Floor convectors
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Construction of floor convectors</td>
<td>3</td>
</tr>
<tr>
<td>Operating conditions</td>
<td>3</td>
</tr>
<tr>
<td>Warranty conditions</td>
<td>3</td>
</tr>
<tr>
<td><strong>CROSS-FLOW FAN CONVECTION</strong></td>
<td></td>
</tr>
<tr>
<td>FST20-11</td>
<td>4</td>
</tr>
<tr>
<td>FST40-11</td>
<td>5</td>
</tr>
<tr>
<td><strong>WITH NATURAL CONVECTION</strong></td>
<td></td>
</tr>
<tr>
<td>FSK20-11</td>
<td>6</td>
</tr>
<tr>
<td>FSK40-11</td>
<td>7</td>
</tr>
<tr>
<td>FSK41-11</td>
<td>8</td>
</tr>
<tr>
<td>Regulation of FST floor convectors</td>
<td>9</td>
</tr>
<tr>
<td>Regulation of FSK floor convectors</td>
<td>9</td>
</tr>
<tr>
<td>Accessories (thermostats, flow, valves)</td>
<td>10</td>
</tr>
<tr>
<td>Hydraulic resistance of heat exchangers</td>
<td>11</td>
</tr>
<tr>
<td>Lockshield parameters</td>
<td>11</td>
</tr>
<tr>
<td>Practical temperature exponents</td>
<td>11</td>
</tr>
</tbody>
</table>
Floor convectors are mainly suitable for installation at large glassed-in panels like shop windows and are useful for heating of winter gardens, entrance halls, communication and prestige rooms, public and commercial buildings or ancient monuments. In comparison with classical heating bodies, convectors built-in floor channels do not occupy the room space or interfere with interior look. Using of fans with suitable speed regulation provides easy and comfortable control and ensures good flexibility and full utilization of exchanger’s heating output.

**CONSTRUCTION OF PRACTIC FLOOR CONVECTORS**

**STEEL TROUGH**
Galvanized steel tank with surface finish and black spray layer inside. The tank is provided with holes for water inlet/outlet and for voltage input (type FST) and contains all function elements of convector construction. Height adjusting screws are added. The attached peripheral ledge 20×20 mm serves for covering of the installed floor convector to hide the connection elements or dilatation gaps in case of floating floor.

**ALCu HEAT EXCHANGER**
Aluminium lamellas plated on copper tube Ø16 mm, through which the heating medium streams. Lamellas distribute heat throughout the whole exchanger area and enable the heating of room air. Air release valve and pipe union with Ø1/2” internal thread are standard parts of the heat exchanger.

**ROLL-UP GRILL**
A visual stepping grid covering the channel with installed tank. The grills are made of aluminium cross lamellas.

**CROSS-FLOW FANS**
Tangential fans producing forced air circulation and so enabling better utilization of exchanger heating output (FST type only). Rotor are fitted with protective coverings to prevent accidents and fan damages.

**REGULATOR**
Speed regulator (autotransformer) of FST convector type controls heating output as per the customer’s demand. In combination with thermostat, speed regulator enables convector output control within the range of 0, 1, 2, 3.

---

**OPERATING CONDITIONS**

- Hot water heating system with forced circulation
- Operating temperature of the heating medium: 110 °C as a maximum
- Operating pressure of the heating medium: 1 MPa as a maximum
- Electric components with IP20 protection, operational voltage 230 V, application in dry environment
- The convector is constructed for ambient temperature between +2 °C and 40 °C at relative humidity of 20-70%

**Warning:** If there is a possibility of the ambient temperature dropping below +2 °C (e.g. rooms unheated during winter season), the heating system is to drain to avoid damage by freezing of the heating medium.

**WARRANTY CONDITIONS (SHORTENED VERSION)**

The Seller’s warranty applies to tightness, surface finish, stated parameters of heating output and pressure losses of heating bodies professionally installed in a closed hot water system in accordance with valid standards and decrees, including corrosion properties of the heat carrying liquid, which has to be used exclusively as heating medium and never as service water.

**Guarantee Period:**
Guarantee period amounts to 5 years regarding joints tightness, 10 years regarding heat exchanger and 2 years regarding electric installation and galvanized steel trough.
DESCRIPTION

SPECIFICATION
- House-buildings, detached houses, office buildings
- Optimal rating output
- Forced convection by tangential fans
- Smooth running
- Dry ambience

DIMENSIONS (WITHOUT LEDGE)
- Width: W = 261 mm
- Height: H = 115 mm
- Length: L = 1200, 1600, 2000, 2400, 2800 mm
- Inclusively ledge: W+35 mm, L+35 mm, H+1.5 mm
- Combination with FS4K41-11, identical width

BASIC INFORMATION
- Paint coated galvanized steel trough
- Lamellar Cu-AI exchanger, connection G1/2”, air release valve
- Tangential fan with rotor housing
- Anodized Al-nature roll grill
- Peripheral ledge 20 x 20 mm
- Z-VD001 regulation transformer
- Direct and corner lockshield valve packed in

INSTALLATION
Floor convectors are usually placed exchangers close to window. Recommended distance from window is 100-150 mm.

HEATING OUTPUT

<table>
<thead>
<tr>
<th>Temperature gradient</th>
<th>Speed</th>
<th>Length [mm]</th>
<th>Output [W]</th>
</tr>
</thead>
<tbody>
<tr>
<td>90/70/20°C</td>
<td>0</td>
<td>1300</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1600</td>
<td>2400</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2000</td>
<td>2800</td>
</tr>
</tbody>
</table>

| 75/65/20°C           | 0      | 2200        | 2800       |
|                      | 1      | 2600        | 3000       |
|                      | 2      | 3000        | 3400       |

| 70/55/20°C           | 0      | 2600        | 3200       |
|                      | 1      | 3000        | 3800       |
|                      | 2      | 3400        | 4200       |

| 55/45/20°C           | 0      | 2200        | 2600       |
|                      | 1      | 2600        | 3000       |
|                      | 2      | 3000        | 3400       |

FRONT VIEW

TOP VIEW

SIDE VIEW

CONVECTOR SECTION

IMPORTANT INFORMATION
- Wiring diagram, see page 9
- Regulation elements, thermostats, see page 10
- Hydraulic parameters, see page 11
- Lockshield parameters, see page 11
DESCRIPTION
Extremely high-performance convector, series FST, enabling covering of higher thermal losses in the room. Due to good acoustic parameters is widely used in rooms with long-time presence of persons, like offices, office buildings, flats and halls, foyers or buildings showing great thermal losses (old houses).

SPECIFICATION
- Flats, detached houses, offices, corridors
- High heating output
- Forced convection by tangential fans
- Smooth running
- Dry ambience

DIMENSIONS (WITHOUT LEDGE)
- Width: W = 311 mm
- Height: H = 115 mm
- Length: L = 1200, 1600, 2000, 2400, 2800 mm
- Inclusively ledge: W+35 mm, L+35 mm, H+1,5 mm
- Combination with FSK40-11, identical width

BASIC INFORMATION
- Paint coated galvanized steel trough
- Lamellar Cu-Al exchanger, connection G 1/2", air release valve
- Tangential fan with rotor housing
- Anodized Al-natur roll grill
- Peripheral ledge 20 × 20 mm
- Regulation transformer, type Z-VD001
- Direct and corner lockshield valve packed in

INSTALLATION
Floor convector are usually placed exchangers close to window. Recommended distance from window is 100–150 mm.

HEATING OUTPUT

<table>
<thead>
<tr>
<th>Temperature gradient</th>
<th>Speed</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>90/70/20°C</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>500</td>
<td>150</td>
<td>250</td>
<td>350</td>
<td>450</td>
<td>550</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>520</td>
<td>170</td>
<td>270</td>
<td>370</td>
<td>470</td>
<td>570</td>
</tr>
<tr>
<td></td>
<td>2400</td>
<td>540</td>
<td>190</td>
<td>290</td>
<td>390</td>
<td>490</td>
<td>590</td>
</tr>
<tr>
<td></td>
<td>2800</td>
<td>560</td>
<td>210</td>
<td>310</td>
<td>410</td>
<td>510</td>
<td>610</td>
</tr>
<tr>
<td>75/65/20°C</td>
<td></td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>360</td>
<td>120</td>
<td>220</td>
<td>320</td>
<td>420</td>
<td>520</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>380</td>
<td>140</td>
<td>240</td>
<td>340</td>
<td>440</td>
<td>540</td>
</tr>
<tr>
<td></td>
<td>2400</td>
<td>400</td>
<td>160</td>
<td>260</td>
<td>360</td>
<td>460</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>2800</td>
<td>420</td>
<td>180</td>
<td>280</td>
<td>380</td>
<td>480</td>
<td>580</td>
</tr>
<tr>
<td>70/55/20°C</td>
<td></td>
<td>0</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>340</td>
<td>120</td>
<td>220</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>360</td>
<td>140</td>
<td>240</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2400</td>
<td>380</td>
<td>160</td>
<td>260</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2800</td>
<td>400</td>
<td>180</td>
<td>280</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55/45/20°C</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>320</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>340</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2400</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2800</td>
<td>380</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FRONT VIEW

TOP VIEW

SIDE VIEW

CONVECTOR SECTION

IMPORTANT INFORMATION
- Wiring diagram, see page 9
- Regulation elements, thermostats, see page 10
- Hydraulic parameters, see page 11
- Lockshield parameters, see page 11
DESCRIPTION
The convector functions as a thermal barrage to keep away the draught from big windows. Lower performance allows covering of large glass walls. Absence of output surplus enables balanced heating of the whole window length. The narrowest convector supporting the window line.

SPECIFICATION
- Detached houses, corridors, halls, passageways
- Narrow convector
- Moderate heating of window areas
- Suitable for combination with other heating systems
- Dry ambience

DIMENSIONS [WITHOUT LEDGE]
- Width: W = 141 mm
- Height: H = 115 mm
- Length: L = 1200, 1600, 2000, 2400, 2800 mm
- Inclusively ledge: W+35 mm, L+35 mm, H+15 mm

BASIC INFORMATION
- Paint coated galvanized steel trough
- Lamellar Cu-Al exchanger, connection G 1/2”, air release valve
- Anodized Al-natur roll grill
- Peripheral ledge 20 x 20 mm
- Direct and corner lockshield valve packed in

INSTALLATION
Recommended distance from window is 100–150 mm.

IMPORTANT INFORMATION
- Regulation elements, thermostats, see page 10
- Hydraulic parameters, see page 11
- Lockshield parameters, see page 11

NOTE
No Z-TS230 thermodrive or Z-FF001 capillary head can be used with FSK20-11 convector type.

HEATING OUTPUT

<table>
<thead>
<tr>
<th>Temperature gradient</th>
<th>1200</th>
<th>1600</th>
<th>2000</th>
<th>2400</th>
<th>2800</th>
</tr>
</thead>
<tbody>
<tr>
<td>90/70/20 °C</td>
<td>146</td>
<td>213</td>
<td>279</td>
<td>346</td>
<td>413</td>
</tr>
<tr>
<td>75/65/20 °C</td>
<td>114</td>
<td>166</td>
<td>218</td>
<td>270</td>
<td>322</td>
</tr>
<tr>
<td>70/55/20 °C</td>
<td>91</td>
<td>133</td>
<td>175</td>
<td>216</td>
<td>258</td>
</tr>
<tr>
<td>55/45/20 °C</td>
<td>57</td>
<td>83</td>
<td>109</td>
<td>135</td>
<td>161</td>
</tr>
</tbody>
</table>

FRONT VIEW

ROOM

TOP VIEW

CONVECTOR SECTION
**FSK 40-II** FLOOR CONVECTOR WITH NATURAL CONVECTION

**DESCRIPTION**
High-performance floor convector, generally used in flats, offices, office buildings, halls etc., mainly in facilities allowing no installation of wiring for fan-fitted convectors.

**SPECIFICATION**
- Flats, houses, offices, corridors, halls...
- High heating output of natural convection
- Suitable for combining with other heating systems
- Dry ambience

**DIMENSIONS (WITHOUT LEDGE)**
- Width: \( W = 311 \) mm
- Height: \( H = 115 \) mm
- Length: \( L = 1200, 1600, 2000, 2400, 2800 \) mm
- Inclusively ledge: \( W + 3.5 \) mm, \( L + 3.5 \) mm, \( H + 1.5 \) mm
- Combination with FST40-11, identical width

**BASIC INFORMATION**
- Paint coated galvanized steel trough
- Lamellar Cu-Al exchanger, connection G1/2", air release valve
- Anodized Al-natur roll grill
- Peripheral ledge 20 × 20 mm
- Direct and corner lockshield valve packed in

**INSTALLATION**
Recommended distance from window is 100–150 mm.

**HEATING OUTPUT**

<table>
<thead>
<tr>
<th>Temperature gradient</th>
<th>Temperature [°C]</th>
<th>Length [mm]</th>
<th>Output Qn [W]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1200</td>
<td>1600</td>
<td>2000</td>
</tr>
<tr>
<td>90/70/20°C</td>
<td>370</td>
<td>539</td>
<td>707</td>
</tr>
<tr>
<td>75/65/20°C</td>
<td>284</td>
<td>414</td>
<td>543</td>
</tr>
<tr>
<td>70/55/20°C</td>
<td>224</td>
<td>327</td>
<td>429</td>
</tr>
<tr>
<td>55/45/20°C</td>
<td>134</td>
<td>108</td>
<td>259</td>
</tr>
</tbody>
</table>

**FRONT VIEW**

**TOP VIEW**

**SIDE VIEW**

**CONVECTOR SECTION**

**IMPORTANT INFORMATION**
- Regulation elements, thermostats, see page 10
- Hydraulic parameters, see page 11
- Lockshield parameters, see page 11
DESCRIPTION
Middle-performance convector without fan. Four-tubes exchanger located in a narrow trough, the width of which is the same as in the FST2O-11 type. Combination of convector with natural and forced convection complies with architects’ projects and enables installation of FSK convector in places showing lower thermal loss.

SPECIFICATION
- Flats, detached houses, offices, corridors
- Good heating output
- Dry ambiance

DIMENSIONS (WITHOUT LEDGE)
- Width: W = 261 mm
- Height: H = 115 mm
- Length: L = 1200, 1600, 2000, 2400, 2800 mm
- Inclusively ledge: W +35 mm, L+35 mm, H+1.5 mm
- Combination with FST2O-11, identical width

BASIC INFORMATION
- Paint coated galvanized steel trough
- Lamellar Cu-Al exchanger, connection G1/2”, air release valve
- Anodized Al-natur roll grill
- Peripheral ledge 20 x 20 mm
- Direct and corner lockshield valve packed in

INSTALLATION
Recommended distance from window is 100-150 mm.

IMPORTANT INFORMATION
- Regulation elements, thermostats, see page 10
- Hydraulic parameters, see page 11
- Lockshield parameters, see page 11

HEATING OUTPUT

<table>
<thead>
<tr>
<th>Temperature gradient</th>
<th>Length [mm]</th>
<th>/ Output Qn [W]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1200</td>
<td>1600</td>
</tr>
<tr>
<td>90/70/20°C</td>
<td>290</td>
<td>422</td>
</tr>
<tr>
<td>75/45/20°C</td>
<td>223</td>
<td>325</td>
</tr>
<tr>
<td>70/55/20°C</td>
<td>177</td>
<td>257</td>
</tr>
<tr>
<td>55/45/20°C</td>
<td>107</td>
<td>156</td>
</tr>
</tbody>
</table>
**ACCESSORIES**

**THERMOSTATS**

**Z-DS002** | Simple fan speed switch
---
Switch levels: 0, 1, 2, 3
Operating voltage: 230V/50Hz
Max. switched current: 6 [2] A
Degree of protection: IP30
Colour: white
Dimension: 96 × 97 × 36 mm

**Z-RT001** | Room thermostat
---
Temperature range: 10 ø. 30 °C
Operating voltage: 230V/50Hz
Max. switched current: 10 [3] A
Degree of protection: IP30
Colour: white
Dimension: 83 × 83 × 40 mm

**Z-RT005** | Manual room thermostat with speed switch
---
Temperature range: 8 to 30°C
Switch levels: 0, 1, 2, 3
Operating voltage: 230V/50Hz
Max. switched current: 6 [2] A
Degree of protection: IP30
Colour: white
Dimension: 96 × 110 × 36 mm

**Z-RT006** | Heating, cooling
---
Room thermostat with backlit LCD, 7-day time program, 8 programmable timers, manual or automatic speed switching, mode heating/cooling for 2-pipe and 4-pipe floor connectors
Temperature range: 0.49 °C
Modes: Comfort, Economy, Protection
Speeds: 1, 2, 3 or automatic
Operating voltage: 230V / 50Hz
Power consumption: 3.5 VA / 0.8W
Max. total load current through terminal L: 7A
Outputs rating: 5 [2]A
Protection: IP30
Colour: RA9003 white
Dimension: 86 × 86 × 46

**FLOW REGULATION**

**Z-TS230, Z-TS230-5m** | Thermoactuator
---
Input voltage: 230V / 50Hz
Power input when switch on: 58VA
Power input during operating: 2.5W
Period of switching ON/OFF: 210 s
Ingress protection: IP54 (housing)
Connection thread: M30×1.5mm
Cable length: ZT2320 3 meters
ZT2320-5m 5 meters
Max. height when opened: 74 mm

**Z-TF001** (available for FSK only) | Radiator thermostat with remote setting
---
Temperature range: 9 to 26 °C, antifreeze temperature 9°C
Mode: proportional control
Operating temperature: without additional energy, liquid-filled sensing
Capillary tube length: 5 m
Body-heat connection: M30 × 1.5 mm
Dimension: 75 × 75 mm, sensor Ø 50 × 68 mm

**THERMOSTATIC VALVES**

**Z-TD001 / Z-TE001** | Thermostat valve direct / corner
---
DN15, NF norm, M30 × 1.5 mm, PN10, 120°C

<table>
<thead>
<tr>
<th>Valve setting</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>k (m³/h)</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.45</td>
<td>0.69</td>
<td>0.89</td>
</tr>
</tbody>
</table>
# Hydraulic Resistance of Heat Exchangers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>FST20-II</td>
<td>1200</td>
<td>0.27</td>
<td>0.01</td>
</tr>
<tr>
<td>FSK20-II</td>
<td></td>
<td>1600</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2400</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2800</td>
<td>0.76</td>
</tr>
<tr>
<td>FST40-II</td>
<td>1200</td>
<td>0.24</td>
<td>0.01</td>
</tr>
<tr>
<td>FSK40-II</td>
<td></td>
<td>1600</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2400</td>
<td>1.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2800</td>
<td>1.53</td>
</tr>
</tbody>
</table>

# Lockshields Parameters

<table>
<thead>
<tr>
<th>T-turns</th>
<th>0.5</th>
<th>0.75</th>
<th>1</th>
<th>1.5</th>
<th>2</th>
<th>2.3</th>
<th>3</th>
<th>3.5</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>K (m³/h) – direct version</td>
<td>0.2</td>
<td>0.4</td>
<td>0.5</td>
<td>0.73</td>
<td>0.91</td>
<td>1.05</td>
<td>1.25</td>
<td>1.33</td>
<td>1.4</td>
<td>1.6</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>K (m³/h) – corner version</td>
<td>0.2</td>
<td>0.29</td>
<td>0.29</td>
<td>0.4</td>
<td>0.5</td>
<td>0.69</td>
<td>0.8</td>
<td>1</td>
<td>1.2</td>
<td>1.55</td>
<td>1.9</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Parameters of packed in lockshield valves.

# Practic Temperature Exponents

<table>
<thead>
<tr>
<th>Type</th>
<th>exponent m</th>
</tr>
</thead>
<tbody>
<tr>
<td>without fan</td>
<td>with fan</td>
</tr>
<tr>
<td>FST20-II</td>
<td>1.36</td>
</tr>
<tr>
<td>FST40-II</td>
<td>1.44</td>
</tr>
<tr>
<td>FSK20-II</td>
<td>1.37</td>
</tr>
<tr>
<td>FSK40-II</td>
<td>1.45</td>
</tr>
<tr>
<td>FSK41-II</td>
<td>1.44</td>
</tr>
</tbody>
</table>

m – temperature exponent for recalculation to other temperature gradient.