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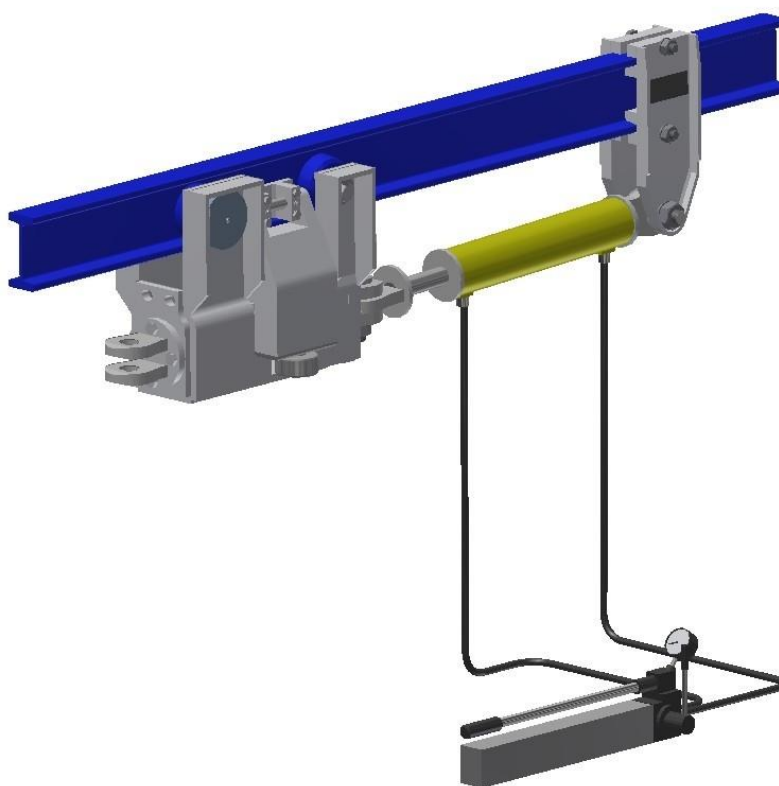
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Tax ID (NIP) 627-274-10-73
Regon: 3611332282
KRS: 0000550711

Information sheet

Braking force measuring device

type Z-kN12, Z-kN18, Z-kN24



1 Contents

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2 General description

The Z-kN series devices are used to provide static control of the braking force for all types of brake carriages and engines of suspended transport systems with engine, electric or pneumatic drives and for manoeuvring tractor units.

The device may be used in underground mines, in methane fields, in mining longwalls of "a" "b" and "c" classes in terms of methane explosion hazards and of classes A and B of coal dust explosion hazard.

Use of the static braking force control device other than that specified above, shall be considered as unintended use. In such cases, the manufacturer shall not be liable for any damage caused by such use.

3 Conditions of use

Before use, thoroughly read the user manuals of instruments included in the product. Knowledge of recommendations provided in the manuals is required for correct operation of the product. Observance of stipulations presented in the manuals ensures correct and efficient product functioning and safe operation.

The manufacturer shall not be liable for consequences of not observing the user manual (any damage to the product is not covered by the warranty in such cases).



4 Device elements

The Z-kN device includes (Fig. 1):

1. Hydraulic actuator of the pulling and braking force.
2. Straight and toothed rail handle.
3. Manual hydraulic pump.
4. Manometer.
5. Hydraulic connecting hoses.

The elements are integral parts of the Z-kN device and may not be used as independent devices.

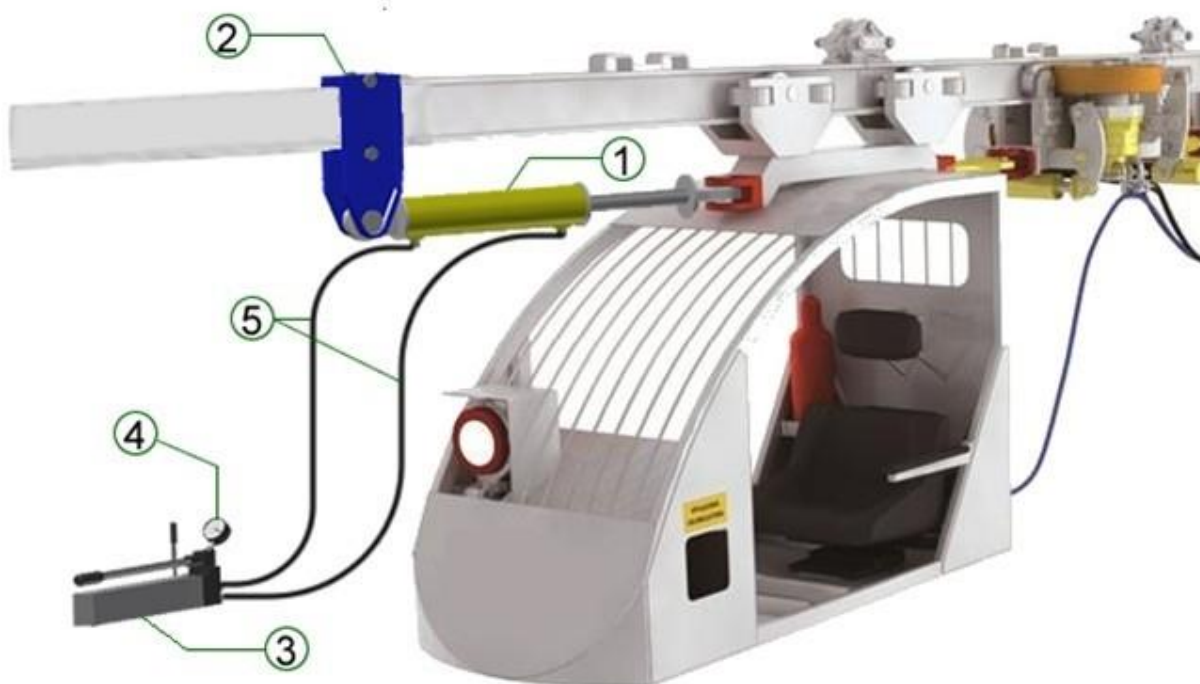
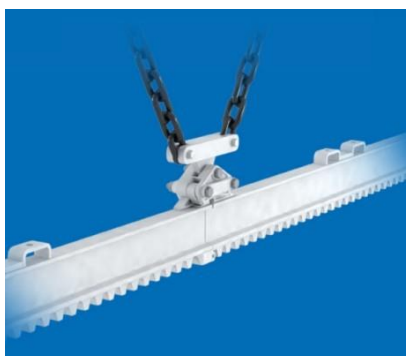


Fig. 1.



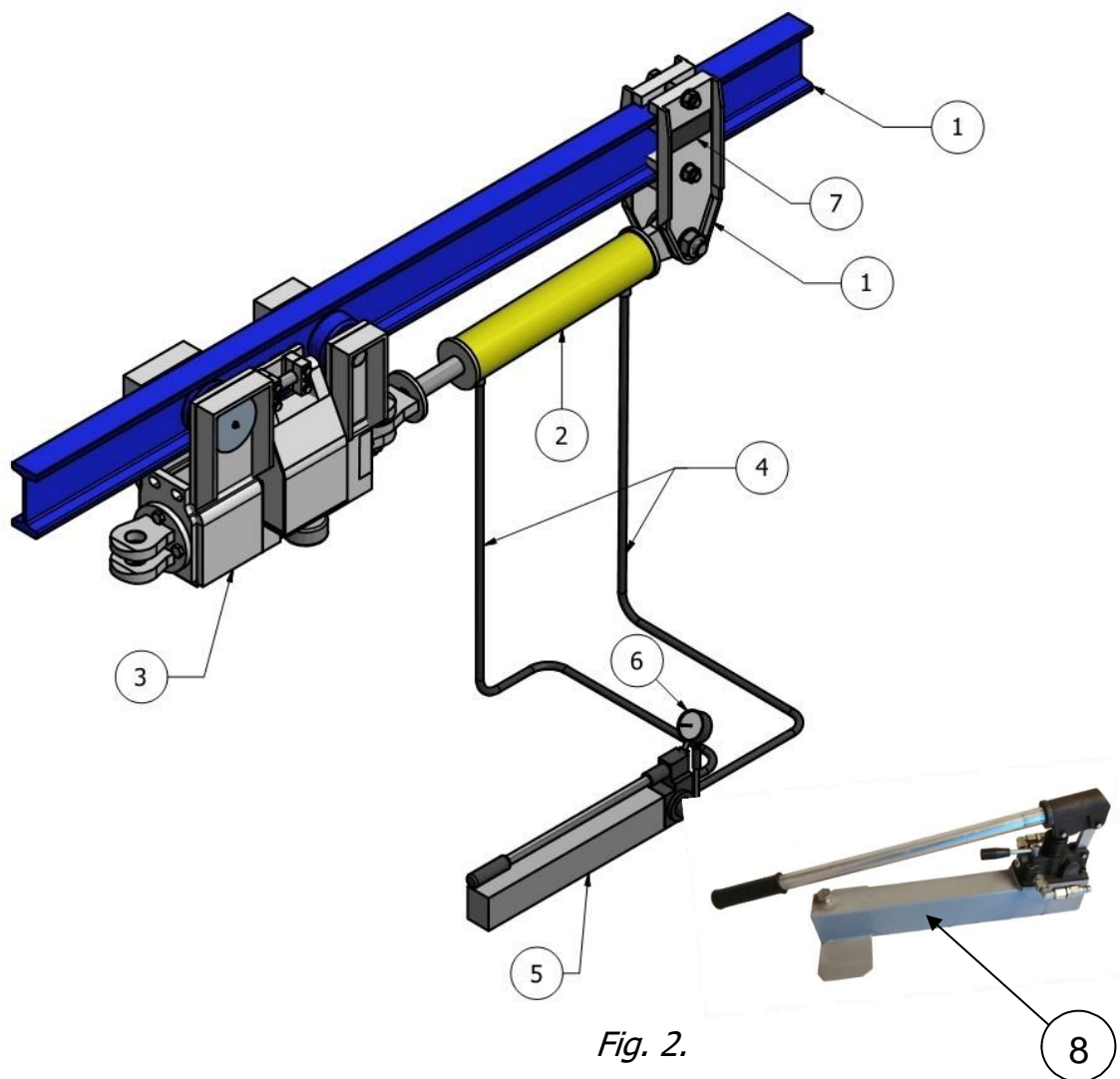
The device may also be used on a toothed rail made by Becker-Warkop.



5 Device design

The static braking force control device (Fig. 2) is made of the following units:

1. A handle installed on a rail,
2. An actuator,
3. An example device to which the actuator piston is attached,
4. Hydraulic hoses,
5. Hydraulic pumps ZPH70 or ZPH50 (item 8),
6. Manometer,
7. Nameplate.



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6 Technical data

No.	Details	Type	APP
1	Maximum pulling and pushing force	Z-kN 12	120 kN at operating pressure of 25 MPa
		Z-kN 18	180 kN at operating pressure of 36 MPa
		Z-kN 24	240 kN at operating pressure of 48 MPa
2	ZPH70 pump weight	kg	9
3	ZPH50 pump weight	kg	7
4	Own weight of the handle and of the actuator	kg	35.8
5	ZPH70 pump capacity	cm ³ /cycle	1.3-2.3
6	ZPH50 pump capacity	cm ³ /cycle	2.5
7	Hydraulic agent, tank capacity	HL-40/68	2.20 l.
8	Attachment socket pin diameter	mm	40
9	Rail profile	I	155 acc. DIN

7 Device assembly / disassembly

The device assembly begins with attaching the locking handle on the driving rail using M20 bolts in the top and the middle part, snugly tightened using a wrench (Fig. 2, item 1).

Next, the actuator is installed on the bottom part of the handle, using a $\varnothing 40$ pin, attaching it to the actuator eye on the cylinder side.

The next part involves attaching the eye of the actuator cylinder to the controlled unit using a pin.

The last step includes hose connections to the actuator and the pump made using quick couplings.

The steps described above for assembly should be performed in reverse in order to remove the device from the rail.

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8 Device operation

When the hydraulic pump is connected, the manifold handle should be set in the direction corresponding to the desired flow direction of the working liquid and the oil inlet cap should be opened, turning it 1.5-2 rotations counterclockwise. Once these steps are complete, start pumping using the up-down rod, pumping oil to one of the hoses and generating pressure inside the actuator, translating into the actuator piston motion performing PUSHING or PULLING of the tested equipment. When the measurement is complete and manometer readings are taken, move the manifold handle into its neutral position to relieve pressure in the entire hydraulic system.

The value of the pushing or pulling force may be read at any time during the test from the pump manometer. The manometer is provided with a double scale, described as PUSHING and PULLING.

9 Adjustments and repairs

Do not adjust or repair the device and do not modify the device. This may result in the warranty becoming null and void.

10 Scope of delivery

The delivery includes:

- a complete Z-kN device of the specific type,
- user manual,
- certificate of the manufacturer,
- warranty card,
- a declaration confirming that the product meets the technical requirements.

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Device operation bu

The braking force measuring device may be ordered at:

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