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ATTENTION!
The technical data of each end carriage is given in its CE certificate - a separate document to which the present Manual is enclosed.

1. GENERAL SAFETY REQUIREMENTS

1.1 GENERAL REQUIREMENTS TO THE USER

ATTENTION!
Read and study the present document before assembly!

To ensure the safe and reliable working operations of the articles strictly follow the requirements for maintenance and operation given in this Manual.

- Keep strictly to the requirements for safe operation in order to prevent dangers for the personnel and damages of the articles.
- Perform the repairs only with original spare parts supplied by the manufacturer.
- Connection of the end carriages to the power supply network shall be performed by qualified electricians only.
- Assembly, disassembly and commissioning of the end carriages must be performed by authorized personnel only.
- Apart from this manual during assembly and operation the requirements of the corresponding country's normative documents requirements for safe operation of electrical and lifting appliances must be observed.

The end carriages and this Manual comply with the following documents:

- IEC 34-1 “Rotary electric machines”
- IEC 34-5 IP “Classes of protection”
- VBG 8;VBG 9a “Safety instruction for lifting machines”
- DIN 15020 “Material handling machines. Elements of driving. Calculation of their design.”
- FEM 9.511 “Bases for calculation of serial lifting mechanisms. Classification of mechanisms”
- FEM 9.661 “Bases for calculation of serial lifting mechanisms. Sizes and quality of driving elements for pulley systems (reeving) with ropes”
- FEM 9.682 “Bases for calculation of serial lifting mechanisms. Selection of lifting motors”
- FEM 9.811 “Serial lifting mechanisms. Rules for electric hoists (wire rope and chain hoists)”

1.2 GENERAL REQUIREMENTS FOR SAFE OPERATION

ATTENTION!
Nevertheless that in the corresponding sections there are given some directions for safe operation the following specific requirements shall be observed:

- Lifting and moving of loads over the personnel is not allowed.
- Daily, before starting work, check the operation of the brake and the limit switch.
- Do not leave the lifted load unobserved.
- Do not exceed the rated capacity.
- Do not lift loads at an angle and do not drag them.
- Check the state of the rope and if necessary discard it.
- After each rope replacement as well as after repair and re-assemblage of the electric hoist check the phasing and the limit switch adjustment for upper and lower end position of the loading hook.
- While carrying maintenance and repair activities on the crane trolley, make sure that: there is no load on the hook; the power supply switch is turned off and unauthorized switching-on is eliminated.
- Check the loading hook for cracks and deformations as well as the good working or der of the fuse for self-release of the load.
- Check the bearing screw joints for avoiding their eventual self-unwinding.
- Check the reliable connection of cable protective conductors to the grounding terminals in the electric board as well as the transformer and the electric.
- In all cases of disassembly of the push button cover the outer surfaces of the metal screws which fasten its housing with electrical insulating material.
- Do not use the limit switch as an operational one in any case.
- Do not try to detach firmly fixed loads (e.g. frozen to the ground).
- End positions in vertical and horizontal movement can be used only if an operating limit switch is provided.
2. PURPOSEFUL UTILIZATION

2.1 DESIGNATION

The end carriages are designed to manufacture single or double girder bridge cranes.

The end carriages are material handling equipment, designed to operate indoors or outdoors under shelter while keeping the operation conditions as per the technical data of the product as described in the passport.

The end carriages are not designed to operate in chemically aggressive and explosive environment.

Observe the following:

- Use the end carriages in compliance with its designation and the technical data as given in its passport. Each deviation from its purposeful utilization represents a residual risk.
- Observe the prescribed operation modes. Do not engage in heavier mode than prescribed.
- Do not allow persons, not complying with the requirements of the relevant country’s normative documents for operation with material handling equipment, to perform maintenance and servicing of the end carriages.
- Observe all safe operation requirements and the related assembly, commissioning, maintenance and service conditions as described in: this Manual, the European rules documents; the normative documents of the country wherein the item operates.
- Require regular filling of the check records and timely performance of the inspections from the specialists as stipulated in VBG9§26 and VBG8§23.
- When using load-gripping devices they must be commissioned, operated, maintained and serviced in accordance with the manufacturer’s instructions, indicated in the Operation Manual, VBG9a or the relevant country’s normative documents.
- Observe the prescribed operation modes. Do not engage in heavier mode than prescribed.

2.2 CLIMATIC MODIFICATIONS

The end carriages are of climatic modification intended for normal climatic zone N-II (for operation indoors or outdoors under shelter–fig.3.3) according to EN 60721-2-1.

The term “under shelter” denotes that the following climatic factors’ influence is available: lack of or substantially reduced direct sun radiation and rainfalls over the item. The end carriages can operate in premises too. The influence of the climatic factors is: lack of direct or substantially reduced environment influence: sun radiation, rainfalls, dust and sand, wind, sharp temperature changes, etc. In many cases the air temperature is lower than outdoors or under shelter. The climatic modification is written in article. The protection of the article against penetration of impurities and liquids is according to EN60529 and EN50102 and is in compliance with EN 60204-32, 12.3. It’s indicated in each article’s passport.

2.3 ENVIRONMENTAL CONDITIONS

The articles for normal climatic zone operate in the following environmental conditions: air temperature from -20°C to + 40°C; relative air humidity - from 30% to 95% (90% at +20°C and 50% at +40°C); sea level - up to 1000 m. These conditions correspond to the requirements of EN60204-32, p.4.4.3, 4.4.4 and 4.4.5.
3. TECHNICAL DESCRIPTION

The end carriage is a steel pipe beam; at the ends of which the flanges with the bearing nests are mounted, wherein the shafts with the driving and idle travel wheels lie. It joins to the main girder of the crane with plates. The gear motor is mounted to the end carriage as its hollow output shaft is attached to the driving shaft of the end carriage, and its upper end is attached, by means of a special lug, to stand, fixed to the end carriage.

3.1 TYPE OF STANDARD END CARRIAGES

3.1.1 END CARRIAGES FOR STANDARD SIDE GIRDER BRIDGE CRANES

End carriages for single and double girder bridge cranes. Main components are shown on figure 3.1.1.

1. End carriage
2. Rail driving wheel
3. Rail idle wheel
4. Long travel motor
5. Connection plate
6. Buffer
7. Derailment support
3.1.2 END CARRIAGES FOR STANDARD SUSPENDED GIRDER BRIDGE CRANES

End carriages for single girder cranes. Two possible section types of end carriages - box and profile. Main components are shown on figure 3.1.2.

1. End carriage
2. Rail driving trolley
3. Rail idle trolley
4. Travelling motor
5. Connection plate

3.1.3 END CARRIAGES FOR STANDARD TOP GIRDER BRIDGE CRANE

End carriages for single top girder cranes. Main components are shown on figure 3.1.3.

1. End carriage
2. Rail driving wheel
3. Rail idle wheel
4. Long travel motor
5. Connection plate
6. Buffer
7. Derailment support
3. TECHNICAL DESCRIPTION

3.2 TYPE OF STANDARD MAIN GIRDER PROFILES

The main girder is welded to connection plate. Connection plate is locked to the end carriage with bolts. The bolts are pre-assembled, final tightening have to be done when assembled on crane.

3.2.1 SIDE CONNECTION TO GIRDER

Main girder, side joint, standard, profile, for single girder bridge crane

Main girder, side joint, standard, profile, cut bottom corner for single and double girder bridge crane

Main girder, side connection, standard, profile, rised corner for single and double girder bridge crane

Main girder, side connection, standard, box, cut bottom corner for single and double girder bridge crane
3. TECHNICAL DESCRIPTION

3.2.2 TOP CONNECTION TO GIRDER

Main girder, side connection, standard, box, rised corner for single and double girder bridge crane.

3.2.3 UNDERSLUNG CONNECTION TO GIRDER

Main girder, bottom joint, standard, profile, for single suspended girder bridge crane.

Main girder, top connection, standard, profile or box, for single girder bridge crane.
3.3 GEARED MOTORS

The implemented gear motor consists of asynchronous motor with cylindrical rotor with built in electromagnetic brake, compensating clutch and cylindrical three-stage reducer. The brakes are DC-power supplied. The brake activates when the power supply of the motor is switched off and provides the necessary brake moment to the motor rotor. When DC voltage is fed to the coil of the electromagnet, electromagnetic force develops, which overcomes the force of the springs which press the brake disk, the anchor is attracted to the magnetic core, the brake opens and the motor may rotate again. The type and features of the motors used are given in the passport of the gear motors.

3.4 ELECTRICAL EQUIPMENT

The standard power supply network of the end carriage is three-phase AC, with rated voltage 380V and rated frequency 50 Hz.
- voltage: ±10% of its rated value and frequency ± 5% of its rated value;
- in case of simultaneous deviation of voltage and frequency, the sum of the absolute values of the deviations shall not exceed 10%.

3.5 CONNECTION WITH ELECTRICITY NETWORK

Prior to start connecting, check if the voltage and frequency ratings from the company nameplate correspond to the ratings of the local electricity network. The connection must be performed by authorized personnel, having the necessary qualifications and experience, while observing all technical safety requirements.
4. TRANSPORTATION

4.1 PACKING

The wooden packing protects the articles against mechanical damages and the influence of the climatic factors during shipment and storage. The packing is in accordance with the type of the vehicle and the climatic zones of the countries (classified according to EN60721-1-2), across which the machine is shipped.

When handling the packed article observe the following requirements: The boxes shall lie only on their base; shall be stored in dry premises only; shall be gripped at the indicated places (when using load-gripping devices). These requirements are indicated on the box sides by relevant signs (figure 4.1.). The signs indicate:

a) fragile; b) keep from rain; c) do not turn around;
d) do not place on top; e) indication for suspension; f) indication for lifting direction.

1. Unload the end carriages using cranes and equipment of the necessary capacity and observing the packing indications.
2. Unpacking sequence - carefully release from the wooden platform the two bands fixing the polythene stuff to the article. Remove the polythene stuff. Unscrew the screws fixing the article to the wooden base. Make sure that the gear motors will not be damaged.
3. De-preserving consists in removing the packing. Perform simultaneously with a visual check for damaged coatings, rust and greased areas.

4.2 TRANSPORTATION

When shipping the end carriages do not put other loads on top. Place the units tightly in the vehicle or fasten them by additional means. When a lot of space is free additional fastening is required.

The road vehicles shall be covered.
The shipping and storage conditions are in accordance with EN 60204-32 and GOST15150: temperature from -20°C to +45°C, as for a short period (up to 24 hours) it can be + 70°C.
5. ASSEMBLY OF THE END CARRIAGE TO THE CRANE

- Prior to starting the assembly carefully check if all the units and assemblies of the product are available, including the accompanying documents.
- Prior to assembly check the state (mechanical damages) of all units and details of the end carriages.
- Check the state of the travel wheels and the tightness of the bolt joints.
- Check for available bumpers and their reliable functioning.
- Check the state of the motors. Check the insulation resistance between the stator windings of the motors and the housing with a megohmmeter of voltage 1000V. The resistance shall not be less than 5 MΩ.
- Check the parameters of the power supply network.

End carriages assembly

- Set a delimited and adequate area, with floor or flat bottom, for crane ground assembly operations.
- Prepare adequately wooden beams of suitable size as placed below the beams and heads, in this case consider the height of the entire head (including wheels).
- Align and separate the crane beams from each other so that the distance between the tracks corresponds to that of the hoist or winch that is to be supported. (figure 26).

- Wheelbase can be verified directly on the hoist trolley or on the technical documentation.

- Proceed as follow to assemble the head beams (wheel carriers) to the bridge beams:
  - Remove the plastic caps (figures 27 and 28) and carefully clean the seats where the calibrated bushes are placed, eliminating any traces of paint or dirt.

  Fig. 27

  - Clean the bushes carefully and check that they are not rusty in case of long storage.

  Fig. 28

  - Insert the bushes in the housings of the header beams or of the bridge beams by rotary movements (figure 30).

  Fig. 30
5. ASSEMBLY OF THE END CARRIAGE TO THE CRANE

- Tighten all the bolts with the torque wrench respecting the values shown in table 6.3 page 15.

- Make sure that once the bolts are tightened, a space (min 2.5-3 mm) remains between the headboard beam plate and the bridge beam attachment plate (figure 33).

Fig. 33

The dimensions A and B (shown in fig 33) may be different from each other; this difference does not affect the alignment between the wheel axles of the heads and the orthogonality between the heads themselves and the beams, which is determined by the machining of the alignment bush seats.

5.1 RAILWAY STRUCTURE

The end carriages are designed for movement on rail track.
The design and execution of the railway assembly shall be made by authorized personnel only, in accordance with the applicable normative documents for the relevant country.

- There shouldn't be any obstacles to the movement of the travelling mechanism like beam suspending elements, joining plates; bolt heads, etc.
- Do not paint the surfaces where the travel wheels roll as the paint hinders the good engagement between the wheels and the track.
- To ensure normal operation of the travelling mechanisms regularly cleanse the railway track from oils, greases, ice, etc.
- During operation observe for cracks and wear of the rail track and, if available, proceed according to the requirements of the relevant country's normative documents.

Despite the rubber bumpers the travel mechanism's hits in the limiting plates influence negatively its operational life.

5.2 COMMISSIONING OF THE END CARRIAGES

Prior to commission of the end carriages the following control activities must be performed by authorized competent persons:

- Check of mechanism fastening;
- Check for available bumpers and their reliable functioning;
- Check of the adjustment of all electrical devices, necessary for the operation;
- Check of the bearing construction.
6. MAINTENANCE PLAN

The General maintenance plan is worked out for operation in normal conditions according to the end carriages duty mode (FEM 9.511) and is given in Table 6.

<table>
<thead>
<tr>
<th>№</th>
<th>On commissioning</th>
<th>Daily, prior to starting work</th>
<th>After first 3 months</th>
<th>After first 12 months</th>
<th>Every 12 months</th>
<th>Type of check and maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Check the electric hoist of the crane – perform in accordance with the maintenance plan as stated in the Assembly and Operation Manual of the relevant type of electric hoist, mounted on the crane</td>
</tr>
<tr>
<td>2</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>Check the gearmotor of the crane – perform in accordance with the maintenance plan as stated in the Assembly and Operation Manual of the relevant type of gearmotor, mounted on the crane end carriages</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maintenance of travel wheels</td>
</tr>
<tr>
<td>4</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
<td>Bearing screw joints</td>
</tr>
<tr>
<td>5</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
<td>Welded joints</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td>The state of the bumpers. Replace them if mechanical damages are observed.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>Check and, if necessary, improve the anti-corrosion protection</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control block</td>
</tr>
</tbody>
</table>

Especially for the end carriages, the check includes:
- Bearing screw joints - after first 3 months and every 12 months;
- Welded joints - after first 3 months and every 12 months;
- The state of the bumpers. Replace them if mechanical damages are observed - every 12 months;
- Check and, if necessary, improve the anti-corrosion protection - after first 12 months.

6.1 MAINTENANCE REPETITION PERIOD

ATTENTION!
- The unit must be checked at least once a year by experts. As experts may be called persons from the Technical Surveillance Services and experts, authorized to carry out the inspections.
- During repairs only original manufacturer’s spare parts shall be used.

6.2 MAINTENANCE OF THE TRAVEL WHEELS

Double-flanged travel wheels are used in the end carriages. The discard norm for these travel wheels is 2% from the relevant diameter.
Check the diameter of rolling of the travel wheels. The difference between the relevant diameters of both wheels shall not exceed 0.5%.
6.3 DISASSEMBLY OF THE TRAVEL WHEELS

First, secure the crane against unexpected movement.
• Step 1 - remove the bolt and washer, which keep the motor reducer and wheel's shaft together.
• Step 2 - unfold the nut and remove the bolt with pad
• Step 3 - Remove the motor reducer.
• Step 4 - unfold the bolts and remove them from the wheel's cap. Take off the wheel as shown with arrow on picture 2
• Step 5 - Disassembly the cap, bearings and washers from the driving wheel.

For assembly follow the same steps in opposite way.

Tightening torque
The bearing bolt joints require regular checks and if you find some looseness, tight them with the respective torque, mentioned in Table 6.3.

<table>
<thead>
<tr>
<th>Joint strength class</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M14</th>
<th>M16</th>
<th>M18</th>
<th>M20</th>
<th>M24</th>
<th>M30</th>
<th>M36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolt 8.8</td>
<td>22</td>
<td>40</td>
<td>75</td>
<td>120</td>
<td>180</td>
<td>250</td>
<td>350</td>
<td>580</td>
<td>1200</td>
<td>1600</td>
</tr>
<tr>
<td>Nut 8</td>
<td>30</td>
<td>60</td>
<td>100</td>
<td>160</td>
<td>250</td>
<td>350</td>
<td>550</td>
<td>800</td>
<td>1800</td>
<td>2300</td>
</tr>
</tbody>
</table>

Table 6.3
6.4 LUBRICATION

Table 6.4. shows the lubrication places and table 6.4.1.– the lubrication materials.

<table>
<thead>
<tr>
<th>Lubrication point</th>
<th>On initial commissioning</th>
<th>After 3 months of operation</th>
<th>After 12 months of operation</th>
<th>Every 12 months</th>
<th>Every 36 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric hoist</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Travel mechanisms</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Travel wheels’ bearings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Perform according to the lubrication plan in the Assembly and Operation Manual of the relevant type of electric hoist mounted on the crane.
- Perform according to the lubrication plan in the Assembly and Operation Manual of the relevant type of gearmotor.

Table 6.4.1

<table>
<thead>
<tr>
<th>Place to lubricate</th>
<th>Type of lubricant</th>
<th>Recommended materials</th>
<th>Amount of lubricant per position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearings of travel wheels</td>
<td>Consistent grease</td>
<td>Operation temperature -25°C - + 80°C</td>
<td>Fills up to 2/3 of the bearing area with grease</td>
</tr>
<tr>
<td></td>
<td>Dripping temperature ≥180°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Penetration: 220÷430 Dripping</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>K3 BDS 1415-84, TSIATIM 202 GOST 11110-72, MOBIL-MOBILPLEX 48, BP Energrease HT 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operation temperature -40°C - + 80°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TSIATIM 202 GOST 11110-72, MOBIL-MOBILLUX 2, Fuchs RenoLit FLM 2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. END CARRIAGE CODES AND DIMENSIONS

7.1 END CARRIAGE CODE DESCRIPTION

<table>
<thead>
<tr>
<th>SG</th>
<th>16</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base of the End carriage (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheel diameter (mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 7.2 END CARRIAGE VALUES AND DIMENSIONS

**SG - Single girder end carriages**

<table>
<thead>
<tr>
<th>Type</th>
<th>Max wheel load</th>
<th>Max span of crane</th>
<th>Wheel diameter</th>
<th>Wheel groove (G)</th>
<th>Wheelbase</th>
<th>L1</th>
<th>L</th>
<th>LP</th>
<th>LF</th>
<th>Plate thickness (t)</th>
<th>H</th>
<th>ht</th>
<th>E</th>
<th>B</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG1612</td>
<td>3.800</td>
<td>9,38</td>
<td>60</td>
<td>1250</td>
<td>2350</td>
<td>60</td>
<td>1600</td>
<td>2350</td>
<td>220</td>
<td>1640</td>
<td>180</td>
<td>95</td>
<td>113</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>SG1616</td>
<td>3.800</td>
<td>12,00</td>
<td>70</td>
<td>2000</td>
<td>2500</td>
<td>70</td>
<td>2500</td>
<td>2500</td>
<td>215</td>
<td>2430</td>
<td>180</td>
<td>90</td>
<td>133</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>SG1620</td>
<td>3.800</td>
<td>15,00</td>
<td>70</td>
<td>2000</td>
<td>2500</td>
<td>70</td>
<td>2500</td>
<td>2500</td>
<td>215</td>
<td>2930</td>
<td>180</td>
<td>90</td>
<td>133</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>SG1625</td>
<td>3.800</td>
<td>18,00</td>
<td>70</td>
<td>2500</td>
<td>3000</td>
<td>70</td>
<td>3000</td>
<td>3000</td>
<td>215</td>
<td>3430</td>
<td>180</td>
<td>90</td>
<td>133</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>SG1630</td>
<td>3.800</td>
<td>22,50</td>
<td>70</td>
<td>3000</td>
<td>3500</td>
<td>70</td>
<td>3500</td>
<td>3500</td>
<td>215</td>
<td>3930</td>
<td>180</td>
<td>90</td>
<td>133</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>SG1635</td>
<td>3.800</td>
<td>26,00</td>
<td>70</td>
<td>4000</td>
<td>4430</td>
<td>70</td>
<td>4000</td>
<td>4430</td>
<td>215</td>
<td>4430</td>
<td>180</td>
<td>90</td>
<td>133</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>SG1640</td>
<td>3.800</td>
<td>30,00</td>
<td>70</td>
<td>4000</td>
<td>4430</td>
<td>70</td>
<td>4000</td>
<td>4430</td>
<td>215</td>
<td>4430</td>
<td>180</td>
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8. WIRING DIAGRAMS

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<th>Rated nominal current (A)</th>
<th>&quot;aM&quot; type protection fuses accompanying the motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0,25</td>
<td>0,7</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0,37</td>
<td>1,1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0,55</td>
<td>1,4</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0,75</td>
<td>1,9</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>1,10</td>
<td>2,6</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>1,50</td>
<td>3,5</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>2,20</td>
<td>5,0</td>
<td>10</td>
</tr>
<tr>
<td>2/8</td>
<td>0,24 / 0,06</td>
<td>0,8 / 0,8</td>
<td>2</td>
</tr>
<tr>
<td>2/8</td>
<td>0,30 / 0,075</td>
<td>1,2 / 1,2</td>
<td>2</td>
</tr>
<tr>
<td>2/8</td>
<td>0,55 / 0,13</td>
<td>1,9 / 1,4</td>
<td>4</td>
</tr>
<tr>
<td>2/8</td>
<td>0,75 / 0,18</td>
<td>2,0 / 1,8</td>
<td>4</td>
</tr>
<tr>
<td>2/8</td>
<td>1,1 / 0,25</td>
<td>2,7 / 2,4</td>
<td>4</td>
</tr>
<tr>
<td>2/8</td>
<td>1,5 / 0,37</td>
<td>3,4 / 4,5</td>
<td>8</td>
</tr>
<tr>
<td>2/8</td>
<td>2,2 / 0,55</td>
<td>4,0 / 5,1</td>
<td>8</td>
</tr>
</tbody>
</table>

WIRING DIAGRAM LONG TRAVEL MOTOR FOR VFD

SINGLE SPEED MOTOR FOR VFD
FEEDING 400V 3PH

<table>
<thead>
<tr>
<th>V1</th>
<th>V1</th>
<th>W1</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>S</td>
<td>400 VAC</td>
</tr>
<tr>
<td>L2 - WHITE</td>
<td>L1 - PURPLE</td>
<td>BRAKE 180V DC</td>
</tr>
<tr>
<td>400 VAC</td>
<td>400 VAC</td>
<td></td>
</tr>
</tbody>
</table>

Separated brake feeding 400VAC monophasic
Brake 180V DC

WIRING DIAGRAM LONG TRAVEL MOTOR
1 OR 2 SPEEDS T MODEL

Star connection \( \lambda \) 400 VAC - Brake 180V DC

DOUBLE SPEED MOTOR - FEEDING 400V 3PH
MODEL WITH TWO-STUD TERMINAL BLOCK

(*) self feded brake
8. WIRING DIAGRAMS

WIRING CONNECTION EXAMPLE DOUBLE SPEED MOTORS

Left motor
long travel
movement

Right motor
long travel
movement

CONNECTION MOTOR STRIP

Run
fast-speed
long travel

Run
fast-speed
long travel

Delay of
change
slow-fast
speed

Delay of
change
slow-fast
speed

Long travel
forward

Long travel
reverse

Rev. 02/04/2019

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