

Rail clamps are designed to work with side surfaces of the running rail heads. Their purpose is to prevent displacement of a machine caused by external forces, while in standstill (e.g. wind in the case of cranes or forces exerted by a conveyor belt in the case of throw-off carriages). They prevent the machine from moving once it has come to a standstill, independently of the brake installed in the power transmission system of the travel mechanism. They are not designed to brake a machine in motion (unless agreed in advance). The drive control system should be designed in such a way that the drive motor is started when the brake shoes are open, i.e. after confirmation of brake release by the brake release sensor fitted on the clamp, and braking is achieved once the machine has come to a halt.

The clamps are fitted with guiding rollers, adjusting their position so as to prevent the friction lining of the brake shoe from rubbing against the rail head while in motion. It is recommended to use the clamps symmetrically on both rails.

To ensure correct operation, it is necessary to select the appropriate size of the clamp. The mechanical connection can be adapted to the user's existing structure and, due to design differences, is determined on an individual basis.

The clamps can be manufactured:

- with an electro-hydraulic release mechanism: ZS.02, ZS.03 or AHS (automatic braking after loss of voltage)
- with ZS.04 hydraulic power pack (automatic braking after loss of voltage)
- with ZS.06 electric drive (no automatic braking after loss of voltage).

ZS.02 AND ZS.03 RAIL CLAMPS WITH ELECTRO-HYDRAULIC RELEASE

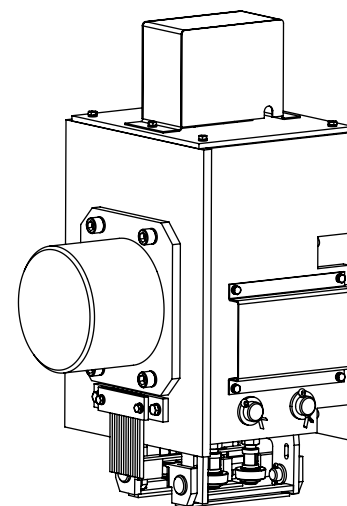
The braking force (clamping of the shoes on the running rail) is mechanically induced by a spring integrated in the body of the release mechanism. Release of the clamp (spreading of the brake shoes) occurs once the release mechanism has been energised, causing the pump that pumps oil into a chamber located under the release mechanism piston to be switched on. This results in an upward movement of the piston and the brake arms and shoes are moved away from the head of the rail by an articulated lever system, which allows unobstructed movement of the machine. If the voltage supply to the release mechanism is interrupted, the spring in the release immediately moves the piston downwards automatically and braking is performed by pressing the brake shoes against the side surfaces of the rail head.

The connection dimensions and fitting method can be adapted to suit the requirements of the installation.

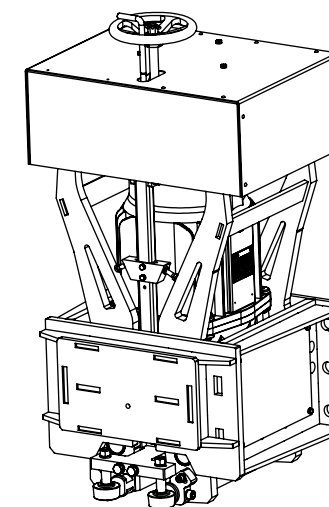
The clamp can be optionally provided with:

- manual brake release mechanism
- external mechanical switch (brake release indication)
- release with a built-in mechanical connector (brake release indication)
- mounting holes for a bumper

Power supply voltage: 3×220 V, 3×400 V, 3×500 V (or different, as agreed)



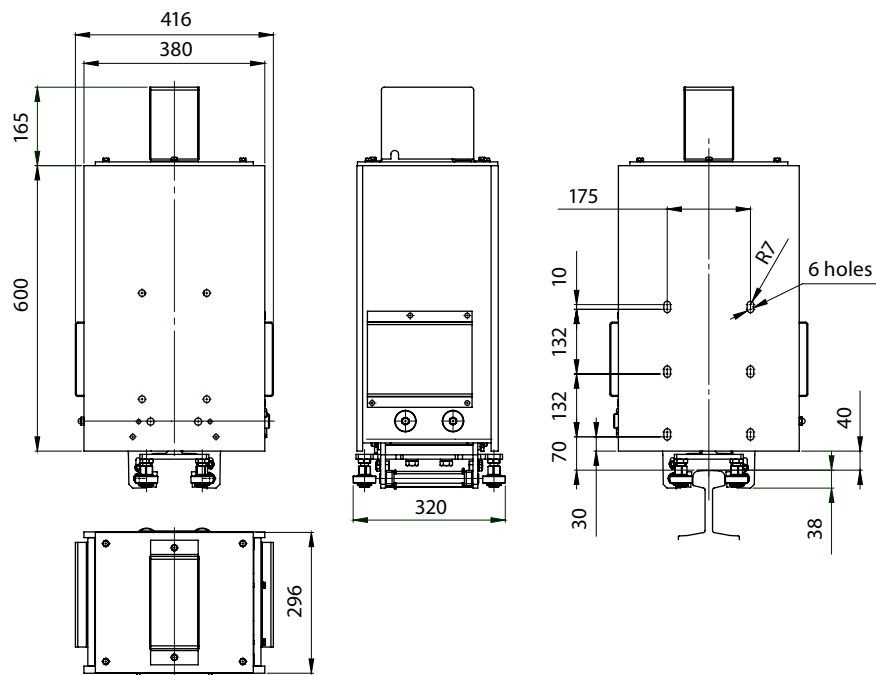
ZS.02 rail clamp



ZS.03 rail clamp

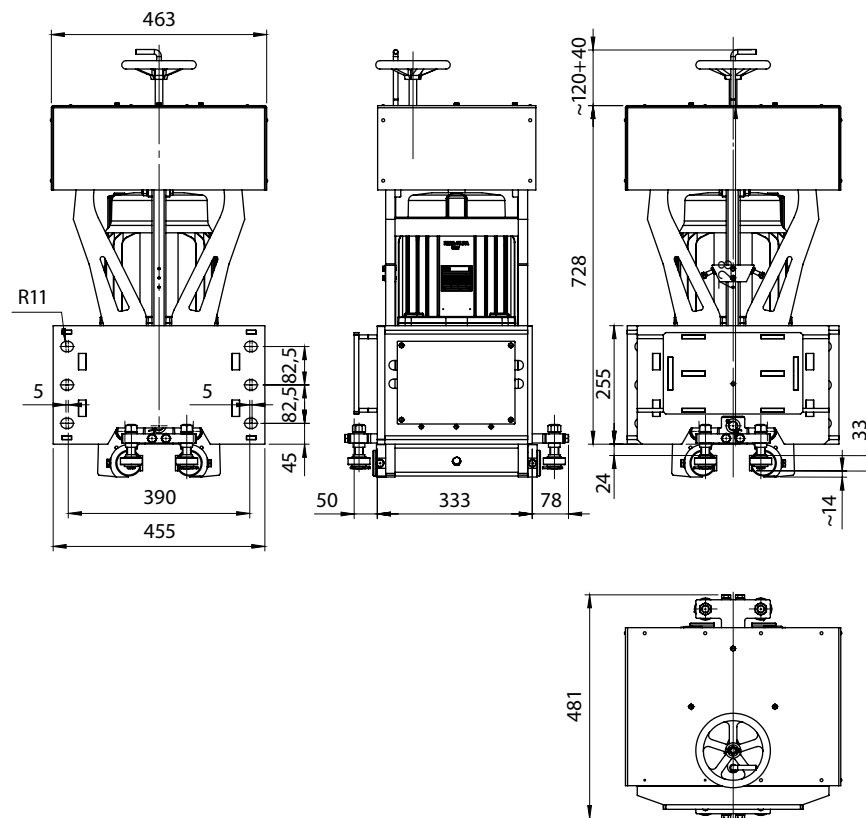
ZS.02

without a manual brake release mechanism



ZS.03.02 – ZS.03.03

with a manual brake release mechanism



Type	Electro-hydraulic release	Braking force	Weight [kg]
ZS.02	ZE...500 S 500...	4 kN	125
ZS.03.02	ZE...1500 S 1250...	10kN	160
ZS.03.03	ZE...2500 S 2000...	18kN	170

ZS.04 RAIL CLAMPS WITH HYDRAULIC POWER PACK

The braking force of the clamp is induced by the force of springs built into the hydraulic cylinder, which presses the brake shoes against the side surfaces of the rail heads through the arms. Voltage activation starts the motor and the hydraulic power pack pump, increasing the oil pressure in the cylinder and causing the piston to move and compress the springs, simultaneously spreading the arms and allowing the movement of the machine. In the event of a loss of voltage, the power supply is switched off and the shoes clamp on the rail. The system consists of a clamp with a release indicator, a hydraulic power pack and an electrical cabinet that controls the power pack so that the required hydraulic pressure is maintained in the cylinder to ensure that the clamp is released without the need for continuous operation of the electric motor and pump in the power pack.

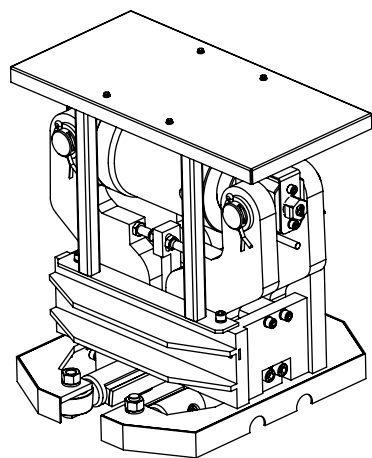
The power pack operating and emergency status is indicated by lights on the control cabinet. The power pack can be additionally equipped with a heater to allow operation at low temperatures.

The assembly can be placed on a single structure or the clamp can be mounted separately, while the power pack with the control cabinet is mounted on a separate structure and connected by wires.

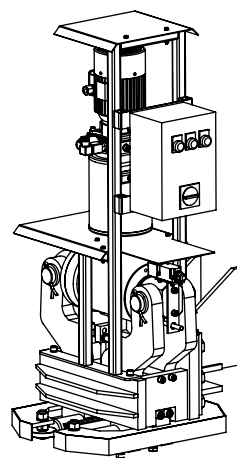
It can also be supplied with a connection cabinet only (power pack control system to be provided by the user).

The clamp can be equipped with manual hydraulic pump for emergency brake release.

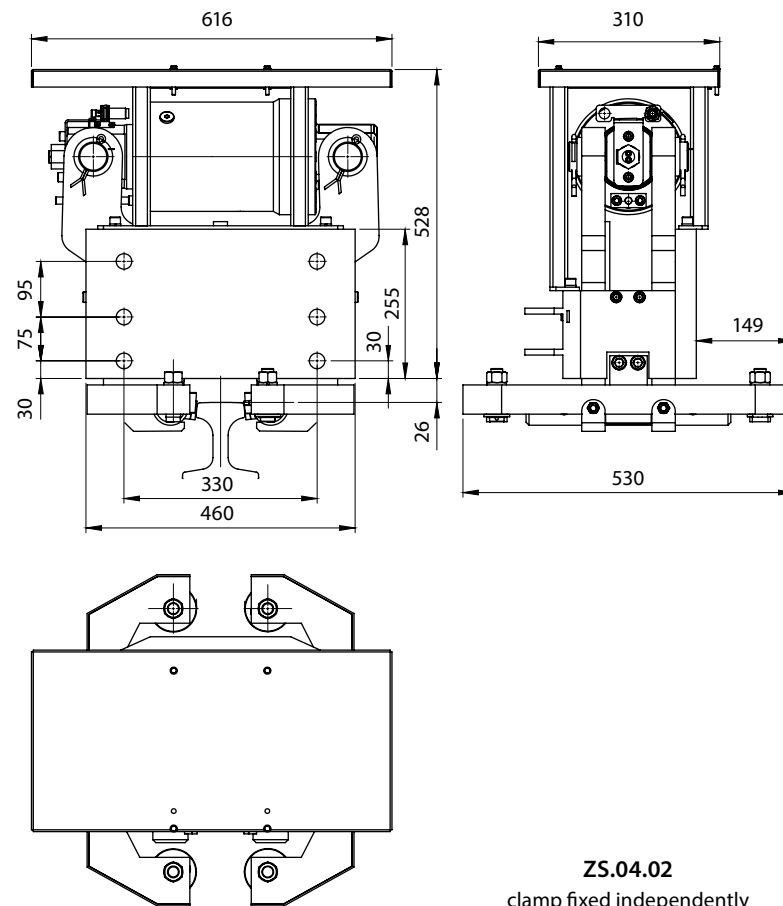
- braking force up to 100 kN (different braking force possible)
- weight of the set: ~320 kg
- power voltage 400 V AC



ZS.04.02 rail clamp



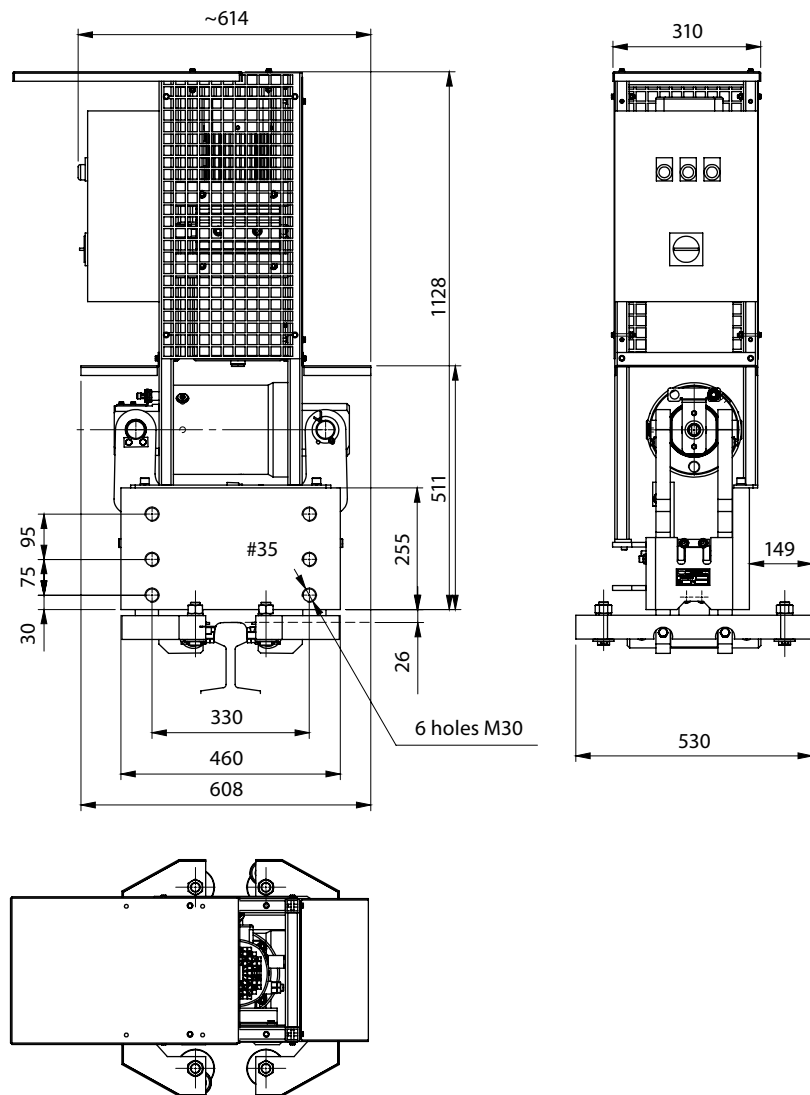
ZS.04.03 rail clamp



ZS.04.02
clamp fixed independently

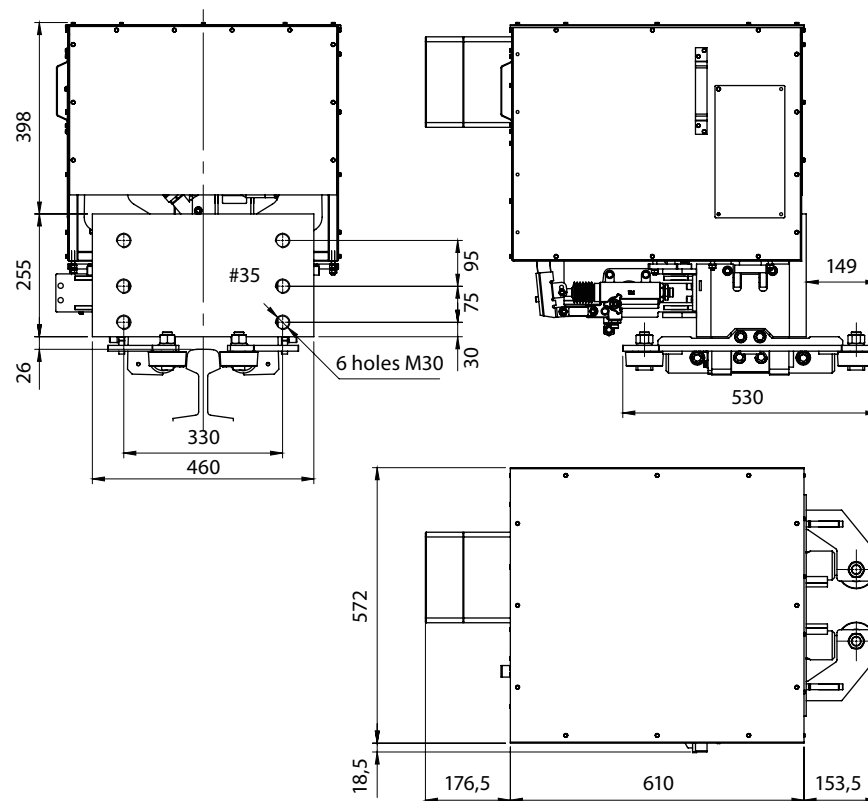
ZS.04.03

clamp with a power pack and control system in a vertical arrangement



ZS.04.05

clamp with a power pack in a horizontal arrangement with a connection cabinet and a manual pump



ZS.06 RAIL CLAMPS WITH ELECTRIC DRIVE

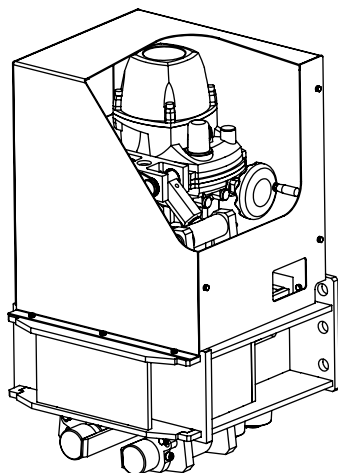
Braking force is induced by PROFOX electric drive piston which causes movement of the clamp arms and pressing of the shoes against the side surfaces of the running rail. A change of clamp status (braking/brake release) occurs only after a signal from the control system (with power supply connected to the electric drive). In the event of voltage loss, the clamp is not automatically applied or released and it is not necessary to maintain the motor power supply in order to keep the clamp in the released state.

Braking/brake release can be achieved:

- by a 24 VDC signal from the control unit
- manually from the control panel of the electric clamp drive (after removal of the cover)
- wireless via an app on an Android device
- in emergency situations: with a handwheel in the absence of power supply.

The output signals of the electric drive enable the indication of the brake release status, braking or wear of the lining.

It is also possible to map the positions of the electric drive piston (4-20 mA signal).

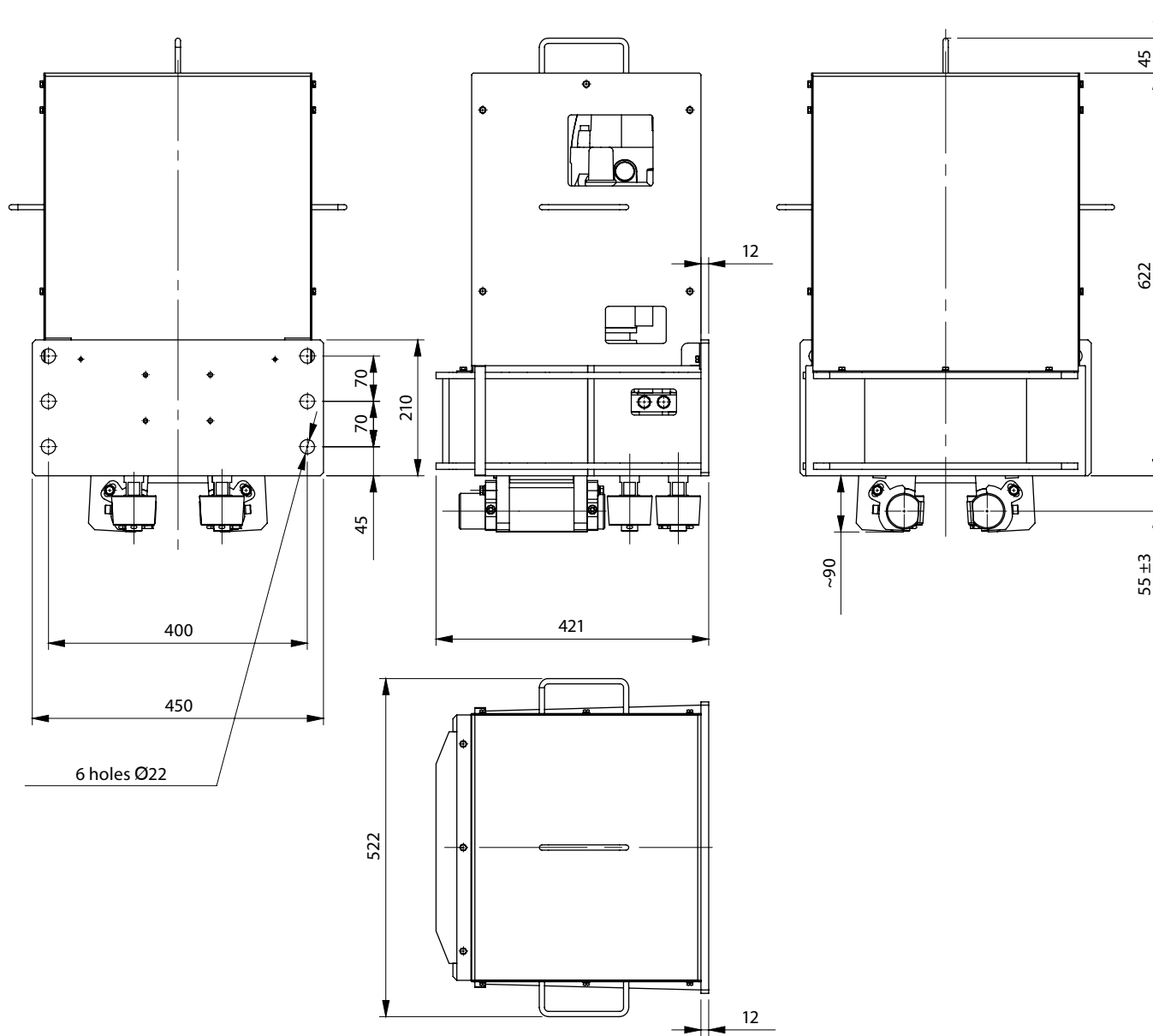


ZS.06 rail clamp

Technical parameters of the clamp	
Braking force:	13 000 N ÷ 30 000 N (setting on electric drive)
Weight:	143 kg
Piston stroke:	50 mm
Braking/brake release time:	20÷35 s (depending on configuration – can be increased)
Rail type:	as agreed
Horizontal offset (slip):	±30 mm

Electric drive parameters	
Power supply:	single phase 100–240 V/50–60 Hz
Operating regime:	S4-50%
Protection rating	IP67
Ambient temperature	from -25°C to +70°C
Internal connecting clamps, cable gland inputs	3×M20
Input signal:	CLOSE, OPEN, STOP
Control voltage:	signal level 24 VDC
Output:	3 NO contacts 100 mA (24 VDC) 4–20 mA (mapping of piston position)
Motor power:	0.051 kW
Motor current	In: 0.4 A (240 V) – 0.8 A (100 V) Imax: 0.7 (240 V) – 1.6 A (100 V)

ZS.06



AHS RAIL CLAMPS WITH ELECTRO-HYDRAULIC RELEASE

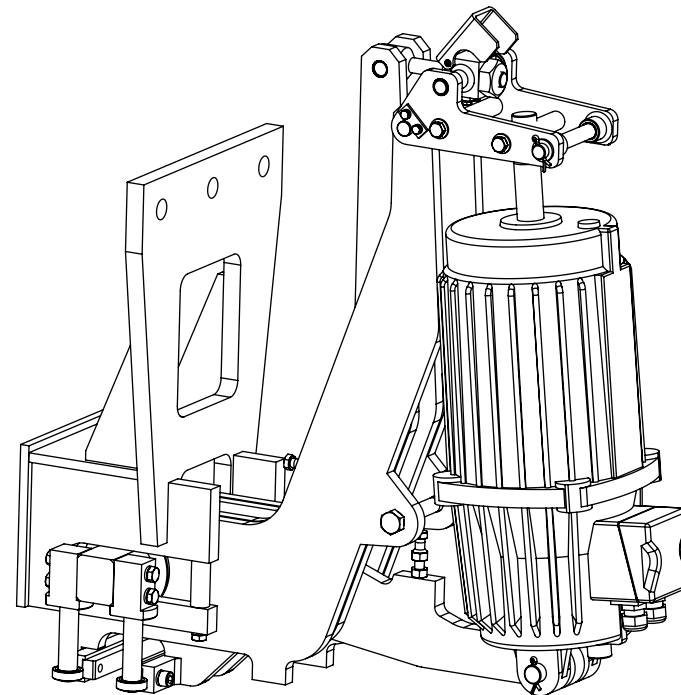
The AHS clamps are designed to be installed on conveyor belt throw-off carriages where the existing structure does not allow a face-mounted installation in the running rail axis.

The braking force (clamping of the shoes on the running rail) is mechanically induced by a spring integrated in the body of the release mechanism. Release of the clamp (spreading of the brake shoes) occurs once the release mechanism has been energised, causing the pump that pumps oil into a chamber located under the release mechanism piston to be switched on. This results in an upward movement of the piston and the brake arms and shoes are moved away from the head of the rail by an articulated lever system, which allows unobstructed movement of the machine. If the voltage supply to the release mechanism is interrupted, the spring in the release immediately moves the piston downwards automatically and braking is performed by pressing the brake shoes against the side surfaces of the rail head.

The connection dimensions and fitting method can be adapted to suit the requirements of the installation.

- braking force up to 3.6÷ 8 kN (different braking force possible)
- weight: 140 kg

Power supply voltage: 3x220V, 3x400V, 3x500V (or different, as agreed).



AHS rail clamp