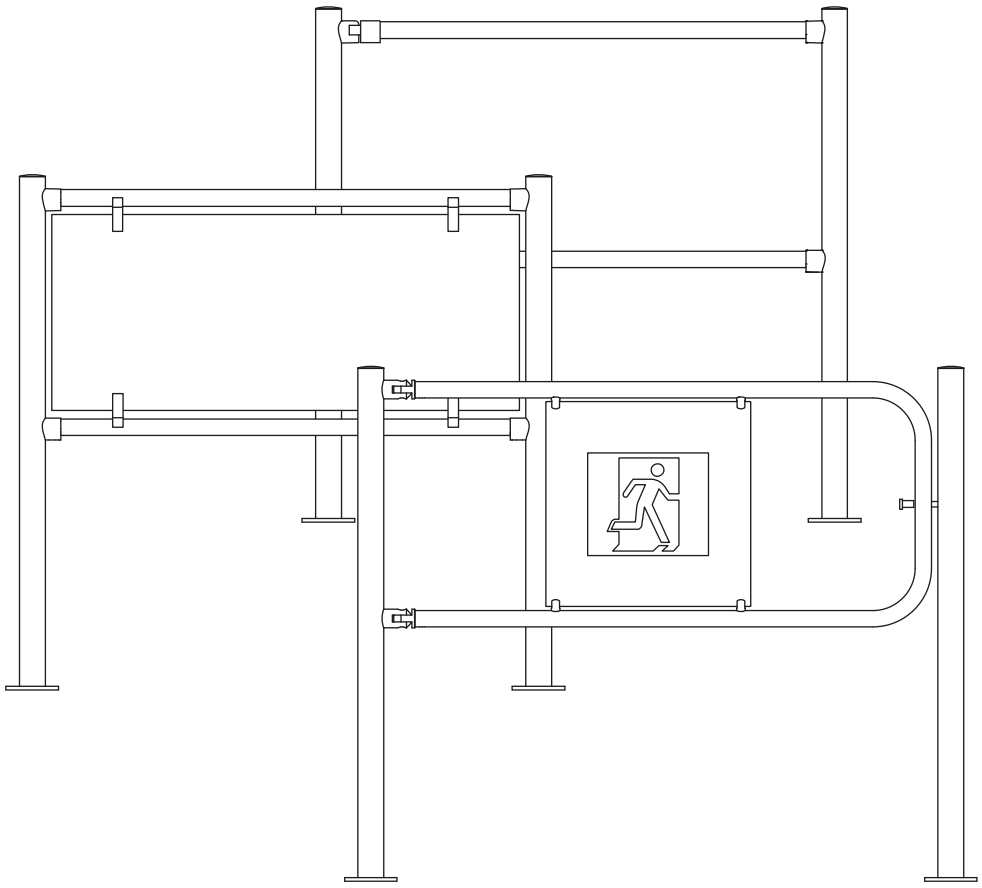
PERCo®

OPERATION MANUAL



BH-02

Waist-high railing

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Dear Customers!

Thank you for choosing PERCo railings. Please follow the instructions given in the Manual carefully, and this quality product will provide many years of trouble-free use.

Assembly and Operation Manual for the ***BH-02 waist-high railing*** (hereinafter – ***the Manual***) contains data that is necessary for the fullest use of operating advantages of the turnstile as well as chapters on packaging, installation and maintenance.

Abbreviations: BD – blocking device.

1 APPLICATION

BH-02 waist-high railing (hereinafter – *the railing*) is designed to form passageways and to complete the design of entrance points of industrial facilities, banks, administrative buildings, retail outlets, railway terminals, airports, etc.

The railing is a modular construction that consists of standard sections. Each section consists of vertical posts and horizontal rails and it is made of stainless steel in the similar style with PERCo turnstiles and swing gates. It is possible to form a railing system of any configuration by selecting sections and its elements. There are two main types of sections:

- ***Stationary railing section*** with filler panel (see Figure 1) or without filler panel (see Figure 2 and Figure 4), designed to form passageways. The filler panel is made of tinted glass or polycarbonate sheet.
- ***Fast removable railing section*** (see Figure 3) with or without filler panel, designed for periodical passage area restriction or interior decoration.
- ***Rotary railing section,*** designed to form passageways and provide emergency exit. There are two versions: the rotary section with mechanical BD (see Figure 5), the rotary section with electromagnetic BD (see Figure 6) and double rotary section with magnetic BD (see Figure 7).

Electromagnetic BD is unblocked by electric signal either from an emergency button or from the access control system or from the switch that de-energizes the rotary section. When the power is off the section will unblock automatically. In such case the swing panel can be opened in both directions.

The rotary section with electromagnetic and magnetic BD is designed in accordance with anti-panic function. The swing panel opens without any additional keys or special tools if the force applied to it exceeds 60 kgf. An emergency opening causes no damage to the swing panel and it can be closed again.

2 OPERATION CONDITIONS

The railing with regard to resistance to environmental exposure complies with GOST15150-69, category NF3.1 (operation in self-ventilated premises without climate control).

Operation of the railing is allowed at ambient air temperature from -10°C to +50°C and at relative air humidity of up to 75% at +15°C.

3 TECHNICAL SPECIFICATIONS

Post height ..... 1000 mm
Post diameter ..... 50 mm
Rail diameter ..... 32 mm
Rotary section pipe diameter ..... 32 mm
Diameter of a decorative cover on a flange ..... 122 mm
For ***BH-02 2-04/EL***, ***BH-02 2-05/EL***, ***BH-02 2-06/EL*** posts with electromagnetic BD:
The amount of force applied in its middle to open the section..... not less than 60 kgf
Operating voltage ..... 12±1.2 V
Power consumption ..... max 8.5 W
Output current the power source shall provide at the nominal rating ..... min 0.7 A
For double rotary section with magnetic BD (***BH02 1-18***, ***BH02 1-19)***:
The amount of force to open the section applied to middle of one of the wings ..... 8-10 kgf [1]

[1] This type of locking device on the fence without the use of additional accessories (chain, cable, lock, etc.) has only the function of holding the leaves in the closed position.

4 DELIVERY SET

4.1 Standard delivery set

Main equipment:

Elements of railing section ..... required qty, in accordance with the project

Note:

Delivery set depends on the list of elements ordered by a customer. The list of available elements for stationary and rotary sections is given in Tables 2 - 4.

Service documents:

Certificate ..... 1 pc. per each post with electromagnetic BD (***BH02 2-04/EL***, ***BH02 2-05/EL***, ***BH02 2-06/EL***)

4.2 Optional equipment supplied on request

Further equipment and installation tools can be provided additionally to the delivery set by request.

Additional equipment:

BH-01 0-03 bracket for a reader to be installed on a vertical post ..... required qty
Filler panel for stationary section (tinted glass or polycarbonate sheet) ..... required qty
BH-02 0-02 clip to fix the filler panel ..... 4 pcs. per filler panel

Additional installation tools:

for installation of ***BH02 2-30*** railing posts of the fast removable section to the floor:
bolt M6x40 DIN965 with anchor ..... 4 pcs. per post
for installation of other types of railing posts to the floor:
bolt M10x70 DIN7984 with anchor ..... 3 pcs. per post

5 PRODUCT DESCRIPTION

5.1 Types of railing sections

Types of railing sections and their dimensions are shown at Figures 1 – 7. Elements with asterisked dimensions are produced in several versions (see Tables 2 - 4).

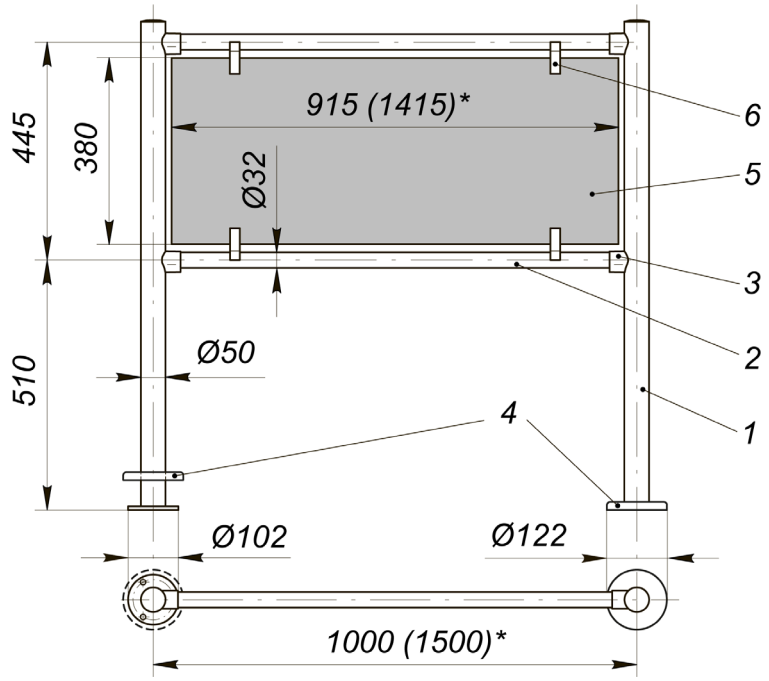


Figure 1. Stationary railing section with filler panel[1]:
1 – *BH02 2-00 (01,02,03)* post; 2 – *BH02 1-00(01)* rail; 3 – *BH02 0-10* coupling fitting;
4 – decorative flange cover (included with railing posts)
5 – filler panel (glass or polycarbonate sheet); 6 – *BH02 0-02* clip

[1] see Table 2 for variants

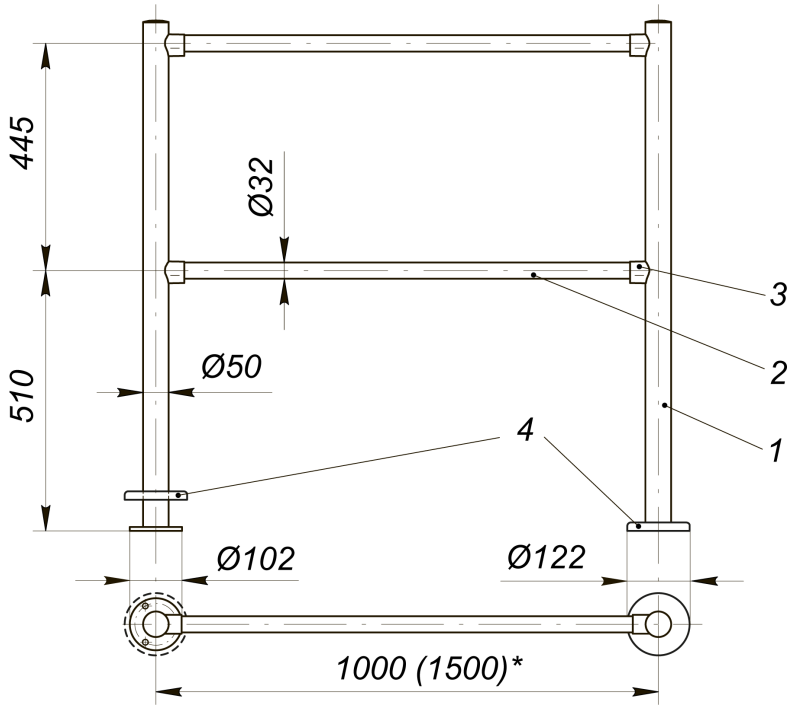


Figure 2. Stationary railing section without filler panel[1]:
1 – *BH02 2-00 (01,02,03)* post; 2 – *BH02 1-00(01)* rail; 3 – *BH02 0-10* coupling fitting;
4 – decorative flange cover (included with railing posts)

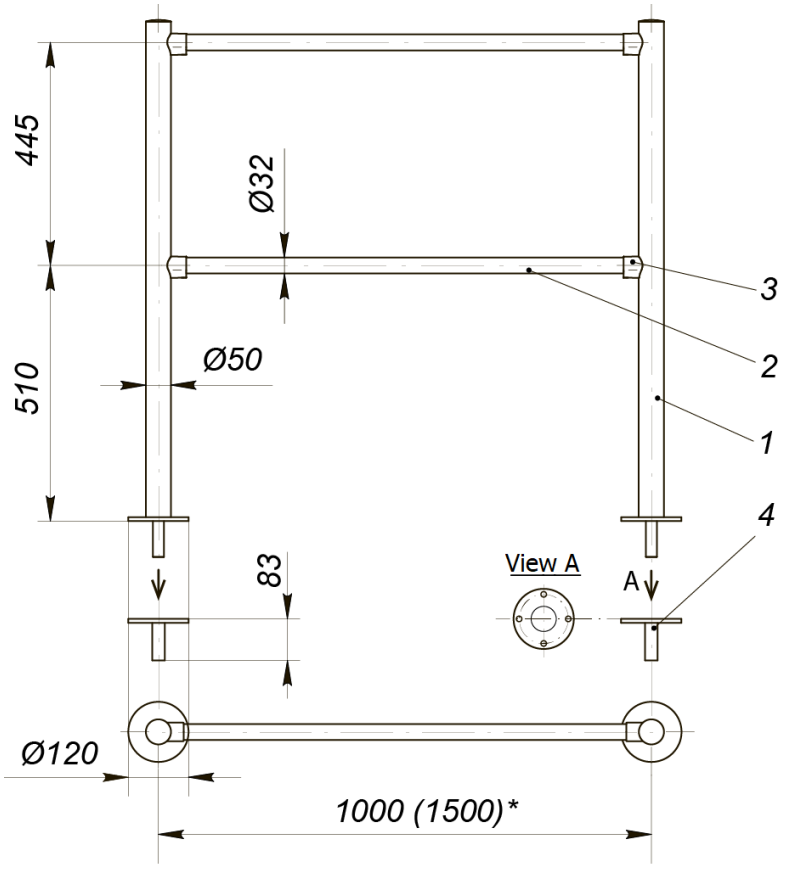


Figure 3. Fast removable railing section (without filler panel) [1]:
1 – BH02 2-30 post; 2 – BH02 1-00(01) rail; 3 – BH02 0-10 coupling fitting,
4 – BH02 2-30 post mounting flange

[1] see Table 2 for variants, fastening the filling of the section is the same as in Fig. 1

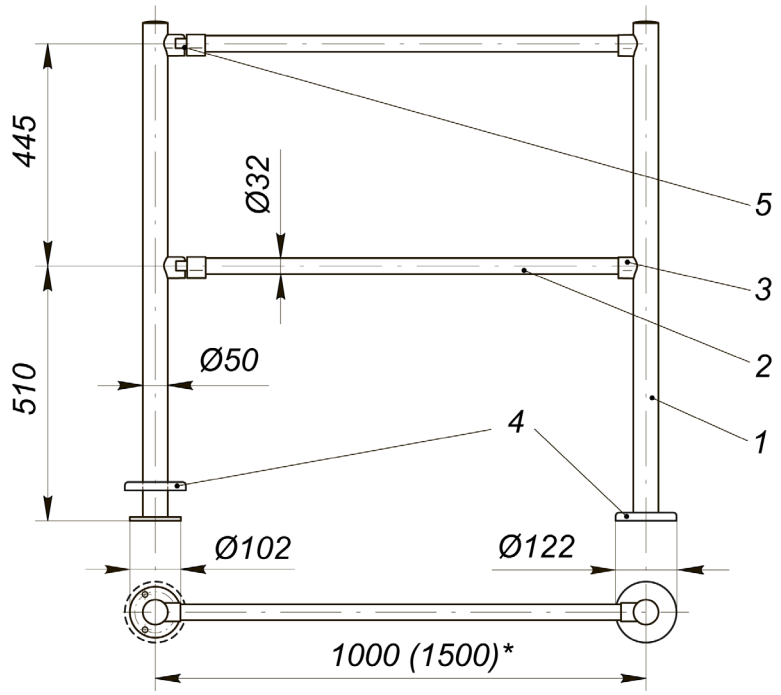


Figure 4. Stationary railing section without filler panel and with adjustable coupling fittings[1]:
1 – *BH02 2-00 (01,02,03)* post; 2 – *BH02 1-00(01)* rail; 3 – *BH02 0-10* coupling fitting;
4 – decorative flange cover (included with railing posts);
5 – *BH02 0-11* adjustable coupling fitting

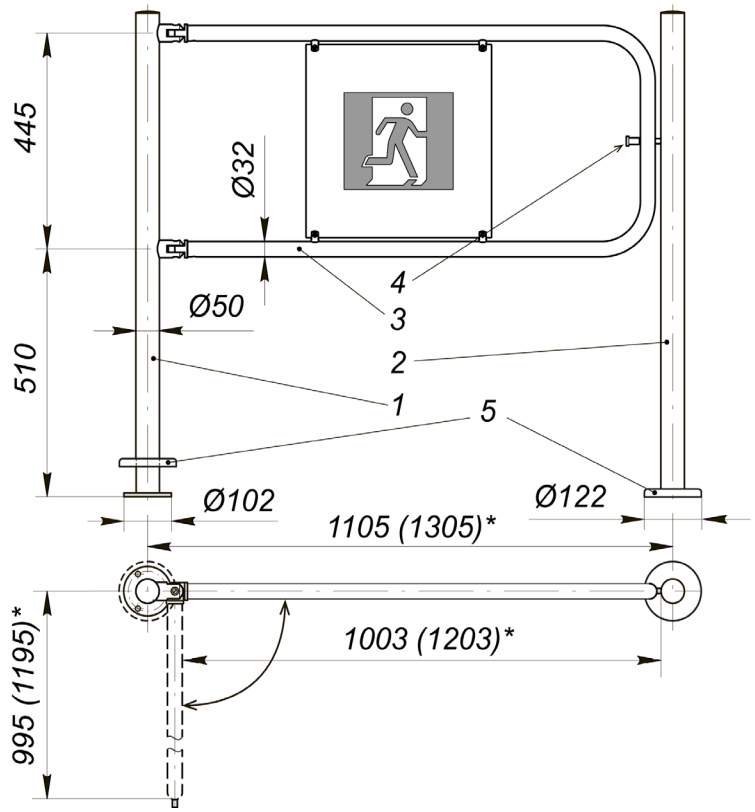


Figure 5. Rotary railing section with mechanical BD[1]:
1 – *BH02 2-00(01,02,03)* post; 2 – *BH02 2-14(15,16)* post with hole for mechanical BD;
3 – *BH02 1-16(17)* swing panel with mechanical BD; 4 – handle of mechanical BD;
5 – decorative flange cover (included with railing posts)

[1] see Table 3 for variants

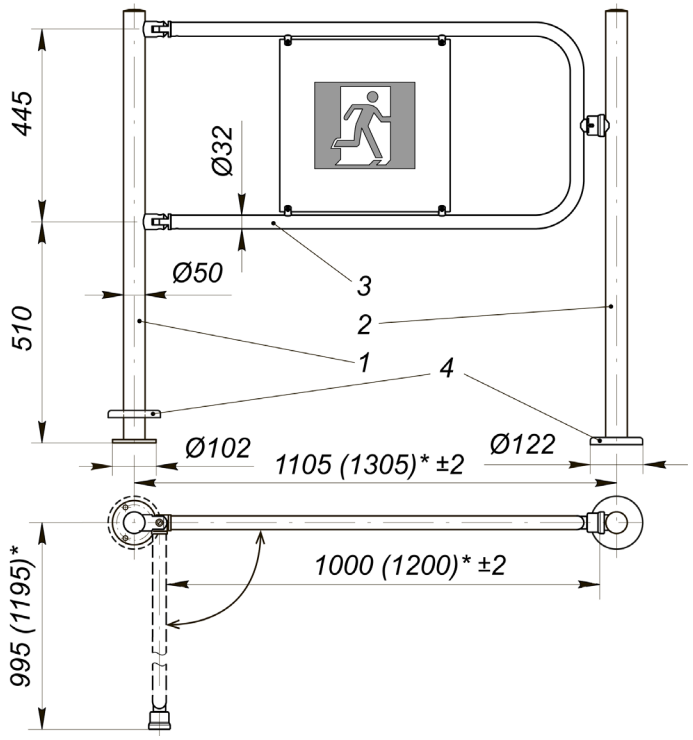


Figure 6. Automatic rotary railing section with electromagnetic BD[1]:
1 – *BH02 2-00(01,02,03)* post; 2 – *BH02 2-04(05,06)/EL* post with electromagnetic BD;
3 – *BH02 1-06(07)/EL* swing panel; 4 – decorative flange cover (included with railing posts)

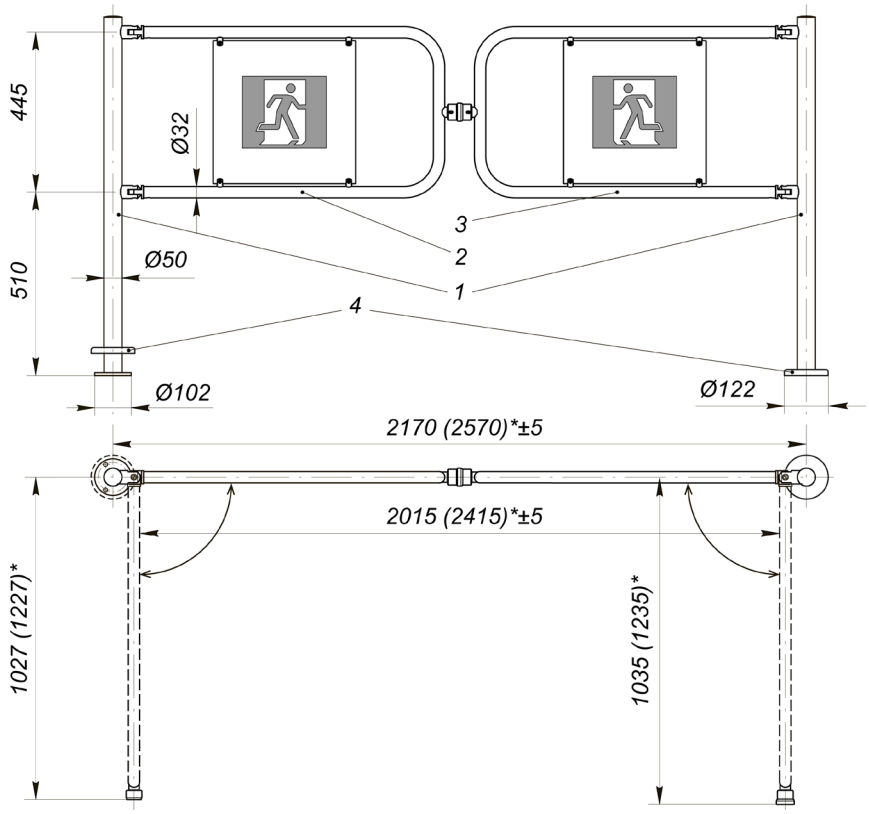


Figure 7. Double rotary section with magnetic BD[2]:
1 – BH02 2-00(01,02,03) post; 2 – BH02 1-18(19) rail with magnetic BD;
3 – BH02 1-18(19) rail with magnetic BD counterpart
4 – decorative flange cover (included with railing posts)

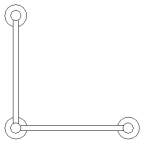
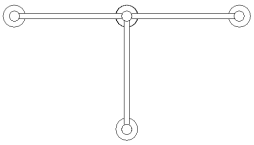
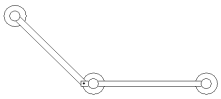
[1] see Table 4 for variants

[2] see Table 5 for variants

5.2 Connection of stationary railing sections

Table 1 contains variants of connection of stationary railing section. Description of elements is given in the Table 2. The stationary sections are connected to the rotary sections similarly.

Table 1. Variants of connection of stationary railing section

№	Name and scheme	Railing elements					
		End post			Centre post		
		Post type	Coupling fitting		Post type	Coupling fitting	
			Type	Quantity per post		Type	Quantity per post
1	Single section 	***BH02 2-00***	***BH02 0-10***	2	–	–	-
2	Straight connection 	***BH02 2-00***	***BH02 0-10***	2	***BH02 2-01***	***BH02 0-10***	4
3	L-shape connection 	***BH02 2-00***	***BH02 0-10***	2	***BH02 2-02***	***BH02 0-10***	4
4	T-shape connection 	***BH02 2-00***	***BH02 0-10***	2	***BH02 2-03***	***BH02 0-10***	6
5	Adjustable connection at any angle 	***BH02 2-00***	***BH02 0-10***	2	***BH02 2-01*** or ***BH02 2-02***	***BH02 0-10*** and ***BH02 0-11***	2 2

5.3 Elements of railing sections

Table 2. Elements of stationary sections

Type	Technical data	Description
BH02 0-10	Standard coupling fitting (with fasteners)	–
BH02 0-11	Adjustable coupling fitting (with fasteners)	–
BH02 1-00	Rail	Length 925 mm
BH02 1-01		Length 1425 mm
BH02 2-00	One-way post with two holes for coupling fittings.	End post
BH02 2-01	Two-way post with four holes for coupling fittings (180º angle arrangement)	Centre post for straight connection
BH02 2-02	Two-way post with four holes for coupling fittings (90º angle arrangement)	Centre post for L-shape connection
BH02 2-03	Three-way post with six holes for coupling fittings (90º and 180º angles)	Centre post for T-shape connection
BH02 2-30	Fast removable one-way post with two holes for coupling fittings and a mounting flange	End post

Note:

BH02 2-00, **BH02 2-01**, **BH02 2-02**, **BH02 2-03** are used as support posts for swing panels of rotary railing sections.

Table 3. Elements of rotary section with mechanical BD

Type	Technical data	Description
BH02 1-16	Swing panel with black joints for rotary section with mechanical BD	Passage width 1000 mm
BH02 1-17		Passage width 1200 mm
BH02 2-14	Post with a hole for stopper unit	End post
BH02 2-15	Post with a hole for stopper unit and two holes for coupling fittings on the side opposite to swing panel	Centre post for straight connection
BH02 2-16	Three-way post with a hole for stopper unit and six holes for coupling fittings (90º and 180º angles)	Centre post for T-shape connection

Table 4. Elements of automatic rotary section with electromagnetic BD

Type	Technical data	Description
BH02 1-06/EL	Swing panel with black joints for automatic rotary section with electromagnetic BD	Passage width 1000 mm
BH02 1-07/EL		Passage width 1200 mm
BH02 2-04/EL	Post with electromagnetic BD	End post
BH02 2-05/EL	Post with electromagnetic BD and two holes for coupling fittings on the side opposite to swing panel	Centre post for straight connection
BH02 2-06/EL	Three-way post with electromagnetic BD and six holes for coupling fittings (90º and 180º angles)	Centre post for T-shape connection

Table 5. Elements of double rotary section with magnetic BD

Type	Technical Data	Description
BH02 1-18	Swing panels for double rotary section with magnetic BD.	Passage width 2000 mm
BH02 1-19		Passage width 2400 mm

5.4 Main features of automatic section post with electromagnetic BD

Post is operated with a maximum 14 V voltage, safe for humans.

Post has low power consumption in blocked mode (when it is energized and contacts «Control» and «GND» are closed) – maximum 8.5 W.

Post board includes (see Figure 8):

- **X1** connector to connect power supply and control circuits. Cable «+» of power source A3 (see Figure 19) is connected to 1/X1 «+12V» terminal, cable «–» is connected to 2/X1 «GND» terminal. 3/X1 «Control» and 4/X1 «GND» terminals are used for connection of FA emergency unblocking device (A4 on Figure 19).
- **X2** connector to connect electromagnet (connection is already performed; polarity is not sufficient).
- **Z1** connector to connect ground circuit, if necessary.

Connection layout is shown on Figure 19.

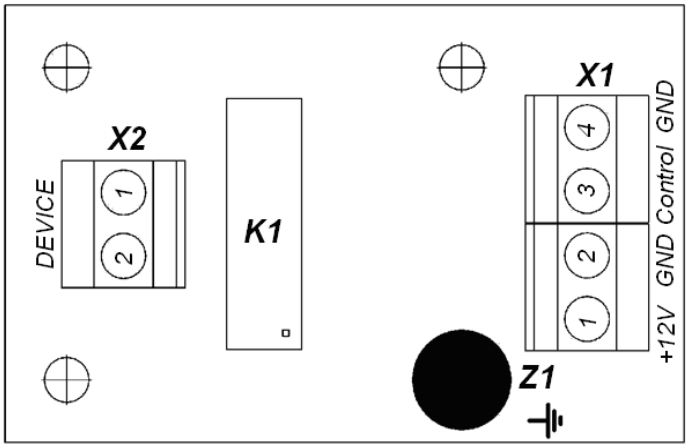


Figure 8. The board design

5.5 Operation of electromagnetic BD

Operation of post is controlled with a button or emergency unblocking device.

Open relay contact or circuit with open drain output may be used as an operating element of emergency unblocking device.

In order to block the passage, it is necessary to energize the post and to close "*Control*" and "*GND*" contacts with a button or emergency unblocking device (circuit with control relay) or to send a low-level signal (circuit with open drain output. In such case electromagnet is energized through K1 relay on the board (see Figure 8).

If it is necessary to unblock the passage, "Control" – "GND" circuit shall be opened (or switched into high input resistance mode – for emergency unblocking device with open drain output), in such case electromagnet will be de-energized and the passage will be unblocked.

Attention!

The heating of electromagnet shall not be considered as a malfunction of the device (heating up to +60ºC is allowed).

5.6 Automatic unblocking of electromagnetic BD

Requirements for control unit of emergency unblocking device.

Output control contact of «*Control*» board is energized with +12V voltage, the ohmic resistance of the circuit (relay coil) is 0.5 ... 1.5 kOhm.

Control element of emergency unblocking device shall provide following signal characteristics:

Switching current ..... min 20 mA
Closed contact resistance ..... max 100 Ohm
Low level voltage in circuit with open drain output ..... max 0.8 V

Passage unblocking will occur in case of external power loss regardless of the state of the «*Control*» circuit.

Jumper is installed on «*Control*» and «*GND*» connectors. It shall be taken off to connect emergency unblocking device.

6 MARKING AND PACKAGING

Railing in standard delivery set is packed in transportation boxes in order to protect them from the damage during transportation and storage.

Overall dimensions and weight of transportation boxes depend on type and quantity of ordered elements of railing sections.

Boxes are labeled with the name of packaged product. Each box contains a packing list.

7 SAFETY REQUIREMENTS

7.1 Safety requirements during installation

The installation shall be carried out only by persons who have carefully studied this manual, in accordance with general installation requirements.

Attention!

During installation:

- Use only serviceable tools;
- Perform all works with de-energized and disconnected power supply units;
- Install power supply units and other additional equipment of automatic rotary section with electromagnetic BD in accordance with safety requirements, given in manuals of this equipment;
- Before the first turn-on of automatic rotary section with electromagnetic BD make sure that it is installed correctly;
- Install cables in accordance with electrical installation requirements;
- During the installation of the railing sections one should be especially careful to prevent them from falling.

7.2 Safety requirements during operation

Follow general safety requirements for electrical devices, when using automatic rotary section.

It is not allowed to:

- To use automatic rotary section in the conditions, which do not correspond with necessary operation conditions.
- To energize automatic rotary section with the voltage not corresponding with technical specification.

Power supply units shall be operated in accordance with safety requirements, given in their manuals.

8 INSTALLATION

8.1 General recommendations

Install equipment in accordance with safety requirements (see Clause 7.1).

Installation of railings is an important operation which impacts serviceability and life time of the product. Prior to installation works carefully study this section and follow the instructions given here.

Attention!

The manufacturer is not liable for the damage of railings or any other equipment, as well as for other damages caused by improper installation and rejects any claims of the customer if installation was performed with violation of the manual instructions.

Installation recommendations:

- At least two qualified installers should carry out installation works.
- Install railings on strong and level concrete or stone foundations (concrete with characteristics not less than mark 400, strength B22.5), at least 150 mm thick.
- If the foundation is not strong and level enough use reinforced foundation plates of 300×300×300 mm size.
- Before the railings installation check the horizontality and flatness of the foundation and align it if necessary; the maximum allowable deviation is 1.5 mm.
- Apply «SORMAT» anchor bolts for the installation.

Recommendations on holes arrangement for post installation are given in regard to use of anchor bolts *PFG IH10* 16×60 mm produced by “SORMAT” for solid concrete floors. 3 anchor bolts per one post are used.

8.2 Tools and equipment, necessary for installation

- 1.2 – 1.5 kW hammer drill;
- Ø16 mm hard alloyed drill bits;
- Socket wrench S13; S17*;*
- Allen key S4; S6; S7; S8*;*
- Cross-head screwdriver №2 150 mm;
- Flat slot screwdriver № 5 150 mm;
- Callipers*;*
- Measuring tape 3 m;
- Plumb line and level.

Note:

The application of other instruments is allowed if it doesn’t reduce the quality of installation works.

8.3 Installation of stationary railing section

Follow this order while installing railing section.

1. Unpack railing elements and check delivery set compliance. Do not remove decorative covers.

2. Fix two ***BH02 0-10***(***11***) coupling fittings to the both railing posts with M8×30 screws (see Figure 9, Figure 10). Screws are included into coupling fitting delivery set.

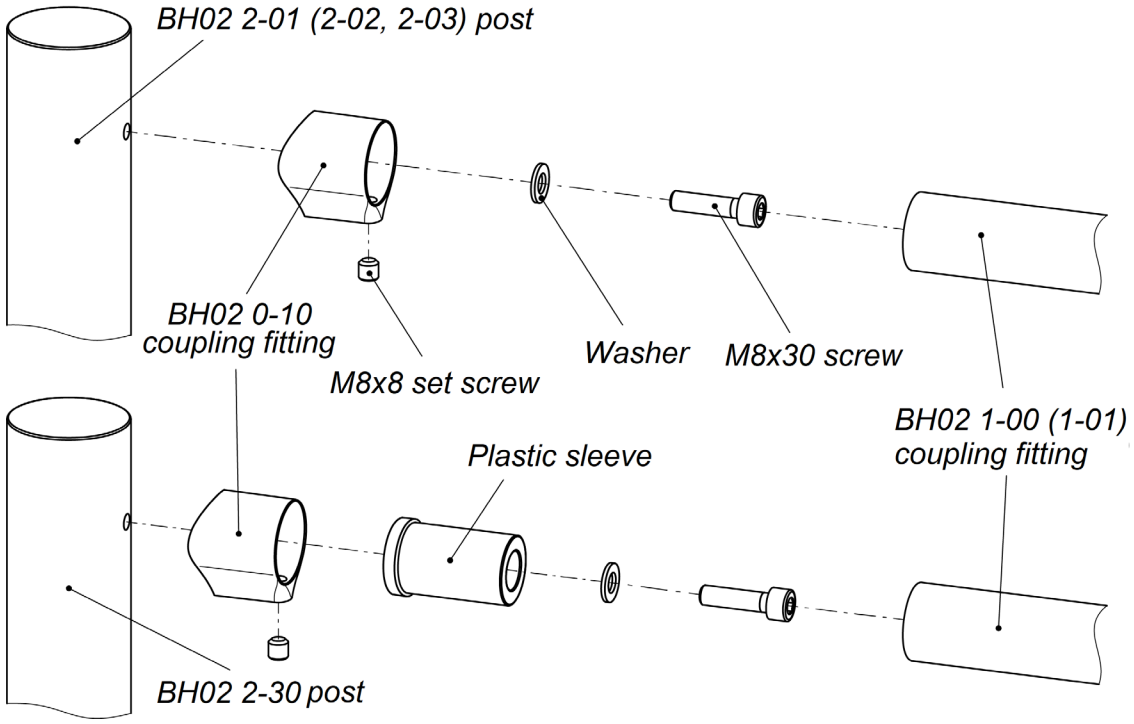


Figure 9. Fastening of rails to posts using BH02 0-10 standard coupling fittings

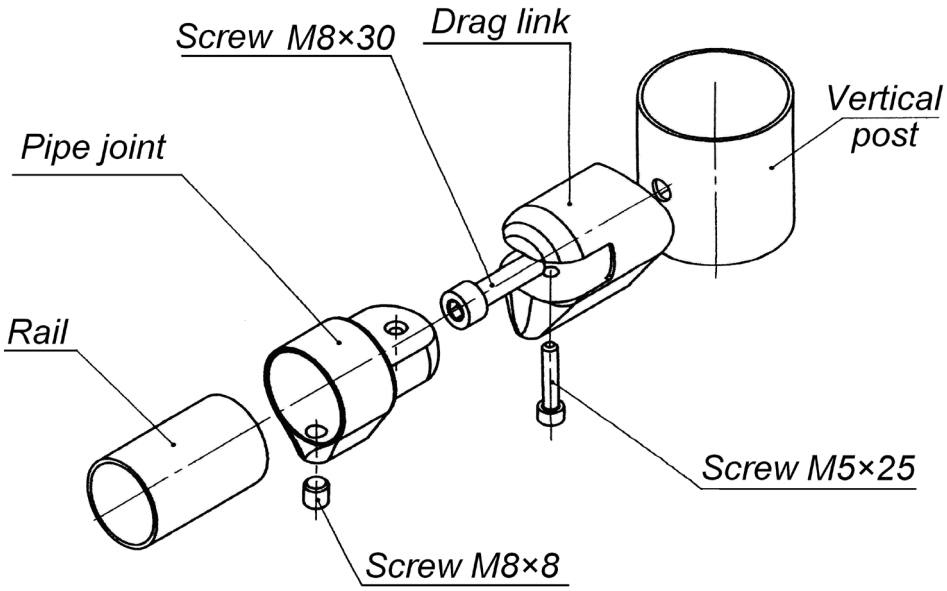


Figure 10. Fastening of rails to posts using BH02 0-11 adjustable coupling fittings

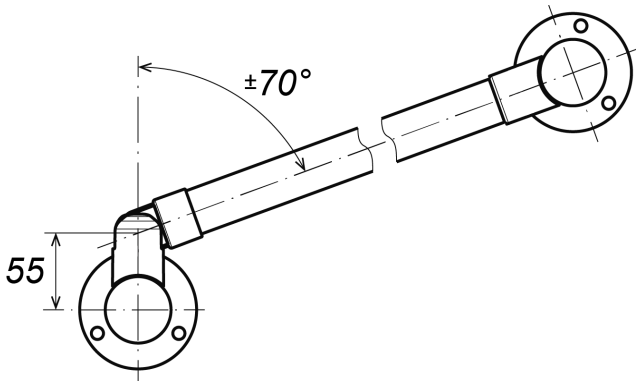


Figure 11. Available turning angles for BH02 0-11 adjustable coupling fitting

3. Put the first post in the required place so that coupling fitting's location would correspond with the required rails position. Mark out three installation holes for anchor bolts through the holes in the flange (see Figure 12). Put the post down.

Attention!

Be very careful when installing railing sections before they are fixed to the floor, prevent them from falling.

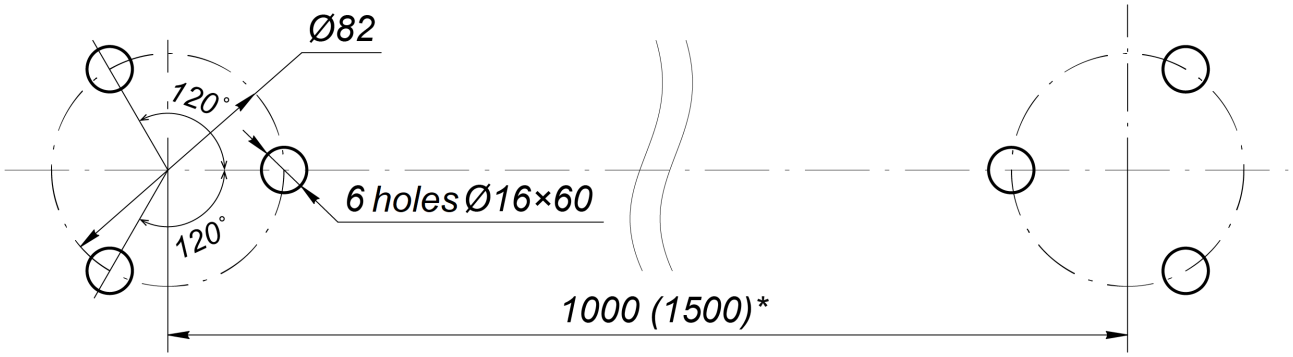


Figure 12. Location of holes for anchor bolts in the flanges

4. Prepare holes for installation of the first post. Insert anchors as deep as possible into the holes prepared.
5. Fasten the first post with bolts, previously lift decorative cover, tighten it only preliminary using little efforts, providing an opportunity of the deviation from the vertical section. Check with the level if the section is installed vertically (mounting pads may be used). Fasten the bolts properly.
6. Put the second post in the required place so that the distance to the first post would be equal to the rail length. Insert rails into coupling fittings of both posts, while holding them. Fix rails in the coupling fittings with M8×6 screws, tighten it only preliminary using little efforts. Screws are included into coupling fitting delivery set. Mark out three installation holes for anchor bolts through the holes in the flange. Unfasten screws, take out rails and put the post down.
7. Prepare holes for installation of the second post. Insert anchors as deep as possible into the holes prepared.
8. Put the second post above the holes.
9. Insert rails into coupling fittings of both posts, while holding the post. Fasten the second post with bolts; previously lift decorative cover, tighten them only preliminary using little efforts providing an opportunity of the deviation from the vertical section. Check with the level if the section is installed vertically (mounting pads can be used.) Fasten post bolts, then rail screws properly.
10. If it is necessary to connect several sections, perform their installation in accordance with the description given above.

Attention!

During the installation of railing section with filler panel (glass), perform the installation of the glass only when the installation of vertical posts and railings is finished.

11. Place glass fastenings symmetrically on the lower rail 100÷120 mm from the vertical post.
12. Insert the glass into glass fastenings. Put a rubber pad between the glass and glass fastening, which is included in the delivery set.
13. Put the glass vertically. Place glass fastenings symmetrically on the upper rail and put rubber pad inside of it (it is necessary to disassemble glass fastening for that).
14. Fix glass fastenings with the glass on the rail. Assemble other railing sections with glass in the same manner.
15. Fix the glass in glass fastenings by tightening the screws.
16. Place the decorative covers onto the posts flanges. The section is installed.

8.4 Installation of fast removable railing section

1. Unpack railing elements and check delivery set compliance.
2. On both posts of ***BH02 2-30*** section assemble the ***BH02 0-10*** for fixing the rails (see Figure 9), and fix them on the posts with M8×30 screws. Screws are included into coupling fitting delivery set. Rails are fastened to the post later.
3. Mark out and drill installation holes on the mounting surface for the mounting flanges and M6x40 DIN 965 anchor bolts in accordance with the scheme (see Figures 3 and 13). Mark out the centers of railing posts, the points of flange fastening are marked from them.

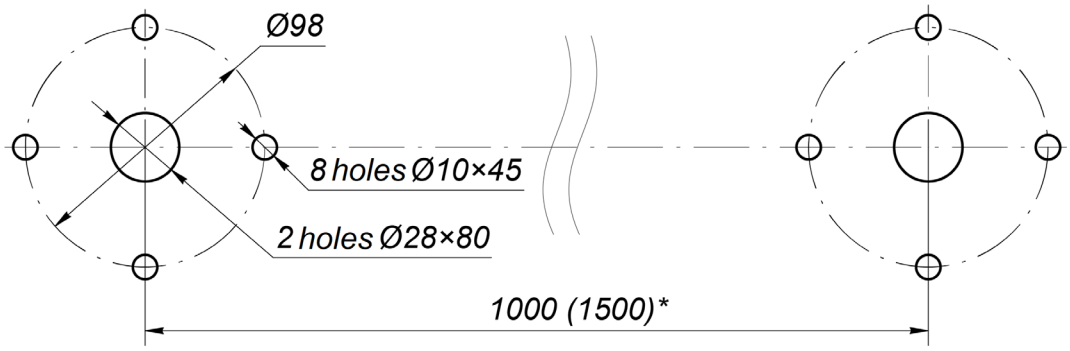


Figure 13. Location of holes for flanges of the fast removable railing section

4. Insert the anchors as deep as possible and fix the mounting flanges with the M6x40 DIN 965 anchor bolts.
5. Insert both posts into the flanges. Check with the level if they are installed vertically (mounting pads may be used). Insert rails into coupling fittings of both posts. Use M8×8 screws for fastening. Check with the level if the section is installed vertically. Fasten post bolts, then rail screws properly.
6. Use the set of ***BH02 0-02*** posts for the filler panel (glass) installation, place the posts on rails symmetrically, at a distance of 100÷120 mm from the edge of the posts. Install the filler panel (glass) on the fence section installed in the flanges. The section is installed.

8.5 Installation of rotary railing section with mechanical BD

Follow this order while installing railing section.

1. Unpack railing elements and check delivery set compliance. Do not remove decorative covers.
2. Mark out the centers of railing posts.
3. Mark the points of flange fastening of vertical and support posts as depicted on Figure 11 and Figure 14 – each of two groups consisting of three Ø16×60 holes for M10 anchors.

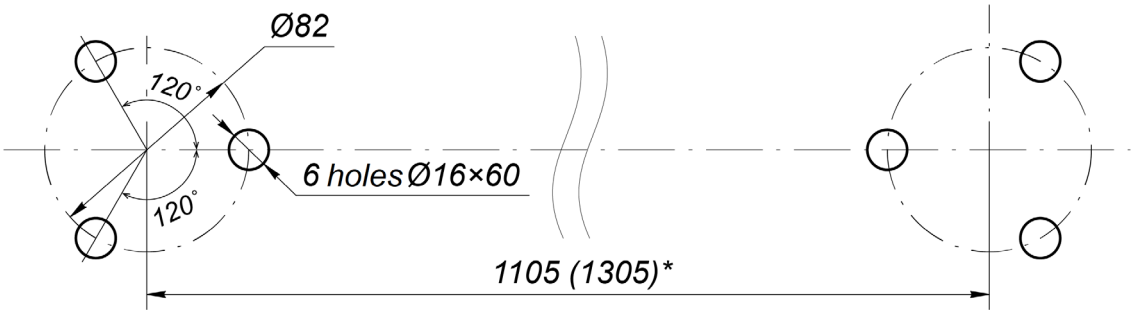


Figure 14. Holes for anchor bolts in flanges of rotary railing section posts[1]

4. Fix two drag links on the support post with two M8×25 screws as depicted on Figure 15.
5. Install the support post into working position and fasten using anchor bolts M10, previously lift decorative cover. Assemble joints with swing panel on the support post.

[1] see Table 3 and Table 4 for variants.

6. Install the vertical post into working position, previously lift decorative cover. The hole shall be oriented towards the swing panel of the rotary section.

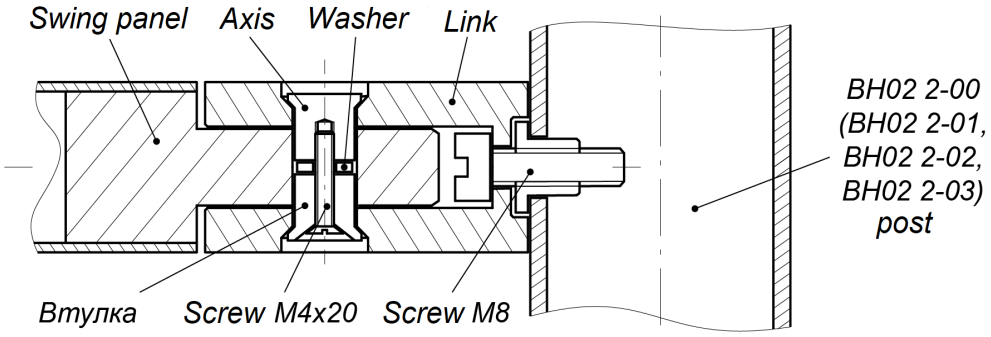


Figure 15. Fastening of joints to the support post of rotary railing section

7. Push the rod. After the closure of the swing panel is performed the rod lowers thus fixing the swing panel in the corresponding groove.
8. Assemble other railing section in the same manner.
9. Place the decorative covers onto the posts flanges. The section is installed.

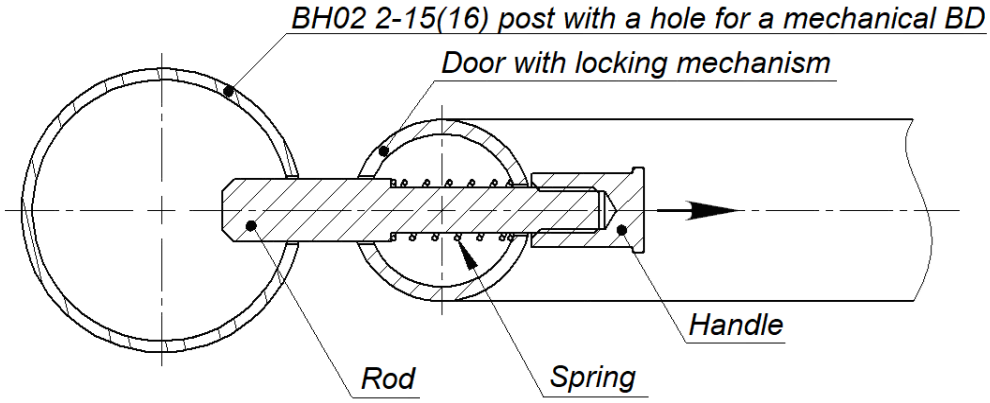


Figure 16. Installation of the stopper unit rod

8.6 Installation of double rotary section with magnetic BD

Follow this order while installing railing section.

1. Unpack railing elements and check delivery set compliance. Do not remove decorative covers.
2. Mark out and drill holes on the mounting surface for the anchor bolts in accordance with the scheme (see Figure 17). Mark out the centers of railing posts, the points of flange fastening are marked from them. It's possible to use the flanges as templates.

Attention!

The marking of the mounting surface is carried out simultaneously for the entire set of the installed railing system or other equipment in accordance with the checkpoint project design. When marking, be sure to take into account the location of the swing panels, pipes, and rails on the section posts, as well as on the posts of the adjacent sections.

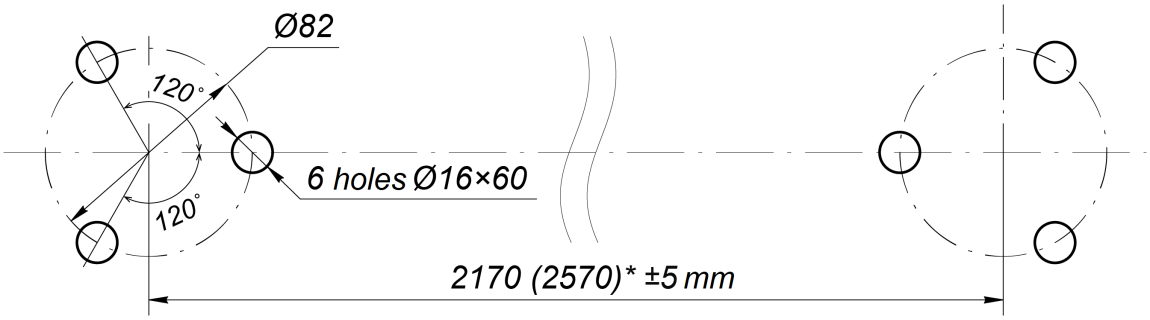


Figure 17. Holes for post flanges of double railing section with magnetic BD

3. On the railing posts, fasten the joints to the swing panels, use M8 screws (Figure 15).
4. Install the posts on the mounting surface and preliminary fasten them with M10 anchor bolts, previously lift decorative covers. Assemble the joints and install the swing panels on the posts (see Figure 15).
5. Check the vertical and horizontal elements of the section (mounting pads may be used). Tighten the bolts completely. Check the opening and closing of the swing panels, and the operation of the magnetic BD.
6. Place the decorative covers onto the posts flanges. The section is installed.

8.7 Installation of automatic rotary railing section with electromagnetic BD

8.7.1 Cables

Maximum cable length from emergency unblocking device to the post shall be set in accordance with Clause 5.6 if no impediment occurs. It is recommended not to exceed 100 m.

Maximum cable length from power supply unit to the post depends on cable size and shall be:

0.2 mm^2 cable (AWG 24) .....max 15 m
0.75 mm^2 cable (AWG 18) .....max 50 m
1.5 mm^2 cable (AWG 16) .....max 100 m

8.7.2 Installation

Follow this order while installing railing section. Necessary cables are set in Clause 8.7.1.

1. Unpack railing elements and check delivery set compliance. Do not remove decorative covers.
2. Mark out the centers of railing posts. Provide following distance between posts - 1105±2 mm (for 1 m railing section) and 1305±2 mm (for 1.2 mm railing section) in order to secure normal operation of electromagnetic BD (see Figure 18 and Table 4).

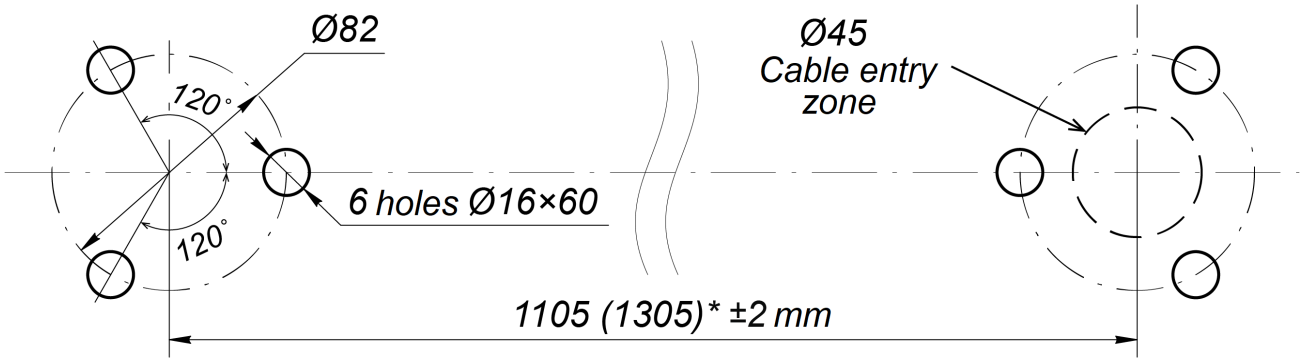


Figure 18. Holes for anchor bolts in flanges of rotary railing section posts with electromagnetic BD

3. Mark fixing points of post flanges of railing sections, as depicted on Figure 11 and Figure 18 – three Ø16×60 holes (M10 anchors) for each of two posts.
4. Prepare cable duct in the floor for power cable and control cable (see Figure 18).
5. Fix two drag links on the support post with two M8×25 screws, as depicted on Figure 15. Install the support post into working position, previously lift decorative cover. It is recommended to use 50×20×0,5…0,8 mm mounting pads in order to secure that posts were installed vertically.
6. Assemble joint units with swing panel on the support post.
7. Extract the board situated in the lower part of the post (inside the tube). The board is fixed with spring-actuated clip and can be easily extracted.
8. Connect power cable and control cable to the board in accordance with electric circuit scheme (see Figure 19).
9. Install the post with electromagnetic BD into working position, previously lift decorative cover.

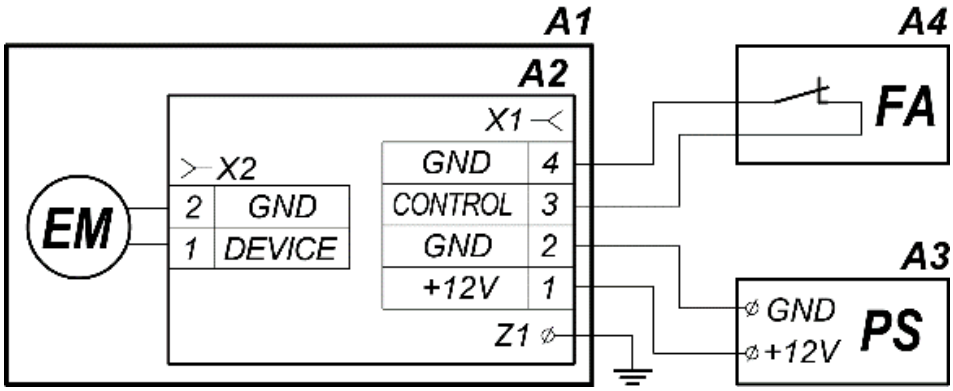


Figure 19. Electric circuit scheme of the post with electromagnetic BD

Table 6. List of elements electric circuit scheme

Legend	Item	Q-ty	Note
A1	Post with electromagnetic BD	1	
A2	Board	1	Included into post delivery set
A3*	Power supply source	1	Power unit (DC12V,1A)
A4*	Emergency unblocking device	1	
EM	Electromagnet	1	Included into post delivery set
Z1	Ground contact on post board		

* Available upon request

10. Assemble other railing section in the same manner.
11. Check all bolted connections and tighten if necessary.
12. Place the decorative covers onto the posts flanges. The section is installed.

9 TECHNICAL MAINTENANCE

It is recommended to lubricate moving parts of the stopper unit (see Figure 16) of rotary railing section once per six months with lubricating oil.

10 TRANSPORTATION AND STORAGE

Railings in the original package should be transported in closed type cargo transport units only (trains, containers, closed vehicles, in the holds, planes, etc.).

During the transportation the boxes can be stacked in 5 rows.

Storage of the railings is allowed indoors at ambient temperature between -60°C and +50°C and at relative air humidity up to 80% at +27°C. The storage room should be free from acid vapors, alkalis and gases that can cause damage.

After the transportation and storage of the railings at low temperatures or at high air humidity it must be kept unpacked for not less than 24 hours indoors within normal climate conditions corresponding to the operation conditions prior to installation.

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