Product features

Each CaroFalt column formwork system consists of four identical column panels. Standard heights are 360 cm and 270 cm; extension panels are 120 cm and 60 cm high. The panels are assembled like a windmill and connected with pins. Triangular strips can be added to the edges.

The admissible fresh concrete pressure is 100 kN/m².

Column sections from 20 cm to 60 cm can be adjusted in increments of 5 cm. The CaroFalt panels are equipped with 20 mm alkus sheets to achieve an outstanding concrete finish. The CaroFalt column formwork can be moved as a complete unit by crane; horizontal transport on transport wheels is feasible for a formwork height of up to 360 cm.

The CaroFalt column formwork features a series of practical details:

- Brace frames can be attached to all multi-function profiles.
- A steel sheet for sliding protects the alkus facing and panel frames when opening and closing the column formwork.
- The CaroFalt panels (always 4) are foldable to ease transport. 4 panels make a transport unit with a stacking height of 48 cm (= 4 x 12 cm).
- The integrated spanner saves time and efforts when opening and closing the formwork – even from the ladder. After the concrete has set, the spanner is released, the fastening bolt removed and the formwork unfolded.
- Access platforms can be added to allow for safe work at any height. A ladder with a safety cage guarantees a safe access to the platforms.
- CF transport devices 130 are attached to the platforms and panels so they can be moved by crane.
- Height extension is done by adding panels at the bottom and connecting them with assembly locks. This saves time because the platform does not have to be detached and re-attached. The panels have pins that center them when stacking them for height extension.

Abbreviations, measurements, decimal numbers, figures and tables

CF is used for the CaroFalt column formwork system.

DIN means Deutsche Industrie-Norm (German Industrial Standard). E DIN (E = Entwurf / draft) means that the DIN is in draft status and not yet approved of. TÜV means Technischer Überwachungsverein. This is the independent German organisation that tests the safety of technical installations, machinery and motor vehicles. If a product passes the test, it is permitted to carry the GS seal. GS stands for Geprüfte Sicherheit (approved safety). 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 measure are in cm. Decimal numbers: Note that the comma is used in decimal numbers, e.g. 1,5 means 1 and a half.

The page numbers in this manual start with CF. 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.

Updated 24 July 2009
Please observe

These 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 these instructions, 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 formwork 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. Please observe the assembly instructions that your local contractor or employer has created for the site on which the MEVA equipment is used. Such instructions 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 protection against falling down
■ Pick points for panel transport by crane. With regard to panel transport, please observe this manual. Any deviation will require a static proof.

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

Attention: Never wax or oil assembly locks.

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Product Overview

1. CF column panel 270
2. CF steel sheet for sliding
3. CF access platform
4. CF scaffold bracket
5. CF cantilever angle
6. CF front railing
7. CF ladder 348
8. CF ladder fixture
9. CF safety cage

Pouring concrete
The max. admissible load capacity of 100 kN/m² is reached at a pouring height of 3.60 m, i.e. for columns higher 3.60 m the admissible rate of pouring must be taken into account.

Compacting concrete
When compacting the concrete, do not stick the vibrator deeper than 3.00 m into the concrete. Once the concrete has been compacted, do not vibrate it again (see DIN 4235).

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF column panel 270</td>
<td>23-603-20</td>
</tr>
<tr>
<td>CF steel sheet for sliding</td>
<td>29-413-60</td>
</tr>
<tr>
<td>CF access platform</td>
<td>29-414-10</td>
</tr>
<tr>
<td>CF scaffold bracket</td>
<td>29-414-15</td>
</tr>
<tr>
<td>CF cantilever angle</td>
<td>29-414-20</td>
</tr>
<tr>
<td>CF front railing</td>
<td>29-414-25</td>
</tr>
<tr>
<td>CF ladder 348</td>
<td>29-414-50</td>
</tr>
<tr>
<td>CF ladder fixture</td>
<td>29-414-65</td>
</tr>
<tr>
<td>CF safety cage</td>
<td>29-414-90</td>
</tr>
</tbody>
</table>

Fig. 4.1
Assembly – Preparation and Start

Preparation
We recommend nailing a triangular strip on the long sides of the facing prior to starting the assembly (Detail A). Nail spacing: 15 cm.

Note that the column formwork can also be tightly closed without triangular strips.

Assembly order
1. With the panel lying on the ground, tilt the clip pins to neutral position (Detail B).
2. Fold up the perforated strips.
3. Attach the diagonal bracing with the clip pins in the tracks.

Attention
In the tracks, the clip pins must be pushed through completely (Detail C).
1. Take the first column panel from the stack and place it with the perforated strips on square timber.

2. Remove the fastening bolts from the mounting plates (Fig. 6.1).

3. Repeat steps 1 and 2 for the second column panel. A column section of for example 30 by 30 cm requires a support of 30 cm height, see fig. 6.2.

4. Insert 4 lifting hooks into the transport holes of the second panel and move it with a crane towards the first column panel (Fig. 6.2).

5. Connect both panels by plugging the perforated strips of the second panel to the mounting plates of the first panel using fastening bolts and clip pins. The column section and the right angle are adjusted correctly if fastening bolt 1 can easily be pushed through the hole in the perforated strip (Fig. 6.3 and Detail).

6. After removing the lifting hooks attach the steel sheet for sliding to the column panel and secure it with clip pins. The tape measure on the perforated rail indicates the column section (Fig. 6.4).
1. Attach the formwork-prop connectors of the brace frames with flange screws to the multi-function profiles (Fig. 7.1).

2. In analogy to the first and second column panel (see page CF-6), now preassemble the third and the fourth column panel to form a second unit. However, no brace frames will be attached to this unit (Fig. 7.2).

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
</tr>
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<tbody>
<tr>
<td>Brace frame 250 with formwork-prop connector</td>
<td>29-109-20</td>
</tr>
<tr>
<td>Flange screw 18</td>
<td>29-401-10</td>
</tr>
</tbody>
</table>
Assembly – Access platform

The access platform is attached to the panel unit equipped with the brace frames while the unit still lies on the ground.

1. Attach the scaffold bracket with a flange screw 18 to the multi-function profile. Then insert a transport device 130 into the transport hole of the column panel to secure the scaffold bracket.
2. Attach a second transport device 130 at the cantilever angle over the second transport hole of the same column panel.
3. Fold up the guard-railing of the access platform and attach 2-rope crane slings to the crane eyes of the platform (Fig. 8.1).
4. Align the access platform along the transport device 130 and along the stoppers of the scaffold bracket and cantilever angle.
5. Screw the hammer-head screws into the platform and fasten the wing nuts tightly (Fig. 8.2).

Attention
Make sure that the hammer-head screws are screwed in properly.

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
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<tbody>
<tr>
<td>CF access platform</td>
<td>29-414-10</td>
</tr>
<tr>
<td>CF scaffold bracket</td>
<td>29-414-15</td>
</tr>
<tr>
<td>CF cantilever angle</td>
<td>29-414-20</td>
</tr>
<tr>
<td>CF front railing</td>
<td>29-414-25</td>
</tr>
<tr>
<td>CF transport device 130</td>
<td>29-413-70</td>
</tr>
<tr>
<td>Flange screw 18</td>
<td>29-401-10</td>
</tr>
</tbody>
</table>
Assembly – Ladders

The ladder is attached to the panel unit while it is on ground.

1. Mount the safety cage at the top end of the ladder (Fig. 9.1).
2. Attach the ladder fixture with a flange screw 18 to the multi-function profile (Fig. 9.2).
3. Suspend the preassembled ladder in the access platform. Make sure the locking flaps are completely engaged (Fig. 9.4 Detail).
4. Loosen the clamping angle and attach the ladder to the ladder fixture.
5. Again screw the clamping angle tightly to the ladder fixture (Fig. 9.3 and 9.4).

Extension ladders

They are required when the column formwork is so high that the access platform can no longer be reached with the basic ladder only. The extension ladders are suspended into the basic ladder. In addition, another ladder fixture must be attached at the bottom of the column formwork. See pages CF-17 through CF-19 for the required quantity of ladders, ladder fixtures and safety cages.

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
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<tbody>
<tr>
<td>Ladder</td>
<td>29-414-50</td>
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<tr>
<td>34B</td>
<td>29-414-55</td>
</tr>
<tr>
<td>Safety cage</td>
<td>29-414-85</td>
</tr>
<tr>
<td>210</td>
<td>29-414-90</td>
</tr>
<tr>
<td>Extension ladder</td>
<td>29-414-60</td>
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<tr>
<td>ladder 210</td>
<td>29-414-65</td>
</tr>
<tr>
<td>CF ladder fixture</td>
<td>29-414-65</td>
</tr>
<tr>
<td>Flange screw 18</td>
<td>29-401-10</td>
</tr>
</tbody>
</table>
Assembly – Erect and position the formwork

Erect the formwork
The spanners are attached to the formwork unit without access platform while the unit is on the ground. Make sure they are within reach from the ladder so they can be operated from the ladder (Fig. 10.1).

1. With a crane or another adequate device, erect the panel unit with the access platform and brace frames at the place of its use (Fig. 10.2).
2. Erect the unit without access platform and lift it to the other unit (Fig. 10.3).
3. Connect both units with fastening bolts and cotter pins.

Position the formwork
Stop boards on the floor slab facilitate the exact positioning of the formwork.

1. Put the column formwork up in a right angle at the place of its use, then align and secure it with brace frames that are dowelled to the floor slab.
2. Close the column formwork by operating the spanners from the ladder.
3. Check and verify that the formwork is stable. If it is, you can remove the crane slings.

Attention
Stability verification is a must. The brace frames must be secured with heavy-duty dowels M16 and the floor slab have concrete strength C 20/25 (or higher).

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>CF spanner</td>
<td>29-413-65</td>
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</tbody>
</table>
Assembly – Height adjustment of the formwork

The column formwork height can easily be adjusted to varying pouring heights by simply adding or removing panel units at the bottom of the assembled formwork (Fig. 11.1). Thus, the ladder and access platform always remain with the top unit; they do not have to be detached and re-attached when changing the formwork height.

1. Preassemble the extension panels on the ground (see page CF-6).
2. Remove the steel sheets for sliding from the existing panels and mount them to the extension panels (1 sheet per panel).
3. Erect the extension unit and connect it to the existing unit with AS assembly locks (Fig. 11.2). For an exact positioning and alignment it may be helpful to insert 2 safety bolts through the transport holes before attaching the assembly locks. Afterwards remove the safety bolts.
4. Adjust the ladders to the new formwork height (see p. CF-9).

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>CF column panel</td>
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<tr>
<td>Steel sheet for sliding</td>
<td>29-413-60</td>
</tr>
<tr>
<td>AS assembly lock</td>
<td>29-205-00</td>
</tr>
</tbody>
</table>
Application – Close the formwork

1. Bring the column panels into position and close them by hand as far as possible (Fig. 12.1).
2. Swivel in the spanners and tighten them. The column section and the right angle are adjusted correctly if the fastening bolt 1 can easily be pushed through the hole in the perforated strip (Fig. 12.3 Detail).
3. After pushing the fastening bolt 1 through the hole in the perforated strip, loosen the spanner.

Attention
Make sure to observe the column section.

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
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<tbody>
<tr>
<td>CF spanner</td>
<td>29-413-65</td>
</tr>
</tbody>
</table>
Application – Stripping / Crane Transport

**Stripping**

1. Swivel in the spanners that you loosened when closing the formwork. Tighten them (from the ladder) until fastening bolt 1 can be removed.
2. Remove fastening bolt 1, loosen the spanners and swivel them back.
3. Secure the column formwork with a crane or another appropriate device.
4. Untighten the dowels of the brace frames in the floor slab.
5. Unfold the column formwork so far that the mounting plate and the perforated strip can be locked with fastening bolt 2 (Fig. 13.1 and 13.2 Detail).

**Crane transport**

The formwork is moved with one crane lift.
1. Attach the crane slings to the transport devices (Fig. 13.3).
2. Clean the formwork and move it to its next place of use.
3. Swivel in the spanners and tighten them in order to close the formwork again (see p. CF-12).

---

**Fig. 13.1**

**Fig. 13.2 Detail**

**Fig. 13.3**

**Description Ref. No.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
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<tbody>
<tr>
<td>CF transport</td>
<td>29-413-70</td>
</tr>
<tr>
<td>device 130</td>
<td></td>
</tr>
</tbody>
</table>
Application - Adjust the column section

The column section can be adjusted from 20 cm to 60 cm in increments of 5 cm. It can also be adjusted when panels are stacked at the bottom of the unit for height extension and when an access platform is mounted. Fig. 14.1 and Fig. 14.2 show the column formwork before and after adjusting the column section.

1. Secure the entire formwork unit with a crane or another adequate device.
2. Remove the fastening bolts from the mounting plates of the perforated strips between the panels.
3. Move the panels one after the other until the new column section is achieved. The integrated tape measure on the perforated rail (Fig. 14.3) indicates the column section.
4. Insert the fastening bolts again and secure them with clip pins.

Fig. 14.1

Fig. 14.2

Fig. 14.3
Application – Cleaning

In order to clean the column formwork unfold the panels when the formwork unit is in upright position. Clean all four forming faces (Fig. 15.1).

The release agent Meva-Trenn FT8 protects the facing and eases stripping. We recommend spraying it on the facing before each application and on the back sides and lateral frames at regular intervals. This release agent must not be stored in a galvanized container.

Fig. 15.1

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MevaTrenn FTP</td>
<td>29-203-93</td>
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<tr>
<td>30 litre can</td>
<td>29-203-93</td>
</tr>
<tr>
<td>200 litre barrel</td>
<td>29-203-97</td>
</tr>
<tr>
<td>1000 litre container</td>
<td>29-203-98</td>
</tr>
<tr>
<td>Stainless steel jet FT8</td>
<td>29-203-94</td>
</tr>
<tr>
<td>Sprayer (5 litre tank)</td>
<td>29-903-70</td>
</tr>
<tr>
<td>Tap for 1000 litre container</td>
<td>29-203-99</td>
</tr>
</tbody>
</table>
Horizontal transport with wheels

A column formwork up to a height of 3,60 m can be moved as a complete unit in horizontal direction with transport wheels and without using a crane (Fig. 16.1 and Detail).

The transport wheels are attached to the formwork frames with their integrated head bolts. Always 4 wheels are required to move a formwork unit. The transport wheels’ spindles are used to lower the wheels to ground and thus lift the formwork off the ground for transport.

Attention
The column formwork must be moved with its formwork closed (Fig. 16.2). Crane transport must be used for formwork units higher than 3,60 m (see p. CF-13).

<table>
<thead>
<tr>
<th>Description</th>
<th>Ref. No.</th>
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<tbody>
<tr>
<td>CF transport wheel</td>
<td>29-413-50</td>
</tr>
</tbody>
</table>
Height combinations (configurations)

Stacked extension panels are always connected with 8 AS assembly locks per column extension (Fig. 17.1 and 17.3).

The parts required for the various column heights are listed in the table on p. CF-19.
Height combinations (configurations)

1. Ladder 348
2. Ladder 318
3. Extension ladder 210
4. Safety Cage 85
5. Safety Cage 210
6. CF ladder fixture
7. Ladder connector

Stacked extension panels are always connected with 8 AS assembly locks per column extension (Fig. 18.1 through 18.4).

The parts required for the various column heights are listed in the table on p. CF-19.
The table shows the parts required for the various column heights.

**Attention**

Observe the admissible rate of pouring for pouring heights exceeding 3.60 m. The rate of pouring depends on the concrete type and the concrete's setting behaviour. Contact the MEVA experts for further details.
Always 4 panels are bundled and placed on squared timber for storage and transport. Stacking height: 48 cm (Fig. 20.1 and 20.2).

When the panel bundles are stored horizontally, a maximum of 3 panel bundles can be stacked on top of each other with square timber in between (Fig. 20.3 and 20.4).

These bundles can be transported by forklift or crane.

To lift and move stacked access platforms by crane, a 4-rope crane sling must be attached to the platforms’ crane eyes (Fig. 20.5).
Services

Cleaning
The formwork is cleaned professionally upon return. Cleaning is done using industrial equipment with assembly lines.

Regeneration
The regeneration is carried out as follows: The frames are checked and, if necessary, repaired, painted and provided with a new facing.

As long as the formwork equipment is up-to-date, a regeneration will always be a more economical solution than purchasing new formwork.

Please note that the cleaning and regeneration service is not available in all countries in which MEVA does business.

Rentals
With much equipment on stock, we offer our customers the option of renting supplementary material during peak times. We also give prospective customers the chance to test MEVA formwork so they can see its benefits for themselves in actual use.

RentalPlus
Since MEVA started the flat rate for cleaning and repair of rented formwork systems in early 2000, more and more contractors experience the outstanding advantages. Ask our representatives about the details!

Formwork drawings
Of course, all offices in our technical department have CAD facilities. You get expert, clearly represented plans and work cycle drawings.

Special solutions
We can help with special parts, custom-designed for your project, as a supplement to our formwork systems.

Static calculations
Generally, this is only necessary for applications like single-sided formwork where the anchor parts are embedded in the foundation or the base slab. If requested, we can perform static calculations for such applications at an additional charge.

Formwork seminars
To make sure that all our products are used properly and efficiently, we offer formwork seminars. They provide our customers a good opportunity to keep themselves up-to-date and to benefit from the know-how of our engineers.

MBS
MEVA Basic Support
MBS is an addition to AutoCAD, developed by MEVA Formwork Systems in 2000. MBS is based on standard programs (AutoCAD and Excel) and can be used on any PC that has these two programs installed. It includes pull down menus for AutoCAD and applications to ease forming. It also includes the possibility to create take-offs.