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| Project | xx |
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SPECIFICATION – Cold Storage Facility

| POS. | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | TOTAL PRICE |
|-------------------|---|----------|------|------------|-------------|
| 01.01 | COLD STORAGE DOORS | | | | |
| 01.01.0010 | <p>COLD STORAGE HIGH-SPEED SPIRAL DOOR</p> <p>Lead product: EFAFLEX Type “EFA-SST® TK-100”</p> <p>Dimensions: 0.000 x 0.000 mm</p> <p>Manufacture, delivery, and installation of:</p> <p>High-speed spiral door Type “EFA-SST® TK-100”, with electro-mechanical high-performance door drive for closing cold storage rooms.</p> <p>The door system can be installed either on the warm or cold side (preferably on the warm side).</p> <p>Permissible temperature range when mounted on the warm side:</p> <p>Cold side: 0°C to -30°C / Warm side: 0°C to +30°C</p> <p>For door systems over 3,000 mm wide, the maximum allowable temperature difference is 40°C.</p> <p>Permissible temperature range when mounted on the cold side:</p> <p>Cold side: 0°C to -30°C / Warm side: 0°C to +10°C</p> <p>Relative humidity on the warm side: max. 60%</p> <p>The door system mainly consists of:</p> <p>Self-supporting, thermally separated frames; steel parts generally galvanized; spiral-shaped curtain support. Force transmission is carried out on both sides using a synchronized shaft. For precise, smooth, and quiet guidance of the hinge straps, ball-bearing precision rollers are used. Additionally, a sufficiently dimensioned tension spring mechanism is installed in the door frames according to DIN EN 12604 to balance the door leaf weight and allow manual opening (e.g., in case of power failure).</p> <p>All visible parts of the self-supporting, fully enclosed door structure are Sendzimir galvanized.</p> <p>Door leaf made of double-walled, thermally separated and insulated, 100 mm thick EFA-THERM® slats, attached to hinge straps and moving vertically (up or down); surface finish as a 2-layer coating similar to RAL 9006 (White Aluminium).</p> <p>The door leaf is pressed against a heated special seal on the wall by the EFA-AFM (Active Guide Rail Mechanism), providing excellent sealing between the cold and warm sides. This special heated sealing of the door leaf, heating tapes between slats, and a heated contact strip complete the cold-storage equipment.</p> <p>The spiral body is designed so that the slats move completely without touching each other, ensuring wear-free and quiet operation.</p> <p>DOOR DRIVE: Gear motor with high-frequency motor design. Door positions are continuously monitored via absolute encoders; end positions are determined electronically. Electro-mechanical limit switches are not permitted.</p> | | | | |

- **Opening speed:** up to approx. 1.5 m/sec
- **Maximum door leaf speed:** up to approx. 2.0 m/sec
- **Closing speed:** up to approx. 0.5 m/sec

MICROPROCESSOR CONTROL with frequency inverter installed in a separate steel control cabinet 600x600x210 mm (IP 65). Connection to 400V / 50 Hz power supply provided by client.

SECURITY:

- Mounted on warm side: contact strip and TÜV-approved door line light grid (EFA-TLG®) up to 2.5 m height.
- Mounted on cold side: two cold-storage light barriers (TK-Lichtschränken) and a contact strip instead of TLG.

The safety systems act in the closing plane, are fully integrated in the side frames, immediately stop the closing movement, and automatically initiate opening movement.

Cold-storage heating package includes:

- Heating tapes between door slats
- Horizontal and vertical heating tapes (between door leaf and wall)
- Heating tape for contact strip

The door system comes standard with floor plates made of V2A stainless steel.

Additional equipment:

- Pull switch with red cord for ceiling mounting
- Motion detector: safety device to detect moving objects (inactive when door closed), direction-recognizing, adjustable detection field, with mounting bracket
- Control expansion for conveyor technology: separate terminal area in standard control cabinet for inputs (open pulse, close pulse, emergency stop, interlock, impulse generators) and outputs (potential-free signals for door open, door closed, ready/fault), max. 24V DC

Through-bolt mounting using threaded rods and counterplates.

Standards according to DIN EN 13241-1 fulfilled;

Thermal insulation according to DIN EN 12428 up to 0.62 W/m²K

Wind load resistance according to DIN EN 12424 up to Class 4

Air permeability according to DIN EN 13241-1 up to Class 4

Sound insulation according to DIN EN 7171 up to 26 dB(A)

(Values depend on door size and equipment)

Connection on site to 230V / 50-60 Hz, fuse 16A.

Function test and commissioning for clear opening:

Width = mm x Height = mm

Offered product:

EFAFLEX Type "EFA-SST® TK-100" (Bidder specification)

1.000 piece

01.01.0020 Bottom and front spiral cover:

Galvanized, powder-coated or stainless steel (V2A)

(Mandatory for cold-side installation)

1.000 piece

01.01.0030 Top spiral cover as dust protection:

Galvanized, powder-coated or stainless steel (V2A)

(Not available for cold-side installation)

1.000 piece

01.01.0040 Safety:

TK light barrier

Two pieces mandatory for cold-side installation, replacing TLG

1.000 piece

01.01.0060 Powder coating of all visible steel parts per RAL (excluding pearl and fluorescent colors)

1.000 piece

01.01.0070 Stainless steel version of all visible sheet metal parts (V2A), including ball bearings for deflection and guide rollers in V2A

(Not stainless steel: small parts inside frame)

1.000 piece

01.01.0080 Painting of slats (door leaf) per RAL (excluding pearl and fluorescent colors). Hinge chain not painted.

Note: Minor color differences possible with painted aluminum parts

1.000 piece

01.01.0090 Motor heater (mandatory for cold-side installation)

1.000 piece

01.01.0100 Control cabinet heater (mandatory below 0°C)

1.000 piece

01.01.0120 Swiveling frame cover

1.000 piece

01.01.0130 Pull switch with red cord for ceiling mounting

1.000 piece

01.01.0140 Push button (black or red mushroom head)

1.000 piece

01.01.0150 Motion detector (radar technology), safety device, direction and field adjustable (inactive when door closed)

1.000 piece

01.01.0160 Induction evaluator, 2-channel, including 2 induction loops (1 on door side, 1 on opposite side)

1.000 piece

01.01.0170 GVM control expansion:

Interlocking of two high-speed doors including wiring up to 5 m in client cable routing

1.000 piece

01.01.0180 Signal lights:

Flashing light in yellow or red

1.000 piece

01.01.0190 Collision protection bollard:

FLEXCORE 6 with sturdy metal core, rotatable HDPE shell, shock-absorbing ring; Height 1,370 mm, Diameter 182 mm

1.000 piece

01.01.0200 Mechanical emergency release:

For opposite side via lever (flush or surface mounted) for partial opening using spring force

1.000 piece

01.01.0210 Control cabinet accessories:

Cabinet stand AE1060, powder-coated per RAL, for 600x600x210 mm, wall-mounted

1.000 piece

01.01.0220 Door leaf kit:

1x bottom slat including contact strip(s), 3x door slats, including heating cables, rubber seals, hinge chains, and guide rollers; wall-mounted

1.000 piece

01.01 COLD STORAGE DOORS

Total: