



Operating manual

for

Positioner / Tack Gantry

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1 General

1.1 Preface to the Operating Instructions

The machine/equipment is constructed to the latest standards of technology and to the accepted safety regulations. However, danger of death or injury to the user or third parties or damage to the machine or other property may be caused by its use.

Use the machine/equipment only in a technically perfect condition for its intended purpose, taking account of safety and dangers and observing the operating instructions. In particular, repair or have repaired faults which can be detrimental to safety immediately.

Retain the operating instructions permanently and ready for use at the installation site of the machine/equipment (in the tool compartment or the provided container).

The operating instructions must be read and observed by all persons assigned to work with/on the machine/equipment such as

- operation, including setting, fault elimination during operations, the removal of production wastes, upkeep, disposal of operating and auxiliary materials
- maintenance (maintenance, inspection, repair).

Apart from the operating instructions, observe the mandatory regulations of accident prevention and the accepted technical rules of safe working in the county of use and at the installation site.

1.2 Copyright

The copyright to the machine/equipment is the property of Ingenieurtechnik und Maschinenbau GmbH, Deutschland. Guarantees are agreed by contract.

Guarantee claims will be generally deferred in the case of usage contrary to the intended purpose.

1.3 Guarantee

IMG guarantees that these operating instructions are compiled in compliance with the technical and functional parameters of the delivered machine/equipment.

The manufacturer reserves the right to add supplementary information.

Guarantee and warranty claims will only be accepted under the conditions of the "General Conditions of Sale and Delivery" or by special contract agreement.

Guarantee and liability claims for damages to persons and/or property are void if they result from one of the following causes:

- usage of the machine/equipment contrary to the intended purpose,
- disregard of the regulations for this machine/equipment,
- inappropriate operation of maintenance,
- operation of the equipment with disabled protective measures,
- arbitrary functional or constructional modifications to the machine/equipment,
- modifications to the software of the machine/equipment,
- removal of parts or installation of spare parts or ancillary equipment not delivered or approved by the manufacturer,
- inappropriate repairs or incorrect actions,
- the effects of foreign bodies in catastrophes.

2 Product description

2.1 Appropriate use

The Positioner / Tack Gantry is used for gripping, handling and positioning and mounting of profiles.

Usual is to unload respectively one profile from a profile pallet, thereafter handling and positioning to the support structure. The profile can be pressed on the panel and welded by means of the MAG welding machine, placed at the Positioner / Tack Gantry.

2.2 Layout of the machine/plant

Altogether are 4 Positioners / Tack Gantries arranged on a common rail.

The Positioner / Tack Gantry is a rail mounted semi gantry with a mobile trolley with manipulator travelling on the gantry girder.

The semi gantry consists of a gantry girder, gantry supports and the travelling units with the drive motors.

The driven trolley bears the manipulator. Also the gantry is equipped with a MAG welding machine.

2.3 Technical data

– lifting capacity	500 kg
– pressing force	5 kN
– angle of rotation of gripper	±183°
– speed of gantry	max. 20 m/min
– speed of trolley	max. 20 m/min
– lifting height	1500 mm
– lifting speed	max. 6 m/min
– rail distance	10.650 mm
– travelling distance Tack Gantry 1/2	62,5 m
– travelling distance Tack Gantry 3/4	59 m

Material range to be handled:

Holland profiles	min. 80 mm high, max. 550 mm high x 12 mm thick
Tee profiles	min. 80 mm high, max. 500 mm high, 230 mm wide x 12 mm thick
Unequal angles	min. 80 mm high, max. 550 mm high, 150 mm wide
Flat bar	min. 80 mm high, max. 550 mm high
Length range	1000 mm to 12000 mm
Max. weight	500 kg (simplex mode with one manipulator)
Max. weight	1000 kg (tandem mode with two manipulators)

2.4 General drawing

drawing-no 277-659 Positioner / Tack Gantry

see following pages

3 Safety information for handle with the machine/plant

3.1 Basic operation and designated use of the machine/plant

The machine/plant has been built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or of third parties, or cause damage to the machine and to other material property.

The machine/plant must only be used in technically perfect condition in accordance with its designated use and the instructions set out in the operating manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine/plant. Any functional disorders, especially those affecting the safety of the machine/plant, should therefore be rectified immediately.

The mounting portal is only for use of gripping of profiles out of the profile pallet.

Any other form of use or one going beyond, this shall be considered inappropriate.

The maker / supplier shall have no liability whatsoever for any damage caused as a result. The user shall bear the entire risk.

Operating the machine within the limits of its designated use also involves observing the instructions set out in the operating manual and complying with the inspection and maintenance directives.

3.2 Reference to the safety notes of the individual units

! Follow the instructions given in the safety-related information documentation for the attached machine/unit parts!

- DEMAG: Operation instruction angular gear W10-100
- DEMAG: Operation instruction A10-90 offset gearbox
- DEMAG: Operation instruction motor Z-Series
- DEMAG: Operation instruction wheel block system DRS 112 – 200
- SEW: Operation instruction frequency inverter Movitrac B
- SIEMENS: Betriebsanleitung SIRIUS safety relay
- KEMPPPI: Operation instruction Fast Mig™ Synergic 400
- KEMPPPI: Operation instruction Fast Mig™ Synergic MSF 55
- TEKA: Operation instruction Ventilator
- MUK: Documentation Z-axis 5 kN

3.3 General safety informations

The operating instructions must always be at hand at the place of use of the machine/plant, e.g. by stowing them in the tool compartment or tool-box provided for such purpose.

In addition to the operating instructions, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.

These compulsory regulations may also deal with the handling of hazardous substances, issuing and/or wearing of personal protective equipment, or traffic regulations.

Personnel entrusted with work on the machine must have read the operating instructions and in particular the chapter on safety before beginning work. Reading the instructions after work has begun is too late. This applies especially to persons working only occasionally on the machine, e.g. during setting up or maintenance.

See to it that safety instructions and warnings attached to the machine are always complete and perfectly legible.

Never make any modifications, additions or conversions which might affect safety without the supplier's approval. This also applies to the installation and adjustment of safety devices and valves as well as to welding work on load-bearing elements.

Spare parts must comply with the technical requirements specified by the manufacturer. Spare parts from original equipment manufacturers can be relied to do so.

Take the necessary precautions to ensure that the machine is used only when in a safe and reliable state.

Operate the machine only if all protective and safety-oriented devices, such as removable safety devices, emergency shut-off equipment, sound-proofing elements and exhausters, are in place and fully functional.

Never switch off or remove suction and ventilation devices when the machine is in operation.

Use protective equipment wherever required by the circumstances or by law.

Observe all safety instructions and warnings attached to the machine/plant.

Carry out welding, flame-cutting and grinding work on the machine/plant only if this has been expressly authorized, as there may be a risk of explosion and fire.

Before carrying out welding, flame-cutting and grinding operations, clean the machine/plant and its surroundings from dust and other inflammable substances and make sure that the premises are adequately ventilated (risk of explosion).

When handling oil, grease and other chemical substances, observe the product-related safety regulations!

Be careful when handling hot consumables and auxiliary materials (risk of burning or scalding)!

3.4 Selection and qualification of personnel - Basic responsibilities

Any work on and with the machine/plant must be executed by reliable personnel only. Statutory minimum age limits must be observed.

Employ only trained or instructed staff and set out clearly the individual responsibilities of the personnel for operation, set-up, maintenance and repair.

Define the machine operator's responsibilities - also with regard to observing traffic regulations - giving the operator the authority to refuse instructions by third parties that are contrary to safety.

Work on the electrical system and equipment of the machine/plant must be carried out only by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.

Work on the pneumatic system must be carried out only by personnel with special knowledge and experience of pneumatic equipment.

3.5 Safety information for the owner of the machine/plant

Check - at least from time to time - whether the personnel is carrying out the work in compliance with the operating instructions and paying attention to risks and safety factors.

The personnel must be familiar with the location and operation of fire extinguishers.

For the execution of maintenance work, tools and workshop equipment adapted to the task on hand are absolutely indispensable.

Make sure that only authorized personnel works on or with the machine.

Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine/plant without being permanently supervised by an experienced person.

3.6 Safety information for the operator of the machine/plant

In the event of safety-relevant modifications or changes in the behaviour of the machine/plant during operation, stop the machine/plant immediately and report the malfunction to the competent authority/ person.

Observe all fire-warning and fire-fighting procedures.

Avoid any operational mode that might be prejudicial to safety.

Check the machine/plant at least once per working shift for obvious damage and defects. Report any changes (incl. changes in the machine's working behaviour) to the competent organization/person immediately. If necessary, stop the machine immediately and lock it.

In the event of malfunctions, stop the machine/plant immediately and lock it. Have any defects rectified immediately.

During start-up and shut-down procedures always watch the indicators in accordance with the operating instructions.

Before starting up or setting the machine/plant in motion, make sure that nobody is at risk.

Always wear the prescribed ear protectors.

3.7 Safety information for maintenance and servicing of the machine/plant

The operating instructions must be supplemented by instructions covering the duties involved in supervising and notifying special organizational features, such as job organization, working sequences or the personnel entrusted with the work.

Adhere to prescribed intervals or those specified in the operating instructions for routine checks and inspections.

Never modify the software of programmable control systems.

Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.

Replace pneumatic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.

Brief operating personnel before beginning special operations and maintenance work, and appoint a person to supervise the activities.

Ensure that the maintenance area is adequately secured.

Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact.

Use only original fuses with the specified current rating. Switch off the machine/plant immediately if trouble occurs in the electrical system!

Work on the electrical system or equipment may only be carried out by a skilled electrician himself or by specially instructed personnel under the control and supervision of such electrician and in accordance with the applicable electrical engineering rules.

The electrical equipment of machines/plants is to be inspected and checked at regular intervals. Defects such as loose connections or scorched cables must be rectified immediately.

Necessary work on live parts and elements must be carried out only in the presence of a second person who can cut off the power supply in case of danger by actuating the emergency shut-off or main switch. Secure the working area with a red-and-white safety chain and a warning sign. Use insulated tools only!

Observe any existing national regulations if work is carried out in narrow rooms.

Work on hydraulic equipment may be carried out only by persons having special knowledge and experience in hydraulic systems!

Check all lines, hoses and screwed connections regularly for leaks and obvious damage. Repair damage immediately. Splashed oil may cause injury and fire.

Work on pneumatic equipment may be carried out only by persons having special knowledge and experience in pneumatic systems!

4 Instructions for Transport and Setting Up

Transport and setting-up of the machine / unit will be done at the responsibility of the technical staff of IMG.

5 Operating instructions

5.1 References to the operating instructions of the component suppliers

The following operating instructions must be read, understood and observed by the operator before operating the machine/system:

- DEMAG: Operation instruction angular gear W10-100
- DEMAG: Operation instruction A10-90 offset gearbox
- DEMAG: Operation instruction motor Z-Series
- DEMAG: Operation instruction wheel block system DRS 112 – 200
- SEW: Operation instruction frequency inverter Movitrac B
- SIEMENS: Betriebsanleitung SIRIUS safety relay
- KEMPPPI: Operation instruction Fast Mig™ Synergic 400
- KEMPPPI: Operation instruction Fast Mig™ Synergic MSF 55
- TEKA: Operation instruction Ventilator
- MUK: Documentation Z-axis 5 kN

5.2 Warning of special dangers

The Positioner / Tack Gantry is not lifting equipment. Since however it is used to lift and transport loads, applicable safety regulations for lifting equipment must be observed. Safety equipment (signal horn and warning signal light) must be kept operational at all times.

Do not stand under a suspended load.

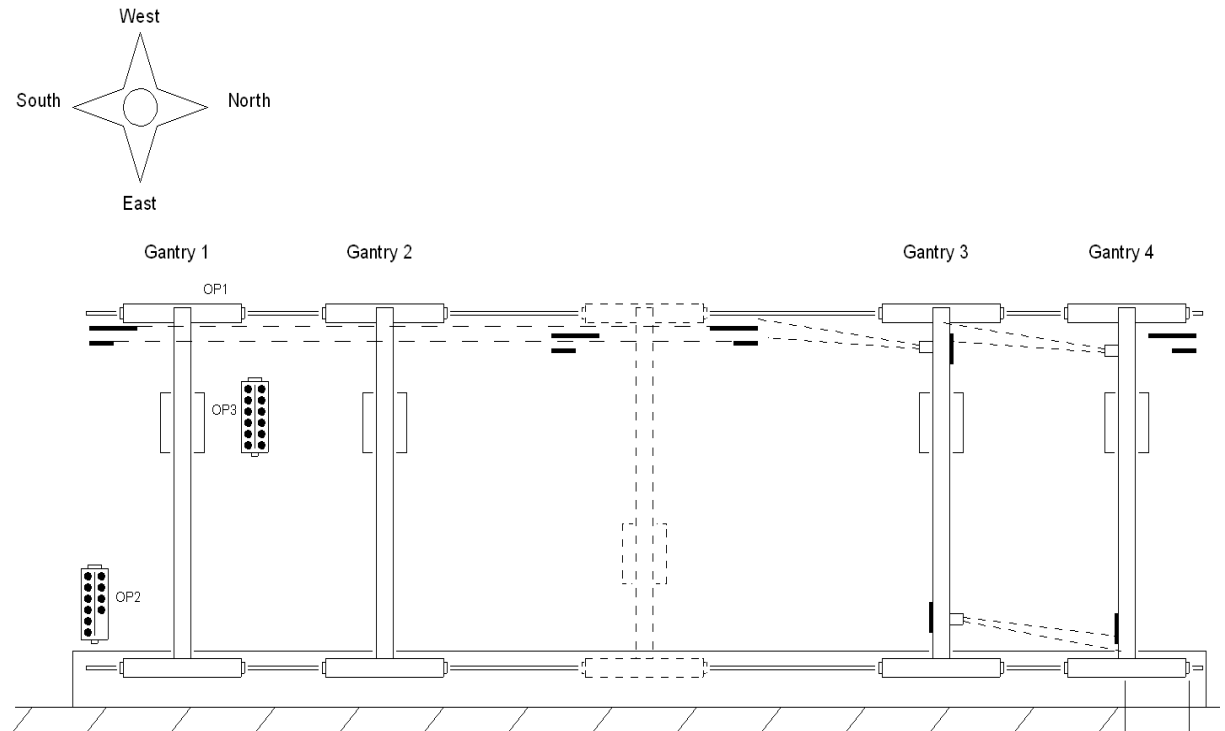
During transportation, it must be ensured that there are no persons or objects inside the hazard area. This also applies to empty runs!

Appropriate precautions must be taken as protection against flash burn from exposure to welding arc (protective goggles must be worn!)

Please also observe the safety instructions in the documentation for the provided machinery/ system components!

5.3 Technical sequence

The entire plant consists of four positioner / tack gantrys. Portals 1 and 2 can be moved together using one of the four control sections (in operating mode Tandem) and portals 3 and 4 cbe moved together using one of the four control sections (in operating mode Tandem).



The equipment has the following operating interfaces:

- Keypad on the door of the electrical cabinet OP1 (Machine ON/OFF, signal lamp).
- Control pendant at the undercarriage of the elevated railway OP2 (Manipulator movement).
- Control pendant at the trolley travelling winch OP3 (Manipulator movement).

The controls necessary for the appropriate operation are marked with the number (999) in the operating panel diagram. The diagrams follow the control and error tables. Any other operating control markings (X999) can be located in “Electrics project” with the identification numbers 279-202.

Pt.	Operating step	Guidelines
1	EMERGENCY STOP of equipment in case of emergency	
1.1	In case of emergency, the following EMERGENCY STOP switches may be applied: <ul style="list-style-type: none"> On the electrical cabinet door OP1 (117) On the control panel OP2 (217) On the control panel OP3 (317). 	Any movement is stopped. The illuminated push-button ON blinks. Determine and eliminate cause of dangerous situation. The EMERGENCY STOP button is not to be used for stopping the machine under normal operating conditions
1.2	To restart, release all EMERGENCY STOP switches - the illuminated push-button ON (113) blinks – and press the illuminated push-button ON (113). The light in the illuminated push-button ON (113) goes on permanently.	The machine can be restarted only after the cause for the emergency has been identified and eliminated.
1.3	Because two portals can be operated in Tandem mode, it is also necessary to check the EMERGENCY STOP BUTTONS of the associated second portal.	If the yellow lamp (116) lights up at OP1, then at least one EMERGENCY STOP BUTTON has been actuated at the associated second portal.
2	Establishing operational readiness of the equipment	
2.1	Switch on main switch (Q101) on electrical cabinet.	
2.2	Turn key switch (111) in the “ON” position.	The illuminated push-button ON (113) blinks.
2.3	Press illuminated push-button ON (113).	If the flashlight keeps lighting up, please check the EMERGENCY STOP BUTTONS (1). In case failure signal (114) lights up, see the Error list.
2.4	Pressing the ON control button (013) again initiates the Lamp test, causing all indicator lights to light up	The Lamp test serves for testing the operational capacity of all indicator lights.
2.5	Open compressed air supply and check oil level in the compressed air oiler.	
2.6	Open protective gas supply to tack welder.	
2.7	At the upper end of the lifting column there is a position indicator for warning in case any machinery drives beyond this point..	

Pt.	Operating step	Guidelines
3	Moving the Manipulator	
3.1	<p><u>General</u></p> <p>All movements of the manipulator can be controlled using the following operating interfaces:</p> <ul style="list-style-type: none"> • Control panel by the Hochbahnfahrwerk. • Control panel by the Katzfahrwerk. <p>The operating panel the plant is to be operated with must be actuated. For that please press the button (212) or (312). As confirmation of the selection made the lamp (211) or (311) lights up. The operating panel not required must be disabled before.</p>	<p>The two-staged motion controls enable switching between creep and rapid speeds.</p> <p>For orientation please use compass points.</p> <p>The accentuation of an operating panel can be enforced if the button for activating the desired operating panel is pressed for approx. 2 sec. During this time the lamp blinks above the button.</p>
3.2	<p><u>Hoist</u></p> <p>On the control panels, use the controls (215) and (216) or (315) and (316).</p>	<p>The movements are performed in inching mode.</p> <p>The upward movement is automatically switched to creep speed by a position switch with safety function (S346) and stopped by a limit switch (S345).</p> <p>The downward movement is stopped by a compression spring switch (B376) and (B377) on positioning the profile on the panel.</p> <p>The downward movement is stopped by a limit switch (S347).</p> <p>The hoist is monitored while lifting on overload.</p>
3.3	<p><u>Manipulator crab</u></p> <p>On the control panels, use the controls (223) and (224) or (323) and (324).</p>	<p>The movements are performed in inching mode.</p> <p>The movement will be switched to creep speed by a position switch and stopped by a limit switch.</p> <p>Operating the crab in this way is not possible when the position monitor switches for the lifting column (B321, B322, B323, B324) are signalling a tilted position.</p>
3.4	<p><u>Gantry movements</u></p> <p>On the control panels, use the controls (213) and (214) or (313) and (314).</p>	<p>The movements are performed in inching mode.</p> <p>The movement will be switched to creep speed by a position switch and stopped by a limit switch.</p> <p>Operating the gantry in this way is not possible when the position monitor switches for the lifting column (B321, B322, B323, B324) are signalling a tilted position.</p>
3.5	<p><u>Collision Avoidance Portal Drive</u></p> <p>Approaching portals (2 portals approaching each other) are monitored using light sensors. The portals stop at a distance of ca. 1 m. Upon releasing the drive button and upon pressing the button for a second time the portals can be moved towards each other (mechanical, inch-travel).</p>	<p>If the light sensor has eye contact with the mirror, the quality of the eye contact is automatically checked. If the yellow lamp (115) lights up, then the collision avoidance is still activated but the mirror and the window of the sensor must be cleaned in the near future.</p> <p>The warning message will be deleted if the key switch (111) is put into "O" position.</p>

Pt.	Operating step	Guidelines
4	Operating the profile clamp	
4.1	<p>The clamp is closed by pressing the button “CLOSE” (325 OP3).</p> <p>The button “OPEN” (326 OP3) opens the clamp. To open the pliers please press the button for approx. 2 sec. As a warning there is a short sound signal (horn) after half of the waiting time is up.</p> <p>When the clamp is attached to the palette, the centre of gravity must be at the central point between the two profiles.</p>	<p>The clamp is closed using compressed air.</p> <p>The white light on the indicator (H441) show that one of the two functions is being carried out.</p> <p>The red light on the indicators (H441) shows that the clamping pressure is too low.</p> <p>Achtung! Wenn die letzte Fahrbewegung das Schließen der Zange war, dann ertönt ein Sirensignal im Falle des Druckluftverlustes! Mit dem Öffnen der Zange wird die Sirene ausgeschaltet.</p> <p>Achtung! Geklemmte Profile des Typs „Flach“ oder „T“ sind während der Fahrbewegung durch den Bediener ständig zu beobachten.</p>
5	Attaching Profile to panel	
5.1	Once the profile has been clamped, this can be attached to the panel.	
5.2	With the aid of the welding power source and the hand welder, the Profile is fixed to the panel by means of basting seams.	Turn on welding power source at the main switch.
5.3	For fixing the profile to the outer edges, the clamp can be adjusted accordingly.	
6	<p><u>Tandem Mode</u></p> <p>The Tandem mode is possible with portals 1, 2 and 3, 4 möglich. For that please activate one of the four control sections (see 3.1). Then, press the button (222) or (322) at the control section currently activated. If the Tandem mode is switched on, the lamps (221) and (321) light up at all control sections of the two portals of the Tandem pair.</p>	<p>In Tandem mode the rapid traverse speed is reduced to 50 %.</p> <p>In Tandem mode the driving jobs of both portals are monitored, i.e. if the electrical control of one drive fails, the movement will stop.</p> <p>Please note! Differences of the path that result from the mechanical slip of the drive wheel are not monitored. Here, the operator has to take care of that!</p>

5.4 Error list

seq No.	Plant condition	Error source	Guidelines
1	<p>The illuminated control ON (013) is blinking and the control power cannot be turned on.</p> <p>The Failure light (014) is off.</p>	<p>At least one EMERGENCY STOP switch has been tripped.</p>	<p>Release all EMERGENCY STOP switches.</p>
2	<p>The illuminated control ON (113) is lit.</p> <p>No motion function is being executed..</p> <p>The Failure light (114) is on.</p>	<p>Failure of power for activating brakes for the motors (Q241).</p>	<p>Check power supply lines to motors for short circuit. In the end, switch motor circuit breaker back on.</p>
3	<p>The illuminated control ON (113) is lit.</p> <p>No motion function is being executed.</p> <p>The red Failure light (H441) is on.</p>	<p>Compressed air pressure for clamps is too low or compressed air supply is too low.</p>	
4	<p>The illuminated control ON (113) is lit up.</p> <p>Function hoist is being executed.</p> <p>The red Failure light (H441) is on. *1)</p>	<p>1) The frequency converter (A140) is not ready or they signal failure or the motor circuit breaker (Q141) had been tripped or the bimetal switch in the motor winding (M141) signal overheating or the power supply for the brakes has failed (Q241).</p> <p>2) On pressure on the profiles, maximum pressure force has been reached (B376, B377) or over-current in the motors has been detected (E7.7).</p> <p>3) The hoist is monitored while lifting on overload.</p>	<p>1) Read the error number off the control unit *2) *3)of the frequency converter, and cancel the error with the „STOP/RESET“ key. The drive is locked after a Stop/Reset. Release drive with the key „RUN“. Check motor circuit breaker. Check motor temperature. When the motors are cool, check motor temperature monitor circuits.</p> <p>2) If the error occurs upon pressing a profile on to the underlayer, only the Lift function can be carried out. If the error occurs upon lifting as a result of overload, only the function Lower can be executed.</p> <p>3) The Hoist lowered again.</p>

seq No.	Plant condition	Error source	Guidelines
5	The illuminated control ON (013) is lit up. Function crab movement is being executed. The red Failure light (H441) is on. *1)	1) The frequency converter (A130) is not ready or signals failure or the motor circuit breaker (Q131) has been tripped or the bimetal switch in the motor winding (M131) signals overheating or the power supply for the brakes has failed (Q241). 2) The monitor switch for the suspension of the crab (B321..B324) signals tilted hoist or there is still pressure on the profiles (B376, B377) or over-current has been detected in the hoist motors (E7.7). 3) The driving job of the Master Portal in Tandem mode is not carried out.	1) Read the error number off the control unit *2) of the frequency converter, and cancel the error with the „STOP/RESET“ key. The drive is locked after a Stop/Reset. Release drive with the key „RUN“. Check motor circuit breaker. Check motor temperature. When the motors are cool, check motor temperature monitor circuits. 2) If the lifting column is tilted, release the gantry until the lifting column returns to perpendicular. Unload hoist. 3) If the driving job of the Master cannot be carried out, the frequency converter of the Slaves will show an error.
6	The illuminated control ON (113) is on Function gantry motion is being executed. The red Failure light (H441) is on. *1)	1) The frequency converter (A120) is not ready or signals failure or the motor circuit breaker (Q121) has been tripped or the bimetal switch in the motor winding (M121, M123) signals overheating or the power supply for the brakes has failed (Q241). 2) The monitor switch for the suspension of the crab (B321..B324) signals tilted hoist or there is still pressure on the profiles (B376, B377) or over-current has been detected in the hoist motors (E7.7). 3) The driving job of the Master Portal in Tandem mode is not carried out.	1) Read the error number off the control unit *2) of the frequency converter, and cancel the error with the „STOP/RESET“ key. The drive is locked after a Stop/Reset. Release drive with the key „RUN“. Check motor circuit breaker. Check motor temperature. When the motors are cool, check motor temperature monitor circuits. 2) If the lifting column is tilted, release the gantry until the lifting column returns to perpendicular. Unload hoist. 3) If the driving job of the Master cannot be carried out, the frequency converter of the Slaves will show an error.

*1) The lights will be switched off corresponding to error number (see column „Error source“).

*2) The meaning of the error number displayed on the control unit of the frequency converters A120, A130 and A140 can be looked up in the operating manual „MOVITRAC®B“ Chapter „7 Service / Error list“ subsection „7.2 Error list“.

*3) The error „26 External clamp“ means for the installation gantry that the brake resistor is overheated. The error can be fixed by not operating the lifting column until the brake resistor had cooled down.

5.5 View of operator panel

Diagram	279-202 page 210	Diagram of control panel OP1 on electrical cabinet
Diagram	279-202 page 220	Diagram of control panel OP2
Diagram	279-202 page 225	Diagrams of operating panels OP3

For diagrams, see the following pages.

The views are stored in the file “K7010.31_OM_C5_Annex_ENG.PDF”.

6 Maintenance and servicing

6.1 Reference to safety notices of separate plants

The following unit parts, including the safety information from the manufacturer, are described in their own separate documentation folders

- DEMAG: Operation instruction angular gear W10-100
- DEMAG: Operation instruction A10-90 offset gearbox
- DEMAG: Operation instruction motor Z-Series
- DEMAG: Operation instruction wheel block system DRS 112 – 200
- SEW: Operation instruction frequency inverter Movitrac B
- SIEMENS: Betriebsanleitung SIRIUS safety relay
- KEMPPPI: Operation instruction Fast Mig™ Synergic 400
- KEMPPPI: Operation instruction Fast Mig™ Synergic MSF 55
- TEKA: Operation instruction Ventilator
- MUK: Documentation Z-axis 5 kN

6.2 Warning of special dangers for maintenance and servicing

Observe all fire-warning and fire-fighting procedures!

In any work concerning the operation, conversion or adjustment of the machine and its safety-oriented devices or any work related to maintenance, inspection and repair, always observe the start-up and shut-down procedures set out in the operating instructions and the information on maintenance work!

If the machine/plant is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by:

- locking the principal control elements and removing the ignition key
- attaching a warning sign to the main switch.

To avoid the risk of accidents, individual parts and large assemblies being moved for replacement purposes should be carefully attached to lifting tackle and secured. Use only suitable and technically perfect lifting gear and suspension systems with adequate lifting capacity! Never work or stand under suspended loads!

For carrying out overhead assembly work always use specially designed or otherwise safety-oriented ladders and working platforms. Never use machine parts as a climbing aid. Wear a safety harness when carrying out maintenance work at greater heights!

Keep all handles, steps, handrails, platforms, landings and ladders free from dirt, snow and ice!

Clean the machine, especially connections and threaded unions, of any traces of oil, fuel or preservatives before carrying out maintenance/repair. Never use aggressive detergents. Use lint-free cleaning rags!

Before cleaning the machine with water, steam jet (high-pressure cleaning) or detergents, cover or tape up all openings which - for safety and functional reasons - must be protected

against water, steam or detergent penetration. Special care must be taken with electric motors and switch-gear cabinets.

After cleaning, remove all covers and tapes applied for that purpose!

Always tighten any screwed connections that have been loosened during maintenance and repair!

After cleaning, examine all fuel, lubricant and hydraulic fluid lines for leaks, loose connections, chafe marks and damage. Any defects found must be rectified without delay!

Any safety devices removed for set-up, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.

Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact!

If provided for in the regulations, the power supply to parts of machines and plants, on which inspection, maintenance and repair work is to be carried out must be cut off. Before starting any work, check the de-energized parts for the presence of power and ground or short-circuit them in addition to insulating adjacent live parts and elements!

Depressurize all system sections and pressure pipes of hydraulic system to be removed in accordance with the specific instructions for the unit concerned before carrying out any repair work!

Hydraulic lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.

Depressurize all system sections and pressure pipes of compressed-air system to be removed in accordance with the specific instructions for the unit concerned before carrying out any repair work!

Compressed-air lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.

6.3 Initial start-up after maintenance / repair

An initial start-up after maintenance / repair may only be done by trained technicians.

6.4 Inspection / Maintenance intervals

6.4.1 General

The unit / machine is to be kept in a clean condition. In particular, it is important that the guides of moving parts are kept greased to ensure that the unit parts can move freely and to prevent the rusting of bare metal parts. Rails are to be kept clean.

Markings, information and warning plates are to be maintained in a clear and legible state. The oil change, lubrication and maintenance intervals are to be taken from the lubrication plans as per item 6.5.

The maintenance and servicing information of the component suppliers are included in the appendix of the technical documentation and should be followed.

This applies in particular to

- welding technology and current sources

- wheel sets and drive units
- motors
- Z-axis
- and others

6.4.2 Inspections

- Daily inspection:
 - Visual inspection: Overall condition of the unit / machine
Structural parts for cracks, deformation
Screw connections, locking elements
Cables, clamp connections
Hoses, pipes, connections
 - Function inspection: Warning devices (horn, indicator lights)
Overload protection
- Weekly inspection:
 - Visual inspection: Energy cable chains, cables with wiper contacts
Travelling gear for the wheel sets
 - Function inspection: Displays, instruments
All limit switches
- Monthly inspection:
 - Visual inspection: Inspection of the electrical unit, including the cable guide
Complete pneumatic unit
Spindle drives
Running rails
 - Function inspection: All the travelling movements
- Quarterly inspection:
 - Visual inspection: Oil level, operating media, lubrication
 - Function inspection: Level of protection and insulation of the electrical unit
- Annual inspection:
 - General inspection of the unit
 - Functional check of all movements and process technology
 - Checking the set values (e.g. pressures, speeds, mechanical play, electrical voltages and current ratings)
 - Inspection of the lettering and paint work

6.5 Lubricants / Lubrication plans

Lubricants

Term	ARAL	ESSO	MOBIL	TOTAL
Oil CLP (CC) DIN 51502 (VG 220)	Aral Degol BG 220 Plus	SPARTAN EP 220	Mobilegear XMP220	Carter EP 680
grease DIN 51818 2 - 3	Arallub HLP 2	Exxon BEACON 2	Mobilux EP 2	Multis EP2

Lubrication plan; Mounting Portal, Drawing-No. 277-659 SP

No.	Lubricating point	Lubricant	Quantity of each lubricating point	Number of lubricating points	Frequency/ operating hours
1	gearbox WUE 20	Öl CLP (CC) DIN 51502 (VG 220)	2,1 l	2	every 4 years or after 10.000 operation hour
2	gearbox AME 10	Öl CLP (CC) DIN 51502 (VG 220)	0,35 l	1	every 4 years or after 10.000 operation hour
3	Z-axis 5 kN	-	-	-	see documentation MUK

6.6 Environmental stipulations

The legal requirements concerning the avoidance of waste and the appropriate recycling and disposal of materials are to be complied with for all work on and with the machine.

In particular, when carrying out installation, repair and maintenance work, materials that are hazardous to water such as

- Lubricating greases and oils
- Hydraulic oils
- Coolants
- Solvent-based cleaning fluids

must not be allowed to contaminate the ground or get into the sewage system!

Such materials must be kept, transported, collected and disposed of in suitable containers.

7 How to handle faults

7.1 Addresses

IMPORTANT INFORMATION
ADDRESSES AND CONTACT PERSONS

Company Address:

This address shall be used in case of all general purposes!



Ingenieurtechnik und Maschinenbau GmbH
Industriestrasse 8
18069 Rostock
GERMANY

Phone: +49 (0) 381-793-0
Fax: +49 (0) 381-71 21 89
E-mail: info@img-tech.de

Service Address:

This address shall be used in case of emergencies!



Ingenieurtechnik und Maschinenbau GmbH
Service Manager **Mr. René Rietz**
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