Product Characteristics:

The MEVA Guided Screens (MGS) system encloses complete floors especially in high-rise construction independent of the height of the building. The MGS System allows to choose the size of the screens to adapt to buildings of any shape. Screens which cover a huge area can be lifted quick and safe in one pick.

Maximum safety is guaranteed in all work phases:
The complete windshield unit remains anchored to the building during the entire construction period. Thus, safe working conditions are given, even in great heights. It is as safe as working on ground.

Through the guiding rails the MGS system is also connected and secured to the building when moving one unit to the next cycle. Wide working platforms equipped with fall protection at all sides improve the safety and the efficiency of the personnel.

Work can be done independent of climatic influences:
Safe working is possible up to wind speeds of 70 km/h.

Advantages:
- A protection system, which encloses a complete floor under construction
- The System protects against wind and weather and improves productivity and efficiency
- The lifting process is quick and safe due to guiding rails
- MGS is a system with single units resulting in a perfect adaptation to any building layout
- Most economical solution due to flexible sizes of single units

Abbreviations, dimensions, figures, tables etc.
The abbreviation MGS is used for Meva Guided Screens. Any further abbreviations are explained where they are used the first time.

Measurements: This manual uses the metric system and thus m (for metre), cm (for centimetre) and mm (for millimetre). Dimensions without a unit are in cm.

The page numbers in this manual start with MGS. The figures and tables are numbered per page. Depending on its product abbreviation, a cross reference in the text refers to a page, table or figure in this or in another manual.
Please note:

This Technical Instruction Manual contains information, instructions and hints describing how to use the MEVA equipment on the construction site in a proper, quick and economic way. Most examples shown are standard applications that will occur in practice most often. For more complicated or special applications not covered in this manual, please contact the MEVA experts for advice.

When using our products the federal, state and local codes and regulations must be observed. Many of the details shown do not illustrate the climbing system in the ready-to-pour condition as to the aforementioned safety regulations. Please adhere to this manual when applying the equipment described here. Deviations require engineering calculations and analysis to guarantee safety.

Assembly instructions (created by site management) are intended to minimise site-specific risks and must contain the following details:

- The order in which all working steps including assembly and disassembly must be carried out
- The weight of the panels and other system parts
- The type and number of ties and braces as well as the distance between them
- The location, number and dimensions of working scaffolds including working area and fall-down protection
- Pick points for panel transport by crane. Please observe the manual since any deviation may require an additional structural analysis.

Important: Generally, only well maintained material may be used. Damaged parts must be replaced. Apply only original MEVA spare parts for replacement.

Contents

System description ............................................................................4-5
System description - Platform..............................................................6
Load capacity of platforms.................................................................7
Load capacity of climbing cones ..........................................................8
Assembly of climbing cones.................................................................9
Dimensioning (height) of climbing cycles .........................................10
Assembly ........................................................................................11-12
Operating sequence ......................................................................13-14
Corner platforms ...........................................................................15-16
Notes..............................................................................................17-18
Product list..........................................................................................19
**System description**

1. Trapezoidal sheet
2. Square timber 8/14
3. Guard rail post 140/3000 with timber fixture
4. Planks
5. Ledger
6. Guiding profile (8850/7750)
7. Cover sheet
8. Platform
9. Bracing (Threaded rod)
10. Sliding sheet (25 x 150)

---

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trapezoidal sheet 915/1600</td>
<td>29-945-85</td>
</tr>
<tr>
<td>Trapezoidal sheet 915/3000</td>
<td>29-945-80</td>
</tr>
<tr>
<td>Guard rail post 140/3000 with timber fixture</td>
<td>29-942-30</td>
</tr>
<tr>
<td>Timber fixture U200 - ledger</td>
<td>29-943-40</td>
</tr>
<tr>
<td>Guiding profile 8850</td>
<td>29-941-10</td>
</tr>
<tr>
<td>Guiding profile 7750</td>
<td>29-941-20</td>
</tr>
<tr>
<td>Cover sheet</td>
<td>29-944-85</td>
</tr>
<tr>
<td>Threaded rod 60 LH.</td>
<td>29-009-10</td>
</tr>
<tr>
<td>Threaded rod 70 LH.</td>
<td>29-009-15</td>
</tr>
<tr>
<td>Threaded rod 80 LH.</td>
<td>29-009-20</td>
</tr>
<tr>
<td>Threaded rod 100 RH.</td>
<td>29-009-25</td>
</tr>
<tr>
<td>Threaded rod 180 RH.</td>
<td>29-009-50</td>
</tr>
<tr>
<td>Threaded rod 230 RH.</td>
<td>29-009-60</td>
</tr>
<tr>
<td>Threaded rod 280 RH.</td>
<td>29-009-70</td>
</tr>
<tr>
<td>Threaded rod extension</td>
<td>29-009-90</td>
</tr>
<tr>
<td>Turnbuckle nut M 16</td>
<td>29-009-95</td>
</tr>
</tbody>
</table>
Fig. 5.1  Fig. 5.2

1. Guard rail post 140/3000 with timber fixture
2. Steel beam U160 with square timber 10/16
3. Top platform profile
4. Timber fixture U200 - ledger
5. Safety lock MGS red - final position
6. Platform
7. Timber fixture U200 with square timber 8/14
8. Spacing plate 20 - ledger
9. Trapezoidal sheet

Description . . . . . . . . . . Ref.-No.
Guard rail post 140/3000 with timber fixture . . . . . . . . . . . . 29-942-30
Timber fixture U200 - ledger . . . . . . . . . . . . . . . . . . . . 29-943-40
Spacing plate 20 - ledger . . . . . . . . . . . . . . . . . . . . . . . . 29-944-80
Steel beam U160, l = 3000 . . . . . . . . . . . . . . . . . . . . . . . 29-014-30
Steel beam U160, l = 4000 . . . . . . . . . . . . . . . . . . . . . . . 29-014-40
Steel beam U160, l = 5000 . . . . . . . . . . . . . . . . . . . . . . . 29-014-50
Steel beam U160, l = 6000 . . . . . . . . . . . . . . . . . . . . . . . 29-014-60
Top platform profile . . . . . . . . . . . . . . . . . . . . . . . . . . 29-941-60
Safety lock MGS red - final position . . . . . . . . . . . . . . . . 29-943-80
Platformgirder 1800 - 2900 . . . . . . . . . . . . . . . . . . . . . 29-945-40
Platformgirder 2300 - 3400 . . . . . . . . . . . . . . . . . . . . . 29-945-30
Platformgirder 2800 - 4700 . . . . . . . . . . . . . . . . . . . . . 29-945-20
Platformgirder 3300 - 5000 . . . . . . . . . . . . . . . . . . . . . 29-945-10
Timber fixture U200 . . . . . . . . . . . . . . . . . . . . . . . . . 29-943-10
System description - Platform

Top platform

1. Trapezoidal sheet
2. Top platform profile
3. Steel beam U160
4. Square timber 10/16
5. Planks (Thickness 5 cm) attached to steel beams U 160 and square timber 16/8
6. Guiding profile
7. Guard rail post 140/3000 with timber fixture
8. Carriage bolt M12x100 (Attachment of square timber 8/14)
9. Carriage bolt M12x130 (Attachment of square timber 10/16 at steel beams)

Lower platform

1. Trapezoidal sheet
2. Guiding profile
3. Planks (Thickness 5 cm) attached to platform girders and square timber 12/6
4. Platform
5. Carriage bolt M12x70 (Attachment of planks 5x14)
6. Timber fixture
A climbing unit MGS consists of one top platform, and one or more lower platforms and is designed for the following loads:

- **Top platform, Scaffolding group 3:**
  - Load capacity: 2.00 kN/m²
- **Lower platform, Scaffolding group 1:**
  - Load capacity: 0.75 kN/m² per level

**Attention**

- If the wind speed exceeds 20 m/s (72 km/h) the moving of the MGS units has to be stopped.
- Ice and snow on the climbing unit must be removed prior to use.

### Table to determine Wind speed, impact pressure and wind load

<table>
<thead>
<tr>
<th>Wind speed (v) [m/s]</th>
<th>Impact pressure (q) [kN/m²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.3</td>
<td>0.50</td>
</tr>
<tr>
<td>35.8</td>
<td>0.80</td>
</tr>
<tr>
<td>42.0</td>
<td>1.10</td>
</tr>
<tr>
<td>45.6</td>
<td>1.30</td>
</tr>
<tr>
<td>46.7</td>
<td>1.36</td>
</tr>
<tr>
<td>55.3</td>
<td>1.91</td>
</tr>
</tbody>
</table>

\[
v = \text{Wind speed [m/s] or [km/h]} \]
\[
q = \frac{v^2}{1600} \quad \text{[kN/m²]}
\]

**Tab. 7.2**

**Fig. 7.1**
The charts on this page illustrate the admissible load on the climbing cone 15/M24 in combination with the anchor plate 15/120 and the suspension screw M24 (installation depth = 160 mm) or the anchor plate 15/170 and the suspension screw M24 (installation depth = 210 mm).

The concrete mix is equivalent to a C 20/25 concrete. The nominal strength $\beta_{WN}$ is indicated in N/mm². This minimum compressive strength $\beta_{WN}$ is necessary due to the locally limited strength which is relevant for the cone. The nominal strength $\beta_{WN}$ has to be documented on site by means of concrete test cubes.

Attention
Please observe approval Nr. 21.6-1751 of DIBt, especially part 4.4. You can order the approval via info@meva.de.

For applications, not covered in the approval the charts of the type tests can be used.

Permissible load of the climbing cone 15/M24
With anchor plate 15/120: Installation depth 160 mm

Permissible load of the climbing cone 15/M24
With anchor plate 15/170: Installation depth 210 mm

The load angles between 15° and 75° are measured perpendicular to the concrete surface, that means that the angle is 0° if an axial force is applied and 90° if a shear force is applied. According to type test FMPA Baden-Württemberg (Test report Nr. 24-21151/2).
Assembly of climbing cones

**Important**

The dimensionally accurate installation of the cones is obligatory.

**Assembly with hex. bolt M 24/60**
(Fig. 9.1 and 9.2)

This type of assembly should be preferred as long as the cones are always at the same position. This type of assembly guarantees the dimensionally accurate installation of the cones.

1. Screw hex. bolt through predrilled facing, Ø 25 mm, into the climbing cone.
2. Use conical sleeve to facilitate disassembly of climbing cone after stripping.
3. Screw in tie rod.
4. Mount second climbing cone and conical sleeve to the tie rod.
5. Before pouring the slab:
   Screw positioning disc into second cone to avoid intrusion of concrete in the thread of the cone.
6. Unscrew positioning disc before stripping, then detach forms from concrete.

### Attachment of suspension shoe at the slab

**Attachment of suspension shoe to the slab**

The suspension shoe is mounted to the slab by using the suspension screw M24 and an additional screw (against rotation of shoe). The projection over the slab edge should be not more than 25 cm and not less than 1-2 cm (Fig. 9.3 to 9.5).

**Recommended method of attachment of climbing cones to the formwork**

![Fig. 9.1](image1)

![Fig. 9.2](image2)

1. Hex. bolt M24x60, 10.9, ISO 4017
2. Facing
3. Climbing cone 15/M24
4. Conical sleeve
5. Tie rod DW 15
6. Positioning disc

**Attachment of suspension shoe at the slab**

![Fig. 9.3](image3)

![Fig. 9.4](image4)

max. 250

Suspension screw M24

We recommend a minimum distance of 1-2cm between shoe and slab edge.

Provide additional attachment as lock against rotation.

We recommend the installation after a MGS unit was suspended.
Dimensioning (height) of climbing cycles

The height of the climbing cycles depends on the requirements of the building. To determine the height of the MGS System, three facts need to be considered:

- The guiding profile should start or end approx. 30.0 cm below the ceiling. (Fig. 10.1).

- Always, at least two (2) storeys have to be secured by the MGS system (Fig. 10.1).

- The guiding profile has to be secured by at least two (2) suspension shoes (Fig. 10.1).

Fig. 10.1
Assembly

Assembly area
To guarantee a proper assembly an assembly area on site should be provided.

Requirements of the assembly area on site:
The assembly area should be clean, even and spacious (approx. 12m x 6m).
The surface should be stable enough to withstand the occurring loads.
The mounting trestles need to be stable enough as well (see Fig. 11.1 and 11.2) and secured against tilting and shifting.
The assembly area should be protected against all weather conditions and should provide a power supply.
The whole area should be in the swinging range of the crane.

General assembly process

Step 1:
Place guiding profiles in the centre line distance, install ledgers and attach threaded rods. Do not tighten the threaded rods, yet. Attach pre-assembled top platform.

Step 2:
Install pre-assembled guard railing and lower platforms.
Assembly

General assembly process

Step 3:
Attach pre-cut square timber 8/14. The threaded rods (diagonal crosses) can now be tightened.

Step 4:
Attach trapezoidal sheets. We recommend drilling screws (by contractor) 5.5 x 50 horizontal with a distance of 18 cm or 5.5 x 25 vertical with a distance of 30 cm at the sheet joints.

Attention

For special dimensions or detailed information about dimensions please see assembly drawings which are made project-related.

Such information is:

- Distance of guiding profiles
- Length and installation dimensions for threaded rods
- Projection of square timbers
- Arrangement of trapezoidal sheets
- Extension length of ledgers
- Defining attachment holes of guiding profiles for attachment of platforms
- Installation positions of safety locks

Fig. 12.1 Step 3

Square timber 8/14

Fig. 12.2 Step 4

Trapezoidal sheet

Fig. 12.3

Square timber 8/14 for attachment of trapezoidal sheets
Typical sequence:

1. Step:
The pre-assembled MGS unit is lifted from the assembly trestles by crane and moved to the building (crane eye see Fig. 12.2). There, the unit is “threaded” into the suspension shoe. As soon as the guiding profile is guided through two (2) suspension shoes, the whole unit is secured by the safety locks (Fig. 13.1). The position of the safety lock was already considered during assembly.

2. Step:
On top of the slab which is now protected by the MGS, the slab formwork can be erected (Fig. 13.2) and the cones for the next cycle can be installed. Installation of cones see page MGS 9.
3. Step:
Now the slab can be poured and (after stripping of the slab formwork) the suspension shoe can be attached (Fig. 14.1.).

4. Step:
The MGS unit is picked by the crane and pulled upwards. The storey which is not any longer protected by the MGS system needs to be equipped with a guard rail system. The suspension shoes (which are no longer needed) can be removed and reused in the upper levels (Fig. 14.2).
Corner platforms

There are three (3) different types of corner solutions:

1. A corner of the building in a right angle (Fig. 15.1).

In general it should be a goal to design the platform as symmetrical as possible. Sometimes, due to the geometry of the building and the associated planning of all platform lengths, that is not possible. Fig. 15.1 shows a corner configuration which is very close to a symmetrical solution. The platform with more cantilever holds the side protection.

To the side protection (Fig. 15.2 - 15.4) belong:
- Connection for side railing
- Side-guard post
- Support for side railing

![Diagram of corner platform with labels for side-guard post, trapezoidal sheet, square timber, connection, and support.]

**Fig. 15.1**

**Side protection**

![Arrangement of trapezoidal sheets in elevation and section views.]

**Fig. 15.2 Elevation**

**Fig. 15.3 Elevation complete**

**Fig. 15.4 Section**

**Description**

<table>
<thead>
<tr>
<th>Item</th>
<th>Ref.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side-guard post 100/3000</td>
<td>29-012-80</td>
</tr>
<tr>
<td>Connection for side railing</td>
<td>29-944-45</td>
</tr>
<tr>
<td>Support for side railing</td>
<td>29-944-40</td>
</tr>
<tr>
<td>Suspension shoe 250/800</td>
<td>29-942-60</td>
</tr>
<tr>
<td>Corner suspension shoe 250/910</td>
<td>29-942-50</td>
</tr>
<tr>
<td>Flange screw 18</td>
<td>29-401-10</td>
</tr>
</tbody>
</table>
Corner platforms

2. A corner of the building in an obtuse angle (Fig. 16.1).

Also at this angle it should be a goal to design the platforms as symmetrical as possible. Fig. 16.1 shows a solution with accessories required for the side protection.

3. A corner of the building in an acute angle (Fig. 16.2).

At an acute angle it is possible that suspension shoes interfere with each other due to limited space. Fig. 16.2 shows a solution using the corner suspension shoe (Fig. 16.3). The corner suspension shoe is able to hold the MGS unit by going over the standard suspension shoe. The accessories for the side protection are equivalent to the already shown parts of the other corner solutions.

---

Description | Ref.-No.
---|---
Side-guard post 100/3000 | 29-012-80
Connection for side railing | 29-944-45
Support for side railing | 29-944-40
Suspension shoe 250/800 | 29-942-60
Corner suspension shoe 250/910 | 29-942-50