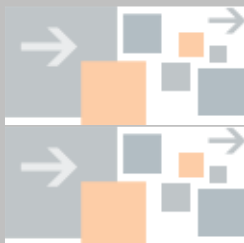




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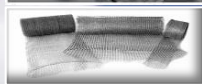
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PRODUCT CATALOG

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- Slip inserts used in oilfield
- Gates and seats
- Pipe Elevators
- Membranes



Services for the design, modernization of mass transfer apparatus in terms of replacing obsolete internal tray devices of columns with modern equipment based on our regular nozzles Propak™

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One of the new directions in the production of filtering equipment is the cartridge mist eliminators launched by us into mass production (Fiber bed mist eliminator, Mist Eliminator HANGING FIBER BED, Candle Mist eliminator).

The purpose of filter mist eliminators is to remove mist from an air or gas stream using the Brownian diffusion trapping method at a relatively low gas flow velocity (less than 0.2 m/s). When gas passes through a layer of a very thin fiber, fine mist particles interact with the surrounding gas molecules, causing the particles to move randomly in different directions, thereby coalescence of the trapped liquid particles occurs upon contact with the surface of the fibers and the formation of a liquid film on them. Then, the droplets enlarge, followed by flowing down from the layers of fibers as liquid accumulates in the form of streams or large drops moving inside the layer from its back side of the filter element and, under the action of gravity and an increase in gas flows and capillary forces, flow into the hydraulic seal. In this case, no mechanical effects on the filter layers are usually required, i.e. filters operate with constant resistance in the stationary mode of self-regeneration (self-cleaning).

Structurally, mist eliminators consist of two coaxially cylindrical grids welded to the bottom and inlet flange. Frame material: stainless steel AISI 316L. The space between the grids is filled with fiber, the bottom of the element is equipped with a tube immersed in a water seal, from which the trapped liquid flows into the body of the apparatus. On the base plate of the column, the mist eliminators are fixed through the P.T.F.E gasket with studs and nuts. Depending on the performance of the installations, from 1 to 50-70 elements can be mounted in one body of the device. At existing sulfuric acid plants, such elements are often installed in a separate building, and in new shops - in the upper parts of absorbers (with a capacity of up to 170 thousand m³ / h).



Fiber mist filters are divided into two types:

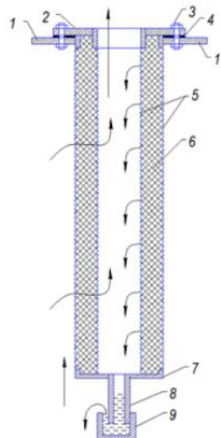
- *low-velocity* ($v \leq 0.2 \text{ m/s}$), equipped with fibers with a diameter of 5-20 microns and designed to capture submicron particles due to Brownian diffusion and the entanglement effect; their efficiency increases with a decrease in filtration rate, particle size and fiber diameter;

- *high-velocity* ($v \leq 0.5 + 1.2 \text{ m/s}$) with a layer of coarse fibers with a diameter of 20-100 μm , used to release gas from particles larger than 1 μm due to the mechanism of inertial settling, the efficiency of which increases with increasing particle size and speed filtration to a certain (critical) value (usually 1-2.5 m / s), at which the secondary spray of the trapped liquid begins from the layer in the form of large drops.

Technical characteristics of mist eliminators:

Designation	Conventional name			
	Low speed high efficiency	Low speed high efficiency high performance	high speed	Mist Eliminator
Filtration speed, m/s	0,05 - 0,2	1,1 - 1,3	2 - 2,5	2,5
Cleaning efficiency by particles%: with $\varnothing$ particle = 3 mcm with $\varnothing$ particle = 1 ÷ 3 mcm with $\varnothing$ particle $\leq$ 1 mcm	100 98 - 100 92 - 98	100 95 - 100 75 - 95	100 85 - 97 50 - 85	100 26 - 70 10 - 25
Resistance, kPa	1 - 5,0	2 - 2,5	1,5 - 2,0	0,25 - 0,5
Shape of elements	Cylinder	Cylinder	Rectangular	Rectangular
Dimensions, mm: diameter (width) height	216; 450; 605; 610 - 4050	650 1200 - 2000	470 660 и 1370	470 660 и 1370
Layer thickness, mm	50 - 60	50 - 60	25 - 30	25 - 30
Fiber diameter, μm (approximately)	6 - 15	18 - 20	10 - 30	30 - 80

ME FGM cartridge type low speed mist eliminators.



Construction mist eliminators:

- 1-grid mat;
- 2-flange;
- 3-flange stud;
- 4-full Faced gasket;
- 5-wire-mesh section;
- 6-fibre-glass bed;
- 7-bottom;
- 8-hydrolock tube;
- 9-downpipe;

For equipping low-speed mist eliminators, a mixture of glass fibers with a certain ratio of coarse and fine fibers is optimal. Coarse elastic fibers provide a uniform distribution of thinner ones, increase the rate of liquid withdrawal from the layer, give the latter mechanical strength and stability, making it possible for thinner fibers to work throughout the entire depth of the layer. Typically, layers of a mixture of fibers with a diameter of 5 to 20 microns with a porosity of 88-92% are used. The most commonly used fibers are 8 to 15 microns in size with a layer thickness of 50-60mm.

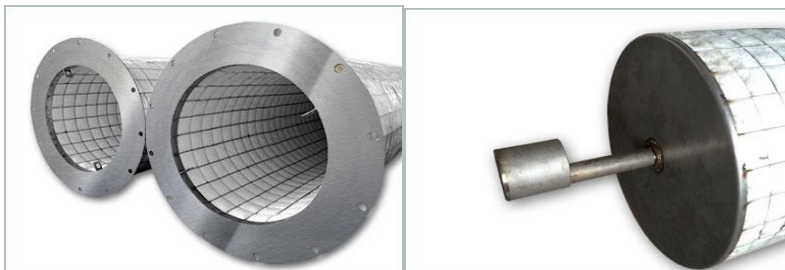
The main material of the filtering part used by us is a special chemical resistant glass fiber FGM 145 in the form of a multilayer needle-punched fabric resistant to concentrated and di-lute acids.

In addition, other types of synthetic fibers may be used depending on the application. The hydraulic resistance of the mist eliminator is no more than 150 mm. water art.

The efficiency of this type of mist eliminator can be reduced if there are insoluble organic, metallic or mineral particles in the working gas stream, which can enter the mist eliminator from the equipment installed before it. It can also be particles of sulfates or chemically formed salts, such as ammonium sulfate, ammonium nitrate, nitrosyl-sulfur

Anhydride, nitrosyl pyrosulfate:

- if there is any amount of HF gas or alkaline PH in the working flow, which cause corrosion for glass fiber and can destroy the filter part.
 - when the gas flow velocity exceeds 0.2 m/s.
 - at insignificant humidity of the purified gas. filter part
- effective when wet and, in addition to the density of the fibers, moisture forms "additional resistance" and the effect of Brownian diffusion.



Knitted wire mesh



One of the main types of manufactured products of the company's plant is a sleeve mesh (mesh sleeve, SRP, SRG, SRGM) woven from stainless wire AISI 321, 316 Ti, in accordance with the developed by us TU U 28.7-30895845.001-2001 and approved by the State Standard of Ukraine, the Center for Standardization metrology and certification. Our products are successfully used at the leading enterprises of the oil and gas and chemical industries.

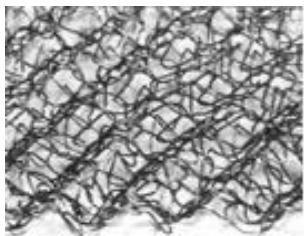
The mesh is a component for mesh fenders in technological devices, flame arresters, filters, and is used as a nozzle.

The grid is designed for separating the entrained liquid from the steam (gas) flow in distillation, adsorption, stripping and other column apparatus, as well as separators, scrubbers, dust collectors, filters, dryers and many other devices.



Grid (mesh sleeve) SRP is produced by the method of smooth, weaving without a longitudinal seam (in the form of a sleeve). Unlike woven fabrics, woven mesh consists of a uniform and continuous series of loops that are intertwined on a tubular shape. The hinges in the mesh are extremely resistant to compression and tension loads. Each loop is free to move in three directions, thus providing a two-way stretch. The loop alone also acts as a small spring when subjected to stress or compression

and immediately returns to its original shape when the stress is removed. Thus, this leads to unusual flexibility and resilience of the finished mesh.



In addition to SRP, our company produces SRG corrugated mesh, profiled on chevron rollers to provide even greater elasticity and bulk (as shown in the figure on the left). Corrugation height - 9 (+/-1) mm., distance between corrugations 17 (+/-2) mm.

Modernized corrugated mesh (SRGM) is produced in series with a width of 190 mm or more. up to 570 mm. and more. The use of SRGM meshes in the manufacture of fenders (drop eliminators)

and filters made it possible to reduce labor costs in production, and due to the fact that the width of the mesh can be made corresponding to the size of the segment, a high quality of fender assembly is achieved.



The updated design made it possible to evenly distribute the working flow throughout the entire volume of the packing, which significantly improved the characteristics of the technological apparatus as a whole.

Mesh fenders manufactured according to OST 26-02-2016 using a conventional sleeve mesh (SRP, SRG 95 +/- 5 mm wide.) entailed a lot of costs, both material and production. It was not always possible to achieve high quality indicators, and the degree of separation, after some time of operation, fluctuated in the range of 93-96%.



Due to the non-uniform laying of the mesh in volume, local blockage of the fender soon occurred, as a result of which the pressure drop in these zones increased excessively, and, as a result, flow breakthrough and premature shutdown of the technological process for repairs.

Mesh fenders made using SRGM mesh, thanks to a constructively new type and laying method, do not have the disadvantages present in drop eliminators with SRP and SRG mesh, and the operating time (depending on the environment) has

increased by 1.4 - 1.8 times.

Mesh fenders made using SRGM mesh, thanks to a constructively new type and laying method, do not have the disadvantages present in drop eliminators with SRP and SRG mesh, and the operating time (depending on the environment) has increased by 1.4 - 1.8 times.

The main advantages of using a mesh are that it can be used where the filter material must be extremely stable after exposure to aggressive loads. Confident corrosion resistance, mechanical and thermal shock, elasticity, resistance to high vibration and high temperatures, resistance to destructive gases, dirty, oily and other extreme conditions - this is not a complete list of the advantages of woven mesh.

Various use of grids allows to make filters as flat and volumetric, as well as mesh fenders with a wide range of selection of the degree of separation and filtration.



Demisters



Our company manufactures drop eliminators (mesh fenders, Demister, Mist Eliminator), both of our own invention, and fenders that comply with current standards, OSTs and technical specifications of domestic and foreign.



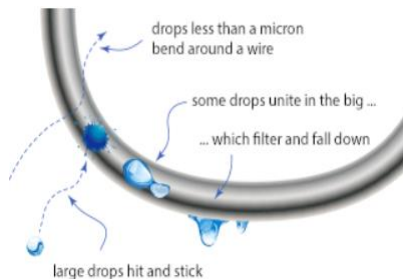
The drop eliminators produced by us consist of a frame structure made of stainless steel sheet and a separating element consisting of a woven mesh of the SRGM, SRG, SRP type according to TU U 28.7-30895845.001-2001, made of stainless steel AISI 321, 316Ti or any other brand according to customer's requirement. For ease of installation through the hatch of the technological apparatus, the bumper is made of segments with dimensions of 220 - 500 mm. The dimensions of the segments provide an exact match with the supporting beams to ensure the convenience and quality of the assembly of the fender inside the apparatus, since The key to high-quality separation during operation will be a high-quality assembly with a uniform distribution of mesh density over the entire working area without defects in the form of holes, crumples and damage to the mesh geometry.

Woven nets such as SRGM, SRG, SRP, are unique in their mechanical properties, which makes it possible to regulate the performance characteristics of the separating part of the fender over a wide range.

The effectiveness of the mesh is expressed in the fact that in the separators and In other column apparatuses, the structure of the assembled filter block creates a large number of obstacles on the winding path of the gas-vapor flow, as a result, a high contact surface area is created for collecting liquid and impurities.

The scattered droplets moving in the flow are too small to be separated by a simple gravitational adjustment, therefore, it is necessary to create a path that would allow the separation of unwanted impurities from the moving stream. This way is possible only due to the use of fenders (drop eliminators) made using a woven sleeve mesh.

Passing through the interweaving of thousands of wires, the smallest drops are collected and combined into large drops, which are then effectively removed from the stream. In addition, the "tortuous path" of the design results in a greater ability to retain dirt without overall blockage. And finally, and most importantly, the whole process is accompanied by a minimum pressure drop in the apparatus, while maintaining a high degree of delay.



Our mesh eliminators (drip eliminators, De-mister, Mist Eliminator) provide a high degree of separation of 99.9%, trapping small drops of liquid and impurities with a size of 1 micron and more. The use of various wire diameters (from 0.16 to 0.3 mm.) in the manufacture of mesh, as well as the packing density in the nozzle, allows you to adjust the specific surface area in the range from 150 - 800 m² / m³.

The characteristics of the fenders are regulated by the selection method:

1. Mesh type; 2. Stacking density; 3. Stacking configurations.

After analyzing the process of interaction of flows inside the apparatus, we recommend installing prefabricated drip trays on the lower part of the frame structure of the fender, as shown in the figure. This minor revision will reduce the resistance of the main working flow with the oncoming falling flow of enlarged droplets and win on the performance of the device, especially at high speeds.

Installation and maintenance instructions for mesh fenders (Quality Assurance).

Mesh fenders (drip eliminators) for ease of installation through the hatch are made of segments that ensure an exact match with the supporting beams inside the process apparatus.

When positioning the segments, it is important to fit the segments evenly, without deformations, tightly to each other, not clogging, but carefully installing, and if necessary, using a thin sheet of metal or plywood of the required width for easy installation (remove later).

Even minor damage to the free volume of the grid can significantly reduce separation efficiency. It is strictly forbidden for workers to walk on already installed segments. In order to prevent critical damage to the volume of the fender, use cross beams in the apparatus that are securely fastened to the walls.

Our company provides services to industrial enterprises in the design and installation of mesh fenders, flame arresters, as well as in the manufacture and replacement of failed foreign ones with those of our production, which are not inferior in quality and performance.

Mesh fenders produced by us allow to regulate the separation efficiency over a wide range of more than 99.5%, thereby eliminating the entrainment of unwanted liquid drops in the working stream of steam, gas.

Together with design institutes, design bureaus of industrial enterprises, we managed, using our baffle, to get rid of liquid droplets in industrial air production systems.

Using a mesh fender recommended by our company, emissions of lye and other harmful substances into the atmosphere, which are extremely harmful to the environment will be almost completely eliminated.

In addition to all of the above, we note that due to the features of our fenders, not only the performance of separators, columns and other technological devices has been significantly improved but also the operating time between scheduled repairs has increased, which positively affects the economic costs of operating the above equipment.



Air filters



The air filter is designed to clean the air coming from dust, grains of sand and any other small and hard particles.

Flame filters



Using the advantages of SRP, SRG, and SRGM mesh, we used it as a packing in flame arresters (flame filters) in order to prevent the penetration of gas and flame mixture into the pipeline.

Flame filters are successfully used by gas-and-oil treatment companies in Ukraine.



Acoustic absorber



The woven mesh has found its application in industrial sound absorbers. The essence of sound absorption lies in the fact that when the energy flow hits a mesh of woven metal wire, it is dissected creating a damping effect and causing the wire to vibrate.

Vibration causes "warmth" - (transformation of acoustic energy into heat). Due to its specific structure, woven wire mesh has proven to be exceptionally effective at absorbing high energy sound. The mesh structure feature combines three approaches to attenuate high sound levels - acting as a reflection barrier, as a vibration damper, and as a sound absorber.

I would also like to note the fact that due to the use of a sleeve mesh in sound absorbers, the pressure drop during operation is minimal.



Separator filters



On the request of "Metal of Ukraine" Company (aluminum composite panels producer), our specialists have designed and manufactured separator filters intended for installation in sheet aluminum chromatizing line.

Purpose: up to 99.9% elimination of alkaline and acid vapor carryover with the operating flow within the line exhaust system.

Integration of our separator filters into the customer's operating line resulted in complete prevention of alkaline-acid vapor carryover into the operating air flow extraction system. This ensured the undisturbed operation of the line and prevented the discharge of hazardous substances into the atmosphere.



Packing Panchenkova

Regular wire packing Panchenkova URP, SRG - is a smooth or corrugated sleeve wire mesh, twisted into a roll and inserted into the drawer (pipe) of distillation columns.

The mesh is made of stainless or copper wire, of different diameters, using the method of smooth, weaving without a longitudinal seam (in the form of a sleeve). The mesh consists of a uniform and continuous row of loops that are interlaced on a tubular form. The hinges in the mesh are very resistant to compression and tension loads.



Each hinge moves freely in three directions, thus providing a two-way draft. The loop separately acts as a small spring when subjected to stress or compression and immediately returns to its original shape when the stress is removed. Thus, this leads to unusual flexibility and resilience of the finished mesh.

In addition to SRP, our company produces corrugated mesh SRG, SRGM profiled on rollers to provide even greater elasticity and volume (as

shown in the figure on the left). The height of the corrugations is 9 (+/-1) mm the distance between the corrugations is 17 (+/-2) mm.

The principle of operation of the Panchenkov nozzle:

The grid is installed directly into the column. The alcohol vapor coming from the distillation cube passes through this nozzle and is partially condensed. The efficiency of the device increases several times. Sivuha, being a high-boiling liquid, condenses, flows back into the initial container and again participates in the distillation process. This process continues continuously. The drawer, together with the nozzle, does not lower the temperature until the alcohol condenses, so the vapors, moving further, reach the refrigerator.

Advantages of nozzles made of sleeve nets:

relatively high efficiency of separation of alcohol-containing mixtures into separate fractions (good purification);

ease of operation (cleaning and replacement) at home;

durability, low cost and availability;

in practice, Panchenkov's on-load tap-changer showed high efficiency in home distillers with a drawer and household distillation columns.



Wire string demister



OKP 36 8953 0004, OKP 36 8953, TU 26-02-1109-89

Drip eliminators are designed for oil degassing and associated gas purification in gathering and preparation of oil field products, as well as in other technologies for separating air and gas from liquids, cleaning flue gases and gas emissions.

Drip eliminators are produced in 2 types - string and mesh - from various materials to remove drops of liquids, acids from air, gas and steam (smoke) streams.

In addition, drop eliminators can be used as remote devices in which the trapped liquid does not accumulate, but is immediately discharged into a lower-located container.

Drip eliminators are used for additional separation of the gas flow, released from the main oil and gas separator, and provide the final purification of gas from dropping liquid, which can rise and exit with the gas flow from the main apparatus as a result of foaming or temporary disruption of the technological regime.



Separating elements are used in drop eliminators: string drop eliminators, mesh sleeve-knitted nozzles. Remote drop eliminators provide entrainment of drop liquid no more than 30 mg/m³ of gas.

Special material design allows the use of remote drop eliminators for gases containing aggressive media: carbon dioxide and hydrogen sulfide.

Are used in:

- Gas-and-oil producing, gas-and-oil treatment, petrochemical, chemical industry
- Metallurgic, power industry

Specifications:

Options	KS 430	KSU 430
Efficiency of separation g/nm ³ , no more	0,1	0,1
Hydraulic resistance MPa, no more	1,0*10 ⁻³	1,0*10 ⁻³
The number of layers of strings along the gas (pieces)	from 28 to 32	from 28 to 32
Material execution wire	AISI321	AISI321
Material of execution of corps	AISI409	AISI321
The thickness of the wire, mm	0,45; 0,5; 0,55	0,45; 0,5; 0,55
Weight kg, no more	10	10

Structured packing



Our Propak™ structured packing in compliance with TUU 29.2-30895845-005:2010 (type Mellapak) for columns are used in separation and heat-mass exchange processes (distillation, rectification, absorption, desorption). Structurally, the packing is made of vertically placed corrugated metal plates (foil) or woven meshes with corrugations angle, step and height according to the required



specific surface of layer contact in order to create open cells with tipping channels, see Table 1.

Type	Specific area m ² /m ³	Void factor (%)	Corrugated corner °	Factor F m/s √kg/ m ³	Number of theoretical trays (No/m)	Pressure drop mmHg/m
700Y/X	700	85	45°/60°	1.6	5-7	7
500Y/X	500	97.5	45°/60°	1.8	3-4	1.8
450Y/X	450	97	45°/60°	1.9	4-5	2.6
350Y/X	350	95	45°/60°	2	3.5-4	1.9
250Y/X	250	98.1	45°/60°	2.6	2.5-3	2.8
125Y/X	125	98,5	45°/60°	3	1-1.2	
2,5 Y/X	155		45°/60°			
3 Y/X	110		45°/60°			

To facilitate the installation process, the packing is manufactured in the form of blocks depending on the apparatus structure and access hole diameter. When manufacturing the blocks, the corrugated plates are connected with the help of spot weld according to specific pattern. In order to equalize the pressure throughout the packing volume, the holes are made in metal plates, and in order to improve the wettability of the packing the metal plates are structured with fine corrugations in the form of cavities and peaks.

Propak™ structured packing produced depends on the materials used:

- Propak™ M series – smooth metal plate is used
- Propak™ R series – metal plates are structured with fine corrugations in the form of cavities and peaks.
- Propak™ PF – perforated plate.
- Propak™ P series – expanded steel plate.
- Propak™ S series – metal woven mesh is used.



Propak™ packing blocks are laid on support grids that have holes and gaps for gas flow and liquid run-off. The latter uniformly moistens packing elements with the help of distributor and flows down. The uniform liquid distribution throughout the whole packing layer height across the column section is usually not achieved, which can be explained by the wall effect – the density of packing laying is higher in the central part of the column than near the walls. As a result, the liquid tends to spread from the central part of the column to its walls. Therefore, in order to improve the wettability of the packing in columns with large diameter, the packing is sometimes laid by layers (sections) 1-3 m high, and the liquid redistributor is installed under each section except for the bottom one.

Due to the irregular shape of the Propak™, packing surface, the liquid within the column flows along the element of the packing mainly in the form of a thin film therefore, the phase contact surface is mainly represented by the wetted packing surface. The liquid film flows along the packing element. When the liquid flows from one packing element to another, the liquid film is destroyed, and the new one appears in the lower element. At the same time some portion of liquid goes through the lower layers of packing in the form of trickles, drops and drips. Some part of the packing surface may be wetted with stationary (stagnant) liquid.

The basic characteristics of packing are its specific surface (m^2/m^3) and free volume (m^3/m^3). Our Propak™ packing efficiently operates under excess and atmospheric pressure, as well as in vacuum conditions.

Specific structure of packing surface formed by cavities and peaks improves the wettability and distribution uniformity, stimulates dispersion and regeneration of liquid film, and increases the mass transfer coefficient.

Moreover, the specific shape of our Propak™ packing improves the rigidity of packing structure. As compared to regular structured packing, the efficiency is increased by 10%-15%, and the production capacity is improved by 10%.

Distinctive features:

Hydraulic resistance of 1 theoretical separation stage
0,3 - 1,0 mbar

- Hydraulic resistance under 70-80% load of flooding
rate ~ 0,2 mbar/m

- Minimum liquid load ~ 0,2 $\text{m}^3/\text{m}^2\text{h}$

- Maximum liquid load - over 2003/ m^2h .

Owing to these advantages and distinctive features, our Propak™ structured packing is not worse and. In some cases, even better than the Mellapak, Sepak structured packing produced by Sulzer Chemtech Ltd, and other companies.



Random packing

Components Ring-R (Equivalent to rings Raschig®Ring)

Ring-R rings have the cylindrical structure, they are equal in diameter and height. These rings represent the column packing of the first generation, they have become the basis for well-known Pall®Ring.

Materials used: carbon steel, stainless steel, PP, PVC, PVDF, ceramics, or customer-specified.



Specifications for metal Ring-R

mm	H x δ mm	Specific surface m ² /m ³	Void %	Amount pcs/m ³	Density kg/m ³	Factor nozzle (dry) m-1	Factor nozzle m- 1
15	15 x 0.5	350	92	248000	660	460	900
25	25 x 0.8	220	92	55000	640	290	390
35	35 x 1.0	150	93	19000	570	190	260
50	50 x 1.0	110	95	7000	430	130	175
76	76 x 1.6	68	95	1870	400	80	105

Specifications for ceramic Ring-R

Diameter mm	Dimensions mm	Specific surface m ² /m ³	Void %	Amount pcs/m ³	Density kg/m ³	Factor nozzle (dry) m-1
6	6×6×2	789	73	3110000	737	2030
10	10×10×2	440	70	720000	700	1280
15	15×15×2	330	70	237000	590	960
16	16×16×2	305	73	192500	730	784
25	25×25×2.5	190	78	49000	505	400
40	40×40×5	126	75	12700	577	305
50	50×50×5	93	81	6000	457	177
80	80×80×9.5	90	68	1910	714	234
100	100×100×10	70	70	1000	700	172
150	150×150×15	50	68	295	790	142

Components Ring-P (Equivalent to rings Pall®Ring)

Ring-P is one of the most well-known. It is a standard industrial design on the basis of updated Raschig Ring. It is widely used in different fields,

Materials used: metal, thermoplastic, and ceramics.



Specifications for metal Ring-P

Diameter mm	Dimensions mm	Density kg/m ³	Amount pcs/m ³	Specific surface m ² /m ³	Void %	Factor nozzle m ⁻¹
16	Ø16×H16×0.3	371	200,000	338	95	306
25	Ø25×H25×0.4	326	53,000	218	96	255
38	Ø38×H38×0.6	310	14,800	141	96	165
50	Ø50×H50×0.8	318	6,500	107	96	124
76	Ø76×H76×1.2	328	1,930	74	96	75

Specifications for plastic Ring-P

Diameter mm	Dimensions mm	Specific surface m ² /m ³	Void %	Amount pcs/m ³	Density kg/m ³	Factor nozzle (dry) m ⁻¹
25	25×25×1.0	175	90	53,000	72	239
38	38×38×1.2	115	89	14,800	56	220
50	50×50×1.5	93	90	6,500	50	127
76	76×76×2.5	73.2	92	1,930	55	94

Cascade rings Ring-C

Developed in order to improve productivity, efficiency, and mechanical strength, as compared to Pall® packing.

Can be modified according to customer needs.

Materials used: carbon steel, stainless steel, PP, PVC, PVDF, or customer-specified.



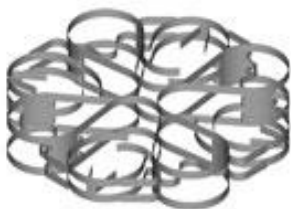
Specifications for Metal Cascading Ring-C Rings

Size mm	Dimensions mm	Density kg/m ³	Quantity pcs/m ³	Specific surface m ² /m ³	Voids %	Nozzle factor m-1
0P	Ø17×Φ15×H6×0.3	472	530,000	427	94	55
1P	Ø25×Φ22×H8×0.3	270	150,000	230	96	40
1.5P	Ø34×Φ29×H11×0.3	201	60,910	198	97	29
2P	Ø43×Φ38×H14×0.4	230	33,170	164	97	22
2.5P	Ø51×Φ44×H17×0.4	186	17,900	127	97	17
3P	Ø66×Φ57×H21×0.4	139	8,800	105	98	14
4P	Ø86×Φ76×H29×0.4	143	5,000	90	98	10
5P	Ø131×Φ118×H41×0.6	136	1,480	65	98	7

Sepring™- M (Equivalent to Multi Saddle Ring)

The multi-seat ring combines the advantages of an annular nozzle and a saddle nozzle: low gas resistance, better steam output. It can distribute liquid highly efficiently due to its high mass transfer efficiency, compared to Multi Saddle Ring its separation efficiency is increased by 30%. Productivity increased by 5% -10%. Energy consumption decreased by 40%-50%. MSRing is widely used in desulfurizers and strippers of many refineries and has received good results.

Materials used - carbon steel, stainless steel and other materials.



Specifications for Sepring™ - M

Size mm	Dimensions mm	Density kg/m ³	Quantity pcs/m ³	Specific surface m ² /m ³	Voids %	Nozzle factor m-1
25	Ø25×H10×0.3	269	131,057	228	96	258
50	Ø50×H16×0.4	210	16,600	122	97	134
75	Ø75×H24×0.5	184	5,600	96	97.6	103

Components to packing NR (HP) Ring-I (Equivalent IMTP®)

Packing consisting these components may ensure higher productivity and efficiency as compared to Pall ring.

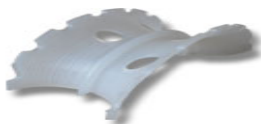
Materials used: metal only..



Specifications for stainless steel Ring-I

Size mm	Dimensions mm	Density kg/m ³	Quantity pcs/m ³	Specific surface m ² /m ³	Voids %	Nozzle factor m-1
25	Ø25×H15×0.3	278	138,000	171	97.6	184
38	Ø38×H17×0.4	240	50,140	123	97.7	132
50	Ø50×H29×0.5	186	14,685	79	98.2	83
70	Ø70×H36×0.6	144	4,620	55	98.5	58

Ceramic seat



Specifications for Ceramic seat

Type	Dimensions mm	Density kg/m ³	Quantity pcs/m ³	Specific surface m ² /m ³	Voids %	Nozzle factor m-1
76	119 x 53 x 9	537.7	2400	76.3	75.2	179.4
50	80 x 42 x 6	470	8234	105.4	79.1	212.9
38	60 x 30 x 4	502	19680	131	80.4	252
25	40 x 20 x 3	544	58230	200	77.2	434.6
16	25 x 12 x 2.2	686	269900	378	71	1056

Ledge ring

Feature: Improved efficiency and strength increase, pressure reduction, improved medium distribution efficiency.

The materials used are carbon steel, stainless steel, aluminium, polypropylene or according to customer requirements.

Specifications for Ledge ring

Type	Раз- мер mm	Dimensions mm	Bulk density n/m ³	Density kg/m ³	Specific surface m ² /m ³	Voids %	Nozzle factor m/s (kg/m ³)
Metall	76	76×38×1.2(1.5)	3540	306(385)	72	0.961(0.951)	80(84)
	50	50×25×0.8(1.0)	12340	308(385)	109(111)	0.961(0.951)	123(129)
	38	38×19×0.6(0.8)	30040	325(433)	153(154)	0.959(0.945)	173(183)
	25	25×12.5×0.5(0.6)	98120	383(459)	221(222)	0.951(0.942)	257(266)
Plastic	76	76×38×2.6	3420	68.4	90	0.938	112.3
	70	70×35×1.5	5000	65	115	0.93	125.8
	50	50×25×1.5	10740	54.8	118.2	0.927	143.4
	38	38×19×1.3	27200	57.7	132.5	0.91	175.8
	25	25×12.5×1.2	81500	97.8	228	0.90	312.8
	16	16×8×1.1	299136	135.6	370	0.85	602.6

Teller Rings

Distinctive features: Teller Rosette Packing has a number of advantages such as: high voidage, decreased pressure, small height, small weight, increased efficiency of medium distribution.

Materials used: polypropylene, or customer-specified.



Specifications for Teller Rings

Type	Dimensions mm	Wall thickness mm	Specific surface m^2/m^3	Voids %	Bulk density n/m^3	Density kg/m^3
Type S	47×19	3×3	185	88	32500	119
Type M	73× 27.5	3×4	127	89	8000	102
Type L	95×37	3×6	102	90	3900	95

Hollow Sphere

Materials used: polypropylene, strengthened polypropylene, PVC, and PVC-C.



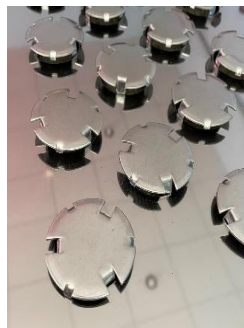
Specifications for Hollow Sphere

mm	Bulk density n/m^3	Density kg/m^3	Specific surface m^2/m^3	Voids %
50	105	11500	236	0.90
38	125	28500	325	0.87
25	145	85000	460	0.84

Valve plates



Valve trays are used in apparatuses for various purposes, where mass exchange processes occur, as a rule, at high ratios of liquid-gas flows, including absorbers, absorption-stripping columns, demethanizers, etc.



Liquid distributors

Distributors, in terms of use, are of the following types:
grooved, channel, distributor, redistributor, tubular type distributor, nozzle distributor, other.



Distributors



The distributor is designed to distribute the input gas flow, used to ensure the operation of the entire surface of the droplet (Demister) is designed to effectively distribute the flow and reduce and start the chaotic drops of the input flow.

Static mixers

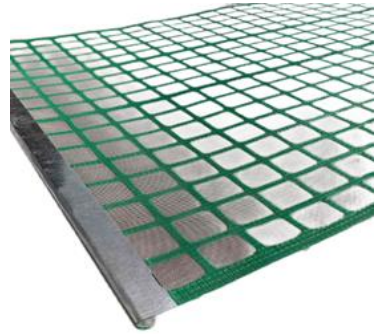


A static mixer is used to ensure continuous axial mixing of liquids or gases with alternating screw elements. Each element is installed at an angle of 90° to the adjacent element in order to ensure intensive mixing of different materials in a given length.

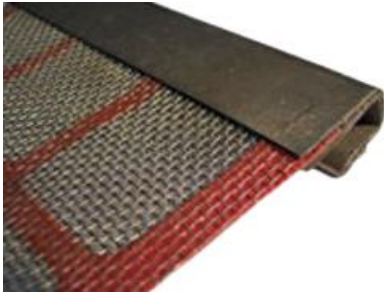
Static company mixers are developed in accordance with the requirements of the customer for each scope. The number of mixing elements is determined by specific requirements for use.

Shale shaker screen

Our Company produces shale shaker screens for foreign and domestic vibration systems in compliance with TU U 28.7-30895845-002-2004 standard developed by our company. Shale shaker screens are designed for vibration systems VS-1, VS-2, SV-1L, LVS, etc. including foreign ones used for fine and coarse treatment of solutions in gas-and-oil producing, chemical, mining, and metallurgical industry.



Structurally shale shaker screens may consist of one or several layers of knitted mesh made of stainless steel 12X18H10T (08X18H10T) in compliance with GOST 3826 standard or other regulatory documents with the size of filtering mesh eye from 0.05 to 3.5 mm. On the customer's request, use of other meshes including meshes with protective coating is possible.



Landing strips (locks) of sieve cassettes are made of sheet metal according to GOST 1050 with a thickness of 0.5 - 1.0 mm. or from other materials, both coated and uncoated at the request of customers. The most common landing strips are type - P and type - L.

The basis for the production of multilayer cassettes is the sintering of two or more metal woven meshes through a plastic (GOST 10354), polyamide or polyvinyl chloride (GOST 16272) mesh.

A mesh with a larger mesh acts as a reinforcing substrate, and a fine mesh mesh acts as a filter element. Also at the request of customers, it is possible to manufacture cassettes with an additional sub-filter layer of woven mesh and plastic.

The use of multilayer cassettes allows you to increase the service life sieve cassette compared to a conventional single-layer. In this case, the reduction in screening capacity due to the use of a plastic mesh for soldering is compensated by the use of a filter mesh with a reduced wire diameter. In addition, three-layer cassettes have self-cleaning properties due to the limited movement of the webs of the layers of se current relative to each other. Production experience and positive feedback from our customers both in Ukraine and abroad speak of the high quality of our sieve cassettes.

When placing an order for the manufacture of the most accurate analogue cassettes in accordance with our specifications, you should indicate the desired number of mesh layers, type of lock, fit dimensions, mesh size in the light of the filter layer of the mesh, type of vibrating screen with manufacturer and model, marking of the original cassette (mesh) for manufacturing.



Table of mesh sizes shale shaker screen foreign and domestic standards

mesh/inch	Wire diameter, mm	Mesh eye, mm	mesh/inch	Wire diameter, mm	Mesh eye, mm
8 mesh	0.60	2.575	60 mesh	0.15	0.273
10 mesh	0.55	1.990	70 mesh	0.14	0.223
12 mesh	0.50	1.616	80 mesh	0.12	0.198
14 mesh	0.45	1.362	90 mesh	0.11	0.172
16 mesh	0.40	1.188	100 mesh	0.10	0.154
18 mesh	0.35	1.060	120 mesh	0.08	0.132
20 mesh	0.30	0.970	140 mesh	0.07	0.111
26 mesh	0.28	0.696	150 mesh	0.065	0.104
30 mesh	0.25	0.596	160 mesh	0.065	0.094
40 mesh	0.21	0.425	180 mesh	0.053	0.088
50 mesh	0.19	0.318	200 mesh	0.053	0.074

Slip inserts used in oilfield

Slip inserts are produced in compliance with TU U 28.6-30895845-003-2004 standards, and are used for screwing together and apart of case, pump-compressor and slip inserts in jaws of slip inserts wrenches and slip inserts-grabbing units. Slip inserts-grabbing units produced by our Company possess a number of distinctive features as compared to analogue ones: improved performance characteristics and increased failure-free operation time.

Structurally, according to technical requirements, the inserts are divided into two types: radial (fig. 1) and flat (fig. 2)



fig. 1



fig. 2

Advances technology developed by our specialists and the serial production give us the possibility to minimize the selling price. Slips are made of structural alloyed steel according to GOST 4543-71 standard (equivalents – AISI 5120, SAEJ 404). Location of slip teeth accurately repeats the shape of pipe and pipe connection surfaces, withstands centering at high torsional moment, eliminates slippage, deformation and crumpling of pipes. Geometrically accurate production and following calibration of slip bases provide for installation into the wrench jaw slot with fit tolerance of 0.03 mm and eliminates the probability of lateral play or slip damage.

Carbonization at 0.9-1.2 mm depth (cement stabilization process) with subsequent tempering and abatement result in austenite-martensite structure with equal content of these phases and ensure strengthening of slip surface up to HRC 59-62, and slip core – to HRC 39-42. Such technology helps to avoid some problems connected with operation of wrenches and pipe-grabbing units, namely:

1. In case of impulse load the transverse fracture is excluded;
2. Slip destruction and penetration of its fragments into the well are excluded;
3. The operating part of a slip uniformly wears out, without any cracking, disintegration or fractures.

Test sampling of details from every batch is performed in order to find any hidden internal defects with the help of induced current and guarantees the high quality of our products.

Nomenclature of manufactured products:

№ catalog	Designation
PZ M.P.01	Tong dies KMT
PZ M.P.02	Tong dies KTGU (60,73,89) mm
PZ M.R.03	Tong dies KMU-50 (60 mm)
	Tong dies KMU-50 (73 mm)
PZ M.R.04	Dies of hand wedges SDML 2 7/8"(LF_2161)
	Dies of hand wedges SDS 3 1/2" - 2 7/8" (LF_2161)
PZ M.R.05	Hydraulic tong dies "HAWKJAW"
PZ M.P.06	Pipe wrench dies TM81
PZ M.P.07	Hydraulic tong dies ZQ 203-100
PZ M.P.08	Hydraulic tong dies XQ 140/12 YA Ø73-115
	Hydraulic tong dies Q 140/12 YA Ø89-115
PZ M.P.09	Tong dies XQ140/12Y h-8 mm
	Tong dies XQ140/12Y h-15 mm
PZ M.P.10	Tong dies BU 73-89 (wide)
	Tong dies BU 73-89 (narrow)
PZ M.P.11	Tong dies RIK-74

PZ M.P.12	Tong dies RIK-89 (narrow)
	Tong dies RIK-90
PZ M.P.13	Tong dies UMK Q-60 273-36
PZ M.P.14	Tong dies UMK
	Tong dies UMK JMC 25x10x50 mm
PZ M.P.15	Tong dies UMK Q-80 273-36
PZ M.P.16	Tong dies UMK Q-89 432-56
PZ M.P.17	Tong dies ZQ 127-26
	Tong dies ZQ 127-25 thick
PZ M.P.18	Tong dies KMB-M
	Tong dies KMB-M extended
PZ M.P.19	Tong dies ZQ 203-101
	Tong dies ZQ 203-100 thick
PZ M.P.20	Tong dies UMK (China curly)
PZ M.P.21	KGSP-11
PZ M.P.22	Frigate tong dies 48, 73 mm
PZ M.R.23	Pneumospider dies KW-1200 Ø 60,3 mm
	Pneumospider dies KW-1200 Ø 73 mm
	Pneumospider dies KW-1200 Ø 89 mm
PZ M.R.24	Tong dies (GKSH 1500 MT) catalog №45.293A 2 3/8"
	Tong dies (GKSH 1500 MT) catalog №45.293B 2 7/8"
	Tong dies (GKSH 1500 MT) catalog №45.293C 3 1/2"
PZ M.P.25	Dies for mechanical keys Sterom AS 4 3/4 25 1/2(Romania)
PZ M.R.26	Tong dies ZQ 114 60-79 mm
	Tong dies ZQ 114 89-143 mm
	Tong dies XQ 114 Ø60 mm
	Tong dies XQ 114 Ø73 mm
	Tong dies XQ 114 Ø89 mm
PZ M.P.27	Tong dies JMC 3 1/2-11 3/5
	Tong dies JMC 4 1/2-17 3/5
	Tong dies JMC 4 3/4-17 3/5
PZ M.R.28	Tong dies KTDU
PZ M.R.29	TSK 250 Ton Elevator Spider Dies (Japan)
PZ M.R.30	TSK 350 Ton Elevator Spider Dies (Japan)
PZ M.R.31	Wedge clamp insert Ø63 mm

	Wedge clamp insert Ø89 mm
	Wedge clamp insert Ø114 mm
	Wedge clamp insert Ø140 mm
PZ M.R.32	Dies contour for pipe Ø324 mm
	Dies contour for pipe Ø245 mm
	Dies contour for pipe Ø168 mm
	Dies contour for pipe Ø146 mm
PZ M.P.33	Dies for hydraulic tongs TQ 340-355
PZ M.P.34	Dies for hydraulic tongs TQ 340-35Y
	RIK-24
	TQ 36
PZ M.P.35	Tong dies AKБ 3 M2 (hard alloy VK -20)
PZ M.R.36	Dies in the wedge suspension APR-2VB Ø73 mm
	Tong dies APR-60 mm
	Tong dies APR-60,3 mm
	Tong dies APR-73 mm
PZ M.R.37	Dies KOT 60, 73, 89 mm spherical
PZ M.P.38	Dies KOT 60,73,89 mm flat
PZ M.P.39	Dies for machine keys SRLF
PZ M.R.40	Dies for VARCO wedge suspension
	Tong dies VARCO 2162
PZ M.P.41	Tong dies TOP DRIVE
PZ M.R.42	Dies to wedge 2170
PZ M.P.43	Dies for hydraulic key KGPR-10 2 7/9
	Dies for hydraulic key KGPR-10 3 1/3
PZ M.P.44	Dies for machine key ZQ 203-125 (long)
	Dies for machine key ZQ 203-125 (short)
PZ M.R.45	Key dies type 6 5/8 - 7 5/8 Weatherford 16-26
	Dies contour 100120-002
	Dies Type Key 4 3/4-25 1/2 Weatherford 16-26
	Dies Type Key 4 3/4-17 1/2 Weatherford 16-26
	Dies Type Key 8 5/8-9 5/8 Weatherford 16-26
	Dies Type Key 4-5 1/2 Weatherford 16-26
	Dies contour 100118-002
	Dies Type Key 13 3/8-F16 Weatherford 16-26

	Tong dies Weatherford 6.60-31
	Flat dies 1"x3 3/8" 109602-002
	Flat dies 1"x3 7/8" 100122-002
	Tong dies 115-074 (Weatherford)
	KPR-13
PZ M.P.46	Tong dies BUG 50-T
PZ M.R.47	Pneumospider dies HDC-1200 for TBPV 73 mm
	Pneumospider dies HDC-1200 for TBPV 88,9 mm
PZ M.R.48	Pneumospider dies HDC-1200 for TBPV 60,3 mm
PZ M.P.49	Dies to machine key ZQ 203-125 (127)
PZ M.P.50	Dies to machine key ZQ 203-125 (140)
PZ M.R.51	Tong dies VARCO-4
PZ M.P.52	Dies round for wedge YBT h-13 mm
PZ M.P.53	Dies round for wedge YBT h-25 mm
PZ M.R.54	Dies for tong XQ-140/12 YA thick type
	Dies for tong XQ-140/12 YA
	Tong dies XQ-140/12 yt Ø73 mm
	Tong dies XQ-140/12 yt Ø89 mm
	Dies for hydraulic tong XQ-140/12 YA radius thickened type for TBPV 74
	Tong dies ZQ-127/25 Ø 73-78 mm
	Tong dies ZQ-127/25 Ø 89-114 mm
	Tong dies ZQ-127/25 Ø 121-156 mm
PZ M.R.55	Dies for hydraulic tong HALK type
PZ M.R.56	Dies for the Romanian spider 7"x321
PZ M.R.57	Dies for Oil Country 2 3/8 "(45293A)
	Dies for Oil Country 2 7/8" (45293B)
	Dies for Oil Country 3 1/2" (45293C)
	Tong dies 2 3/8" (60 mm) GKSH 1200 MT
	Tong dies 2 7/8" (73 mm) GKSH 1200 MT
	Tong dies 3 1/2" (89 mm) GKSH 1200 MT
	Tong dies 4" (102 mm) GKSH 1200 MT
	Tong dies 4 1/2" (114 mm) GKSH 1200 MT
PZ M.R.58	Spider dies Oil Coutry 2 3/8"
	Spider dies Oil Coutry 2 7/8"

	Spider dies Oil Country 3 1/2"
	Pneumatic spider dies 125тп (Oil Country, model 5500) for pipe 2 3/8"
	Pneumatic spider dies 125тп Oil Country 2 7/8"
	Spider Dies CHD-120 Ø73 mm
	Spider Dies HDC-1200 Ø73 mm
	Spider Dies СПГ-80 під трубу 73 mm
	Tong dies SPG-125 (50 mm)
	Tong dies SPG-125 (60 mm)
	Tong dies SPG-125 (73 mm)
	Tong dies SPG-125 (89 mm)
PZ M.R.59	Drill Pipe Plate Ø73 SDML 2 7/8" (Cat. No. 2161)
PZ M.R.60	Oil Country 2 3/8 " Spider Dies (L = 200mm)
	Oil Country 2 7/8" Spider Dies (L=200mm)
	Oil Country 3 1/2" Spider Dies (L=200mm)
	Spider Dies E 175т 3 1/2"-2 3/8 (L=200mm)
	Spider Dies E - 175 for pipe 3 1/2"*60,3 mm
	Spider Dies E - 175 for pipe 3 1/2"*73 mm
	Spider Dies E - 175 for pipe 3 1/2"*89 mm
PZ M.R.61	Elevator dies HYT 2 7/8"x2 3/8"
	Elevator dies HYT 2 7/8"x2 7/8"
PZ M.R.62	Elevator dies HYT 3 1/2"x2 7/8"
	Elevator dies HYT 3 1/2"x3 1/2"
PZ M.P.63	Dies for key АКБ IR-101
PZ M.P.64	Dies for the upper drive TESCO500ESI1001
PZ M.R.65	Dies for hydraulic wrench CANRIG TM-120 (L-49 mm, D)
	Dies for hydraulic wrench CANRIG TM-120 (L-98 mm, D)
PZ M.P.66	Dies for a mechanical key BV-65
PZ M.R.67	Dies for hydraulic wrench CANRIG TM-120 (L-98,5 mm, D)
PZ M.R.68	Tong dies XQ-140 Ø73 mm
PZ M.P.69	Jaw dies ZQ 203 01.01-27M/Die 01/01/-27M
PZ M.R.70	Dies of hand wedges SDS 3 1/2"-2 3/8" (LF_2160)
PZ M.R.71	Dies of hand wedges SDML 3 1/2" (LF_2162)
	Dies of hand wedges SDS 3 1/2"-3 1/2" (LF_2162)
PZ M.R.72	Dies of hand wedges SDML 4 1/2"-3 1/2" (LF_2163)

	Dies of hand wedges SDXL 4 1/2"-3 1/2" (LF_2163)
PZ M.R.73	Dies of hand wedges SDML 4 1/2"-4" (LF_2164)
PZ M.R.74	Dies of hand wedges SDML 4 1/2"-4 1/2" (LF_2165)
	Dies of hand wedges SDXL 4 1/2"-4 1/2"(LF_2165)
PZ M.R.75	Dies of hand wedges SDS LF_2168
	Dies of hand wedges SDML 5"-5" LF_2167 (Ø127)
	Dies of hand wedges SDXL 5"-5" LF_2167 (Ø127)
PZ M.R.76	Dies of hand wedges SDXL 5 1/2"-5 1/2" LF_2170 (Ø140)
	Dies of hand wedges SDS LF_2170 (Ø140)
PZ M.P.77	Combined dies IR-101
PZ M.P.78	Top drive dies TESCO500ESI1000 1/2"
PZ M.P.79	Top drive drill pipe ram
PZ M.P.80	Dies for machine key Varco
PZ M.R.81	Spider dies E-170 (Ø102)
PZ M.R.82	Elevator dies TSK Type YR-125-4 1/2" -4 1/2" (Ø114)
PZ M.P.83	Tong dies BV-26
	Tong dies BV-25 (thick)
PZ M.R.84	Tong dies OBT Ø114-152mm DCS-R 4 1/2"-6" (catalog number 2628)
PZ M.R.85	Tong dies PKR-560M Ø 73 mm
	Tong dies PKR-560M Ø 89 mm
	Tong dies PKR-560M Ø 102 mm
	Tong dies PKR-560M Ø 114 mm
	Tong dies PKR-560M Ø 127 mm
	Tong dies PKR-560M Ø 140 mm
PZ M.R.86	Tong dies OBT Ø140-178 mm DCS-L (catalog №2620)
PZ M.R.87	Tong dies CF-61
PZ M.R.88	Tong dies SG-50 Ø 60,3 mm
	Tong dies SG-50 Ø 73 mm
PZ M.R.89	Spider dies SG-80 HKT Ø 60,3 mm
	Spider dies SG-80 HKT Ø 73 mm
PZ M.R.90	Tong dies OBT Ø203-241 mm DCS-L 5 1/2"-7" (catalog №2630)
PZ M.P.91	Tong dies DB 89-433
	Tong dies DB 89-432 (thick)
	Tong dies TSK T 120 (Japan) 5 7/8"-10 3/4"

	Dies for machine key 67430 (BVM)
	Dies for a mechanical key TSK 90 κH
	Dies for key UMK-TSK 120κH
	Dies for machine key TSK catalog № C-20719
	Tong dies Q4-17"-136
PZ M.R.92	Dies for a multidimensional key 90 κHm 5119 «CONFIND»
	Dies for machine key CONFIND (L-150 mm)
PZ M.P.93	Universe 13 5/8" 707 08250 - 01 Dies 3,88x1,25x0,5
	Universe 13 5/8" 707 08250 - 01 Dies 3,88x1,25x0,75
PZ M.R.94	Spider dies SE 150t (3 1/2"-2 7/8")
	Spider dies SE 150t (3 1/2"-3 1/2")
PZ M.P.95	Dies for key ZQ 162/50 under Ø85,7 mm
PZ M.P.96	Dies for key ZQ 162/50 under Ø104,8 mm
PZ M.P.97	Dies for key LF Q 2 3/8"-5"
PZ M.R.98	Drill tong dies RST-131
PZ M.R.99	Spider dies E 175 5 1/2" – 4" (200 mm)
	Spider dies E 175 5 1/2" – 4 1/2" (200 mm)
PZ M.R.100	Spider dies Oil Country 4 1/2" -4"
	Spider dies Oil Country 4 1/2" -4 1/2"
PZ M.P.101	Tong dies Q 3 3/8"-12 3/4"
	Tong dies Q 3 3/8"-12 3/4"(thick)
PZ M.R.102	Dies of hand wedges SDML 5 4"(LF_2168)
PZ M.R.103	Scraper dies
	Scraper dies (thick)
PZ M.P.104	Tong dies JMC 61
PZ M.R.105	Tong dies C-2 7/8" x 100TS
PZ M.P.106	Tong dies KTGNM 73 -114 mm
PZ M.P.107	KT dies, (flat) 48-89 mm, 89-132 mm
PZ M.R.108	KT dies, (semicircular) 48-89 mm, 89-132 mm
PZ M.R.109	Tong dies KTP 32 - 100 mm
PZ M.R.110	Wedge spider dies PS 275 5 1/2"-5" guide №2169B
PZ M.R.111	Wedge spider dies PS 275 5 1/2"-4" guide №4-2169B
PZ M.R.112	Wedge spider dies PS 275 5 1/2"-5" basic №4-2170
PZ M.R.113	Wedge spider dies PS 275 5 1/2"-4" basic №4-42170

PZ M.R.114	Westco model 56802-10TK 1,900-4 1/2" Hydraulic Wrench Dies (Code 55177) (to lower jaws)
	Westco model 56802-10TK 1.05-3.69" hydraulic wrench ram (code 55152*) (to lower jaws)
PZ M.R.115	Dies for hydraulic tong KHT 5500 (code KHT 5500-32)
	Hydraulic wrench setting plate (upper) for Eckel 4 3/8"-7 1/4" HD-35 casing pipes (code 101251)
	Hydraulic wrench setting plate (lower) for Eckel 4 3/8"-7 1/4" HD-35 casing pipes (code 103426)
PZ M.P.116	Dies for manual locking device for hydraulic tong 45.209, GKSH-1201
PZ M.P.117	Dies for hydraulic key GKSH (L-78 mm D-35 mm)
PZ M.P.118	Tong dies KT-150 (upper, lower)
PZ M.P.119	Dies for manual locking device GKSH-1200, GKSH-1500
PZ M.R.120	Dies of hand wedges SDML-SDXL 5-4 (LF_2168)
	Dies of hand wedges SDML-SDXL 5- 4 1/2 (LF_2166)
	Dies of hand wedges SDML-SDXL 5-5 (LF_2167)
	Dies of hand wedges SDML-SDXL 5 1/2 - 4 1/2 (LF_2168)
	Dies of hand wedges SDML-SDXL 5 1/2 - 5 (LF_2169)
	Dies of hand wedges SDXL 7 – 5 7/8 (LF_2656)
	Dies of hand wedges SDXL 7 – 6 5/8 (LF_2172)
	Dies of hand wedges SDXL 7 – 7 (LF_2173)
PZ M.R.121	Tong dies 7" spider SE - 500t 4 1/2 *14 1605016 (2623)
	Tong dies 7" spider SE - 500t 4 1/2 *14 160501 (2623B)
	Tong dies 9 5/8" spider SE - 500t 4 1/2 *14 001605018 (2633)
	Tong dies 13 3/8" spider SE - 500t 4 1/2 *14 001605026 (2636)
	Tong dies 13 3/8" spider SE - 500t 4 1/2 *14 001605027 (2636B)
PZ M.R.122	Tong dies 6 5/8" spider B+V 500 τ (350909)
	Tong dies 6 5/8" spider B+V 500 τ (350909B)
	Tong dies 6 5/8" spider B+V 500 τ (350909T)
	Tong dies 7" spider B+V 500 τ (350610)
	Tong dies 7" spider B+V 500 τ (350610B)
	Tong dies 7" spider B+V 500 τ (350610T)
	Tong dies 9 5/8" spider B+V 500 τ (351011)
	Tong dies 9 5/8" spider B+V 500 τ (351011B)
	Tong dies 9 5/8" spider B+V 500 τ (351011T)
	Tong dies 13 3/8" spider B+V 500 τ (350612)
	Tong dies 13 3/8" spider B+V 500 τ (350612B)

	Tong dies 13 3/8" spider B+V 500 τ (350612T)
PZ M.R.123	Tong dies E-170 4 ½ - 4
PZ M.P.124	Tong dies PKR--73
PZ M.R.125	Top drive cracker HTD 250 6 5/8
	Top drive cracker HTD 250 4 ¾ - 5 ½
	Top drive cracker HTD 250 4 - 4 ¾
PZ M.R.126	Tong dies RAFNEK
PZ M.P.127	Tong dies Weatherford toothed typical
	Tong dies Weatherford linear
	Tong dies Weatherford trapezoidal
PZ M.R.128	Tong dies GKSH Ø100mm
PZ M.R.129	Tong dies safety clamp MP-S Ø 4"-5"
	Tong dies safety clamp MP-S Ø 2 7/8" - 4 1/8"
PZ M.P.130	Dies hydraulic tongs"DZZR-3 Break Out Unit"
PZ M.R.131	Spider Dies Vario 2 7/8
PZ M.P.132	Tong dies UMK 100*24*13mm

Dies holders



Used as a variable element of hydro or mechanical keys to hold dies under different diameters.

Gates and seats



Gates and seats are used as repair kits for latches. Both standard products and under individual drawings of the customer are made.

Pipe Elevators



Are applied with elevators for pipes with a diameter: 33 mm, 33V, 48mm, 48V, 60mm, 60V, 73mm, 73V, 89mm. (B - with blown ends).

Interchangeable grips allow one elevator to perform tripping operations with pipes of several sizes.

Replaceable inserts (fixa grips) EZN:

Interchangeable grippers (inserts) are used with ESP elevators for pipes diameter: 60mm, 60V, 73mm, 73V, 89mm. (B - with blown ends).

Interchangeable grippers allow one elevator to perform tripping operations with pipes of several standard sizes.

Pipe elevators are designed to be gripped by a coupling or lock and holding on the weight of strings of tubing or drill pipes according to GOST 63380 and GOST 63175 in the process of tripping operations both with vertical installation of pipes, and with their laying on bridges during oil development and repair. and gas wells. They are used in temperate and cold macroclimatic regions according to GOST 16350-80.

ETA elevator consists of the following main parts and assembly units: body; earrings; interchangeable grippers for different pipe diameters; guides; locking device, which is a rotary handle with a spring lock and a lever. The body of the ETA elevator is a cast part with an internal bore for mounting a gripper with a pipe. The body is articulated behind the ears, with the help of fingers, with an earring that serves to suspend the elevator on the hook of the traveling system. On the back side, to the elevator body, with the help of balls filling the grooves of the body and the handle sleeve, the rotary handle of the locking device is attached. ETA elevator clamp serves as a pipe clamp by the coupling. A suitable grip is provided for each pipe diameter. The grip consists of the right and left jaws, a rod, pivotally connected to each other by a finger. The locking device is a handle with a spring retainer installed in it and a spring pressed by the lever. The guides provide synchronous opening of the jaws of the gripper when gripping the pipe and limit the extension of the gripper from the elevator body.



Membrane

Brass membranes for UNB-600 pump safety valves.

Membranes are made of cold-rolled sheet brass L63 in compliance with GOST 931-78 (with temporary tear resistance not less than 30 kgs/mm²) according to drawing No. 4066.53.271.

Membrane diameter 97 mm, thickness 0.50 mm, weight 0.032 kg/pcs.



Services



Our company, with many years of experience, provides services to industrial enterprises, oil refineries, etc. for the design, modernization of mass transfer apparatus in terms of replacing obsolete internal tray devices of columns with modern internal devices based on regular Propactm packings produced by us in accordance with TUU 29.2-30895845-005:2010. Using the advantages of a regular packing, it is possible to regulate the liquid load from 0.2 m³/m²h to 200 m³/m²h or more without any problems, which is not possible when operating tray columns.

A regular packing has a free cross section of about 98%, which indicates the possibility of a significant change in the load in the gas phase. Among the advantages of using modern Propak packings, it can be noted that while maintaining the performance of the column, it is possible to reduce the heat load during operation, which will give additional profit to the enterprise. In addition, the mass of all internal devices after the reconstruction will be half the mass in comparison with the plate internal devices. All these advantages together enable enterprises to save heat costs and at the same time increase productivity by up to 20% or more with simultaneous flexible phase control.

Our company has the experience and ability to design and modernize separation processes, with the installation of highly efficient modern drop eliminators (demisters), mist eliminators in obsolete devices, as well as in the manufacture and replacement of failed previously installed foreign ones with similar ones of our production, not inferior in quality and performance, and at the request of customers with improved performance in terms of efficiency.

The equipment produced by us, allows in a wide range regulate the separation efficiency up to 100%, thereby eliminating the entrainment of unwanted liquid droplets in the working flow of steam and gas. Fulfilling the orders of consumers, we managed to get rid of dropping liquid in industrial air production systems and emissions of sulfuric acid fog vapors into the atmosphere using our separators. By using a mesh fender recommended by our company, emissions of lye and other harmful substances into the atmosphere, which are extremely harmful to the environment, will be almost completely eliminated.

In addition to all of the above, we note that due to the features of drop eliminators not only significantly improved the performance of separators, columns and other technological devices, but also increased the time of operation between scheduled repairs, which positively affects the economic costs of operating the above equipment.

Contact our specialists - and you will be provided with all the necessary assistance in selecting the type of equipment in accordance with your technological process.

Contacts



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