



PDM

74 cm, 110 cm, 150 cm, 200 cm, 250 cm, 300 cm

PDM/c

73 cm, 109 cm, 157 cm, 207 cm, 257 cm, 307 cm

**Instruction manual on assembly and use
of
„PDM” and „PDM/c” scaffolding**

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INSTRUCTION MANUAL ON ASSEMBLY AND USE OF PDM AND PDM/c SCAFFOLDING

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CHAPTER I. Description of the „PDM” and „PDM/c” scaffolding system

1.1. Basic characteristics of the system and use.

The „PDM” scaffolding system is a system of modular scaffoldings mounted of prefabricated steel elements. The system consists of racks, bolts and angle braces which may be linked in height, length and width within the division of 0.50 m or its multiple. This division is referred to as the modular indicator. To connect bolts, on racks at distances of 0.50 m, there were placed discs with extruded openings called plates or rosettes. Maximum length of the racks is 4.00 m. For working platforms the following landings can be chosen: platforms from outside the system (wooden beams), platforms with supporting catches for pipes 48.3 mm or platforms of PD70/100 scaffolding system.

Length of fields is: 0.7, 1.1m, 1.50 m, 2.00 m, 2.50 m and 3.00 m. Width of fields is: 0.74 m, 1.00 m, 1.50 m, 2.00 m, 2.50 m and 3.00 m (length of supporting bolts). For special cases there are also short bolts with length of 0.25 m and 0.50 m.

While using PD system platforms, length of supporting bolts corresponds with width of frame PD40, PD70 and PD100. Additionally, there are offered four-platform bolts as well as double metrical bolts of length: 1.50 m to 3.00 m.

Thanks to this, there is a high possibility of adaptation with difficult horizontal projections and diverse height relations of scaffolded building bodies. The „PDM” modular scaffolding is of special importance in industry, shipyards and special production plants. For the PDM/c system typical length and width of fields are: 1.57 m, 2.07 m, 2.57 m and 3.07 m. Wherever in this instruction manual there is the name PDM there is an alternative solution in the inch system called PDM/c.

1.2. Assembly of connection ties.

As a joint of the tie (rack - bolt), a verified wedge breech base was chosen. At this breech already with the loosely inserted wedge, the connecting shape of the scaffolding is visible. By impacting the wedge with a hammer, strong strength connection is obtained. The catch is pressed to the pipe of the rack on the upper and lower adhesion surface (figure 1), thanks to which there is a connection which is unusually resistant to bending.

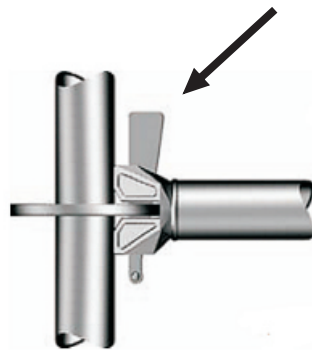


Fig. 1. Connection - wedge breeche, the arrow indicates the place of impact with a hammer.

The bolt catch is inserted sideways over the disc with the opening. The wedge lies at the same time horizontally on the bolt pipe (figure 2), protected against loss and falling out by the rivet on the top of the wedge.



Fig. 2. Inserting the catch

By lifting and inserting the wedge, the bolt is protected, afterwards, by impacting with a hammer to dynamic return, connected with the post by means of force-closure (fig. 3). The wedge should be driven in with a hammer with weight of approximately 500-600 grams.



Fig. 3. Wedging of the catch

The disc with the openings (figure 4) has four small openings which are placed with a shift by 90° . In these places, the bolts are connected to achieve a right angle in the horizontal projection. This angle is set automatically while wedging.

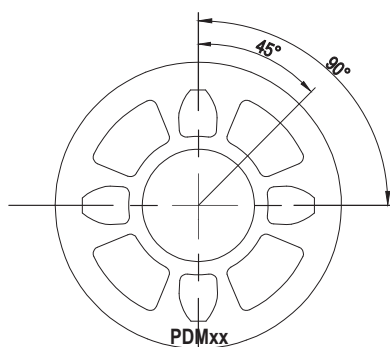


Fig. 4. Disc with openings - plate (rosette)

Between the small openings in the disc there are longitudinal openings which enable connection of the bolt at the angle of $45^\circ \pm 15^\circ$. The horizontal projection may be shaped by this, which does not lie within the range of 90° (figure 5). For example, the advertising tower may be constructed as an equilateral triangle (60°).

The notches on external edges of the opening disc do not only form a special „shape” of scaffolding tie but they also reduce weight. Thanks to this, the form is not round, sliding down of the racks is not possible from an inclined surface. Further, it is possible to place two racks closer next to each other and by means of simple stringing - to strengthen the rack.

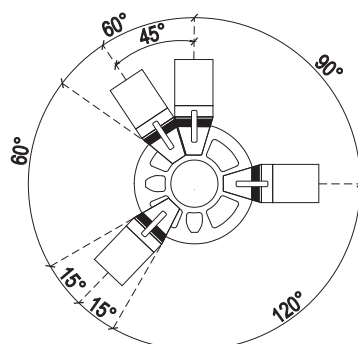
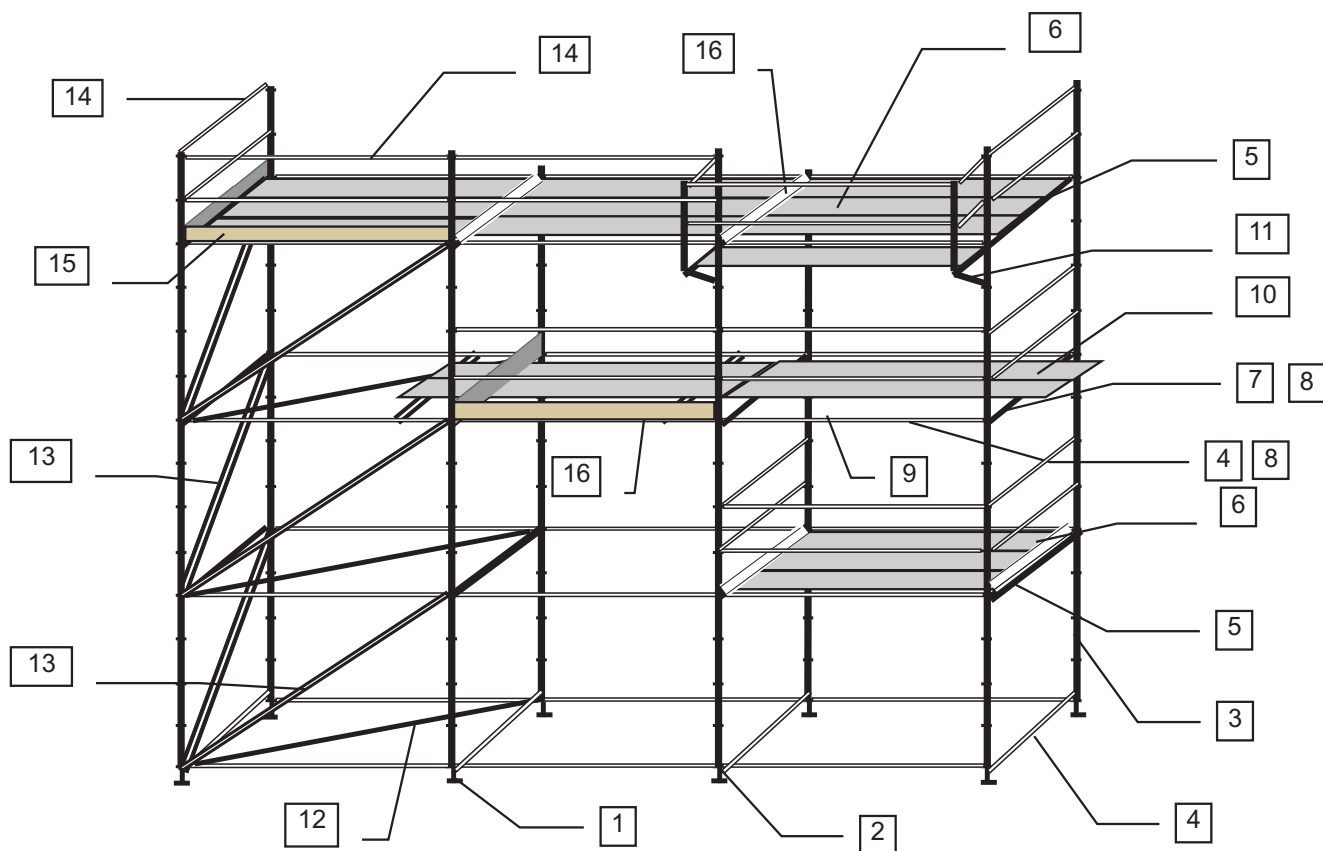


Fig. 5. Horizontal view of PDM tie.

With two bolts, it is possible to set all angles in a continuous way between 45° and 315° .

1.3. Basic components of „PDM” and „PDM/c” scaffolding system.



- | | |
|---------------------------|--|
| 1 Support with the thread | 9 Indirect transverse bolt |
| 2 Initial element | 10 Non-system platforms of fitted planks |
| 3 Rack | 11 Console |
| 4 Pipe bolt | 12 Horizontal angle brace |
| 5 Bolt | 13 Vertical angle brace |
| 6 Platforms | 14 Pipe bolt as a handrail |
| 7 Strengthened pipe bolt | 15 Wooden broadside |
| 8 Double pipe bolt | 16 Protection of system platforms |

CHAPTER II. Scaffolding assembly

2.1. Assembly of modular scaffolding in facade version

The facade scaffolding consists of one internal and one external series of posts (forming planes). The external plane is stiffened by braces whereas in the internal plane anchors are used as the horizontal fastening, the fixing way of which is described in this instruction manual. For stabilization of the internal plane and handing over the oblique forces on the anchors there are required horizontal braces in each plane of scaffolding.

- a) On sufficiently even and load-bearing bed it is necessary to lay supports separating the load (wooden beams, foundations). Afterwards, it is necessary to arrange the threaded supports at the envisaged distances of length and width. At the same time, it is necessary to preliminarily equalize the terrain slopes by unscrewing the support nuts appropriately. The support feet should be based with their whole surface on the supports (bed) to be able to take over the forces coming from the scaffolding. On the threaded support pivots it is necessary to put initial elements (PDM 033 033)- fig. 6.

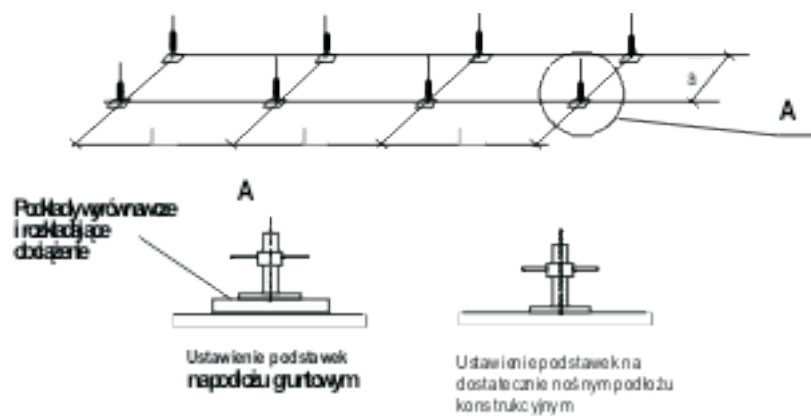


Fig. 6. Arrangement of supports

- b) The initial elements must be connected with pipe bolts by putting the bolt catches in the rosette of the initial elements. Every 5th field or every 4th field (see point 4.3.) it is necessary to mount the horizontal angle brace. Before driving in the wedges, it is necessary to level the support bolts by means of the level. The levelling process takes place by unscrewing the adjustment nuts of the supports, starting from the highest point of terrain. After wedging, a precise horizontal projection of the scaffolding is obtained, on which further assembly can be easily carried out without larger adjustments. Alternatively, the initial racks () can be used for the initial elements.

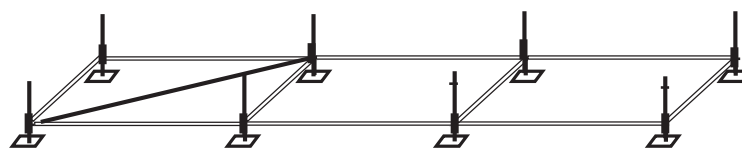


Fig. 7. Scaffolding base

- c) Put the racks on the support pivots (ends of the rack pipes should enter the bases of the initial elements). Length of the racks should be selected in such a way so that the rack contact points will be in a direct vicinity of the tie points. It is recommended to assemble the racks by turns 2 and 4 m - fig. 8 or 4 m and 3 m, with the reservation that it is advisable for the longer racks to be mounted from the side of the facade.

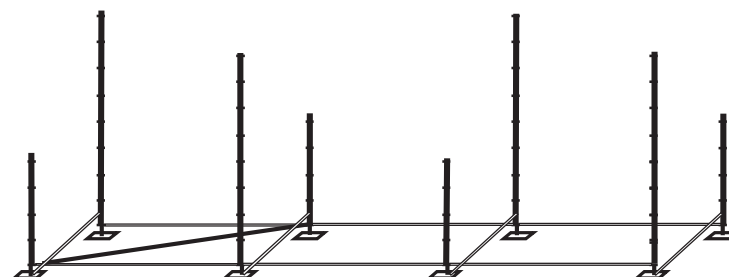


Fig. 8. Rack assembly

- d) The racks, during further assembly, must be connected with the bolts and horizontal angle braces. The type of used bolts should be appropriate to dimensions of the construction net, type of used platforms, direction of their arrangement and their envisaged load. In typical scaffoldings (see chapter V.), there are used bolts of the following type PD 70 and PD 100, as supports of the platforms from the PD 70/100 system (see the description in chapters IV. and V.). Stringers joining the racks along the longer side must be arranged of the pipe bolts. To arrange the platforms from the landings from outside the system (wooden beams) or landings with support catches there are used support bolts of round pipes (see the description in chapter V). While using wooden platforms from outside the system, it is necessary to comply with provisions of point 4.2.6. of this instruction manual. To achieve the support spans stated there, it is necessary to mount the indirect transverse bolts (e.g. PDM 400 xxx). Mount the angle brace, in line with the bracing net, according to the instruction manual or design. The wedges of bracing catches should be put into large openings of the opening discs of the racks on the external side of the racks (fig. 9). In the PDM/c system there are used system bolts in the inch layout.

Note: The longitudinal or horizontal angle braces may not be mounted only when in these fields there are mounted system platforms. Such platforms must be protected against lifting by means of the protection of cat. No PDM 427 xxx and cannot be taken out while using the scaffolding. An exception to the foregoing rule includes the fields in which there were mounted vertical angle braces. In the fields with vertical braces it is always necessary to mount the longitudinal bolt from the external side.

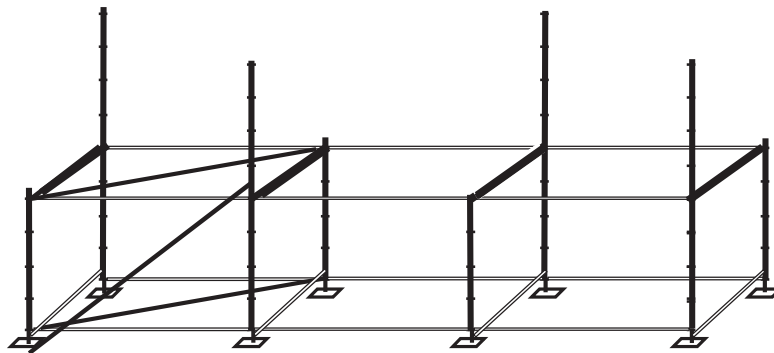


Fig. 9. Assembly of the bolts on the first storey

- e) Mount the platforms of the first storey. In typical scaffoldings, the platforms are mounted from platforms of PD type. In at least one field, it is necessary to mount the platform with a hatch (principles on arrangement of circulation paths - see point 6.2.6.). On the base bolts - directly under the platform with the hatch, it is necessary to mount additional platforms from system platforms or from wooden beams which will form the lower support of the entry ladder - fig. 10. An alternative solution is the use of platforms mounted on a special profile (channel bar) or platforms with the so-called ears (handles) mounted on the pipe or the pipe bolt and reinforced pipe bolt.

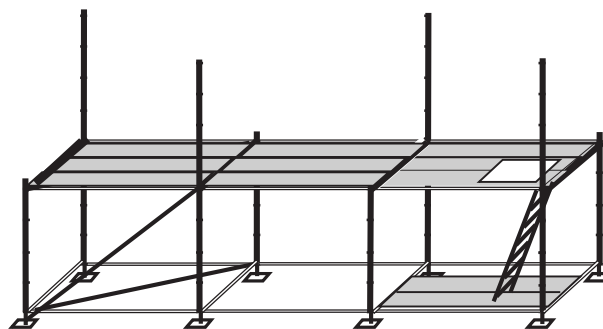


Fig. 10. Assembly of the platforms on the first storey

- f) Put the next racks, on the pivots of the racks located directly above the platform plane.

In each field on the working platforms, from the external side, it is necessary to mount the pipe bolts, at a height of 1.0 m from the surface of the platform. They will form a handrail protecting personnel that mounts the scaffolding. Next, complete the platform protections (mount the indirect handrails at a height of 0.5 m from the platform plane and longitudinal and transverse broadsides). Mount the platform protections before lifting (fig. 11).

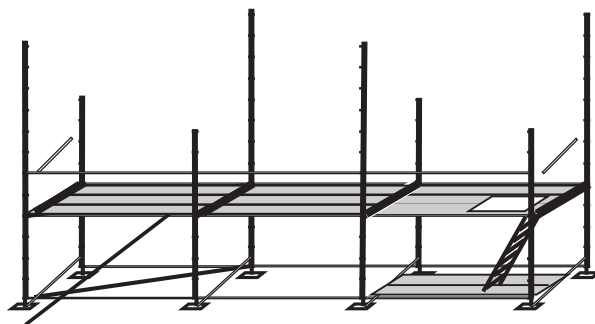


Fig. 11. Assembly of the racks and protections on the second storey.

- g) mount the bolts, braces and platforms according to the rules described in sub-points d) and e). Anchor the scaffolding, in line with the anchoring net, according to the instruction manual or design (fig. 12).

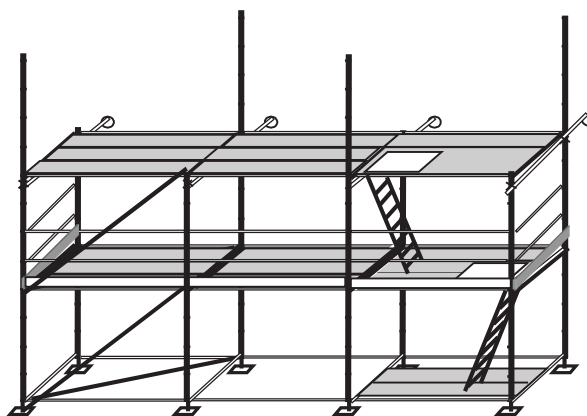


Fig. 12. Assembly of the bolts and platforms of the second storey and anchoring of the scaffolding.

- h) Assembly of higher storeys takes places by repeating the activities described in points f) and g), remembering about the necessity for successive anchoring of the scaffolding, in line with the anchoring net, presented in the instruction manual or design and verification of verticality of the assembled scaffolding.
- i) Assembly of the highest storey: After mounting the platforms on the highest storey of the scaffolding, it is necessary to mount the racks of at least 1 m long, to which it is next necessary to fix the pipe bolts as handrails of the highest storey. The platforms laid on the highest storey must be protected against accidental lifting and, afterwards, it is necessary to put the longitudinal and transverse toe boards (fig. 13).

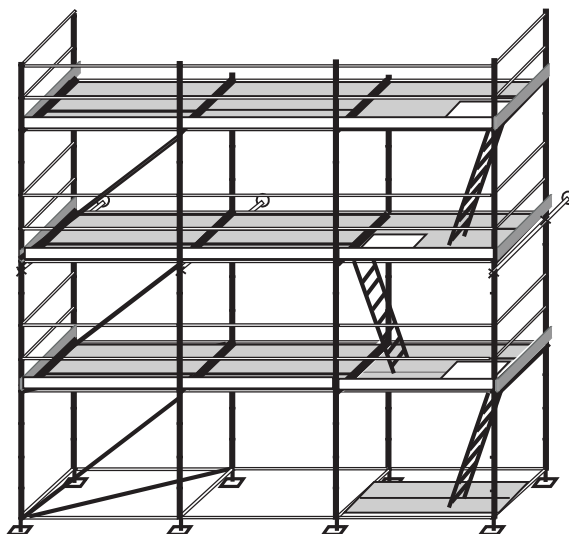


Fig. 13. Assembly of the protections of the highest storey.

- j) Some platforms which will not be used during exploitation can be dismantled on condition that in the platform planes from which the landings will be taken out there were earlier mounted stringers and horizontal angle braces. The fields with the dismantled platforms should be separated from the remaining fields by means of handrails and toe boards (fig. 14).

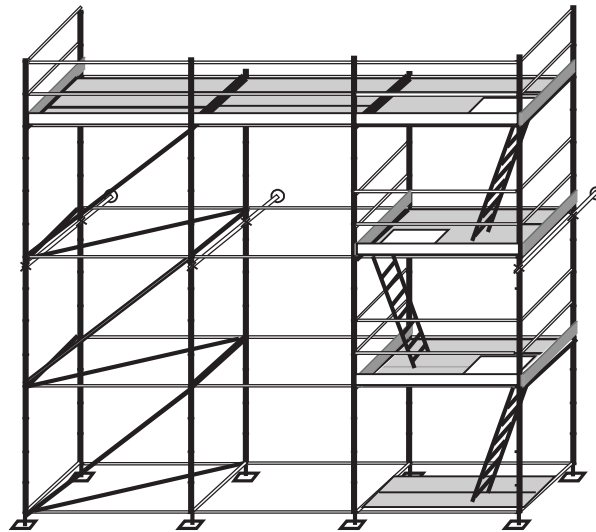


Fig. 14. Structure of the scaffolding with partially dismantled platform planes and separation from other fields.

2.2. Assembly of the column and spatial scaffoldings.

Assembly of the column and spatial scaffoldings with a rectangular construction net in which the bolt planes or platform planes are at distances of 2.0 m is carried out in an analogous way, with the reservation that the basic difference is the number of fields, located in the horizontal projection of the scaffolding. The bracing rules may also be different (e.g. the column and spatial scaffolding should be braced on each storey in at least two planes perpendicular to each other), way of protection against overturning (anchoring or ballasting). Detailed assembly rules should be determined by a relevant design of the scaffolding.

Below, please find the series of general rules which must be observed while designing and assembling the scaffolding:

- Contact points of the racks should lie as far as possible as close as possible to the tie points (connection of the bolts with the rack).
- Stiffening of the scaffolding in the longitudinal and transverse direction, afterwards, by means of the vertical braces (PDM 300 xxx) which are wedged in large openings of the discs.
- Required number of braces is determined in static calculations, however, the bracing is required at least in every 5th field (for the fields with length of 3 m in every 4th field).
- Non-stiffened planes may be stabilized by the horizontal braces (e.g. PDM 344 250) which carry the loading onto the stiffened planes.
- In the planes of the platforms there may be placed: platforms from outside the system, platforms with catches put on the pipe bolts or platforms from the PD70/100 scaffolding system. While using the system platforms of PD scaffoldings, you can resign from the longitudinal bolts and horizontal braces in the level of the platforms. However, the platforms must be protected against lifting, mounting the platform protection (PDM 427 xxx) on each support bolt. In the fields with vertical braces, the longitudinal bolt is always required outside.
- While using the system platforms not protected against lifting and in all other platforms, there must be mounted longitudinal bolts. The platforms from outside the system must additionally be supported by means of the indirect transverse bolts (compare chapter 3.2.).
- As the side protection it is necessary to mount the pipe bolt, at the first and second disc above the plane of the platforms. Assembly of the side broadsides (toe boards) is described in chapter V.

2.2.1. Types of anchors

- a) Long anchor mounted to two racks by means of the cross-couplings

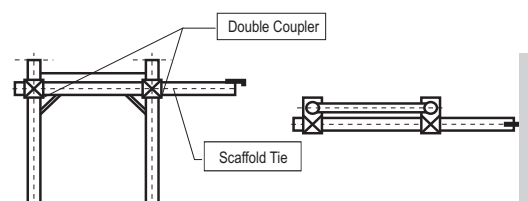


Fig. 15. Long anchor

b) short anchor mounted to the internal rack by means of the cross-coupling

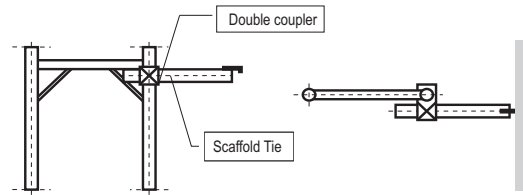


Fig. 16. Short anchor

c) triangular anchor mounted to the internal rack by means of the cross-couplings

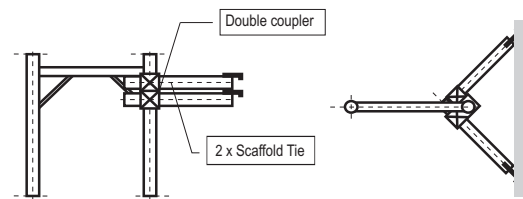


Fig. 17. Triangular anchor

The cross-coupling must be tightened up with 50Nm moment (permissible deviation of $\pm 10\%$).

2.2.2. Anchor net and anchor force.

The anchor nets: type of anchors and anchor forces should be determined by a scaffolding design of the anchor net and anchor force of typical scaffoldings, are presented in chapter V.

2.2.3. Verification of anchors under loading.

Load-bearing of the joint of wall pegs with the building wall must be documented by carrying out tests. The anchoring points, subjected to test loading, must be determined by a competent person, responsible for assembly of the scaffolding.

Number of tests.

-10 % in the case of a concrete wall,

-30 % in the case of other walls,

The minimum number of verified anchors - 5.

The test loading must account for 1.2 multiplicity of the anchoring force.

Results of the tests should be recorded by a commission and must be stored for the scaffolding use period.

CHAPTER III.

Assembly and exploitation requirements

3.1. General remarks

3.1.1. Requirements according to binding provisions.

A scaffolding user is obliged to strictly comply with the rules on assembly and exploitation contained:

- in this instruction manual,
- in standards of the series PN-M-47900:1996,
- in the standards PN-EN 12811; PN-EN 12810
- in the Regulation of the Minister of Infrastructure of 6 February 2003 on the occupational health and safety during performance of building works (OJ No 47 of 2003, item 401)
- in the Regulation of the Minister of Labour and Social Policy of 26 September 1997 on the general occupational health and safety provisions (OJ No 129 item 844, as amended).
- in the Regulation of the Minister of Economy, Labour and Social Policy of 30 September 2003 amending the regulation on the minimum requirements for occupational health and safety within the scope of using machines by staff members during work (OJ No 178, item 1745)
- In the Regulation of the Minister of Economy of 30 May 2011 on the occupational health and safety during construction and reconstruction as well as renovation of floating vessels (OJ 2001.73.770)

The foregoing provisions must obligatorily be known to persons supervising assembly, disassembly and exploitation as well as conducting technical acceptance tests of the „PDM” and „PDM/c” scaffoldings.

3.1.2. Assembly and disassembly of scaffoldings.

The assembly and disassembly of the „PDM” and „PDM/c” scaffoldings may be carried out only by persons having appropriate specialist qualifications.

3.1.3. Damaged elements.

Damaged elements of scaffoldings cannot be used. They must be systematically replaced with material that is free of defects. A description of damage is contained in this instruction manual.

3.2. Detailed requirements, arising from provisions of PN standards and provisions binding in Poland.

3.2.1. Load-bearing capacity of bed.

The bed for movable scaffoldings should be hardened or route lanes should be made. Provisions of the standard PN-M-47900-2:1996 are in force, point 4.3 i.e. load-bearing capacity of the ground must come to minimum 0.1 MPa, load-bearing capacity of construction beds must be determined based on strength calculations. If the bed is not sufficiently bearing, it is necessary to carry out calculations and to strengthen the bed.

3.2.2. Setting of scaffoldings.

It is unacceptable to put the racks on cracked and broken bases, on wedged bases or of bricks. Provisions of the standard PN-M-47900-2:1996 are in force, point 4.4. i.e. Size of the bases must be selected in such a way so that they will meet the assumptions of the 4.3 standard point (read above).

3.2.3. Location of the scaffolding in the vicinity of overhead power lines.

Provisions of the standard PN-M-47900-2:1996 are in force, point 4.9.1.

3.2.4. Distance from power lines.

It is prohibited to put the scaffoldings in the vicinity of power lines if a distance of the scaffolding (in straight line) from extreme power line cables is smaller than:

- 3.0 m - for low voltage lines up to 1kV,
- 5.0 m - for high voltage lines up to 15kV,
- 10.0 m - for high voltage lines up to 30kV,
- 15.0 m - for high voltage lines above 30kV but up to 110kV
- 30.0 m - for high voltage lines above 110kV.

In such a case, these lines must be switched off for the time of the assembly works. During assembly no element or no part of the assembly devices can exceed the above-mentioned hazardous zones. If you cannot meet this condition, it is necessary to make protection screens according to relevant provisions.

Provisions of the standard PN-M-47900-2 :1996 are in force, points 4.9.2; 4.9.3.

3.2.5. Lightning protection devices.

Each scaffolding put outside should be equipped with lightning protection devices and in accordance with relevant provisions on the protection of buildings against atmospheric discharges. The scaffolding does not need to have a lightning protection installation only provided that it is put at the building wall having the installation and is connected with the vertical air rod of the lightning protection device. If there is no existing installation with the vertical air rods of the lightning protection device, in the scaffolding there are sections of pipes (flattened on the upper ends) with length of at least 4.0 m, which must be connected with ends (tops) of the racks of the external row, by means of longitudinal couplings. The air rods must be joined with the earthing by means of the discharge wire. Maximum distance between the air rods comes to 12 m. Each scaffolding should be grounded in line with requirements of relevant provisions on the earthing and zero electric devices with voltage not higher than 1kV. Provisions of the standard PN-M-47900-2:1996 are in force, point 4.8.

3.2.6. Protective roofs.

The scaffolding located directly at roads should have protective roofs with a slope towards the building at the angle of 45 degrees. A distance of the roof from the bed should not be smaller than 2.40 m. Provisions of the standard PN-M-47900-2:1996 are in force, point 4.10.3. and of the standard PN-EN 12811-4

3.2.7. Separations, fenders, warning boards and lights.

Assembly of the foregoing protections must be carried out in accordance with provisions of the standard PN-M-47900-2:1996, respectively, sub-points: 4.10.4; 4.10.5; 4.10.6; 4.10.7.

- The terrain on which there are performed scaffolding works must be protected with a fencing with height of min. 1.5 m and it is necessary to determine a hazardous zone with dimensions of 1/10 of the height from which objects may fall but not less than 6 m
- The racks located at gates, clearance and passageways should be protected with fenders not linked with the structure
- The place of assembly and disassembly of the scaffolding should be marked with appropriate warning boards located at height of max. 2.5 m

3.2.8. Transport devices.

During assembly and use of transport devices, provisions of the standard PN-M-47900-2:1996 are in force, sub-points 4.7.2; 4.7.3. It is acceptable to use linear winches with a rotational extension arm, envisaged as a standard for installation on the scaffolding.

Person handling the winch should have required qualifications. Maximum lifting capacity of the winch fixed to the scaffolding structure comes to 150 kg.

3.2.9. Scaffoldings with canvas hoods and protective nets.

The technique for protection of the scaffoldings with canvass hoods and protective nets is regulated by provisions of the DIN standard, therefore, use of this type of protections should be consulted with a representative of the manufacturer and subjected to additional designing.

3.2.10. Tests of assembled scaffolding structures.

Tests of the assembled scaffolding structures are conducted to verify fulfilment of the conditions stated in this instruction manual.

3.2.11. Technical acceptance test of the assembled scaffolding.

Exploitation of the scaffolding is possible after carrying out the technical acceptance test of the scaffolding. Conditions of the acceptance test are determined in the Regulation of the Minister of Infrastructure mentioned in this instruction manual.

3.2.12. Exploitation inspections of the scaffoldings.

During exploitation, the „PDM” and „PDM/c” scaffoldings are subject to the following inspections:

a) Daily inspections.

The daily inspections should be carried out by persons who use the scaffolding i.e. staff members working on the scaffolding.

The daily inspection consists in checking whether:

- the scaffolding was not damaged or deformed,
- the scaffolding is correctly anchored,
- the electric wires are well insulated and are not in contact with the scaffolding structure,
- the condition of the working and transportation platforms surface is correct (cleanness and cleanliness of the platforms, in winter conditions - anti-slip protection of the platforms),
- there were no phenomena which have a negative influence on safety of the scaffolding.

b) Decade inspections.

The decade inspections should be carried out every 10 days. They should be conducted by a scaffolding maintenance technician or an engineering and technical worker e.g. master or building site manager. The decade inspections aim at checking whether in the whole scaffolding structure there are no changes which may lead to a building catastrophe or create hazardous conditions for exploitation of the scaffolding. The decade inspection may be conducted by a party responsible for using the scaffoldings.

c) Ad hoc inspections.

The ad hoc inspections must be carried out always after a break longer than 2 weeks in exploitation of the scaffolding and after each storm with force of wind above 6° on the Beaufort scale (i.e. 12 m/s). The ad hoc inspection should be conducted by a commission with the participation of a master, foreman and construction supervision inspector. It may also be ordered at all times by a construction supervision body. Noticed defects should be removed after each inspection before starting work. Responsibility for conducting the inspections is borne by a building site manager or a person entitled by him. Results of the decade and ad hoc inspections should be recorded in a building site log-book by persons carrying out the inspection.

3.2.13. Packing, storage and transport of scaffolding parts.

Within this scope, requirements of the standard PN-M-47900-2:1996 are in force, point 6.

3.3. Scaffolding braces.

Braces of the facade scaffoldings must be made in line with the bracing net, presented in this instruction manual or for untypical varieties according to design, with the reservation that it is necessary to comply with the rule so that a distance between the braced fields will not be larger than 10 m (for fields with length of 3.0 m or 3.07 m, the braces must be mounted in every 4th field and for fields with length of 1 .5 m; 2.0 m and 2.5 m (or max. 2.57 m), the braces must be mounted in maximum every 5th field). On each storey of the scaffolding there must be at least two braces. The braces must be made in the tower system (braces arranged in one vertical series). Arrangement of the braces of the column and spatial scaffoldings should be determined by the scaffolding design.

3.4. Scaffolding anchors.

The scaffoldings must be anchored to the building wall or building in a way that ensures stability and stiffness of the scaffolding structure and that enables transfer of external forces affecting the scaffolding. For the anchors it is necessary to use anchoring couplings and anchoring elements (screws with an ear or plastic expansion pegs) forming part of the scaffolding equipment. The anchors must be mounted successively during assembly of the scaffolding.

CHAPTER IV. Designing of the „PDM” and „PDM/c” scaffoldings

Introduction

While designing, it is necessary to take into consideration the requirements contained in the following documents:

- PN-M-47900-2:1996 - Standing metal working scaffoldings. Rack scaffoldings of pipes. General requirements and tests as well as exploitation.
- PN-M-47900-3:1996 - Standing metal working scaffoldings. Frame scaffoldings. General requirements and tests as well as exploitation.
- PN-82/B-02000 - Buildings loading. Principles on determination of values.
- PN-82/B-02001 - Buildings loading. Permanent loading.
- PN-82/B-02003 - Buildings loading. Variable technological loading. Basic technological and assembly loading.
- PN-77/B-02011 - Loading in static calculations. Loading by wind.
- PN-76/B-03001 - Structures and beds of buildings. General calculation principles.
- PN-81/B-03020 - Building grounds. Direct foundation of buildings. Static calculations and designing.
- PN-90/B-03200 - Steel structures. Static calculations and designing.
- PN-80/M-49060 - Machinery and devices. Entries and access routes. Requirements.
- Regulation of the Minister of Infrastructure of 6 February 2003 on the occupational health and safety during performance of building works (OJ No 47 of 2003, item 401),
- Regulation of the Minister of Labour and Social Policy of 26 September 1997 on the general occupational health and safety provisions (OJ No 129 of 23 October 1997 item 844),
- PN-EN 12811-1 - Temporary structures used at the building site - Part 1: Scaffoldings - Conditions for performance and general designing rules.
- Stability of scaffolding is demonstrated by static calculations („evidence in particular cases”). In the case of small objects, „assessment according to specialist experiences” is sufficient.
- Loading capacity and stiffness of ties are determined by a tie acceptance certificate (permit No: Z-8.22-843).
- Acceptable loading of platforms and support bolts are included in point 4.2. of this chapter.
- Calculations must be carried out in line with the standard PN-90/B-03200 binding in Poland in consideration of calculation loading determined in this instruction manual, tie acceptance certificate and in relevant standards.

4.1. Assembly of scaffoldings with serial PD platforms and in the inch system.

4.1.1. General remarks.

To be able to use platforms of the frame scaffoldings PD70/100, it is necessary to equip the support bolts and consoles with a welded star-shaped pins. The connection heads are obverse at the top and the first pair of the plugs is integrated with the cast iron head. Thanks to this, the platforms may be laid over the head to the post pipe. The wedge is only 4 mm thick and is so short that it disappears in the platform frontal grout and does not protrude over the upper edge of the platform plane.

4.1.2. Symmetrical support bolt.

The support bolts for 1 to 4-segment platforms are made symmetrically. The length depends on geometrical relations, vertical frames of the frame scaffolding PD70/100.

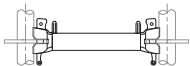


Fig. 18. Axial distance for 1 platform = 413 mm -> compatible for the frame Pd40.

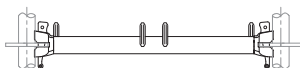


Fig. 19. Axial distance for 2 platforms = 739 mm -> compatible for the frame Pd70.



Fig. 20. Axial distance for 3 platforms = 1065 mm -> compatible for the frame Pd100.

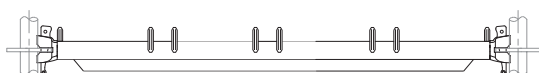


Fig. 21. Axial distance for 4 platforms = 1391 mm -> distance of edges as 1 to 3 - platform.

If necessary, there may be a mixed layout of appropriate PD frames. However, it is necessary to pay attention to the following difference of height between the platform planes. In the passage area, the support bolt at „PDM” lies by approximately 30 mm lower than in the case of the frames of the PD scaffoldings

An additional solution which is offered by the PDM scaffolding system is the use of bolts and platforms mounted on the pipe and special profile - channel bar. Figures 21a and 21b present a sketch of the bolts for the span from 413mm to 1391mm.

The following drawings are a universal solution for the PDM and PDM/c systems in the case of using the system platforms mounted on the pipe (o-bolt) and on the channel bar (u-bolt).

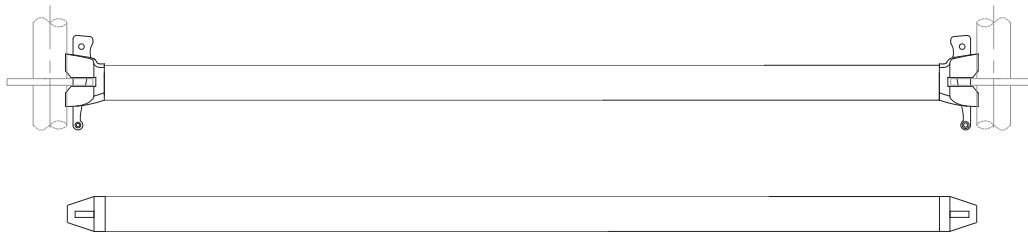


Fig. 21a - Platform bolt for platforms mounted on the „pipe”

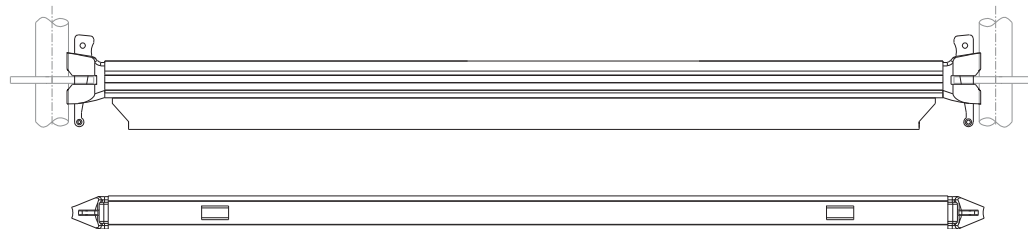


Fig. 21b - Platform bolt for platforms mounted on the special profile „channel bar”

4.1.3. Double platform bolts.

The double platform bolts, from length of 1.50 m, are made non-symmetrically (fig. 23 to 26). The double bolts presented on the left side of the platform lie with reference to the rack pipe like in the case of the symmetrical bolts. Therefore, as many as possible normal platforms are laid to the second side of the bolt. As far as this is required, by mounting the platform closures, the fields will remain (fig. 23) shaped without slits. The „Non-symmetrical” side of the double platform bolts is marked by the sheet metal additionally welded on slantwise. During assembly of the bolts in the next field, it must always lie on the same side

Sense of this shaping consists in the fact that the bolts of different length may be used in one field. This will be required if in the case of flat scaffolding you encounter the aslant or circularly running wall. Due to the equal span of the star-shaped pegs, in all bolts from the „symmetrical side”, the platforms may be fitted by the end of the shorter bolt.

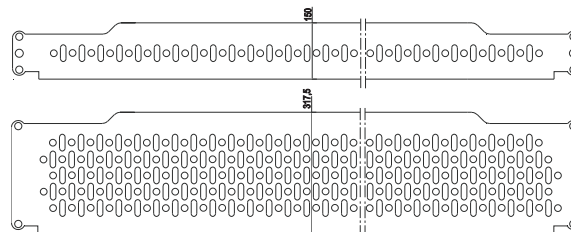


Fig. 22. Closures of the platforms of wood and steel.

Closures of the platforms have fittings of the head which meet multiple functions. From three openings, always only one is put on the peg. As a rule, over the cast plug of the head, there is a central opening. While using different length of the platform bolts, on the longer bolt, there will be used one of two external openings.

Appropriately chosen 15-centimetre width of the platform closure causes that in all cases of use, the width of the grout for normal platforms does not exceed the value of 25 mm. The external edge of the platform lies in the rack axis. Due to the post pipe, the fittings of the platform heads lie on all four corners. The supplementary platforms for the PDM/c system are approximately 19 cm wide.

Closures of the platforms with their width of 15 cm may be used in any place as „halves” of the platform. At the same time, it is always necessary to put the external opening on the star-shaped peg.

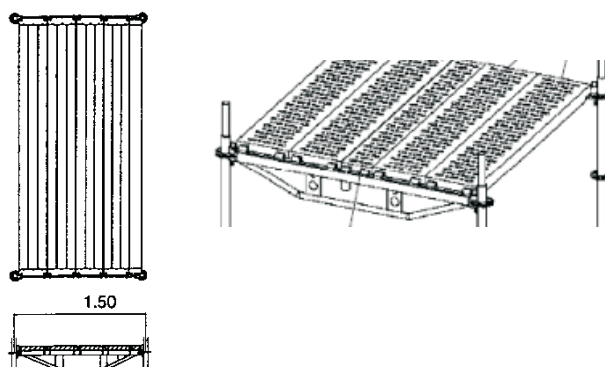


Fig. 23. Width field 1.50 m and 1.57 m

Width field 1.50 m, consists of 4 normal platforms and platform closure. It lies tightly at the last normal platform.

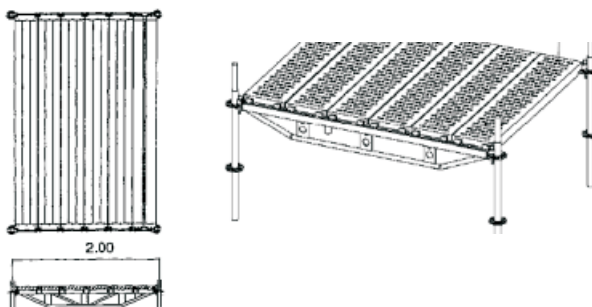


Fig. 24. Width field 2.00 m and 2.07 m

Width field 2.00 m, consists of 5 normal platforms and 2 closures of the platform. Width of the grout in the area of the platform closures is 25 mm.

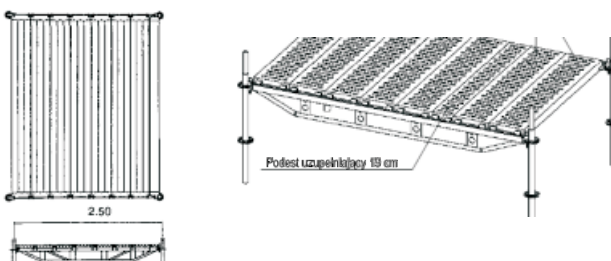


Fig. 25. Width field 2.50 m and 2.57 m

Width field 2.50 m, consists of 7 normal platforms and one closure of the platform. The grout between it and the adjacent normal platforms is 25 mm wide.

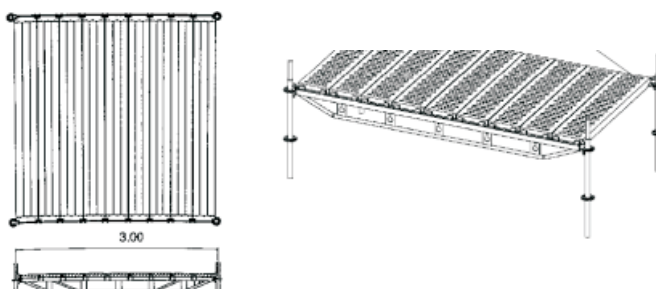


Fig. 26. Width field 3.00 m and 3.07 m

Width field 3.00 m, consists of 9 normal platforms. On the „non-symmetrical” side, the platform lies tightly at the rack pipe. Therefore, here it is necessary to envisage the connection head without cast plugs.

4.1.4. Grating transoms.

The PD grating transoms may have an upper belt with welded star-shaped wheels and heads with plugs overcast on the ends. The lower belt consists of the round pipe Φ 48.3mm with adjacent heads. Through the span of 50 cm it is possible to connect the rack pipe to two discs. Therefore, the structure of the scaffolding in the plane of the grating transom will be so stable that further stiffening procedures are required only conditionally.

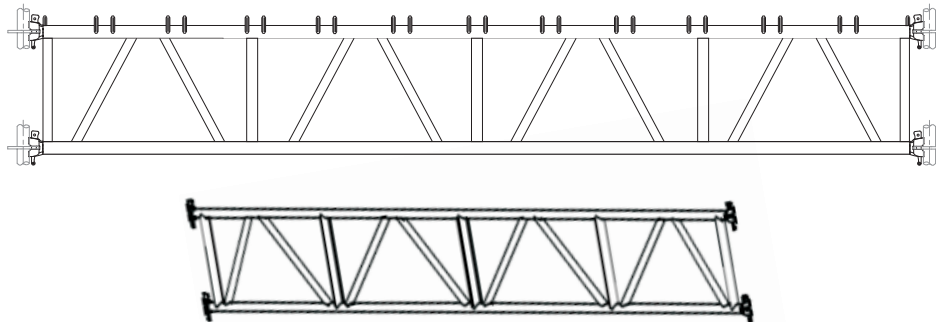


Fig. 27. The grating transom for PD platforms and inch system

The arrangement of the star-shaped pins is symmetrically chosen so that always the groups with an even number of platforms may be laid in regular distances. Between these groups, width of the grout within the limits of permissible value (25 mm) is a little bigger. Therefore, on the edges of the scaffolding structure there are equal distances from the post as in the case of the symmetrical support bolts. The sense of the „groups” consists in the fact that there may also be used platforms with width of 64 cm.

Solely with length of 7.50 m it is required to close the platform on one side. It will be laid as in the case of the double platform bolt of 2.5 m. An appropriate end of the grating transom is marked by the flat bar between the aslant rods. The assembly must always include arrangement with the same side. Alternatively, you can use the steel transoms or aluminium transoms with different length (height $h=40$ cm) which will be connected to the rack by means of cross-couplings. In order to lay the platform planes on the transoms, it is necessary to use additional elements - transom traverses with different width.

For the PDM/c system, the grating transoms may have a mount of the platforms on the channel bar (u-bolt) and pipe (O-bolt). The grating transoms may be used as a system solution (connection in the rack rosettes) or system-free (assembly by means of the cross-couplings).

4.1.5. Side Brackets.

The side brackets are offered for one and for two platforms. The supports are identical to 1 - platform, relatively 2-platform bolts and therefore they are compatible with PD40 frames, relatively with PD70.

The side brackets are shaped in such a way that they may be placed at the post at the angle of 90° . At the same time, the 2-platform console catches by means of its pressure elements lying 50 cm deeper, the disc and is protected by means of the pin against side shifts.

At the top, both consoles have the connection head. Upon a request, the vertical post may be connected here. As the barrier post you can afterwards use the initial post 116. If you want to set the scaffolding in the width of the console further upwards, you can, with higher loading, additionally support the console top by one or two vertical braces. The consoles for the platforms mounted on the profile - channel bar and on the pipe have an appropriately constructed bolt for fastening the platforms of particular types.

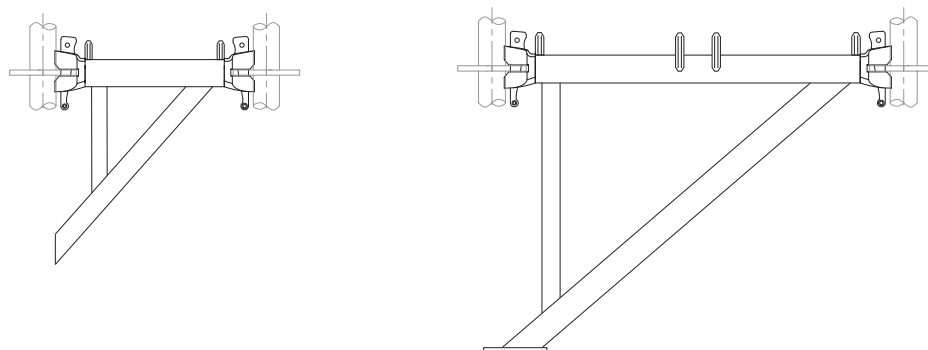


Fig. 28. Consoles for PD platforms.

The side brackets in the inch system exit both with the mounting in the channel bar and on the pipe.

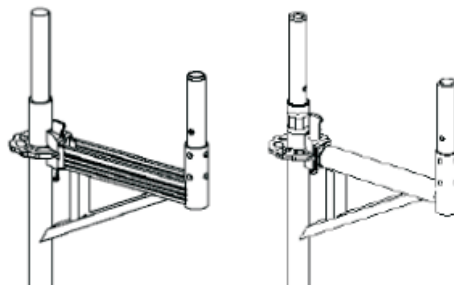


Fig. 28b. Side brackets with mounting on the channel bar and pipe

4.1.6. Protection of the platform and toe boards.

Always when there are expected tearing off wind forces or when the scaffolding should be stabilized by mounted surfaces there must be installed protections of platforms. They will be anchored between two pipes of the rack.



Fig. 29. Protection of the platform

Anchoring is effected by means of the wedge head on one side and the hook as the cooperating support on the other side. During the assembly in progress, it is necessary to pay attention to the fact that at this time the hooks of one protection and the wedge head of the second protection were fastened on one rack. Protection of the platform is equipped with two pins of the toe board. They are used for the longitudinal toe boards and transverse toe boards. As the longitudinal toe boards, there will be used serial elements from the PD70/100 program. The transverse toe boards (PDM 510 xxx) shall be put on two pins so that they will lie directly on protections of the platform. While resigning from assembly of protections of the platform (PDM 427 xxx), for setting the toe boards there may be used single handles of the toe boards (PDM 710 140). For the inch system, it is necessary to use a protection of the platforms adapted to a given type of mount of the platforms or use platforms with an integrated protection.

4.2. Assembly of scaffoldings with serial PD platforms.

4.2.1. General data.

The load capacity and stiffness of the ties may be taken from the acceptance certificate. Measurement values with index „d” are authoritative. They should not be exceeded under „y-multiple” loading. With regard to scaffoldings for all impacts the safety coefficient of $YF = 1.5$ is in force. If during demonstration of stability it is necessary to take into account stiffness of the ties, it is required to introduce the turning stiffness Φd and stretching stiffness δd to the calculations. With regard to the vertical braces, the adjacent stretching stiffness is marked by Cvd . The following load-bearing capacity of particular construction elements are permissible loading, referred to the level of usable loading. They should be actually applied. Thus, by achievement of the „load capacity” i.e. the arithmetic unreliable loading, there is **1.5 - multiple protection**.

4.2.2. Platforms.

Table 1 presents the permissible scaffolding groups for the platforms. Further, there is information on related surface loading and concentrated single loading. The loading cannot be joined with each other. The data is valid not only for the PD serial platforms but also for platforms for the pipe laps. Shorter length than the mentioned length meets the highest stated requirements. The permissible loading is stated in table 1.

4.2.3. Support bolts for PD platforms.

Load-bearing capacity of the support bolts for PD platforms is stated in table 2. For single platform bolts, there was considered the elastic mount in the ties. With regard to the double platform bolts, due to high stiffness of bending, the mounts in the ties does not have a considerable influence on the load-bearing capacity. In the case of the permitted usable loading, there was already deducted the dead weight of the platforms (48 mm thick - wooden platforms, with 0.29 kN/m²). The permissible loading is stated in table 2.

4.2.4. Bolts of round pipes.

The bolts of round pipes up to length of 1.50 m may be successfully used as the support bolts for the platforms with support catches or for the platforms from outside the system. Moreover, only for the purposes mentioned below or while embedding in the longitudinal direction - for the indirect transverse bolts. During calculation of the permissible loading it is necessary to take into consideration the elasticity of the mount in the ties. The platform dead weight (0.29 kN/m²) with the usable loading has already been deducted earlier. The permissible loading is stated in table 3.

Table 1: Load-bearing capacity of platforms.

Type of platform	Length (m)	Number of the rated size of the scaffolding according to PN-M-47900-1:1996	Permissible loading according to PN-47900-2:1996			
			Platform usable loading [kN/m ²]	Platform loading on the area of 500 mm x 500 mm [kN] (*)	Loading of part of the platform surface laid of platforms	
					Size of loading on the area Ac [kN]	Size of surface Ac(**)
Wooden platform 32, d = 48 mm	3.00	3	2,0	1.50	--	--
	2.50	4	3,0	1.92	5.0	0,4 A
	2.00	5	4,5	1.92	7.5	0,4 A
	1.50	6	6,0	1.92	10.0	0,5 A
Steel platform 32	3.00	4	3,0	1.92	5.0	0,4 A
	2.50	5	4,5	1.92	7.5	0,4 A
	2.00	6	6,0	1.92	10.0	0,5 A
Steel platform 24	3.00	4	3,0	1.50	5.0	0,4 A
	2.50	5	4,5	1.50	7.5	0,4 A
	2.00	6	6,0	1.50	10.0	0,5 A
Aluminium platform 32	4.00	3	2,0	--	--	--
	3.00	4	3,0	1.92	5.0	0,4 A
	2.50	5	4,5	1.92	7.5	0,4 A
	2.00	6	6,0	1.92	10.0	0,5 A
Aluminium platform (old) with plating of plywood - or aluminium platform	all lengths	3	2.0	1.50	---	---
Entrance aluminium platform (old) with plating of plywood - or aluminium platform	all lengths	3	2.0	1.50	---	---
Aluminium platform (new) with aluminium coating	3.00	3	2.0	1.50	---	---
	2.50	4	3.0	3.00	---	---
Entrance aluminium platform (new) with aluminium landing	3.00	3	2.0	1.50	---	---
	2.50	4	3.0	3.00	---	---
Aluminium stairs	2.50	/	1.0	1.50	---	---
Steel platform closure	3.00	4		1.50	5.0	0,4 A
	2.50	5		1.50	7.5	0,4 A
	2.00	6		1.50	10.0	0,5 A
Wooden platform closure	2.50	4		1.50	5.0	0,4 A
	2.00	5		1.50	7.5	0,4 A
	1.50	6		1.50	10.0	0,5 A

Remarks:

- 1.) *) - concentrated loading - separated on the surface area of 50 x 50cm. In the case of narrower platforms, it is decreased respectively to the width but not less than 1.5 kN.
- 2.) **) A - platform surface field, falling on one field of scaffolding.

Table 2: Load-bearing capacity of platform bolts and double platform bolts for PD platforms.

Length of bolt [m]	Permissible q [kN/m]	Length of platform [m]	Permissible p [kN/m ²]	Scaffolding group	Permissible P _m [kN]
1	2	3	4	5	6
0.74 (PD 70)	19.5	3.00	6.2	5	/
		2.50	7.5	6	
		2.00	9.5	6	
		1.50	12.7	6	
1.10 (PD 100)	15.8	3.00	5.0	5	/
		2.50	6.0	5	
		2.00	7.6	6	
		1.50	10.2	6	
1.40	9.2	3.00	2.8	3	/
		2.50	3.4	4	
		2.00	4.3	4	
		1.50	5.9	5	
1.50	16.7	3.00	5.3	5	/
		2.50	6.4	5	
		2.00	8.0	6	
		1.50	10.9	6	
2.00	12.2	3.00	3.8	4	15.0
		2.50	4.6	5	15.2
Length of bolt [m]	Permissible q [kN/m]	Length of platform [m]	Permissible p [kN/m ²]	Scaffolding group	Permissible P _m [kN]
1	2	3	4	5	6
		2.00	5.8	5	15.3
		1.50	7.8	6	15.5
2.50	9.6	3.00	2.9	3	/
		2.50	3.5	4	
		2.00	4.5	5	
		1.50	6.1	5	
3.00	7.5	3.00	2.2	3	5.3
		2.50	2.7	3	5.5
		2.00	3.4	4	5.6
		1.50	4.7	5	5.8

Remarks:

Table 2 contains the following data:

Column 2: Permissible even sectional loading of the bolt.

Column 4: Permissible usable loading with length of platforms according to column 3.

Column 5: Permissible scaffolding groups in consideration of loading of parts of the surface above the bolts.

Column 6: Permissible single loading concentrated in the centre of the double bolt of the platform.

Table 3: Load-bearing capacity of pipe bolts.

Length of bolt [m]	Permissible q [kN/m]	Permissible P _m [kN]	Permissible P ₃ [kN]	Length of platform [m]	Permissible p [kN/m ²]	Scaffolding Group
1	2	3	4	5	6	7
0.25	/	24.0	/	/	/	/
0.50	/	13.6	/	/	/	/
0.75 (0.74)	24.2	9.1	/	3.00 2.50 2.00 1.50	7.8 9.4 11.8 15.8	6 6 6 6
1.00	14.9	7.4	/	3.00 2.50 2.00 1.50	4.7 5.7 7.2 9.6	5 5 5 6
1.10	12.0	6.4	/	3.00 2.50 2.00 1.50	3.7 4.5 5.7 7.7	4 5 5 6
1.40	7.0	4.9	/	3.00 2.50 2.00 1.50	2.1 2.5 3.2 4.4	3 3 4 4
1.50	6.1	4.5	/	3.00 2.50 2.00 1.50	1.7 2.1 2.7 3.8	2 3 3 4
2.00	3.4	3.4	/	3.00 2.50 2.00 1.50	0.8 1.1 1.5 2.0	1 1 2 3
2.50	2.2	2.7	2.1	2.00 1.50	0.8 1.2	1 1
3.00	1.5	2.3	1.7	1.50	0.8	1

Remarks:

Table 3 contains the following data:

Column 2: Permissible even sectional loading of the bolt.

Column 3: Permissible loading concentrated inside the bolt (indirect transverse bolts).

Column 4: Permissible loading concentrated in the points of division into three (indirect transverse bolts).

Column 6: Permissible usable loading with length of platform according to column 5.

Column 7: Permissible scaffolding groups in consideration of partial loading of surface area under the bolts.

4.2.5. Support bolt of round pipe.

Load-bearing capacity of round pipes - support bolts is mentioned in table 4. For the reinforced support bolt, there was considered the elastic mount in the ties. The permissible loading for pipe support bolts is binding provided that the upper belts will not be additionally stiffened. For the lengths of 2.50 m and 3.00 m (2.57 m and 3.00 m), the loading capacity may be increased by horizontal linking of pipes and couplings. The mount in the ties has no significant influence. In the case of the permitted usable loading, the platforms dead weight has already been deducted (wooden platforms of 48 mm thick with 0.29 kN/m²).

4.2.6. Fields with indirect transverse bolts.

In order to maintain the permissible distances of supports, platforms with the use of the platforms from outside the system, in accordance with DIN 4420, part 1, table 8 (see below), there are required transverse indirect bolts. Usually the transverse indirect bolts are laid on ordinary longitudinal bolts of round pipes. At the same time, load-bearing capacity of these bolts with reference to the concentrated loading entered (see table 3, columns 3 and 4 must be taken into consideration during determination of permissible usable loading. Without taking into consideration the effect of the transom grill, the permissible loading results from stiffness of bending, entered into table 5.

The data with regard to loading in table 5 refers to particular widths of the fields, according to column 1. With a larger number of fields next to each other, the permissible usable loading is only half as large. If larger loading should be taken, it is necessary to mount, in place of the longitudinal bolts of round pipes, the double bolts in the longitudinal direction as the support transoms for the indirect transverse bolts. The permissible loading is mentioned in table 6.

Permissible distances of supports in metres of scaffolding platforms of beams or wooden planks (according to DIN 4420 p. 1 table 8).

Scaffolding group	Width of planks or beams [cm]	Thickness of planks or beams [cm]				
		3.0	3.5	4.0	4.5	5.0
1,2,3	20	1.25	1.50	1.75	2.25	2.50
	24 i 28	1.25	1.75	2.25	2.50	2.75
4	20	1.25	1.50	1.75	2.25	2.50
	24 i 28	1.25	1.75	2.00	2.25	2.50
5	20, 24, 28	1.25	1.25	1.50	1.75	2.00
6	20, 24, 28	1.00	1.25	1.25	1.50	1.75

Table 4: Load-bearing capacity of support bolts of round pipes and double pipe bolts.

Length of bolt [m]	Permissible q [kN/m]	Permissible P _m [kN]	Permissible P ₃ [kN]	Length of platform [m]	Permissible p [kN/m ²]	Scaffolding group
1	2	3	4	5	6	7
1.50	12.8	9.6	/	3.00	4.0	5
				2.50	4.8	5
				2.00	6.1	5
				1.50	8.2	6
1.50	19.9	11.2	11.2	3.00	6.3	5
				2.50	7.7	6
				2.00	9.6	6
				1.50	13.0	6
2.00	14.5	17.0	7.4	3.00	4.5	5
				2.50	5.5	5
				2.00	7.0	5
				1.50	9.4	6
2.50	9.5	9.8	7.2	3.00	2.9	3
				2.50	3.5	4
				2.00	4.5	4
				1.50	6.0	5
3.00	4.9	6.9	5.4	3.00	1.3	1
				2.50	1.7	2
				2.00	2.2	3
				1.50	3.0	4

Remarks:

Table 4 contains the following data:

Column 2: Permissible even sectional loading of the bolt.

Column 3: Permissible loading concentrated inside the bolt (indirect transverse bolts).

Column 4: Permissible loading concentrated in the third points (indirect transverse bolts).

Column 6: Permissible usable loading with length of platform according to column 5.

Column 7: Permissible scaffolding groups in consideration of partial loading of surface area above the bolts.

Table 5: Load-bearing capacity of transverse indirect bolts on bolts of round pipes.

Length of bolt	Permissible q [kN/m] stiff support	Length of field [m]	Permissible q [kN/m] elastic support	Permissible p [kN/m ²]	Scaffolding group
1	2	3	4	5	6

One bolt in the centre of the field

0.75 (0.74)	10.9	3.00	6.1	3.9	4
		2.50	7.2	5.6	5
		2.00	9.1	8.9	6
		1.50	10.9	14.3	6
1.00	8.2	3.00	4.6	2.9	3
		2.50	5.4	4.1	4
		2.00	6.8	6.6	5
		1.50	8.2	10.7	6
1.10	7.7	3.00	4.3	2.7	3
		2.50	5.1	3.9	4
		2.00	6.4	6.2	5
		1.50	7.7	10.1	6
1.40	5.9	3.00	3.3	2.0	3
		2.50	3.9	2.9	3
		2.00	4.9	4.7	5
		1.50	5.9	7.7	6
1.50	5.5	3.00	3.1	1.9	2
		2.50	3.6	2.7	3
		2.00	4.5	4.3	4
		1.50	5.5	7.1	5
2.00	3.4	3.00	2.3	1.3	1
		2.50	2.7	2.0	3
		2.00	3.4	3.2	4
2.50	2.2	3.00	1.8	1.0	1
		2.50	2.2	1.6	2
		2.00	2.2	2.0	3
3.00	1.5	3.00	1.5	0.8	1
		2.50	1.5	1.0	1

Two bolts every third part of the field

0.75 (0.74)	10.9	3.00	4.5	4.3	4
		2.50	5.6	6.5	5
1.00	8.2	3.00	3.4	3.2	4
		2.50	4.2	4.8	5
1.10	7.7	3.00	3.2	3.0	4
		2.50	3.9	4.5	5
1.40	5.9	3.00	2.4	2.2	3
		2.50	3.0	3.4	4
1.50	5.5	3.00	2.3	2.1	3
		2.50	2.8	3.2	4
2.00	3.4	3.00	1.7	1.5	2
		2.50	2.1	2.3	3
2.50	2.2	3.00	1.4	1.2	1
		2.50	1.7	1.8	2
3.00	1.5	3.00	1.1	0.9	1
		2.50	1.4	1.5	2

Remarks:

Table 5 contains the following data:

Column 2: Maximum load-bearing capacity of the indirect transverse bolt, with rigid layout (without limitation the force on the support may be taken over).

Column 4: Load-bearing capacity of the indirect transverse bolts with support on the longitudinal bolts with lengths corresponding with column 3.

Column 5: Permissible usable loading after deduction of weight 35 mm of thickness of wooden beams (0.21 kN/m²).

Column 6: Permissible scaffolding group in consideration of loading of part of the surface above the indirect transverse bolt.

The foregoing tables include collected information about loading of platforms, racks and bolts for the PDM and PDM/c systems.

Where the table shows e.g. length of the platform or field 2.00 m, then this refers to length of the platform and field 2.07 m as well.

For other lengths of the platforms and fields, an identical analogy is applied.

CHAPTER V.

Typical „PDM” and „PDM/c” scaffoldings

Introduction

This chapter describes typical structures of the „PDM 70/100” scaffoldings, which do not require static calculations. Documentation of static strength is not required either with reference to structures of the scaffoldings indicating deviations from typical variants provided that the deviations have no influence on strength of the structure and may be assessed and made by experienced and specialist personnel of companies which specialize in assembly of the „PDM” scaffoldings.

5.1. Technical and usable data of the „PDM 70/100” wall anchored scaffoldings.

- a) scaffolding usable loading:
 - PDM 70 with length of field up to 3.0 m - $q = 2.0 \text{ kN/m}^2$
- b) Longitudinal span of racks (length of field):
 - PDM 70 - 1.5 ; 2.0 ; 2.5 ; 3.0 m,
- c) Permissible heights of typical scaffoldings:
 - PDM 70 - 24 m.,
- d) Permissible wind pressure during which exploitation of the scaffoldings is possible without special design:
 - only in zone I of wind loading according to PN-77/B-02011.
- e) On the scaffolding there cannot be installed building cranes or hoisting devices with lifting capacity of over 150 kg.
- f) Work on the scaffolding - permissible only on one level in the given perpendicular of the scaffolding.
- g) Use of the scaffoldings beyond the scope, mentioned in points a - f, of use requires additional static calculations.
- h) Static calculations are also required by structures of the scaffoldings in which the following elements are to be used:
 - transoms for suspensions over gates,
 - canvass hoods and protective nets,
 - consoles extending the platforms,
 - bracing net or anchors different from the one(s) specified in this instruction manual.

Typical solutions of these structures are stated in Appendix 1 (Assembly schemes of PDM scaffoldings).

5.1.1. Technical and usable data of the „PDM/c 70/100” wall anchored scaffoldings.

- a) scaffolding usable loading:
 - PDM 73 with length of field up to 3.07 m - $q = 2.0 \text{ kN/m}^2$
- b) Longitudinal span of racks (length of field):
 - PDM 73 - 1.57 ; 2.07 ; 2.57 ; 3.07 m,
- c) Other data as in point: 5.1. c-h

5.2. Assembly requirements

5.2.1. Racks.

For assembly of typical scaffoldings it is necessary to use racks with length of 2 m and 4 m. The protective handrails of the highest storey can be mounted to the racks with length of 1.5 m.

5.2.2. Transverse support bolts.

As the support bolts it is necessary to use the platform bolts of PD 70 and PD 100 types with welded star-shaped pegs or other solutions described in this instruction manual i.e. platform bolts of U and O type.

5.2.3. Platforms.

- a) The scaffolding platforms must be laid of system landings PD or PDM/c.
- b) Platforms of the circulation path must be laid of aluminium and plywood landings with a hatch and ladder. In PDM 100 scaffoldings, the platforms must be completed with landings with width of 0.32 m. Platforms of the circulation path must be arranged in spans of 2 m. Alternatively, you can build staircases of aluminium stairs with necessary internal and external handrails. Assembly of such a staircase can be carried out as the free-standing scaffolding with the use of transverse bolts with length of 1390 mm or 1500 mm. It is important so that the assembly will be carried out in a maximum safe way i.e. on each mounted storey it is necessary to put on the longitudinal bolts (250 or 300 cm) the transfer platforms crosswise of planks with thickness of 5 cm, protected against a change in position. However, it is advisable to use steel platforms with length of 150 cm with a possibility of assembling on „O” bolt.
- c) In scaffoldings with height from 4 m, the platforms must be laid at least on two storeys, with the reservation that the highest storey is the working platform and directly lower storey is the protective platform. The protective platform should be laid 2 m below the working platform. All fields of the typical scaffoldings can be covered with landings.
- d) During assembly of the scaffolding, the assembly platforms i.e. such which after mounting the scaffoldings are dismantled should be laid of PD type landings.
- e) The working platforms and platforms on which there may be people should be completely covered with landings.
- f) In the typical scaffoldings, loading of only one field is permissible in a given vertical section of the scaffolding fields.
- g) All platforms laid on the transverse bolts should be protected against lifting or accidental disconnection.
- h) The platforms may be taken out of the scaffolding structure only if in a given scaffolding field there were installed stringers in the plane of the platform.

5.2.4. Bracing..

- a) The braces must be mounted in the tower system in every 5th field (with length of field 2.5 m or 2.57 m) or in every 4th field (with length of field = 3.0 m. or 3.07 m). The number of braces cannot be lower than 2, on a given storey of the scaffolding.
- b) In each braced field in the vertical plane, it is necessary to mount horizontal angle braces in the platform plane. The braces must be mounted in the openings of the rack discs. The horizontal angle braces are not mounted in fields in which the system platforms were installed.

5.2.5. Protections of platforms.

- a) Each working platform and other platforms on which there may be people, located at height of over 2.0 m above the foundation level should be protected by two handrails and kerbstone. For assembly of handrails it is necessary to use stringers and transverse bolts by mounting them in the racks connection rings, respectively at height of 0.5 m and 1.0 m. At the same heights it is necessary to protect the working platforms from the scaffolding front with the use of transverse bolts and kerbstones, located on the edge of the scaffolding. If as a result of a risk analysis it is assessed that height of the handrails is insufficient, it is necessary to complete the handrail at height of 1.5 m (in 3rd plate counting from the bottom of the rack) by assembling the additional bolt.
- b) If the scaffolding fields have not be completely covered with platforms, then access to them from the side of the circulation path must be protected with front handrails mounted of transverse bolts.
- c) It is allowed to leave out the handrails and toe boards from the scaffolding wall side if the distance of the platform edge from the wall face does not exceed 20 cm.

5.2.6. Anchoring.

- a) The scaffolding must be anchored to sufficiently load-bearing parts of building wall. It is unacceptable to mount the anchors to lightning conductors, roof gutters, discharge pipes, window frames etc.
- b) For the anchors it is necessary to use only anchoring couplings of the scaffolding, forming part of the PDM or PD 70/100 system. It is unacceptable to use ropes and pull-off wires. Mounting of the scaffolding couplings to the racks must be carried out by means of cross-couplings. Nuts of the cross-couplings must be tightened up with 50 Nm. The anchoring elements (anchors in the building wall) must carry the required perpendicular and parallel forces to the facade.
- c) The anchors must be arranged in line with the anchor net envisaged for the typical scaffoldings, directly below the scaffolding tie.
- d) The anchors can be removed not earlier than during disassembly. If exploitation reasons justify earlier removal of the anchors, it is necessary to make an equivalent substitute earlier for the removed anchor.
- e) For anchoring the scaffoldings it is necessary to use the anchoring types described in this instruction manual:
 - type „1” - two anchoring couplings mounted to one rack in the „V” system by means of cross-couplings
 - type „2” - one coupling mounted to two racks by means of two cross-couplings

The anchor net of the basic non-covered PDM and PDM/c scaffoldings is presented below in fig. 30, loading of the anchors in table: 6 and loading of the bed in point 5.2.11. The nets of anchors and braces of other typical structures of the PDM scaffolding are included in appendix No 1 to this instruction manual.

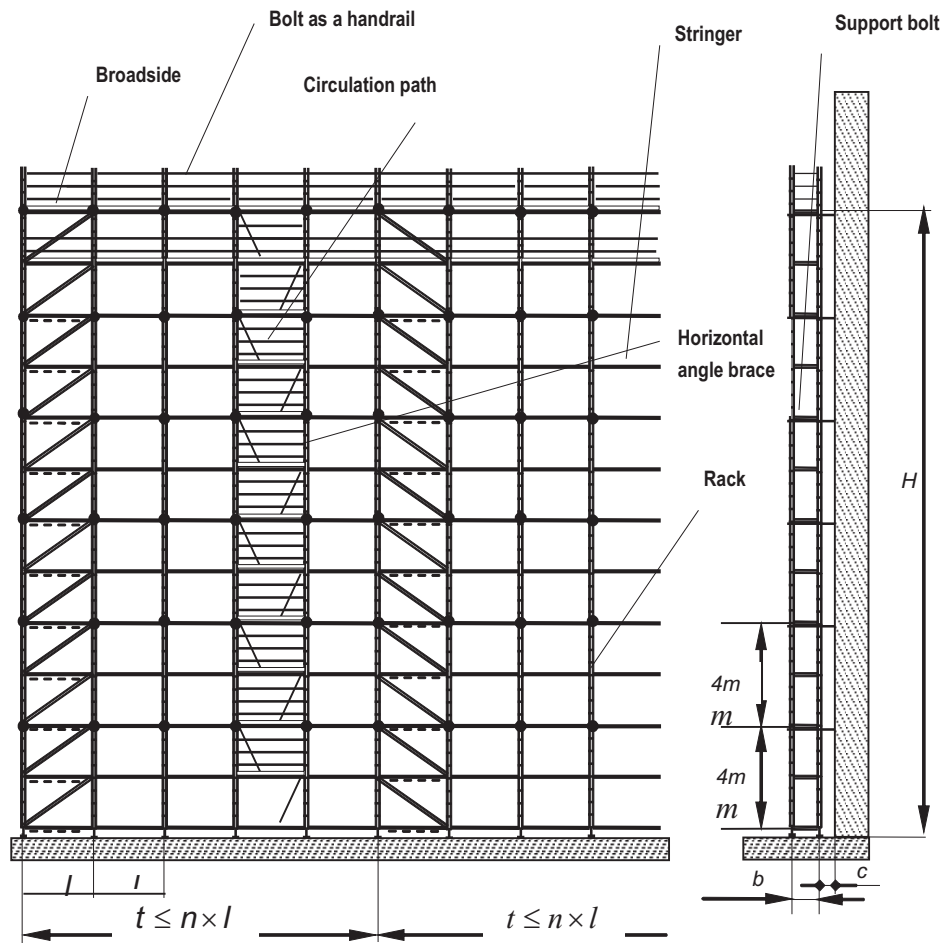


Fig. 30. Typical PDM 70 and PDM/c 70 scaffoldings - scheme of the anchor nets.

t - distance between the braced circulation paths:

For $l = 2,5 \text{ m}$ (2,57 m), $n = 5$,

For $l = 3,0 \text{ m}$ (3,07 m), $n = 4$,

- anchoring by means of long anchors - anchors mounted to the internal and external rack Alternatively, a triangular anchor,

b - width of scaffolding ; H - height of scaffolding;

PDM 70 – $b = 0,739 \text{ m}$; $H = 24 \text{ m}$,

PDM 100 – $b = 0,970 \text{ m}$; $H = 24 \text{ m}$,

Platforms - system of PD or PDM/c type:

c - distance of the platform edges from the wall face; $c < 0,2 \text{ m}$,

When $c > 0,2 \text{ m}$ - it is necessary to assemble handrails and broadsides from the wall side,

5.2.7. Information boards.

On the scaffolding it is necessary to hang, in a visible place, an information board with permissible loading of platforms.

5.2.8. Forces of anchors.

Table 6: Value of anchoring forces falling on one anchor.

(calculation forces with $f=1.5$, falling on one anchor)

Component of the force	Height of scaffolding H	Partially opened walls*	Closed walls **
Component perpendicular to wall	$0 < H \leq 24$ m	4,5 kN	2,5 kN
Component parallel horizontal to wall	$0 < H \leq 24$ m	1,85 kN	1,85 kN

Note:

* - number of openings up to 60 % of the facade surface,

** - number of openings up to 0 % of the facade surface.

Anchors cannot carry vertical forces.

5.2.9. Anchoring rules.

- scaffolding must be anchored starting from the second storey
- anchoring points are arranged every one field horizontally and every second storey
- the highest storey of scaffolding must be anchored in each field

5.2.10. Circulation paths.

The circulation paths must be mounted in line with PN-M-47900-2:1996 i.e. one circulation path on maximum 40 metres of length of the wall scaffolding.

5.2.11. Loading of bed.

Loading of bed (calculation loading with $YF=1.5$, falling on one foot): 30 kN








5.3. Scaffolding disassembly.

Disassembly must be carried out in the reverse order than as shown in drawings of the instruction manual as well as in the description of assembly. It is important to exercise safety measures during disassembly carried out by staff members (it is necessary to maintain collective protection measures as long as possible - handrails). If there are no collective protection measures, it is necessary to immediately use personal protection equipment.




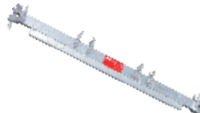
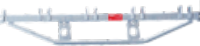




CHAPTER VI. Catalogue with elements of the PDM and PDM/c system







In accordance with PN-EN12810-1; PN-EN 12810-2 the typical structures are considered only facade structures with height of up to 24.5 m. Other structures may be set based on individual projects, containing a confirmation of proper scaffolding load-bearing capacity.

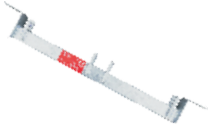


6.1. Vertical elements.

	Name	Dimensions (cm)	Weight	Catalogue No
	Starting Collar It allows to properly mount the first storey and to put racks.	23	1,40 kg	PDM 033 023
		33	1,90 kg	PDM 033 033
	Vertical Standard The main load-bearing element of the PDM scaffolding on the whole length there are rosettes in the distance of 0.5 m to which you can mount the bolts and braces.	50	2,90 kg	PDM 100 050
		100	5,10 kg	PDM 100 100
		150	7,30 kg	PDM 100 150
		200	9,50 kg	PDM 100 200
		250	11,70 kg	PDM 100 250
		300	13,90 kg	PDM 100 300
		400	18,30 kg	PDM 100 400
	Base Standard Load-bearing element with initial element.	66	3,90 kg	PDM 110 066
		116	6,10 kg	PDM 110 116
		216	10,50 kg	PDM 110 216
		316	14,90 kg	PDM 110 316
		416	19,30 kg	PDM 110 416
	Top Standard Load-bearing element applicable mainly to platforms and stages.	46	2,60 kg	PDM 110 046
		96	4,50 kg	PDM 110 096
		146	6,40 kg	PDM 120 146
		196	8,30 kg	PDM 110 196
		296	12,10 kg	PDM 110 296
		396	15,90 kg	PDM 110 396
	Standard with bolted Spigot Rack used for construction of suspended scaffoldings	50	3,40 kg	PDM 130 050
		100	5,60 kg	PDM 130 100
		150	7,80 kg	PDM 130 150
		200	10,00 kg	PDM 130 200
		250	12,20 kg	PDM 130 250
		300	14,40 kg	PDM 130 300
		400	18,80 kg	PDM 130 400
	Connecting Spigot for Vertical Standards	52	2,00 kg	PDM 150 050
	Suspended Scaffold Connector Element used for increasing strength in combination of racks of the suspended scaffolding.	50	2,95 kg	PDM 160 050

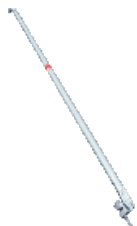
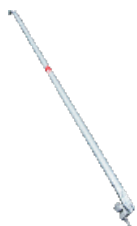

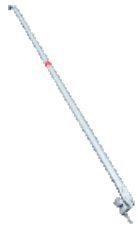



6.2. Horizontal elements.

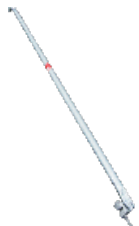


	Name	Dimensions (cm)	Weight	Catalogue No
	Ledger Scaffolding construction element also performs the function of a horizontal handrail.	15	1,10 kg	PDM 400 015
		25	1,40 kg	PDM 400 025
		41	2,00 kg	PDM 400 041
		50	2,20 kg	PDM 400 050
		74	2,90 kg	PDM 400 074
		110	4,90 kg	PDM 400 110
		125	5,20 kg	PDM 400 125
		139	5,40 kg	PDM 400 139
		150	5,60 kg	PDM 400 150
		200	6,80 kg	PDM 400 200
		250	8,00 kg	PDM 400 250
		300	9,20 kg	PDM 400 300
	Ledger Scaffolding construction element also performs the function of a horizontal handrail.	45	1,70 kg	PDM 400 045
		73	2,90 kg	PDM 400 073
		109	4,40 kg	PDM 400 109
		129	4,90 kg	PDM 400 129
		140	5,40 kg	PDM 400 140
		157	5,60 kg	PDM 400 157
		207	6,80 kg	PDM 400 207
		257	8,00 kg	PDM 400 257
		307	9,20 kg	PDM 400 307
	Transom PDM-Support 1-platform 2-platform Horizontal element of scaffolding used for assembly of PD platforms.	40	2,00 kg	PDM 424 040
		74	3,20 kg	PDM 424 074
	Rygiel podestowy wzmacniony PDM 3-platform 4-platform Horizontal element of scaffolding used for assembly of PD platforms.	110	5,50 kg	PDM 424 110
		139	7,30 kg	PDM 424 139
	Double Transom PDM-Support Used for mounting the platforms with PD catch.	150	9,00 kg	PDM 425 150
		200	12,00 kg	PDM 425 200
		250	15,90 kg	PDM 425 250
		300	18,40 kg	PDM 425 300
	O type Reinforced Transom Used for mounting the platforms with O-type catch.	110	5,60 kg	PDM 411 110
	O type Double Ledger Used for mounting the platforms with O-type catch.	150	8,70 kg	PDM 411 150
		200	11,30 kg	PDM 411 200
		250	13,90 kg	PDM 411 150
		300	16,50 kg	PDM 411 300
	O type Reinforced Transom Used for mounting the platforms with O-type catch.	109	5,60 kg	PDM 411 109
		139	7,40 kg	PDM 411 139
	O type Double Ledger Used for mounting the platforms with O-type catch.	157	8,70 kg	PDM 411 157
		207	11,30 kg	PDM 411 207
		257	13,90 kg	PDM 411 157
		307	16,50 kg	PDM 411 307

	Name	Dimensions (cm)	Weight	Catalogue No
	O type Intermediate Transom Pipe-Pipe Element mounted on O-bolts, used for shortening the field.	74	3,95 kg	PDM 420 074
		75	4,00 kg	PDM 420 075
		100	4,90 kg	PDM 420 100
		110	5,10 kg	PDM 420 110
		139	6,30 kg	PDM 420 139
		150	6,60 kg	PDM 420 150
		200	8,40 kg	PDM 420 200
		250	10,20 kg	PDM 420 250
		300	12,00 kg	PDM 420 300
	O type Intermediate Transom Pipe-Pipe Element mounted on O-bolts, used for shortening the field.	73	3,85 kg	PDM 420 073
		109	4,90 kg	PDM 420 109
		140	6,20 kg	PDM 420 140
		157	6,70 kg	PDM 420 157
		207	8,50 kg	PDM 420 207
		257	10,30 kg	PDM 420 257
		307	12,10 kg	PDM 420 307
	O type Intermediate Transom Deck to Deck 2-platform 3-platform Element suspended between platforms, used for shortening the field.	84	3,90 kg	PDM 421 074
		110	5,10 kg	PDM 421 110
	O type Intermediate Transom Deck to Deck 2-platform 3-platform Element suspended between platforms, used for shortening the field.	73	3,75 kg	PDM 421 073
		109	5,00 kg	PDM 421 109
	O type Intermediate Transom Tube-Deck 2-platform 3-platform Element suspended between the platform and O-bolt, used for shortening the field.	74	3,80 kg	PDM 422 074
		110	5,00 kg	PDM 422 110
	O type Intermediate Transom Tube-Deck 2-platform 3-platform Element suspended between the platform and O-bolt, used for shortening the field.	73	3,45 kg	PDM 422 073
		109	4,95 kg	PDM 422 109








	Name	Dimensions (cm)	Weight	Catalogue No
	Intermediate Deck Ledger PDM-Support Deck to Deck Version 2-platform 3-platform Element suspended between platforms, used for shortening the field.	74 110	3,70 kg 4,80 kg	PDM 423 074 PDM 423 110
	Intermediate Deck Ledger PDM-Support Ledger to Deck Version 2-platform 3-platform Element suspended between the platform and bolt, used for shortening the field.	74 110	4,00 kg 4,70 kg	PDM 426 074 PDM 426 110
	Deck Retainer PDM-Support Element used for protection of platforms in the PDM system.	74 110 139 150 200 250 300	2,50 kg 3,10 kg 3,70 kg 3,90 kg 4,80 kg 5,70 kg 6,60 kg	PDM 427 074 PDM 427 110 PDM 427 139 PDM 427 150 PDM 427 200 PDM 427 250 PDM 427 300

6.3. Bracing.

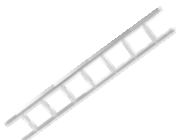

	Name	Dimensions (cm)	Weight	Catalogue No
	Vertical Brace H200 Element used for vertical bracing between the scaffolding ties.	74/75	7,70 kg	PDM 300 074
		110	8,00 kg	PDM 300 110
		139	8,90 kg	PDM 300 139
		150	9,40 kg	PDM 300 150
		200	9,70 kg	PDM 300 200
		250	10,20 kg	PDM 300 250
		300	12,00 kg	PDM 300 300
	Vertical Brace H150 Element used for vertical bracing between the scaffolding ties.	74/75	5,90 kg	PDM 310 074
		110	6,40 kg	PDM 310 110
		150	7,10 kg	PDM 310 150
		200	8,20 kg	PDM 310 200
		250	9,40 kg	PDM 310 250
		300	10,60 kg	PDM 310 300
	Vertical Brace H100 Element used for vertical bracing between the scaffolding ties.	74/75	4,60 kg	PDM 320 074
		110	5,20 kg	PDM 320 110
		125	5,55 kg	PDM 320 125
		150	6,10 kg	PDM 320 150
		200	7,40 kg	PDM 320 200
		250	8,70 kg	PDM 320 250
		300	10,00 kg	PDM 320 300
	Vertical Brace H50 Element used for vertical bracing between the scaffolding ties.	110	4,65 kg	PDM 330 110
		150	5,75 kg	PDM 330 150
		200	7,10 kg	PDM 330 200
		250	8,55 kg	PDM 330 250
		300	10,00 kg	PDM 330 300
	Vertical Brace H200 Element used for vertical bracing between the scaffolding ties.	73	8,00 kg	PDM 300 073
		109	8,30 kg	PDM 300 109
		140	8,50 kg	PDM 300 140
		157	8,90 kg	PDM 300 157
		207	9,90 kg	PDM 300 207
		257	10,90 kg	PDM 300 257
		307	12,10 kg	PDM 300 307
	Vertical Brace H150 Element used for vertical bracing between the scaffolding ties.	73	5,90 kg	PDM 310 073
		109	6,40 kg	PDM 310 109
		157	7,25 kg	PDM 310 157
		207	8,35 kg	PDM 310 207
		257	9,55 kg	PDM 310 257
		307	10,80 kg	PDM 310 307
	Vertical Brace H100 Element used for vertical bracing between the scaffolding ties.	73	4,60 kg	PDM 320 073
		109	5,20 kg	PDM 320 109
		140	6,00 kg	PDM 320 140
		157	6,30 kg	PDM 320 157
		207	7,55 kg	PDM 320 207
		257	8,90 kg	PDM 320 257
		307	10,25 kg	PDM 320 307

	Name	Dimensions (cm)	Weight	Catalogue No
	Vertical Brace H50 Element used for vertical bracing between the scaffolding ties.	109	4,65 kg	PDM 330 109
		157	6,45 kg	PDM 330 157
		207	7,70 kg	PDM 330 207
		257	9,05 kg	PDM 330 257
		307	10,45 kg	PDM 330 307
	Horizontal Brace Element stiffening the scaffolding structure in the horizontal plane.	74/75 x 110	5,10 kg	PDM 340 100
		74/75 x 150	6,35 kg	PDM 341 150
		74/75 x 200	7,70 kg	PDM 342 074
		100 x 200	8,00 kg	PDM 342 100
		150 x 200	8,80 kg	PDM 342 150
		74 x 250	9,10 kg	PDM 343 074
		100 x 250	9,40 kg	PDM 343 100
		110 x 250	9,50 kg	PDM 343 110
		139 x 250	9,90 kg	PDM 343 139
		150 x 250	10,05 kg	PDM 343 150
		200 x 250	10,90 kg	PDM 343 200
		74 x 300	10,60 kg	PDM 344 074
		100 x 300	10,80 kg	PDM 344 100
		110 x 300	10,90 kg	PDM 344 110
		139 x 300	11,20 kg	PDM 344 139
		150 x 300	11,40 kg	PDM 344 150
		200 x 300	12,10 kg	PDM 344 200
		250 x 300	13,00 kg	PDM 344 250
	Horizontal Brace Element stiffening the scaffolding structure in the horizontal plane.	109 x 207	8,20 kg	PDM 347 109
		157 x 207	9,00 kg	PDM 347 157
		73 x 257	9,30 kg	PDM 348 073
		109 x 257	9,55 kg	PDM 348 109
		157 x 257	10,25 kg	PDM 348 157
		207 x 257	11,10 kg	PDM 348 207
		73 x 307	10,80 kg	PDM 349 073
		109 x 307	11,00 kg	PDM 349 109
		157 x 307	11,55 kg	PDM 349 157
		207 x 307	12,30 kg	PDM 349 207
		257 x 307	13,20 kg	PDM 349 257




6.4. Decks.

	Name	Dimensions (cm)	Weight	Catalogue No
	Steel Deck B32 PD-Support Platform perforated for PD system..	7 x 32 x 70	5,70 kg	PD 210 070
		7 x 32 x 110	7,50 kg	PD 210 110
		7 x 32 x 150	11,40 kg	PD 210 150
		7 x 32 x 200	13,90 kg	PD 210 200
		7 x 32 x 250	16,40 kg	PD 210 250
		7 x 32 x 300	18,90 kg	PD 210 300
	Steel Deck B24 PD-Support Steel platform perforated for PD system.	5 x 24 x 70	4,70 kg	PDM 211 070
		5 x 24 x 110	6,70 kg	PDM 211 110
		5 x 24 x 125	7,90 kg	PDM 211 125
		5 x 24 x 150	12,50 kg	PDM 211 150
		5 x 24 x 200	16,40 kg	PDM 211 200
		5 x 24 x 250	20,50 kg	PDM 211 250
	Steel Deck B15 PD-Support Steel platform perforated for PD system.	5 x 15 x 150	9,80 kg	PDM 212 150
		5 x 15 x 200	13,00 kg	PDM 212 200
		5 x 15 x 250	16,15 kg	PDM 212 250
		5 x 15 x 300	19,40 kg	PDM 212 300
	Timber Deck B32 PD-Support Wooden platform impregnated for PD system.	4,8 x 32 x 70	6,00 kg	PD 200 070
		4,8 x 32 x 110	8,20 kg	PD 200 110
		4,8 x 32 x 150	11,40 kg	PD 200 150
		4,8 x 32 x 200	14,80 kg	PD 200 200
		4,8 x 32 x 250	18,20 kg	PD 200 250
		5 x 32 x 300	21,60 kg	PD 200 300
	Steel Deck B32 Tubular-Support Platform perforated with handles on O-profile.	7,60 x 32 x 74	6,80 kg	PDM 203 074
		7,60 x 32 x 100	8,40 kg	PDM 203 100
		7,60 x 32 x 110	9,00 kg	PDM 203 110
		7,60 x 32 x 125	10,00 kg	PDM 203 125
		7,60 x 32 x 139	10,90 kg	PDM 203 139
		7,60 x 32 x 150	11,60 kg	PDM 203 150
		7,60 x 32 x 200	14,50 kg	PDM 203 200
		7,60 x 32 x 250	17,95 kg	PDM 203 250
		7,60 x 32 x 300	21,45 kg	PDM 203 300
	Steel Deck B24 Tubular-Support Steel perforated platform, additional, with catches on O-profile.	7,50 x 24 x 74	6,75 kg	PDM 201 074
		7,50 x 24 x 100	8,30 kg	PDM 201 100
		7,50 x 24 x 110	9,00 kg	PDM 201 110
		7,50 x 24 x 150	11,65 kg	PDM 201 150
		7,50 x 24 x 200	15,10 kg	PDM 201 200
		7,50 x 24 x 250	18,50 kg	PDM 201 250
		7,50 x 24 x 300	21,90 kg	PDM 201 300
	Steel Deck B14 Tubular-Support Steel perforated platform, additional, with catches on O-profile.	7,50 x 14 x 74	6,00 kg	PDM 202 074
		7,50 x 14 x 100	7,20 kg	PDM 202 100
		7,50 x 14 x 110	7,80 kg	PDM 202 110
		7,50 x 14 x 150	11,10 kg	PDM 202 150
		7,50 x 14 x 200	14,10 kg	PDM 202 200
		7,50 x 14 x 250	17,40 kg	PDM 202 250
		7,50 x 14 x 300	21,30 kg	PDM 202 300

	Name	Dimensions (cm)	Weight	Catalogue No
	Steel Deck B32 Tubular-Support Platform perforated with handles on O-profile.	7,60 x 32 x 73 7,60 x x 32 x 109 7,60 x x 32 x 140 7,60 x x 32 x 157 7,60 x x 32 x 207 7,60 x x 32 x 257 7,60 x x 32 x 307	6,60 kg 8,60 kg 10,90 kg 12,00 kg 14,60 kg 18,10 kg 21,15 kg	PDM 203 073 PDM 203 109 PDM 203 140 PDM 203 157 PDM 203 207 PDM 203 257 PDM 203 307
	O type Steel Deck B19	7,50 x 19 x 73 7,50 x 19 x 109 7,50 x 19 x 157 7,50 x 19 x 207 7,50 x 19 x 257 7,50 x 19 x 307	6,80 kg 7,65 kg 11,55 kg 14,55 kg 17,85 kg 21,75 kg	PDM 202 073 PDM 202 109 PDM 202 157 PDM 202 207 PDM 202 257 PDM 202 307
	O type Alu Access Deck B64 with hatch w. Alu Surface w/o Ladder	7,30 x 64 x 150 7,30 x 64 x 200 7,30 x 64 x 250 7,30 x 64 x 300	11,10 kg 14,60 kg 17,90 kg 22,50 kg	PDM 245 150 PDM 245 200 PDM 245 250 PDM 245 300
	O type Alu Access deck B64 with hatch w. Alu Surface w/o Ladder	7,30 x 64 x 157 7,30 x 64 x 207 7,30 x 64 x 257 7,30 x 64 x 307	11,10 kg 14,60 kg 17,90 kg 22,50 kg	PDM 240 157 PDM 240 207 PDM 240 257 PDM 240 307
	Alu plywood platform with a surface and ladder (Standard Version)	7 x 65 x 250 7 x 65 x 300	19,40 kg 23,00 kg	PD 220 250_1 PD 220 300_1
	O type Alu Access Deck w. Plywood Surface and Ladder (Standard Version)	7 x 64 x 257 7 x 64 x 307	21,40 kg 24,50 kg	PDM 222 250_1 PDM 222 300_1

	Name	Dimensions (cm)	Weight	Catalogue No
	Internal Steel Ladder	300	26,50 kg	PDM 450 308
	Internal Steel Ladder with Hooks	220	10,85 kg	PDM 227 100




6.5. Toeboards.

	Name	Dimensions (cm)	Weight	Catalogue No
	Toeboard for Decks Mounted at height of the platform protects against falling out of objects from the platform.	15 x 70	1,70 kg	PD 500 070
		15 x 110	2,30 kg	PD 500 110
		15 x 150	3,10 kg	PD 500 150
		15 x 200	4,00 kg	PD 500 200
		15 x 250	4,90 kg	PD 500 250
		15 x 300	5,80 kg	PD 500 300
	Toeboard for Decks Mounted at height of the platform protects against falling out of objects from the platform.	15 x 74	1,50 kg	PDM 510 074
		15 x 110	1,90 kg	PDM 510 110
		15 x 139	2,40 kg	PDM 510 139
		15 x 150	2,50 kg	PDM 510 150
		15 x 200	3,20 kg	PDM 510 200
		15 x 250	4,00 kg	PDM 510 250
	Toeboard for Decks Mounted at height of the platform protects against falling out of objects from the platform.	15 x 73	1,50 kg	PDM 510 073
		15 x 109	1,90 kg	PDM 510 109
		15 x 140	2,40 kg	PDM 510 140
		15 x 157	2,60 kg	PDM 510 157
		15 x 207	3,30 kg	PDM 510 207
		15 x 257	4,05 kg	PDM 510 257
		15 x 307	4,85 kg	PDM 510 307



Alternative broadside planks for the PDM and PDM/c system





6.6. Base Plate.







	Name	Dimensions (cm)	Weight	Catalogue No
	Base Plate with the threaded pivot and adjustment nut with the base of 15 cm x 15 cm	40	2,70 kg	PD 070 040
		60	3,40 kg	PD 070 060
		80	4,10 kg	PD 070 080
		100	4,70 kg	PD 070 100
	Swivel Base Plate Used in the case of terrain slopes.	56,80	4,30 kg	PD 070 110
	Securing element for Base Plate It supports the base plate in the case of scaffolding structures carried by crane.	60	2,90 kg	PDM 070 120

6.7. Side Brackets.



	Name	Dimensions (cm)	Weight	Catalogue No
	Side Bracket PD-Support It extends the PDM scaffolding plane.	41	3,20 kg	PDM 600 041
		74	5,50 kg	PDM 600 075
	Side Bracket Tubular-Support It extends the PDM scaffolding plane of O type.	41	3,70 kg	PDM 620 041
		74	6,00 kg	PDM 620 074





6.8. Lattice Girders.

	Name	Dimensions (cm)	Weight	Catalogue No
	Steel Lattice Girder height of 45 cm, made of steel pipe with Φ 48.3 mm, fire-galvanized	40 x 320	30,00 kg	PD 830 320
		40 x 420	39,00 kg	PD 830 420
		40 x 520	49,00 kg	PD 830 520
		40 x 620	58,00 kg	PD 850 620
		40 x 770	73,00 kg	PD 850 770
	Aluminium Lattice Girder height of 45 cm, made of aluminium pipe with Φ 48.3 mm	40 x 324	12,00 kg	PD 840 324
		40 x 424	15,50 kg	PD 850 424
		40 x 524	19,60 kg	PD 860 524
		40 x 624	23,00 kg	PD 860 624
		40 x 824	30,30 kg	PD 860 824







	Name	Dimensions (cm)	Weight	Catalogue No
	Heavy load lattice girder height of 75 cm, made of steel pipe with Φ 48.3 mm, fire-galvanized	400 500 600 700	45,20 kg 55,30 kg 65,40 kg 77,20 kg	PD 870 400 PD 870 500 PD 870 600 PD 870 700
	Straight girder connector with 4 transverse screws. It enables connection of grating transoms with different length.		2,20 kg	PD 880 200
	Curved girder connector top bottom with 4 transverse screws Used during construction of roofs, halls and tents..		3,50 kg 2,80 kg	PD 880 300 PD 880 400
	M12x70 screw with nut		0,10 kg	PDM 880 500
	Tubes connector with half-joint 48,3 for 22 screw Mounted on transoms or O-bolts to change length of the field.	30	1,60 kg	PDM 880 600
	Tubes connector with wedge joint 48,3 Mounted on transoms or O-bolts to change length of the field. - NOTE: It can be used for U-bolts.	36	2,10 kg	PDM 880 610

6.9. Stairs.





	Name	Dimensions (cm)	Weight	Catalogue No
	Alu staircase Tubular-Support They allow to quickly enter the scaffolding and transport materials.	200 x 250 x 70 200 x 300 x 70	19,00 kg 22,00 kg	PDM 255 250 PDM 555 300
	Alu staircase PD-Support They allow to quickly enter the scaffolding and transport materials.	200 x 250 x 70 200 x 300 x 70	19,00 kg 22,00 kg	PD 250 250 PD 250 300

	Name	Dimensions (cm)	Weight	Catalogue No
	O type Alu Staircase They allow to quickly enter the scaffolding and transport materials.	200 x 257 200 x 307	18,40 kg 22,10 kg	PDM 254 257 PDM 254 307
	Single Guard Rail for Staircase It ensures safe entry into and exit from a staircase.	250 x 257 200 x 307	10,80 kg 12,30 kg	PDM 270 257 PDM 270 307
	Outer guard rail It ensures safe entry into and exit from a staircase.	257 307	12,20 kg 16,40 kg	PD 260 257 PD 260 307
	Inner guard rail It ensures safe entry into and exit from a staircase.	257 307	11,30 kg 14,20 kg	PD 265 257 PD 265 307






6.10. Couplers.

	Name	Dimensions (cm)	Weight	Catalogue No
	Double Coupler with flange nuts for pipes with external diameter of Φ 48.3 mm according to EN-74 standard	48,3 x 48,3	1,00 kg	PD 710 100
	Swivel Coupler with flange nuts for pipes with external diameter of Φ 48.3 mm according to EN-74 standard	48,3 x 48,3	1,20 kg	PD 710 110
	Tension Coupler it enables connection of two pipes with diameter of Φ 48.3 mm in the longitudinal axial direction.	48,3	1,30 kg	PD 710 120
	Tube connector joint for pipes with external diameter of 48.3 mm		1,30 kg	PD 710 130
	Toeboard Bracket Element which mounts the wooden broadside.	48,3	1,10 kg	PD 710 140
	L type Curved Coupler It is used for suspending grating transoms or steel construction elements e.g. double T-bars to scaffolding structure.	48,3	1,10 kg	PD 710 150

6.11. Ties.

	Name	Dimensions (cm)	Weight	Catalogue No
	Scaffold Tie	40	1,45 kg	PD 700 040
		50	1,75 kg	PD 700 050
		80	2,70 kg	PD 700 080
		110	3,90 kg	PD 700 110
		130	4,80 kg	PD 700 130
		150	5,50 kg	PD 700 150
	Eyebolt	12 x 95	0,12 kg	PD 720 230
		12 x 120	0,15 kg	PD 720 240
		12 x 160	0,18 kg	PD 720 250
		12 x 190	0,21 kg	PD 720 260
		12 x 230	0,25 kg	PD 720 270
		12 x 300	0,30 kg	PD 720 300
		12 x 350	0,35 kg	PD 720 280
		12 x 400	0,40 kg	PD 720 400
		12 x 450	0,45 kg	PD 720 450
		12 x 500	0,50 kg	PD 720 500
	Plastic rawlplug	70 mm	-	PD 730 070
	Plug button			PD 740 100

6.12. Other.

	Name	Dimensions (cm)	Weight	Catalogue No
	Head Jack	50	6,70 kg	PDM 070 000
	Castor	85	8,40 kg	PD 880 500
	Ratchet Spanner 19/22	30	0,80 kg	PD 710 180
	Storage rack	116 x 66 x 93	42,20 kg	PD 880 700
	Wire mesh container for small elements	120 x 80 x 100	60,00 kg	PD 880 710





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A black and white silhouette of construction workers on a complex scaffolding structure, which serves as a background for the bottom half of the page.

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