Longitudinal Welding Systems

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The welding and cutting carriage, mobile, type WCM is a flexible and very effective welding carriage designed for the MIG/MAG, TIG welding and plasma cutting processes. Various torches and torch mounts can be fitted depending on the process employed. Through adjustment of the contact guide rollers, welding in both directions of travel is possible. The carriage can be equipped with a remote control and mount enabling current and voltage correction separate from the welding power source.

### Technical description:

- **Weight:** 18.9 kg
- **Dimensions L x W x H:** approx 610 x 280 x 325 mm
- **Tractive force (carriage):** 50 N
- **Travel speed:** 15 – 800 cm/min
- **Drive:** Heat resistant rollers (quad drive) with magnetic attracting system
- **Tracking guide:** Horizontal contact rollers (adjustable between 2mm - 40mm)
- **Torch positioning:** Manual
  - Vertical: 40 mm
  - Horizontal: 120 mm
- **Voltage:** 42 V/AC
- **Continuous Current:** 1 A
- **Max Current:** 5.9 A
- **Frequency:** 50/60 Hz
- **Plug (10 pin):** for voltage supply and the signals for welding on, arc O.K, emergency stop

### Welding Torch Mount:

The WCM is equipped as standard with the torch mount - Art.Nr. 152.232 (s.D-5), and is suitable for the MIG/MAG robot and machine torch type ROB 505 W 45° - Art.Nr. 118.480 (max. inter-connecting lead length 4 m; equipped for wires ø 0.8 - ø 1.0 - ø 1.2) or alternatively with the push-pull wire feed system type DV-PP-30 - Art.Nr. 110.900 (inter-connecting lead length 8 m - max. 12 m).
Power Supply:
The WCM works with a 42v power supply and is authorised for work within containers and enclosed spaces. When used in conjunction with a Merkle welding power source, the power supply comes from the power source. This brings the benefit of the travel signal (supplied over an I relay in the power source) for the WCM then being activated once the welding arc is activated and the weld pool is present.

Power supply and automation connection for WCM mounted in the Merkle welding power source
Art.Nr. 132.532

If the WCM is to be used with any other welding power source except from Merkle, we can supply a suitable external power transformer (See Price list, Power Supply WCM Welding and Cutting Carriage).

External power supply for WCM
(Power supply external for other welding power sources)
Art.Nr. 132.533

User Controls:
Switch:    Forwards/Reverse/Adjust
Speed:    Potentiometer - stepless adjustment
Push Button Start:  Welding run start
Push Button Stopp:  Welding run stop
Emergency Stop:  Welding run end
Examples of use A:

Depending on the area of application, a combination of carriage and swivelling support arm/boom is possible. The wire feed unit is suspended on a roller carriage running on the boom, and an automatic towing of wire feeder and the interconnecting hose package is then enabled.

If the WCM is used in conjunction with the MIG/MAG Robot- and Machine-Welding torch Type ROB 505 W and a wire feed case, then the maximum possible torch packet length is 4 m.

Examples of use B:

On occasions when the carriage is used in conjunction with a push-pull torch, interconnection hose package lengths of up to 12 m are possible.
Longitudinal Welding Systems
Carriages/Guide Rails LM 1.0

Technical description:

Guide rails LM 1.0

Structural values:
- Moment of inertia xx-Axis 6,500 cm$^4$
- Resisting torque xx-Axis 359 cm$^3$
- Moment of inertia yy-Axis 500 cm$^4$
- Resisting torque yy-Axis 185 cm$^3$

Length of Guide rails
- 4 m
- 6 m

Max. lifting with carriage LM 1.0
- Lifting at guid rail length 4 m: 3,35 m
- Lifting at guid rail length 6 m: 5,35 m

Max loading of the guide rails is 100kg at a distance of 20cm from the carriage

Carriage

Supply voltage: 230V/50 Hz
Travel speed: 6 - 600 cm/min
High speed return: 600 cm/min
Tractive force: 760 N
Weight: approx 65 kg
Max loading:
- Vertical to guide rail: 100 Nm
- Parallel to guide rail: 350 Nm

Longitudinal carriage with guide rails LM 1.0
4m Art. Nr. 123.598
6m Art. Nr. 124.090

Carriage LM 1.0
Art. Nr. 151.194

Guide rails LM 1.0 (4m)
Art.Nr. 123.596

Guide rails LM 1.0 (6m)
Art.Nr. 124.088

Technical details subject to change
Longitudinal Welding Systems
Linear Module ME LM 2.1

Technical details subject to change

Linear module Type ME LM 2.1 extended by 4m
The linear module Type ME LM 2.1 (extended by 4m) is equipped with the following automation components:

| 1x | Guide rail supports (pair) | Art. Nr. 124.548 |
| 1x | Guide rail clamps for extending rail length in 4m units | Art. Nr. 102.775 |
| 2x | Energy supply chain support per 4 m Guide rail | Art. Nr. 124.578 |
| 1x | Energy supply chain for 4 m Guide rails | Art. Nr. 124.584 |
| 1x | Energy supply chain extension per 4m guide rail extension | Art. Nr. 124.586 |
| 2x | Guide rails / -without Toothed rack, without Slotted bar | Art. Nr. 119.498 / 121.946 |
| 1x | Carriage motorised / lockable Type LM 2.1 | Art. Nr. 119.662 / 121.958 |
| 1x | Controller for Carriage motorised Type LM 2.1 (Chapter D) | Art. Nr. 019.0.0908 |
The Carriages type LM 2.1 are designed for the attachment of MIG/MAG, TIG, Plasma and SAW machine welding heads to enable longitudinal welding. They are suitable for use in the horizontal or vertical positions and the carriage guides are constructed from high precision bearing rollers. The C form entailed in the carriage construction allows a multi-directional support of the carriage and a very stable guided setup. The carriage drive is through a 42 volt DC motor with Tacho generator. A specially designed drive system ensures a play free, form fitting and robust drive of the carriage. A multiple limit switch is fitted as standard. Connections to the switching cabinet are through plugged connectors. Mounting of the controller can take place directly on the carriage, or through using an extension lead, placed in any accessible position on the linear module. The controller E 012 (chapter D11) is required to control the motorised carriages.

Technical description:

Carriage motorised Type LM 2.1

- Art. Nr. 119.662
- Weight: approx. 130 kg
- Max loading:
  - Vertical to guide rail: 350 Nm
  - Parallel to guide rail: 1000 Nm

Carriage lockable Type LM 2.1

- Art. Nr. 121.958
- Weight: approx. 130 kg
- Max loading:
  - Vertical to guide rail: 350 Nm
  - Parallel to guide rail: 1000 Nm

The lockable carriage (Art.Nr.121.958) is used as a stationary (lockable) mounting platform on the guide rails. It has the same dimensions and flange drilling pattern as the motorised carriage (Art.Nr.119.662). The lockable carriage is delivered without limit switches and drive motor.
The guide rails are designed for use with:  
- Carriage motorised Art. Nr. 119.662  
- Carriage lockable Art. Nr. 121.958

The guide rails are of a massive construction and possess a high longitudinal and torsional rigidity. All mounting surfaces for guide strips, slot bars, toothed racks etc. are machined to a high level of precision. The toothed rack (Art.Nr 019.0.2301) and slot bar (quad) are fitted as standard. Should it be intended to join guide rails together, then a joint preparation at the joint ends is required.

### Technical description:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of the Guide rails:</td>
<td>4.00 m</td>
</tr>
<tr>
<td>Support width:</td>
<td>3.00 m</td>
</tr>
</tbody>
</table>

### Structural values:

<table>
<thead>
<tr>
<th>Property</th>
<th>xx-Axis</th>
<th>yy-Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moment of inertia</td>
<td>11.110 cm(^4)</td>
<td>5969 cm(^4)</td>
</tr>
<tr>
<td>Resisting torque</td>
<td>741 cm(^3)</td>
<td>597 cm(^3)</td>
</tr>
</tbody>
</table>

### Guide rails (4 m)

- Art. Nr. 119.498

- **Guide rails (4 m)**
  - without Toothed rack
  - without Slotted bar

- Art. Nr. 121.964

The guide rails are designed to be used with our guide rail supports. To construct a basis module, a pair of supports are required.
Guide rail supports (pair)
(consists of left and right handed supports)
Art. Nr. 124.548

Guide rail supports for 4m extensions
(Support to be positioned at the guide rail junction)
Art. Nr. 102.775

Energy supply chain support per 4m guide rail
Art. Nr. 124.578

Energy supply chain for 4m guide rail
Art. Nr. 124.584

Energy supply chain extension for 4m guide rail extension
Art. Nr. 124.586

Technical details subject to change
Longitudinal Welding Systems
Slotted bar and end switch cams

Technical details subject to change

Slotted bar - quad
Un-drilled, 3000 mm long

Slotted bar - quad
Art. Nr. 019.0.2301

End switch-Cam 10 mm
For activating short impulses during the working cycle

Suitable for:
- Guide rails LM 1.0 & 2.1
- LS-Series longitudinal slides

Norm-solid steel-Cam 10 mm
Art. Nr. 019.0.0800

End switch-Cam 25 mm
For switching impulses at end positions (longer cam surface takes stopping distance into account)

Suitable for:
- Guide rails LM 1.0 & 2.1
- LS-Series longitudinal slides

Norm-solid steel-Cam 25 mm
Art. Nr. 102.719