



AKSÖZ LIFT

*PROGRESSIVE SAFETY GEAR (BI-
DIRECTIONAL) INSTALLATION AND
MAINTENANCE MANUAL*

ALY02

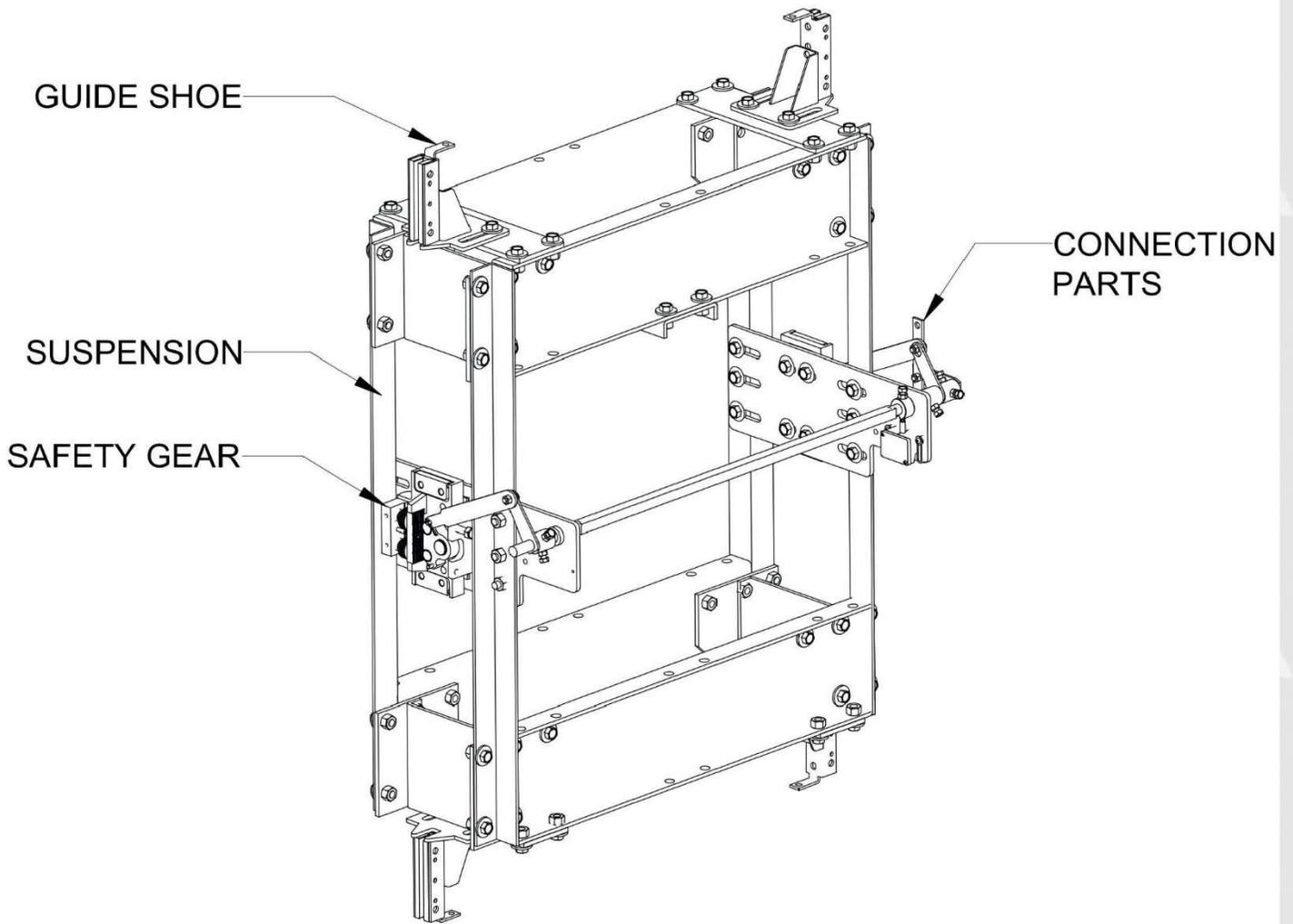


CONTENTS OF THE BOX

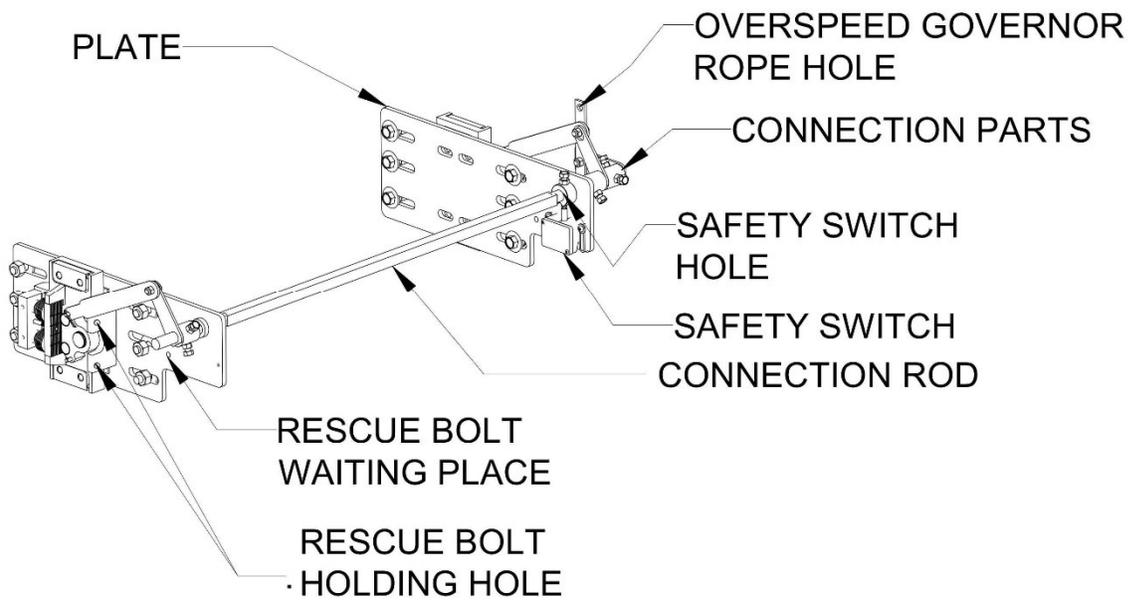
Safety Gear Body				2 Set
Safety Gear Connecting Arm				2 Set
Overspeed Governor Rope Arm				1 Set
Switch				1 Pcs.
Rope Clemens				2 Pcs.
Rescue Bolts M10x50				2 Pcs.
Switch Connecting Axle				1 Pcs.
M12x30 Bolt	With connection plate 9 mm	With connection plate 16 mm	12 Pcs.	12 Pcs.
M12 Fiber Nut	With platform 9 mm	With platform 16 mm	16 Pcs.	20 Pcs.
M12 Fiber Nut	With connection plate 9 mm	With connection plate 16 mm	12 Pcs.	12 Pcs.
M12 Fiber Nut	With platform 9 mm	With platform 16 mm	16 Pcs.	20 Pcs.

Box weight : 22 kg

Box dimension: 47x28x26 cm



SAFETY GEAR SUSPENSION FIGURE



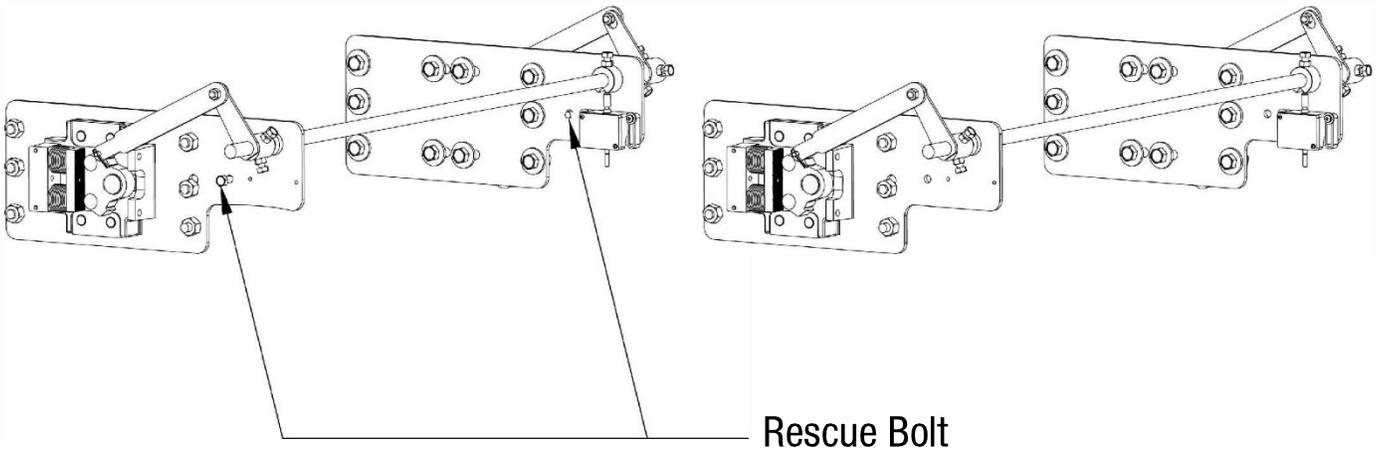


MUST DO BEFORE MONTAGE

1- RESCUE BOLT

You could find 2 Pcs rescue bolts for used after brake in the box.
(Allen key heat M10x50)

Rescue bolts must be based on connecting plate and not to be used before brake.



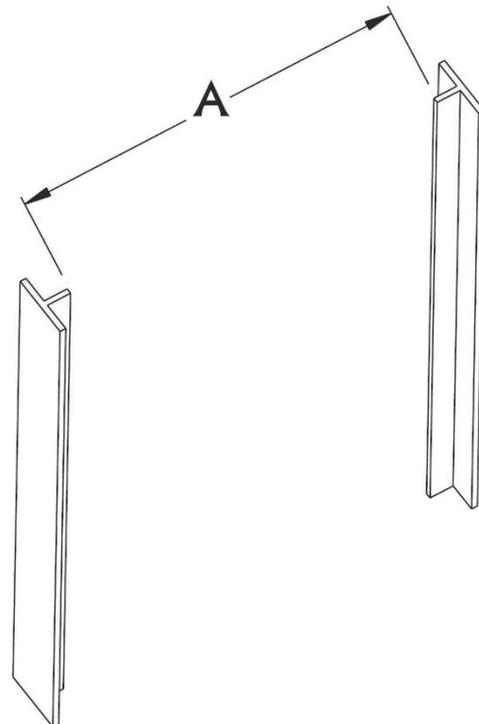
2- SAFETY GEAR CONNECTING AXLE DIMENSION CALCULATION

You should add 14 cm to distance between the guide rails.

For example:

The distance between guide rails is 150 cm (A)

$A + 14 \text{ cm} = \text{Axle dimension that}$
 $150 + 14 = 164 \text{ cm}$



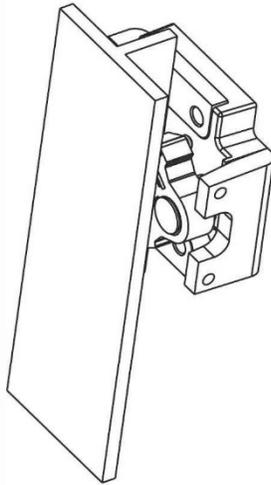


ASSEMBLY

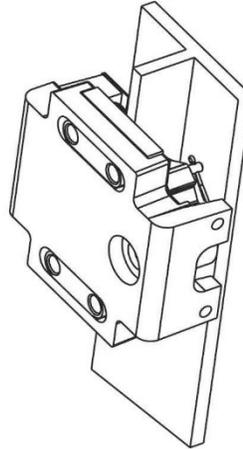
1- SAFETY GEAR DIRECTION OPTIONS

You could connect the safety gear to overspeed governor and use left - right or up - down positions.

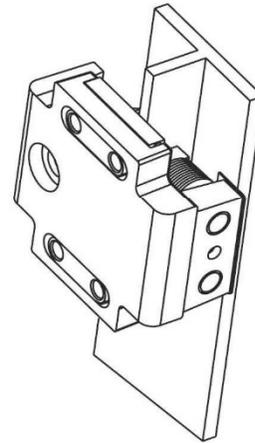
LEFT DOWN



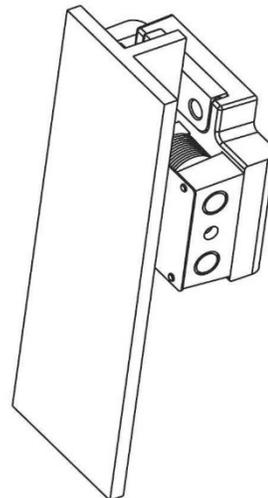
RIGHT DOWN



RIGHT UP



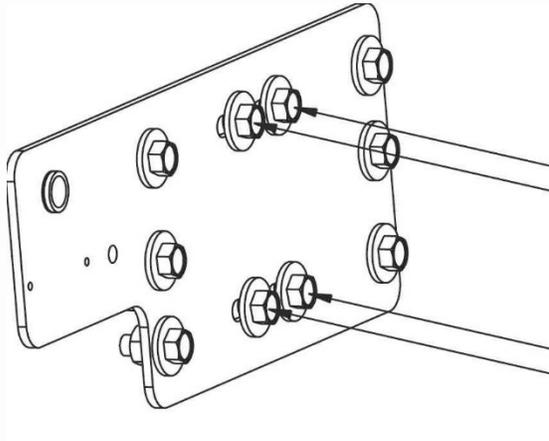
LEFT UP





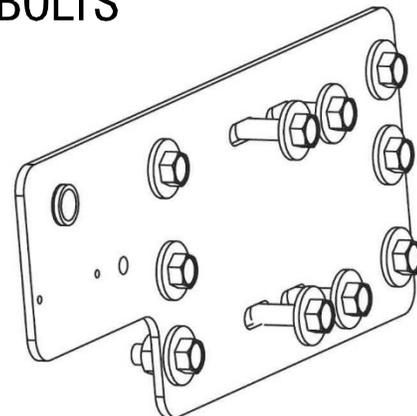
2- THE SENSITIVE ADJUSTMENT ON SUSPENSION

You could find the safety gear in the box as ready and connected to plate. After connect to suspension you could adjust sensitivity by sensitive adjustment bolts.



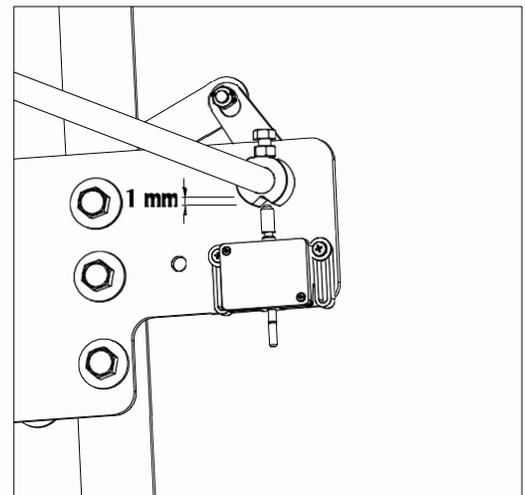
**SENSITIVE ADJUSTMENT BOLTS
(4 PCS)**

Loose the bolts and move the safety gear body to left and right for sensitive adjustment



3- SWITCH ADJUSTMENT

The distance between the switch groove and switch pin must be 1 mm.

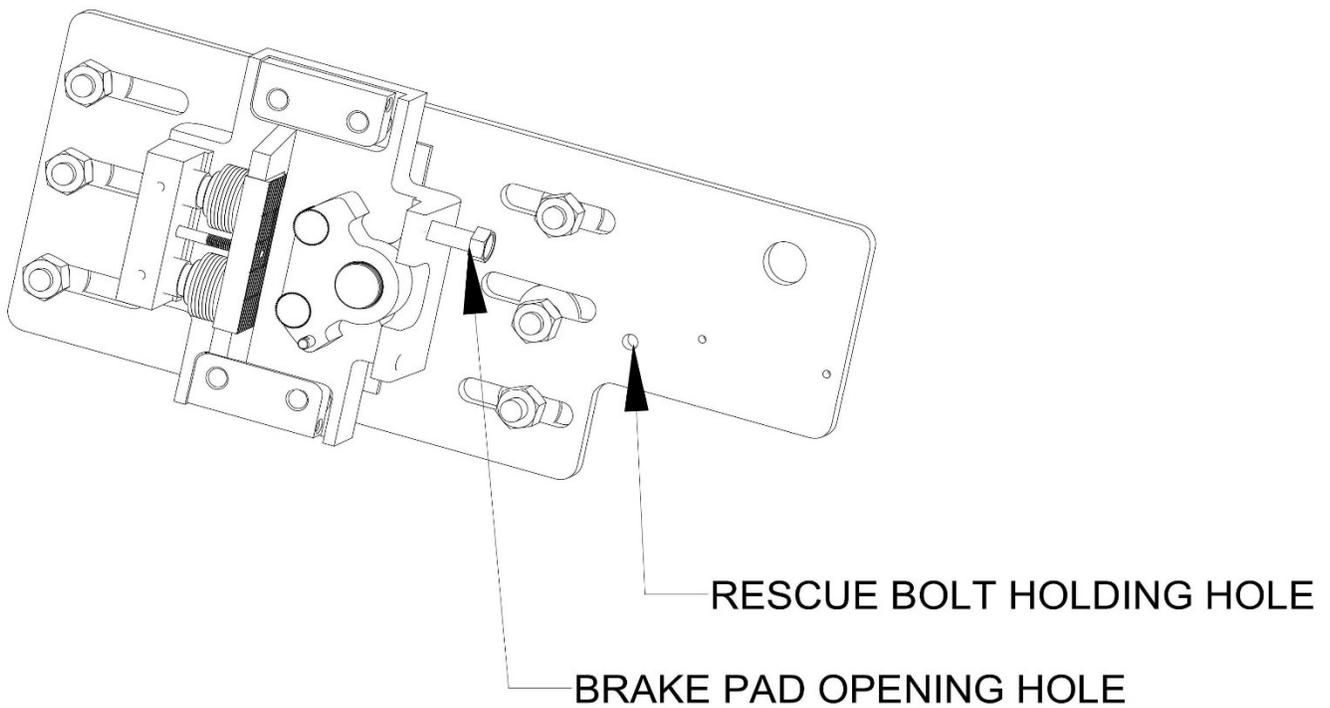




MUST DO WHILE BREAKING

1- RESCUE BOLT ADJUSTMENT

Remove the rescue bolt from the place on metal plate and put into the hole and push the brake pad and tighten hard by allen key no.8, see the drawing below.



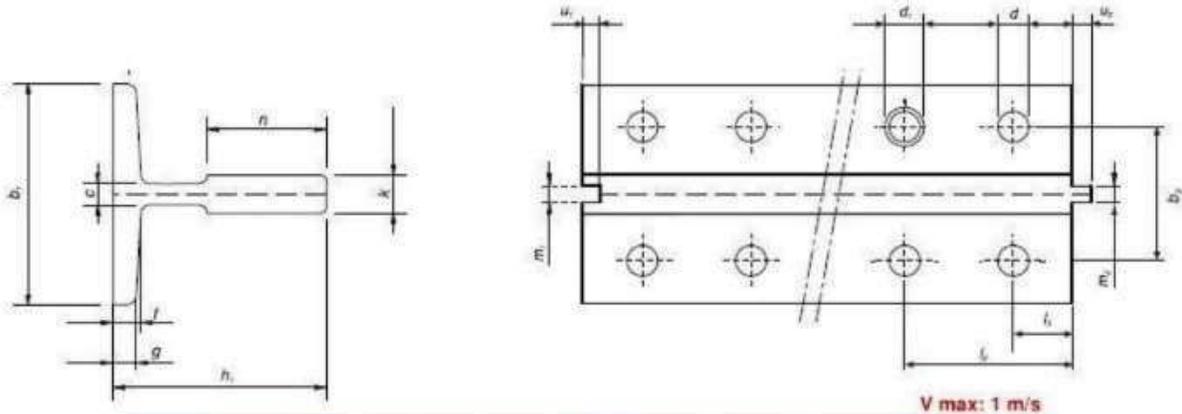


TYPE	RAIL THICKNESS	MIN LOAD (P+Q) (kg)	LOAD (P+Q) (kg)	NOMINAL SPEED (m/s)	MAX TRIPPING SPEED (m/s)	LUBRICATION OIL FOR RAIL	WEIGHT (kg)
ALY02	ISO 7465 COLD DRAWN & MACHINED RAIL 9 mm	600	1450	2.00	2.55	DIN 51524 (HLP 32 or HLP 46)	10
	1600		1.60				
	1800		1.20				
	2120	1.00					
	2300	0.80					
	2525	0.63					
	ISO 7465 COLD DRAWN & MACHINED RAIL 10 mm	600	1475	2.00	2.55	DIN 51524 (HLP 32 or HLP 46)	10
	1720		1.60				
	1900		1.20				
	2180	1.00					
	2350	0.80					
	2610	0.63					
	ISO 7465 COLD DRAWN & MACHINED RAIL 16 mm	600	1850	2.00	2.55	DIN 51524 (HLP 32 or HLP 46)	10
	1960		1.60				
	2120		1.20				
	2360	1.00					
	2680	0.80					
	2870	0.63					



GUIDE RAILS

COLD DRAWN GUIDE RAILS / SOĞUK ÇEKİLMİŞ RAYLAR

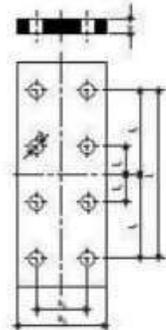


Counterweight guide's physical dimensions / Karşı ağırlık rayı fiziksel ölçüler (mm)								
TS ISO 7465 Mart 2011	b ₁	h ₁	k	p	m ₁	m ₂	u ₁	u ₂
	Tolerances / Toleranslar							
	±1	±0,2	±0,15	±0,5	+0,06 0	0 -0,06	±0,1	±0,1
T50/A	50	50	5	5	2	1,95	2,5	2

Physical dimensions / Fiziksel ölçüler (mm)											
TS ISO 7465 Mart 2011	b ₁	h ₁	k	n	c	f	g	m ₁	m ₂	u ₁	u ₂
	Tolerances / Toleranslar										
	±1,5	±0,1	+0,1 0	+3 0	-	±0,75	±0,75	+0,06 0	0 -0,06	±0,1	±0,1
T70/A	70	65	9	34	6	8	6	3	2,97	3,5	3
T82/A	82	68	9	34	7,5	8,25	6	3	2,97	3,5	3
T89/A	89	62	16	34	10	11,1	7,9	6,4	6,37	7,14	6,35
T90/A	90	75	16	42	10	10	8	6,4	6,37	7,14	6,35

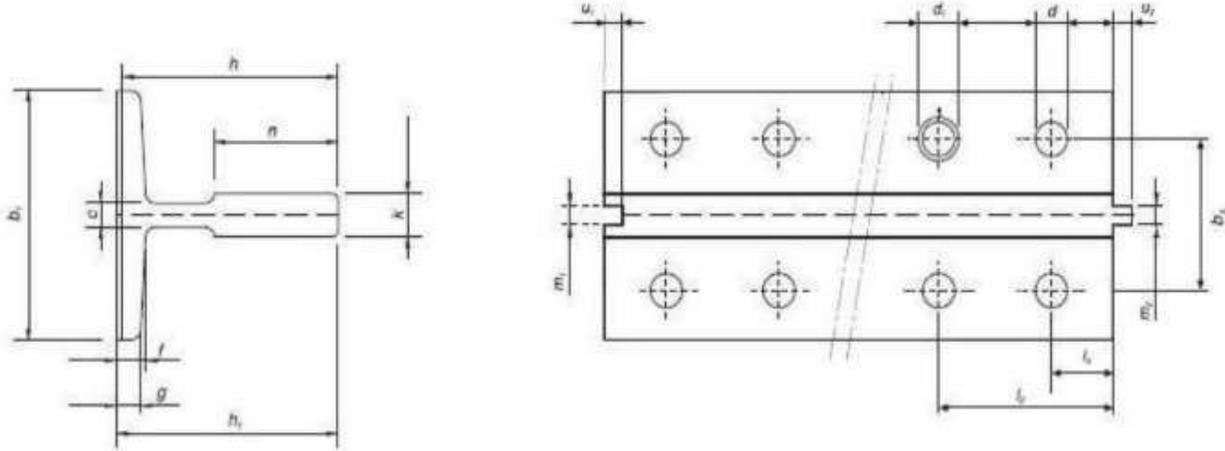
Technical Characteristics / Teknik özellikler									
TS ISO 7465 Mart 2011	S	q ₁	e	I _{x-x}	W _{x-x}	i _{x-x}	I _{y-y}	W _{y-y}	i _{y-y}
	cm ²	Kg/m	cm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm
T50/A	4,75	3,73	1,43	11,24	3,15	1,54	5,25	2,1	1,05
T70/A	9,4	7,379	2,034	40,95	9,169	2,087	18,86	5,389	1,417
T82/A	10,91	8,564	1,998	49,31	10,27	2,126	30,17	7,358	1,663
T89/A	15,77	12,38	2,032	59,83	14,35	1,948	52,41	11,78	1,823
T90/A	17,25	13,54	2,612	102	20,86	2,431	52,48	11,66	1,744

Holes and Fishplates / Bağlantı pebucları								Cıvata		Tırmak	
TS ISO 7465 Mart 2011	d	l ₁	l _{2f}	l _{3f}	b ₂	b ₃	V _{min}	TS EN 4017	DIN 7168		
	Tolerances / Toleranslar										
		+3 0	±0,2	±0,2	-	±0,2	+3 0				
T50/A	9	200	75	25	50	30	8	M8X25	M1		
T70/A	13	250	105	25	70	42	10	M12X35	M2		
T82/A	13	216	81	27	80	50,8	10	M12X35	M2		
T89/A	13	305	114,3	38,1	90	57,2	13	M12X40	M3		
T90/A	13	305	114,3	38,1	90	57,2	13	M12X40	M3		





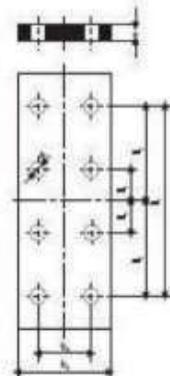
MACHINED GUIDE RAILS / İŞLENMİŞ RAYLAR



Physical dimensions / Fiziksel ölçüler (mm)												
TS ISO 7465 Mart 2011	b ₁	h ₁	h	k	n	c	f	g	m ₁	m ₂	u ₁	u ₂
	Tolerances / Toleranslar											
	±1,5	±0,75	±0,1	+0,1 0	+3 0		±0,75	±0,75	+0,06 0	0 -0,06	±0,1	±0,1
T75/B	75	62	61	10	30	8	9	7	3,00	2,97	3,50	3,00
T89/B	89	62	61	16	34	10	11,10	7,90	6,40	6,37	7,14	6,35
T90/B	90	75	74	16	42	10	10	8	6,40	6,37	7,14	6,35
T114/B	114	89	88	16	38	9,50	11	8	6,40	6,37	7,14	6,35
T125/B	125	82	81	16	42	10	12	9	6,40	6,37	7,14	6,35
T127-2/B	127	89	88	16	51	10	15,90	12,70	6,40	6,37	7,14	6,35

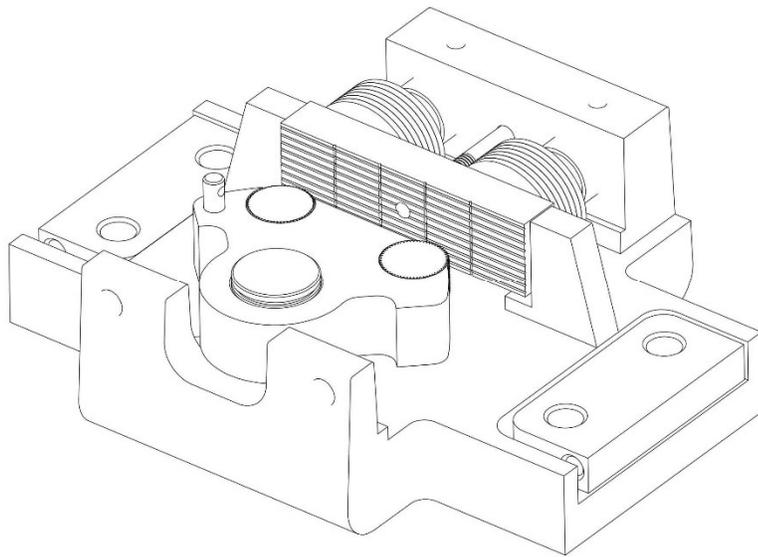
Technical Characteristics / Teknik özellikler									
TS ISO 7465 Mart 2011	S cm ²	q ₁ Kg/m	e cm	I _{x-x} cm ⁴	W _{x-x} cm ³	I _{x-x} cm	I _{y-y} cm ⁴	W _{y-y} cm ³	I _{y-y} cm
T75/B	10,91	8,564	1,861	40,29	9,287	1,921	26,47	7,06	1,557
T89/B	15,77	12,38	2,032	59,83	14,35	1,948	52,41	11,78	1,823
T90/B	17,25	13,54	2,612	102,0	20,86	2,431	52,48	11,66	1,744
T114/B	20,89	16,40	2,865	179,3	29,70	2,930	108,6	19,05	2,280
T125/B	22,82	17,91	2,430	151,0	26,16	2,572	159,1	25,46	2,641
T127-2/B	28,72	22,55	2,478	201,7	31,17	2,640	229,9	36,20	2,829

Holes and Fishplates / Bağlantı pabuçları (mm)							Çıvata		Tırnak	
TS ISO 7465 Mart 2011	d	l ₁	l _{2f}	l _{3f}	b ₂	b ₃	V	TS EN 4017	DIN 7168	
	Tolerances / Toleranslar									
		+3 0	±0,2	±0,2		±0,2	+3 0			
T75/B	13	250	105	25	70	42	10	M12x35	M2	
T89/B	13	305	114,3	38,1	90	57,2	13	M12x40	M2	
T90/B	13	305	114,3	38,1	90	57,2	13	M12x40	M3	
T114/B	17	305	114,3	38,1	120	70	18	M16x50	M4	
T125/B	17	305	114,3	38,1	130	79,4	18	M16x50	M4	
T127-2/B	17	305	114,3	38,1	130	79,4	18	M16x50	M5	



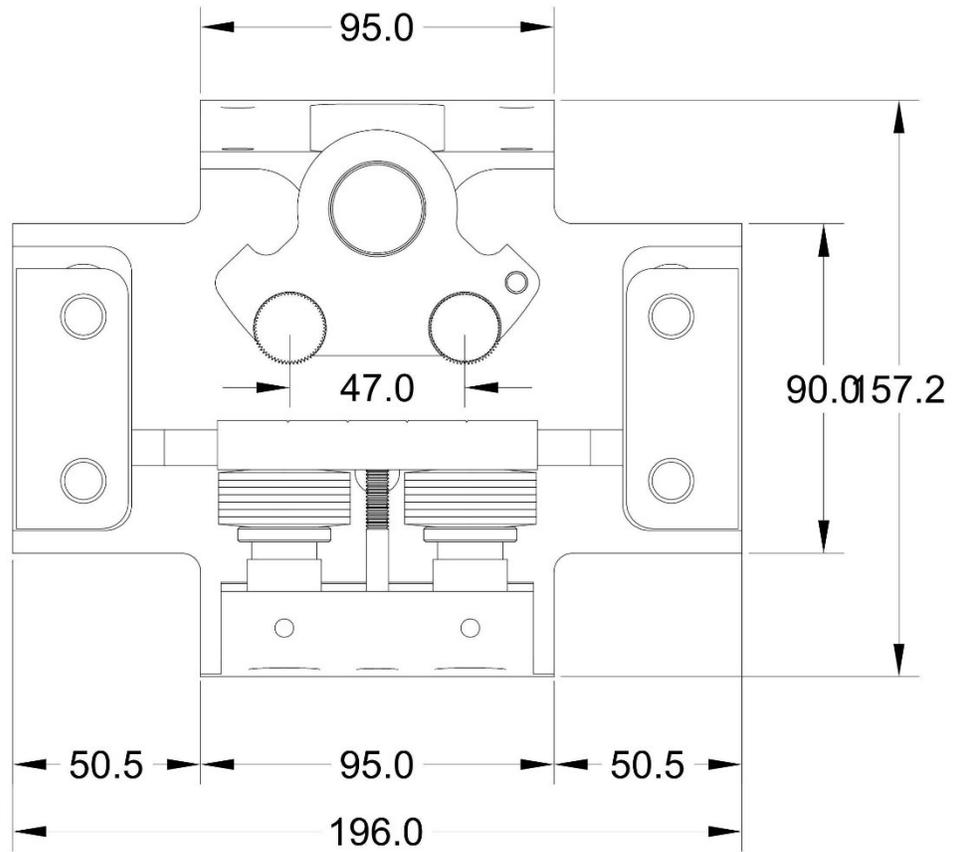


DIMENSIONS



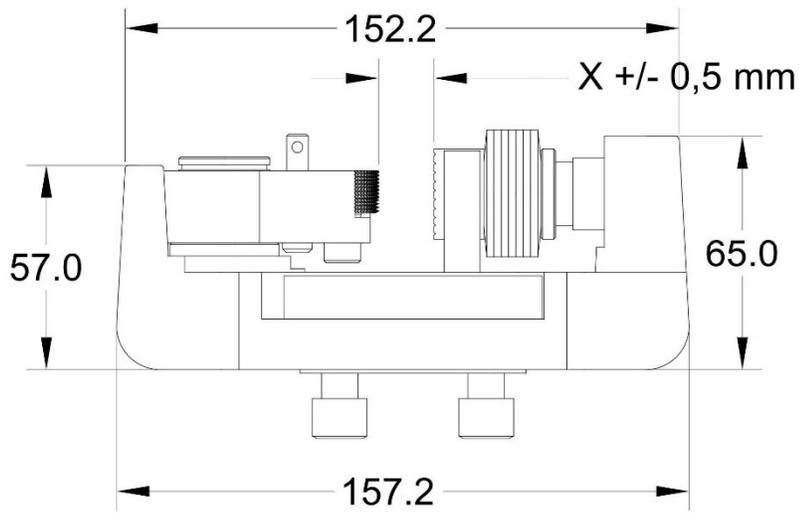


DIMENSIONS



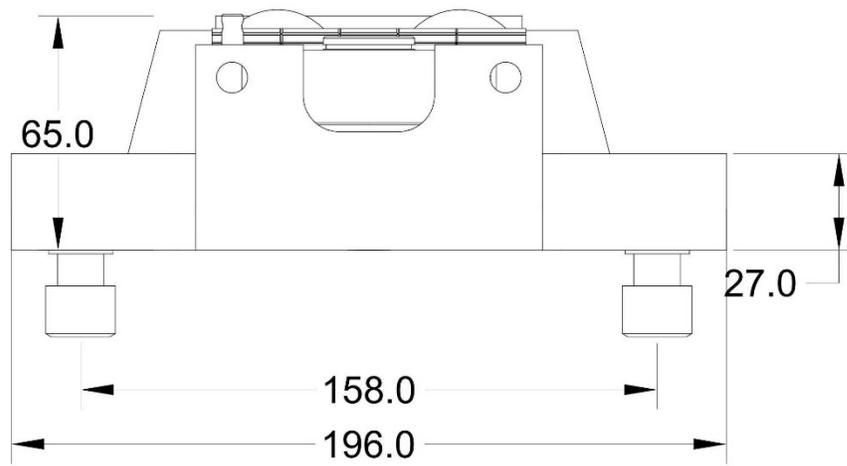


DIMENSIONS



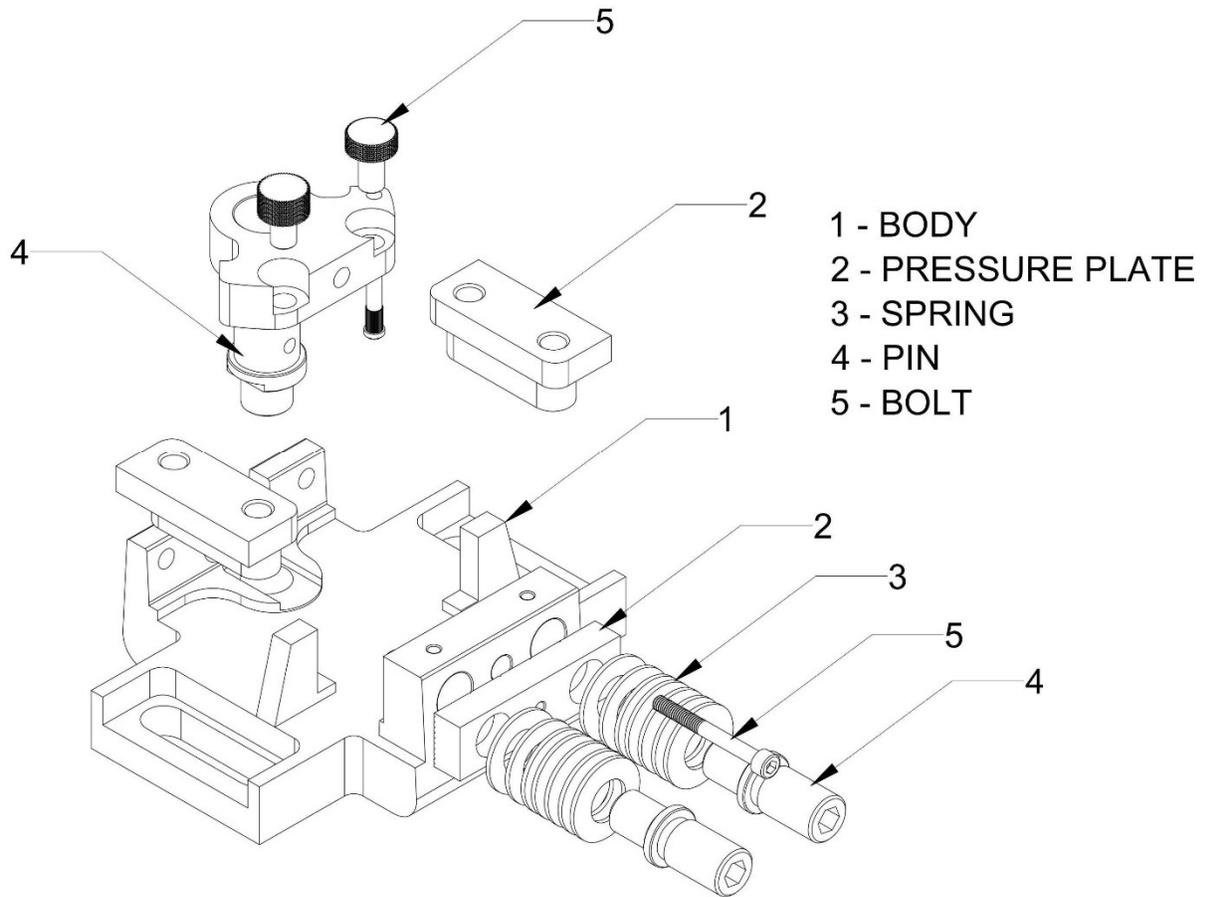


DIMENSIONS



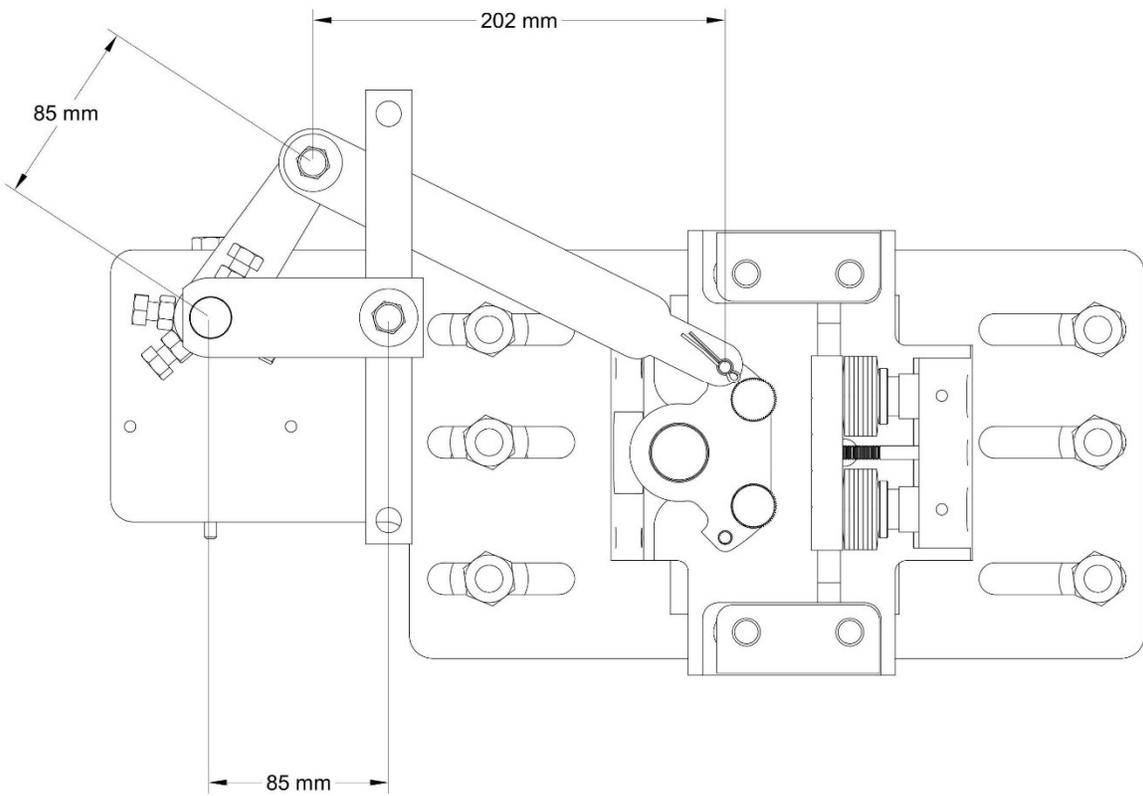


PARTS



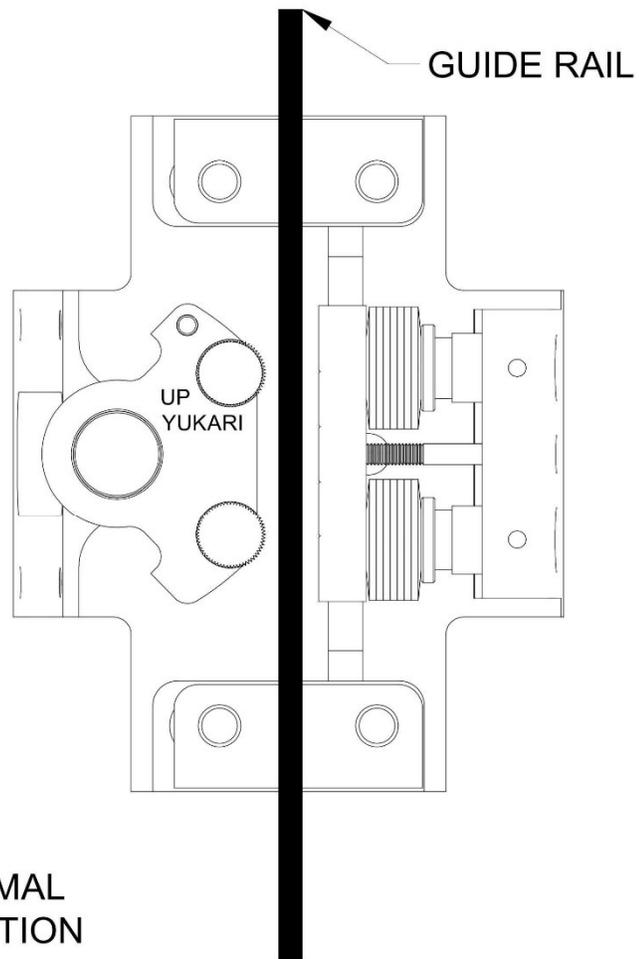


POSITIONS





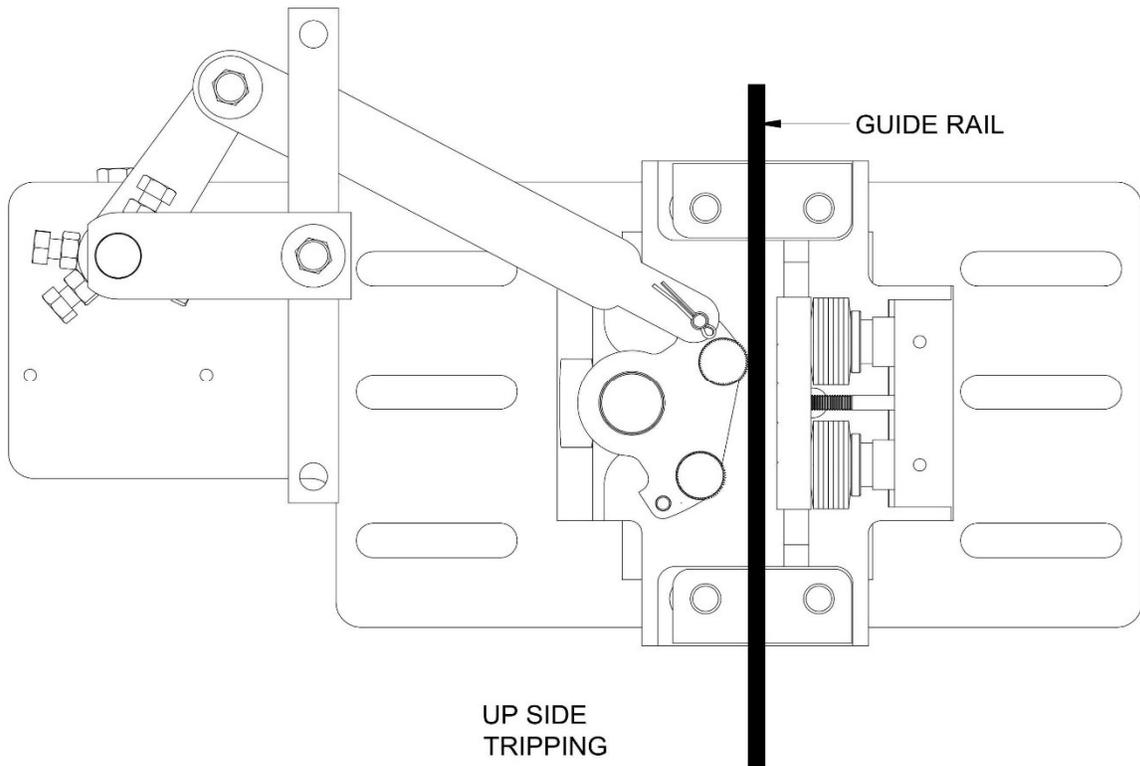
POSITIONS



**NORMAL
POSITION**

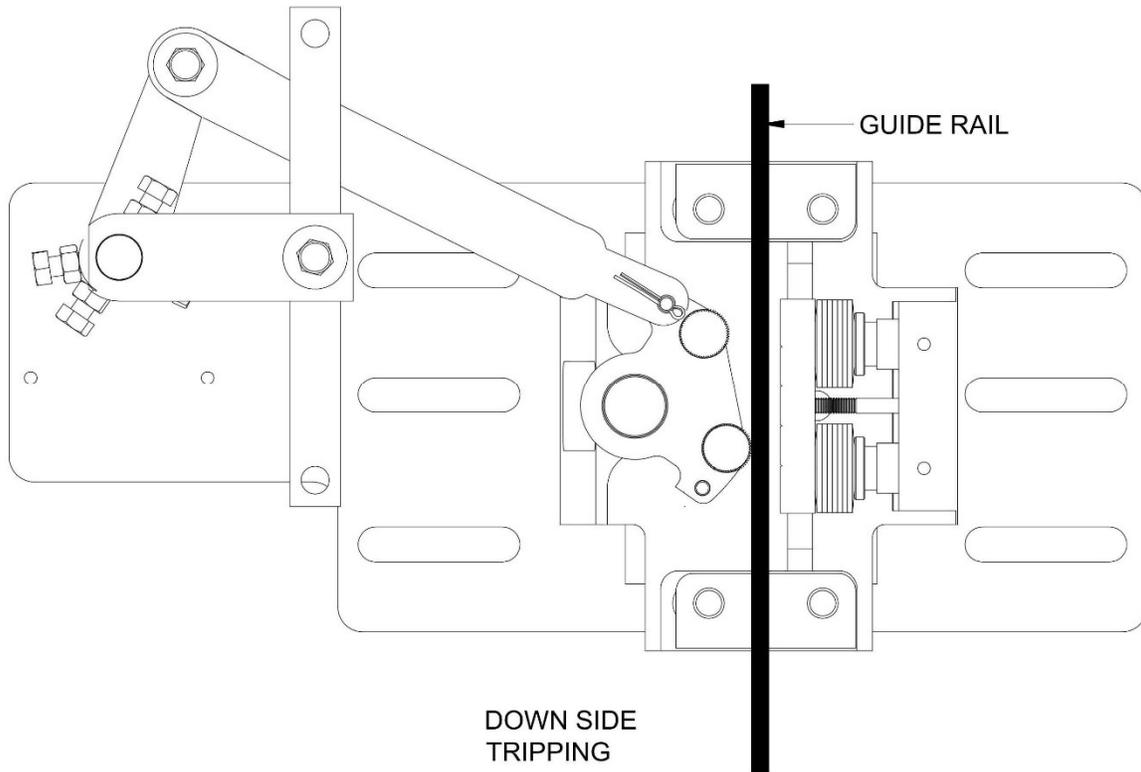


POSITIONS



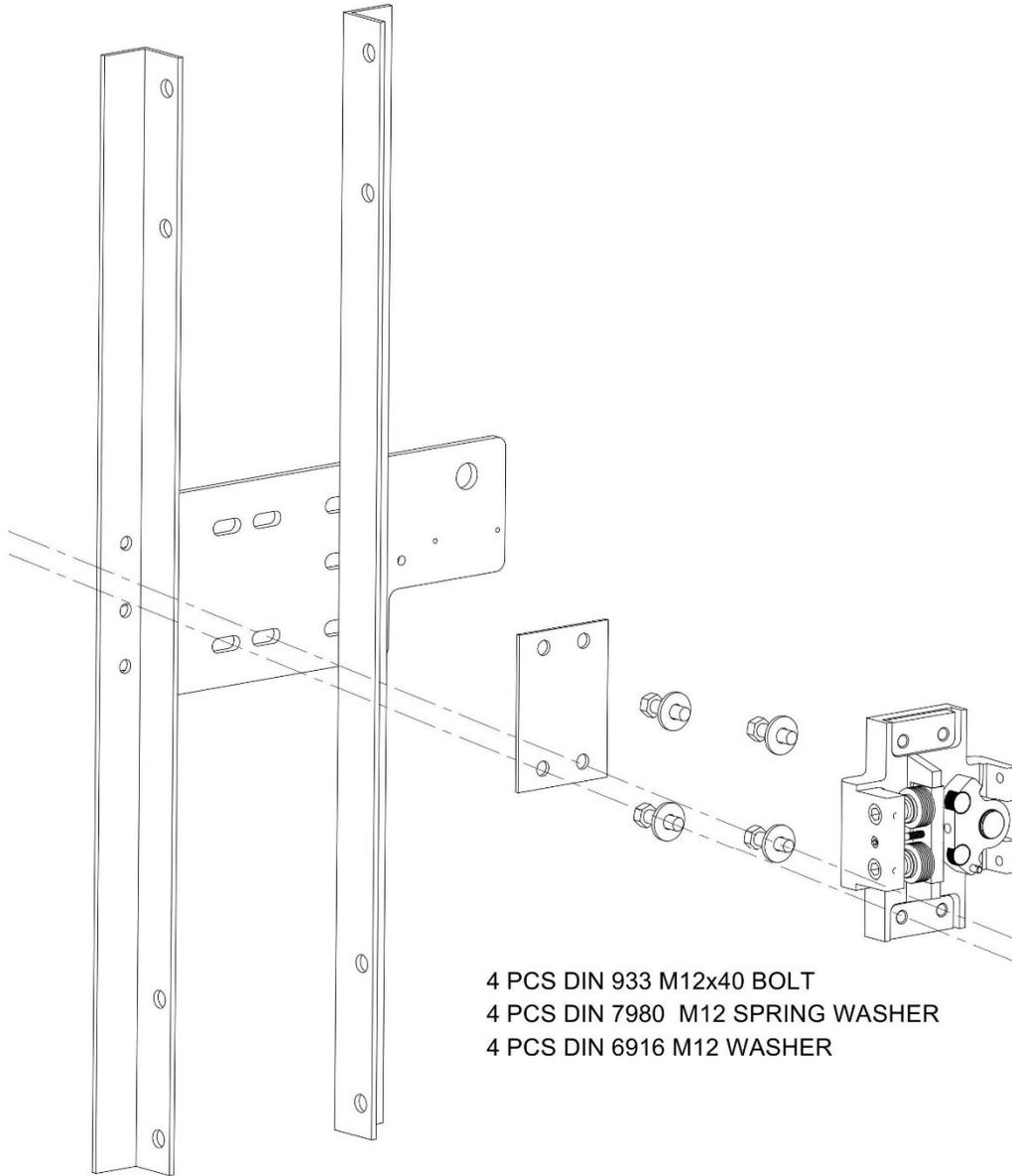


POSITIONS





ASSEMBLING

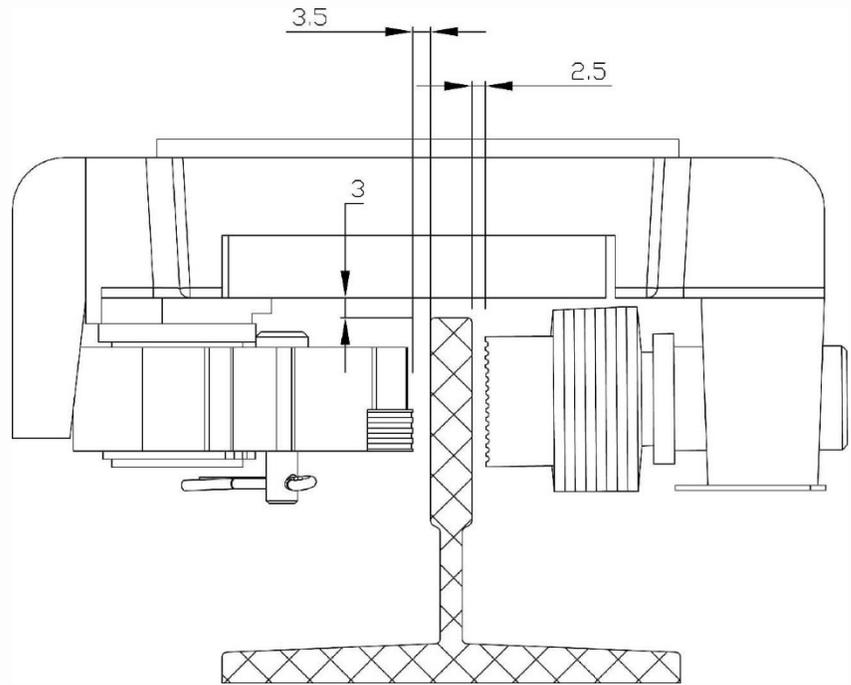


- 4 PCS DIN 933 M12x40 BOLT
- 4 PCS DIN 7980 M12 SPRING WASHER
- 4 PCS DIN 6916 M12 WASHER



1- SETTING DIMENSIONS AFTER ADJUSTING

The Bi-Directional Progressive Safety Gear is a mechanically operated safety device which operates downward and upward direction that brakes a car and holds it still, loaded with its rated load at a speed the over speed governor is tripped - even if all hoisting ropes are broken off on the guide rails at a distance permitted in EN81:20. The governor rope that operates closed loop between the over speed governor and the weighting pulley, moves with the same speed as the elevator car as long as the latter is moving at its normal speed.



The over speed governor is tripped when the car over-accelerates downward and upper when the hoisting ropes are broken off and stops the governor weighting pulley thus stopping the movement of the governor rope; but the car continues its travel and bi-directional progressive safety gear's actuating rods are pulled.

The elevator car, guided by a row of steel guide rails from both sides, stops gradually by getting squeezed between them when the Bi-Directional Progressive Safety Gear system is activated, within the distance tolerated by EN81:20 standards. The Progressive Safety Gear gets jammed mechanically, stops the car and cuts the power of the drive unit through the safety contact. When the car is saved mechanically, the Bi-Directional Progressive Safety Gear is reset.

The spring force behind brake wedges bearing are factory adjusted depending on the "Q" "P+Q" value. In order to avoid any intervention and/or maladjustment of spring adjustments, the nuts and heads are fixed with strong glue; the heads are marked with two dots and sealed with paint. In case of intervention to the distance of the brake wedges stop screws and spring settings, the car will stop without sliding if the settings are too tight, or slide longer than needed if the settings are loose and may not stop at all if the spring force is too small. Therefore it is strictly forbidden to intervene to the spring adjustments and to setting of the nut that ensures the stopping of the brake wedge.



2- ATTENTION

The product serial number is punched to the front of brake housing.

During the installation on site, precautions must be taken in order to not to mix different numbered brake housings to the same car.

Brake wedges are 3 mm away from the rails under normal conditions.

3- POST-INSTALLATION DYNAMIC TEST

It is necessary to perform dynamic test after the installation.

The protective layers of paint or grease on the guide rails must be thoroughly cleaned with a thinner. Only after this cleaning operation, the guide rails - if not used dry for the purpose - must be lubricated with HLP 32 or HLP 46 according to DIN 51524, Chapter-II. (HLP 37 is also an acceptable intermediate lubricant). These hydraulic lubricants are also recommended for their anti-erosion property along with their anti-corrosion resistance.

It is recommended to use the lubricants with lowest possible viscosity to avoid excessive sliding on the rails where and when Bi- Directional Progressive Safety Gears are used.

	Kinematic Viscosity at 40°	
HLP 32	Min 28,8	Max 35,2
HLP 46	Min 41,6	Max 50,6

(Example: Shell Tellus 32, 37 and 46)

In practice; it is not recommended to use the excess (surplus) gear box oil (SAE - 90) to lubricate guide rails because of the possibility to have over sliding problems. (SAE - 90 Viscosity according to ISO 220)

Before taking the elevator into service, a dynamic test on the Bi-Directional Progressive Safety Gear should be performed in order to ensure, besides the correctness of its installation, but also the correctness of its adjustments and the robustness of the whole system made up by the elevator car, Progressive Safety Gear, guide rails and their fixings to the building. During this test there won't be any person in the elevator car.

4- FOR DOWNWARD DIRECTION

The Bi-Directional Progressive Safety Gear must be engaged while the elevator car is travelling with its rated speed and loaded with 125% of its rated capacity. This test should be performed when the elevator car is traveling in down direction, with a uniformly distributed load over the car floor, with the drive motor energized and with drive machine brakes in open position.

The test should last until the moment where the hoisting ropes start sliding and slackening.

After the test, when the Bi-Directional Progressive Safety Gear has become active;

1. Safety contact must cut the safety circuit (visual check and measure).
2. It must be checked that the brake wedges on both sides are fixed to the rails at the same heights (measurement).



3. When the elevator car is mechanically save, it should be seen that the brake wedges of the safety gear should come to their initial position.
4. No deterioration what so ever that may hinder the normal operation of the elevator must happen. Visual inspection is considered as sufficient.
5. Metal shavings stuck on the brake wedges after the third dynamic test must be cleaned. If needed.
6. The slight deterioration on the guide rails after the test should be cleaned by a scraper or for lighter ones by sandpaper.

5- FOR UPWARD DIRECTION

The Bi-Directional Progressive Safety Gear must be engaged while the elevator car is travelling with its rated speed and not loaded (empty). The elevator has to stop or at least the speed of the car has to be reduced to the designed speed of against weight buffer. After you have finished the experiment, you have yo repeat all of these checkings.

6- LIABILITY, GUARANTEE, MAINTENANCE, CONTROL, REPAIR

All safety gear is adjusted according to guide rails sfcifications and datas in bi-directional progressive safety gears manufactured by our company.

Determing “P+Q”: “P” is the total weight of the empty car and all parts suspended to it, like the flexible hanging cables of the car side, compensation chain or ropes and “Q” is the rated car load.

These operating instructions have been prepared for people who have adequate knowledge about elevator installation and maintenance. It is highly important to have sufficient knowledge about elevators.

Our company will not bear any responsibility for Bi-Directional Progressive Safety Gears which are not mounted according to installation instructions and/or whose dynamic tests are not performed and/or damaged and/or mounted with missing parts.

The installers and maintenance technicians of the Bi-Directional Progressive Safety Gears are personally responsible for the safe operation of the device. To prevent damages to the product, it is necessary to conform to the maintenance, repair and lubrication instructions.

The Bi-Directional Progressive Safety Gear brakes are designed as maintenance free. During the periodical elevator maintenance, it is needed to regularly check if the Bi-Directional Progressive Safety Gear has been engaged without the knowledge of the manufacturer and whether or not the pulley switch is in working condition.

The device must be kept dust free and the system must be controlled against rust and corrosion deriving from the humidity of the elevator shaft. A thin lubricant must be used in case it is needed.



Our company should be contacted when damage is determined during the periodical checks. Brake wedges are materials with specific characteristics and because their measurements are very carefully adjusted, fixed and sealed depending on the "Q", "P+Q" value, no repair should be effected besides our company's authorized personnel.

After three brakes, brake wedges must be replaced. if it necessary. in this case please contact with the manufacturer

When the service need, you should send both safety gears to us. When this situation is happened, please follow this way to dig up safety gear. The transaction transfer plate which is connected with overspeed governor rope connecting arm will dig up washer, spring washer and spring with the down position. For this situation, M8 bolt which is upon on transaction transfer mile, transaction transfer mile's blade and transaction transfer's blade's has to dig up and discharge. 4 pieces M 12 bolt upon on Suspension safety connecting plate has to dig up and safety gear with platform can take to upside. The given document of revision can safe.

7- SAFETY WARNINGS

- ⚠ Use guide rail according to ISO 7465
- ⚠ Lubricating oil for rail must be according to DIN 51524 (HLP 32 veya HLP 46)
- ⚠ Installation must be applied according to the label values
- ⚠ Safety gears with different serial numbers cannot be used together
- ⚠ Don't use safety gears that has any damage on the seals.
- ⚠ ALY02 safety gear is designed for easy assembly without problem. Do not remove any part of the gear. Therefore all the bolts and nuts are tightened and sealed to prevent any lost.
- ⚠ There's information about break type, rail thickness, total mass, rail condition, maximum tripping speed on the label.
- ⚠ Over- speed regulator must be assembled according to EN 81:20 Otherwise safety gears may not work correctly.
- ⚠ Safety Gear must be assembled according to this user manual. Otherwise safety gears may not work correctly.
- ⚠ Over-Speed governor must be assembled according to its user manual. The tension of the governor rope must be correct.
- ⚠ Place the safety gear on the rail. Move the holes on the gear box when they meet the holes on the flag-plate
- ⚠ Place the sprigs between gear box and flag-plate.
- ⚠ Fix the gear arms and install the springs and nuts.
- ⚠ Confirm that the gear move easily on the body shafts manually.



- ⚠ Control the system working manually and see the gear roller move together with body.
- ⚠ Install the actuated system and overspeed governor correctly. Otherwise actuated system may not actuate the safety gear.
- ⚠ Do not change the adjustment of the plate and buffering spring bolts during the installation.
- ⚠ Confirm that the safety gear body has not any deformation every year.
- ⚠ Confirm that there is no any items or dust in the safety gear or actuated system.
- ⚠ Confirm that there is no limitation on the mobile parts like roller group.
- ⚠ Confirm the deformation on the body and rollers after the breaking.
- ⚠ You must change if the safety gear has been broken five times
- ⚠ Define the locking direction when the safety gear brakes. Move the steering Wheel on the motor counter locking direction.
- ⚠ It's forbidden to rescue the lift system from unlicensed persons. Please contact your maintenance company.
- ⚠ If there would be any unusual working condition or any unusual performance. Please do not try to fix it yourself. If the safety gear has been braking 5 times you should keep in touch with manufacturer.
- ⚠ If the safety gear has been braking 5 times it should be changed. Please check locking direction and move the engine Wheel to opposite direction locking and separate the safety gear and rails.
- ⚠ Do not allowed to work on safety gear the unqualified person should keep in touch with an authorized maintenance company.

ALY02 safety gear meets the requirements of the lift directive 2014/33/EU 81:20 – 81:50.

- 1- Put the safety gear on the guide rails and the holes on the safety gear should move on connecting plate surface.
- 2- Put the safety gear arm springs between the connecting plate and safety gear.
- 3- Adjust the safety gear arm springs and bolts.
- 4- Check the safety gear if it is moving in parallel manually
- 5- Arrange the rolls to be parallel to rays.
- 6- Check the distance between the safety gear arms and suspensions ,it should be equal.
- 7- Move the arms to up and down and check the safety gear body moving and the system
- 8- Connect the traction system and overspeed governor as suitable. Otherwise the overspeed governor would not impulse the safety gear and the brake would not be.



AKSÖZ LIFT

- 9- Must be checked if there is any corrosion on safety gear body surface once a year.
- 10- Check if there is any unfamiliar thing in safety gear or traction group.
- 11- Check the rollers if there would be any unusual condition.
- 12- Check the body and rollers if there would be any corrosion after the brake.



BAKIM KAYIT FORMU

MAINTENANCE RECORD FORM

Tarih Date	Arıza - Bakım Notları Description
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KİLİTLEME KAYIT FORMU

RECORD FORM OF LOCKINGS

NO	Tarih Date	Kilitleme Nedeni Reason of Locking	Operatör Adı-Soyadı Name of the operator

