-FR-A FORK TYPE PALLET LIFTER



Model/Features	PRO-FR-A02	PRO-FR-A03	PRO-FR-A05
WLL (t)	2	3	5
Forks opening *A* (mm)	400-900	450-900	530-1000
Pallet lifting height *B* (mm)	1300-2000	1300-2000	1300-2000
Blade length *C* (mm)	1000	1000	1000
Blade width *D* (mm)	120	120	150
Blade thickness (mm)	40	50	60
Effective height *E* (mm)	1640-2340	1640-2370	1700-2400
Weight (kg/pc)	207	246	372

PRO-FR-B SELF-BALANCING FORK TYPE PALLET LIFTER



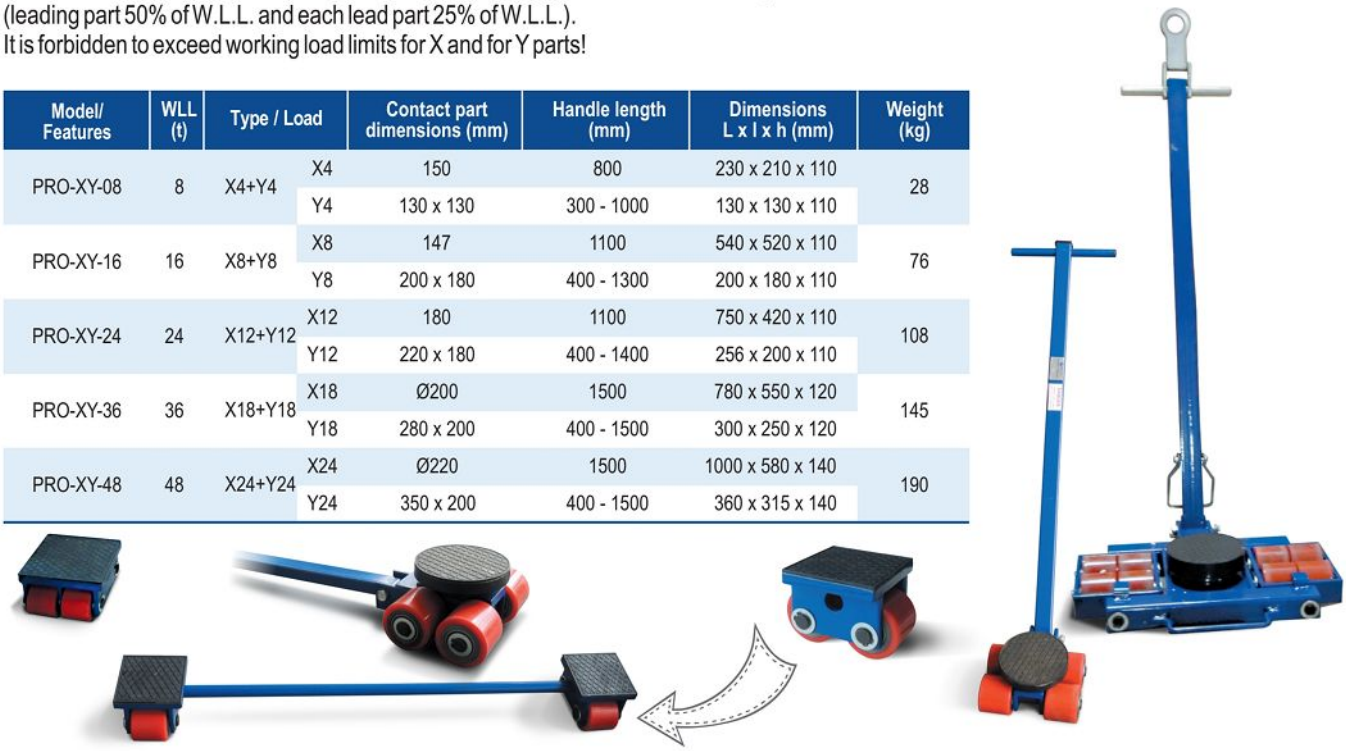
Model/Features	PRO-FR-B02
WLL (t)	2
Forks opening *A* (mm)	400-900
Pallet lifting height *B* (mm)	1300-2000
Blade length *C* (mm)	1150
Blade width *D* (mm)	120
Blade thickness (mm)	40
Effective height *E* (mm)	1655-2355
Weight (kg/pc)	211

PRO-XY CARGO TROLLEYS

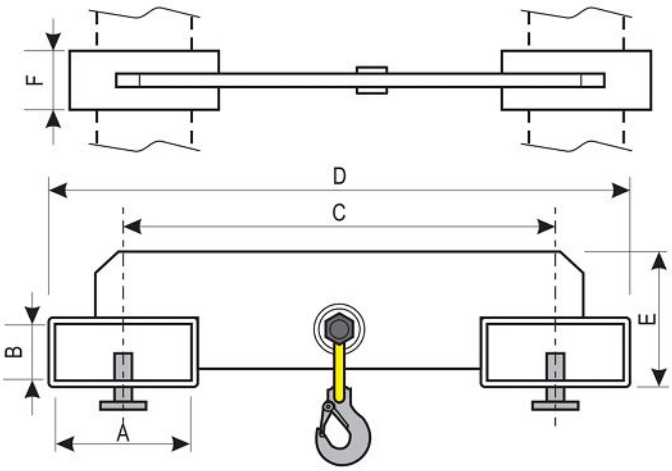
It represents the ideal solution for moving large loads indoors. They consist of the leading part X (1 pc) and the lead part Y (2 pcs). The leading X part has the advantage of automatically adjusting to compensate any load unbalance and it is very stable on uneven surfaces. The two trolleys that form the follower Y part can be positioned depending on the size of the handled load. The rollers of the trolleys are made from special materials, having anti abrasion and pressure resisting properties, thus protecting the surface on which the loads are carried.

Important! Working load limit is only valid for loads with mass distributed evenly front-back and left-right; otherwise, take into account working load limit for each part (leading part 50% of W.L.L. and each lead part 25% of W.L.L.).
It is forbidden to exceed working load limits for X and for Y parts!

Model/ Features	WLL (t)	Type / Load	Contact part dimensions (mm)	Handle length (mm)	Dimensions L x l x h (mm)	Weight (kg)
PRO-XY-08	8	X4+Y4	X4	150	800	230 x 210 x 110	28
			Y4	130 x 130	300 - 1000	130 x 130 x 110	
PRO-XY-16	16	X8+Y8	X8	147	1100	540 x 520 x 110	76
			Y8	200 x 180	400 - 1300	200 x 180 x 110	
PRO-XY-24	24	X12+Y12	X12	180	1100	750 x 420 x 110	108
			Y12	220 x 180	400 - 1400	256 x 200 x 110	
PRO-XY-36	36	X18+Y18	X18	Ø200	1500	780 x 550 x 120	145
			Y18	280 x 200	400 - 1500	300 x 250 x 120	
PRO-XY-48	48	X24+Y24	X24	Ø220	1500	1000 x 580 x 140	190
			Y24	350 x 200	400 - 1500	360 x 315 x 140	



PRO-FLH FORKLIFT BLADES HOOK



Model/ Features	WLL (t)	Dimensions (mm)						Weight (kg/pc)
		A	B	C	D	E	F	
PRO-FLH-1	1	120	60	340	480	160	120	8
PRO-FLH-2	2	120	60	340	480	160	120	10
PRO-FLH-3	3	120	60	340	480	210	120	14.5
PRO-FLH-5	5	180	80	500	700	230	200	21

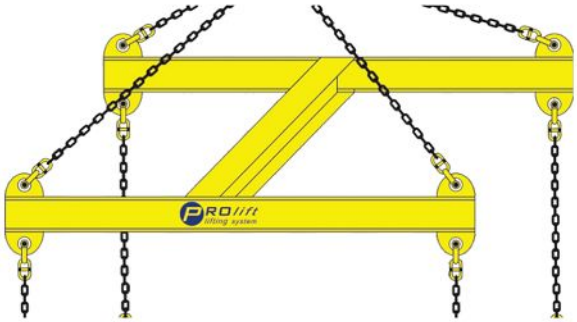
This device is mounted on a forklift blades and it is fitted on lower part with a shackle and swivel hook. The main purpose of it is to use fork lift to lift various loads, which do not allow hanging them on forklift blades.

The lower screws allow tightening and fastening the forklift blades for safe operation.

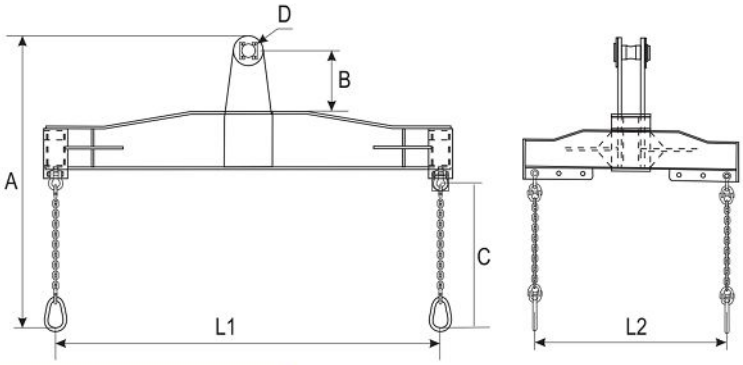
CRANES AND LIFTING BEAMS

- LIFTING BEAMS
- LIFTING ROWS
- LIFTING CRANES

PRO-HLC LIFTING BEAM



It has a structure made from an "I" type profile, a suspension lug and pad eyes at the bottom, to attach wire rope lifting sets and load hooks to.
The distance between the load hooks can be adjusted depending on the user's needs. The dimensions listed in the table below are for information purposes only, the bottom beams are fully customizable as per customer's request.

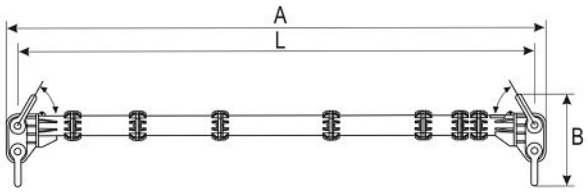


WLL (t)	Dimensions (mm)						
	L1	L2	A	B	C	D	A x B x C (mm)
2	3	1 - 2	1450	220	800	100	3130 x 2080 x 1480
3.2	3	1 - 2	1480	220	835	100	3130 x 2080 x 1480
5	3	1 - 2	1500	220	835	100	3130 x 2080 x 1500
8	3	1 - 2	3500	385	2500	100	3180 x 2240 x 3500
10	3	1 - 2	3600	445	2500	120	3180 x 2240 x 3600
12.5	3	1 - 2	3700	445	2500	120	3180 x 2240 x 3700
16	3	1 - 2	3750	450	2500	120	3180 x 2240 x 3750
20	4	1 - 2	3800	565	2500	125	4200 x 2240 x 3800
25	4	1 - 2	4000	650	2500	155	4200 x 2240 x 4000
32	4	1 - 2	4100	650	2500	155	4220 x 2240 x 4100
40	4	1 - 2	4100	650	2500	155	4250 x 2240 x 4100

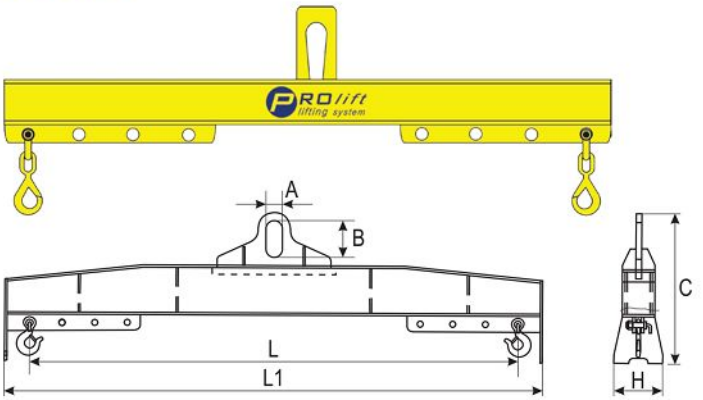
PRO-HLE LIFTING BEAM

It is used for handling oversized products and it is fitted with heavy duty shackles at the ends. The dimensions listed in the table below are for information purposes only, the beams are fully customizable as per customer's request.

WLL (t)	Dimensions (mm)		
	A	L	B
100	2500	2000	1800
200	3500	3000	1900
320	5500	5000	1900
500	7500	7000	1950
800	9500	9000	1950
1000	13000	12500	2000



PRO-HLA LIFTING BEAM



Lifting beams type PRO-HLA (with central lug) are used especially in applications where the lifting space is reduced (industrial halls, warehouses, workshops, other low headroom spaces etc.).

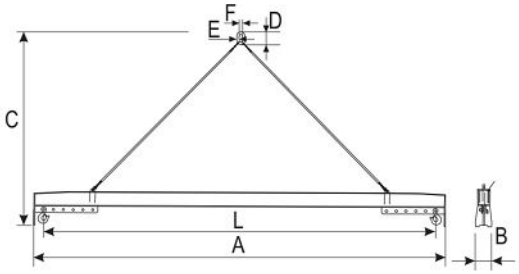
It has a structure made from an "I" type profile, a suspension lug and pad eye at the bottom to attach load hooks to. The distance between the load hooks can be adjusted depending on the user's needs.
The dimensions listed below are for information purposes only - the beams are fully customizable as per customer's request.

WLL (t)	Length adjustment (m)	Total length L (m)	Dimensions (mm)				
			A	B	C	L1	H
2	2 - 3	3	80	150	570	3184	180
3.2	3 - 5	5	100	220	830	5200	300
5	3 - 5	5	100	220	935	5300	300
8	4 - 6	6	160	360	1140	6312	340
10	4 - 6	6	160	360	1140	6312	340
12.5	4 - 6	6	180	400	1320	6320	370
16	6 - 8	8	180	430	1370	8320	450
20	6 - 8	8	180	430	1485	8360	450
25	6 - 8	8	200	500	1755	8500	530
32	8 - 10	10	220	600	2135	10640	650
40	8 - 10	10	220	600	2165	10640	650

PRO-HLB LIFTING BEAM

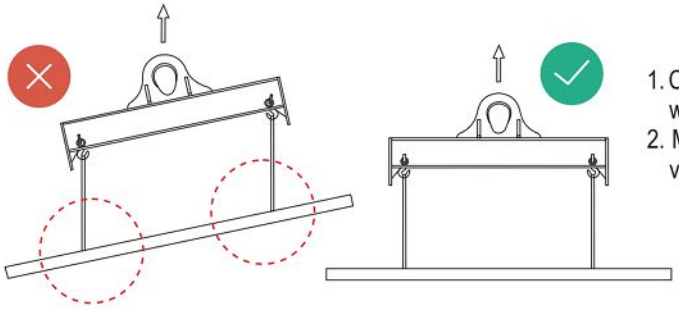
Lifting beams type PRO-HLB (with lateral lugs) are used especially in applications with no operating height restrictions, mostly outdoor.

It is made from an "I" type profile and it is equipped with swivel hooks, hooks positioning is adjustable on beam's length. The dimensions listed below are for information purposes only - the beams are fully customizable as per customer's request.

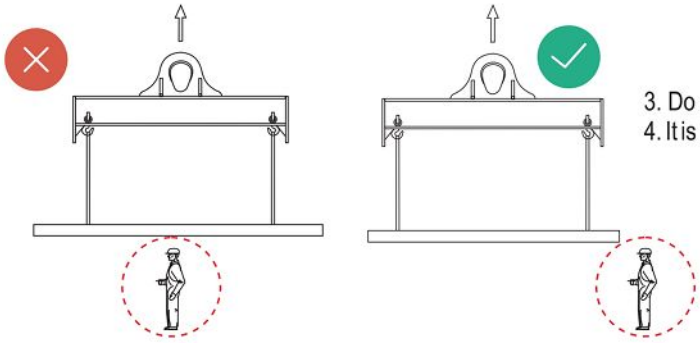


WLL (t)	Length adjustment (m)	Total length L (m)	Dimensions (mm)			
			D	E	F	A x B x C (mm)
2	1 - 3	3	80	20	150	3180 x 130 x 1800
3.2	3 - 5	5	90	24	160	5200 x 210 x 2100
5	3 - 5	5	100	28	190	5300 x 240 x 2400
8	6 - 8	8	110	32	200	8350 x 250 x 3800
10	6 - 8	8	120	34	230	8350 x 280 x 3850
12.5	6 - 8	8	135	38	250	8350 x 280 x 3850
16	6 - 8	8	140	42	270	8350 x 300 x 4050
20	6 - 8	8	160	46	310	8400 x 300 x 4150
25	6 - 8	8	180	52	330	8460 x 380 x 4550
32	6 - 10	10	180	56	330	10500 x 480 x 4550
40	6 - 10	10	220	69	396	10500 x 480 x 4650

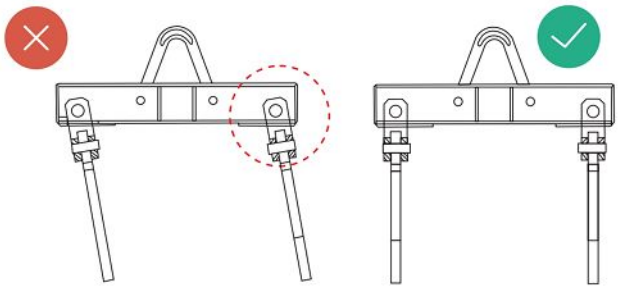
BEAMS SAFETY GUIDE



1. Check for any loose connections anywhere on the lifting equipment, as well as for any deformations or cracks, etc.
2. Make sure that the lifted loads do not exceed the working load limit value. During the lifting the load should be kept in balance.



3. Do not alter the structure!
4. It is strictly forbidden to stay under the load during operating.



5. When lifting, prevent load migration or rotation.
6. Both lifting and loading should be continuous, balanced processes, without any mechanical impacts.
7. When the lifting equipments are damaged you should check for any deformed parts and if there are any open joints stop using the equipment at once. If the paint has chipped off, check the spots for any deformations.
8. Replace any damaged parts at once accordingly.
9. The person who operates the equipment should be properly trained.
10. The important joints should be checked by the safety inspector or a competent person prior to every operation in which they are employed.

12. The lifting equipment should be cleaned and place on a hard and durable surface; also, stored in a clean and dry place.
13. The moving parts should be periodically lubricated to prevent jamming.
14. Lifting over high-temeperature areas is strictly forbidden.
15. It is forbidden to use the lifting equipments in an alkaline or salty environment.
16. When assembling and dissassembling the lifting gear, make sure not to hit them and doing so to crack or damage it.

Do NOT use the equipment if:

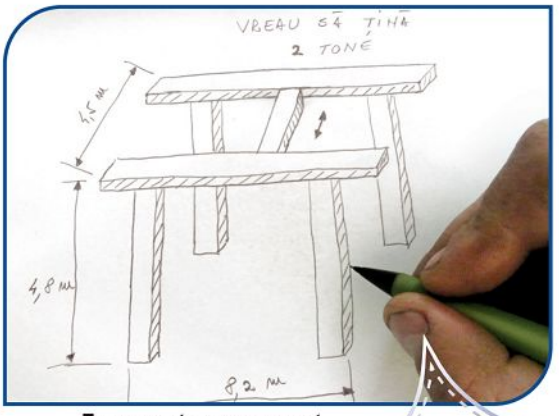
... the beam's body or the lifting lug show obvious deformations and cracks;
... the lifting beam has an open joint due to long term use; this issue cannot be fixed;
... the lifting gear or some of its parts are heavily rusted and therefore are not safe to use;
... the pin is 15% off thinner than its original size - it should be replaced;
... the surface of the beam is heavily damaged;
... the main parts of the lifting equipment have been substantially deformed;
... the tested lifting beam has only 80% of its rated lifting capacity.

CUSTOMIZED LIFTING EQUIPMENT (WELDED CONFECTIONS)

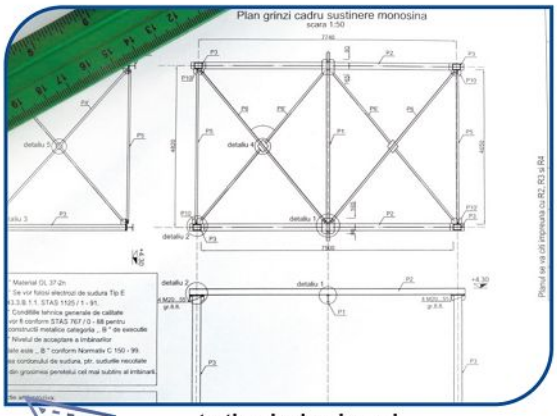
According to the customer's request and the specifics of the location, we take care of entire manufacturing flow, from the design board to the finished product, various types of lifting equipment such as jib cranes, gantry cranes, workshop cranes, overhead bridge cranes - with different sizes or working load limits.

All these welded confections are delivered accompanied by a technical dossier, with documents required in authorization process*.

documents required by national regulatory bodies may differ.

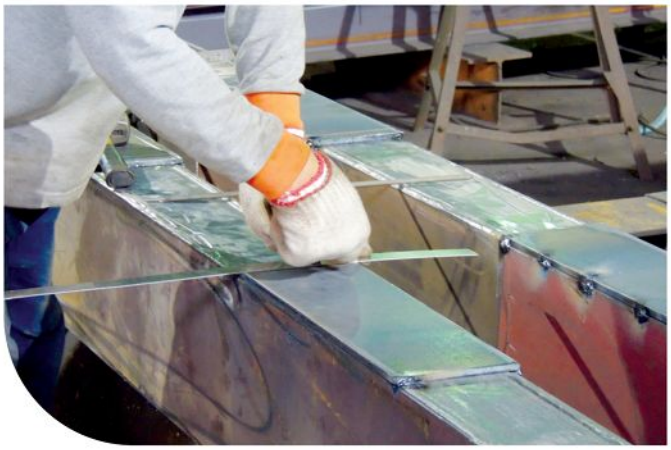


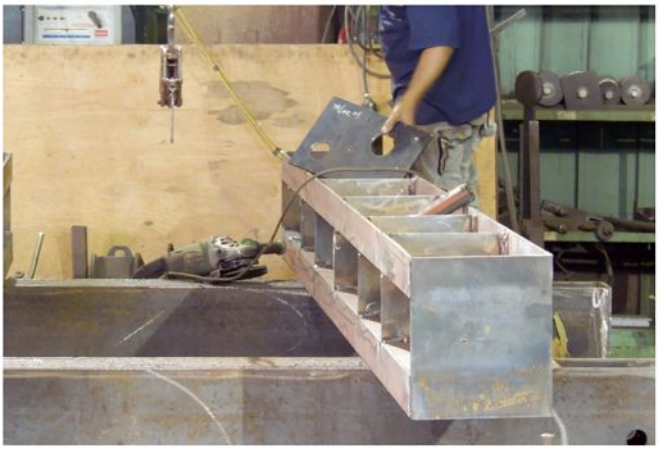
From customer request...



... to the design board...

... toward finished product





BIG-BAGS BEAM

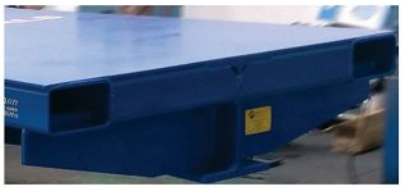
Polypropylene big bags are generally used for the transport and storage of bulk goods (chemicals, seeds, various materials).

This big-bags beam it is provided with four PRO-SD type hooks, for securing the bag in an easy way.

MODULAR BEAM

LIFTING BEAM (150T)

CUSTOMIZED EXTENSION FOR FORKLIFT HOOKS

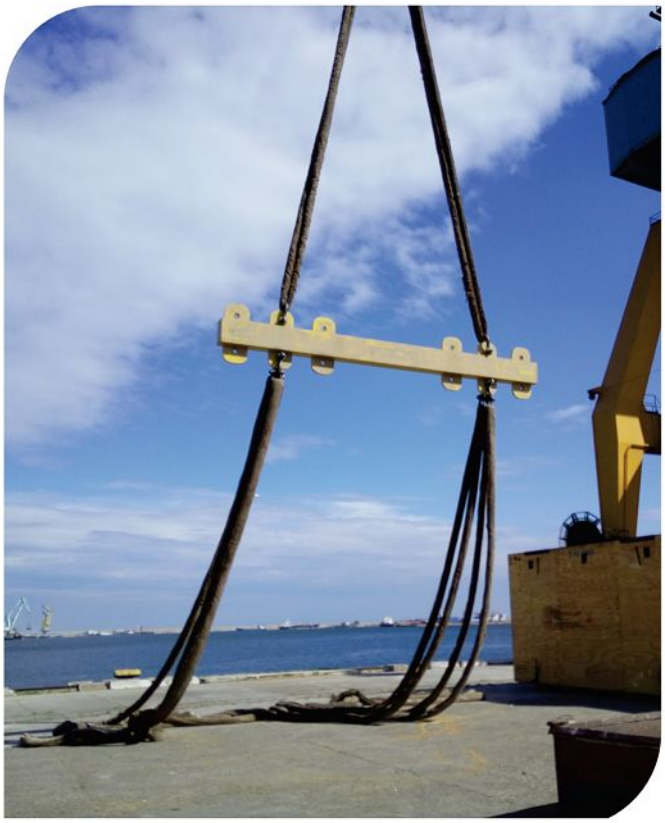
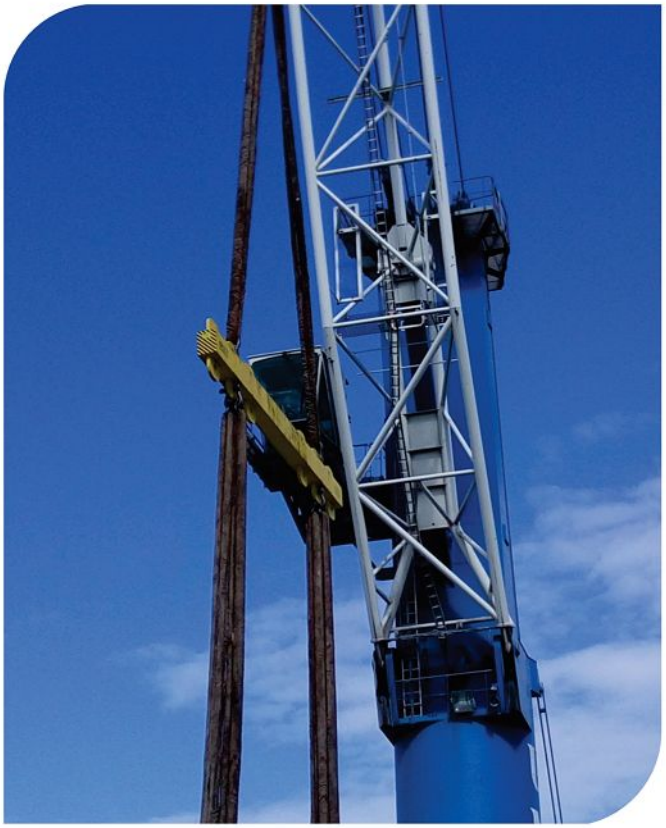


VARIOUS LIFTING BEAMS







GANTRY CRANES

JIB CRANES

Various jib cranes, fitted with electric chain hoists and manual / electric trolleys.

CUSTOMIZED WELDED CONFECTIONS - OVERHEAD CRANES

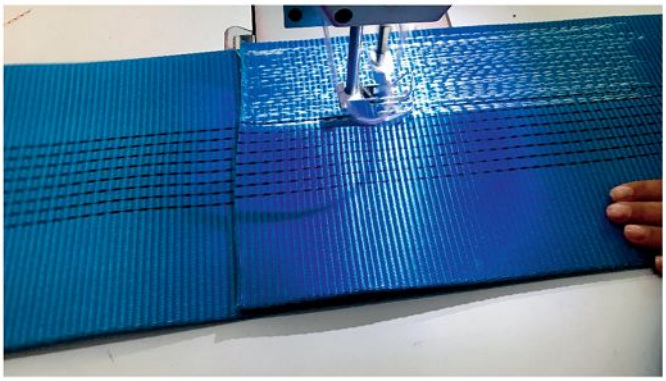
CUSTOMIZED CRANE

POLYESTER NET (see next page)

EU MADE TEXTILE SLINGS

We are running a project on the manufacturing of textile straps for lifting and anchoring.
All products are executed to the highest quality parameters, in compliance with the European standards in force and with EU CE type voluntary certification.

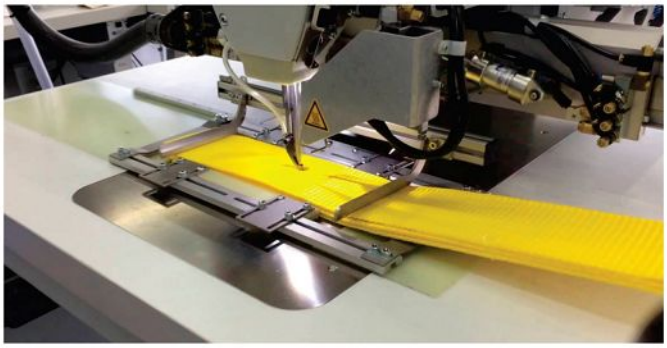
The facilities of this factory include automatic and semi-automatic machines for cutting and sewing, as well as other related equipment (marking / labeling, product packaging, etc.).



We can manufacture:
- polyester textile straps for lifting (webbing slings, PRO-W type), at different useful lengths and maximum working loads, with one layer or two layers of strap, according to standard EN 1492-1;
- polyester textile straps, at different lengths and working loads, standardized but also non-standardized, with different end accessories and sling sets with one, two, three or four legs;
- endless standardized (A type) and non-standardized textile straps, at different lengths and maximum workloads;
- custom textile straps, with different sewing protections or textile reinforcements;
- polyester textile straps for anchoring / lashing (PRO-LS type), standardized (standard EN 12195-2 as well as other standards), with different useful lengths and anchoring capacities;
- solutions for anchoring, lashing or custom pulling, formed of lashing strap of different widths, lengths and loads, PRO-JJ double hooks, PRO-CA type clamps and 80/100 grade steel accessories (couplings, hooks, etc.) ;
- various polyester custom items: lifting nets, big-bags nets, etc.

Customer benefits of the PROlift's webbing straps factory

- OEM production: the straps can be labeled according to customer requirements and in the very near future with the brand by strap printing with the trademark or customer logo;
- the collective cardboard packages can be fully customized according to the client's graphic or just delivered in neutral cardboard boxes (not personalized)
- flexibility in the structure of the order or the packaging;
- advantageous production and delivery times;
- Made in EU production, upon request we can provide a Certificate of Origin, issued by local Chamber of Commerce;
- upon request, a Break Test Certificate can be provided, issued by our own laboratory, which operates the largest mechanical test bank in the country;
- CE certified products, professionally made, with strict quality control, benefitting from modern manufacturing equipment and skilled and experienced workers;



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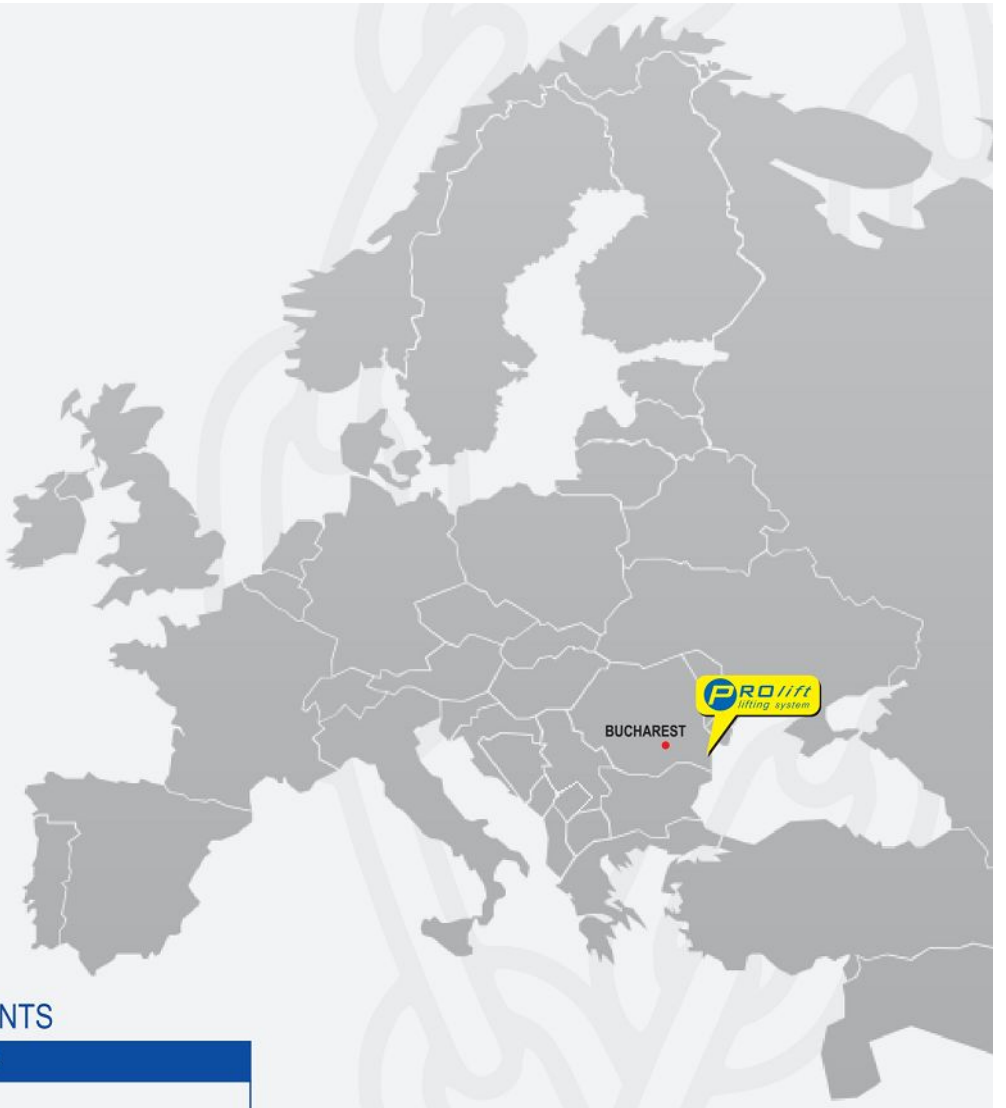
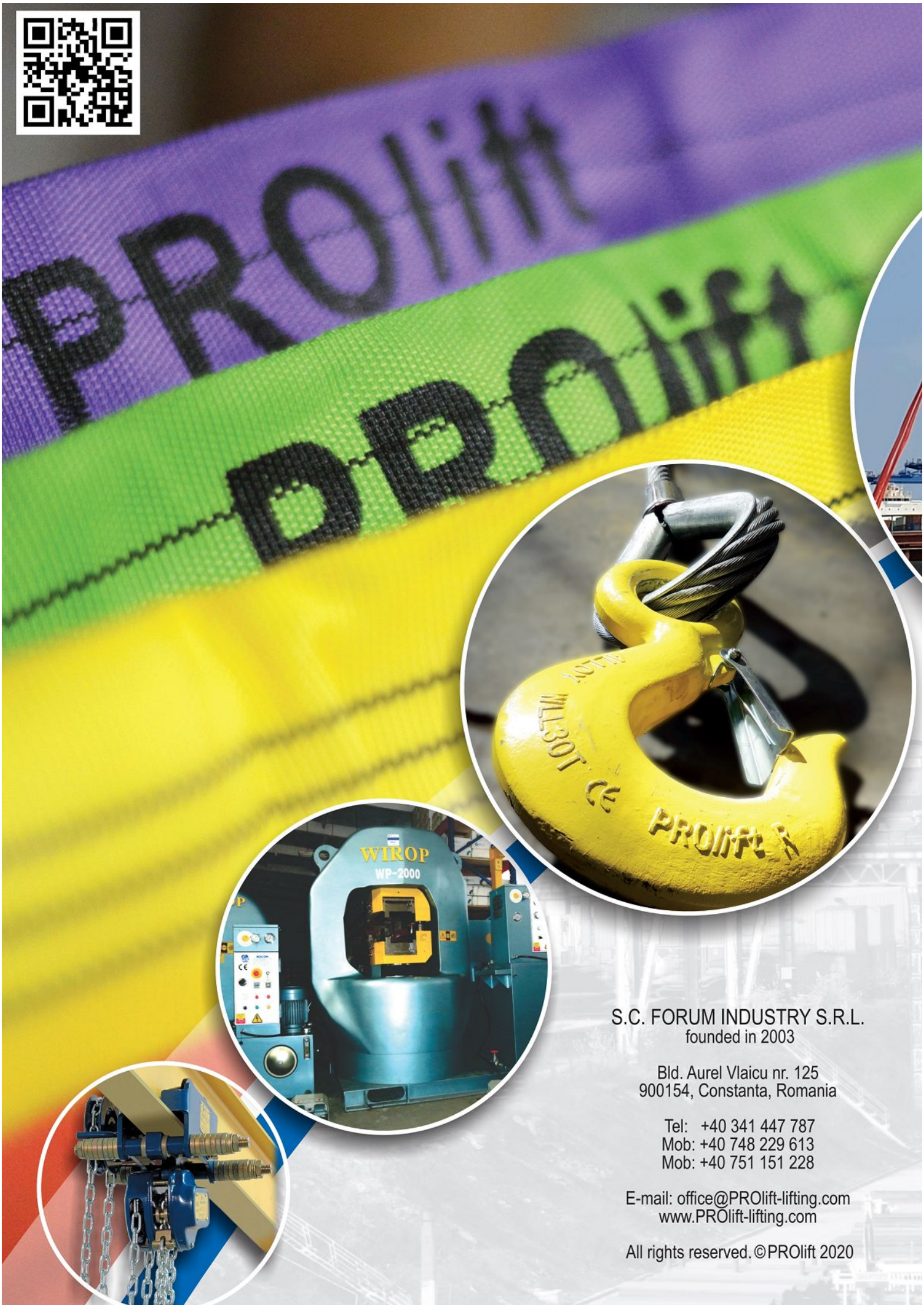


ABBREVIATIONS & EQUIVALENTS

Abbreviation	Name
WLL	Working load limit
MBL	Minimum breaking load
MBF	Minimum breaking force
BF_{min}	Breaking force, minimum
LC	Lashing capacity
SWL	Safe working load
Sn	Working load limit
S_{HF} / S_{TF}	Standard hand force / Standard tension force
EN	European standard
DIN	German standard
BS	British standard
ISO	International Organization for Standardization
FEM	European Materials Handling Federation
ISCIR	State Inspection for Controlling Boilers, Pressure Vessels and Lifting Equipment
RSVTI	Responsible for the Supervision and technical verification of installations {*competent person / safety inspector*}
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
API	American Petroleum Institute
AISI	American Institute for Steel and Iron
FC	Fiber core
IWRC	Independent wire rope core
WSC	Metallic core
WS	Warrington Seale
S	Seale
daN	1 daN ≈ 1.02 kgf (kilogram-force) ≈ 2.25 lbf (pound-force)
kN	1 kN ≈ 101.97 kgf (kilogram-force) ≈ 224.8 lbf (pound-force)
N/mm²	1 N/mm² = 10.20 kgf/cm² - Metric
NdFeB	Neodim (Nd), Iron (Fe) and Bor (B) alloy
PP	Polypropylene
PVC	Polyvinyl chloride

Safety and Quality.
Life is more important than price!



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