

# PENTA

## Manual

HCL

Horizontal Coolingline  
Penta cooler

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### 1. Specifications

Length: 2500 mm  
Width: 850 mm  
Overall Height: 1100 - 1210mm  
Weight: about 150 kg  
Electrical connection: L, N, PE, 230V / 16A

### 2. Description

Horizontal – Coolingline

Penta cooler is used for cooling PCBs with dimensions of minimum 100x100mm to maximum 700x700mm

- Completely manufactured from stainless steel body with erectable cover
- Variable speed belt drive, adjustable up to 5m/min.
- Fan above and below the conveyor belt for optimum cooling.



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### 3. Installation

#### 1. Setup and installation

Penta cooler stands on four individually height-adjustable rollers. The adaption to the height of the post-cleaning line will be carried out by adjusting the screws at the inner side of the machine base. Adjustable working height: 870-970 mm.

#### 2. Electrical connection

Supply voltage = L, N, PE, 230 VAC, 16 amp

The connection cable can be hardwired or powered via a connector plug. Fuse: 16 Amp. to secure the supply line.

#### 3. Exhaust connection

Penta cooler has an exhaust port on the cover of the cooling section. This must be connected to the exhaust system.

### 4. Commissioning

#### 1. Preparations

- turn on the main switch.
- In the cabinet: switch fuses and motor protection switch.
- If necessary, unlocking of the emergency stop switch.

#### 2. Operation of the switch

Two switches and a rotary potentiometer are on the cabinet door.

Function: switch: on / off

Indicator: A = operating

Rotary potentiometer: Setting of the transport speed

Red Emergency Stop: Latching of Emergency Stop Switch

#### 3. Turn on

Upon actuation of the selector switch to ON the belt drive and the fans will be put into operation.



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## 5. Operation

### Function description

After turning on Penta cooler, the conveyor belt and the fan run and PCBs can be placed on the mesh belt.

During transport through the cooler the hot PCBs are cooled down with the help of fans.

#### Conveyor:

The conveyor belt is an endless wire mesh and can be tensioned over the guide rollers. The screws have to be loosed in the furrow at the front-side. The belt can't be tightened by the M6 hexagon socket screws, which are mounted face sided. Pull back the screws firmly into the furrow after tightening. The belt must be cut or replaced, if the full range of tensioning is exploited.



#### Drive motor:

The drive is provided by a 24V DC gear motor from Lenze and is connected via a tooth belt drive to the rollers of the conveyor belt. To tighten the belt, the screws must be solved on the motor console. The motor can be moved along the slotted holes in the console. Tighten the screws at the desired belt tension.



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Fans: Sixteen fans are located in the cover and below the conveyor belt.



Exhaust: The exhaust is on the cover of the cooling section and must be connected to the exhaust system. The cover of the cooling section is foldable, thus the connection of dust extraction must be done via a flexible hose or a pipe which is cut at an angle of 45°. The exhaust port is 100mm in diameter and requires a throughput of suction capacity of 300m<sup>3</sup> / h.



## Faults, troubleshooting

If faults occur, the green indicator light of the ON/OFF switch flashes.

- Fault 1: Conveyor belt stops
- Emergency stop has been pressed
  - PCB stuck with conveyor belt
  - System in disorder
  - Defect of drive motor

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- Solution:
- Unlock emergency stop and acknowledge the error message
  - Switch off the system and remove the jammed PCBs
  - Replace the drive motor

- Fault 2: Device does not respond to On / Off Switch
- No power supply
  - Main switch is turned off
  - Fuse has triggered
  - Emergency stop button has been pressed

- Solution:
- Check the power supply
  - Check main switch
  - Turn on the fuse
  - Unlock emergency stop and acknowledge the error message

Maintenance:

Daily:

- Visual inspection for damage
- Function test of emergency stop

Weekly:

- Cleaning of the conveyor belt as well as drive and return rollers

Monthly:

- Check the belt tension of the belt drive motor and tighten if necessary
- Clean stainless steel frame with appropriate care
- Check the operation of the fan
- Check all screws for tightness

If defect occurs:

- Motor of the belt drive is defective.

To change the coals of the DC motor, proceed as follows:

- Remove the screws securing the motor to the motor bracket.
- Remove tooth belt from motor pulley and remove it
- Dismantle plates on the motor shield
- Remove carbon dust with brush and suction. Caution! Do not use compressed air to clean
- Fold down finger pressure (spring) in the coal holder and remove carbon brushes

- Insert the new carbon brushes

Grind brushes on collector diameter before putting in.

- Fix carbon brushes with finger pressure (spring) again
- Mount panels on the bearing shield

