

Mechanical installation manual for AK Series gates

Version 2019

Part 1

INTRODUCTION

NOTE! Before starting the installation, it is absolutely necessary to read the ENTIRE manual, all instructions contained herein should be understandable, which will allow to avoid any mistakes during the installation and as a result possible damage to the gate, resulting from improper approach to the installation, and therefore, not covered by warranty protection.

AK series doors are two-apron rolled fire gates, characterized by a construction significantly different from the construction of typical industrial gates, so it is necessary to take a different approach to their installation than is the case with other types of gates.

Before installation, read the detailed drawings provided with the gate, which will show the basic dimensions that must be taken into account when installing the gate. Due to the diversity of gate installation conditions, resulting from the condition of the place of installation and the dimensions of the opening to be closed each time individually, it is necessary to plan the sequence of actions at each stage of work.

Figures 1 - 5 (with variants) show CERTAIN, THE MOST OFTEN encountered variants of gates and building conditions. It should be noted that these are NOT ALL possible building conditions that can be encountered, but the methodology is generally analogous regardless of whether it is a gate with one or two tubular drives, or an external drive, or a gate with concurrent or backward shafts.

Figures 6 - 7 show the basic versions of a set of shafts and consoles for gates with tubular drives, in the version with single (up to 9m^2 of the gate passage area) or double (up to 28m^2 of the gate passage area) tubular drive and backward shafts. For gates of significant height (above 4.75 m) and for gates of dimensions above 28m^2 the passage area, a concurrent system of shafts is used, because of too large winding diameter of individual aprons, for which installation is carried out analogically, the difference is only in the housing of the cassette enclosing the shafts with fire-resistant panels. Figure 8 shows a set of shafts for a gate equipped with an external motor from which torque is transmitted to the shaft by means of a chain transmission. Usually, shafts in such gate are concurrent, synchronized with each other by a chain transmission, less often backward, mounted on both sides of the lintel, driven by two mechanically independent motors.

The proper installation manual is limited to the basic, most common types of installation - the front installation on one side of the lintel and the ceiling installation of gates equipped with tubular motors. For doors with external motors, the shaft cage is usually assembled as a whole in the factory, so a few steps of this manual can be omitted.

It should also be noted that in the case of gates with unusual dimensions, the dimensions of the housing may change, and thus, the size of panels - this also makes it necessary to familiarize yourself with the design of the gate before starting the installation.

Part 2

GATE INSTALLATION

1. Dimensional control of the gate opening.

The installation should be started by checking the dimensions of the opening. The drawing "MANUAL, fig. 1" shows a typical opening diagram for the most common arrangement, i.e. front installation for a high lintel, in which both guides and consoles, as well as the entire gate shaft housing, are mounted directly on the mounting surface and there is a free space on each side.

2. Installing the gate shafts in the consoles.

The first step in the proper installation of the gate is to assemble the consoles together with gate shafts.

Use the drawings provided with the gate to determine on which side the drive(s) is intended and, when partially unpacking the shaft ends, to determine the winding directions of aprons on individual shafts. At this point you can insert the supplied steel rods with a diameter of 10 mm into the pockets on the lower edges of the gate aprons. **In some cases, it may not be possible to install these rods in a gate already mounted on the wall due to lack of space on the sides. However, if this operation is omitted / missed earlier and during installation, due to lack of space on the sides, it is not possible to install the rods, do not bend the rods and force them into place. Cut them into shorter sections and insert them into the lower edge of the apron in such sections.**

Once determined, mount the wound shafts in consoles in the correct position. During installation, use Figures 6, 6a, 7 and 7a of the introduction to this manual, depending on the type of drive - 1 or 2 tubular motors. For gates with a single tubular motor, it is recommended that the motor is on the outer shaft. For single-engine gates, it should also be noted that for ceiling or tunnel mounted gates, it is better to install the reversing gears in the lower mounting slot (below the shafts), in other gates, it is indifferent whether the reversing gears will be in the lower or upper position, although in the upper position there is better access to the screws fixing the wheel base.

Observe the position of the limit switch adjusting screws when mounting the drives to consoles. For standard gates with access from the top, the recommended screw position is the top position, for ceiling-mounted gates, the limit switch adjustment screws should point downwards. After determining the direction of motor installation, in the console near the output of the power supply and control cable, drill a hole of a min. diameter of 16 mm, allowing the cable to be led outside. In the case of safety bearings, if the control system is equipped with an input for a safety bearing (CEMAP controls used in the French market and SKALMEX SCP-03 DO NOT HAVE this input!), a hole of approx. 8 mm in diameter must be drilled in the console at the exit of the cable from the brake in order to lead it outside. For CEMAP or SCP-03 controls, this opening is unnecessary; the cable can be removed by removing the microswitch from the brake, or simply cutting it off to avoid accidental screwing into the door apron.

3. Installing the gate shaft cage.

The next stage of the gate installation is the installation of a shaft cage, which will fix the gate shafts in a specific position and will constitute a steel frame for the installation of the shaft housing with fire-resistant panels. This is best done on the ground by positioning the consoles at a suitable spacing, e.g. on pallets.

The first step is to determine the console spacing, which is 260 mm larger than the guide spacing. However, in order to avoid any difficulties at a later stage of the installation, it is recommended to

increase this spacing by 5 mm. After determining the exact spacing of the consoles and making sure that they are parallel to each other, they should be fastened together with 40x40x4 mm (or 30x30x3 mm) angles supplied with the gate. It is recommended to screw the consoles with angles with self-drilling screws or weld them together.

The arrangement of angles differs depending on the type of shaft cassette installation - different for front mounting, different for ceiling mounting - see drawing "MANUAL, fig. 2". The above picture also shows how to mount 60x4 mm flat bars, which are attached at the ends of the cage to the consoles, between the angles. These flat bars are supplied slightly longer and must be cut to size.

Symmetrically, a third angle should be attached under the flat bars to form the upper attachment of the inner partition of the cassette enclosing shafts.

4. Installation of consoles and shaft cages at the target location.

ATTENTION! IN CASE OF A GATE MOUNTED TO THE CEILING, DRILL 4 HOLES WITH $\varnothing$ 12.5mm AT THE CORNERS OF THE SHAFT CASSETTES, WHICH WILL CONSTITUTE HOLES FOR INSTALLING THE CASSETTE TO THE CEILING WITH FOUR M10x120mm ... M12x160 mm ANCHORS OR APPROPRIATE BOLTS (depending on the mounting type, gate weight and this - type of anchors or bolts, with which the gate will be delivered to the construction site. IN CASE OF A GATE MOUNTED TO THE CEILING ON THE UPPER SHELVES OF THE UPPER ANGLES, WHICH AFTER MOUNTING WILL BE ADJACENT TO THE CEILING, DRILL AT INTERVALS OF NO MORE THAN 500mm 3 ROWS OF HOLES $\varnothing$ 10.5MM THROUGH WHICH THE ANGLE WILL BE FIXED TO THE WALL BY MEANS OF FRAME ANCHORS 10/72MM, SUPPLIED WITH THE GATE.

IN CASE OF A FRON-MOUNTED GATE ON THE VERTICAL SHELF OF THE UPPER ANGLE, WHICH WILL BE ADJACENT TO THE WALL, DRILL AT INTERVALS OF NO MORE THAN 500mm A ROW OF HOLES $\varnothing$ 10.5MM THROUGH WHICH THE ANGLE WILL BE FIXED TO THE WALL BY MEANS OF FRAME ANCHORS 10/72MM, SUPPLIED WITH THE GATE. IN THIS CASE THE CONSOLES ARE MOUNTED WITH ANCHORS / SCREWS TO THE LINTEL / MOUNTING WALL USING THE FACTORY ELLIPTICAL MOUNTING HOLES.

Before mounting the consoles, it is absolutely necessary to determine their height - the lower edge of the consoles must be at a height minimally greater than the height of the base of the guides (recommended clearance is about 5mm), see "MANUAL, Fig. 4", "MANUAL, Fig. 4a", "MANUAL, Fig. 4b".

5. Extension of door blades, pre-setting of limit switches.

At this stage of installation, the gate blades should be unwound to allow for a final check on the correct configuration of the shafts relative to each other and to check the condition of aprons after transport (see "MANUAL, Fig. 5", "MANUAL, Fig. 5a").

Before unpacking the shafts from foil and cardboard packaging, in gates with tubular drive(s), the gate drive(s) must be connected to the control panel, thus preventing their uncontrolled gravitational unwinding after removing the packaging.

The connection of the drives is described in detail in the electrical part of the installation manual, so it will be omitted in this part of the manual.

For a gate with one tubular drive, it is essential to ensure that the reversing gear is well assembled and that all gears are properly toothed and fixed to the shaft axes (larger gears) and console (a pair of smaller gears) before removing the shaft packaging.

For gates with external drive, suitable chain wheels must be fitted to the shaft axes, the electric drive of the gate must be mounted in the correct position on the wall or ceiling and the tension of the drive chains must be checked.

After the preparatory work has been completed and drives have been connected to the control panel, the gate must be unwound to the floor. The upper and lower limit switches must be pre-set at this stage. For gates with tubular drives this is an absolute requirement - after even a partial shaft installation, access to the limit switches will be very difficult or even impossible.

In the case of tubular drives, the best access to the limit switches is when the gate blades are unwound and the switches should be adjusted in this position. It is recommended to first determine the position of the bottom limit switch, extending it by a few cm in relation to the unwinding of the freely hanging blade to the floor level - after installing the guides, due to the different angle of leading the apron, the bottom end of the blade will rise. Once the bottom position has been set, it is recommended to shorten the top end and lift the gate until it reaches the top position or turns off at the limit switch. When lifting, observe the gate to prevent it from being lifted too much if the limit switch is too long. The blades should then be lowered to the bottom again and the limit switch should be shortened or extended as needed. Repeat this operation until the top position of both aprons is reached.

ATTENTION! WHEN ADJUSTING LIMIT SWITCHES, AS WELL AS DURING NORMAL OPERATION OF GATES EQUIPPED WITH FIRE TUBULAR MOTORS, AVOID EXCESSIVE UP-DOWN TRAVEL. IF THE GATE IS OPERATED FOR MORE THAN 2 MINUTES, THE THERMAL SWITCH MAY OVERHEAT, CAUSING THE 24VDC BRAKE ON THE MOTOR TO DISENGAGE AND THE GATE TO DROP. IT CAN BE RAISED AGAIN ONLY AFTER THE ENGINE HAS COOLED DOWN, WHICH CAN TAKE ABOUT 20-30 MINUTES.

For gates with two mechanically independent drives, the position of limit switches is determined independently for each shaft / drive separately, for gates with synchronized shafts (gates with one tubular drive or with one external drive that drives both shafts simultaneously) it is not possible to do so, therefore after the blades are fully unwound, the positions of both shafts must also be checked and established with respect to each other. For this purpose, after unwinding the blades, open the synchronizing gearbox (a pair of gears for tubular-drive gates or a shaft clamping chain for externally driven gates), establish the position of the shafts with respect to each other (e.g. by aligning the positions of the apron mounting strips on both shafts) and reinstall the synchronizing gearbox.

6. Installing the bottom strips on the door blades.

After determining the initial position of the limit switches, the lower edges of both door blades should be fitted with bottom strips which load the lower edges of the gate aprons and allow for gravitational closing of the gate in case of fire hazard detection.

The first thing is to determine the mutual position of both strips. It is generally assumed that the strips are to be turned against each other by screws, in the case of gates intended for the French market equipped with spiral cables of edge safety strips hidden inside the strip guides should be turned inwards by tubes leading the cables to the inside of the guide. Please note that these tubes, due to the

alternating cable arrangement, are placed at opposite ends of both strips (see "MANUAL, fig. 6", "MANUAL, fig. 6a", "MANUAL, fig. 6b", "MANUAL, fig. 6c", "MANUAL, fig. 6d").

For the installation of the bottom strips, remove them - remove the outer part by unscrewing all the fixing screws and remove the slides ("MANUAL, fig. 6d"). The bottom strip should be placed SYMMETRICALLY on the bottom edge of the apron, then the slides should be mounted, which after mounting **MUST CLAMPS THE BOTTOM EDGE OF THE GATE APRON (to be placed on the door apron on both sides)**, the screws fixing the slide rollers must go through the gate apron during installation. This will prevent the corners of the gate apron from collapsing during operation, thus preventing the gate from blocking in the guides.

For front-mounted gates, it is recommended that at this stage only the blade strip is installed finally on the side visible from the mounting side (the blade more distant from the wall), install slides on the blade closer to the wall finished, but the strip itself is installed only after the seal is installed on the wall. ATTENTION! This is not a requirement, but only a recommendation to make it easier to slide the apron down after mounting the sealing of the bottom of the shaft housing on the wall.

In case of gates equipped with bottom edge security strips, after installing the bottom apron strips, it is possible (although this is actually possible at each subsequent stage of gate installation) to install glued security strips by cutting them to the length of the bottom strip of the gate blade (60 mm less than the guide spacing) and gluing them in the axis of the strip along its entire length ("MANUAL, fig. 6e"). On the side of the spiral cable outlet, the end of the cable should be connected to the security strip, which should be connected to the spiral cable, on the opposite side there should be connected the end, which is the control resistor of the strip status.

7. Installing the gate guides.

After the installation of the bottom strips has been completed according to the guidelines in the previous point, it is time to install the gate guides. Depending on the individual installation conditions, guides can be mounted to the front of the mounting wall, or to the sides (see "INTRODUCTION, fig.1b", "INTRODUCTION, fig.2b", "INTRODUCTION, fig.3b", "INTRODUCTION, fig.4b").

In the case of front-mounted guides ("MANUAL, fig. 7", "MANUAL, fig. 7a", for gates intended for the French market "MANUAL, fig. 8", "MANUAL, fig. 8a") remove the inner guide adjustable strips on the element near the mounting wall, then INITIALLY place both guides against the wall, taking into account their PERPENDICULARITY, MUTUAL PARALLELISM and SPACING. Once their exact position has been determined, mark on the wall the position of all holes fixing them to the wall - the guide must be FIRMLY mounted, the maximum spacing of the mounting anchors is 500 mm!

After removing the guides from the wall, drill holes to the appropriate depth - after inserting the anchors into the wall, they should protrude about 15 mm.

Then reinsert the guide rails into place and tighten them accordingly. If, after tightening, the anchors protrude too much above the nut, their excess should be cut off (it is permissible to 10 mm above the nut edge, approx. 5-6 mm is recommended) with an angle grinder.

After fixing the guides to the wall, their perpendicularity to the plane of the mounting wall should be determined and after checking the distance between the guides of both aprons, the guides should be anchored to the floor by means of M10 anchors, located in the places provided for this purpose in the lower part inside the profile reinforcing the guide.

The last point is the re-installation of the internal adjustable strips of the pair of guides, mounted on the wall and their LIGHT screwing.

At this point, tightening them is pointless, as the guides will still have adjustable gap widths where the edges of the apron will move.

In the case of gates equipped with side mounted guides, the matter is simpler - the guides are set at the place of their installation, if there is a gap between the guide and the mounting wall (usually the gates to be installed between the walls or in full tunnel installation are manufactured with an installation clearance of 10...20 mm in relation to the nominal dimensions given by the Customer for easier installation), it can be filled with a fireproof plate, a plaster-cardboard panel or non-flammable, non-deformable washers, which will prevent the guides from spreading when tightening the screws.

Any gaps left after the gate has been installed must be filled with a non-flammable mass intended for this purpose. In case of any doubts, please contact the technical department of NGR Technologie Sp. z o.o. in order to solve them and choose the best option for correct gate installation.

8. Mounting the bottom sealing of the shaft cassette on the wall *(only applicable for gates mounted in openings with lintel)*

After the initial determination of the gap in the guide mounted on the wall (approx. 14 mm), the sealing of the shaft cassette must be mounted on the wall at a height from the top edge of the guide.

For this purpose, drill a row of Ø10.5 mm holes in the axis of one of the 3 identical sealing strips at a distance of NOT MORE than 500 mm, then deepen them into a cone to hide the head of the anchor in the thickness of the profile - when drilling, adjust the heads of the anchor to the drilled holes - the hole must be large enough to allow the head of the anchor to penetrate, but not be pulled through.

After drilling the appropriate holes, the distance between the profile and the wall must be determined. The surface of the profile should be aligned with the corresponding adjustable profile of the guide. Insert 68 mm wide fire protection plate stripes under the profile - as a rule, ONE 20 (18) mm plus 1 10 mm thick layer is sufficient. After filling the space under the profile with a panel, drill the entire panel with the wall in the locations of holes already drilled in the profile, hammer in the anchors and tighten the strip.

It is recommended to first drill 2 outermost holes to determine the position of the sealing strip, fix the strip at these points, then drill all other holes.

After fixing the strip on the wall it should be degreased and in the groove running along its entire length a swelling gasket should be applied, which should cover the heads of the anchors with which the strip is mounted.

After installing the seals of the shaft cassette on the wall, the gate can be lowered slightly and the door apron strip can be installed from the wall side to finish.

9. Installing the lower and front seals of the shaft cassette.

In the case of a gate mounted in an opening with a lintel, the next stage is to install the remaining 3 shaft cassette seals - two internal ones, mounted between the gate aprons, and one external one at the external edge of the bottom of the housing. For ceiling-mounted gates without lintel, there are 2 internal seals between the gate aprons and 2 external seals (see "MANUAL, fig. 10", "MANUAL, fig. 10a").

In order to install the seals, FIRST they should be degreased and the swelling gaskets should be glued into them on the planes which will be in contact with the surfaces of gate aprons in the grooves designated for this purpose.

Then, after the final determination of the size of gaps in the guides AND TIGHTENING the adjustable guide profiles, insert the profiles between the guides in their upper part and screw them together with the guides. The seal profiles must be absolutely aligned with the analogous surfaces of the adjustable guide profiles. After installing the seals between aprons, the external seals are installed in an analogous way (one for gates mounted in openings with lintel and two for those mounted in openings without lintel). Due to the type of gate installation in the tunnel (installation without lintel with or without break jambs), both external seals may differ slightly or be identical.

Note! The seal spacing for each individual apron should also be approx. 14 mm.

10. Installing the bottom housing of the shaft cassette.

ATTENTION! FOR CEILING-MOUNTED GATES, BEFORE THE INSTALLATION OF THE BOTTOM HOUSING, THE LIMIT SWITCHES AVAILABLE FROM BELOW MUST BE FINALLY ADJUSTED! ONCE THE HOUSING IS INSTALLED, IT WILL NOT BE POSSIBLE TO ACCESS THEM.

The easiest way to install the lower shaft housing is to insert 490 mm wide panels (390 mm for gates with a slimmed cassette) in the middle of the opening and then move them to the sides ("MANUAL, fig. 11", "MANUAL, fig. 11a").

Before inserting the panels, an angle of 40x40x4 mm or 30x30x3 mm (depending on what was supplied with the gate) should be inserted into the cassette from the bottom, cut to a length of approx. 90...100 mm larger than the spacing of the guides. It will be the fixing element for the inner cassette partition (partition between shafts).

The installation procedure should be as follows: after inserting 2 layers (for AK60 gates intended for the Polish market - 1 layer!) of 490 mm wide fireproof panel (390 mm for gates with a slimmed cassette) and extending it to the sides in the middle of the width, the panel should be screwed with an angle, which is to be the bottom fixing element for the internal partition of the cassette. The boards should be screwed to the angle using self-drilling screws with a spacing of no more than 300 mm.

For gates mounted to the ceiling, an internal partition should be installed together with bottom housing panels (in the case of front mounting, when there is access to the inside of the shaft cassette from above, it can be installed at a later stage of assembly). When installing the inner partition from below, it is also recommended to install the side panels first, then the inner panels. The last one is cut to the missing length. When installing the bottom housing together with the internal partition, it is recommended to screw the panels to the angle, which is the bottom fixing element for the internal partition of the cassette, in such a way that self-drilling screws, after penetrating the angle, drill into the side (here - bottom) edge of the panel, while fixing it into place. The height of the standard internal partition is 340 mm. In the case of standard AK60 gates, offered only on the Polish market, due to the single bottom housing of the shaft cassette, the partition is 20 mm higher and has a height of 360 mm.

ATTENTION! ALL PANELS CONSTITUTING THE HOUSING OF BOTH THE SHAFT AND THE GUIDES MUST BE SCREWED TO THE STRUCTURE / STEEL GRID AT INTERVALS OF NO MORE THAN 300 mm, THE PANELS INSTALLED INDIVIDUALLY (OR IN CASE OF INSTALLATION OF 2 LAYERS - THE FIRST LAYER) ARE TO BE INSTALLED WITH 5.5X50 mm SCREWS, THE SECOND LAYER OF PANELS IS ALWAYS TO BE INSTALLED WITH LONGER SCREWS - MIN. 6.3x60mm. Conical screw heads are to be hidden in plates after tightening.

11. Installing the internal partition of the shaft cassette.

If this was not done during the installation of the lower housing of the shaft cassette, the next stage of the installation is to install the internal partition between the shafts. If this is not possible for ceiling-mounted gates, for front-mounted gates with sufficient space, the internal partition can be conveniently installed from above ("MANUAL, fig. 12", "MANUAL, fig. 12a").

As mentioned above, the standard internal partition height is 340 mm. In the case of standard AK60 gates, offered only on the Polish market, due to the single bottom housing of the shaft cassette, the partition is 20 mm higher and has a height of 360 mm. When mounting the internal partition, it should be fixed to the angles inside the housing, constituting the upper and lower fixing element for the internal partition of the cassette, in such a way that self-drilling screws, after puncturing the angle, drill into the correspondingly top and bottom edge of the plate, effectively fixing it inside the housing. The partition fastening screws are to be arranged in a row at intervals of no more than 300 mm.

The internal partition should be made from the console to the console. At the ends of the plate, the partitions should be slightly undercut to slide the partition all the way to the end (a notch for the shelf in the bottom part of the console may be made).

12. Installing the front housing of the shaft cassette.

After installing the internal partition, the next step is to install the two-layer front housing. In case of a gate mounted to the lintel, in which additional housing of the top of the shaft cassette is planned, the panels of the first layer are 20 mm lower than the panels of the second layer (400 and 420 mm respectively), in case of installation of the first and second layer under the ceiling, they are exactly the same height - in case of standard AK gates, these are panels of 380 mm height ("MANUAL, fig. 13").

It should also be noted that in the lower part of the external seal, two fire-proof layers (strips) with a width (in the figure - height) of 65 mm must be added.

THE FIRST LAYER SHOULD BE MOUNTED WITH 5.5X50 mm SCREWS, THE SECOND LAYER WITH LONGER SCREWS - MIN. 6.3x60mm. Conical screw heads are to be hidden in plates after tightening. THE SECOND LAYER IN RELATION TO THE FIRST SHOULD BE SHIFTED IN SUCH A WAY THAT THE PLACES OF JOINING THE FIRST AND SECOND LAYER PANELS DO NOT OVERLAP. THE EASIEST WAY TO ACHIEVE THIS IS TO, FOR EXAMPLE BY INSTALLING THE FIRST LAYER OF PLATES ON THE LEFT SIDE, CUTTING THE LAST ONE TO SIZE, AND THE SECOND ONE ON THE RIGHT SIDE.

ATTENTION! THE SIDE EDGES OF THE FINISHED HOUSING MUST COINCIDE WITH THE SIDE EDGES OF THE CONSOLES.

13. Installing the top housing of the shaft cassette *(only applicable for front-mounted gates in openings with high lintel, where the top housing of the shaft cassette is intended).*

ATTENTION! BEFORE PROCEEDING TO THE INSTALLATION OF THE TOP HOUSING, THE LIMIT SWITCHES AVAILABLE FOR THIS TYPE OF GATES MUST BE ULTIMATELY ADJUSTED! ONCE THE HOUSING IS INSTALLED, IT WILL NOT BE POSSIBLE TO ACCESS THEM.

The installation of the shaft top housing must be carried out in the same way as the installation of the previous housing components, as shown in figure "MANUAL, fig. 14".

The plates should be mounted to all three parallel angles, running across the entire width of the shaft housing in 3 rows, with individual screws spaced no more than 300 mm apart, while observing all the basic rules applicable during the assembly of the gate housing.

SIMILARLY, AS IN THE PREVIOUS STAGES OF THE ASSEMBLY OF TWO LAYERS OF HOUSING PLATES, THE FIRST LAYER IS TO BE ASSEMBLED WITH 5.5X50MM SCREWS, THE SECOND LAYER WITH LONGER SCREWS - MIN. 6.3x60mm. Conical screw heads are to be hidden in plates after tightening. THE SECOND LAYER IN RELATION TO THE FIRST SHOULD BE SHIFTED IN SUCH A WAY THAT THE PLACES OF JOINING THE FIRST AND SECOND LAYER PANELS DO NOT OVERLAP. THE EASIEST WAY TO ACHIEVE THIS IS TO, FOR EXAMPLE BY INSTALLING THE FIRST LAYER OF PLATES ON THE LEFT SIDE, CUTTING THE LAST ONE TO SIZE, AND THE SECOND ONE ON THE RIGHT SIDE.

ATTENTION! THE SIDE EDGES OF THE FINISHED TOP HOUSING MUST BE ALIGNED WITH THE SIDE EDGES OF THE CONSOLES AND THE SIDE EDGES OF THE FRONT HOUSING.

14. Installing the side housing of the shaft cassette *(applies only to front-mounted gates, in which there is a possibility and sense of their installation - in tunnel-mounted gates these plates do not exist, front housing and, possibly, top housing - are provided there from wall to wall).*

The installation of the side housing of the shaft cassette is limited to screwing directly to the sides of the consoles of the appropriate size of the panels in the same way as the installation of the previous components, as shown in the figure "MANUAL, fig. 15".

Side housing consists of two layers of panels of identical dimensions, which are delivered with the gate cut to length.

ATTENTION! In the case of AK60 gates, sold on the Polish market, the side housing of the consoles has ONE LAYER.

During assembly, remember to screw the panels as close as possible to the edges of the panels and consoles and along the line of the internal partition between the shafts, which will prevent the possibility of tearing the edges of the apron by possible sharp ends of screws, which will remain inside the housing after assembly. The maximum distance between the screws fixing the housing, as in all previous cases, is 300 mm.

ATTENTION! THE SIDE EDGES OF THE SIDE HOUSING MUST BE ALIGNED WITH THE FRONT HOUSING PANELS (AND TOP HOUSING - IN THE CASE OF A GATE WITH A TOP HOUSING).

15. Installing the housing of gate guides.

The last stage of the mechanical installation of the gate is the assembly of the guide housing. The installation of the guide housing depends on many factors, e.g. the gate version and the individual conditions of installation, therefore figures "MANUAL, fig. 16", "MANUAL, fig. 16a", "MANUAL, fig. 16b", "MANUAL, fig. 16c" and "MANUAL, fig. 17", "MANUAL, fig. 17a", "MANUAL, fig. 17b", "MANUAL, fig. 17c", present the most common types of guide housings and the most suitable ways of their installation.

Generally, with the exception of the plate mounted on the inner surface of the guide, between aprons, the guide housing has two layers. The only exception is, as in the case of some points of shaft cassette housing, the external housing of AK60 gates, intended for the Polish market, in which the external housing has one layer. In all other cases, the external housing of the guides has TWO LAYERS.

The housing plates should be mounted to elements of steel guides in vertical rows, with individual screws spaced no more than 300 mm apart, while observing all the basic rules applicable during the assembly of the gate housing.

SIMILARLY, AS IN THE PREVIOUS STAGES OF THE ASSEMBLY OF TWO LAYERS OF HOUSING PLATES, THE FIRST LAYER IS TO BE ASSEMBLED WITH 5.5X50MM SCREWS, THE SECOND LAYER WITH LONGER SCREWS - MIN. 6.3x60mm. Conical screw heads are to be hidden in plates after tightening. THE SECOND LAYER IN RELATION TO THE FIRST SHOULD BE SHIFTED IN SUCH A WAY THAT THE PLACES OF JOINING THE FIRST AND SECOND LAYER PANELS DO NOT OVERLAP. THE EASIEST WAY TO ACHIEVE THIS IS TO, FOR EXAMPLE BY INSTALLING THE FIRST LAYER OF PLATES FROM THE BOTTOM TO THE TOP, CUTTING THE LAST ONE TO SIZE, AND THE SECOND ONE FROM THE TOP TO THE BOTTOM.

ATTENTION! IN CASE OF INSTALLATION OF THE GUIDE HOUSING, SIMILARLY AS DURING INSTALLATION OF ANY ELEMENT OF THE GATE EQUIPMENT OR ANY ADDITIONAL ELEMENT OF THE GATE STRUCTURE (HOUSING OR GUIDES), IT IS ESSENTIAL TO STUDY THE FIGURES "MANUAL, FIG. 16A", "MANUAL, FIG. 16B", "MANUAL, FIG. 16C" AND "MANUAL, FIG. 17A", "MANUAL, FIG. 17B", "MANUAL, FIG. 17C", ESPECIALLY WITH REGARD TO THE ARRANGEMENT OF SCREWS FIXING THE PLATES TO THE STEEL ELEMENTS OF THE GUIDES - IT IS NECESSARY TO BEAR IN MIND THAT THE SCREWS SHOULD BE ARRANGED IN SUCH A WAY THAT THEY DO NOT HOOK UP WITH THE MOVING ELEMENTS OF THE GATE DURING ITS OPERATION. IT CONCERNS BOTH THE INTERIOR OF INDIVIDUAL GUIDES IN WHICH THE SLIDES MOVE AND THE EDGES OF THE GATE APRON WITH ROLLERS, AND, IN THE CASE OF GATES INTENDED FOR THE FRENCH MARKET, WITH RETRACTABLE CONTACT SPIRAL CABLES OF EDGE SAFETY STRIPS - THE INTERIOR OF GUIDES IN WHICH THE SPIRAL CABLES MOVE - THE SCREWS SHOULD BE USED IN PLACES THAT MAXIMALLY LIMIT THE POSSIBILITY OF THE CABLE CATCHING ON THE PROTRUDING SHARP END OF THE SCREW.