iLK MÜHENDİSLİK CONSULTANCY MACHINE AND CONSTRUCTION

CONFIDENTIAL
INNOVATIVE
SMART TECHNOLOGY

Engineering and Consultation Services
Human/Cargo Transportation Basket
Special Manufacturing
Construction Services
Project Designing and Field Applications

Domestic & International Projects, since 1996

EXTERIOR ACCESS SYSTEMS AND SPECIAL DESIGN ENGINEERING SERVICES

www.ilkmuhendislik.com

ABOUT OUR COMPANY

Since 1996 we started to produce electrical and manual suspended scaffolding in Ankara. In the following years, we become favored as being the first domestic producer of outdoor access systems and all kinds of mechanical equipment.

İlk Mühendislik After the customer approval, system project is prepared for assembly after the intermediate tests and final tests under the supervision of our production engineers. After the installation of our expert installation teams, the machine becomes ready for utilization with the installation tests. Required training is given to the personnel to be determined by the user and they are certified. Our company continues to provide uninterrupted service with two years technical service guarantee after installation and maintenance contract to be made after guarantee.

Our Company with having **TSEK, ISO: 9001, GOST-R, CE** quality and security documents, is adding new ones every day. **EN 1808** standards and our customers are constantly tested and examined by the institutions and organizations that are authorized to issue our machines in accordance with the demands of our customers.

İlk Mühendislik exports 40% of products. Our exports including **Azerbaijan, Kazakhstan, Qatar, The United Kingdom, The Netherlands, Albania and Bahrain** as well as our concessionaires in Europe, Asia and Middle east continue.

OUR PRODUCTS

İlk Mühendislik Co. Ltd.; As **the first** manufacturer in Turkey, we are manufacturing, assembling and giving servicing the exterior access systems. We also design and manufacture all kinds of machinery and special design productions as needed in many sectors such as machinery, construction, energy, cement, petroleum chemicals industry.

BUILDING MAINTENANCE UNITS

Telescopic Boulder Machine (Scope Master)
Dual Row Rail System (Navigator-1)
Guided Rail System (Navigator-2)
Parapet Internal Connected System(Cliff hanger)
Monorail System (Sprinter)

CUSTOM DESIGN PRODUCTS

Mobile Parachute Jumping
Tower Bridge Maintenance
Units Welding Robot
Vehicle Elevator
Mobile Telecommunication Poles

SKYLIGHTS

Sky Bridge
Sky Dome

CLEANING BASKETS

Standard Model
Pantograph Basket
Rotating Basket
Dehiscent Basket

HANGING SCAFFOLDS

Electrical Hanging Scaffolds

TELESCOPIC BOOM MACHINE *(SCOPEMASTER)*

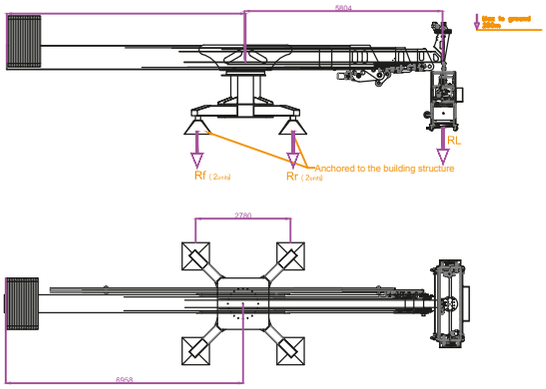
According to the architectural plan of the building, the Telescopic Boom Machine is designed, to reach every corner of the building from a fixed point if there is elevation difference or with a double-roq rail system according to the architectural plan. The project is specially designed to reach all the facades, according to the terrace floor layout of the building. The body is raised or lowered according to the parapet position of the building or the ventilation groups of the building.

By means of the 12 mobility capabilities of the machine, the work is made parallel to the front without cart and access to the front is provided. In this way, quick and safe cleaning is done in a shorter time.

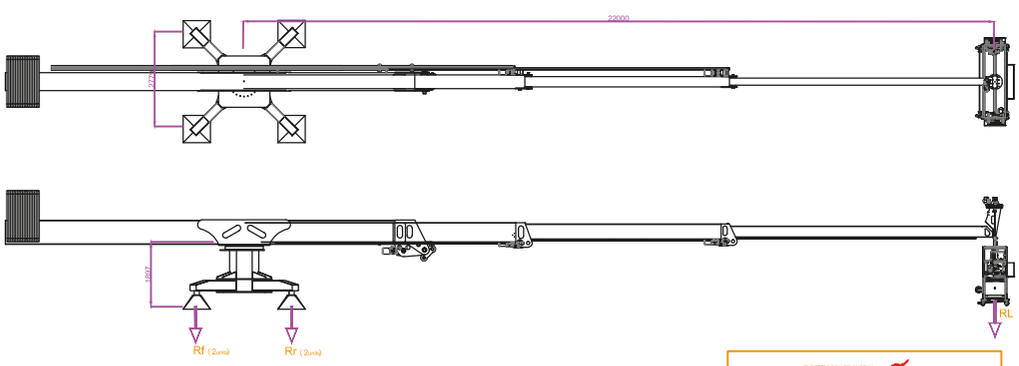
All moving parts are electro-galvanized and other steel parts are hot-dip galvanized. The color choices are designed at the request of out customers.

TECHNICAL DATA

Parking Position



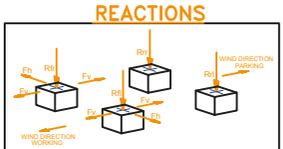
Working Position



PROJECT SPECIFICATIONS

DISCRIPTION		MOTOR KW	SPEED
MODEL	SCOPEMASTER JLHT22		
RATED LOAD	240 Kg.		
VERTICAL RUN	250 m.		
HOISTING SYSTEM.	DRUM SYSTEM	2.5 KW x 2 pcs	12 mt/min
Number of WIRES & DIAMETER	4 of 8 mm.		
CONTROL FROM CRADLE	THROUGH THE WIRE ROPES		
TRAVERSING SYSTEM	OPTIONAL	1.5 KW x 2 pcs	9 mt/min
CRADLE	ALUMINIUM		
TELESCOPIC CRADLE.	OPTIONAL	0.37 KW	5 mt/min
CRADLE DIMENSIONS	2.0x0.6x1.0 m.		
FACE WHEELS (ON CRADLE).	YES		
JIB	TELESCOPIC OR WITH GEAR	1.5 KW x 2 pcs	5 mt/min
LUFFING SYSTEM.	OPTIONAL	3 KW Hydraulic	5 mt/min
SLEWING SYSTEM.	YES		
TELESCOPIC MAST.	OPTIONAL		
SLEWING HEAD.	YES MOTORIZED	0.18 KW	5 mt/min
TELEPHONE SYSTEM	OPTIONAL		
AUXILIARY HOIST.	YES		
APPROACH SYSTEM.	OPTIONAL	1.1 KW	9 mt/min
MAXIMUN RECESS.	3.5 mt		
REEL ELECTRIC CABLE	OPTIONAL		
BODY AND ARM GALVANIZED	YES		

REACTIONS



Dead Weight	=	19.108	Kg.
Rated Load RL	=	240	Kg.
Working position	Rf =	15.790	Kg.
	Rr =	848	Kg.
Parking position	Rf =	1072	Kg.
	Rr =	15,516	Kg.
Reactions at 45° position	Rmax =	24.932	Kg.
	Rmin =	2.264	Kg.
Horizontal reactions	Fh =	1,694	Kg.
	Fv =	2.490	Kg.

- This design is calculated according the normative UNE-EN 1808:1999+A1:2010
- All of these reactions are calculated per wheel
- The maximum and minimum reactions appear only in one wheel
- Weights and reactions could vary ±10%
- Stability coefficient <1

The machine body can move up and down hydraulically to minimize the image of the machine from front.

• With a telescopic boom up to 40 meters, the basket is transported to the desired side and then parked on the terrace floor.

• All movements in the basket are controlled by a remote control.

• Telescopic boom machines are heavy as construction. Therefore a tower crane will be needed during installation.

Customers can choose the color of the machine by notifying the paint code. Our products and assemblies are certified with TSEK quality certificate and manufacturing competence certificate, ISO 9001:2001 QMS certificate, EN 1808 compliance with European norms and RUSSIA GOST-R certificate.

DUAL ROW RAIL SYSTEM *(NAVIGATOR-1)*

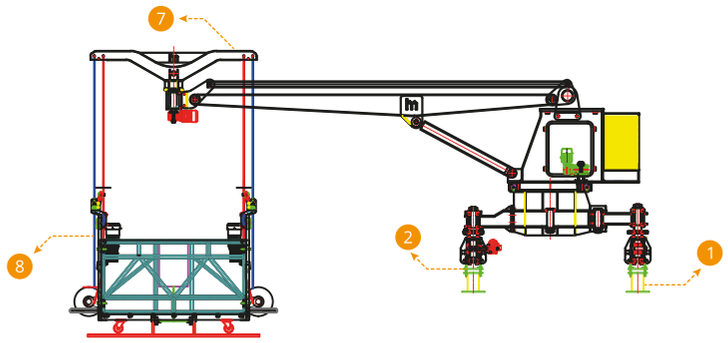
These machines are installed on the terrace floor parapets, having load carrying feature and can reach the desired side of the building by moving on the dual row rail.

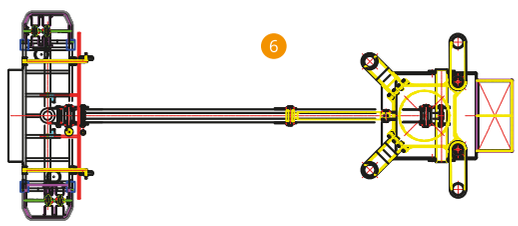
The selection of the equipment suitable for the architectural structure of the building is examined in place by our technical staff with mechanical engineers and it is aimed to make the best choice for the customer by presenting alternative system examples together with cost analysis.

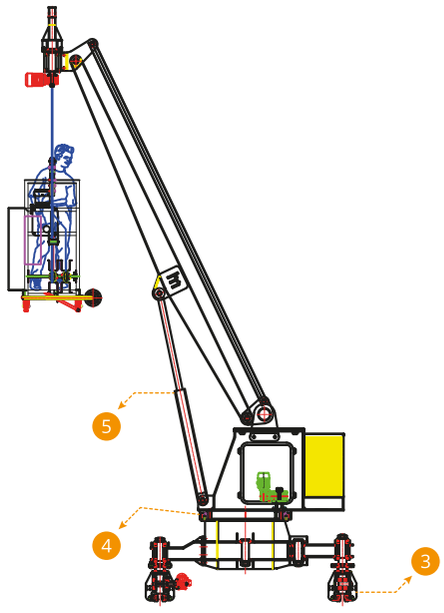
It is possible to adjust the working gap between the basket and the front by means of the hydraulic movement of the boom. The system moves at a speed of 5 cm/sec on the rails. A total 8 movements can optionally be controlled from the desired point by means of a panel or wireless remote control in the basket. The carriage consists of 4 units; 2 driving and 2 non-driving. We have special types of baskets that can move according the indentations and protrusions of the building.

The machine dimensions are designed and manufactured as required by the architectural features and serve the building exclusively.

TECHNICAL DATA







#	Name	Definition	Motor	Speed
1	Carrier Console	Pipe is preferred for easier isolation		
2	Carrıer Rail	Materials are selected from IPE-HEA materials		
3	Horizontal Movement Carriage	2 driven - 2 non-driven	0,25-0,37 kW / 1500 rev/min x2 pcs.	5 cm/sec
4	Trunk Rotation Group	‣Provides a 175 degree shift of the trunk to the right or left	0,75 kW / 1500 rev/min	According to the boom type10 cm/sec
5	Hydraulic Unit and Lift Group	‣Allows the boom groups move 75 degrees up or down	0,18 kW / 1500 rev/min Hydraulic Unit	0,25 rpm
6	Carrier Arm Boom Group	2 mt. to 16 mt. Special twisted box profile		
7	Compass Arm Linked to Ropes	‣Special cutter arm that can rotate 75 degrees	0,18 kW / 1500 rev/min	0,35 rpm
8	Cleaning Basket	Standard, pantograph, extension, rotating types are preferred		

By means of dual row rail, the machine can reach all fronts by moving on rails.

• The rails are mounted on the concrete by means of the brackets mounted on the concrete, to remain on the insulation.

• All console and rails are hot dip galvanized.

• All movements of the machine can be controlled by remote control within the basket.

Customers can choose the color of the machine by notifying the paint code. Our products and assemblies are certified with TSEK quality certificate, and manufacturing competence certificate, ISO 9001:2001 QMS certificate, EN 1808 compliance with European norms and RUSSIA GOST-R certificate.

GUIDED RAIL SYSTEM *(NAVIGATOR-2)*

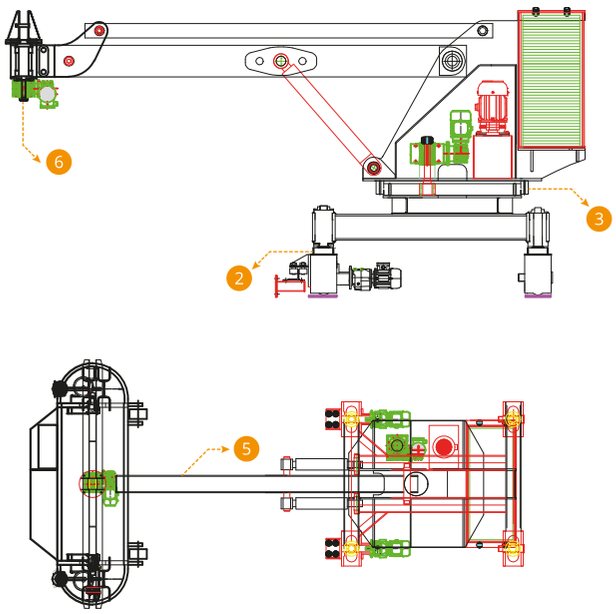
Rails are directional and only serve as guides. Rails are made of 80 or 100 brace clamps. These rails are coated with hot dip galvanize and protected from corrosion.

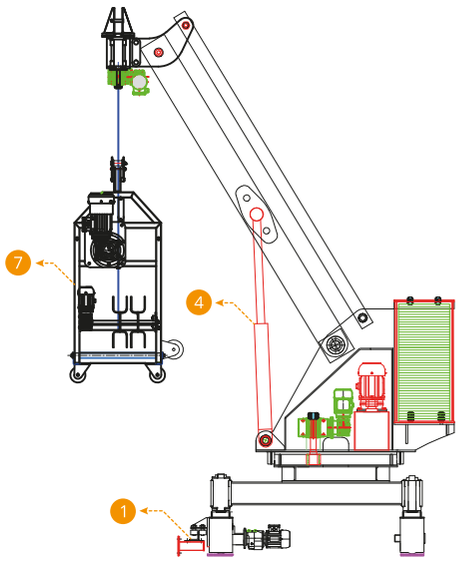
The machine moves on the wheels. Therefore it provides a system balance with counterweights. Since the entire weight of the machine will be on the terrace table, the final coating must be suitable to carry this load. The most convenient method is to make a machine path by creating a special runway of the machine moving route.

The movement functions on the machine are designed to bring the basket to a position suitable for the front and to fit the basket to the terrace after the work is finished.

All movement functions can be controlled via the basket as well as with the 2nd panel on the machine.
The machine dimensions are designed and manufactured as required by the architectural features and serve the building exclusively.

TECHNICAL DATA





#	Name	Definition	Motor	Speed
1	Guide Rail	Selected from 80x80 brace clamps		
2	Horizontal Movement Carriage	2 driven - 2 non-driven	0,25-0,37 kW / 1500 rev/min x2 pcs.	5 cm/sec
3	Trunk Rotation Group	Provides a 175 degree shift of the trunk to the right or left	0,75 kW / 1500 rev/min	According to the boom type10 cm/sec
4	Hydraulic Unit and Lift Group	Allows the boom groups move 75 degrees up or down	0,18 kW / 1500 rev/min Hydraulic Uni	0,25 rpm
5	Carrier Arm Boom Group	2 mt. to 16 mt. Special twisted box profile		
6	Compass Arm Linked to Ropes	Special cutter arm that can rotate 75 degrees	0,18 kW / 1500 rev/min	0,35 rpm
7	Cleaning Basket	Standard, pantograph, extension, rotating types are preferred		

The machine moves along the front, with the help of the guide rail while holding.

• A suitable runway for the machine's movement should be established

• All console and rails are hot dip galvanized.

• All movements of the machine can be controlled by remote control within the basket.

Customers can choose the color of the machine by notifying the paint code. Our products and assemblies are certified with TSEK quality certificate and manufacturing competence certificate, ISO 9001:2001 QMS certificate, EN 1808 compliance with European norms and RUSSIA GOST-R certificate.

BUILDING MAINTENANCE UNITS

PARAPET INTERNAL CONNECTED SYSTEM

PARAPET INTERNAL CONNECTED SYSTEM *(CLIFFHANGER)*

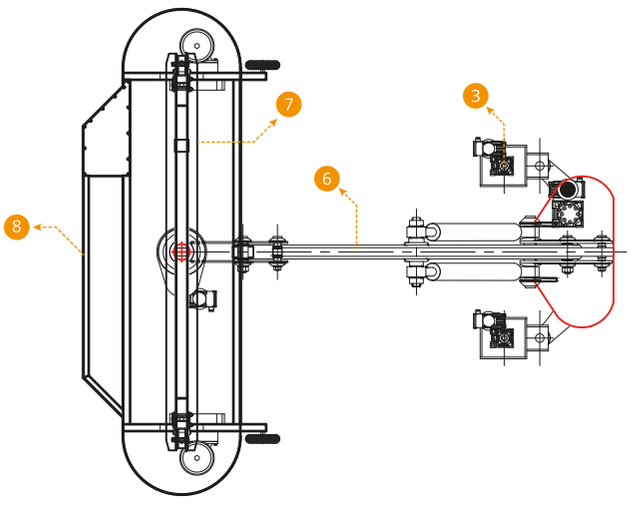
Moving on the rails made of pipe or box profile, placed on the terrace floor wall (parapet), this system is capable of boom lift, trunk rotation and caliper return.

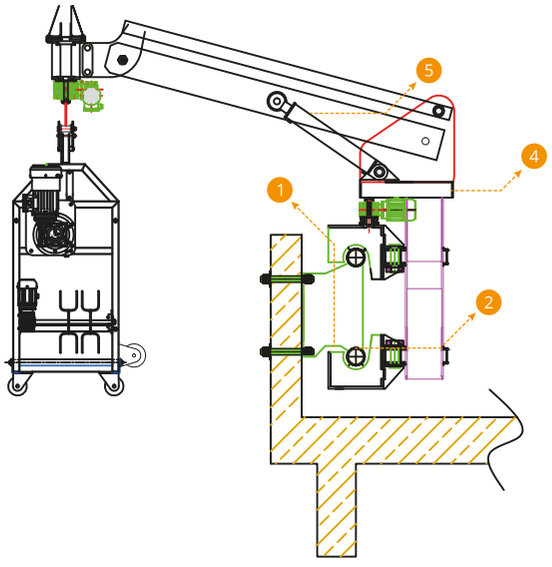
The rails are mounted in such a way as to adapt to the turn of the stairs and corner according to the architectural structure of the building.

During the project stage, the loads to be applied on the parapet or the able are given to the customer and the application is passed after the architectural-static approval is obtained.
After the maintenance work is finished, the basket is parked on the terrace, and not visible from outside. We have special kinds of baskets which can move according to the recesses and protrusions on the fronts. The moving parts are coated with electro galvanizing and other parts are coated with hot dip galvanizing.

In order to avoid damages to the front, the air wheels in front of the basket are available.

TECHNICAL DATA





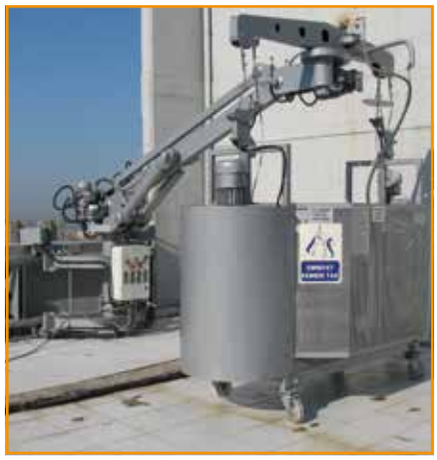
#	Name	Definition	Motor	Speed
1	Carrier Console	Plate Platin		
2	Carrier Rail	⌀114x6 pipe materials		
3	Horizontal Movement Carriage	2 driven - 2 non-driven	0,25-0,37 kW / 1500 rpm x2 pc.	5 cm/sec
4	Trunk Rotation Group	: Provides a 175 degree shift of the trunk to the right or left	0,75 kW / 1500 rpm	According to the boom type10 cm/sec
5	Hydraulic Unit and Lift Group	: Allows the boom groups move 75 degrees up or down	0,18 kW / 1500 d/d Hydraulic Unit	0,25 rpm
6	Carrier Arm Boom Group	2 mt. to 16 mt. Special twisted box profile		
7	Compass Arm Linked to Ropes	: Special cutter arm that can rotate 75 degrees	0,18 kW / 1500 rpm	0,35 rpm
8	Cleaning Basket	Standard, pantograph, extension, rotating types are preferred		

The machine moves through the pipe rail inside the parapet by holding the rake along the facade.

• The rails pass through the machine with special bends in the form of the parapet, which reaches the machine.

• All console and rails are hot dip galvanized.

• All movements of the machine can be controlled by remote control within the basket.



Customers can choose the color of the machine by notifying the paint code. Our products and assemblies are certified with TSEK quality certificate and manufacturing competence certificate, ISO 9001:2001 QMS certificate, EN 1808 compliance with European norms and RUSSIA GOST-R certificate.

BUILDING MAINTENANCE UNITS

MONORAIL SYSTEM *(SPRINTER)*

The aluminum rails are connected to the consoles located under the fringe of the building, which are mounted on the consoles extending from the front. The prior aim is to harmonize with the building architecture and aesthetics.

When the terrace floor is not available for connection, the rails are mounted to the building by means of consoles connected to concrete.

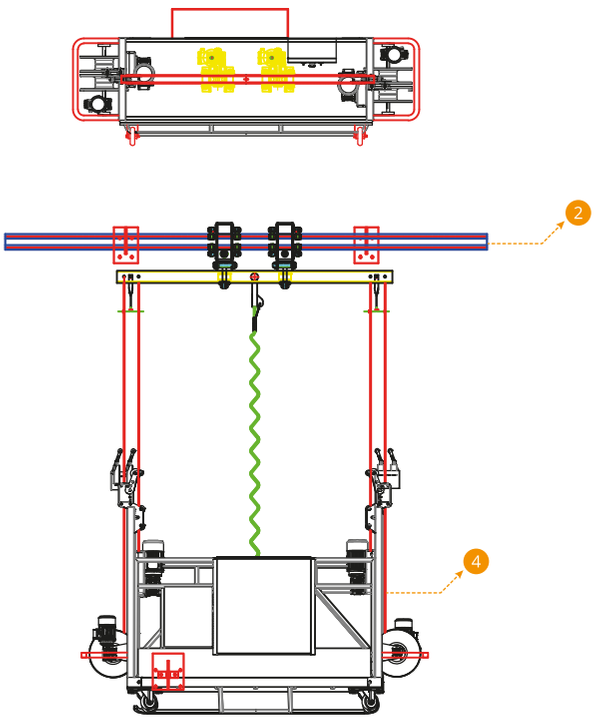
The consoles are connected according to the architectural structure, from under the upstairs table, outside of the parapet.

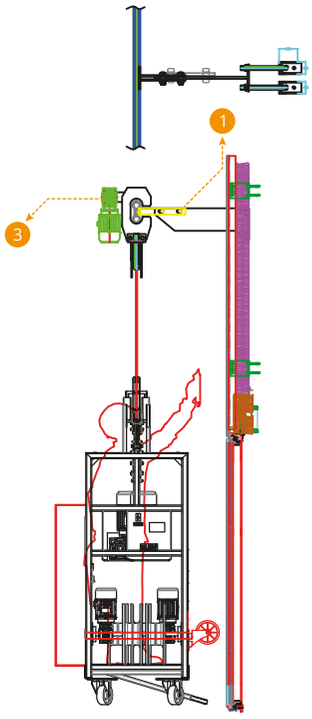
The rails are manufactured in accordance with the architectural structure of the building, corner turns or different forms.

The carriage moving group consists of 2 driven units.

All moving parts are coated with electro galvanizing and the other parts are coated with hot dip galvanizing.

TECHNICAL DATA





#	Name	Definition	Motor	Speed
1	Carrier Console	Plate Platin or NPI Materials		
2	Carrier Rail	Custom Alloy Aluminum Rail		
3	Horizontal Movement Carriage	2 pcs. Driven	0,37 kW / 1500 rpm	5 cm/sec
4	Working Basket	Standard and Extension Types are preferred.		

The carriage moves along the façade by means of the monorail.

• The rails are mounted on the brackets which are connected to the platform from the parapet to the platform, according to the architecture of the building.

• All console and rails are hot dip galvanized.

• All movements of the machine can be controlled by remote control within the basket.

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BUILDING MAINTENANCE UNITS

STANDART MODEL

• Standard model is used on flat facades where there is no basket entry.
• The carrying capacity of the basket is 240 kg.
• The basket itself weighs 270 kg.
• Two 1.1 kW motors provide vertical movement.
• ⌀8 galvanized steel rope is used. Excess ropes are wrapped with rope collection tambour.
• The door groups to which the engines are connected are made of steel boxes and other parts are mode from aluminum materials.
• There are 2 safety (blockstop) brakes, 2 load switch, 4 upper switch and 2 lower level detection switches in the basket.
• Machine movements can be controlled both vertically and horizontally from the basket.
• The basket touches smoothly with air wheels to ensure proper direction.
• The specified special RAL code is painted with matching color.
• The 5x2.5 TTR cable is picked up in the rear chamber.

PANTOGRAPH BASKET

• It is designed to deliver personnel to existing recesses on the front.
• It is usually used when it is 2 meters and over.
• Hydraulically opens like a scissor to extend the basket towards the recess. At the same time, the balance of the basket is provided by counterpointed weights opening to the opposite direction.
• The personnel can be delivered safely to the gates up to 5.5 meters from 2 meters.
• Pantograph basket carrying capacity is 240 kg.
• The basket itself weighs 980 kg. and 1300 kg. depending on the size of opening.
• In the basket ⌀10 6x19 galvanized ropes are used.
• 2 units of 1,5 kW 1500 kg. capacity motors are used.
• Hydraulic movement required for opening is provided manually or electrically.

BUILDING MAINTENANCE UNITS

ROTATING BASKET

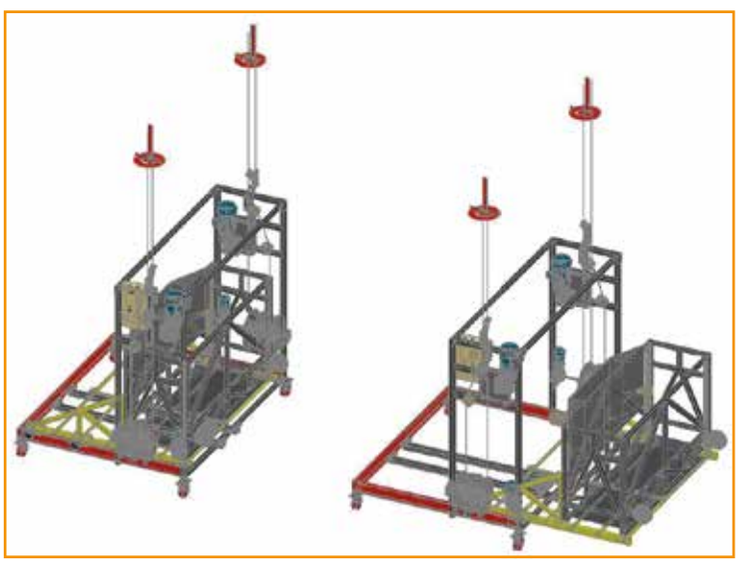
The 2nd platform on the basket allows it to turn 90 degrees around the axis to deliver personnel to the entrances in the facades. This basket is used for recesses between 2 meters and 4 meters. It is preferred when the indentation is the same on all facades.

- The carrying capacity of the basket is 240 kg.
- The basket itself weighs 400 kg.
- Two 1.5 kW motors provide vertical movement.
- ⌀10 galvanized steel rope is used. Surplus ropes are picked up with rope collection tambour.
- The door groups to which the engines are connected are made of steel boxes and other parts are mode from aluminum materials.
- There are 2 safety (blockstop) brakes, 2 load switch, 4 upper switch and 2 lower level detection switches in the basket.
- Machine movements can be controlled both vertically and horizontally from the basket.

OPENABLE BASKET

It is used when the recesses on the facades do not exceed 2 meters. It is usually preferred when the indentation is variable. Therefore, it is adjusted according to the desired size from 50 cm. to 2 m.

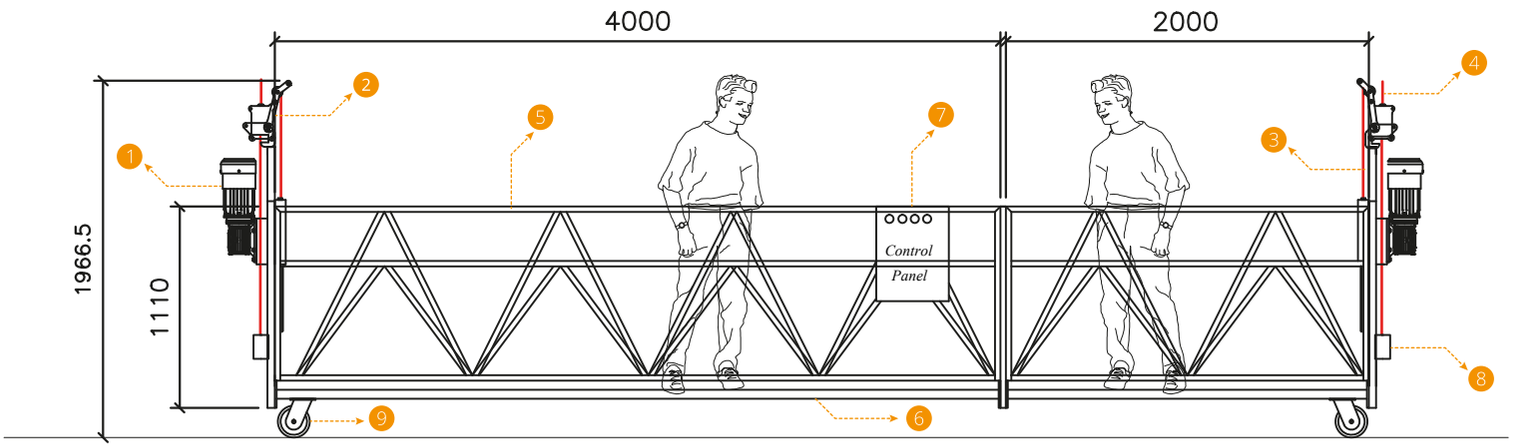
- The carrying capacity of the basket is 240 kg.
- The basket itself weighs 340 kg.
- Two 1.1 kW motors provide vertical movement.
- ⌀8 galvanized steel rope is used. Surplus ropes are picked up with rope collection tambour.
- The door groups to which the engines are connected are made of steel boxes and other parts are mode from aluminum materials.
- There are 2 safety (blockstop) brakes, 2 load switch, 4 upper switch and 2 lower level detection switches in the basket.
- Machine movements can be controlled both vertically and horizontally from the basket.
- The basket touches smoothly with air wheels to ensure proper direction.



HANGING SCAFFOLDS

ELECTRICAL HANGING SCAFFOLDS

TECHNICAL DATA



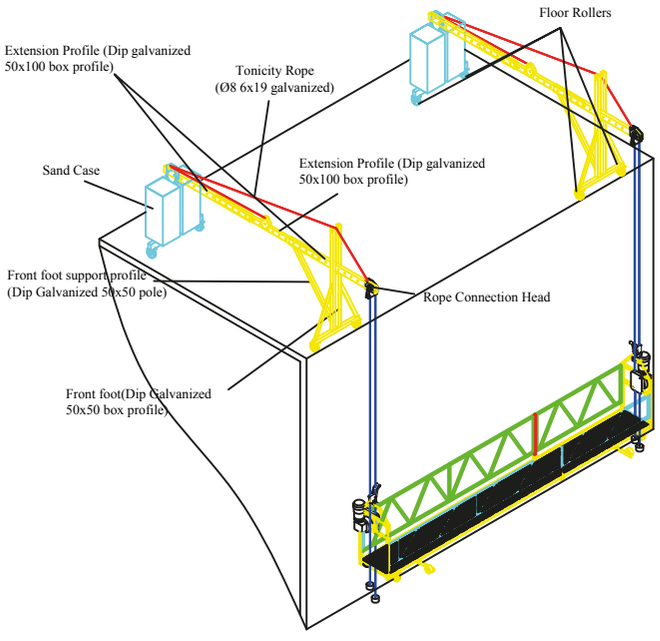
The carrying capacity of the system is 500 kg. The weight of the basket itself is 225 kg. The overload is controlled by "overload switch". The vertical movement speed of the basket is 12 cm/sec. By using the upper and lower switches of the basket, working distances are limited and the basket is secured. Basket measures up to 8 meters in 2 meter modules. The desired basket size is specially designed if more than 8 meters is needed. The carrying mechanisms are tractional models and the working height can be adjusted according to the rope length. The basket parts are manufactured as portable so that the ease of transportation is ensured in the field transfer and field changes.

#	Name	Definition
1	Carrying Mechanism and Group	1.1 kW / 1500 rpm electric motor and redactor are used. The model of the mechanism is tractional.
2	Blockstop Security Break	The basket is mechanically secured in case the basket lower platform is tilted 15 degrees by connecting to safety ropes.
3	Carrying Rope	There are 2 ø8 6x19 galvanized ropes in the basket. The excess ropes can be collected in a box.
4	Security Rope	There are 2 ø8 6x19 galvanized ropes in the basket. The excess ropes can be collected in a box.
5	Side Strawmans	It is manufactured in 40x40x2 box profiles. It's height is 100 cm. It is electro galvanized or covered with paint of the desired color.
6	Walking Platform	It is manufactured in 40x40x2 box profiles. 60x200 cm. It is manufactured in modular form of 60x200 cm. It is covered with expanded metal.
7	Electric Control Panel	It was created from telemechanic brand devices. It is equipped with thermals and rolls against phase cuts and extreme difficulties.
8	Rope Tension Weight	It is approximately 15 kg iron material. According the preference, the rope picking does not take place in the system when tambour is used.
9	Under Basket Wheel	There is a heavy duty model with 200x4 dimensions in the basket.

HANGING SCAFFOLDS

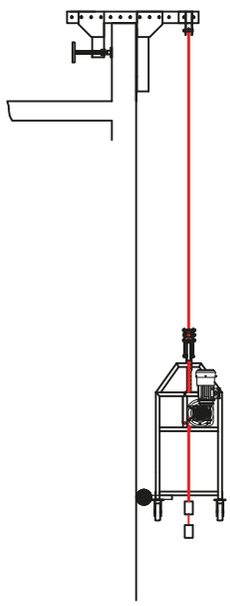
ELECTRICAL HANGING SCAFFOLDS

BASKET BUCKLET RACK STANDARD MODELS



MODEL 1

Counterweighted Mobile Hanger Foot



MODEL 2

Parapet Holding Clamp System

Model 1 Counterweighted Mobile Hanger Foot: It is used when the attic is the terrace. The parapet needs 3 meters free space. Counterweight is 400 kg for each foot, 800 kg in total. The wheels are manually moved by pushing.

Model 2 Parapet Holding Clamp system: In this system, it is necessary that the parapet is made of reinforced concrete and having capacity to carry. It is not used if the parapet thickness is less than 15 cm. can be removed by 1 person. So the displacement process is quite easy.

SKY DOME AND BRIDGE

This system allows cleaning of the skylights in the ceilings of interior spaces from inside and outside in a practical way.

Each one is completely custom and specially designed for the structure.

Since it is made of color matching profile with glass connection construction, it cannot be directly noticeable, it does not disturb internal and external architectural image.

They can also be used for ceiling decoration and similar works.

All equipment that makes up the electrical system is Moller, Siemens and Telemecanic.

All moving parts are coated with electro galvanizing and the other parts are coated with hot dip galvanizing, so that corrosion of the parts is prevented.
Customers can choose the color of the machine by notifying the paint code.

Movements of the platform in the dome system can move horizontally on the bridge to reach entire surface.
Machine control is done by remote control from bridge platforms.

PRODUCT APPLICATIONS

Customers can choose the color of the machine by notifying the paint code. Our products and assemblies are certified with TSEK quality certificate and manufacturing competence certificate ISO 9001:2001 QMS certificate, EN 1808 compliance with European norms and RUSSIA GOST-R certificate.

MOBILE PARACHUTE JUMPING TOWER

It is a simulation machine designed according to the needs of amateur parachute jumpers.

Working height is around 30 meters.

It builds itself hydraulically. Therefore it is very practical since human power is not needed.

Since it is mobile, moving from one place to another is easy.

People who will jump are transported by platform lift. On the platform safe jumping is done under supervision of the instructors.

The fall speed is variable between 10-15 cm/sec. If desired, this speed can be increased by means of rope tambours.

It is a show purpose design and it serves people such as in malls and fairgrounds.

It is possible to increase the working height if desired.

PRODUCT APPLICATIONS

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BRIDGE MAINTENANCE UNITS

It is used for maintenance of large bridged and under the viaducts for future care.

The platform has a capacity of 2 tons and its own weight is around 40 tons.

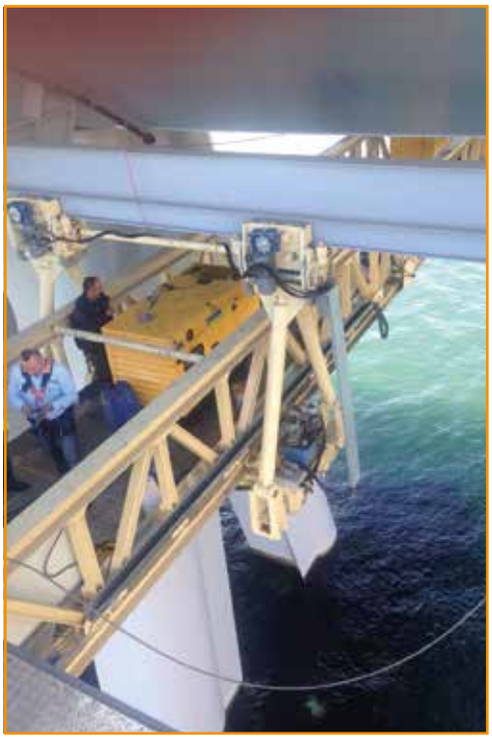
The platform is 4 meters width and 28 meters long. These measures are designed according to bridge sizes.

The horizontal velocity of the bridge platform is variable between 5 cm/sec and 15 cm/sec.

The energy required to run the platform is 380 volts and it is provided by the generator.
The horizontal movement is carried out by holding the rails laid on the lower sides of the bridge by the carriages. During this movement, when the platform comes to the middle, the platform divides into two equal parts to provide foot passage. Once the transition is made, it merges again and continues to move horizontally in one piece.

All of these functions are controlled in electronic environment by PLC control and safety is set to the highest level.

PRODUCT APPLICATIONS



Customers can choose the color of the machine by notifying the paint code. Our products and assemblies are certified with TSEK quality certificate and manufacturing competence certificate ISO 9001:2001 QMS certificate, EN 1808 compliance with European norms and RUSSIA GOST-R certificate.

WELDING ROBOT

It is used for welding large diameter power conduits.

Shielded carbon electrode welder is mounted on the machine. The welding torch is mounted on the boom end and torch is adjusted electrically according to the pipe diameter.

Depending on the depth of the welding opening at the pipe joint to be welded, the torch holding and moving times are programmed by PLC control and welding is performed automatically without touching.

The welding robot moves horizontally on the rails and reaches the other junction and repeats the same operation.

The turning of the hollow pipe during welding is done by means of rollers under the pipe. These wheels and the underground welding machine communicate with each other through the program.
The choice of the setting where the welding robot is to be operated can be on the floor, on the wall or on the ceiling depending on the layout of the working environment.

It is possible to design for any condition.

PRODUCT APPLICATIONS

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RISING PLATFORMS

The platform is hydraulically ascending.

The working height is 30 meters.

The opening and closing speed is 12 cm/sec.

The diameter is about 6 meters and has 1 ton carrying capacity.

Used for show purposes in the malls and atriums.

Promotional products on platform or orchestra for live music serve to provide visuality for show purposes.

The exterior coating can be enriched with suitable colors and lighting system to provide visual mobility.

The height of the closed platform is about 3 meters. It is possible to make a turn, except for the descending movement, if desired.

All the mentioned movements are secured by PLC control. All hydraulic and mechanical equipment is hidden under the platform.

PRODUCT APPLICATIONS

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MOBILE TELECOMMUNICATION POLES

It is used for GSM and telecommunication purposes and it is designed as mobile, therefore moving is very easy.

The carrier feet can be hydraulically opened and folded, easily lifted and transported without the need for any crane.

When the work is put into place, the concrete stands which are ready, feet are presses and hydraulically opened again without any need for any crane.

The opening and closing speed is 10 cm/sec. The mobile poles are made of steel construction and are protected against corrosion by hot dip galvanize.

The working height is about 30 meters and it is manufactured and redesigned according to demand.

Installation and disassembling are very convenient in terms of time and cost for short-term replacement due to practical handling. The masts have elevators to intervene to the mounted devices.

PRODUCT APPLICATIONS

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