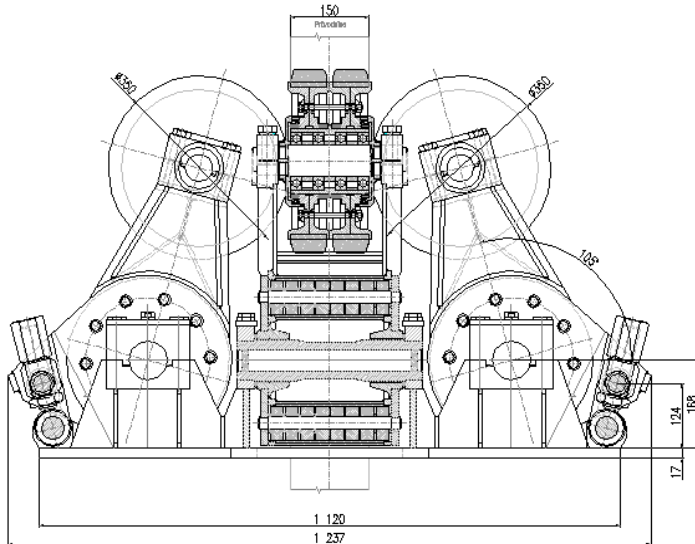


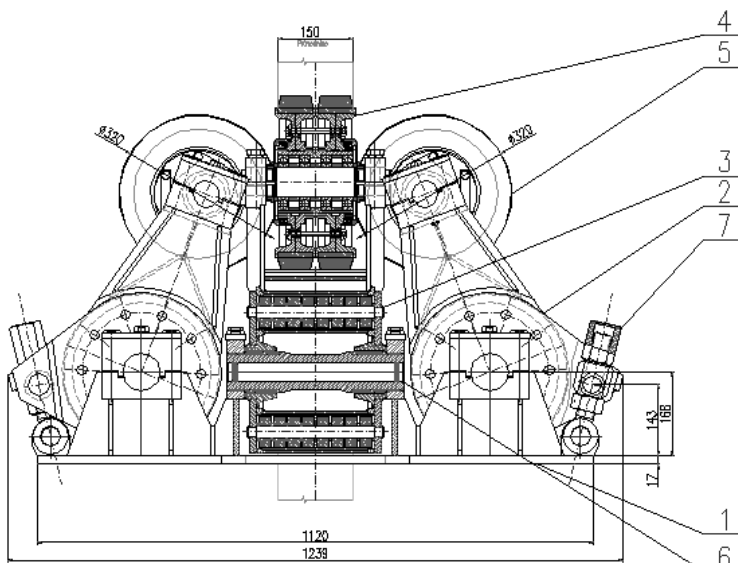
# SPRING-LOADED WHEEL GUIDING KVO 40 SE P1, P2

## Utilization:

The spring-loaded wheel guiding KVO 40 SE serves for the rolling guiding of transport vessels – skips – on the steel guide rails. It is innovation of the existing wheel guiding of the types KVO 350 and KVO 40. It is manufactured in two versions – P1 and P2, which differ in the execution of the side wheels.



**KVO 40 SE P1**



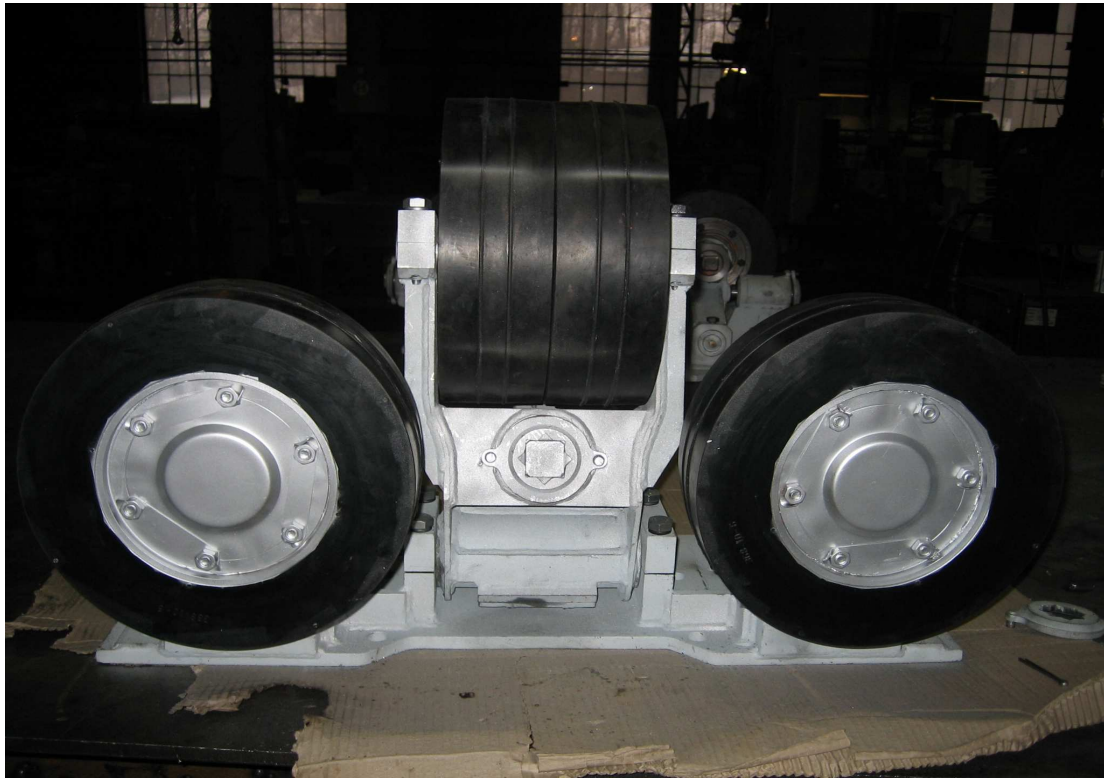
**KVO 40 SE P2**

## Legend:

1 - baseplate, 2 - side arm, 3 - front arm, 4 - front axle, 5 - side wheel, 6 - tubular axis, 7 - adjustment

## Function:

Dynamic impulses called during the run by asperity of the guide rails traction are eliminated with resistance and hysteresis of the rubber rings bunch. The flexible fixation of these forces fundamentally reduces impacts of dynamic impulses on the transport vessel construction and on the working pit equipment. The operation spring-loading follows the fractional characteristics of rubber springs; the characteristics can be modified by the composition of the springs according to needs. The springs hysteresis assures attenuation of the spring-loading counter-motion. After the clearance between the guide rail and the transport vessel is exhausted the transport vessel fixed-guides sit down on the guide rail.



**Technical characteristics:**

	<b>Version:</b>	<b>P1</b>	<b>P2</b>
Max. total operation weight of the guided vessel			up to 45 t
Max. total speed of the vessel			16 m/s
Guiding rails dimensions			steel 150 x 150 mm
Guiding wheels dimensions (front / side)		Ø350 / Ø350 mm	Ø350 / Ø320 mm
Wheels thrust setting		with a screw	with a screw / eccentric
Max. guiding wheel stroke in horizontal level			15 mm
Recommended guiding wheel setting to the guide rails			on touch
Maximum resistance force			40 kN
Dimensions (width x depth x height) acc. the drawing		1237x622x595 mm	1239x630x595 mm
Assembly bolts			12 x M 20
Weight		app. 560 kg	app. 570 kg

**Description:**

For the transport vessel equipment there are necessary four sets of the wheel guiding placed on the faces of the upper and bottom part of the skip vessel.

The set is formed by three independent mounted units assembled on a baseplate – two swing spring-loaded arms with wheels for side guiding and one swing spring-loaded arm with an axle for front guiding. The spring-loaded arms have the same design. They consist of 2 side frames as fix-parts carrying rods for rubber rings. The side frames are placed through self-lubricating sliding bushings on a tubular axis, that is reposed in split casings welded on the baseplate. The side frame are indented in the back part for the passage through the corner guiding and they are connected with a crossbeam forming together with a screw and nuts a thrust setting construction. The swing spring-loaded part of the arm consists of a drum with forks. In the concentric tubes of the drum there are placed the outside parts of the rubber rings. The forks welded on the drum coat bear the split casings for inserting the guiding wheel axes.

The face axle contains two rings with a rubber back-cloth. The discs reposed on ball bearings are fixed on the axis with KM nuts. The axis is reposed in split casings locked with a slot against turning.

The side wheel P1 consists of a replaceable ring with a rubber back-cloth placed in split discs on ball bearings. The axis is reposed in split casings of the arm.

The side wheel P2 consists of a replaceable rubber tire inserted in a two-part screw-disc placed on cone-bearings on the eccentric axis. One side of the axis is reposed in the tapered socket, the other one is reposed in the split casing.

The baseplate is equipped with the casings for the fixation of the swing arms tubular axes with twelve mounting holes for the assembly bolts M 20. The bolts heads of the casings upper parts are locked with a common safety-catch.

**Delivery:**

The set is delivered assembled on a palette. The product is supplied with a protective coating; working surfaces are protected with preserving oil. The delivery of four sets is by the version P2 accompanied by 1 pc nut wrench OK 90/36.

The integral part of the delivery is the accompanying documentation: the assembly drawing, Operation Manual, the list of spare parts and the Manufacturer's Certificate.

**Assembly:**

The set is mounted on the transport vessel with 12 bolts and locked with counter-nuts. The assembly of the spring-loaded arm is performed by the tubular hinge fixation in a baseplate casings. The assembly of the wheels with axes is performed by their fixation to the casings of the spring-loaded arms.

**Adjustment, Maintenance**

is performed according to the Operation Manual delivered together with the product. If not decide in another way the wheels are adjusted on touch to the guide rail either with an adjustment screw or with a wheel axis eccentric and locking with nuts.

**Guarantee:**

The product is given a guarantee of 18 months as from the date of the operation start, however maximum 24 months after the delivery. If the instructions in the Operation Manual are not followed the guarantee of the product is left aside.

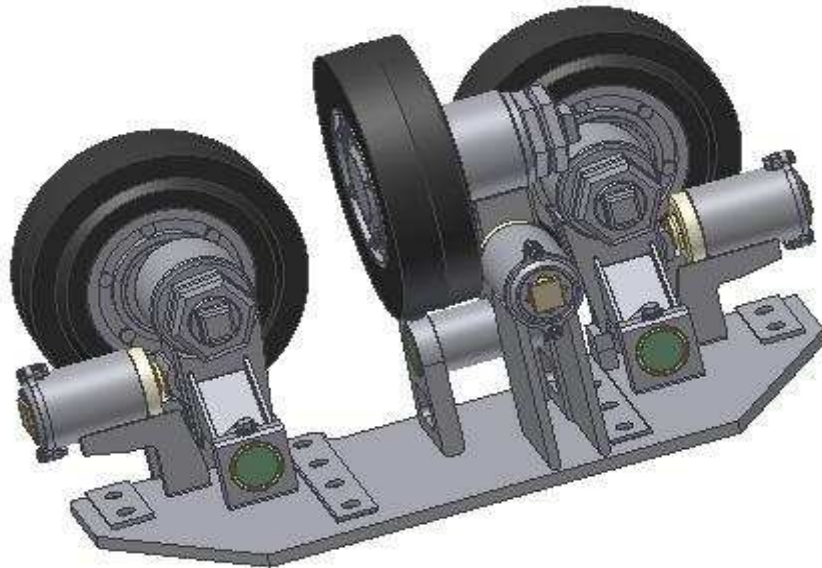
**Others:**

After the agreement with the Manufacturer the product may be modified according to the customer's requirement.

**Safety:**

The products comply to the requirements of the Public Notice No. 22/1989 Coll. of ČBÚ (Czech Mining Office Board), the rubber wheels are delivered with the flame resistance certificate.





### **Function:**

Dynamic impulses called during the run by asperity of the guide rails traction are eliminated with resistance and hysteresis of disc springs. The flexible fixation of these forces fundamentally reduces impacts of dynamic impulses on the transport vessel construction and on the working pit equipment. The guiding wheel is during the run in a forced touch with the guiding rail, the swinging of levers with wheels takes places in the swing-hinge reposed in casings on the baseplate. The resistance with the linear fractional characteristics is provided by a bunch of preloaded disc springs; the resistance characteristics may be modified according to need by the springs composition. After the clearance between the guide rail and the transport vessel is exhausted the transport vessel fixed-guides sit down on the guide rail which avoids eventual extreme impulses on the wheel guiding. After the guiding wheel rubber tire wearing there is performed an adjustment of its new position on touch by turning of the wheel eccentric hinge and locking with a nut pair.

The type P2 is a lite version constructed of high-strength materials.

The type P4 is designed for a wheel couple mounting on the face because of a better passage especially through the large holding holes of the guiding rails.

The Type P5 is a beaded version for higher horizontal impulses.

### **Description:**

There are four sets mounted on a cage. The sets P2 and P3 contain one front and two side spring-loaded wheels, the set P4 has an axle mounted on a face lever. The supporting mounting element is the baseplate with casings welded on for one face and two side swing levers, holders of disc springs bunches and the holes for assembly bolts with counter-nuts. The swing levers are weldments containing a body for the guiding wheel cone hinge gripping, the side frames with a support for the disc springs strut and the supporting tube with bearing bushings for the hinge reposed in the baseplate casings. The mounting set is accompanied with three sets of disc springs in a closed and tight holder, spring struts, adjusting screws, their locks, safety-pins, and three complete full-rubber wheels with safety nuts reposed on a pair of cone bearings on the eccentric hinge with a taper edge. The axle by the version P4 is on a common axis reposed in split casings of the face swing lever. The beaded version P5 has got reinforced structure and a swinging levers hinges. On request, the central hinges lubrication from one spot is possible.

### **Mounting:**

The set KVO 320 SE answers with its dimensional characteristics of the baseplate and mounting holes to the identical type of the unsprung wheel guiding Type KVN 32 that can be replaced by this new type without any additional modifications of the head and the transport vessel base. The set is mounted on the transport vessel with ten bolts and locked with counter-nuts. The guiding wheel is mounted by inserting the eccentric cone hinge in the swinging lever bushing and locking with a nut pair.

### **Adjustment, Maintenance**

is performed according to the Operation Manual delivered together with the product. The integral part is the Spare Parts List.

**Guarantee:**

The product is given a guarantee of 12 months as from the date of the operation start, however maximum 18 months after the delivery. If the instructions in the Operation Manual are not followed the guarantee of the product is left aside.

**Safety:**

The products comply to the requirements of the Public Notice No. 22/1989 Coll. of ČBÚ (Czech Mining Office Board), the rubber wheels are delivered with the flame resistance certificate.

**Others:**

After the agreement with the Manufacturer the product may be modified according to the customer's requirement. This concerns modification according to different guiding rail dimensions, load, additional reinforcement, surface treatment etc.

