Section 3

Crane control unit
Driver seat
Portable control unit
Control pedestal for offshore
Tool for Designers, Engineers and Purchasing Agents

Your tool for finding industrial controllers for cranes, electro-hydraulic systems, floor conveyors, industrial applications, ships, rail vehicles, and construction machinery of any kind, joysticks and masterswitches with electronic interface adjustment for all machines matching our product portfolio. Take advantage of our fold-out order tool on this page and the detailed tables of contents at the beginning of each position.
Gessmann is an international market leader. Our success in the market is based upon our decisive focus on innovative product development and the highest possible standards when it comes to quality. Our product range includes:

- Multi-axis controller, double-handle controller, control switch (master-switch), gear limit switch for hoisting, electro-hydraulic application, material-handling technology and remote control
- Geared limit switch for hoisting equipment
- Complete crane control unit, portable control unit, pendant control unit, including wiring for all types of cranes, vehicles and industrial applications
- Operating panels for construction machinery, industrial applications, vehicles and harvesting machines
- Control pedestals, ship-operating transmitters, sensor units and actual-value transmitters for ship drives
- Pedal controllers for welding machines, road and rail vehicles
- Master controllers, panels and control stations for rail vehicles
- Displays for forklifts and construction machinery
- Proportional control electronics for solenoid valves
- Interface electronics with digital and analog outputs matching our controllers
- Interface electronics with Profibus interface or CAN-bus interface matching our controllers (input/output cards)
- DC controllers, selector switches (signal controllers) for high-voltage systems
- Customized solutions for operating devices and electronic units for any type of machinery and vehicles

Management certification:
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<td>Signal-cam controller</td>
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Crane control unit
KST 4 swiveling

The KST 4 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The sheet steel equipment boxes are vertically and horizontally adjusted. The arrangement of the joysticks, indicators and control devices is customised according to customer specifications. Cabling is run through aduct in the cross-member. (Terminal block) Special boxes available upon request.

Driver seat:
As standard the KST 4 is fitted with a KFS 6 seat. The seat itself is fitted with a hydraulic vibration absorption system complete with weight adjustment to ensure that the comfort level is fitted with armrests and a headrest. There is the option to have the seat covered with air-permeable artificial leather.

Cross-member with swivel base:
The cover of the sheet steel cross-member including the driver's seat is forward foldable. Thereby all wirings, terminals and bushings are easily accessible during commissioning and maintenance. Swivel base has zero-clearance bearing and can be locked by a friction brake.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 9011 black

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**Basic unit**

<table>
<thead>
<tr>
<th>KST 41</th>
<th>- 3 -</th>
<th>- M1 -</th>
<th>- F1 -</th>
<th>- LK /</th>
<th>KFS 11 /</th>
<th>V64 /</th>
<th>V64.1 /</th>
<th>KL /</th>
<th>X</th>
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<tr>
<td>KST 41 With equipment boxes 160x420 mm</td>
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<td></td>
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</tr>
<tr>
<td>KST 42 With equipment boxes 200x420 mm</td>
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</tbody>
</table>

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**Base unit**

1. Swiveling 180° left, 90° right with friction brake
2. Electric swiveling 180° left, 90° right
3. Not swiveling
4. Without base frame

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**Attachment**

- M1 Monitor mounting with monitor housing
- M2 Monitor mounting with monitor mounting bracket
- M3 Monitor mounting without monitor housing/mounting bracket
- F1 Footrest mounted dispatch 1 KBF/433
- H Heater 2x2 kW with ventilator
- LK Plate for horizontal manual adjustment of crane control units +/- 250 mm

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**Driver seat**

- KFS 11* (included in the delivery!)
- KFS 9*
- KFS 10*
- KFS 12*

*Description see driver seat page 186

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Technical details may vary based on configuration or application! Technical data subject to change without notice!
**Crane control unit**

**KST 4 swiveling**

<table>
<thead>
<tr>
<th>Crane control unit</th>
<th>KST 41</th>
<th>- 3</th>
<th>- M1</th>
<th>- F1</th>
<th>- LK</th>
<th>/</th>
<th>KFS 11</th>
<th>/</th>
<th>V64</th>
<th>/</th>
<th>V64.1</th>
<th>/</th>
<th>KL</th>
<th>/</th>
<th>X</th>
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</table>

### Mounting for equipment boxes

- **V...** Multi-axis controller *(see page 1)*
- **S...** Single-axis controller *(see page 65)*
- **D...** Double-handle controller *(see page 45)*
- **N...** Control-switch *(see page 101)*

**... More command and indicating devices *(see page 162)***

### Wiring

- **KL** Without wiring, each terminal block built in each terminal
- **KLV** On terminal block 4 qmm with single wire 1 qmm each terminal
- **KLV** On SPS (SPS provision) with single wire 1 qmm each terminal
- **KLVA** External wiring single wire highly flexible 1,5 qmm 5 m long, each terminal

### Special model

- **X** Special / customer-specific
- **X1** Special painted

---

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Crane control unit
KST 4 swiveling

**Technical details may vary based on configuration or application! Technical data subject to change without notice!**

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<thead>
<tr>
<th>Type</th>
<th>Dim. A</th>
<th>Dim. B</th>
<th>Dim. C</th>
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<td>KST 41</td>
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<td>900</td>
<td>max. 670 min. 570</td>
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<tr>
<td>KST 42</td>
<td>200</td>
<td>980</td>
<td>max. 700 min. 600</td>
</tr>
</tbody>
</table>

* * adjustable

Horizontal adjustment of equipment boxes
25°

Horizontal adjustment seat with equipment boxes
100°

Swing-up equipment boxes
55°

Inclination adjustment of equipment boxes

Direction of view

With heating

Floor mounting

Cable inlet Ø100

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 5 swiveling

The KST 5 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The equipment boxes are made from sheet steel and as standard have a hinged lid with locking feature. This allows for easy inspection and maintenance. The side of the equipment boxes is as standard fitted with an inspection plate which again is lockable. The arrangement of the joystick, indicators and control devices is customised according to customer specifications. This combined with the custom sized and profiled equipment boxes that are available means that the KST 5 is very flexible and customisable solution.

Driver seat:
As standard the KST 5 is fitted with a KFS 6 seat. The seat itself is fitted with a hydraulic vibration absorption system complete with weight adjustment to ensure that the comfort level is fitted with armrests and a headrest. There is the option to have the seat covered with air-permeable artificial leather.

Cross-member with swivel base:
The cover of the sheet steel cross-member including the driver’s seat is forward foldable. Thereby all wirings, terminals and bushings are easily accessible during commissioning and maintenance.

Swivel base has zero-clearance bearing and can be locked by a friction brake.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 9011 black

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**Basic unit**

KST 51 With equipment boxes 200x580 mm
KST 52 With equipment boxes 270x580 mm
KST 54 With equipment boxes 320x580 mm

*Special boxes for demand!*

**Base unit**

1. Swiveling 180° left, 90° right with friction brake
2. Electric swiveling 180° left, 90° right
3. Not swiveling

**Attachment**

M1 Monitor mounting with monitor housing
M2 Monitor mounting with monitor mounting bracket
M3 Monitor mounting without monitor housing/-mounting bracket
F1 Footrest KBF/433
H Heater 2x2 kW with ventilator 240V AC
LS Plate for horizontal manual adjustment for control units +/- 75 mm
LK Plate for horizontal manual adjustment for control units +/- 250 mm
Label without engraving for multi-axis/- single-axis controller
Label with engraving for multi-axis/- single-axis controller

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Technical details may vary based on configuration or application! Technical data subject to change without notice!
## Crane control unit
### KST 5 swiveling

### Driver seat
- KFS 11* (included in the delivery!)
- KFS 9*
- KFS 10*
- KFS 12*

*Description see driver seat page 186

### Mounting for equipment boxes
- V... Multi-axis controller (see page 1)
- S... Single-axis controller (see page 65)
- D... Double-handle controller (see page 45)
- N... Control-switch (see page 101)
- ... More command and indicating devices (see page 162)

### Wiring
- KL Without, but terminal block built each terminal
- KLV On terminal block 4 qmm with single wire 1 qmm each terminal
- KLV On SPS (SPS provision) with single wire 1 qmm each terminal
- KLVA External wiring single wire highly flexible 1,5 qmm 5 m long, each terminal

### Special model
- X Special / customer-specific
- X1 Special painted

---

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 5 swiveling

Technical details may vary based on configuration or application! Technical data subject to change without notice!

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<thead>
<tr>
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<th>Dim. A</th>
<th>Dim. B</th>
<th>Dim. C</th>
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<td>KST 54</td>
<td>320</td>
<td>1240</td>
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Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 6 swiveling

The KST 6 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The sheet steel equipment boxes are vertically and horizontally adjusted. The arrangement of the joysticks, indicators and control devices is customised according to customer specifications. Cabling is run through adcut in the cross-member. (Terminal block)

Driver seat:
As standard the KST 6 is fitted with a KFS 6 seat. The seat itself is fitted with a hydraulic vibration absorption system complete with weight adjustment to ensure that the comfort level is fitted with armrests and a headrest. There is the option to have the seat covered with air-permeable artificial leather.

Cross-member with swivel base:
The cover of the sheet steel cross-member including the driver’s seat is forward foldable.
Thereby all wirings, terminals and bushings are easily accessible during commissioning and maintenance.
Swivel base has zero-clearance bearing and can be locked by a friction brake.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 9011 black

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**Basic unit**

KST 6 With equipment boxes

**Base unit**

1 Swiveling 180° left, 90° right with friction brake
2 Electric swiveling 180° left, 90° right
3 Not swiveling
4 Without base frame

**Attachment**

M1 Monitor mounting with monitor housing
M2 Monitor mounting with monitor mounting braket
M3 Monitor mounting without monitor housing/-mounting braket
F1 Footrest KBF/433
H Heater 2x2 kW with ventilator
LK Plate for horizontal manual adjustment for control unites +/- 250 mm

**Driver seat**

KFS 11* (included in the delivery!)
KFS 9*
KFS 10*
KFS 12*
*Description see driver seat page 186

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Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 6 swiveling

**Mounting for equipment boxes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
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<td>V...</td>
<td>Multi-axis controller (see page 1)</td>
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<tr>
<td>S...</td>
<td>Single-axis controller (see page 65)</td>
</tr>
<tr>
<td>D...</td>
<td>Double-handle controller (see page 45)</td>
</tr>
<tr>
<td>N...</td>
<td>Control-switch (see page 101)</td>
</tr>
<tr>
<td>...</td>
<td>More command and indicating devices (see page 162)</td>
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**Wiring**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>KL</td>
<td>Without, but terminal block built each terminal</td>
</tr>
<tr>
<td>KLV</td>
<td>On terminal block 4 qmm with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLV</td>
<td>On SPS (SPS provision) with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLVA</td>
<td>External wiring single wire highly flexible 1,5 qmm 5 m long each terminal</td>
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**Special model**

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<td>X¹</td>
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Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 6 swiveling

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Horizontal adjustment of equipment boxes
40
40

Horizontal adjustment seat with equipment boxes
100
100

Horizontal adjustment of equipment boxes 40
tilt 40°

Inclination adjustment of equipment boxes

max. 600 min. 500

2
1

90° 180°

Direction of view

left box
right box

* adjustable

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 7

The KST 7 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The equipment boxes are made from sheet steel and as standard have a hinged lid with locking feature. This allows for easy inspection and maintenance. The side of the equipment boxes is as standard fitted with an inspection plate which again is lockable. The arrangement of the joystick, indicators and control devices is customised according to customer specifications. This combined with the custom sized and profiled equipment boxes that are available means that the KST 7 is very flexible and customisable solution.

Driver seat:
The tipped spring mounted seat KFS 4 is fit with an hydraulic vibration absorption system incl. weight adjustment. With the folding spring mounted seat you can also arrive your workplace in small cabins.

Base plate:
The crane control unit is available with or without base plate.

Surface treatment:
base coat and textured varnish
Standard colour RAL 7032 pebble-grey

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Basic unit

<table>
<thead>
<tr>
<th>KST 7</th>
<th>KFS 11</th>
<th>V64</th>
<th>V64.1</th>
<th>KL</th>
<th>X</th>
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<td>1</td>
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</table>

Base plate

1. With base plate prepare for driver seat KFS 4
2. With base plate prepare for driver seat KFS 2
3. With base plate with apron for driver seat KFS 9, KFS 11...
4. Without base plate

Driver seat

KFS 4* (included in the delivery!)
KFS 2*
KFS 11*
KFS 9*
*Description see driver seat page 186

Mounting for equipment boxes

V... Multi-axis controller (see page 1)
S... Single-axis controller (see page 65)
D... Double-handle controller (see page 45)
N... Control-switch (see page 101)
...
... More command and indicating devices (see page 162)

Technical details may vary based on configuration or application! Technical data subject to change without notice!
## Crane control unit
KST 7

### Wiring

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<thead>
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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>KL</td>
<td>Without wiring, but terminal block built each terminal</td>
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<tr>
<td>KLV</td>
<td>On terminal block 4 qmm with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLV</td>
<td>On SPS (SPS provision) with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLVA</td>
<td>External wiring single wire highly flexible 1,5 qmm 5 m long each terminal</td>
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</tbody>
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### Special model

<table>
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<th>Code</th>
<th>Description</th>
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Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 7

Technical details may vary based on configuration or application! Technical data subject to change without notice!

<table>
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<tr>
<th>Type</th>
<th>Dim. A</th>
<th>Dim. B</th>
<th>Dim. C</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFS 2</td>
<td>450</td>
<td>1030</td>
<td>50</td>
</tr>
<tr>
<td>KFS 4</td>
<td>600</td>
<td>1180</td>
<td>25</td>
</tr>
<tr>
<td>KFS 9</td>
<td>600</td>
<td>1180</td>
<td>25</td>
</tr>
</tbody>
</table>

Base plate for KFS 2
Base plate for KFS 4, 9
Cutting 200x200
Base plate for KFS 2
Without base plate
The KST 8 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The sheet steel equipment boxes are vertically and horizontally adjusted. The arrangement of the joysticks, indicators and control devices is customised according to customer specifications.
Cabling is run through aduct in the cross-member. (Terminal block)
Special boxes available upon request.

Driver seat:
As standard the KST 8 is fitted with a KFS 11 seat. The seat itself is fitted with a hydraulic vibration absorption system complete with weight adjustment to ensure that the comfort level is fitted with armrests and a headrest. There is the option to have the seat covered with air-permeable artificial leather.
Cross member with swivel base:
The cover of the sheet steel cross-member including the driver’s seat is forward foldable.
Thereby all wirings, terminals and bushings are easily accessible during commissioning and maintenance.
Swivel base has zero-clearance bearing and can be locked by a friction brake.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 9011 black
Crane control unit
KST 8 swiveling

Technical details may vary based on configuration or application! Technical data subject to change without notice!

<table>
<thead>
<tr>
<th>Mounting for equipment boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>V... Multi-axis controller (see page 1)</td>
</tr>
<tr>
<td>S... Single-axis controller (see page 65)</td>
</tr>
<tr>
<td>D... Double-handle controller (see page 45)</td>
</tr>
<tr>
<td>N... Control-switch (see page 101)</td>
</tr>
<tr>
<td>... More command and indicating devices (see page 162)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL Without wiring, but terminal block built each terminal</td>
</tr>
<tr>
<td>KLV On terminal block 4 qmm with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLV On SPS (SPS provision) with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLVA External wiring single wire highly flexible 1,5 qmm 5 m long each terminal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special model</th>
</tr>
</thead>
<tbody>
<tr>
<td>X Special / customer-specific</td>
</tr>
<tr>
<td>X! Special painted</td>
</tr>
</tbody>
</table>
Crane control unit
KST 8 swiveling

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Horizontal adjustment of equipment boxes
25

Horizontal adjustment seat with equipment boxes
100

swing-up equipment boxes
55°

Inclination adjustment of equipment boxes

with heating

Floor mounting

- cable inlet Ø100

* adjustable

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 85

The KST 85 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The sheet steel equipment boxes are vertically and horizontally adjusted. The arrangement of the joysticks, indicators and control devices is customised according to customer specifications.

Cabling is run through aduct in the cross-member. (Terminal block)

Special boxes available upon request.

Driver seat:
The comfortable spring mounted seat KFS 85 with roller-bearing swivel systems.

Heating console:
Cover with 2 steps heating (2x2 kW 400V AC) with integrated ventilator. The cover of the heating cover can be tilted forward to reach the terminal block of the heating and cable execution.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 9011 black

---

**Basic unit**

- KST 85 With heating in the apron
- KST 87 With apron without heating

**Attachment**

- M1 Monitor mounting with monitor housing
- M2 Monitor mounting with monitor mounting bracket
- M3 Monitor mounting without monitor housing/-mounting bracket

**Driver seat**

- KFS 82* (included in the delivery!)

**Mounting for equipment boxes**

- V... Multi-axis controller (see page 1)
- S... Single-axis controller (see page 65)
- D... Double-handle controller (see page 45)
- N... Control-switch (see page 101)

- ... More command and indicating devices (see page 162)

**Wiring**

- KL Without wiring, but with terminal block built each terminal
- KLV On terminal block 4 qmm with single wire 1 qmm each terminal
- KLV On SPS (SPS provision) with single wire 1 qmm each terminal
- KLVA External wiring single wire highly flexible 1,5 mm 5 m long each terminal

**Special model**

- X Special / customer-specific
- X1 Special painted

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 85

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Horizontal adjustment
of equipment boxes
25

Horizontal adjustment
seat with equipment boxes
75

Inclination
adjustment
of equipment
boxes

306 ±75 *

850 ±25 *

weight loaded

KFS 8

595 ±30 *

7x4° = 28°

20,5°

7,5°

470 ±25 *

5°

306 ±75 *

1100 ±25 *

484 ±25 *

820

130

130

560

820

25

75

10°

90°

Direction of view

Swivelled one-sided endpoints to lock

Floor mounting

Middlepoint seat

Fresh air opening

266,5
168,5

86

Ø12x20

320

cable inlet Ø28

100

320

 Ø12x20 cable inlet

86

100

* adjustable

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 10 swiveling

The KST 10 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The sheet steel equipment boxes are vertically and horizontally adjusted. The arrangement of the joysticks, indicators and control devices is customised according to customer specifications.
Cabling is run through aduct in the cross-member. (Terminal block) Special boxes available upon request.

Driver seat:
As standard the KST 10 is fitted with a KFS 11 seat. The seat itself is fitted with a hydraulic vibration absorption system complete with weight adjustment to ensure that the comfort level is fitted with armrests and a headrest. There is the option to have the seat covered with air-permeable artificial leather.

Cross-member with swivel base:
The cover of the sheet steel cross-member including the driver’s seat is forward foldable. Thereby all wirings, terminals and bushings are easily accessible during commissioning and maintenance.
Swivel base has zero-clearance bearing and can be locked by a friction brake.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 9011 black

---

<table>
<thead>
<tr>
<th>Basic unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>KST 10</td>
</tr>
<tr>
<td>With equipment boxes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Base unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Swiveling 180° left, 90° right with friction brake</td>
</tr>
<tr>
<td>2 Electric swiveling 180° left, 90° right</td>
</tr>
<tr>
<td>3 Not swiveling</td>
</tr>
<tr>
<td>4 Without base frame</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1 Monitor mounting with monitor housing</td>
</tr>
<tr>
<td>M2 Monitor mounting with monitor mounting bracket</td>
</tr>
<tr>
<td>M3 Monitor mounting without monitor housing/-mounting bracket</td>
</tr>
<tr>
<td>F1 Footrest KBF/433</td>
</tr>
<tr>
<td>H Heater 2x2 kW with ventilator</td>
</tr>
<tr>
<td>LK Plate for horizontal manual adjustment of control units +/- 250 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driver seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFS 11* <em>(included in the delivery!)</em></td>
</tr>
<tr>
<td>KFS 9*</td>
</tr>
<tr>
<td>KFS 10*</td>
</tr>
<tr>
<td>KFS 12*</td>
</tr>
</tbody>
</table>

*Description see driver seat page 186

---

Technical details may vary based on configuration or application! Technical data subject to change without notice!
### Crane control unit

**KST 10 swiveling**

Technical details may vary based on configuration or application! Technical data subject to change without notice!

<table>
<thead>
<tr>
<th>Mounting for equipment boxes</th>
<th>KST 10 - 3 - M1 - F1 - LK / KFS 11 / V64 / V64.1 / KL / X</th>
</tr>
</thead>
<tbody>
<tr>
<td>V...</td>
<td>Multi-axis controller (see page 1)</td>
</tr>
<tr>
<td>S...</td>
<td>Single-axis controller (see page 65)</td>
</tr>
<tr>
<td>D...</td>
<td>Double-handle controller (see page 45)</td>
</tr>
<tr>
<td>N...</td>
<td>Control-switch (see page 101)</td>
</tr>
<tr>
<td></td>
<td>More command and indicating devices (see page 162)</td>
</tr>
</tbody>
</table>

### Wiring

<table>
<thead>
<tr>
<th>Wiring</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL</td>
<td>Without wiring, but terminal block built in each terminal</td>
</tr>
<tr>
<td>KLV</td>
<td>On terminal block 4 qmm with single wire 1 qmm each terminal</td>
</tr>
<tr>
<td>KLVA</td>
<td>External wiring single wire highly flexible 1,5 qmm 5 m long each terminal</td>
</tr>
</tbody>
</table>

### Special model

<table>
<thead>
<tr>
<th>X</th>
<th>Special / customer-specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'</td>
<td>Special painted</td>
</tr>
</tbody>
</table>

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 19 swiveling

The KST 19 is an ergonomically designed swiveling crane control chair which provides a high degree of comfort.

Equipment boxes:
The sheet steel equipment boxes are vertically and horizontally adjusted. The arrangement of the joysticks, indicators and control devices is customised according to customer specifications. Cabling is run through aduct in the cross-member. (Terminal block) Special boxes available upon request.

Driver seat:
As standard the KST 19 is fitted with a KFS 10 seat. The seat itself is fitted with a hydraulic vibration absorption system complete with weight adjustment to ensure that the comfort level is fitted with armrests and a headrest. There is the option to have the seat covered with air-permeable artificial leather.

Cross-member with swivel base:
The cover of the sheet steel cross-member including the driver's seat is forward foldable. Thereby all wirings, terminals and bushings are easily accessible during commissioning and maintenance. Swivel base has zero-clearance bearing and can be locked by a friction brake.

Surface treatment:
Base coat and textured varnish
Standard colour RAL 7032 pepple-grey

<table>
<thead>
<tr>
<th>Basic unit</th>
<th>KST 19</th>
<th>3</th>
<th>M1</th>
<th>F1</th>
<th>LK</th>
<th>KFS 10</th>
<th>V64</th>
<th>V64.1</th>
<th>KL</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>KST 19 With equipment boxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Base unit</th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Swiveling 180° left, 90° right with friction brake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Not swiveling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Without base frame</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attachment</th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M1 Monitor mounting with monitor housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2 Monitor mounting with monitor mounting braket</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3 Monitor mounting without monitor housing/ -mounting braket</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M4 Monitor mounting (&lt; 5kg) with monitor housing</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M5 Monitor mounting (&lt; 5kg) with mounting adapter</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>F1 Footrest mounted dispatch 1 KBF/435</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H Heater 2x2kW with ventilator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LK Plate for horizontal manual adjustment for control units +/- 250 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driver seat</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>KFS 10* (included in the delivery!)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Description see driver seat page 194

Technical details may vary based on configuration or application! Technical data subject to change without notice!
### Crane control unit
#### KST 19 swiveling

**Mounting for equipment boxes**
- V... Multi-axis controller (see page 1)
- S... Single-axis controller (see page 65)
- D... Double-handle controller (see page 45)
- N... Control-switch (see page 101)
- ... More command and indicating devices (see page 162)

**Wiring**
- KL Without wiring, but terminal block built in each terminal
- KLV On terminal block 4 qmm with single wire 1 qmm each terminal
- KLV On SPS (SPS provision) with single wire 1 qmm each terminal
- KLVA External wiring single wire highly flexible 1,5 qmm 5 m long each terminal

**Special model**
- X Special / customer-specific
- X! Special painted

---

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Crane control unit
KST 19 swiveling

Technical details may vary based on configuration or application! Technical data subject to change without notice!
The crane driver’s seat KFS 2 has stepless high adjustment by means of a gas-loaded spring. The backrest can be tilted, forwards onto the cushion, which in turn can then be tilted 90° sideways. All these functions are performed easily via levers.

**Technical data:**

<table>
<thead>
<tr>
<th>Function</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal adjustment</td>
<td>100 mm</td>
</tr>
<tr>
<td>Inclination of the backrest</td>
<td>max. 10°</td>
</tr>
<tr>
<td>Height adjustment</td>
<td>120 mm</td>
</tr>
</tbody>
</table>

**Example**

- KFS 21 with air-permeable artificial leather cover black
- KFS 22 with textil cover grey / black
Driver seat
KFS 2

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 4

The crane driver’s seat KFS 4 has stepless high adjustment by means of a gas-loaded spring and an oilhydraulic vibration absorption system with weight adjustment. The backrest can be tilted, forwards into the cushion, which in turn can then be tilted 90° sideways. All functions are performed by a simple lever operation. The metal parts are protected against corrosion and painted black.

Technical data:

<table>
<thead>
<tr>
<th>Function</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspension stroke</td>
<td>80 mm</td>
</tr>
<tr>
<td>Weight adjustment</td>
<td>50 - 130 kg</td>
</tr>
<tr>
<td>Horizontal adjustment</td>
<td>100 mm</td>
</tr>
<tr>
<td>Inclination of the backrest</td>
<td>max. 20°</td>
</tr>
<tr>
<td>Height adjustment</td>
<td>100 mm</td>
</tr>
</tbody>
</table>

Driver seat

- KFS 41 Driver seat with air-permeable artificial leather cover black
- KFS 42 Driver seat with textil cover grey / black

Attachment

- A1 Armrest fully adjustable (2 pieces) 50 mm wide
- A2 Armrest fully adjustable (2 pieces) 100 mm wide

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 4

Floor mounting

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 8

The crane driver’s seat KFS 8 is a static seat with ergonomically designed and provides a high grade of comfort. The driver’s seat is equipped with roller-bearing swivel system. All adjustment controls are positioned ergonomically within easy access. The metal parts are protected against corrosion and painted black.

Technical data:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal adjustment</td>
<td>150 mm</td>
</tr>
<tr>
<td>Inclination of the backrest</td>
<td>max. 28°</td>
</tr>
<tr>
<td>Height adjustment</td>
<td>65 mm</td>
</tr>
</tbody>
</table>

Driver seat
KFS 82  Driver seat with textil cover grey / black

Attachment

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Headrest</td>
</tr>
<tr>
<td>A1</td>
<td>Armrest fully adjustable (2 pieces) 50 mm wide</td>
</tr>
<tr>
<td>A2</td>
<td>Armrest fully adjustable (2 pieces) 100 mm wide</td>
</tr>
<tr>
<td>S1</td>
<td>Safety belt 2-point mounting</td>
</tr>
<tr>
<td>U</td>
<td>Base frame (Apron)</td>
</tr>
</tbody>
</table>

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 8

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Mounting dimensions of the seat rails

510...760
450
28°
7x4°

560
490

Seat swivelled 90° (right) endpoints to lock

210 ±30°
742 ±30°

480...610

21.6
325

* adjustable

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 9

The crane driver’s seat KFS 9 is ergonomically designed and provides a high grade of comfort. The driver’s seat is a low level mechanical suspension seat with an oilhydraulic vibration absorption system with weight adjustment. Upon request, a pneumatic vibrating system with weight adjustment is available. All adjustment controls are positioned ergonomically within easy access. The metal parts are protected against corrosion and painted black.

Technical data:

- Suspension stroke: 80 mm
- Weight adjustment: 50 - 150 kg (pneumatic), 50 - 130 kg (mechanical)
- Horizontal adjustment: 160 mm
- Inclination of the backrest: max. 90°
- Height and slope adjustment: 60 mm

Driver seat

- KFS 91: Driver seat with air-permeable artificial leather cover black
- KFS 92: Driver seat with textile cover grey / black

Attachment

- K: Headrest rain
- A1: Armrest adjustable (2 pieces) 50 mm wide
- A2: Armrest continuously adjustable (2 pieces) 100 mm wide
- L1: Lumbar support manual adjustment - 2 movement
- L2: Lumbar support manual adjustment - 4 movement
- B: Seat allocation recognition
- H: Seat cushion and backrest standard with heating element 24V DC 47W
- S1: Safety belt 2 point fixing
- S2: Safety belt 4 point fixing (headrest raint required)
- P: Pneumatic vibration absorption system with weight adjustment (incl. compressor)
- LK: Plate for horizontal manual adjustment of seat adjustable +/-250 mm
- C: Loose cover
- U: Console (base)

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 9

Technical details may vary based on configuration or application! Technical data subject to change without notice!
The crane driver’s seat KFS 10 is ergonomically designed and provides a high grade of comfort. The driver’s seat has a pneumatic vibration absorption system with weight adjustment by compressor (24 V DC 8 Ampere) and a standard seat cushion V-cut. Through its three horizontal adjustment, it can be flexibly adapted to very many applications. All adjustment controls are positioned ergonomically within easy access. The metal parts are protected against corrosion and painted black.

**Technical data:**

- **Suspension stroke**: 80 mm
- **Weight adjustment**: 50 - 150 kg (pneumatic), 50 - 130 kg (mechanical)
- **Horizontal adjustment**
  - Seat with suspension system: 160 mm
  - Seat part individuell: 240 mm
  - Seat cushion: 160 mm
  - Inclination of the backrest: max. 90°
  - Height and slope adjustment: 60 mm

**Attachment**

- **K** Headrest raint
- **A1** Armrest adjustable (2 pieces) 50 mm wide
- **A2** Armrest continuously adjustable (2 pieces) 100 mm wide
- **L1** Lumbar support manual adjustment - 2 movement
- **L2** Lumbar support manual adjustment - 4 movement
- **B** Seat allocation recognition
- **H** Seat cushion and backrest with heating element 24VDC 47W
- **S1** Safety belt 2 point fixing
- **S2** Safety belt 4 point fixing (headrest raint required)
- **U** Console (base)
- **R1** Price reduction pneumatic vibration absorption system
- **R2** Price reduction for seat cushion without V-cut

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Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 10

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Horizontal adjustment seat with backrest
40  200

Horizontal adjustment seat with suspension system
80  80

Vertical adjustment mechanical/manual
60

Pneumatic suspension system by compressor

Seat cushion
V-cutout

Mounting dimensions seat

* adjustable
The crane driver’s seat KFS 11 is ergonomically designed and provides a high grade of comfort. The driver’s seat is a low level mechanical suspension seat with an oilhydraulic vibration absorption system with weight adjustment. All adjustment controls are positioned ergonomically within easy access. The metal parts are protected against corrosion and painted black.

**Technical data:**

- **Suspension stroke**: 80 mm
- **Weight adjustment**: 50 - 150 kg
- **Horizontal adjustment**: 230 mm
- **Inclination of the backrest**: -12°/+40°
- **Slope adjustment**: -10°/+12°
- **Height adjustment**: 65 mm

**Driver seat KFS 11**

Driver seat with textil cover grey / black

**Attachment**

- **K**: Headrest raint
- **A1**: Armrest adjustable (2 pieces) 50 mm wide
- **A2**: Armrest continuously adjustable (2 pieces) 100 mm wide
- **H**: Seat cushion and backrest with heating element 24VDC 47W
- **S1**: Safety belt 2 point fixing
- **LK**: Plate for horizontal manual adjustment of seat adjustable +/-250 mm
- **C**: Loose cover
- **U**: Console (base)

*Example*

<table>
<thead>
<tr>
<th>KFS 11</th>
<th>- A1</th>
<th>- S1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver seat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KFS 11 Driver seat with textil cover grey / black</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Driver seat
KFS 11

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Horizontal adjustment
100
100

Mounting base dimensions

Mounting dimensions of the seat rails

Armrest 100mm wide

Floor mounting plate

Countersink DIN74-A4

* adjustable

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Driver seat
KFS 12

The crane driver’s seat KFS 12 is ergonomically designed and provides a high grade of comfort. The driver’s seat is equipped with an air-sprung vibration system. The weight adjustment is infinitely. Heated seats 24V, lumbar support, seat cushion adjustment, seat allocation recognition and headrest rain are included in the standard delivery. All adjustment controls are positioned ergonomically within easy access. The metal parts are protected against corrosion and painted black.

Technical details:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspension stoke</td>
<td>80 mm</td>
</tr>
<tr>
<td>Weight adjustment</td>
<td>50 - 150 kg</td>
</tr>
<tr>
<td>Horizontal adjustment</td>
<td>230 mm</td>
</tr>
<tr>
<td>Inclination of the backrest</td>
<td>-12°/+40°</td>
</tr>
<tr>
<td>Slope adjustment</td>
<td>-10°/+12°</td>
</tr>
<tr>
<td>Height adjustment</td>
<td>100 mm</td>
</tr>
<tr>
<td>Seat cushion adjustment</td>
<td>60 mm</td>
</tr>
</tbody>
</table>

Driver seat
KFS 12 Driver seat with textil cover grey / black

Attachment

<table>
<thead>
<tr>
<th>Attachment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Armrest adjustable (2 pieces) 50 mm wide</td>
</tr>
<tr>
<td>A2</td>
<td>Armrest continuously adjustable (2 pieces) 100 mm wide</td>
</tr>
<tr>
<td>S1</td>
<td>Safety belt 2 point fixing</td>
</tr>
<tr>
<td>LK</td>
<td>Plate for horizontal manual adjustment of seat adjustable +/-250 mm</td>
</tr>
<tr>
<td>C</td>
<td>Loose cover</td>
</tr>
<tr>
<td>U</td>
<td>Console (base)</td>
</tr>
</tbody>
</table>

Technical details may vary based on configuration or application! Technical data subject to change without notice!
**Portable control unit**

**TS 1**

The portable control unit TS 1 is used for controlling and monitoring the necessary equipment. The chest panel and straps enable the operator to carry it without becoming tired. An adjustable carrying strap can also be fitted for use without the chest plate.

**Surface treatment:**
- Priming and structur-finishing paint
- Standard colour RAL 7032 pebble-grey

**Technical data:**
- **Operation temperature**: -40°C to +60°C
- **Degree of protection**: IP 54

### Basic unit
- **TS 1** with chest plate and straps
- **TS 11** with straps

### Attachment
- **SB 1** Legs for control unit alu-tube 2 pieces
- **SB 2** Legs for control unit stainless steel-tube V2 A 2 pieces
- **RH 1** Reeling hooks for control unit stainless steel V2 A
- **K 1** Cable entry M 32 cable 11-21 mm
- **K 2** Cable entry M 40 cable 19-28 mm
- **K 3** Cable entry 180° swiveling M 32 cable 11-21 mm
- **K 4** Cable entry 180° swiveling M 40 cable 19-28 mm
- **HS 1** Plug in socket 16-pole male insert HAN 16 E without wiring
- **HB 1** Connector 16-pole female insert HAN 16 E without wiring
- **HS 2** Plug in socket 24-pole female insert HAN 24 E without wiring
- **HB 2** Connector 24-pole female insert HAN 24 E without wiring
- **HS 3** Plug in socket 32-pole male insert HAN 32 E without wiring
- **HB 3** Connector 32-pole female insert HAN 32 E without wiring

*Indicating labels not engraved for multi-axis-/ single-axis controller*
*Indicating labels engraved for multi-axis-/ single-axis controller*

### Mounting for equipment boxes
- **V** Multi-axis controller ([see page 1](#))
- **S** Single-axis controller ([see page 65](#))
- **N** Control-switch ([see page 101](#))

*More command and indicating devices ([see page 162](#))*

### Cable and wiring
- **Cable Oelflex** 18x1 mm 13,4 mm Ø -5°C til +80°C each metre
- **Cable Oelflex** 25x1 mm 15,4 mm Ø -5°C til +80°C each metre
- **Cable Oelflex** 34x1 mm 18,6 mm Ø -5°C til +80°C each metre
- **Cable Neonflex** 18x1 mm 19,2 mm Ø -30°C til +80°C each metre
- **Cable Neonflex** 24x1 mm 22,1 mm Ø -30°C til +80°C each metre
- **Cable Neonflex** 38x1 mm 26,1 mm Ø -30°C til +80°C each metre

**KLS** Wired on connector / plug in socket per core

**KLK** Wiring for cable per core

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Portable control unit
TS 1

TS 1 - SB 1 - RH 1 - K 4 - HS 1 / V... / KLS / X

Special model
X  Special / customer-specific
X1 Housing antistatic design < 10^9 Ohm/cm
X2 Finishing colour yellow RAL 1021

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Portable control unit
TS 1

With chest plate and straps
Protection IP 65
with multi-axis controllers IP 54

Cable entry
with anti-kink protection
and stain relief or connectors

With adjustable carrying strap
Protection IP 65
with multi-axis controllers IP 54

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Portable control unit
TS 2

The portable control unit TS 2 is used for controlling and monitoring the necessary equipment. The chest panel and straps enable the operator to carry it without becoming tired. An adjustable carrying strap can also be fitted for use without the chest plate.

Surface treatment:
Priming and structur-finishing paint
Standard colour RAL 7032 pebble-grey

Technical data:

- Operation temperature: -40°C to +60°C
- Degree of protection: IP 65

---

**Basic unit**
- TS 2 with chest plate, straps
- TS 21 with straps
- TS 22 with bracket and straps

**Attachment**
- SB 1 Legs for control unit alu-tube 2 pieces
- SB 2 Legs for control unit stainless steel-tube V2 A 2 pieces
- RH 1 Reeling hooks for control unit stainless steel V2 A
- K 1 Cable entry M 32 cable 11-21 mm
- K 2 Cable entry M 40 cable 19-28 mm
- K 3 Cable entry 180° swiveling M 32 cable 11-21 mm
- K 4 Cable entry 180° swiveling M 40 cable 19-28 mm
- HS 1 Plug in socket 16-pole male insert HAN 16 E without wiring
- HB 1 Connector 16-pole female insert HAN 16 E without wiring
- HS 2 Plug in socket 24-pole female insert HAN 24 E without wiring
- HB 2 Connector 24-pole female insert HAN 24 E without wiring
- HS 3 Plug in socket 32-pole male insert HAN 32 E without wiring
- HB 3 Connector 32-pole female insert HAN 32 E without wiring

*Indicating labels not engraved for multi-axis/- single-axis controller*

*Indicating labels engraved for multi-axis/- single-axis controller*

**Mounting for equipment boxes**
- V Multi-axis controller (see page 1)
- S Single-axis controller (see page 65)
- N Control-switch (see page 101)
- ... More command and indicating devices (see page 162)

---

Technical details may vary based on configuration or application! Technical data subject to change without notice!
### Portable control unit

**TS 2**

![Company Logo]

**Technical Details**

#### Cable and wiring

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>Core</th>
<th>Diameter</th>
<th>Temperature Range</th>
<th>Length per Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Oelflex</td>
<td>18x1 mm</td>
<td>13.4 mm Ø</td>
<td>-5°C til +80°C</td>
<td>each metre</td>
</tr>
<tr>
<td>Cable Oelflex</td>
<td>25x1 mm</td>
<td>15.4 mm Ø</td>
<td>-5°C til +80°C</td>
<td>each metre</td>
</tr>
<tr>
<td>Cable Oelflex</td>
<td>34x1 mm</td>
<td>18.6 mm Ø</td>
<td>-5°C til +80°C</td>
<td>each metre</td>
</tr>
<tr>
<td>Cable Neonflex</td>
<td>18x1 mm</td>
<td>19.2 mm Ø</td>
<td>-30°C til +80°C</td>
<td>each metre</td>
</tr>
<tr>
<td>Cable Neonflex</td>
<td>24x1 mm</td>
<td>22.1 mm Ø</td>
<td>-30°C til +80°C</td>
<td>each metre</td>
</tr>
<tr>
<td>Cable Neonflex</td>
<td>38x1 mm</td>
<td>26.1 mm Ø</td>
<td>-30°C til +80°C</td>
<td>each metre</td>
</tr>
</tbody>
</table>

**KLS**
- Wired on connector / plug in socket per core

**KLK**
- Wiring for cable per core

#### Special model

- **X**: Special / customer-specific
- **X1**: Housing antistatic design < $10^6$ Ohm/cm
- **X2**: Finishing color yellow RAL 1021

---

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Portable control unit
TS 2

With chest plate and straps
Protection IP 65
with multi-axis controllers IP 54

Cable entry
with anti-kink protection
and stain relief or connectors

With adjustable carrying strap
Protection IP 65
with multi-axis controllers IP 54

With bracket and cable entry swivelling
Protection IP 65
with multi-axis controllers IP 54

Cable entry 180° swivelling
with anti-kink protection
and stain relief or connectors

Direction of view

Technical details may vary based on configuration or application! Technical data subject to change without notice!
**Control pedestal for offshore**

**U22 / 32**

The control pedestal U22 / 32 accommodates the devices necessary for control and monitoring. Ready wired, it can be quickly and easily installed on the sea deck.

The housing (pedestal head) is made of seawater-resistant aluminium.

**Surface treatment:**
- Priming and structur-finishing paint
- Standard colour RAL 7032 pepple-grey

**Technical data:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation temperature</td>
<td>-40°C till +60°C</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 66</td>
</tr>
</tbody>
</table>

**Housing**

- **U22/32 With 1 narrow side-plate with pillar-gasket**
- **FD Side-plate narrow gasket**
- **HD Side-plate wide gasket** (required for command and indicating devices)
- **KD Hinged side-plate with gasket that can be locked in position**
- **IA Monitoring devices cover with gasket for max. 2 monitors 72x72 mm or 4 monitors 72x36 mm and max. 6 indicating devices pos. 28, 29**
- **RS Pillar 108 mm Ø 670 mm height with flange quadratic or round**

**Masterswitch / Control-switch**

- **N61 HG Masterswitch with ball handle and indicating labels**
- **N62 KN Control-switch with knob and indicating label**

**Axis 1: direction 3-4**

(Standard contacts gold-plated 2A 250V AC15)

<table>
<thead>
<tr>
<th>Axis</th>
<th>Contacts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>2</td>
<td>Standard contact - arrangement see page 106</td>
</tr>
<tr>
<td>02</td>
<td>4</td>
<td>z.B.</td>
</tr>
<tr>
<td>03</td>
<td>6</td>
<td>A05</td>
</tr>
<tr>
<td>04</td>
<td>8</td>
<td>A0500</td>
</tr>
</tbody>
</table>

- **Z Spring return**
- **R Friction brake**
- **P Potentiometer**
  - P131 T396 2x0,5 kOhm l max. 1 mA
  - P132 T396 2x1 kOhm l max. 1 mA
  - P133 T396 2x2 kOhm l max. 1 mA
  - P134 T396 2x5 kOhm l max. 1 mA
  - P135 T396 2x10 kOhm l max. 1 mA

**Technical details may vary based on configuration or application! Technical data subject to change without notice!**
Control pedestal for offshore
U22 / 32

Technical details may vary based on configuration or application! Technical data subject to change without notice!

<table>
<thead>
<tr>
<th>Command and indicating devices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H Heating</td>
<td>20 Watt 220 or 110 V 50/60 Hz</td>
</tr>
<tr>
<td>PV Mushroom head push button</td>
<td>22 latching with indicating label 1 Ø</td>
</tr>
<tr>
<td>P Mushroom head push button</td>
<td>22 with indicating label 1 S</td>
</tr>
<tr>
<td>D Push button</td>
<td>22 with indicating label 1 S</td>
</tr>
<tr>
<td>W Selector switch 0–1</td>
<td>22 with indicating label 1 S</td>
</tr>
<tr>
<td>L Indicator light</td>
<td>22 with indicating label Diode 24 Volt</td>
</tr>
<tr>
<td>L Indicator light</td>
<td>22 with indicating label Diode 230 Volt AC</td>
</tr>
<tr>
<td>Contact block additional</td>
<td>1 S or 1 Ø</td>
</tr>
<tr>
<td>L Indicator light</td>
<td>22 with indicating label Diode 24 Volt protection IP65</td>
</tr>
<tr>
<td>L Indicator light</td>
<td>10 with indicating label Diode 24 Volt protection IP65</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Display devices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PQ Powermeter PQ 72 1mA DC</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>PQI Powermeter PQ 72 1mA DC illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>PQ Powermeter PQ 72x36 1 mA DC</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>PQI Powermeter PQ 72x36 1 mA DC illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQ Amperemeter EQ 72 100/200/ 1A</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQI Amperemeter EQ 72 100/200/ 1A illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQ Amperemeter EQ 72x36 100/200/1A</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQI Amperemeter EQ 72x36 100/200/1A illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wiring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>KLV on terminal block 2,5 qmm with wire line 0,75 qmm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special model</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X Special / customer-specific</td>
<td></td>
</tr>
</tbody>
</table>

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Control pedestal for offshore
U22 / 32

Technical details may vary based on configuration or application! Technical data subject to change without notice!
The control pedestal U22 / 23 accommodates the devices necessary for control and monitoring. Ready wired, it can be quickly and easily installed on the sea deck. The housing (pedalstel head) is made of seawater-resistant aluminium.

**Surface treatment:**
- Priming and structur-finishing paint
- Standard colour RAL 7032 pebble-grey

**Technical data:**
- Operation temperature: -40°C to +60°C
- Degree of protection: IP 66

### Housing
- U23/23: with 1 narrow side-plate with pillar-gasket
- U23/23A: Side-plate narrow gasket
- IA: Monitoring devices cover with gasket for max. 2 monitors 72x72 mm or 4 monitors 72x36 mm and max. 6 indicating devices pos. 28, 29
- RS: Pillar 108 mm Ø 670 mm height with flange quadratic or round

### Masterswitch / Control-switch
- N61: HG Masterswitch with ball handle and indicating labels
- N62: KN Control-switch with knob and indicating label

### Axis 1: direction 3-4

<table>
<thead>
<tr>
<th>(Standard contacts gold-plated 2A 250V AC15)</th>
<th>Standard contact - arrangement see page 106</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 2 contacts</td>
<td>z.B.</td>
</tr>
<tr>
<td>02 4 contacts</td>
<td>A05 MS 21</td>
</tr>
<tr>
<td>03 6 contacts</td>
<td>A0500 MS 21-00</td>
</tr>
<tr>
<td>04 8 contacts</td>
<td>A99 contact - arrangement according customer request</td>
</tr>
</tbody>
</table>

- Z: Spring return
- R: Friction brake
- P: Potentiometer
  - P131: T396 2x0,5 kOhm, max. 1 mA
  - P132: T396 2x1 kOhm, max. 1 mA
  - P133: T396 2x2 kOhm, max. 1 mA
  - P134: T396 2x5 kOhm, max. 1 mA
  - P135: T396 2x10 kOhm, max. 1 mA

More potentiometer on request!
## Command and indicating devices

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>Heating</td>
<td>20 Watt 220 or 110 V 50/60 Hz</td>
</tr>
<tr>
<td>PV</td>
<td>Mushroom head push button latching</td>
<td>22 latching with indicating label 1 Ö</td>
</tr>
<tr>
<td>P</td>
<td>Mushroom head push button</td>
<td>22 with indicating label 1 S</td>
</tr>
<tr>
<td>D</td>
<td>Push button</td>
<td>22 with indicating label 1 S</td>
</tr>
<tr>
<td>W</td>
<td>Selector switch 0--1</td>
<td>22 with indicating label 1 S</td>
</tr>
<tr>
<td>L</td>
<td>Indicator light</td>
<td>22 with indicating label Diode 24 Volt</td>
</tr>
<tr>
<td>L</td>
<td>Indicator light</td>
<td>22 with indicating label Diode 230 Volt AC</td>
</tr>
<tr>
<td>L</td>
<td>Indicator light</td>
<td>22 with indicating label Diode 24 Volt protection IP65</td>
</tr>
<tr>
<td>L</td>
<td>Indicator light</td>
<td>22 with indicating label Diode 24 Volt protection IP65</td>
</tr>
<tr>
<td>Contact block additional</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Display devices

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PQ</td>
<td>Powermeter PQ 72 1mA DC</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>PQI</td>
<td>Powermeter PQ 72 1mA DC illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>PQ</td>
<td>Powermeter PQ 72x36 1 mA DC</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>PQI</td>
<td>Powermeter PQ 72x36 1 mA DC illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQ</td>
<td>Amperemeter EQ 72 100/200/1A</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQI</td>
<td>Amperemeter EQ 72 100/200/1A illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQ</td>
<td>Amperemeter EQ 72x36 100/200/1A</td>
<td>Engraved your instructions</td>
</tr>
<tr>
<td>EQI</td>
<td>Amperemeter EQ 72x36 100/200/1A illuminated 24 Volt</td>
<td>Engraved your instructions</td>
</tr>
</tbody>
</table>

## Wiring

- KLV on terminal block 2,5 qmm with wire line 0,75 qmm

## Special model

- X Special / customer-specific
Control pedestal for offshore
U23 / 23

Technical details may vary based on configuration or application! Technical data subject to change without notice!

Reed Ø108x4

Protection with narrow cover

Floor mounting flange

Optional plate

M12x20 deep (Helicoil)

Mounting at the bottom

Ø9

Mounting at the top

Gasket

View B
Naval cruise controller
AZ1

The naval cruise controller AZ1 is a rugged switching device. The modular design enables the switching device to be used universally.

The design includes:
The mechanical control-system for the engine speed 0-max. rpm. switching angle 60 degrees with pressure print at 7 degrees and friction brake direction 0-2. The mechanical control-system for the steering left/right direction 13-14, 360 degrees with pressure points 4x90 degrees and friction brake.

The AZ1 is resistant to oil, maritime climate, ozone and UV radiation.

### Technical data

- **Mechanical life AZ 1**: 12 million operating cycles
- **Operation temperature**: -40°C til +60°C
- **Degree of protection**: IP 66

### Basic unit

<table>
<thead>
<tr>
<th>AZ1</th>
<th>- L</th>
<th>- N</th>
<th>E2112</th>
<th>- X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naval cruise controller</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Options

- **L**: Scale illuminated (LED) 24V dimmable
- **N**: Follow-up control system 24 Volt DC for direction 0-2 and 13-14

### Interface

#### Voltage output (not stabilized)

Supply voltage 4,75-5,25VDC

<table>
<thead>
<tr>
<th>Characteristic:</th>
<th>1 axis</th>
<th>2 axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,5...2,5...4,5V redundant per axis</td>
<td>E103 1</td>
<td>2</td>
</tr>
</tbody>
</table>

Supply voltage 9-32VDC (*11,5-32VDC)

<table>
<thead>
<tr>
<th>Characteristic:</th>
<th>1 axis</th>
<th>2 axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,5...2,5...4,5V redundant per axis</td>
<td>E111 1</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Voltage output

Supply voltage 9-32VDC

<table>
<thead>
<tr>
<th>Characteristic:</th>
<th>1 axis</th>
<th>2 axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>4...12...20mA redundant per axis</td>
<td>E211 1</td>
<td>2</td>
</tr>
</tbody>
</table>

### Special model

<table>
<thead>
<tr>
<th>X</th>
<th>Special / customer-specific</th>
</tr>
</thead>
</table>

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Naval cruise controller
AZ1

Edition: with motor rosseting control system

Installation depth without distance washer

Installation depth with distance washer

Hole pattern

43x50

Plug-in socket/connector

Technical details may vary based on configuration or application! Technical data subject to change without notice!
Pedal-controller
P7 / PP7

The pedal-controller P7 and PP7 is a rugged switching device for footing applications. The pedal-controller is resistant to oil, maritime conditions e.g. offshore / vessels, UV radiation typically from the sun.

**Technical data**

- **mechanical life P7**: 6 million operating cycles
- **mechanical life PP7**: 10 million operating cycles
- **Operation temperature**: -40°C til +60°C
- **Degree of protection P7**: IP 54
- **Degree of protection PP7**: IP 65
- **Colour**: RAL 7032 pebble-grey

---

**Basic unit**

<table>
<thead>
<tr>
<th>P7</th>
<th>- 1 Z</th>
<th>P</th>
<th>- A01</th>
<th>P124</th>
<th>-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedal-controller</td>
<td>reinforced version</td>
<td>Pedal-controller</td>
<td>P7</td>
<td>PP7</td>
<td></td>
</tr>
</tbody>
</table>

**Detent**

- **without**
  - R1 0-2
  - R2 0-3
  - R3 0-4
  - R4 1-0-1
  - R5 2-0-2

**Direction 1-2**

- 1 contact
- 2 contacts
- 3 contacts
- 4 contacts
- 5 contacts
- 6 contacts
- *only possible without potentiometer*

**Detent**

- **without**
  - R1 0-2
  - R2 0-3
  - R3 0-4
  - R4 1-0-1
  - R5 2-0-2

**Direction 1-2**

- 1 contact
- 2 contacts
- 3 contacts
- 4 contacts
- 5 contacts
- 6 contacts
- *only possible without potentiometer*

**P**

<table>
<thead>
<tr>
<th>Potentiometer</th>
<th>T374</th>
<th>0.5 kOhm</th>
<th>I max. 1 mA</th>
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<tbody>
<tr>
<td>P121</td>
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<td></td>
</tr>
<tr>
<td>P122</td>
<td>T374</td>
<td>1 kOhm</td>
<td>I max. 1 mA</td>
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<tr>
<td>P123</td>
<td>T374</td>
<td>2 kOhm</td>
<td>I max. 1 mA</td>
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<tr>
<td>P124</td>
<td>T374</td>
<td>5 kOhm</td>
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<tr>
<td>P125</td>
<td>T374</td>
<td>10 kOhm</td>
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</tbody>
</table>

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