

PROTEKT

Technical Documentation and Installation Procedure

PRIM

HORIZONTAL ANCHOR LIFELINE

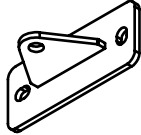

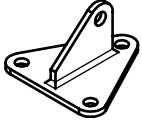


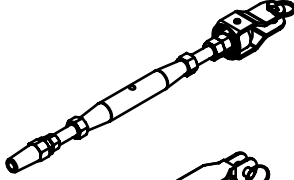

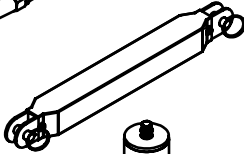

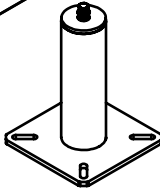

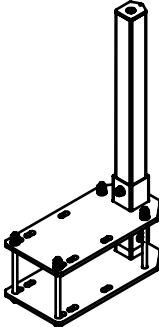

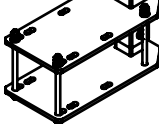

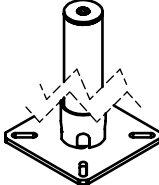

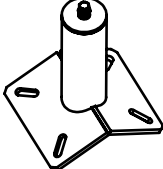

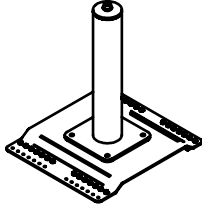
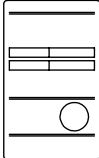
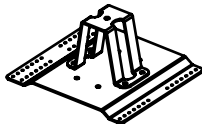
EN 795:2012 / CEN/TS16415:2013 - type C

Note:

Included in this document undated references of the above listed normative documents refer to the above dating.

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1. List of components:

	ref. no. HL 101 - 2-point structural plate		ref. no. HL 500 - cable set (wire rope 8mm with 1 rigid eye)
	ref. no. HL102 - 3-point structural plate		ref. no. HL 501 - stainless steel wire rope 8mm
	ref. no. HL 201 - Intermediate structural anchor		ref. no. HL 401 Rope stretcher
	ref. no. HL 202 - Intermediate structural anchor		ref. no. HL 300 - energy absorber
	ref. no. HL 721/722 -2-point rotating bracket		ref. no. HL 701 - central foot post
	ref. no. HL 506 - swageles with hole		ref. no. HL 702 - lateral foot post
	ref. no. AZ 090 - screw link connector		
	ref. no. HL 740 / HL745 - Pole corner set		ref. no. HL 704 - central foot post
	ref. no. HL 130 - Wall internal corner set		ref. no. HL 706 - ridge roof post 130°
	ref.no. HL 140 - Wall external corner set		ref. no. HL 720 - roof sheet post
	ref. no. HL 801 (HL 802) - informative label		ref. no. HL 760 - roof sheet post

2. Responsibility and warranty

The horizontal anchor lifeline installed on site is compliant with the requirements of the EN795 standard only if the components of the equipment are free from defects in the material, the construction of the building is durable enough and the quality (durability) of the structural attachments to the building is appropriate. Only original components supplied by the manufacturer should be used for the assembly of the equipment. Standardized parts, such as screws or anchors, should be strictly compliant with the guidelines included in this manual. An installation method, especially the layout of end and intermediate structural anchor elements and the way they are fastened, as well as the way of joining particular components of the system together, should be complaint with the guidelines included in this manual.

In case of any doubts concerning the correct procedure or an unusual construction of a building, the person installing the equipment should contact the manufacturer or its authorized distributor in order to get information on the actions that should be taken.

Horizontal anchorage systems may only be assembled by people who have enough knowledge and experience in this subject. In particular, such people should know the EN795 standard, the manufacturers' guidelines concerning the assembly of the anchors and this manual. The assembled anchorage system should be checked (approved) by a person authorized to check it (e.g. an engineer or a qualified designer), who must check the building, the layout of the protective equipment, the way it is assembled and the way its components are joined. The authorized person signs the document confirming compliance of the assembled equipment with the EN 795 standard and the technical design.

The person who assembles the system takes full responsibility for the assembly. Neither the manufacturer nor the distributor are responsible for an assembly that is careless and incompliant with the guidelines. On request, the manufacturer and/or distributor deliver all the necessary technical information concerning the product, the technology of its assembly, the way of checking it and the certificate of compliance for each system.

The manufacturer gives a year's warranty for the system components, under which the parts that are classified as defective within this period will be replaced. The warranty includes only material and manufacturing defects for which the manufacturer is responsible. The warranty does not include assembly, supporting materials, parts damaged during tests or experiments, parts damaged as a result of use that is incompliant with the instruction of use.

3. GENERAL DESCRIPTION

The PRIM horizontal anchor lifeline system is a multi-user anchorage device, D - type, conform to the EN795 standard and the FprCEN/TS16415 technical sheet. The system may be installed either to a vertical structure (e.g. walls) or on roofs / terraces. The general view of the system is shown on the fig. 3-1 for "wall installation" and on the fig. 3-2 for "roof installation".

The system consist of the following category of parts:

- end, structural anchorages, such as anchor plates or poles;
- intermediate structural anchorages and turn sets;
- energy absorber;
- rope tensioner;
- connecting elements;
- cable line.

An oval type connector is used as a movable anchor point for a personal protective equipment. The recommended conector, verified for the PRIM system is the PROTEKT-AZ01 oval type connector. The AZ011 conector allows the user easy passing through the intermediate rope holders without detaching from the cable.

The PRIM system parts are made of the following materials: hot deep galvanized steel, stainless steel and polyamide. The detailed description of the particular part material are included into part technical drawings.

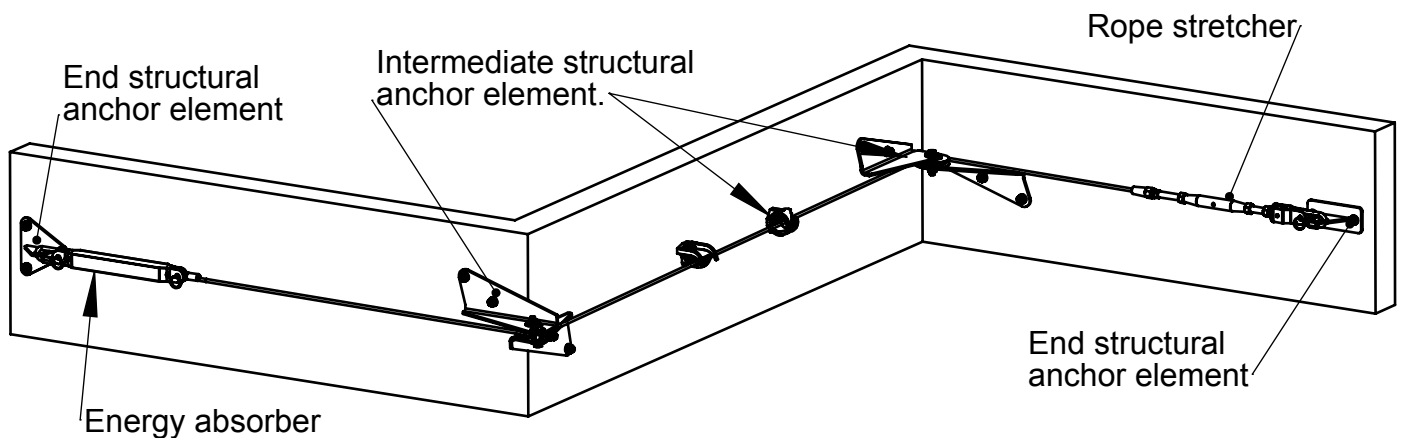


Fig. 3-1 General view of the "wall installation".

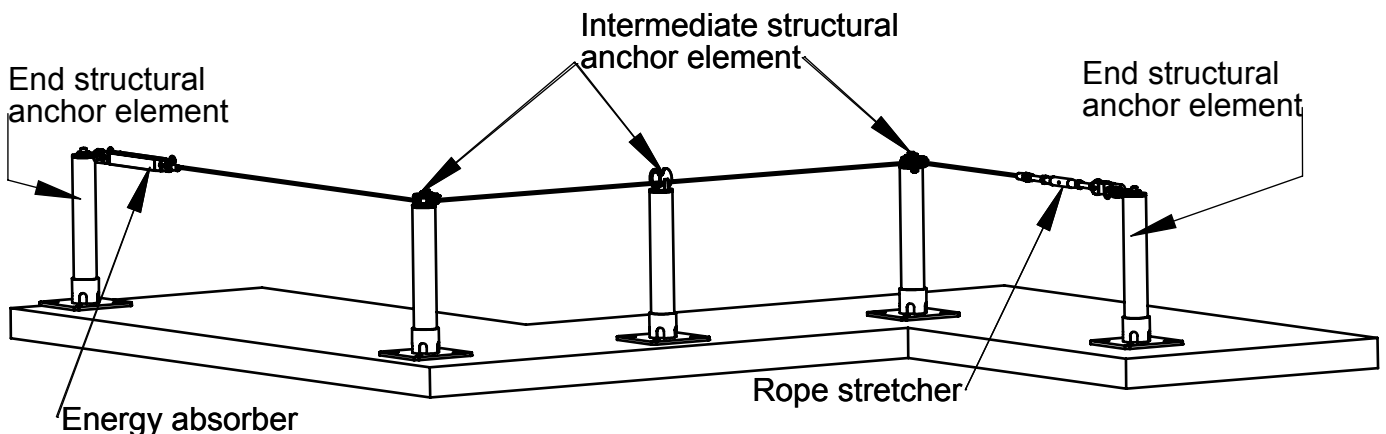


Fig. 3-2 General view of the "roof installation".

NOTE:

The Fig. 3-1 and 3-2 describe basic arrangement of the PRIM system's components. If necessary, the system may be equipped with two energy absorbers and two rope stretchers, arranged one of them at each end.

4. DESIGN

4.1 Initial data

Before assembly, the person who is going to assemble the horizontal lifeline system should specify:

- the scope of works to be performed on a given site,
- the maximum number of people using the equipment at the same time,
- the kind of possible dangers,
- specific climatic conditions (if any),
- the type of personal protective equipment against falls from a height to be used along with the planned anchorage system,
- the quantity of the free space under the user,
- the layout of structural end anchorage points and intermediate structural anchorage points,
- the type and durability of the supporting structure (the base).

In order to gain required information, you are advised to either visit the place of the installation, or performing a survey or analyse the drawings and carry out tests and measurements.

4.2 Configuration of the system

The configuration of the system is specified by the following parameters (fig. 4-1):

- the total length of the system - L ,
- the intermediate span (space between the intermediate structural anchors) - S ,
- number of simultaneous users - N .

The above parameters form the basis for specifying the force F in the cable and the deflection D of the cable that occur when arresting a fall. The values of force F and deflection D can be determined based on the diagrams $F=f(L,S)$ included into Enclosure 1 and $D=f(L,S)$ included into Enclosure 2.

This documentation covers the following set of configuring parameters: $4\text{m} \leq L \leq 200\text{m}$; $4\text{m} \leq S \leq 15\text{m}$; $N=1,2, 3$ person.

In case of applying other set of the parameters, an additional calculation should be done.

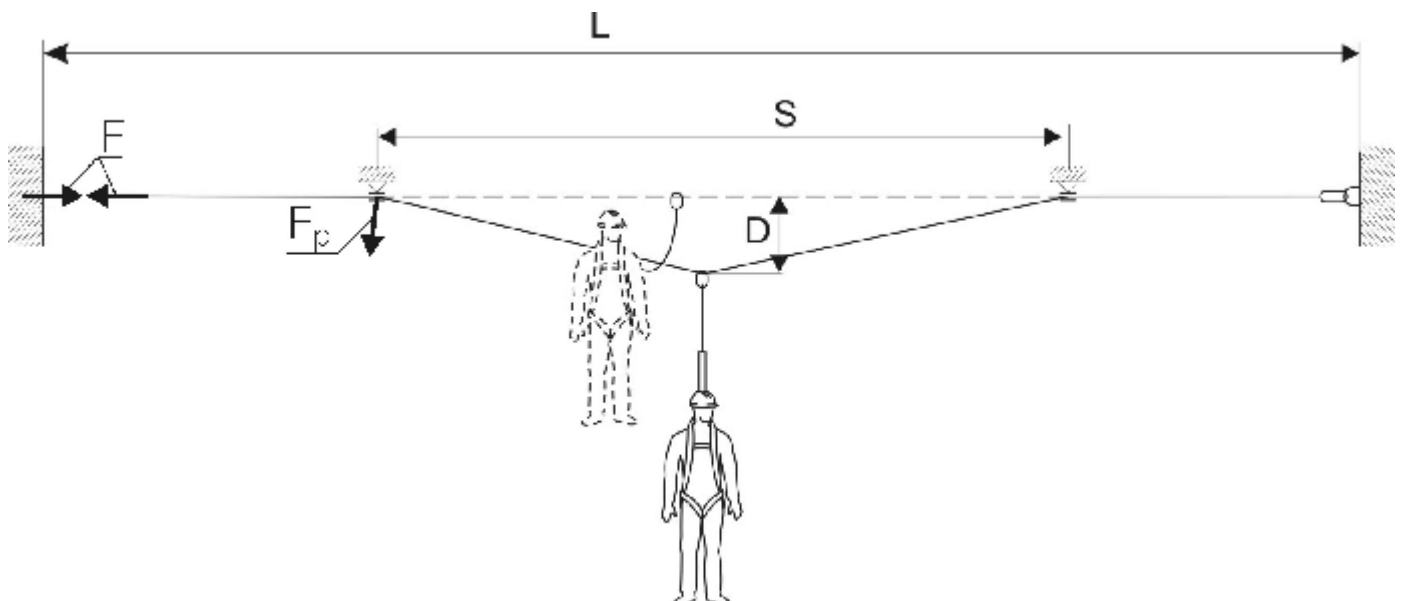


Fig. 4-1

4.3 Supporting structure strength requirements

A strength of a supporting structure and / or connecting elements (e.g. bolts, anchors) which are used for attaching the system to the structure should be not less than

- Rk - for end structural anchors;
- Rp - for intermediate structural anchors.

which are described as follows:

$$Rk \geq 2 \times F \text{ [kN]} \text{ (where: F - acc. the diagrams in Enclosure 1)}$$

$$Rp \geq 10 \text{ [kN]}$$

Note: The Rk and Rp values relate to a structural strength of the parts.

4.4 Free space under user

A free space quantity under user, in a potential fall direction, should be at least equal to the sum of:

- the D "deflection" of the horizontal anchorage system (fig. 4-1);
- the elongation of the connecting and shock absorbing subsystem (according to its operating manual);
- and additional extra distance of 1m.

The forecasted "deflection" values D, of a horizontal anchorage system, for various configuration parameters L, S, P, are described on the diagrams in Enclosure 2.

4.5 Inclination and/or direction change of a lifeline .

A system cable (line) should be leaded horizontally, with the acceptable level deviation not more than 15 ° in any point of a system in-between its end structural attachments.

The line bend angle in a intermediate structural anchor shouldn't increase 15°. The allowable direction of a system line in relation to the intermediate structural anchors are described on the fig. 4.-2.

When a system cable is bended more than 15°, the HL130, HL140 lub HL740 standard corner feature should be applied - fig. 4-3.

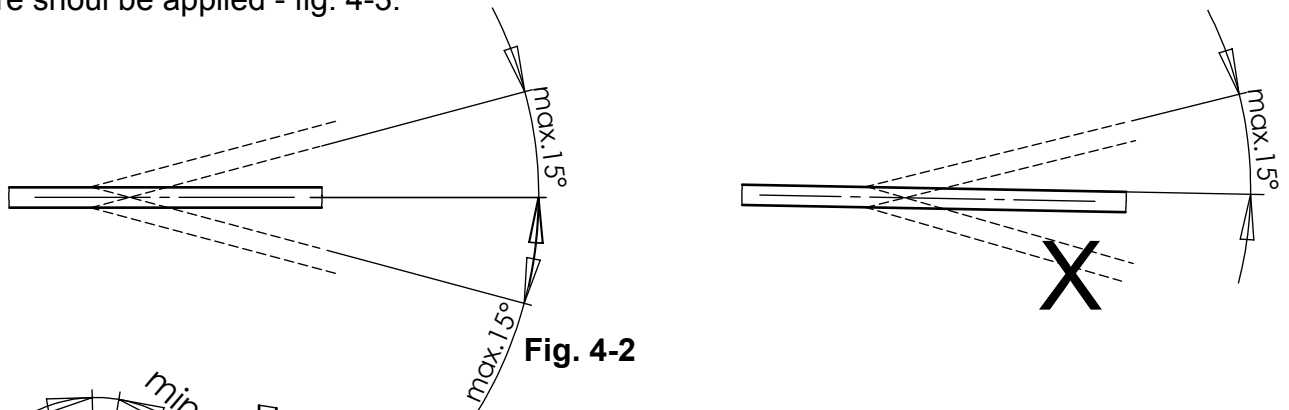


Fig. 4-2

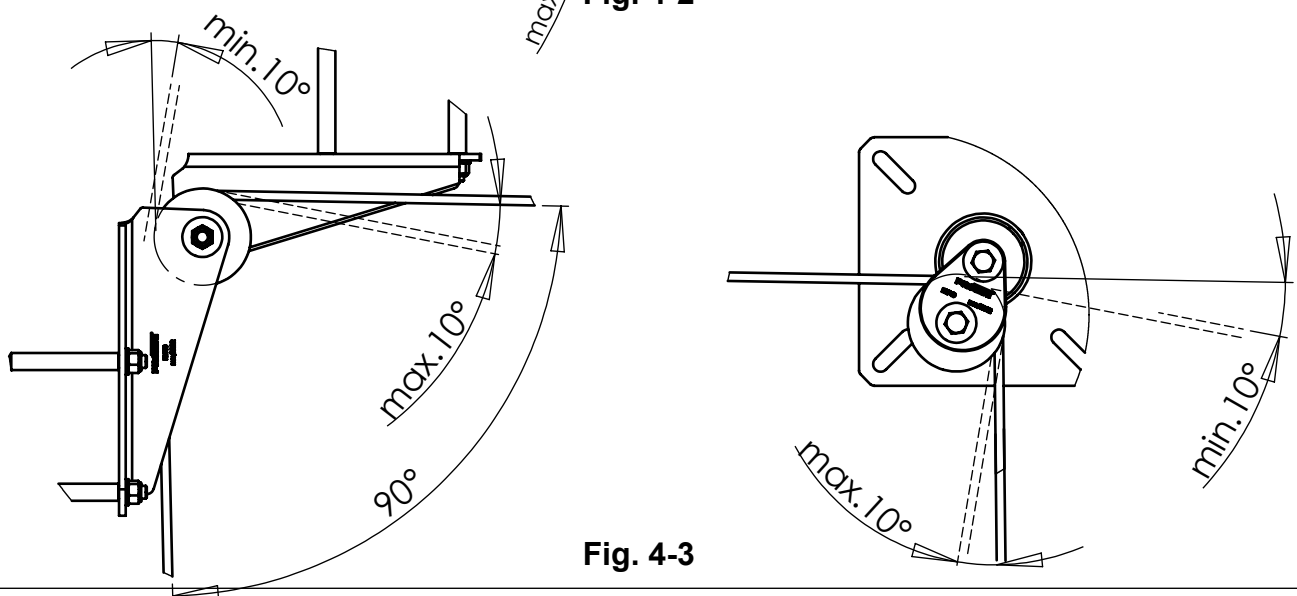
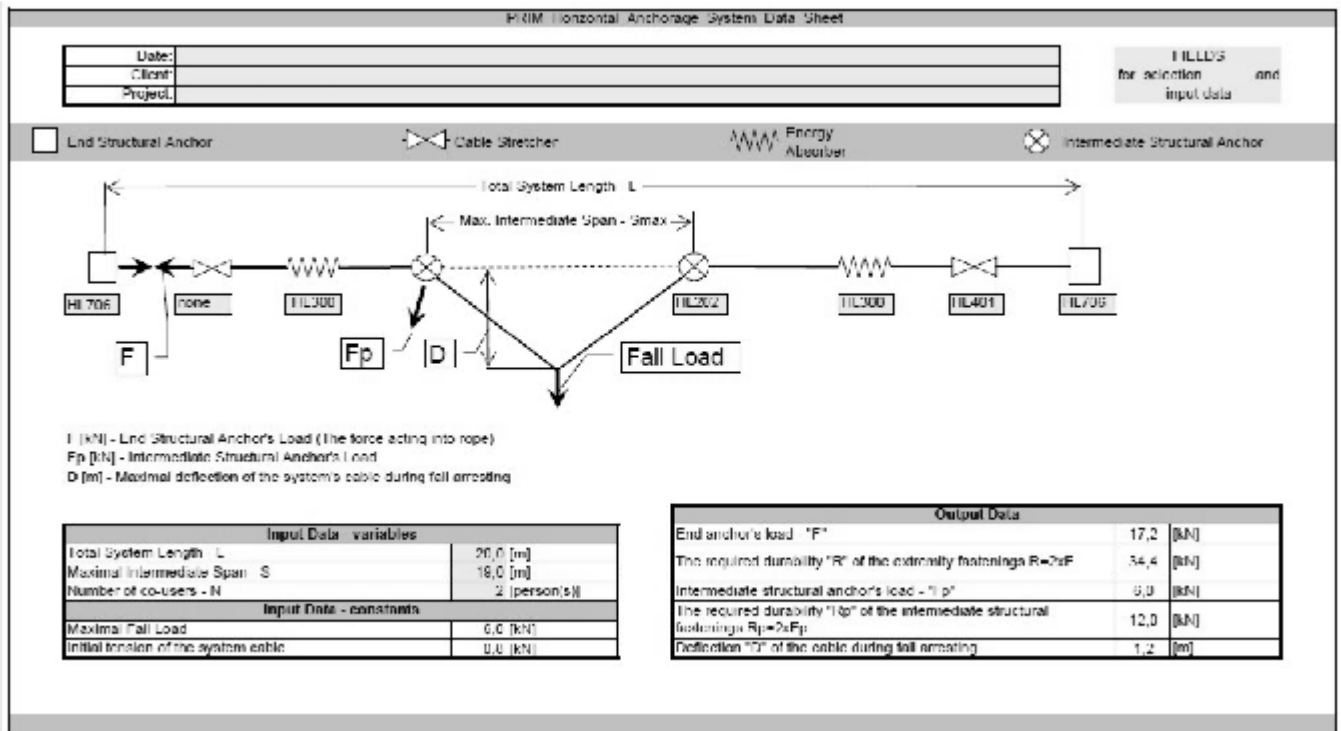


Fig. 4-3

4.6 Design software



Rys. 4-4

The "PRIM Design Software" allows evaluate the following parameters:

- the maximal values of the forces acting on the end and intermediate structural anchors,
- the maximal values of the cable line deflection,
- the required strength of the end and intermediate structural fixing.

The fig. 4-4 describes the view of the input / output data window of the DUO Design Software. The area which allows design data loading are in green colour. The design data can be loaded by typing or choice from drop down list.

5. SYSTEM FASTENING TO A STRUCTURE

5.1 General rules of fastening

5.1.1. M12 - size screwing connection. Screws used for system fastening to a structure should have minimum durability corresponding to the durability of screws M12-A2-70. All the elements of the screw connection should be protected against corrosion or made from stainless steel material. The nuts and hexagonal heads of the screws should be equipped with pads appropriate for the applied thread M12. The nuts and screws in screw connection should be self-braking or secured against self-unscrewing with the aid of spring washers or locknuts.

5.1.2. M12 - size anchor type connection. A connecting to concrete or brick-work base should be made with the use of chemical or mechanical anchors. The anchors should be equipped with screw-type interface for system part assembly of the size M12. The recommended example of mechanical anchors: FAZ12...; FBN12...; FZA18...M12 (prod. FISCHER). The recommended example of chemical anchors: HIT HY-150/HAS M12 (prod. HILTI); FIS M12 (prod. FISCHER). **ATTENTION: The anchors have to be mounted strictly according to the instruction of the anchor's producer.**

5.2 Fastening of the HL701, HL702, HL704 poles

The poles HL701, HL702 i HL704 may be fastened to a steel or concrete structure of appropriate durability. The method of fastening is shown, respectively: for the poles HL701 i HL704 on fig. 5.2-1, and for pole HL702 on fig. 5.2-2.

Connection of the poles, which allows take full advantage of the maximal pole strength (35kN), is provided exclusively for steel structure and for concrete structure of durability against pressure of at least 25MPa. For other kind of structure materials (including brickworks and aerated concrete) fastening strength depends on structure material and fastening technology and should be determined by competent designer for each particular case.

The connection to steel structure should be made with the use of screws described in 5.1.1.

The connection to the concrete or brickwork base should be made with the use of chemical or mechanical anchors described in 5.1.2. The single anchor durability against extraction should be more than 12kN. The anchors should be equipped with screw-type interface for system part assembly of the size M12.

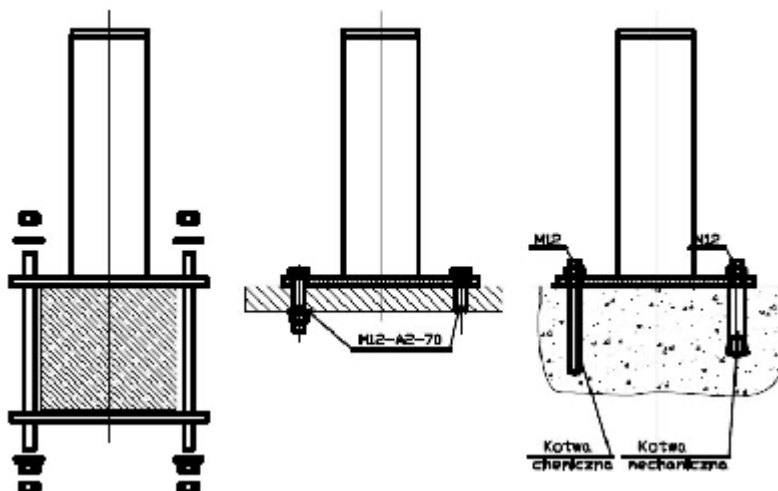


Fig. 5.2-1

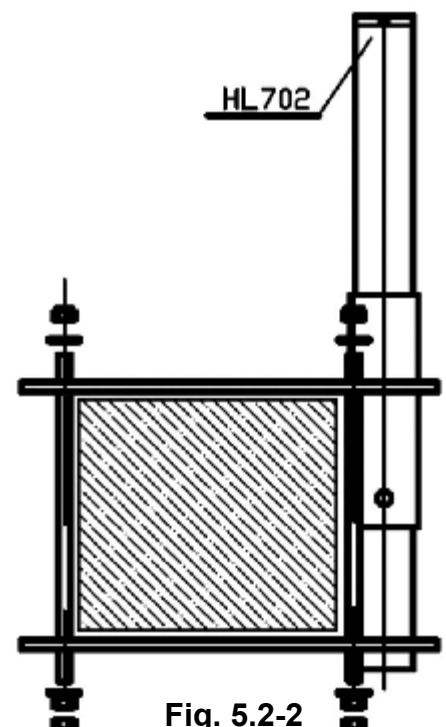


Fig. 5.2-2

5.3 Fastening of the end anchor plates: HL101, HL102 to a structure

The HL101 i HL102 end structural anchor plates may be fastened to a steel or concrete / brickwork structure of appropriate durability. The method of fastening is shown, respectively: for the HL101 plate in fig. 5.3-1, and for the HL102 plate in fig. 5.3-2.

A connection which allows take full advantage of the maximal plate strength (35kN), is provided exclusively for steel structure and for concrete structure of durability against pressure of at least 25MPa. For other kind of structure materials (including brickworks and aerated concrete) fastening strength depends on structure material and fastening technology and should be determined by competent designer for each particular case.

The connection to steel structure should be made with the use of screws described in 5.1.1.

The connection to the concrete or brickwork base should be made with the use of chemical or mechanical anchors described in 5.1.2. The single anchor durability against extraction should be more than 12kN. The anchors should be equipped with screw-type interface of the size M12 for the plates assembly.

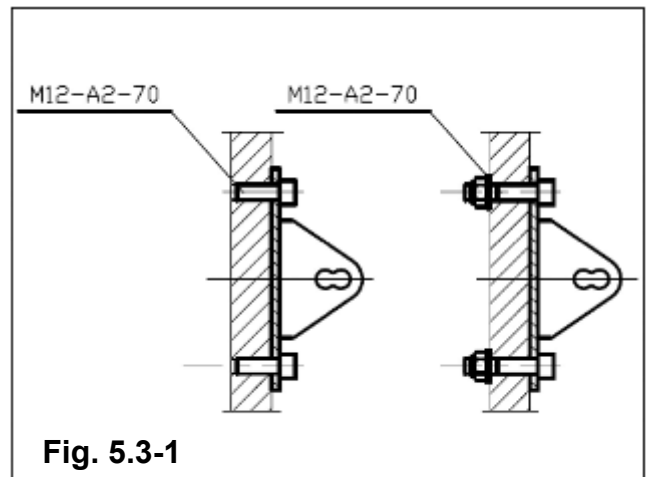


Fig. 5.3-1

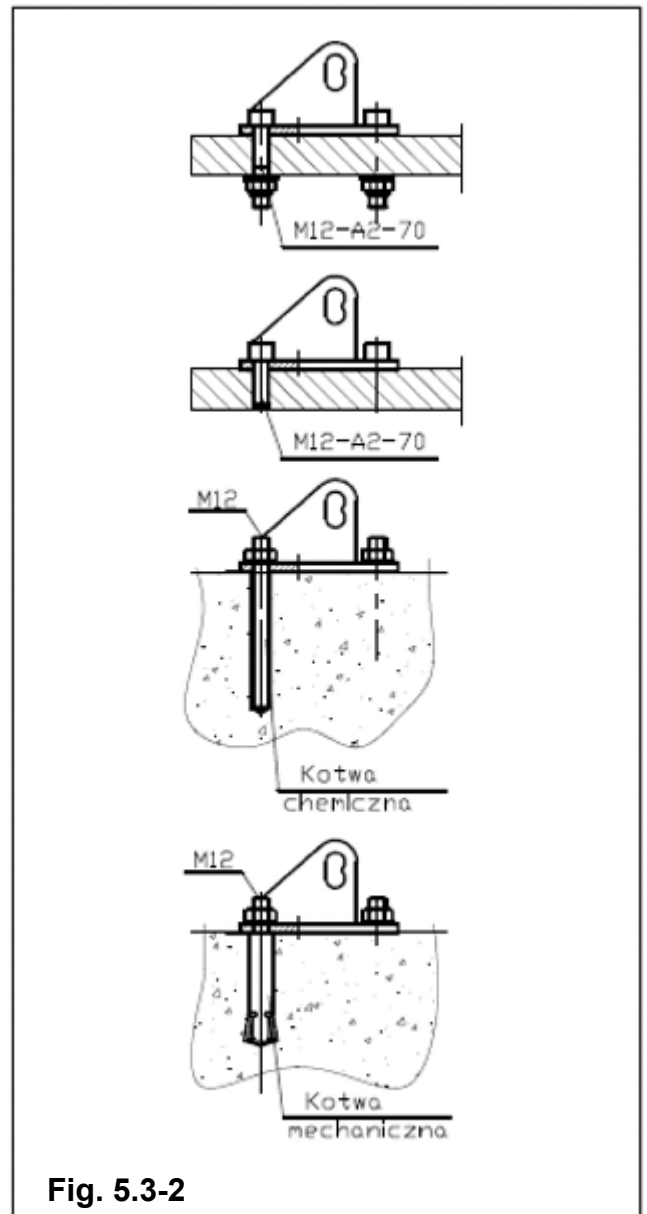


Fig. 5.3-2

5.4 Fastening of the HL201 and HL202 intermediate rope holders to a structure.

The HL201 i HL202 intermediate rope holders may be fastened directly to a building structure of appropriate durability. Also, they may be installed on the system poles. The layout on horizontal and vertical surfaces, including the acceptable directions of the forces F_p coming from the system rope is shown in fig. 5.4-1 for the HL201 holder and in fig. 5.4-2 for the HL202 holder.

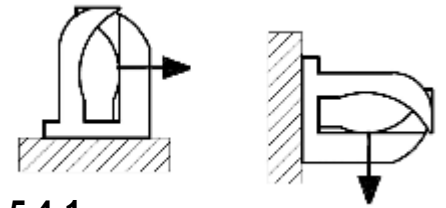


Fig.5.4-1

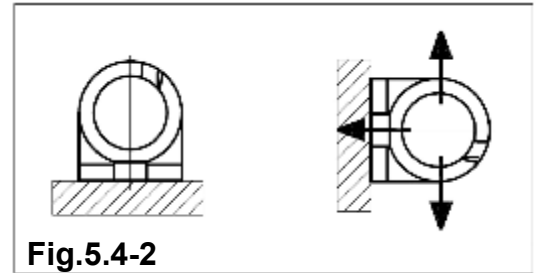


Fig.5.4-2

A connection to steel structure should be made with the use of screws described in 5.1.1 - see fig.: 5.4-3 and 5.4-4

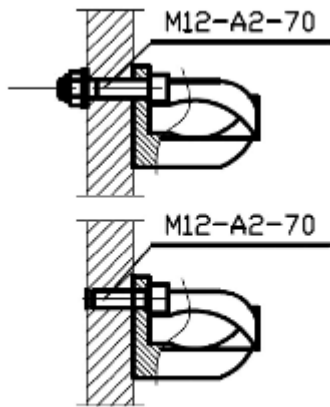


Fig.5.4-3

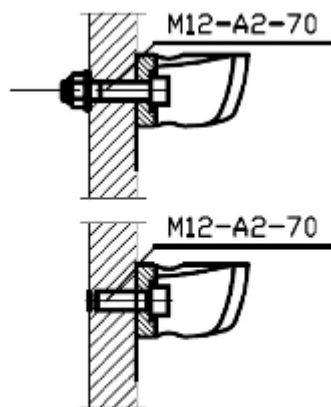


Fig.5.4-4

A connection to concrete or brickwork base should be made with the use of chemical or mechanical anchors described in 5.1.2 - fig.:5.4-5 and 5.4-6. The anchors should be equipped with screw-type interface of the size M12 for the holders assembly. The single anchor durability against extraction should be more than 12kN. The connection which is able to withstand the F_p force for each installation case covered by this manual, is provided exclusively for steel structure and for concrete structure of durability against pressure of at least 25MPa. For other kind of structure materials (including brickworks and aerated concrete) fastening strength depends on structure material and fastening technology and should be determined by competent designer for each particular case.

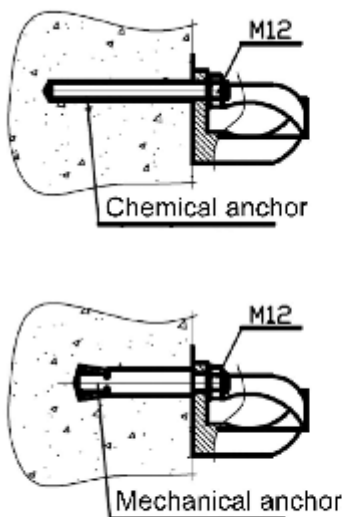


Fig.5.4-5

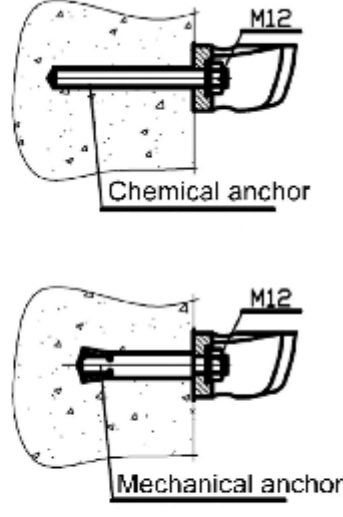


Fig.5.4-6

5.5. The system fastening to a Box Profile Roof Sheet

5.5.1. A Box Profile Roof Sheet's strength requirements.

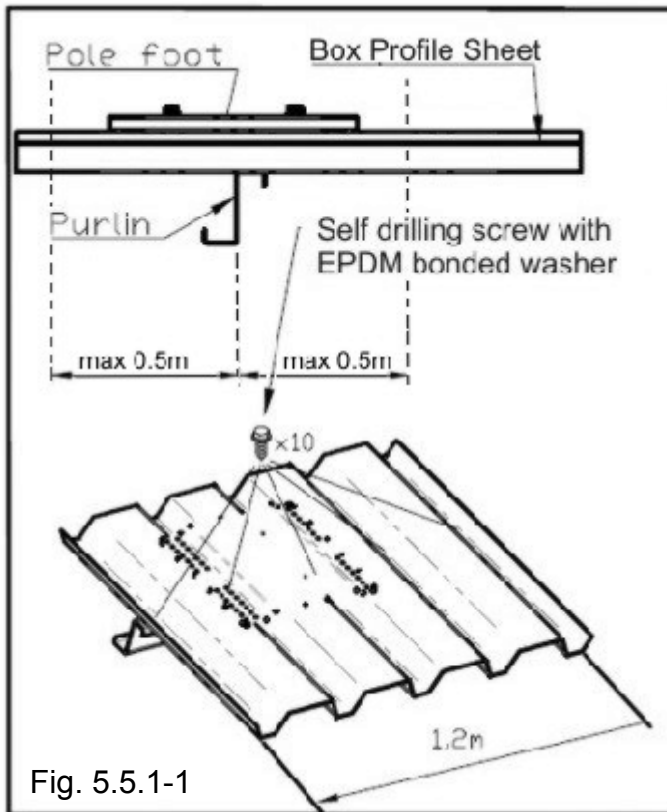


Fig. 5.5.1-1

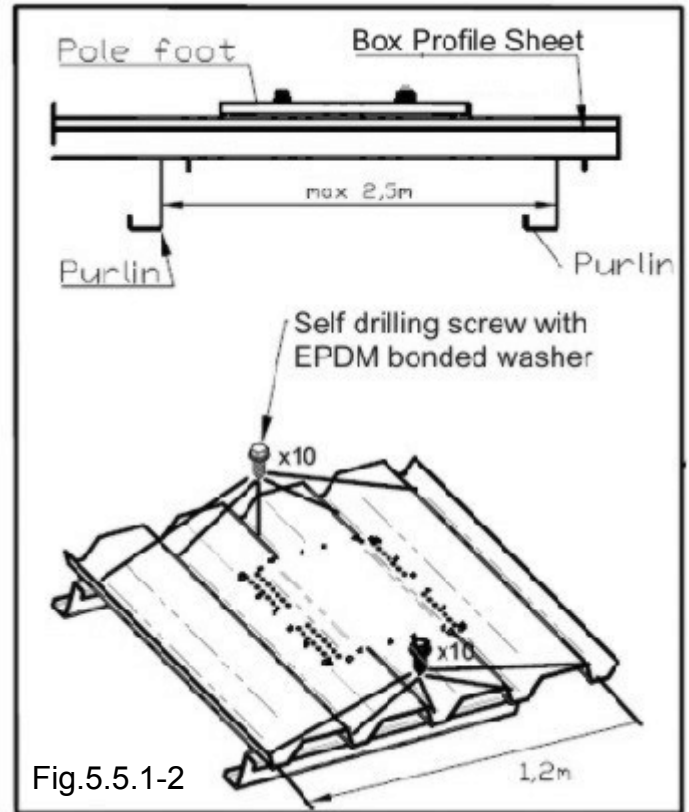


Fig.5.5.1-2

Prior to installation a horizontal anchor system, a state of corrugated sheets, forming a roof sheathing, should be assessed. The roof sheet type and sheet gauge (thickness) should be checked and strength of the roof sheet attachment to a building structure. A post may be installed in any location on a roof only when the roof purlins spacing is not more than 2.5m (fig. 5.5.1-2). If the spacing of roof purlins is greater than 2.5 m, the posts should be installed in the area bounded to 0.5 meters on both sides of purlin (fig. 5.5.1-1).

Either when roof sheets fixing to purlins don't provide a required strength (at the place of post location) or relevant assessment wasn't carried out, the place of post installation should be strengthened in the way described below:

- 1/ A post placed above a purlin in the area up to 0.5m from the purlin (fig. 5.5.1-1). Before attaching the post, the roof sheet should be additionally fixed to the purlin by screwing it at least 10 Farmer type, self drilling screws of the size not less than 4,8mm, distributed uniformly over a length of 1.2m ($\pm 0,1m$). The screws should be placed symmetrically about the pole, in the bottom shelf of the sheet.
- 2/ A post placed between roof purlins in a distance more than 0.5m from purlin's axle (fig.5.5.1-2). The distance between adjacent purlins should not exceed 2.5m. The roof sheet should be additionally fixed to each of the next purlin, on both sides of the post location. Each purlin's screwing should be made with the aid of 10 Farmer type, self drilling screws of the size not less than 4,8mm, distributed uniformly over a length of 1.2m ($\pm 0,1m$). The screws should be placed symmetrically about the pole, in the bottom shelf of the sheet.

5.5.2. The system fastening to a Box Profile Roof Sheet with the aid of HL720 and HL760 poles.

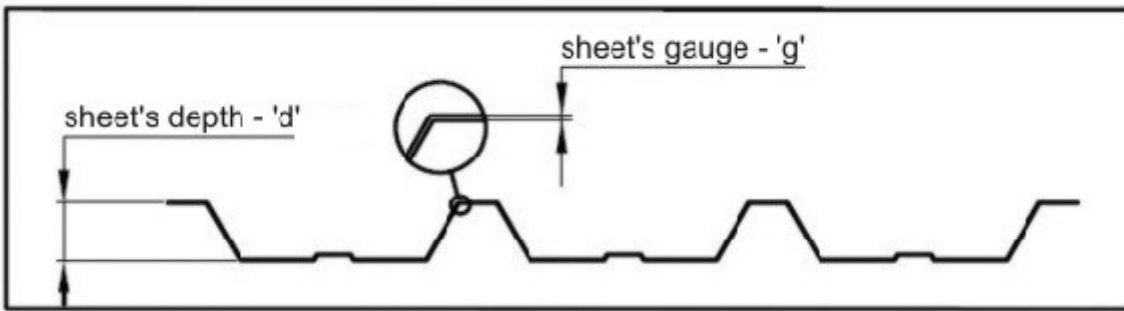


Fig. 5.5.2-1

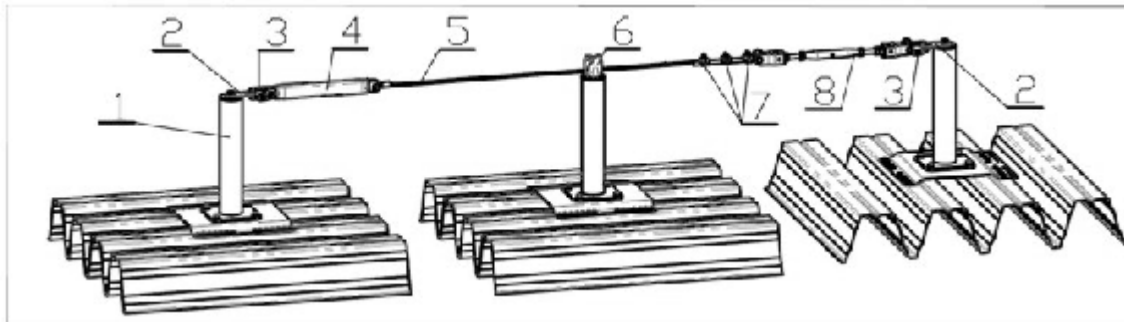


Fig. 5.5.2-2

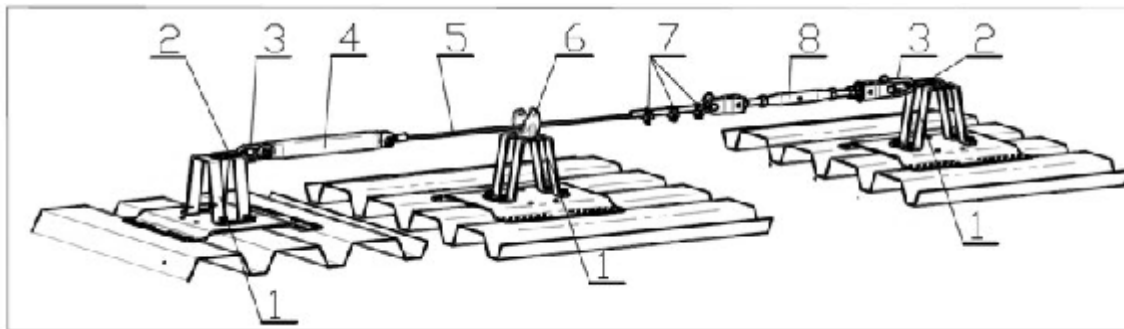
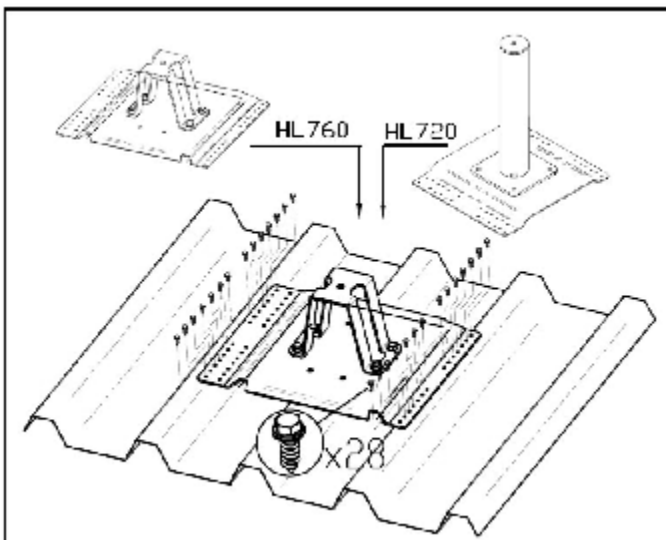


Fig. 5.5.2-3

A Box Profile Sheet, to which the poles HL720 or HL760 are fixed, should be made of steel. The sheet's profile depth should be not less than 50mm and sheet's gauge not less than 0.63mm. See fig. 5.5.2-1.

The HL720 and HL760 poles' foot plate should be placed on a roof sheet in such a way that the screw holes in the plate were placed on (along) upper flat shelf of the sheet. In case the HL760 post, the "A" shape pole's frame direction (orientation) in relation to ridges of the sheet's profile may be adjusted independently. See fig 5.5.2-2 and 5.5.2-3.



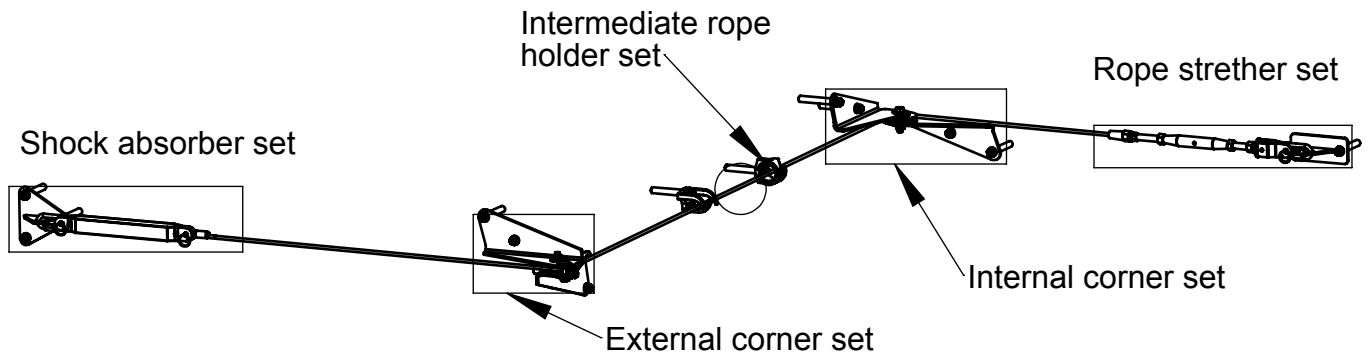
The HL720 and HL760 posts should be fixed to a roof sheet with the aid of 28 Farmer type self drilling screw with EPDM bonded washer, of the size 4,8mm (fig. 5.5.2-4). Tightening torque value should be chosen so as to obtain a rate of holding down of the pole's footplate to roof sheet, without breaking the threaded connection.

The strength of such connection depends on the roof sheet's gauge - "g" and amounts:

- for $g = 0,63\text{mm}$ to $0,7\text{mm}$ - not less than 15kN,
- for $g = 0,7\text{mm}$ to $0,8\text{mm}$ - not less than 20kN,
- for $g = 0,8$ and more - not less than 26kN.

Fig. 5.5.2-4

6. "ON WALL" METHOD OF SYSTEM INSTALLATION



6.1 Assembly of the shock absorber unit to end structural anchor plate.

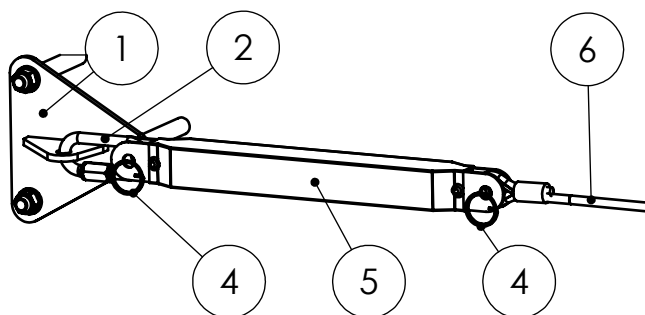


Fig. 6-1. Method of assembly of the energy absorber unit to the end structural anchor plate.

- 1- HL101/HL102 End anchor plate;
- 2- AZ090 Screw link connector;
- 3- HL407 Pin;
- 4- HL408 Cooter ring;
- 5- HL300 Shock absorber;
- 6- HL500 Cable set with rigid eye.

6.2 Assembly of the rope stretcher set to the end structural anchor plate.

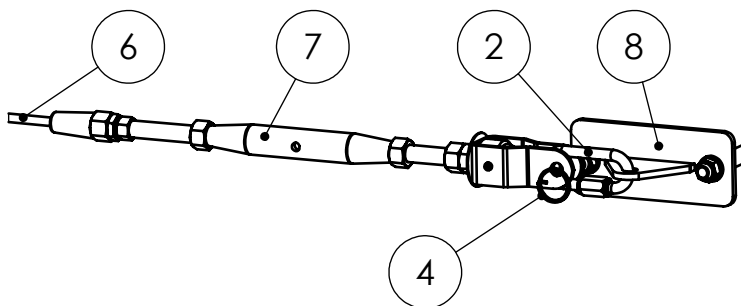


Fig. 6-2. Method of assembly the rope stretcher to the end anchor plate.

- 2- AZ090 Screw link connector;
- 3- HL407 Pin;
- 4- HL408 Cooter ring;
- 6- HL500 Cable set with rigid eye;
- 7- HL401 Rope stretcher;
- 8- HL101/HL102 End anchor plate

6.3 Assembly of the rope stretcher and energy absorber on the same end of system.

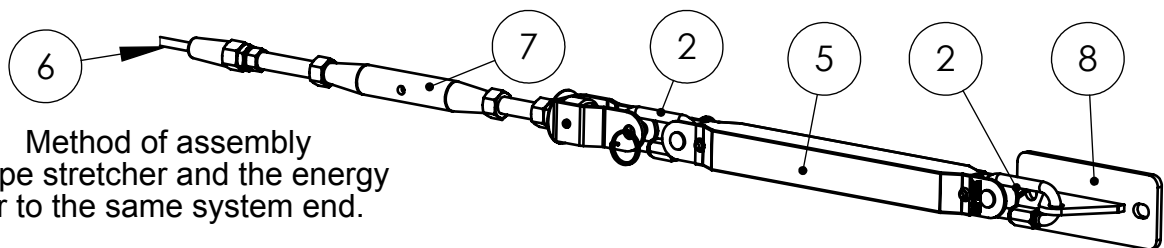


Fig. 6-3. Method of assembly of the rope stretcher and the energy absorber to the same system end.

- 2- AZ090 Screw link connector;
- 5- HL300 Shock absorber;
- 6- HL500/HL501 Cable;
- 7- HL401 Rope stretcher;
- 8- HL101/HL102 End anchor plate.

Note: This method may be applied in case when two HL300 energy absorbers should be applied to a system.

6.4 Assembly of the cable into intermediate holder.

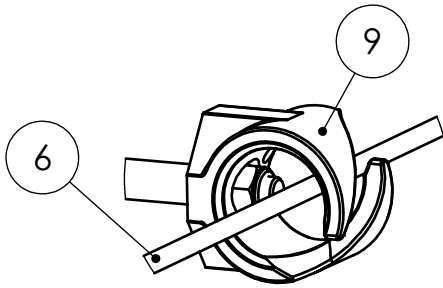
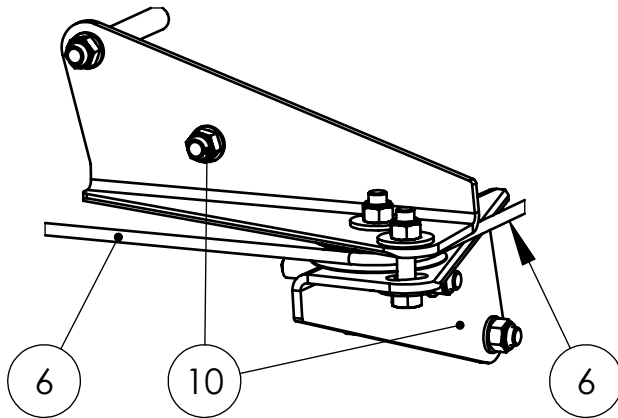


Fig. 6-4. Method of system cable drawing through the HL202 intermediate rope holder .

6- HL500/HL501 Cable;
 9- HL202 Intermediate rope holder.

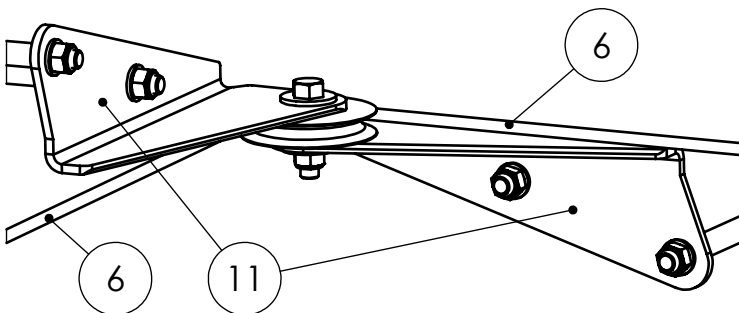
6.5 Assembly of the wall external corner.



Rys. 6-5. Method of system cable drawing through the wall external corner.

6- HL500/HL501 Cable;
 10- HL140 Wall external corner set.

6.6 Assembly of the wall internal corner.



Rys. 6-5. Method of system cable drawing through the wall internal corner.

6- HL500/HL501 Cable;
 11- HL130 Wall internal corner set.

7. "ON POLES" METHOD OF THE SYSTEM INSTALLATION

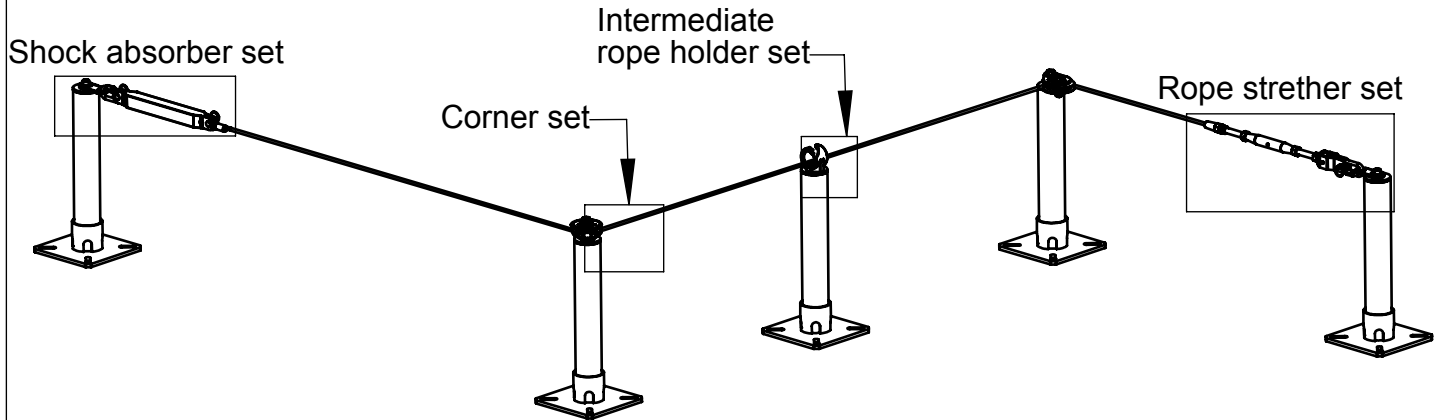


Fig. 7-1. The PRIM system example of installation on the HL704 poles.

7.1 Assembly of shock absorber set to the end pole.

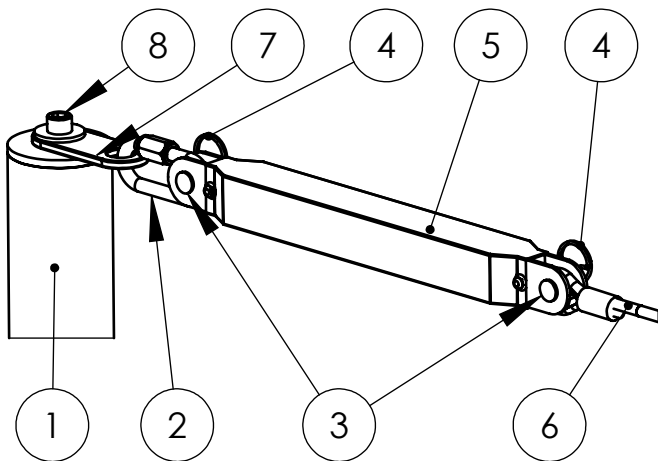


Fig. 7-2. Assembly method of the shock absorber to the pole.

- 1- HL704 Pole;
- 2- AZ090 Screw lik connector;
- 3- HL407 Pin;
- 4- HL408 Cooter ring;
- 5- HL300 Shock absorber;
- 6- HL500 Cable set with rigid eye;
- 7- HL721/722 Two point rotating bracket;
- 8- M12x40-A2 Screw set.

7.2 Assembly of the rope stretcher to the end pole.

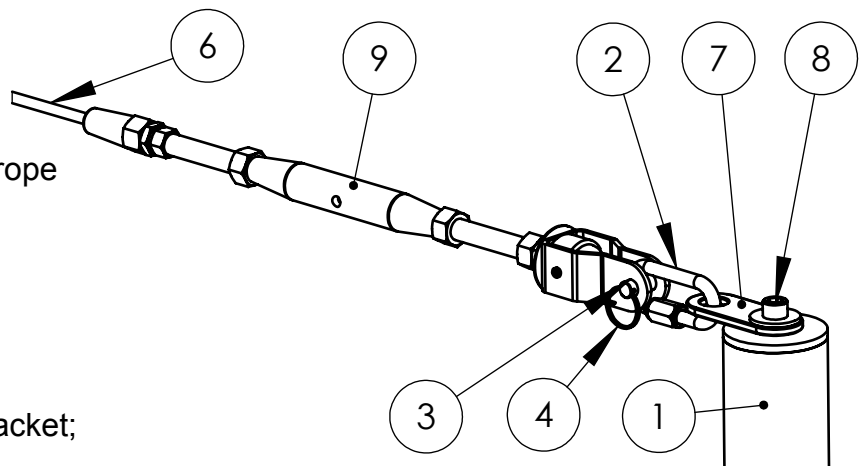


Fig. 7-3. Assembly method of the rope stretcher to the end pole

- 1- HL704 Pole;
- 2- AZ090 Screw lik connector;
- 3- HL407 Pin;
- 4- HL408 Cooter ring;
- 6- HL500 Cable set with rigid eye;
- 7- HL721/722 Two point rotating bracket;
- 8- M12x40-A2 Screw set;
- 9- HL401 Rope stretcher.

7.3 Assembly of the pole corner set on a pole.

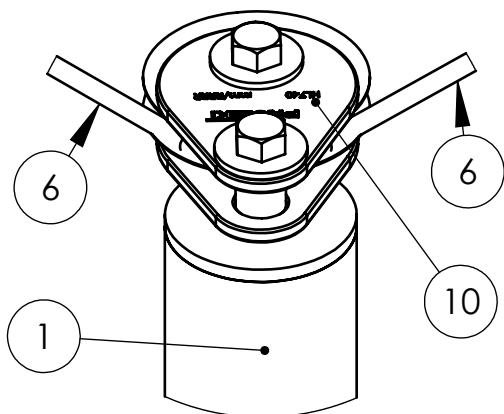
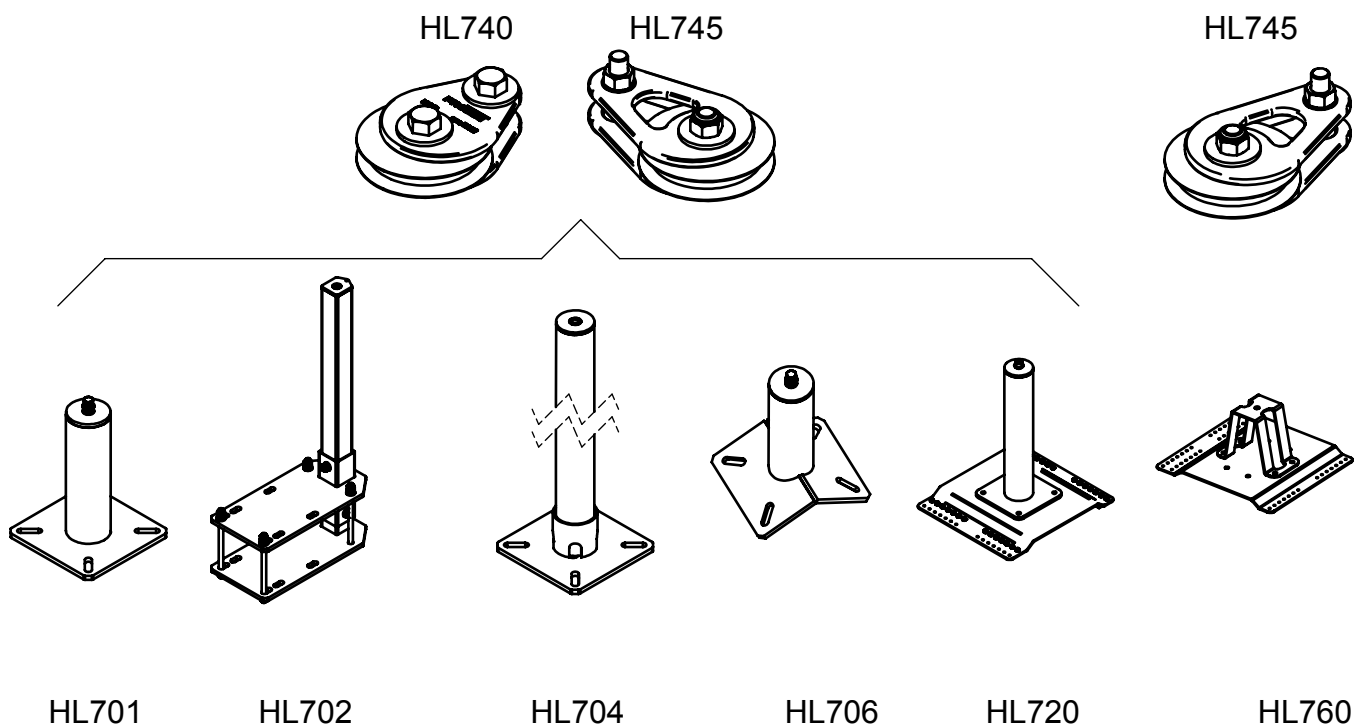


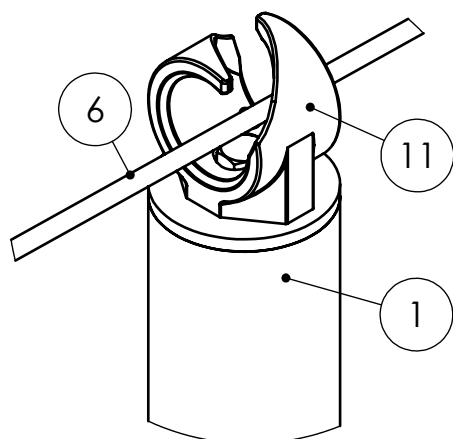
Fig. 7-4. Assembly method of the pole corner set to a pole.

- 1- HL704/HL701 Pole;
- 6- HL500 / HI501 Cable;
- 10- HL740 Pole corner set;
- 11- M12x40-A2 Screw set

7.4 The HL740 and HL745 pole corner sets selection to the system's poles.



7.5 Assembly of the intermediate rope holder onto pole.

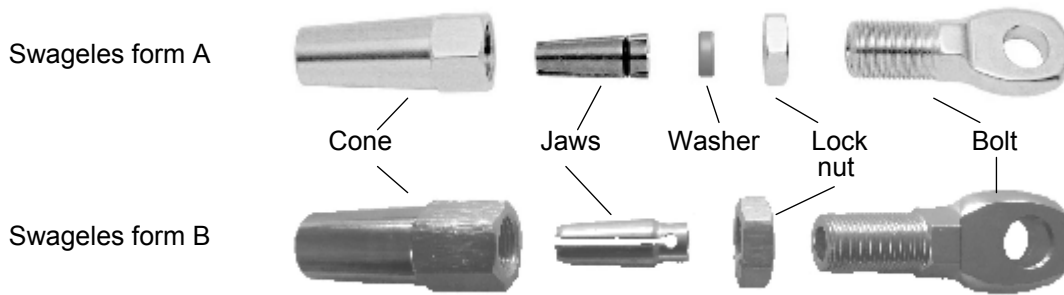


Rys. 7-5. Assembly of the HL202 intermediate rope holder onto pole.

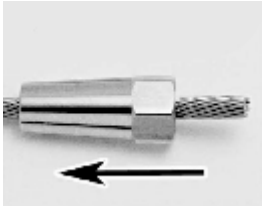
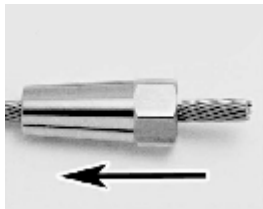
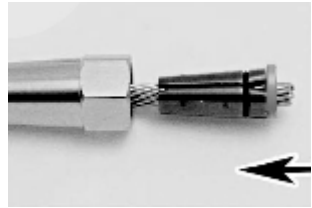
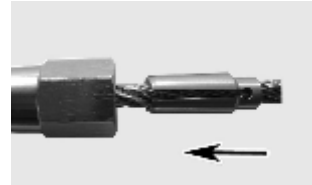
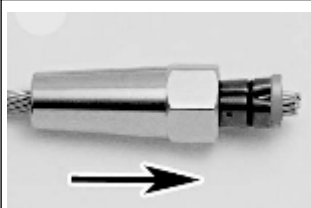
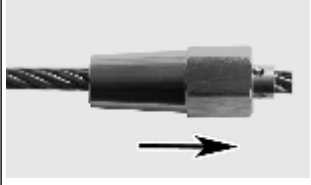




- 1- HL704 / HL701 Pole;
- 6- HL500 / HI501 Cable;
- 11- HL202 Intermediate rope holder.

8. Cable fastening with the use of the swageles.

8.1 Components of the swageles.

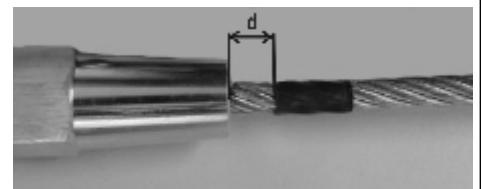


8.2 Fastening procedure.

Swageles form A	 <p>Slide the Cone onto the cable</p>  <p>Slide the Jaws onto the cable</p>	 <p>Slide the Jaws onto the cable leaving equal spacing between the Jaws. Place the Pressure Washer on the cable end. The distance from the Pressure washer to the end of cable must be about 5mm.</p>  <p>Slide the Cone in place so that it covers the Jaws.</p>	 <p>Slide the Cone in place so that it covers the Jaws.</p>  <p>Slide the Cone in place so that it covers the Jaws.</p>	
Swageles form B	 <p>Turn the Lock Nut all the way back onto the Bolt.</p>	 <p>Assemble the terminal by threading the Cone onto the Bolt.</p>	 <p>Using wrenches tighten the Cone onto the Bolt using torque 60Nm. For torque control, a torque spanner is recommended.</p>	 <p>While holding Cone with a wrench, tighten Lock Nut against Cone (if any space remains).</p>

Note:

During first and next growing loads the swageless' parts and cable adapt together and the jaws can move inside cone, which manifest as a cable displacement "d" in relation to cone. This displacement for swageless which is properly assembled can't exceed 15mm for whole range of permissible load (35kN). If the displacement is bigger a connection should be rebuilt with a new parts.



9. Cable fastening to rope stretcher and getting the proper tension of the cable.

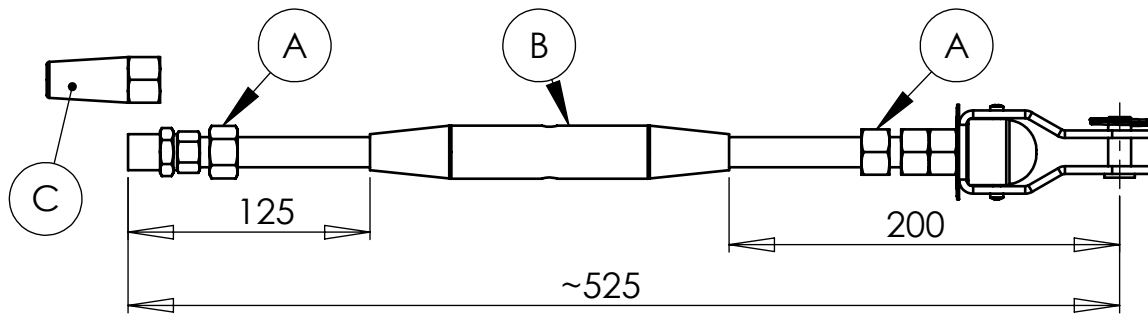


Fig. 9-1. The Rope stretcher preparing for the cable fastening

The cable of the PRIM system should be fastened to rope stretcher HL401 with the aid of the swageles type termination which is the stretcher component. Before making the connection, the HL401 stretcher should be adjusted to its maximal length. The swageles "C" should be dismantled. The "A"-marked nuts should be moved away from the "B"-marked nut (fig. 9-1).

The adjustment range of the rope stretcher equals about 150mm. In the case of long systems, its range regulation can not be sufficient. In such a case, the rope should be pre-stretch by any tensioning device in order to eliminate the excessive slack. In the place where the rope reaches to the wageles bolt (after removing the swageles cone), cut the rope and prevent its end against flaging out.

Fig. 9-2. The cable tightening with the aid of HL401 rope stretcher.

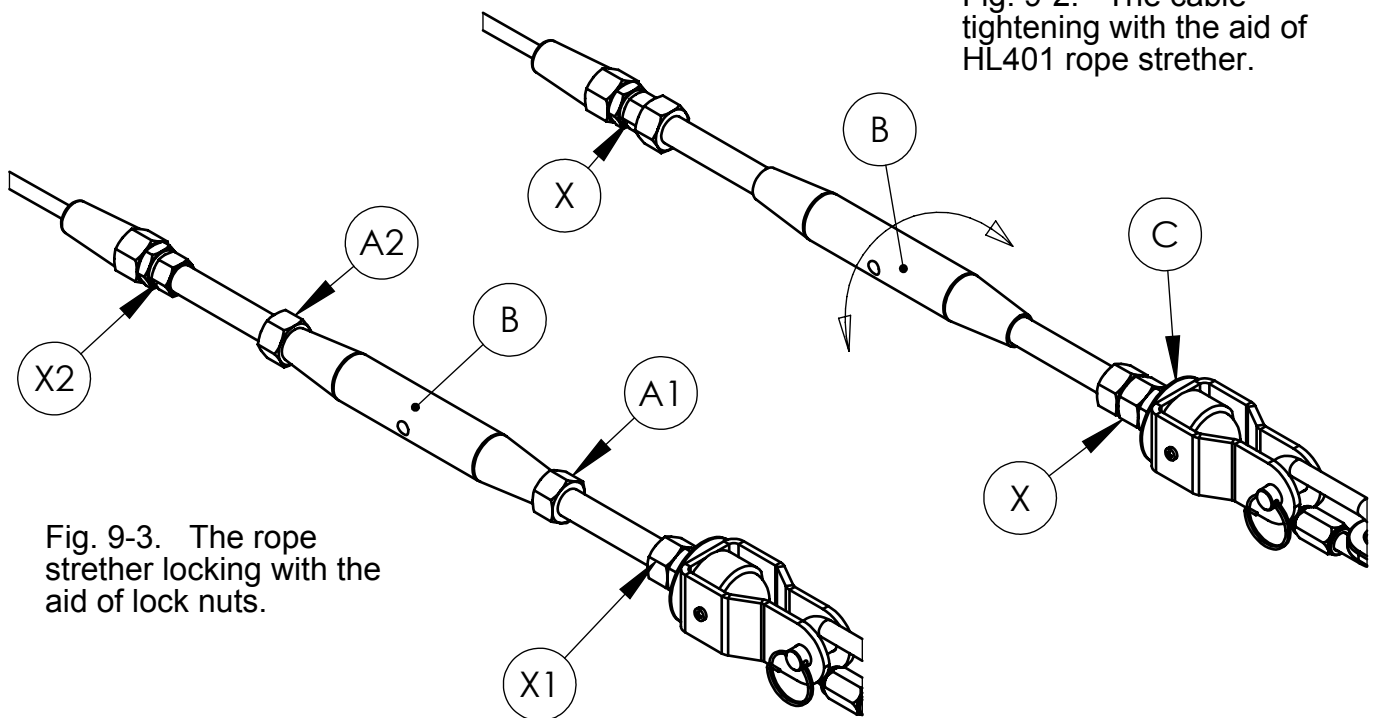


Fig. 9-3. The rope stretcher locking with the aid of lock nuts.

Procedure for the cable tensioning.

1. Attach cable at the rope stretcher's swageles in accordance with the procedure set out in section 8.
2. Hold with a wrench both side parts of the stretcher in places marked with "X" (Fig. 9-2).
3. Turn the turnbuckle "B" to get the rope tension, which is proper when at which the round plate "C" starts to rotate freely.
4. While holding with a wrench the side part of the stretcher in the nut marked "X 1" (Figure 9-3) tighten lock nut "A1" against to the turnbuckle to "B" to prevent it from self-loosening. Repeat this action for the "X2" and "A2".

10. MARKING

The PRIM system is marked in accordance with the EN795 standard. The person assembling the system should install the HL801 (or alternatively HL802) information board (fig.10-1). The board should be installed at all the places from which the system may be accessed. The following information should be written on the board: number of co-users - "A"; serial number of the system - "B"; date of installation - "C"; the installer name and address - "D"; date of next inspection - "E". The information should be engraved or written in such a way that the writing cannot be unintentionally erased. In order to indicate the next inspection date, you are advised to use the HL810 "Next Inspection Label".

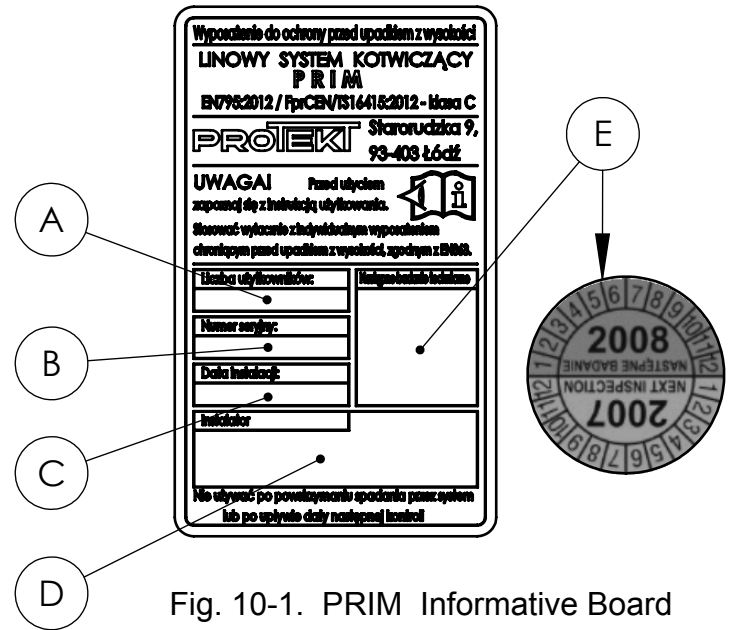


Fig. 10-1. PRIM Informative Board

11. INSTALLED SYSTEM COMMISSIONING

After installation, the system should be checked and approved by a person authorized to do it (e.g. a qualified engineer). The inspection should point out that the system: was arranged according to the plan; was installed in accordance with the manufacturer's installation instruction; was fixed to the specified substrate and with the use of the specified anchor or bolts. When any special regulations exist at the installation site, the commissioning should confirm the system compliance with these regulations. The commissioning protocol should be undersigned by a competent person. The installation documentation should be handed over to the user.

12. PERIODICAL INSPECTION AND MAINTENANCE

The PRIM system doesn't require specific maintenance. However, the installed system should be periodically inspected once a year. Moreover, the system that was used for fall arresting, should be extra inspected in details. During the inspections, a special attention should be paid to: technical condition of all its components (rope, energy absorber(s), rope tensioner(s), structural anchors, etc.), correctness of all joints, signs of corrosion.

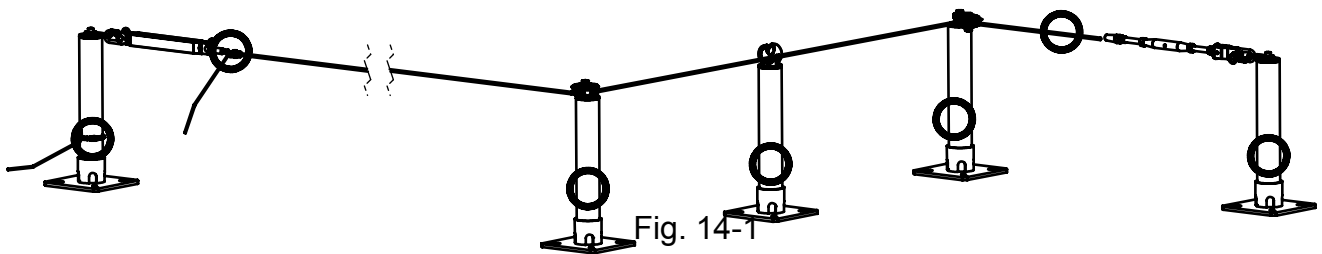
13. RECOMMENDATIONS AND WARNINGS FOR USAGE

The PRIM system is the D type anchor device intended for people protection against falls from a height, according to the EN795 standard. The equipment shouldn't be used for goods suspension. The system should be used along with the personal protective equipment against falls from a height, compliant with the EN363 standard. The personal protective equipment should be connected to the PRIM system line (cable) with the aid of a connector (snap hook) conforming to the EN362 standard. The PROTEKT - AZ011 connector is the recommended connector for personal equipment connecting to the PRIM system, because it allows passing through the system intermediate structural anchors without detaching from the cable. All usage rules, presented in user manuals of particular components must be applied. The manufacturer takes no responsibility if the PRIM system is not used in accordance with its user manual.

14. PROTECTION OF A HORIZONTAL ANCHOR LIFELINE AGAINST LIGHTNING

A problem of protection against lightning of a horizontal anchor lifeline and a structure, on which the lifeline is installed, should be solved on the base of the up-to-dated local regulations, by specialized designer or installer of lightning protection systems.

The horizontal lifeline system should be secured against damages caused by lightning strikes. This protection should be solved with the aid of special lightning safety installation designed on the base of general rules. It is forbidden to treat the anchor lifeline as a part of lightning safety installation. Any connections between anchor lifeline and lightning safety installation may be completed only due to secure the anchor lifeline against lightning strike. The connection may be performed to the end or intermediate structural anchors of the horizontal lifeline (e.g. structural poles or structural anchor plates) or to the system cable (next to system endings). The fig. 4-1 describes recommended places where connection between the anchor lifeline system and lightning safety installation may be done. The way of carrying out the connection to structural pole have been described on the fig. 14-2. The way of carrying out the connection to system cable have been described on the fig. 14-3



○ - recommended points of the anchor lifeline system to which a ground connection (via a lightning safety installation) may be performed

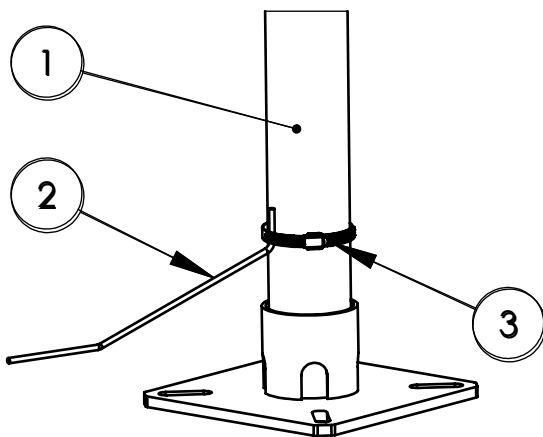


Fig. 14-2

- 1 - anchor lifeline's pole;
- 2 - conductor of a lightning safety installation;
- 3 - pipe clamp or band clip

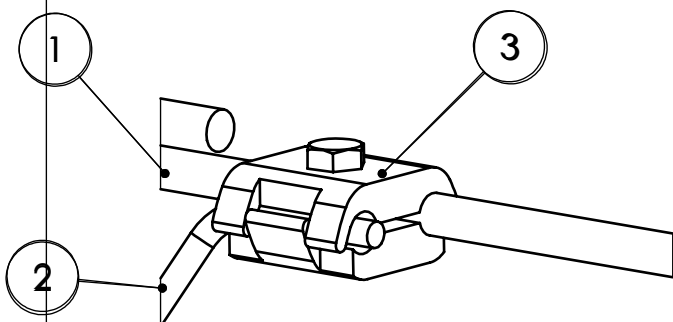
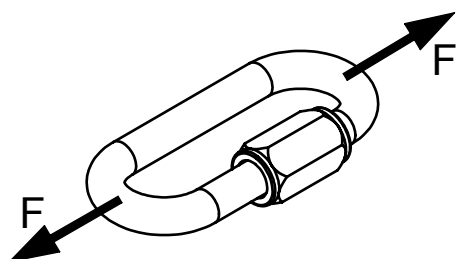
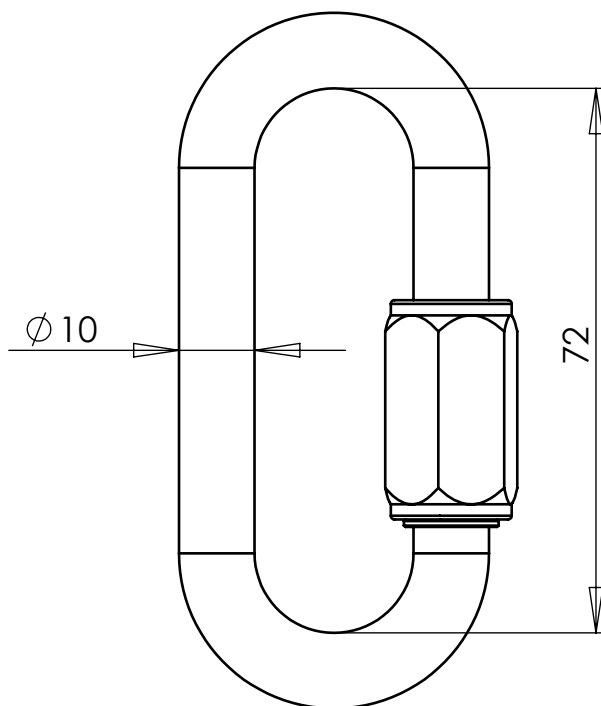
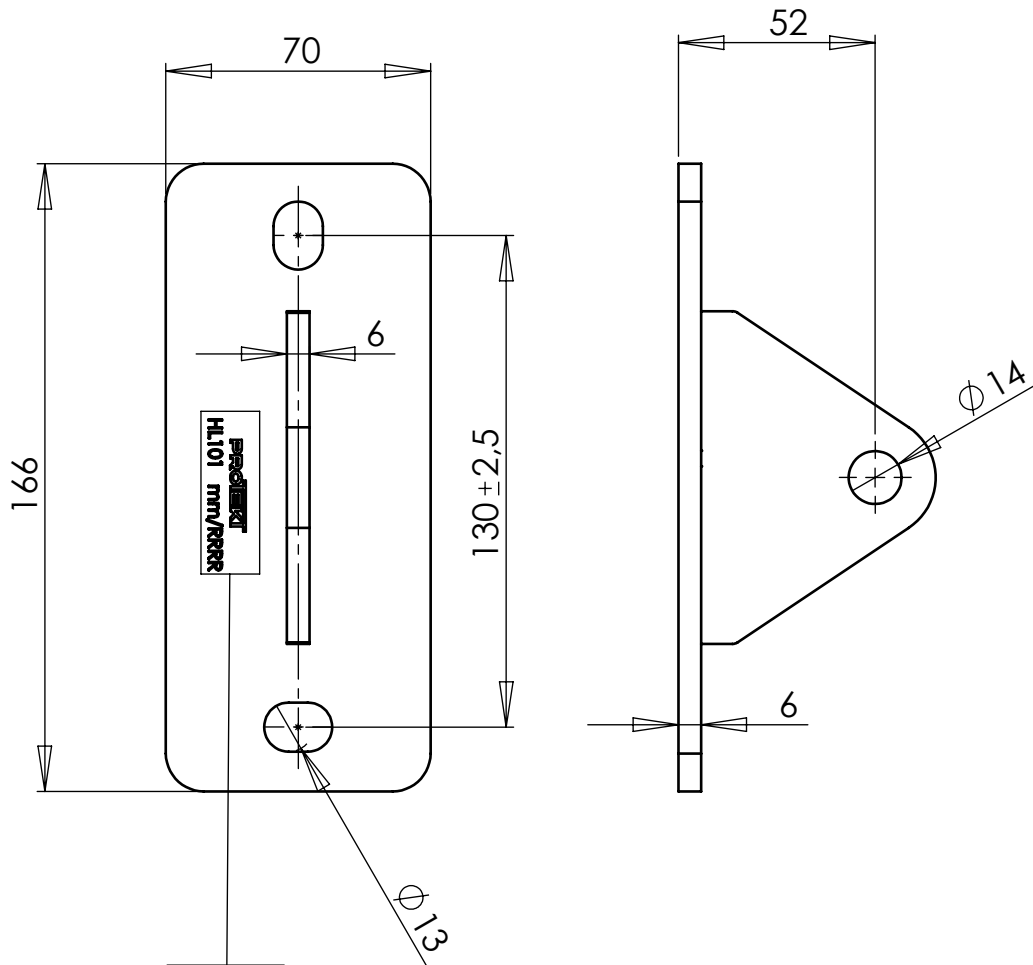


Fig. 14-3

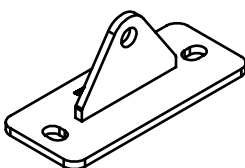
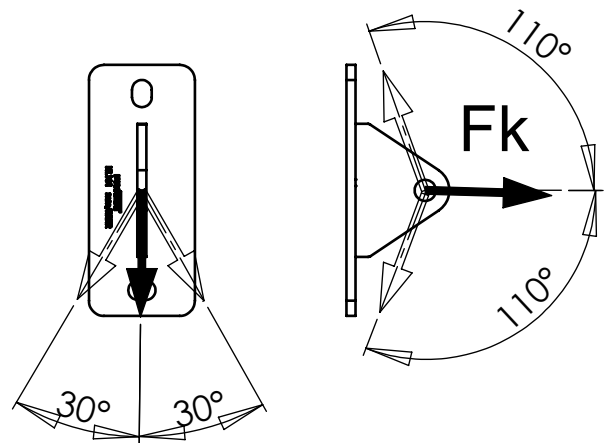
- 1 - anchor lifeline's cable;
- 2 - conductor of a lightning safety installation;
- 3 - cable clamp



Materiał (Material):	AISI 316 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 35\text{kN}$
Ciężar (Net weight):	0 kg



PROTEKT
 HL101 mm/RRRR



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	$F_k \geq 35\text{kN}$
Ciężar (Net weight):	0,68 kg

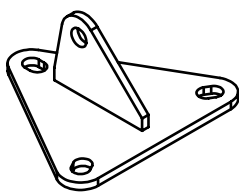
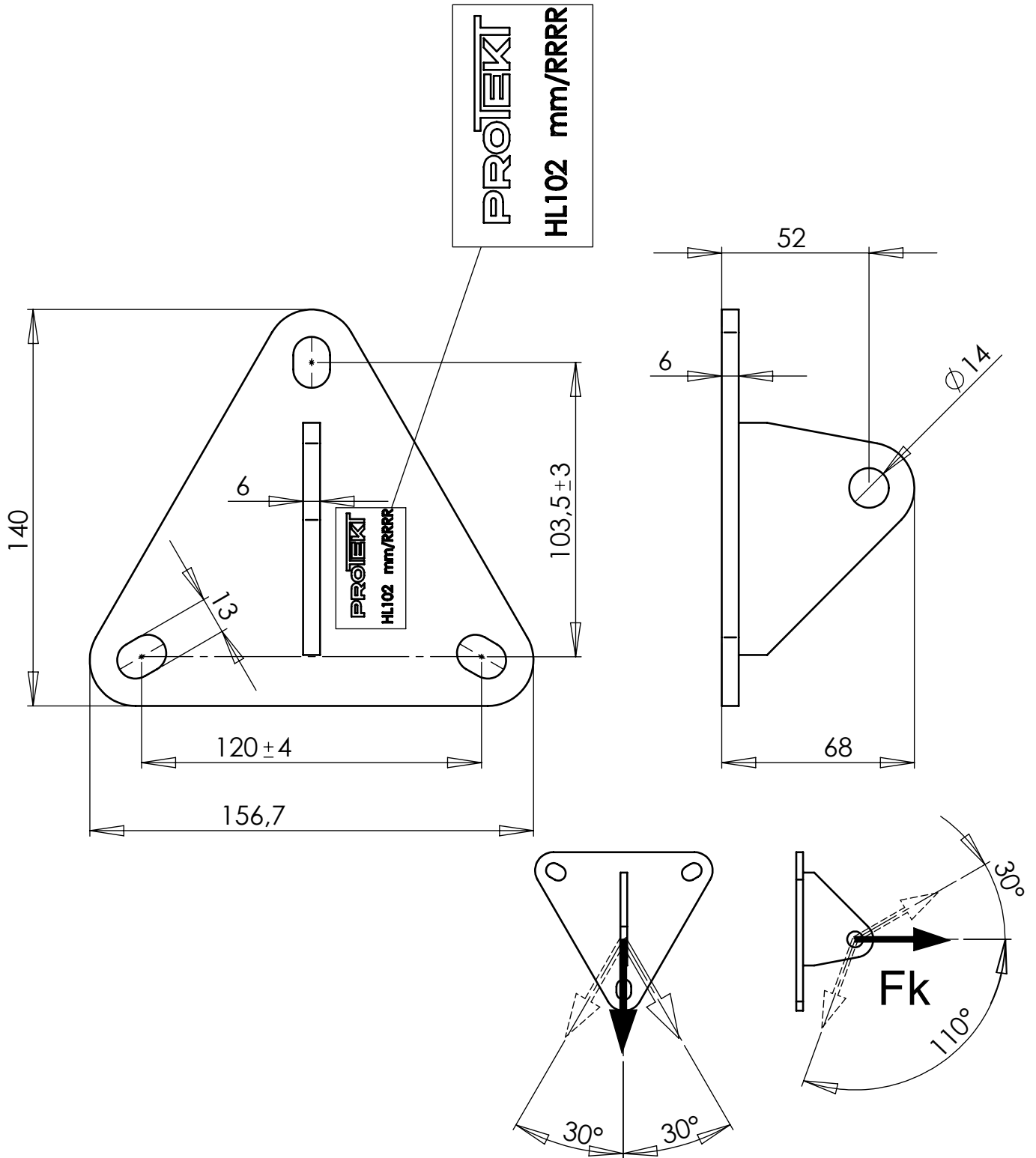
PRIM

Nazwa części (Part name)

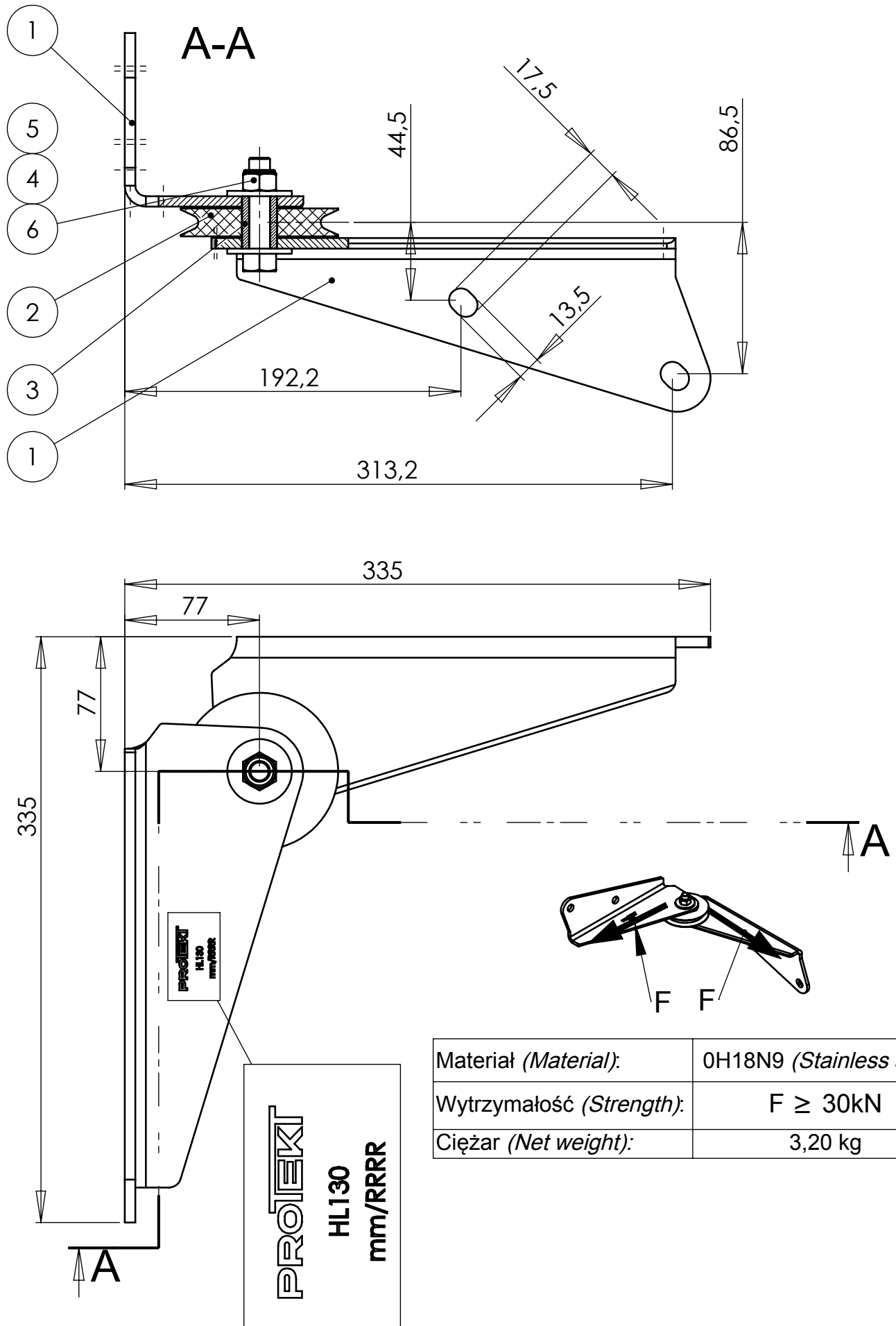
Płytkę kotwiczącą 2-punktową (2-point anchor plate)

Nr katalog. (Ref. No)

HL101



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	Fk ≥ 35kN
Ciężar (Net weight):	0,56 kg



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 30\text{kN}$
Ciężar (Net weight):	3,20 kg

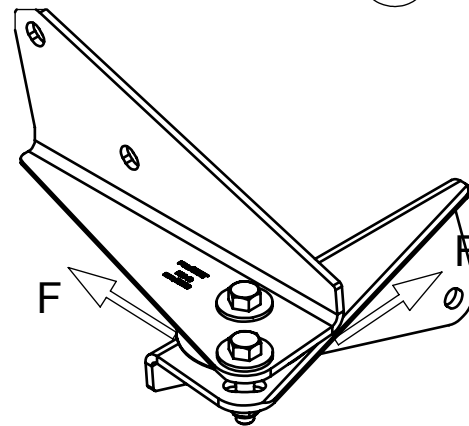
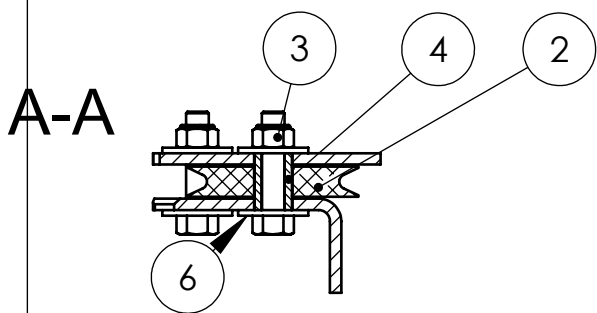
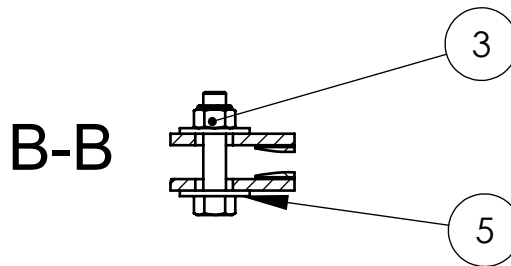
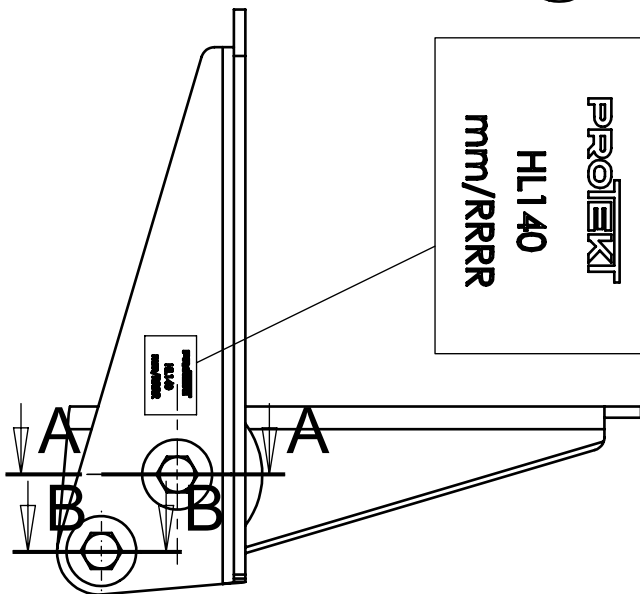
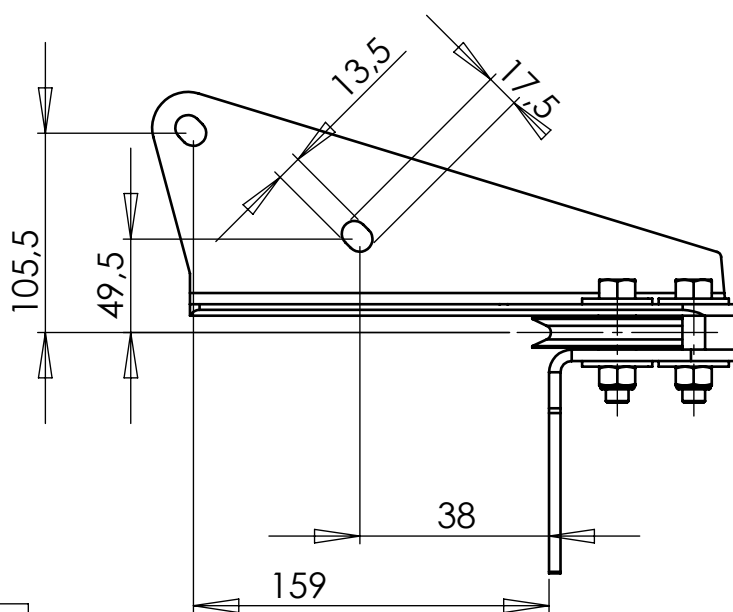
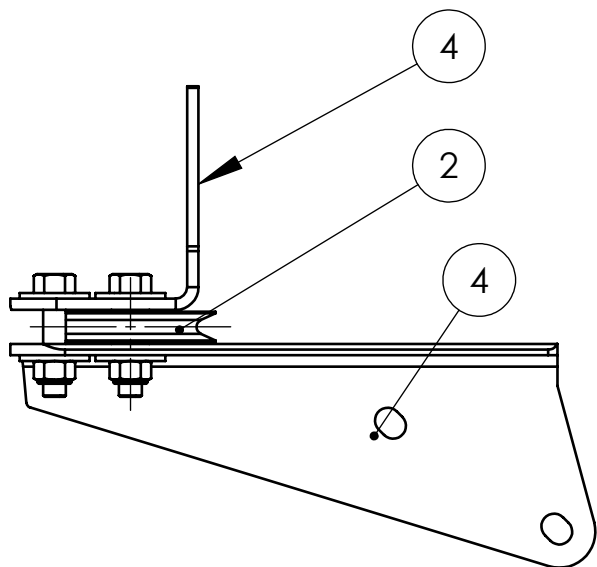
PRIM

Nazwa części (Part name)

Zakręt wew. HL 130 (Internal wall turn roll-set)

Nr katalog. (Ref. No)

HL 130

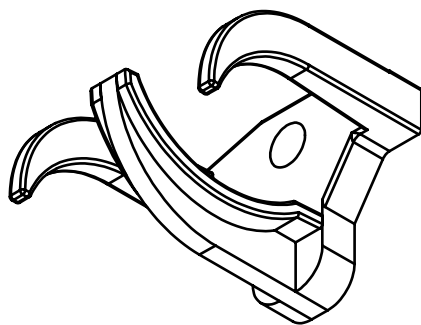
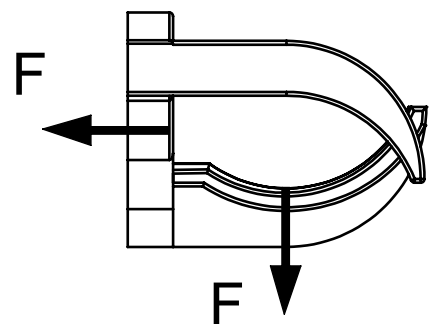
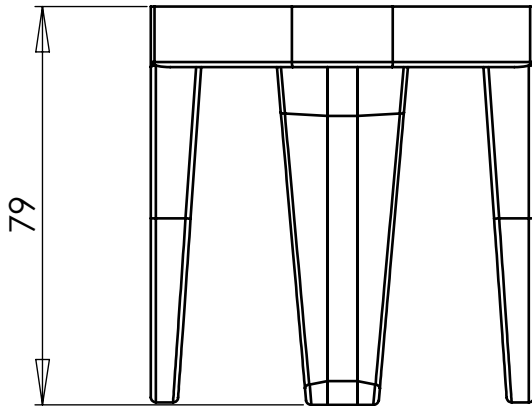
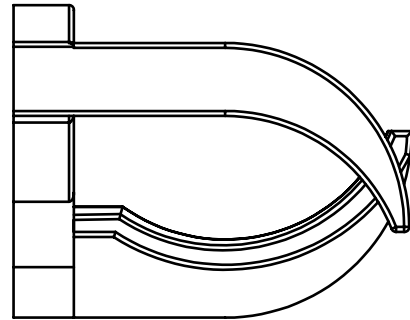
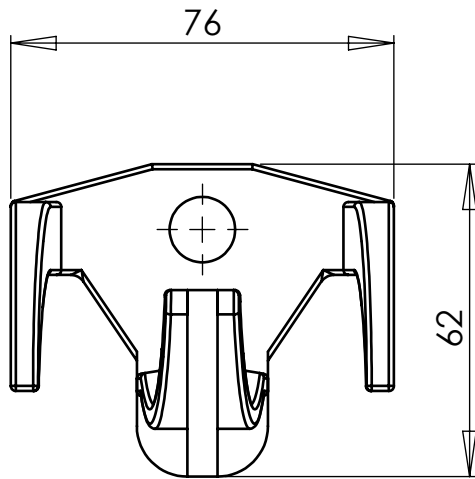


Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 30\text{kN}$
Ciężar (Net weight):	3,20 kg

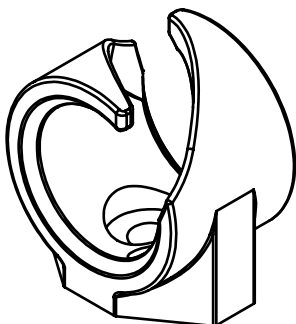
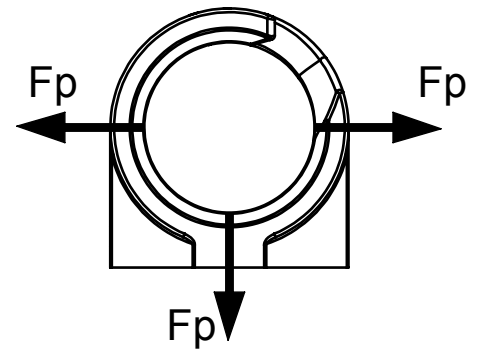
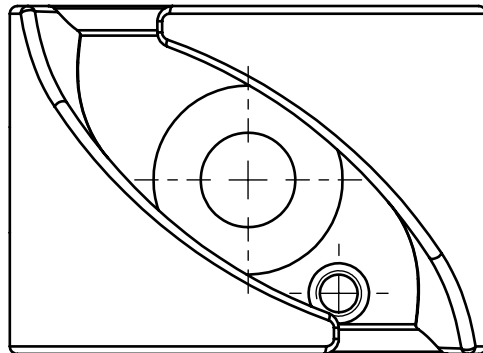
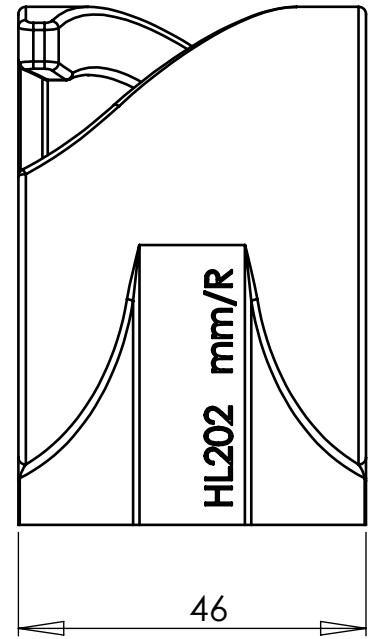
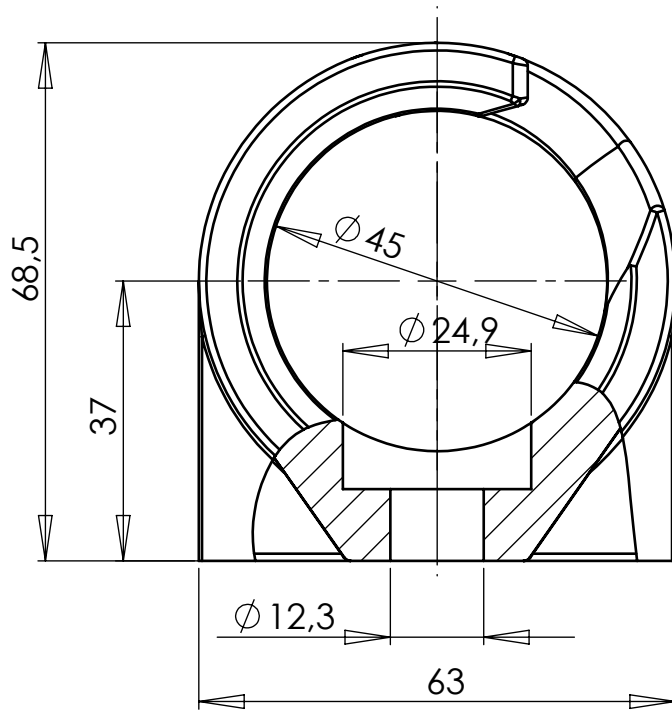
7	Śruba M12x55	2	A2		0.07	
6	Podkładka powiększona 12,5	1	AISI 304		22.05	
5	Podkładka powiększona 12,5	3	Stal ocynk		22.05	
4	Blacha zakr zewn	2	0H18N9	HL 140-001	1.76	
3	M12 Nakrętka z wkł. plast. (Nut with plast. insert)	2	A2		20.39	
2	Rolka (Roller)	1	Polyamide	HL740-001	0.07	
1	Tulejka (Bush)	1	MO58	HL740-002	0.05	

Nr części (Part No)	Nazwa części/zespołu (Part/Assembly name)	sztuk (pcs.)	Materiał (Material)	Nr rys. / Nr normy (Drawing No / Standard No)	Ciężar [kg] (Weight)	Uwagi (Notice)
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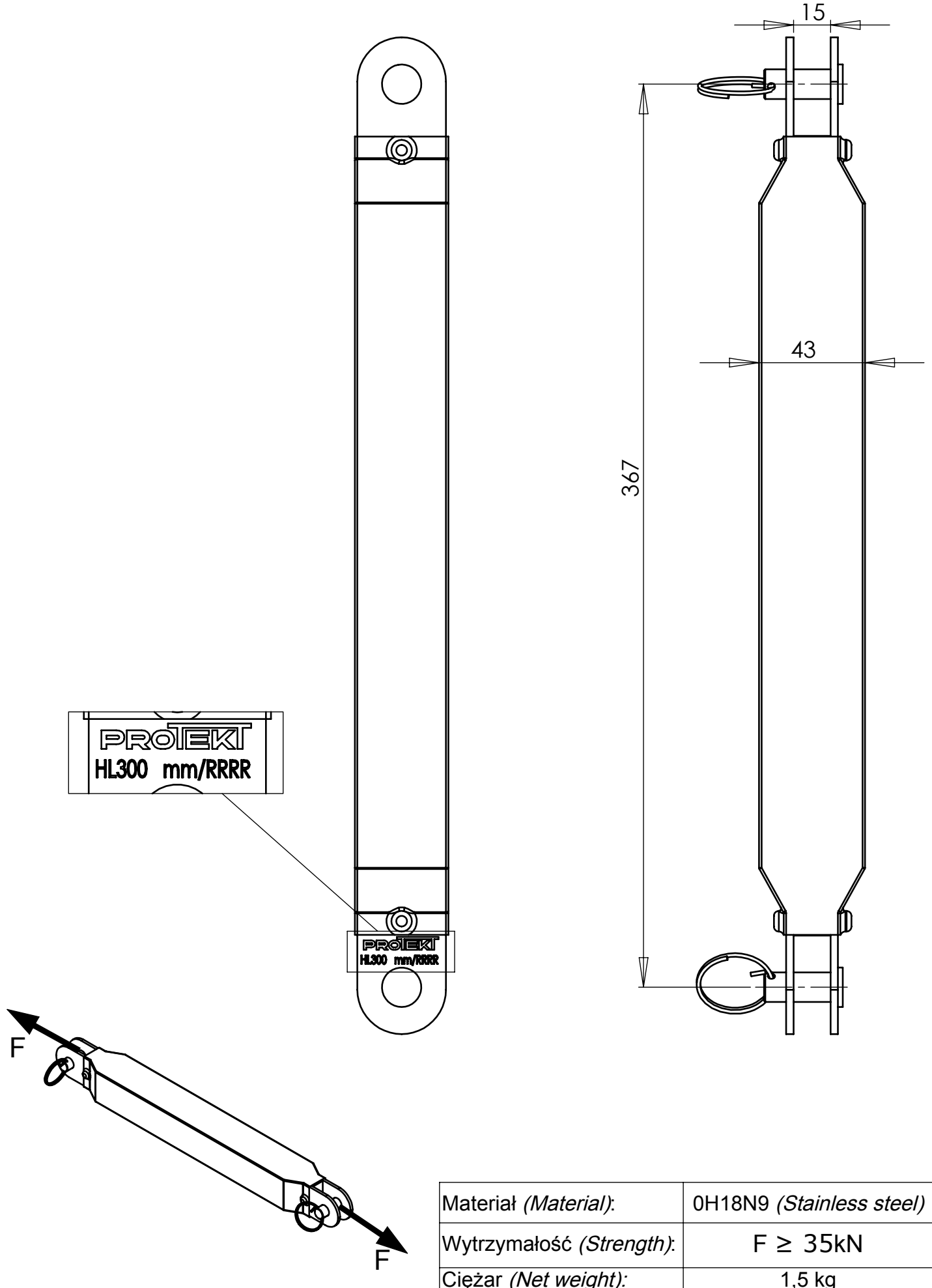
PRIM	Nazwa części (Part name) Zakręt zew. HL140 (External wall turn roll-set)	Nr katalog. (Ref. No) HL140	
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Materiał (Material):	AISI316 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 35\text{kN}$
Ciężar (Net weight):	0,4 kg

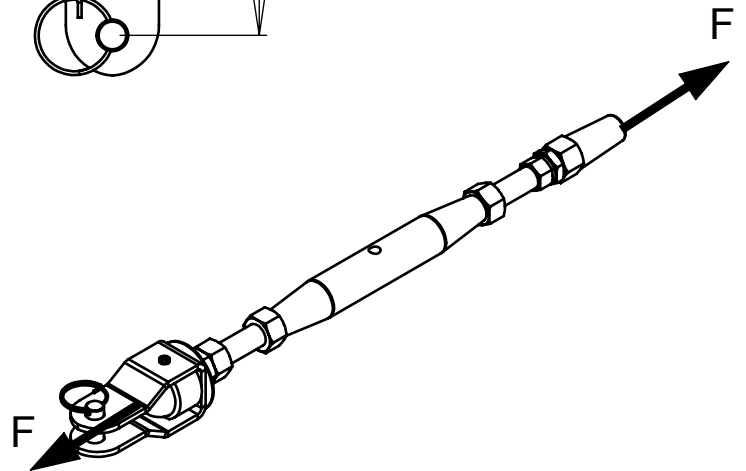
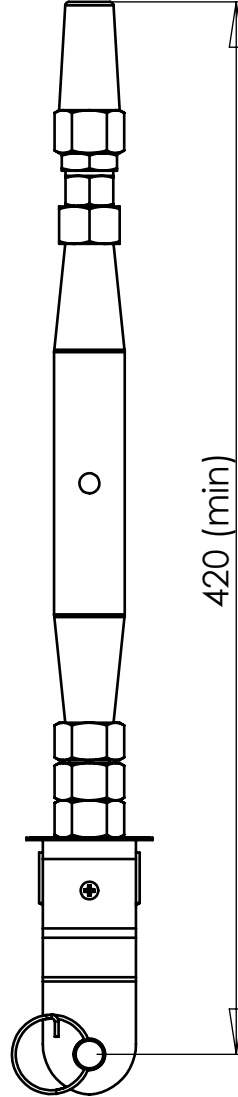
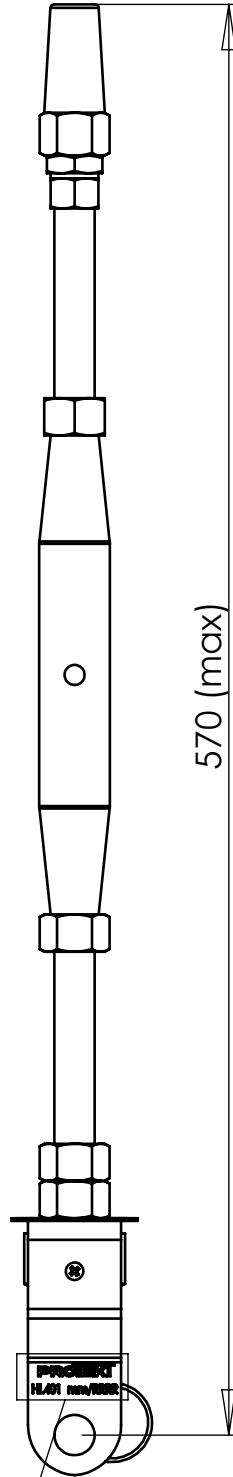


Materiał (Material):	AISI 316 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 13\text{kN}$
Ciężar (Net weight):	0,54 kg



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 35\text{kN}$
Ciężar (Net weight):	1,5 kg

PRIM	Nazwa części (Part name)	Nr katalog. (Ref. No)
	Amortyzator (Energy absorber)	HL 300



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	$F \geq 35\text{kN}$
Ciężar (Net weight):	1,7 kg

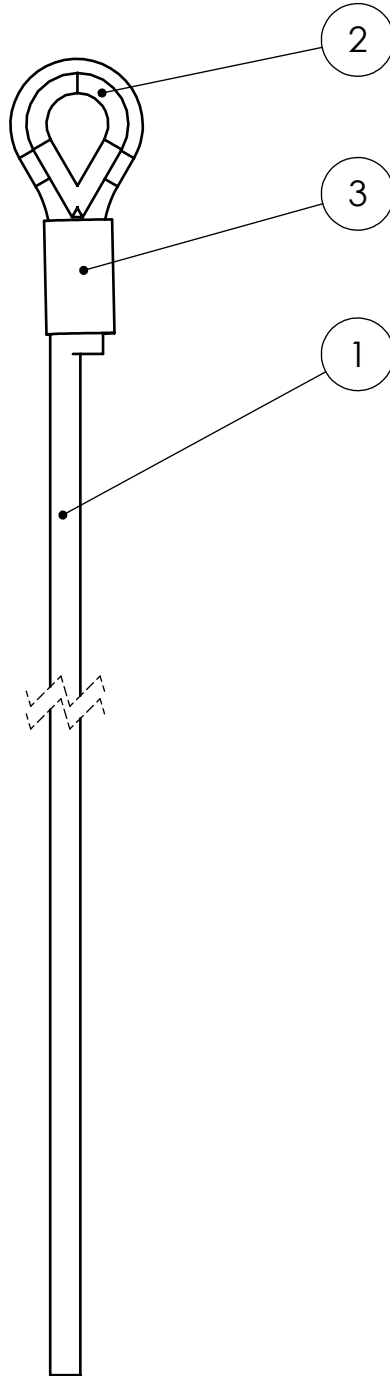
PRIM

Nazwa części (Part name)

Napinacz linii (Tensioner)

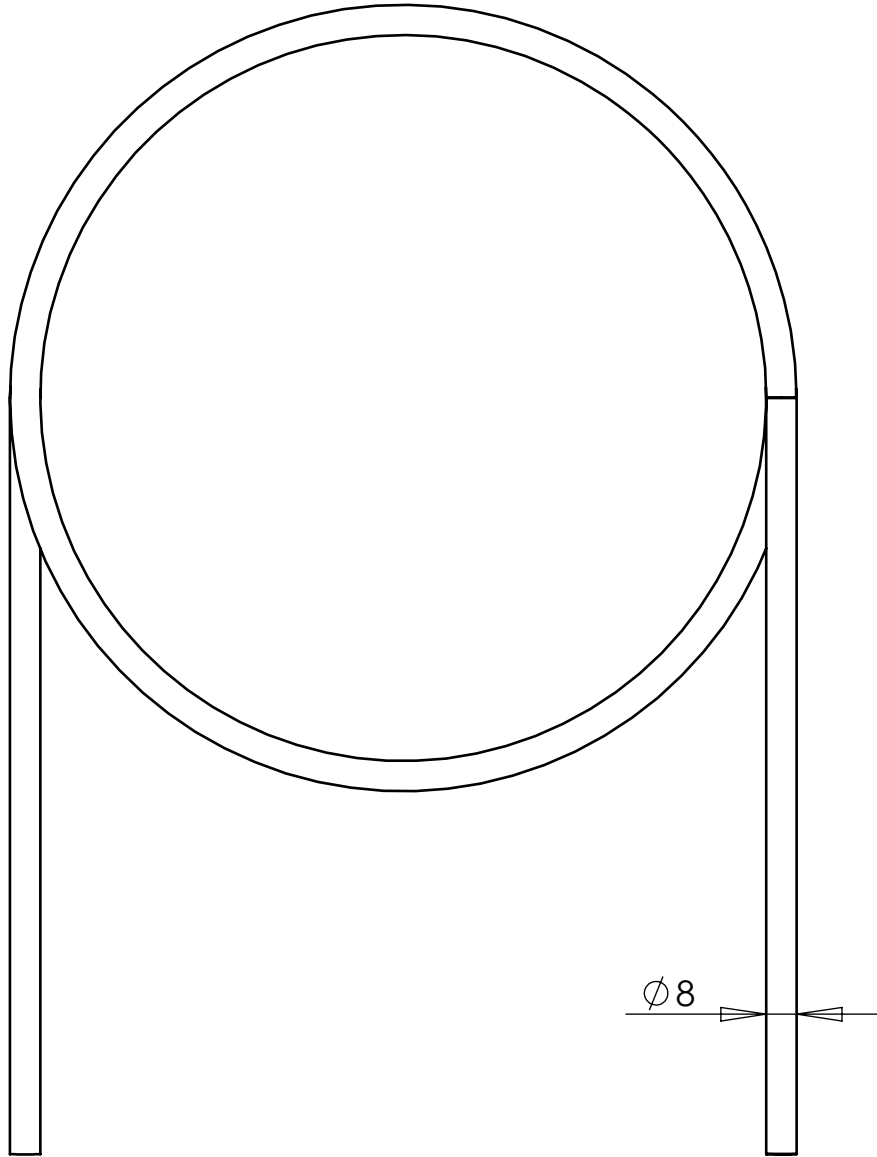
Nr katalog. (Ref. No)

HL 401



Materiał (<i>Material</i>):	0H18N9 (<i>Stainless steel</i>)
Wytrzymałość (<i>Strength</i>):	$F \geq 35kN$
Ciężar (<i>Net weight</i>):	0,26 kg/m

3	Złączka 8mm	1	Copper		0.07	
2	Kausza 8mm HL 502 (Rope thimble)	1	AISI 316	HL 502 DIN 6899B	0.01	
1	Lina stal nierdz. fi 8mm-7x19-IWRC (<i>Stainless steel wire rope diam 8mm-7x19-IWRC</i>)	1	AISI 316	HL501	57.20	
Nr częś. (Part No)	Nazwa części/zespołu (Part/Assembly name)	sztuk (pcs.)	Materiał (Material)	Nr rys. / Nr normy (Drawing No / Standard No)	Ciężar [kg] (Weight)	Uwagi (Notice)
PRIM	Nazwa części (Part name) Lina stalowa z uchem (Cable set with rigid eye)			Nr katalog. (Ref. No) HL 500		

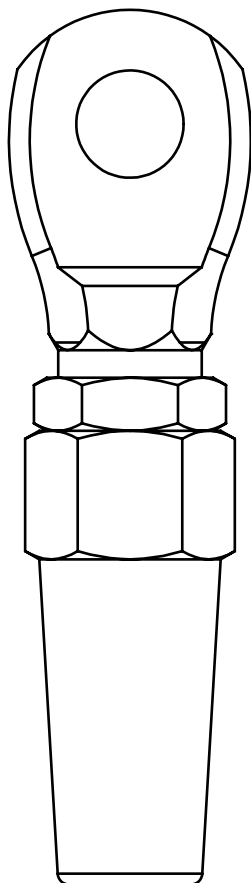


Materiał (<i>Material</i>):	0H18N9 (<i>Stainless steel</i>)
Wytrzymałość (<i>Strength</i>):	$F \geq 35\text{kN}$
Ciężar (<i>Net weight</i>):	1,7 kg

PRIM

Nazwa części (*Part name*)Lina ze stali nierdz. fi 8mm (*Stainless steel wire rope diam. 8mm*)Nr katalog. (*Ref. No*)

HL 501



Materiał (<i>Material</i>):	0H18N9 (<i>Stainless steel</i>)
Wytrzymałość (<i>Strength</i>):	$F \geq 35\text{kN}$
Ciężar (<i>Net weight</i>):	1,7 kg

PRIM

Nazwa części (Part name)

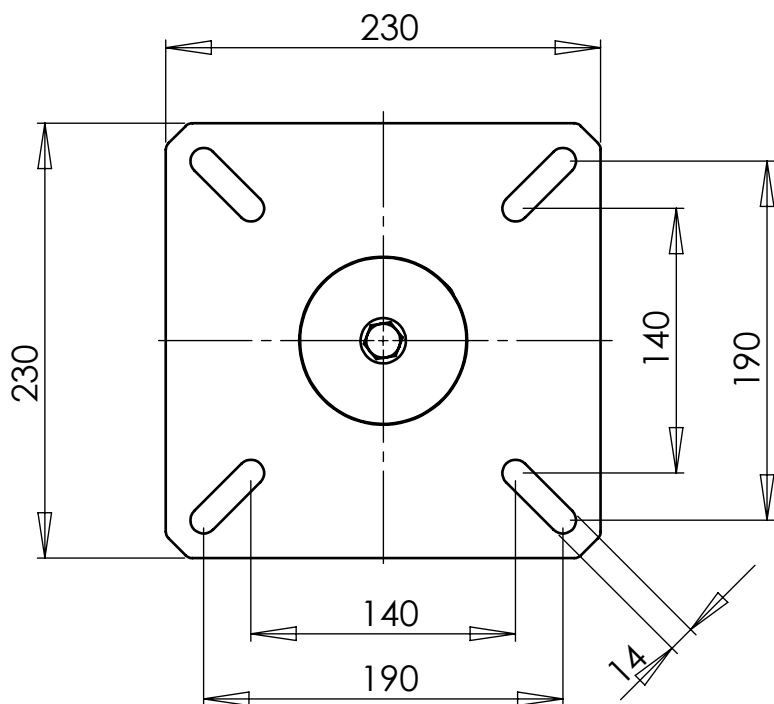
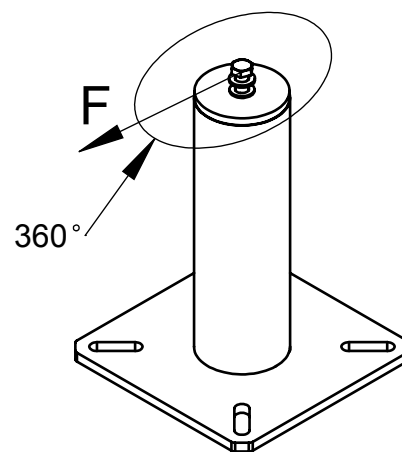
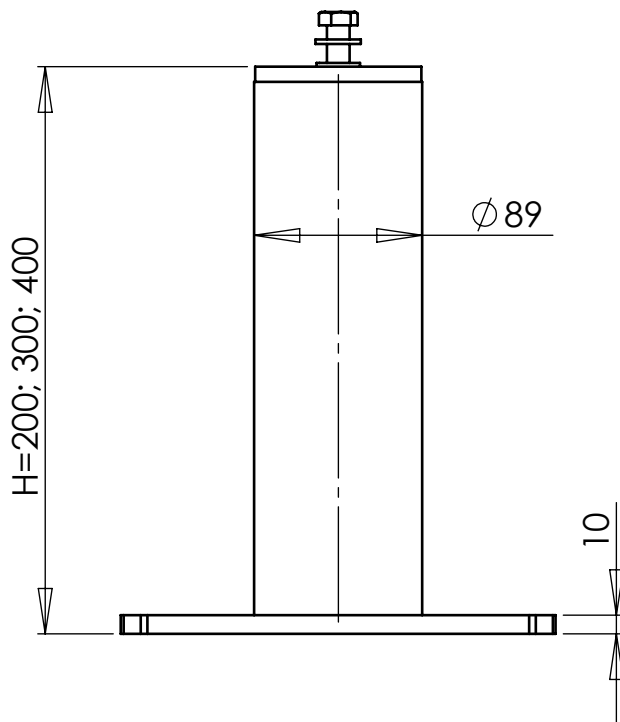
Swageles with hole

Nr katalog. (Ref. No)

HL 506

PROTEKT

Reference number:	Wytrzymałość (Strength)[kN]	Ciężar (weight)[kg]	Materiał (Material)
HL701-200	$F \geq 35 \text{ kN}$	5,7 kg	stal ocynk ogniowy (hot deep galvanized steel)
HL701-300	$F \geq 35 \text{ kN}$	6,5 kg	stal ocynk ogniowy (hot deep galvanized steel)
HL701-400	$F \geq 26 \text{ kN}$	7,2 kg	stal ocynk ogniowy (hot deep galvanized steel)

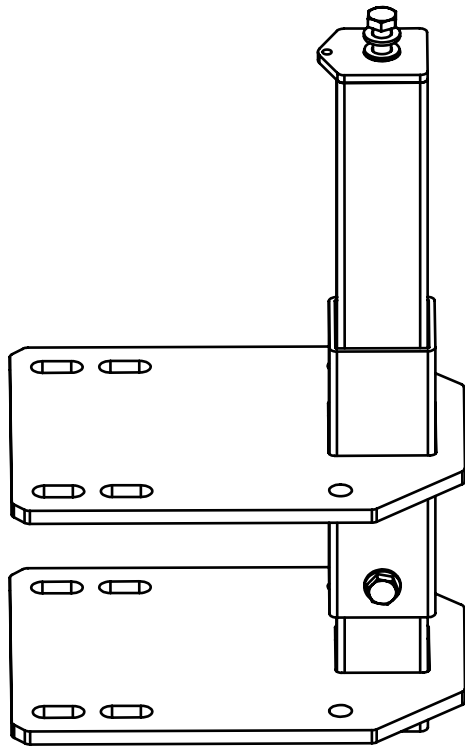


Nazwa części (Part name)

Słupek ze stopą centr. HL701 (Central Foot Post)

Nr katalog. (Ref. No)

HL 701



Wytrzymałość / Strength:

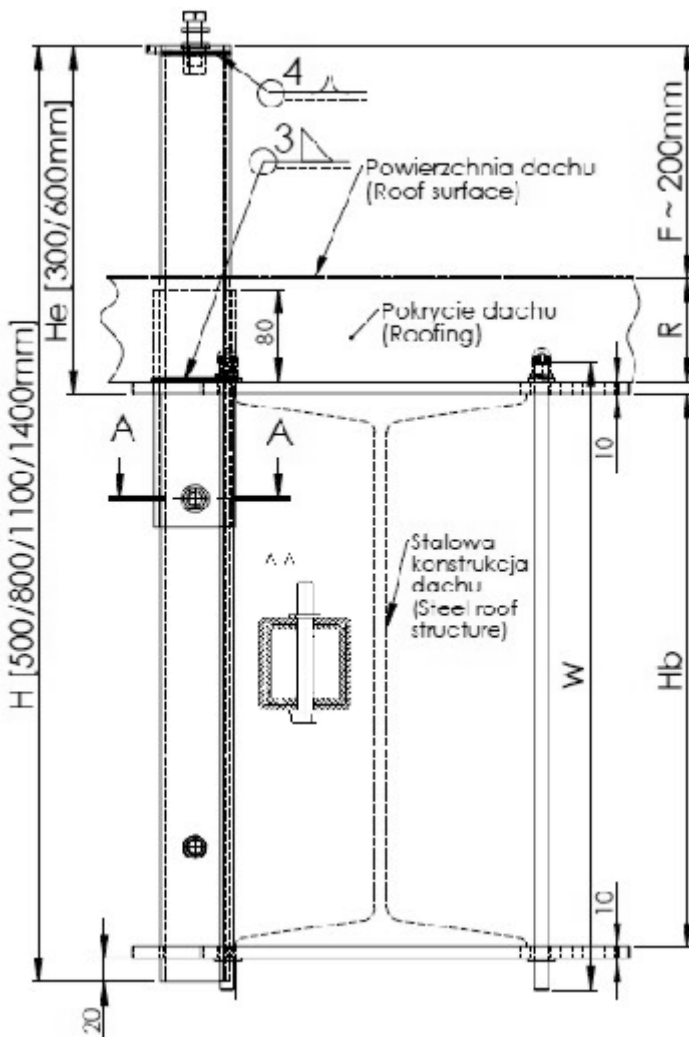
$F_k \geq 35\text{kN}$

Numer katalogowy / Extended ref. number:

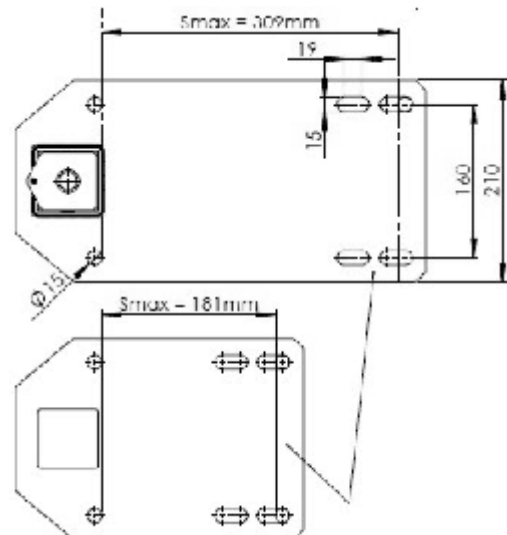
HL702-H / Smax / He / W

gdzie / where:

$H = H_e + H_b$; $H_e = R + F$; $W = H_b + 35\text{mm}$



Selection Table					
*fixed values					
H	He	Hb min	Hb max	W max	Hbmax with using HL 910 Fixing Set
500	300	120	176	250	176
800	300		476	500	465
	600		176	250	176
1100	300		776	1000	776
	600		476	500	465
1400	300		1076	1000	965
	600	776	1000	776	



PRIM

Nazwa części (Part name)

Słupek ze stopą boczną (Lateral Foot Post)

Nr katalog. (Ref. No)

HL 702

Reference number:

HL 704-H

Materiał (material)

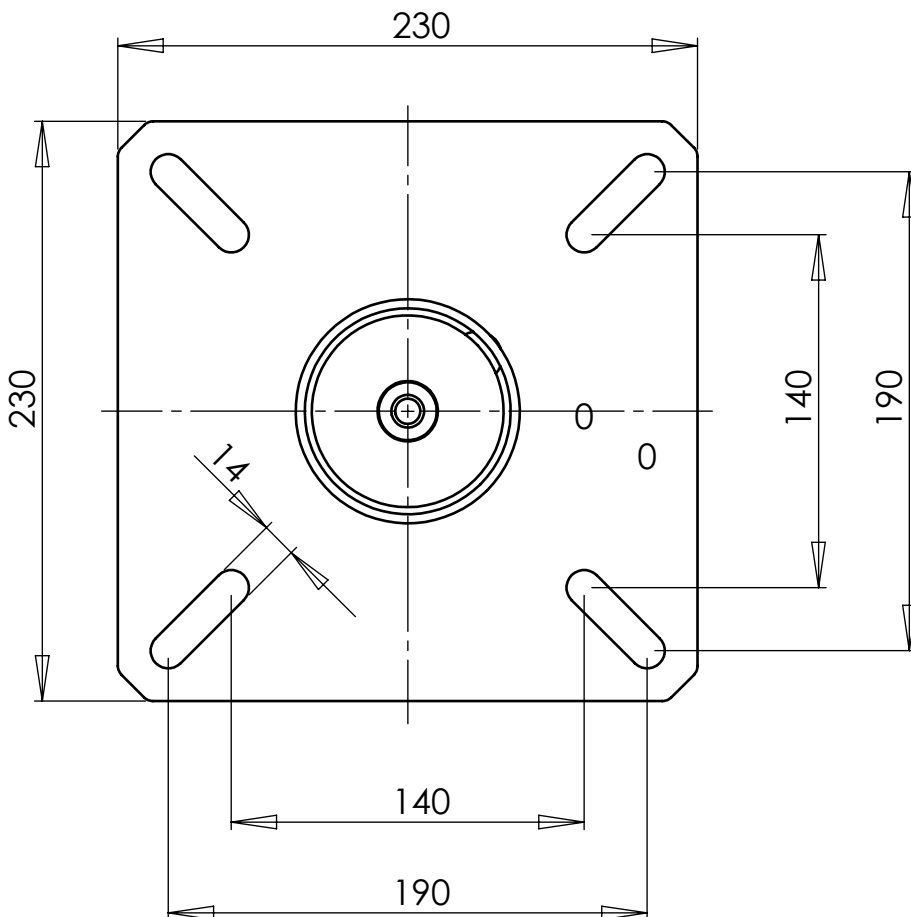
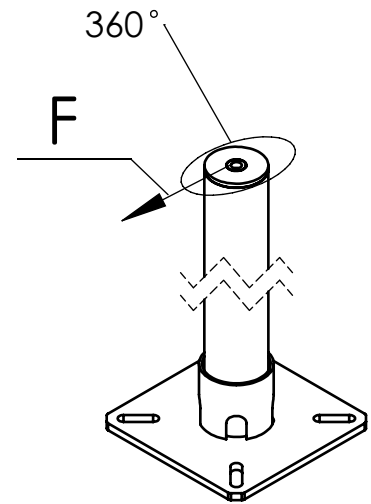
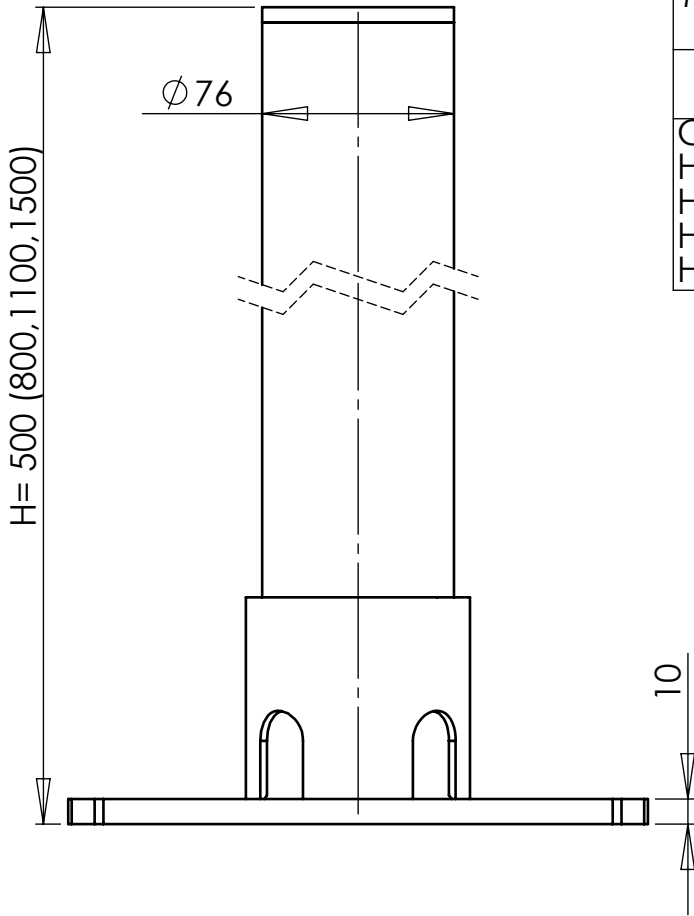
stal ocynk ogniowy
 (hot deep galvanized steel)

Wytrzymałość (strength)

$F \geq 35 \text{ kN}$

Ciężar (weight):

	[kg]
HL704-500	7,9
HL704-800	9,3
HL704-1100	10,7
HL704-1500	12,6



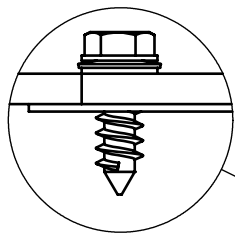
PRIM

Nazwa części (Part name)

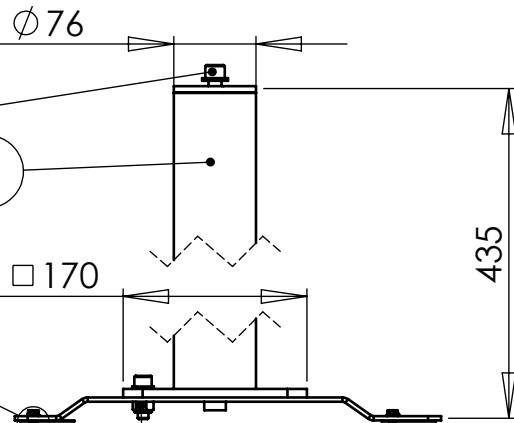
Słupek ze stopą centralną (Central Foot Post)

Nr katalog. (Ref. No)

HL 704



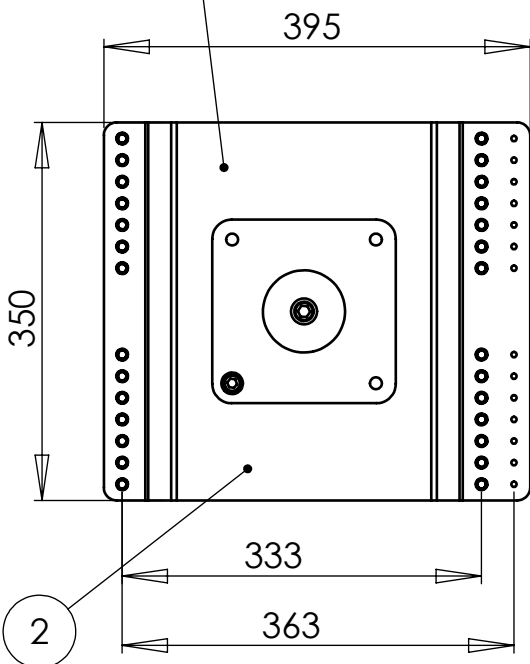
M12 screw set



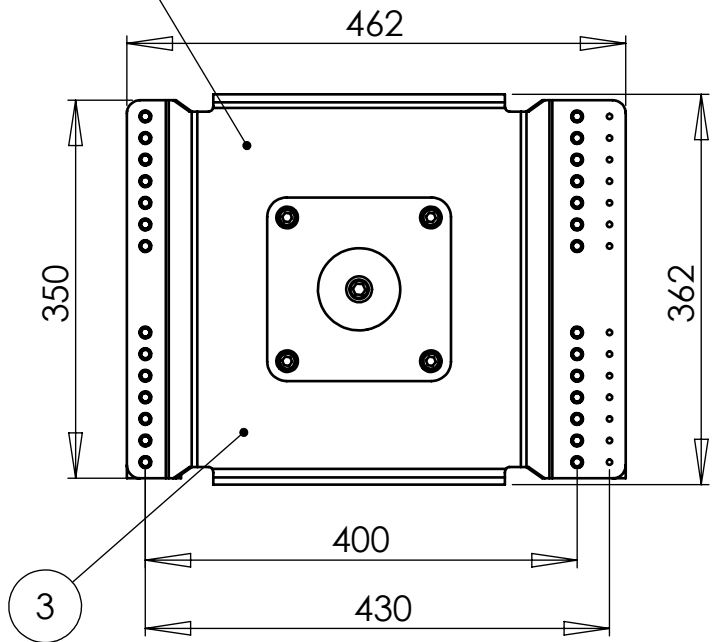
14x for one side
 $\varnothing 4,8$ Farmer self-drilling screw
 with EPDM bonded washer



HL 715 foot

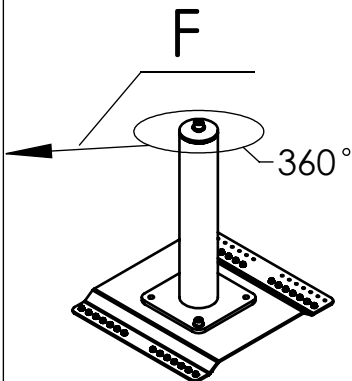


HL 717 foot



HL 720-A

HL 720-B



Strength: $F = 26 \text{ kN}$

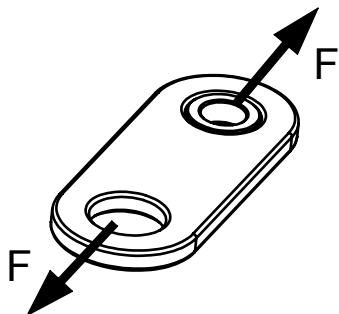
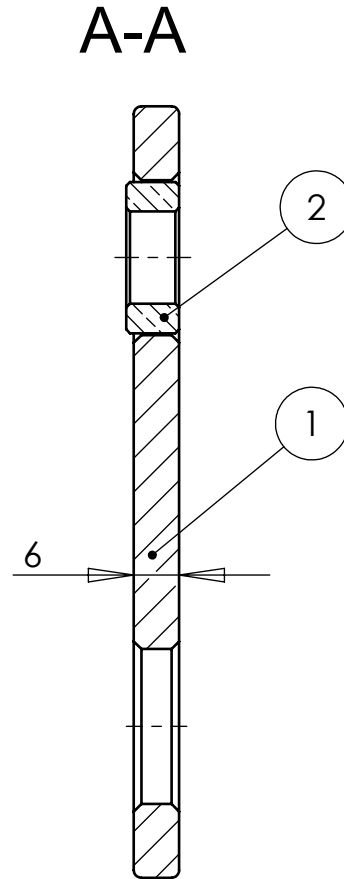
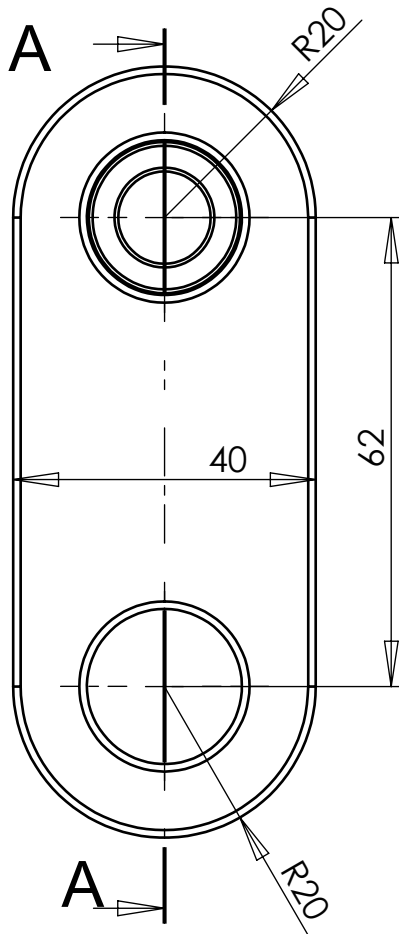
Nazwa części (Part name)

6	Nakrętka M10 z wkł plast	1	4	A2	
5	Podkładka M10 (Washer)	2	8	A2	
4	Śruba imb. M10x30 (Bolt)	1	4	A2	
3	Stopa f2 HL717 (f2 Foot)	-	1	0H18N9	
2	Stopa e5 HL715 (e5 Foot)	1	-	0H18N9	
1	Słupek HL720 podstawowy	1	1		
Nr części. (Part No)	Nazwa części/zespołu (Part/Assembly name)	HL720-A	HL720-B	Materiał (Material)	Uwagi (Notice)

Nr katalog. (Ref. No)

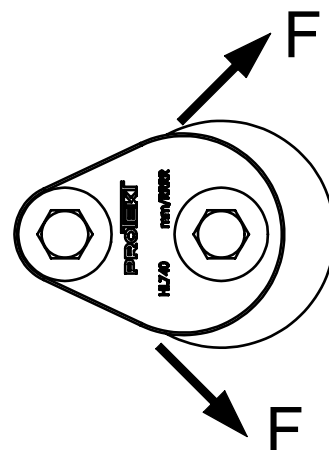
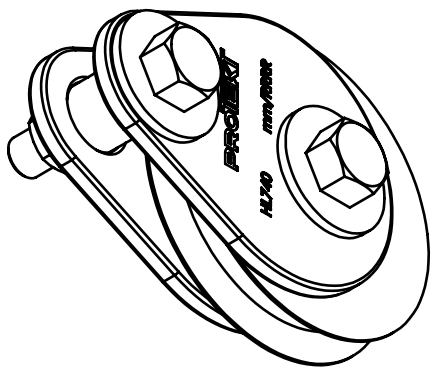
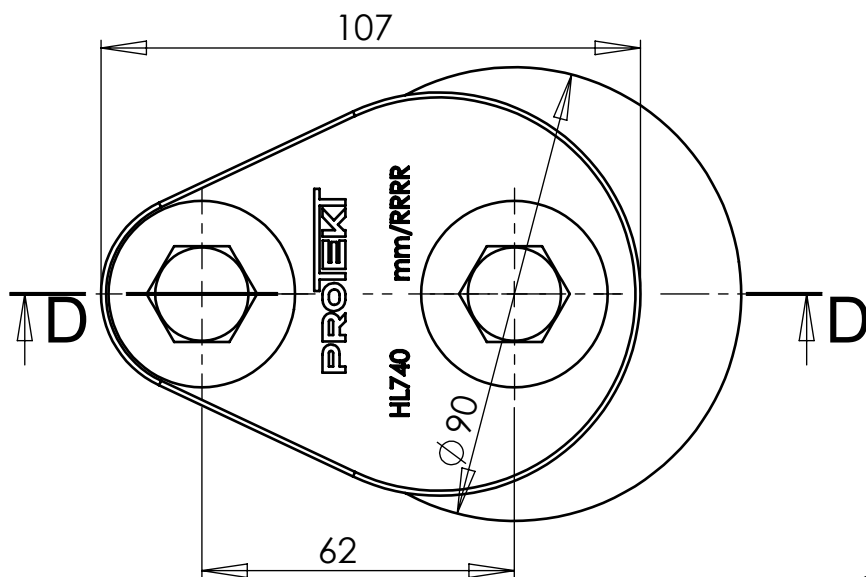
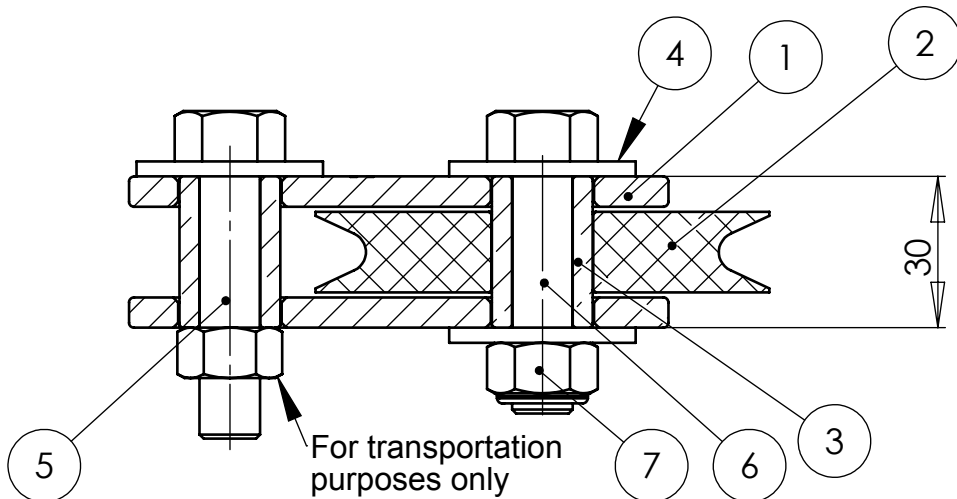
Roof sheet post - HL720-A/B

HL 720-A / HL720-B



Wytrzymałość (Strength):	$F \geq 35\text{kN}$
Ciężar (Net weight):	0,16 kg

2	Tulejka HL722 (Bush)	1	mosiądz	HL 722	0.01	
1	Rotating end plate	1	0H18N9			
Nr części (Part No)	Nazwa części/zespołu (Part/Assembly name)	sztuk (pcs.)	Materiał (Material)	Nr rys. / Nr normy (Drawing No / Standard No)	Ciężar [kg] (Weight)	Uwagi (Notice)
PRIM	Rotating end plate set			Nr katalog. (Ref. No)		



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	F ≥ 35kN
Ciężar (Net weight):	0,95 kg

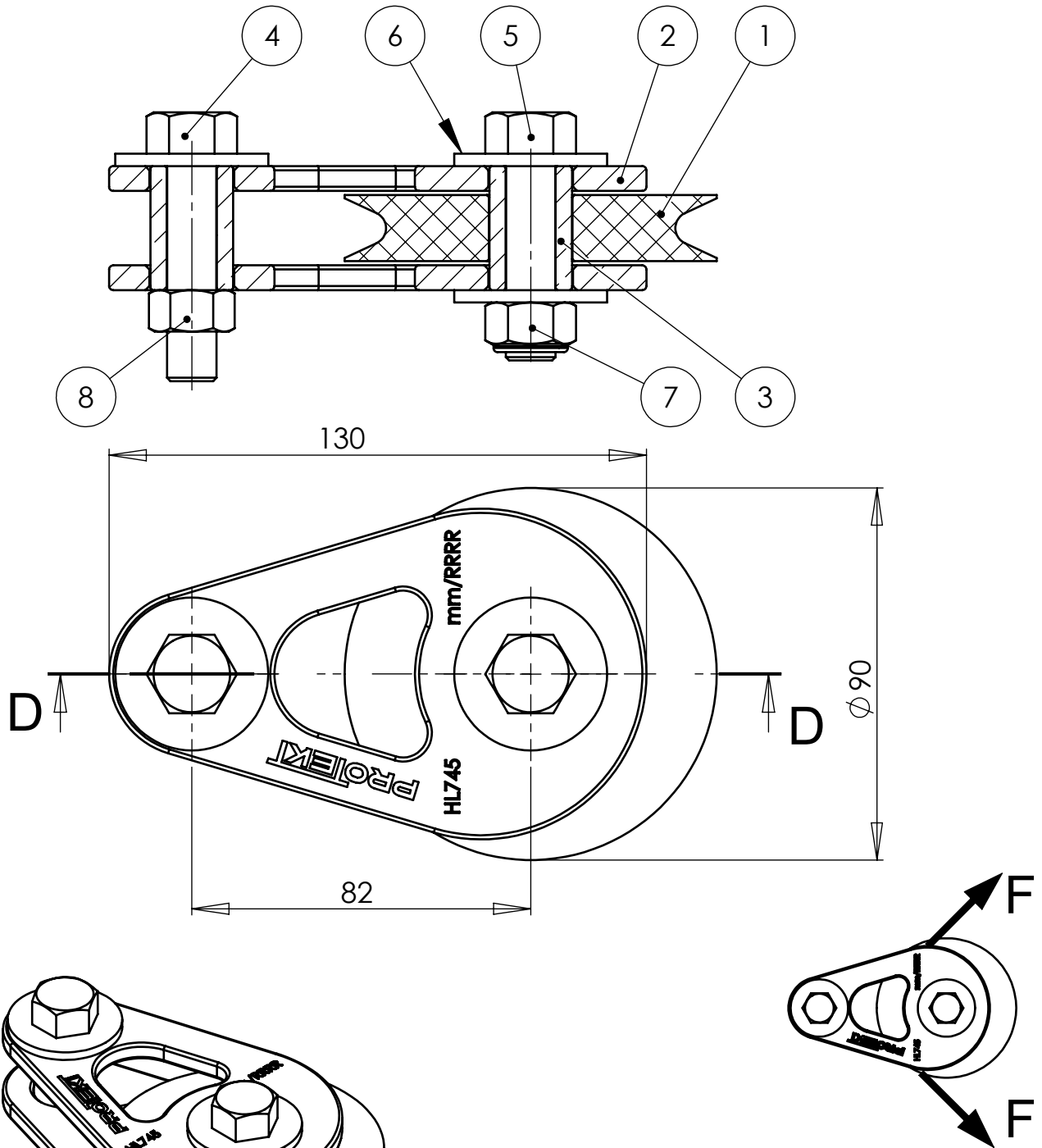
Nr części (Part No)	Nazwa części/zespołu (Part/Assembly name)	sztuk (pcs.)	Materiał (Material)	Nr rys. / Nr normy (Drawing No / Standard No)	Ciężar [kg] (Weight)	Uwagi (Notice)
7	M12 Nakrętka z wkł. plast. (Nut with plast. insert)	1	A2		20.39	
6	Śruba M12x50	1	A2		0.07	
5	Śruba M12x55	1	A2		0.07	
4	Podkładka powiększona 12,5	3	AISI 304		22.05	
3	Tulejka (Bush)	2	MO58	HL740-002	0.05	
2	Rolka (Roller)	1	Polyamide	HL740-001	0.07	
1	Płytki A	2	0H18N9	HL740-003	0.26	

Nazwa części (Part name)

Turn roll set

Nr katalog. (Ref. No)

HL740-000



Materiał (Material):	0H18N9 (Stainless steel)
Wytrzymałość (Strength):	F ≥ 35kN
Ciężar (Net weight):	0,97 kg

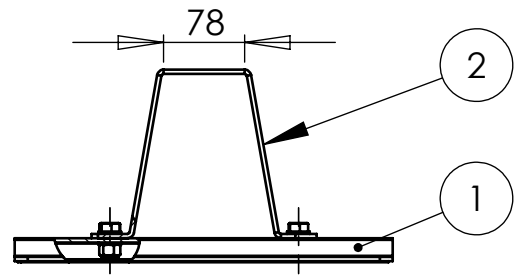
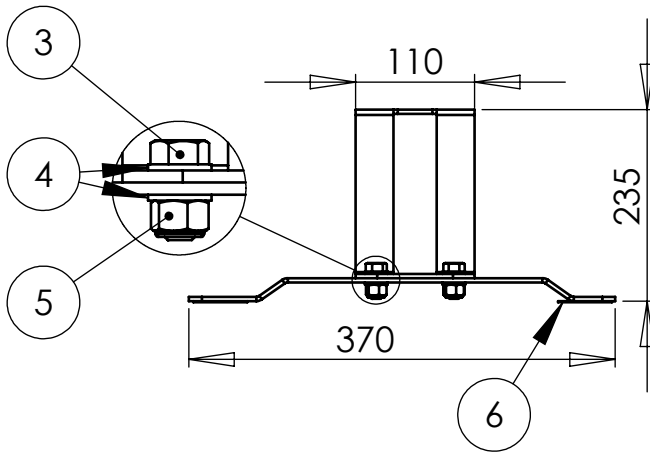
8	Nakrętka M12	1	Stal ocynk		14.20	
7	M12 Nakrętka z wkł. plast. (Nut with plast. insert)	1	A2		20.39	
6	Podkładka powiększona 12,5	3	AISI 304		22.05	
5	Śruba M12x50	1	A2		0.07	
4	Śruba M12x55	1	A2		0.07	
3	Tulejka (Bush)	2	MO58	HL740-002	0.05	
2	Płytki M	2	0H18N9	HL745-003	0.27	
1	Rolka (Roller)	1	Polyamide	HL740-001	0.07	
Nr części (Part No)	Nazwa części/zespołu (Part/Assembly name)	sztuk (pcs.)	Materiał (Material)	Nr rys. / Nr normy (Drawing No / Standard No)	Ciężar [kg] (Weight)	Uwagi (Notice)


Nazwa części (Part name)

Turn roll set HL 745

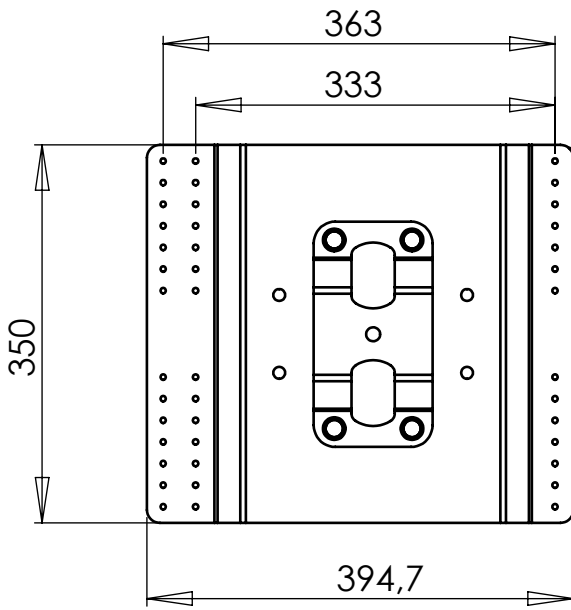
Nr katalog. (Ref. No)

HL745-000

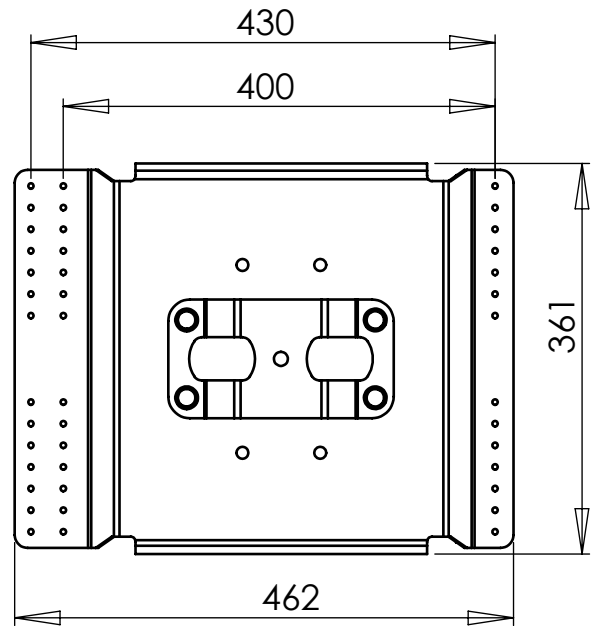


28 x 

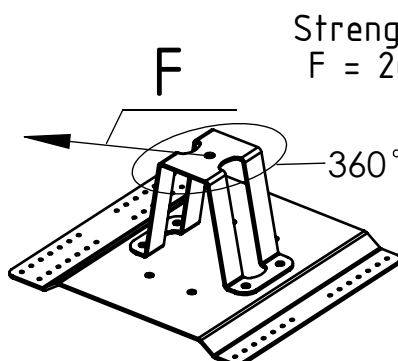
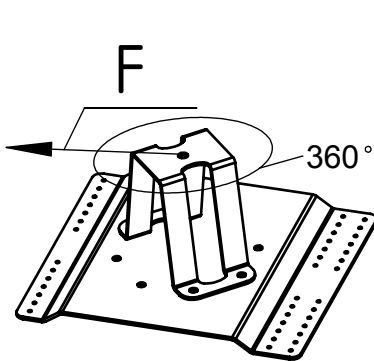
6	Sheet gasket	2	PE-foam
5	M10 nut	4	A2
4	10,5 washer	4/8	A2
3	M10 screw	4	A2
2	Stand	1	A2
1	Foot	1	A2
Nr części. (Part No)	Nazwa części/zespołu (Part/assembly name)	L. sztuk (quantity)	Materiał (Material)



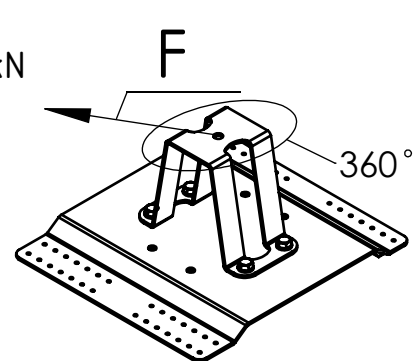
HL760-A



HL760-B



Strength:
 $F = 26 \text{ kN}$



PRIM

Nazwa części (Part name)

Roof sheet post - HL760-A/B

Nr katalog. (Ref. No)

HL 760-A(B)

Wyposażenie do ochrony przed upadkiem z wysokości
LINOWY SYSTEM KOTWICZĄCY
PRIM
 EN795:2012 / FprCEN/TS16415:2012 - klasa C

PROTEKT Starorudzka 9,
 93-403 Łódź

UWAGA! Przed użyciem
 zapoznaj się z instrukcją użytkownika.
 Stosować wyłącznie z indywidualnym
 wyposażeniem chroniącym przed upadkiem
 z wysokości, zgodnym z EN363.



Liczba użytkowników:		Następne badanie techniczne:
Numer seryjny:		
Data instalacji:		
Instalator:		


Nie używać po powiększeniu spadania przez system
 lub po upływie daty następnej kontroli.

Fall protection equipment
HORIZONTAL ANCHOR LINE
PRIM
 EN795:2012 / FprCEN/TS16415:2012 - class C

PROTEKT Starorudzka 9,
 93-403 Łódź

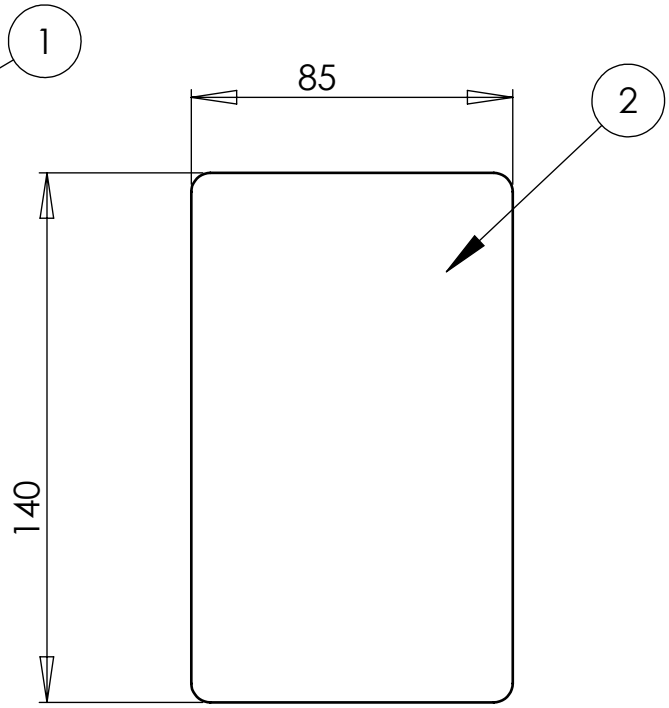
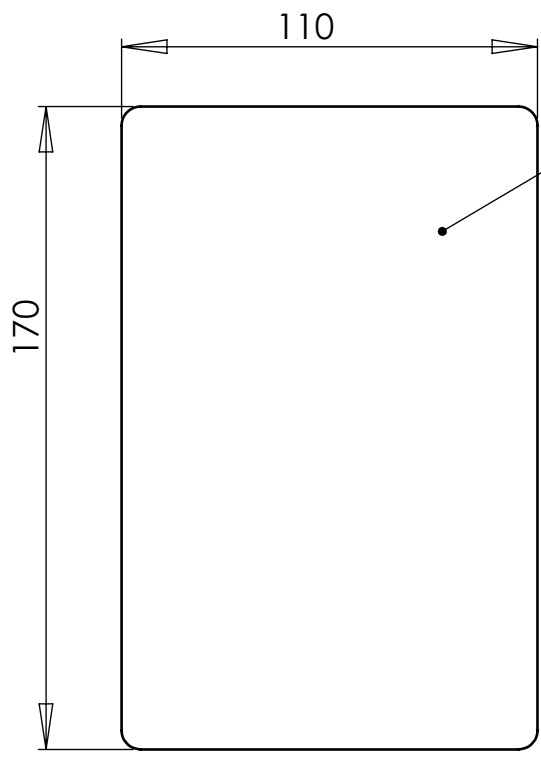
ATTENTION! Before use
 read the instruction manual.

Use only with fall protection
 system conform to EN363.



Number of co-users:		Next inspection:
Serial number:		
Installation date:		
Installer:		

Don't use after a fall or after next inspection date.



2	Tabliczka informacyjna / Informative label		AISI 304		0,05	
1	Tabliczka informacyjna / Informative label	1	PVC		0.02	
Nr części. (Part No)	Nazwa części/zespołu (Part/Assembly name)	sztuk (pcs.)	Materiał (Material)	Nr rys. / Nr normy (Drawing No / Standard No)	Ciezar [kg] (Weight)	Uwagi (Notice)
PRIM	Nazwa części (Part name) Tabliczka informacyjna / Informative label			Nr katalog. (Ref. No) HL801 / HL802		