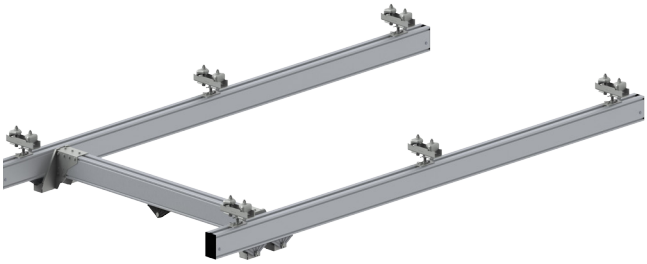
Operating and assembly instructions - partial crane systems
Including crane book



Crane systems

FIPA Crane systems

challenge accepted

Crane system for:

Customer:

Company:

Street:

Postcode / Town:

Country:

Email:

Phone/Fax:

Delivered by:

FIPA GmbH
Freisinger Strasse 30
85737 Ismaning, Germany

Assembly by:

Company:

Street:

Postcode / Town:

Country:

Email:

Phone/Fax:

Project data:

Order date:

Order number:

Project number:

Serial number:

Delivery date:

Technical data

Crane way extrusion type:

Length of the crane way:

Crane girder extrusion type:

Length of the crane girder:

Load capacity per girder incl. lifting unit:

Hoist supplied:

EC Declaration of Conformity

The company:
FIPA GmbH
Freisinger Str. 30
85737 Ismaning
Germany
www.fipa.com

declares under its own responsibility, that the FIPA crane systems:

Item number (project number): _____

which this declaration refers to, are manufactured in accordance with the following Directives:

2006/42/EC (EC Machinery Directive)
2006/95/EC (Low Voltage Directive)
2004/108/EC (EMC Directive)

Ismaning, on _____
Place, date

Rainer Mehrer,
CEO

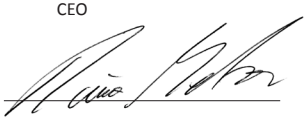


Table of contents

Symbols

- △ Warning
- ⓘ Important information
- 🛠 Commissioning
- 👁 Check

1. INTRODUCTION

FIPA crane systems are created and delivered from a construction kit system, which means the crane systems differ from one another depending on local and technical circumstances and thus represent individual combinations. The aluminium lightweight system has been developed to allow you particularly easy and ergonomic work, whereby the greatest value has been placed on safety.

The operating manual contains a description of the safety rules, installation, operation, maintenance and troubleshooting as well as the technical data.

Peripheral systems installed alongside the crane system, e.g. FIPALIFT tube lifter or FIPA chain hoist, are not described in these operating instructions. Please take note of the separate descriptions for these system parts.

FIPA is constantly striving to develop and improve the design and construction of its crane systems. Therefore FIPA reserves the right to make modifications to the design and technical configuration without notice.

All information in these operating instructions corresponds to the features at the time of publication. Printing errors are possible.

Rainer Mehrer,
CEO

The design and construction of the crane system may not be modified under any circumstances without approval from FIPA GmbH. Only original FIPA accessories and spare parts may be used. Unapproved modifications and/or the use of third party accessories and spare parts can cause severe bodily injury during use and will result in the warranty being voided.

2. SAFETY

Read these operating instructions carefully before initial commissioning and note the following safety rules. The FIPA crane system may only be operated and maintained by personnel who have read these operating instructions and fully understand the content. Display the operating instructions near the crane system so as to be easily accessible and make operators aware of them.

△ Safety regulations

General safety regulations

- > The unit may not be operated or maintained by persons under the influence of alcohol, medications affecting awareness, such as sleeping tablets or strong painkillers or other drugs. Other conditions such as circulatory problems or dizziness are criteria that disqualify persons from operating this system.
- > It is within the operator's scope of responsibility to ensure that no physical injury can arise during work.
- > Work may only be performed by qualified and reliable specialist personnel. Regulations regarding minors must be observed. Before starting work with the system, every user must obtain instruction from a qualified person.
- > Protective equipment, such as safety boots or helmets must be used by operators depending on local circumstances.
- > When working with the crane system, never allow yourself to be distracted and never distract the operator. Lapses of concentration lead to accidents.
- > Do not work with loads that are heavier than the design of the system allows. See product description for your system on page 10. Failure to observe this point can lead to malfunction of the crane system and also to fatal injuries.
- > Secure the working area before initial commissioning.
- > Keep body parts, such as hands and fingers away from pinching points. Pay attention to your hands and the surroundings, especially when handling loads.
- > Do not wear loose clothing or jewellery. Tie back long hair. Clothing, hair and jewellery can get caught in the system and lead to serious injuries.
- > Loads may not be hauled or pulled at an incline. The systems are designed for upright loads.
- > The system must only be used for transporting loads. Any other use (e.g. transporting persons) is prohibited.
- > Keep a safe distance away. During operation, make sure that there is a sufficient safety distance between the load and people, machinery and objects in the surroundings.
- > Always secure the load safely and in accordance with the intended use. Make sure that the load being moved cannot swing.
- > Neither the crane system, the hoists, nor the attached loads may be subjected to strong impacts. If the crane system has been subjected to a considerable shock, e.g. due to collision with a forklift, and no damage is noticeable at first glance, shut down the system for the present despite this and carry out a thorough inspection. Damage to life and limb is a possibility.
- > Do not move the trolleys against the end stops of the crane rails. Sudden deceleration can cause damage to the system and to the trolley.

- > If local conditions give rise to situations that were not foreseeable at the time of writing these operating instructions, the user is responsible for the safe operation of the system. If necessary, operation should be discontinued until measures to restore operation have been undertaken in consultation with FIPA. Please contact our Technical Sales Department.
- > If faults or damage of any kind are discovered, the system must be shut down immediately. Always notify the responsible person in the event of problems with the system, such as abnormal noise or abnormal behaviour.
- > Covers and protective devices may not be removed.
- > Do not misuse any components. The components may only be used for their intended purpose.

Observe the rules and regulations of your national authorities and institutions for occupational safety and operation of lifting equipment.

Electrical safety

- > Work on electrical equipment may only be performed by specialist personnel. Failure to observe this point can lead to serious injuries and death.
- > The power supply must be disconnected before maintenance work. Moving parts must be secured. Similarly, accidental reconnection to the power supply must be made impossible.
- > Make sure that you are always able to press the emergency stop (isolating switch). This shuts down all functions.
- > A mains isolator must be installed for the power supply. It should be installed so as to be easily accessible and secured against accidental switching on.
- > Warning, information and safety signs must be kept legible and undamaged. They may not be removed or made illegible under any circumstances.
- > Keep electrical components away from rain and moisture. The ingress of water increases the risk of an electric shock.
- > The protective earth must be identified with the colours green/yellow along its entire length and must not carry current. The protective earth connection must be secured against coming loose.
- > Do not misuse any cables. Keep cables away from heat, oil, sharp edges and moving machine parts. Damaged or knotted cables increase the risk of electric shock.

Unauthorised use

The following types of use of the system are strictly prohibited by FIPA GmbH:

> Carriage of persons.
> The specified maximum load may not be exceeded.
> Transporting the suspended load above persons.
> Letting the suspended load fall.
> Releasing loads secured in the system.
> Overloading the transport mechanism.
> Leaving suspended loads unattended.
> Unless motorised, the load must be led by hand and may not be hurled.
> Loads may not be hauled or pulled at an incline.

If these points are not observed, the user bears the full risk and is liable for all resultant damage and faults!

The systems are used exclusively for the purpose agreed in the order confirmation. They are generally used as work aids. In the event of use other than as agreed in the order confirmation, FIPA GmbH accepts no liability for any damage or accidents that may occur. In this case, responsibility for all risks lies with the user.

3. PRODUCT DESCRIPTION

System components - parts list for delivered crane system

Item number	Description	Quantity	Unit

4. INSTALLATION AND COMMISSIONING

Assembly of the system or its components may only be performed by trained personnel. The system must not be loaded before starting assembly or replacing components! The power supply must be disconnected! A viable and secure overhead structure must be available!

Condition as delivered
The system is delivered by FIPA assembled and adjusted. The assembly, acceptance and inspection is undertaken by a company appointed by FIPA.

Acceptance and inspection
Acceptance and inspection of the assembly of the system and its electrical system must be performed by the manufacturer's specialist personnel. If a third party is appointed by the operator to undertake this task instead, the operator then bears responsibility for selecting suitable personnel and for initiating/performing the inspection.
The requirements placed on the inspecting party are:

- Comprehensive knowledge of mechanical engineering and the electrical systems of cranes and hoists
- Adequate experience in operation, assembly, maintenance and servicing of cranes
- Comprehensive knowledge of the engineering practices, guidelines and, if appropriate, safety regulations relevant to acceptance. Requirements in this regard from national regulations must be observed in the particular case, e.g. in Germany the accident prevention regulation for cranes

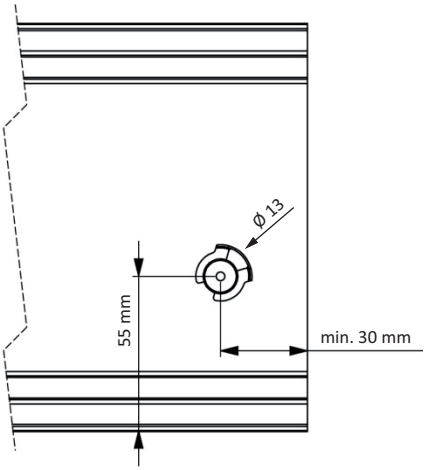
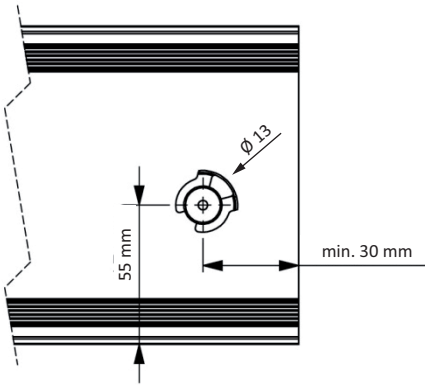
Torque chart

Screw	Tightening torque
M8	35 Nm
M12	85 Nm
M16	180 Nm

Installation of fixed stops

> ⚠ **In order to prevent the trolleys falling out of the extrusion rails, fixed end stops must be attached to each end extrusion!**

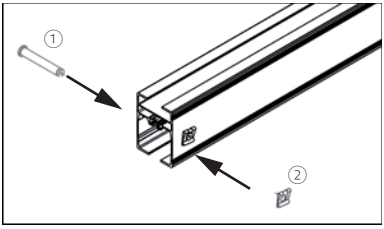
🛠 **Step 1:**
Drill a through hole with a diameter of 13 mm at the positions shown below:

For extrusions of sizes S - XL:	For XS extrusions:
	

ⓘ A drill template is also available to aid in positioning the hole (Item number KT05.052)

🛠 After drilling, the extrusion must be cleaned so that there is no swarf remaining in the extrusion.

🛠 **Step 2:**

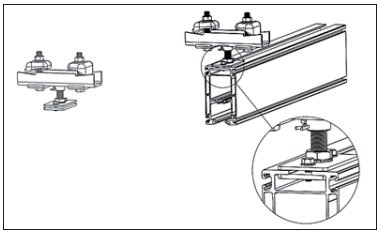


Insert end stop a into the hole and secure it from slipping with ① clamp lock ②.

Installation of a monorail

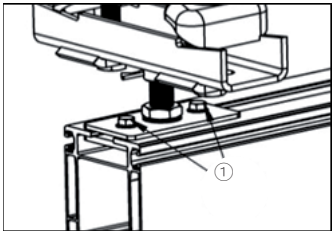
> **The protrusions of the rails on the crane way ends, as well as the distances from the next suspension to the rail joint, must correspond to the planning framework. Note the technical documentation!**

Step 1:



Insert the pendular suspensions at the desired suspension positions.

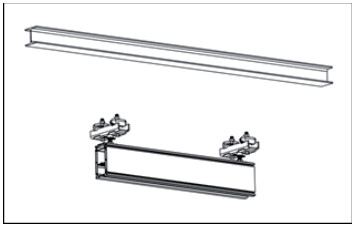
Step 2:



Tighten ratchet screw ① M8 in accordance with the torque chart!

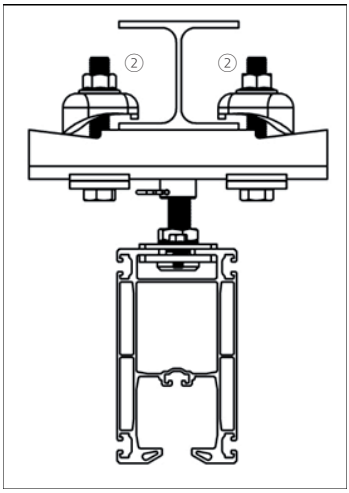
> **Use suitable equipment to lift it, such as a forklift. The extrusion must be secured to prevent it from falling!**

Step 3:



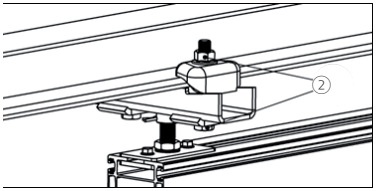
Lift the extrusion onto the overhead structure.

Step 4:



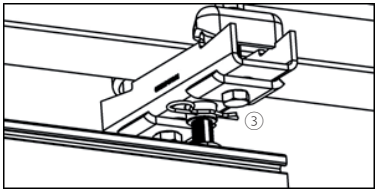
Move the screws of the clamping jaws ② as close as possible to the overhead structure.

Step 5:



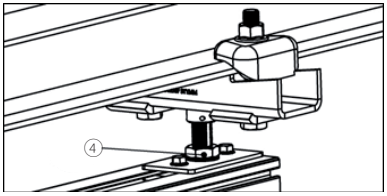
Tighten all screws on the clamping jaws ② in accordance with the torque chart!

Step 6:

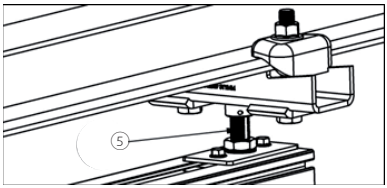


Readjustment is necessary in order to bring the extrusion to position that is as horizontal as possible. First, pull the clip connector ③.

Loosen nuts ④



Rotate the threaded rod ⑤ to adjust the height.

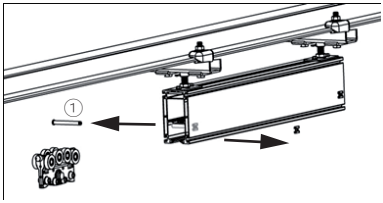


Do not unscrew the screw too far! Secure the crane way to the overhead structure with steel cable to prevent it from falling!

- Re-tighten the nuts ④ and re-insert the clip connector ③!
- In every case, ensure that the clip connector is in the correct position and the threaded rods cannot come loose themselves.

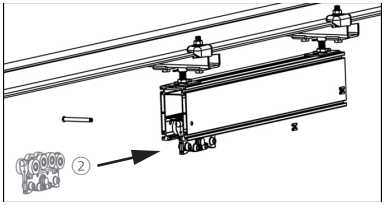
Installation of the trolleys

Step 1:



Loosen the fixed end stop ①.

Step 2:

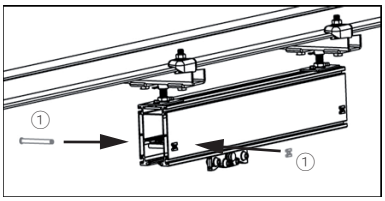


Insert the trolley ② into the rail.

Step 3:

If required, insert variable end stops (description in following section "Installing movable stops").

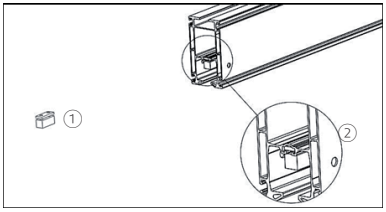
Step 4:



Insert and secure the fixed end stop ① back into the crane way.

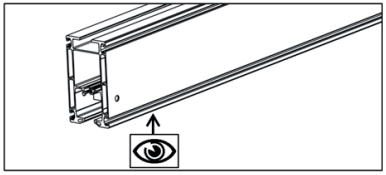
Installing movable stops

Step 1:

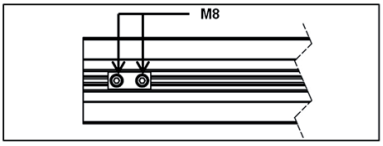


Insert the variable end stop ① into the channel and position it behind the hole ② for the fixed end stop:

Step 2:



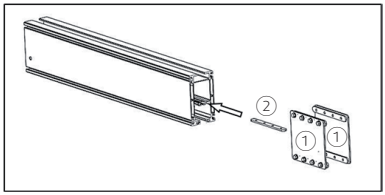
Check the variable end stop from the underside of the crane way and...



... fasten the variable end stop according to the torque chart.

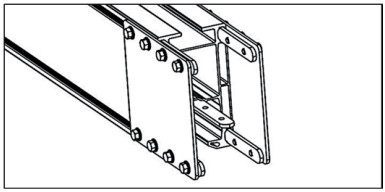
Connecting crane ways

🛠 Step 1:

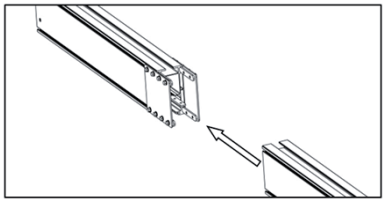


Insert both joint transitions ① and the channel nuts ② into the profile. The joint transitions are inserted on the outer channel and the channel nuts on the inner channel of the extrusion:

Position the joint transitions and the channel nut centrally from the end of the extrusion! This is absolutely essential.



🛠 Step 2:

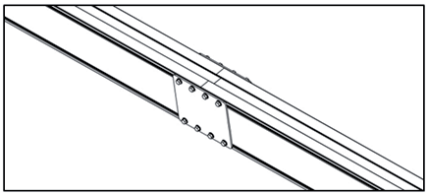


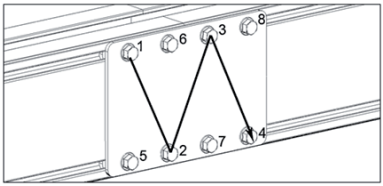
Joint the second extrusion flush to the first.

Step 3:

Secure all screws of the joint transition and the channel nuts with the tightening torques in accordance with the torque chart.

Pay particular attention to a flush connection between the running surfaces of the extrusions. There must not be any play.



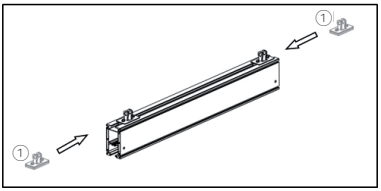


When tightening the screws, proceed in a cross-wise sequence.

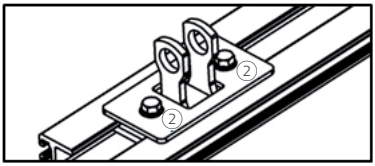
Installing the monorail girder

The dimensions of the girder and the extrusions must correspond to the planning criteria!

Step 1:



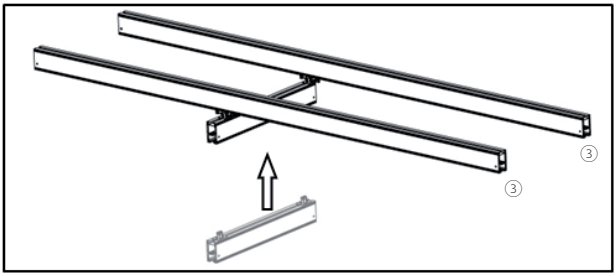
Insert two crane suspensions ①. Position these in accordance with the planning criteria.



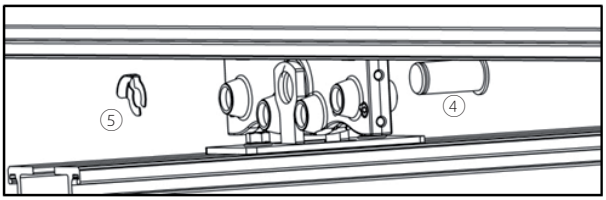
Tighten all screws ② on the crane suspensions in accordance with the torque chart.

Step 2:
Install one trolley each into the crane ways ③ in accordance with the previous chapter and position them at the distance of the crane suspensions. Then lift the girder to the height of the trolley bolts.

> **Use suitable equipment to lift the girder, such as a forklift. Hazards such as the girder falling down must be prevented. Secure the girder!**



Step 3:
Position the crane suspensions centrally from the trolley. Then secure the girder using the bolt ④ and the retaining ring ⑤.

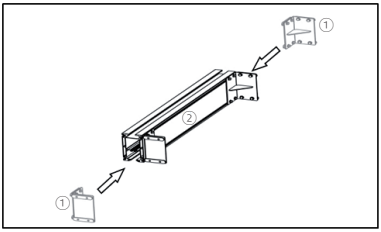


Step 4: Insert the variable and fixed end stops. When doing so, note the previous relevant chapters.

Installing the two-rail girder

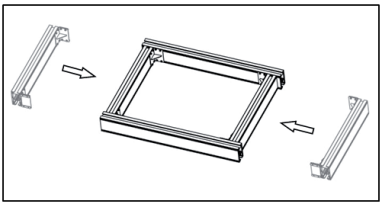
> **The dimensions of the girder and the extrusions must correspond to the planning criteria!**

🛠 Step 1:



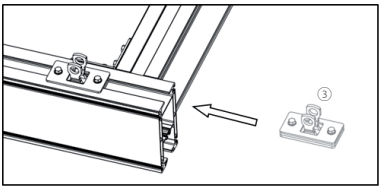
Insert the corners ① into the outer channel of the spacing extrusion ②.

🛠 Step 2:

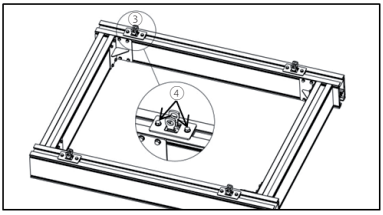


Join the spacing extrusions to a girder in accordance with the planning criteria. Fasten all screws in accordance with the torque chart.

🛠 Step 3:



Insert four crane suspensions ③. Position these in accordance with the planning criteria and...

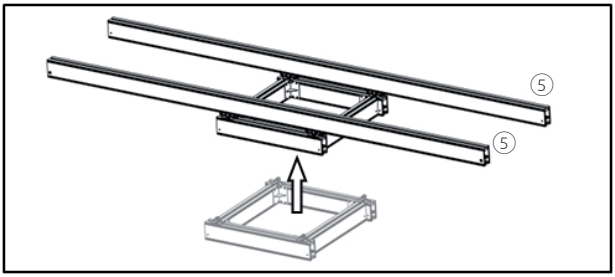


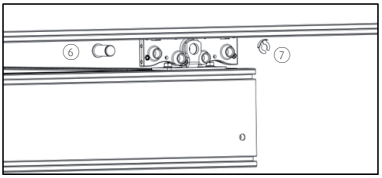
...tighten all screws ④ on the crane suspensions in accordance with the torque chart.

Step 4:

Install two trolleys each into the crane ways ⑤ in accordance with the previous chapter and position them at the distance of the crane suspensions. Then lift the girder to the height of the trolley bolts.

> **Use suitable equipment to lift the girder, such as a forklift. Hazards such as the girder falling down must be prevented. Secure the girder!**





Position the crane suspensions centrally from the trolley. Then secure the girder using the bolt ⑥ and the retaining ring ⑦.

Step 5:

Insert the variable and fixed end stops. When doing so, note the previous relevant chapters.

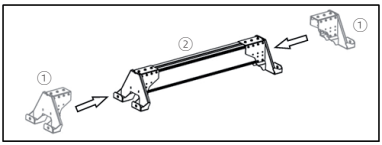
Installing the elevator

> **The dimensions of the girder and the extrusions must correspond to the planning criteria!**

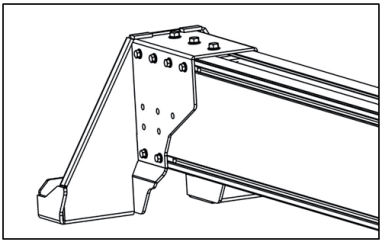
Step 1:

Install trolleys, drivers for cable drag, power chains and adjustable end stops in the girder extrusion. This cannot be done after the elevator is installed.

Step 2:



Push the elevators ① onto the girder extrusion ②.

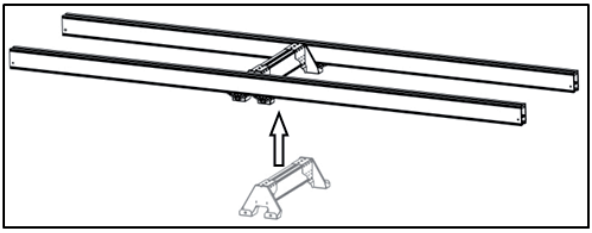


The elevators must be pushed all the way onto the extrusion. Then tighten all screws in accordance with the torque chart.

Step 3:

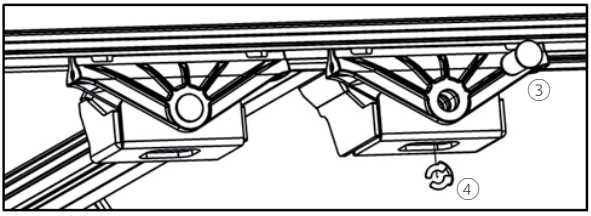
Install two gabe trolleys each into the crane ways ③ in accordance with the previous chapter. Then lift the elevators into the gabe trolleys at the height of the trolley bolts.

Use suitable equipment to lift the girder, such as a forklift. Hazards such as the girder falling down must be prevented. Secure the girder!



Step 4:

Then secure the girder using four bolts ③ and four retaining rings ④.



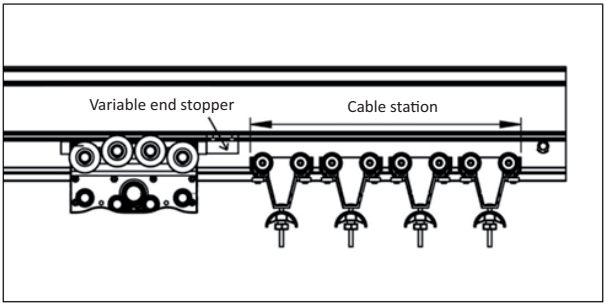
🛠 **Step 5:**
Insert the fixed end stops into the crane way. When doing so, note the previous relevant chapters.

Installing the cable drag

🛠 **Step 1:**
Install a cable driver before running in the trolley.

🛠 **Step 2**:
Move the cable trolleys into the extrusion. Then open the clamp and clamp the media supply onto the cable trolley at equal distances. When the power supply is extended, the media supply must still remain slightly slack.

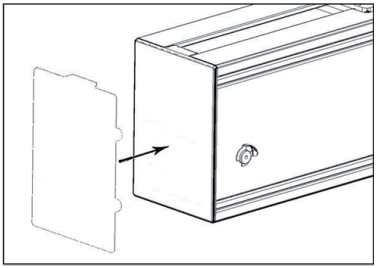
When using cable trolleys, use the variable end stopper to ensure that the driving trolley cannot run into the cable trolleys.



Installing the extrusion terminator

🛠 **Step 1:** Snap off the studs from the extrusion terminator.

🛠 **Step 2:**
Place the extrusion terminator onto the extrusion. Press the studs into the holes.



5. ACCEPTANCE INSPECTION

The personnel responsible for performing the inspection, e.g. the crane driver, must be sufficiently qualified in order to undertake this activity and must be made available by the operator.
The acceptance inspection of the crane system must be performed before initial commissioning by the inspector. Ensure that no person is put at risk during the inspection.

The following points must be performed during the inspection:

- Check the inspection log, from page 26.
- Inspection for compliance with any safety regulations (UVV BGV D 6, safety clearances, etc.)
- Check that the fully assembled system conforms to technical specifications.
- Ensure that the power supply is correctly installed and the operating sequence cannot be impeded.
- Check for compliance with any safety regulations to be complied with, e.g. accident prevention regulations.
- Inspect the safety devices and check measures.
- The results of the inspection must be documented in the inspection log book.
- The inspector must make a decision on commissioning.
- If defects are discovered during the course of the inspection, the operator has to ensure they are redressed immediately. The inspector has to decide whether a new inspection should be performed following remedy of defects.

Acceptance inspection after a substantial change

If substantial changes have been made to the system, an acceptance inspection must be drawn up by the inspector before the system is re-commissioned. The sequence is the same as the inspection before the initial commissioning.

Regularly recurring inspection

The system must be inspected by a trained inspector according to the conditions of use (utilisation of the max. load capacity, operating frequency and the environmental conditions). A system with a large number of operating hours that is mainly operated at full load should be inspected more frequently than, for example, a system that is only used occasionally.

Dusty or aggressive atmospheres can also shorten the inspection interval. The inspection periods vary from the maximum inspection period of 1 year and therefore should be specified in consideration of the conditions of use, and in consultation with the manufacturer in case of doubt.

The results of this inspection must be documented in the crane inspection log book.

Basically the recurring inspection must include:

- Check the identity of the system against the details in the inspection log book.
- Inspect the condition of components and equipment in terms of damage, wear, corrosion and other changes.
- Check the completeness and effectiveness of the safety equipment.
- Inspect the crane way with its supports and connections.
- Re-inspect if defects affecting safety have occurred and have been rectified.

5. INSPECTION DOCUMENTS AND INSPECTION LOG BOOK

Inspection before initial commissioning or after retrofit
in accordance with UVV for cranes Section 25 BGV D6 (accident insurance regulations)

Inspection before initial commissioning has been performed.

For commissioning there are

- ☐ no reservations
- ☐ reservations, see inspection sheet for reasons (page 31-35)

Re-inspection is

- ☐ not necessary
- ☐ necessary

Place, date	Signature of the inspector	BG-Z No. (stamp controller)

Re-inspection (if required)

Place, date	Signature of the inspector	BG-Z No. (stamp controller)

Inspection log book for recurring inspections

The inspection log book must be stored carefully and presented to supervisory authorities on request.

Manufacturer: FIPA challenge accepted	Installation company:	Date:
FIPA GmbH Freisinger Strasse 30 D-85737 Ismaning, Germany Phone.: +49 89 962489-0 Fax: +49 89 962489-11		FIPA project number:

Comments	**Name and company of the inspector**
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number _____)	--- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number _____)	--- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number _____)	--- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number _____)	--- Date / Signature

Comments	**Name and company of the inspector**
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature

Comments	**Name and company of the inspector**
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature
The recurring inspection in accordance with the *maintenance instructions* has been performed. - No - defects were identified (see inspection findings report number ________________________)	-- Date / Signature

7. SERVICING AND MAINTENANCE

Maintenance instructions

- > Maintenance work may only be undertaken by qualified personnel. All other persons are prohibited from such activities.
- > Before commencing maintenance work, the power supply must be disconnected and moving parts must be fixed in place and secured. Similarly, accidental reconnection to the power supply must be made impossible.
- > In order to prevent accidents, only approved and suitable tools may be used when working on the systems.
- > Extreme heat (e.g. welding) should be avoided when using cleaning materials on the systems. The same applies for proximity to readily combustible or heat-sensitive components (e.g. plastics). Failure to observe this point will lead to a risk of fire wherein the release of toxic gases is possible.
- > The running surfaces of the trolleys in the extrusions must be kept clear of dirt.
- > Contact with concentrated bases and acids can lead to dangerous degradation and corrosion of the crane; if necessary, affected parts should be replaced promptly.
- > The intervals and procedures for maintenance work, as they are described in the operating instructions, must be adhered to. The same applies for intervals relating to the replacement of spare parts and wear parts.
- > Only original FIPA accessories and spare parts may be used. Unapproved modifications and/or the use of third party accessories and spare parts can cause severe bodily injury during use and will result in the warranty being voided.
- > Tightening torques for screws and installation data for any spare parts can be found in the assembly instructions and must be adhered to.
- > Locknuts must be replaced no later than after the fourth time of being unscrewed. They must not be replaced with normal nuts.
- > The manufacturer must be allowed to inspect the installed aluminium extrusions of the crane system(s) after an operating life of 15 years with regard to their remaining service life.

Maintenance and servicing record

The maintenance and servicing record must be completed and kept safe by the customer and must be produced as required.

The crane system must be maintained and inspected in accordance with the operating instructions.

Precise specifications and maximum permitted values can be found in the operating instructions. The specified intervals are valid for crane systems in single-shift normal operation. In the case of multi-shift operation and in difficult conditions, such as extreme heat or aggressive atmospheres, shorter servicing intervals are necessary.

Type of maintenance and servicing:

A: Visual inspection; check components for damage
B: Mechanical inspection; check components for mechanical damage/faults
C: Ergonomic inspection; check the smooth running and practical usability of the product

No.	Type	Inspection characteristic	Inspection intervals			Checked		Findings	Next inspection
			3 months	6 months	12 months	on:	by:		
1-Entire system									
1. 1	A	Overall impression of the system, interview		x					
		operating personnel about defects							
2-Suspensions									
2.1	B	Check crane way suspensions are correctly seated			x				
		on the overhead structure and check the screw connections of the clamping jaws							
2.2	A	Check safety elements are correctly seated e.g.			x				
		clip connector and cotter pin							
2.3	A, C	Function/wear of the brass guide shells			x				
2.4	B	Check screws on the clamping plates of the			x				
		running rails							
2.5	A, B	For crane girder suspensions, check wear on the			x				
		straps (max. 0.5 mm), check screws on the							
		clamping plates on the running rails							
3-Running rails									
3.1	A	Check the aluminium extrusions for damage			x				
		or deformation (especially in case of							
		forklift operation)							
3.2	A, B	Check screws on joint transitions,			x				
		check transitions on rail joints							
3.3	A	Clean running surfaces in the extrusions			x				
		and check for wear							

No.	Type	Inspection characteristic	Inspection intervals			Checked		Findings	Next inspection
			3 months	6 months	12 months	on:	by:		
3.4	A, B	Check stops and buffer for wear,			x				
		Check screws and retaining clips							
4-Trolleys									
4.1	A	Check all trolleys for damage			x				
		(especially in the area of the load pick-up)							
4.2	A, C	Check all rollers for smooth running,			x				
		quietness and wear							
4.3	A, C	If fitted, check side pinch rollers for smooth running and wear		x					
4.4	A	Check wear on the suspension bolts			x				
		max. 1 mm diameter							
4.5	A	Check retaining clips on the suspension bolts			x				
4.6	A	Check connectors between trolleys			x				
		and lifting equipment							
5-Power units									
5.1	A	Clean drive wheel and check for wear		x					
5.2	B	If necessary, adjust drive wheel contact pressure		x					
6-Power chain power supply									
6.1	A	Check media lines in the chain for damage			x				
6.2	B	Check screws on chain driver and fastening			x				
		of the chain sump							
7-Trailing line power supply									
7.1	A	Check damage and route of the line (kinks),			x				
		clamping of the line in the trolley							
7.2	A,C	Wear and running characteristics of the cable trolleys			x				
7.3	A	Seat of cable driver and end clamps			x				

No.	Type	Inspection characteristic	Inspection intervals			Checked		Findings	Next inspection
			3 months	6 months	12 months	on:	by:		
8-Conductor line power supply									
8.1	B	Check screws on the conductor line fastening		x					
8.2	A	Damage to the conductor line		x					
8.3	A	Deposits/wear on the conductor contacts		x					
8.4	A, C	That the pantograph trolley easily passes through		x					
		the rail transitions							
8.5	A, C	Wear and contact pressure of the contacts on the		x					
		pantograph trolley							
8.6	A	Damage to the line or insulation on		x					
		rail power feed and pantograph trolley							
9-Tube lifter, lifting equipment and manipulators									
Please refer to the respective documentation for the equipment regarding maintenance guidelines and intervals.									

8. RISK ASSESSMENT AND ANALYSIS

No.	Area	Potential hazard source	Action	Residual risk
1.	**General hazards**			
1.1.	Moving system components	Shearing off, crushing or snagging of media lines or other components	When planning the operating area, take into account the supply lines and any interfering contours that are present or planned. In addition, a sufficient gap away from all adjacent interfering contours should generally be planned. If the system is installed in an area accessible by persons (UK crane girder < 2.2 m), then corresponding free spaces must be provided between the moving components of the system and the fixed interfering contours of the surrounding area.	Loosening of cable connectors or other fastenings.
1.2.	Suspended load	Uncontrolled movement of the load due to incorrect operation of the system	The load must be guided directly or indirectly by the operators when moving until it is at rest.	Movement of the load due to external factors
1.3.	Entire system	Uncontrolled movement of the load due to incorrect installation of the system	The entire system must be fastened to the overhead structure in such a way that the crane way hangs horizontally in both directions.	Damage to the suspensions due to external factors
1.4.	System assembly	Incorrect assembly	The assembly instructions must be followed exactly. If instructions are unclear, contact the manufacturer.	Human error
2.	**Relating to the system**			
2.1.	Crane way suspensions	Loosening of the screws for the clamp on the overhead structure and the crane way fixing	The screw connections must be inspected within the prescribed maintenance intervals. (See assembly instructions) Furthermore, carry out a visual inspection to check the suspensions are correctly seated before operating the system.	External influences (e.g. forklift, higher-level crane or similar)
2.2.	Crane way suspensions	Damage to the threaded rods	The distance between the crane girder suspensions on the crane girders must be adjusted to the span of the crane way. In the case of forces acting upwards (in the case of rigid load guides or protruding structures), a rigid suspension must be used.	External influences
2.3.	Crane way suspensions	Suspension bending open / Crane way extrusion bending open	The specified max load must be adhered to.	The system accidentally gets caught in an object which is fixed, too heavy or moving (forklift, pallet truck, etc.)
2.4.	Crane way/girder	Sharp edges on the raw edges	Cover the edges with the end caps provided.	

No.	Area	Potential hazard source	Action	Residual risk
2.5.	Trolleys	Damage to the trolleys in the area of the load pick-up	No load pick-ups with sharp edges or raw surfaces may be used.	The load pick-up is rotated by an external effect with large force
2.6.	Plastic trolleys	UV radiation on the trolleys	High-intensity UV radiation should be kept away from the plastic trolleys	
2.7.	Trolleys	Bolts in the area of the load pick-up coming out	The area of the load pick-up must be inspected in the prescribed maintenance intervals. In addition, attention should be paid to play in the area of the load pick-up during operation of the system.	Maintenance intervals not observed
2.8.	Connection bolts	Load pick-up, crane girder suspensions	The retaining cotter pins should be regularly inspected to ensure they are correctly seated.	Maintenance intervals not observed

Notes

Notes

Headquarters:
FIPA GmbH
Freisinger Straße 30
85737 Ismaning / Germany
Phone +49 89 962489-0
Fax +49 89 962489-11
info@fipa.com | www.fipa.com

FIPA Inc.
1855 Evans Road
Cary, NC 27513 / USA
Phone +1 919 651 9888
Fax +1 919 573 0871
sales.us@fipa.com | www.fipa.com

FIPA Ltd.
The Trendy Plaza, 10/30 1A Floor
Sukhumvit 13 Klong Toey Nua, Wattana
10110 Bangkok / Thailand
Phone +66 2 1687036
Fax +66 2 1687037
sales.th@fipa.com | www.fipa.com

FIPA
challenge accepted