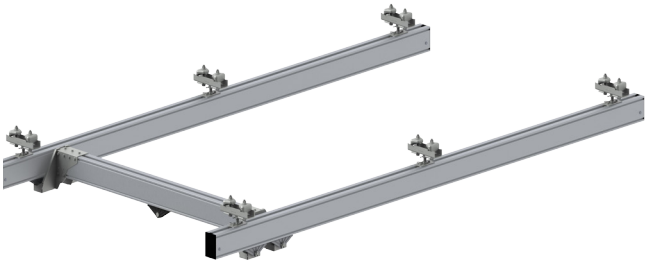
Inspection and maintenance documents - partial crane systems



Crane systems

FIPA Crane systems

challenge accepted

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.
> 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.

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

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
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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.									

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

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