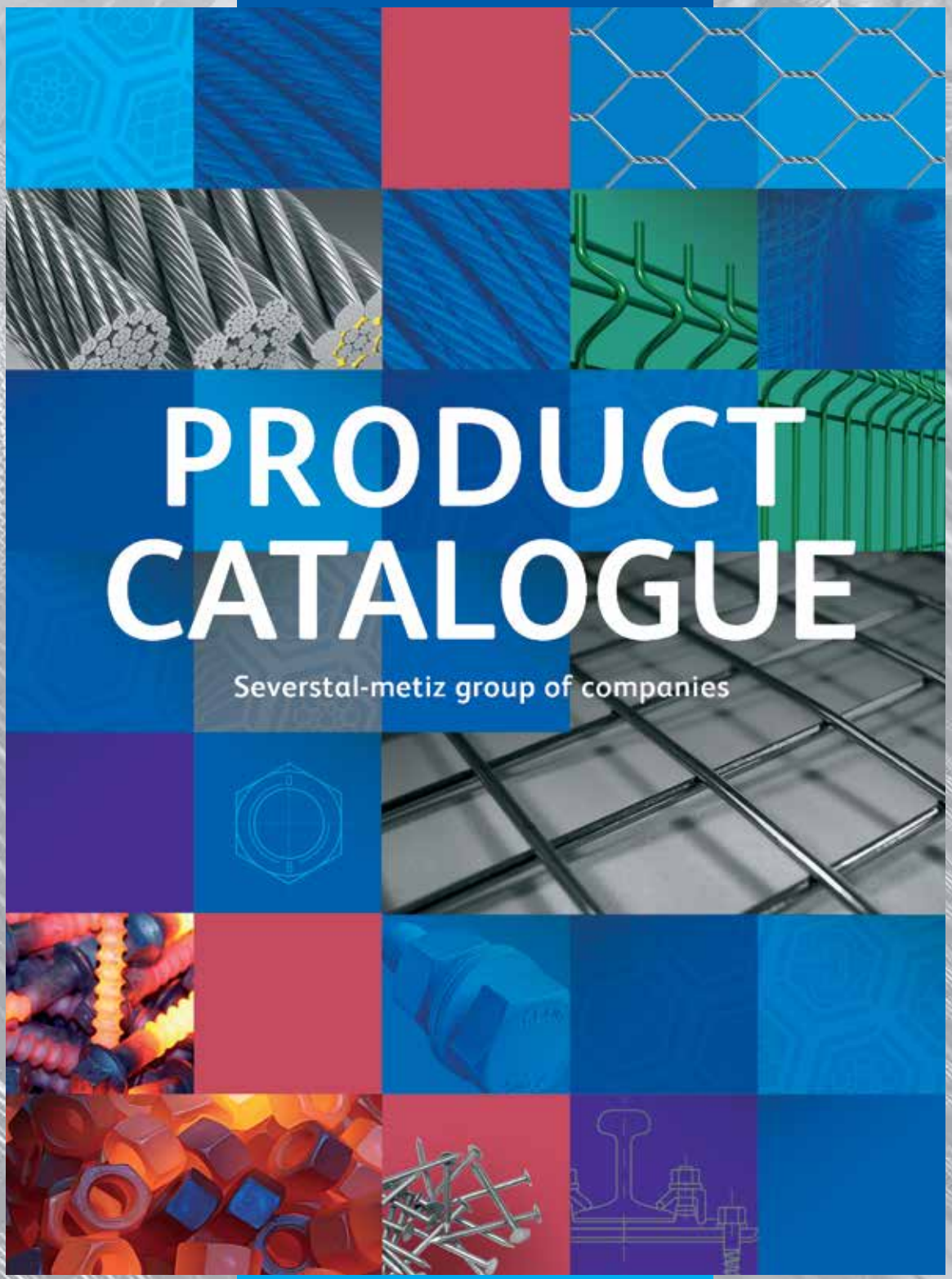
Severstal
Metiz



PRODUCT CATALOGUE

Severstal-metiz group of companies

www.severstalmetiz.com

CONTENTS

COMPANY PROFILE

Severstal-metiz is an international corporate group which consolidates metalware assets of Severstal company, is in the TOP-5 of the biggest European companies in its business segment and has the development strategy aimed at the achievement of shared corporate objectives of PAO Severstal.

Severstal-metiz corporate group is an efficient company aimed at the improvement of its business-processes, which operates in niche segments with a high added value (markets, fields, products) and performs customer value through the best "product-service" portfolio.

Construction industry, oil and gas industry, automotive industry, metallurgy and machinery are principal customers of Severstal-metiz.

Being in a regular dialogue with its customers, developing partnership with suppliers and studying market demands, Severstal-metiz improves the quality of its products and services as well as develops new types of products, allowing customers to reduce operational costs.

Quality management system (QMS) of the Company meets the requirements of the international standard ISO 9001:2008. The Company has also obtained the International Certification Network IQNet Certificate of Conformity. This certificate confirms the full conformance of the management of the Company to international standards requirements. The certification denotes a high estimation of Severstal-metiz QMS and gives the Company additional advantages on the international market.

Moreover, the production of cold-drawn mill products and steel shaped profiles of Severstal-metiz meets special requirements of an automotive industry, which is confirmed by the Certificate of Conformity to industry-specific standard ISO/TU 16949:2009.

A WIDE RANGE OF SEVERSTAL-METIZ PRODUCTS HAS 5 PRODUCT LINES:

Wire ropes	Wire and wire products	Cold-drawn products	Fasteners	Others
Special wire ropes	Wire, nails	Cold-drawn steel	General purpose fasteners	Commodities
Standard wire ropes	Plaited, woven, welded meshes	Cold heading wire	Automotive fasteners	Pocket springs
Cable-stayed systems	Gabions	Shaped profiles	Special fasteners	Metal wire cables
Slings	Strands		Railway fasteners	
	Fiber			
	Fencing			

COOPERATION

Severstal-metiz group of companies is looking to cooperate with steel service centers, distributors, construction companies, design organizations and research institutes in the sphere of metal products delivery and joint promotion of up-to-date construction materials.

PROGRAMMES OF COOPERATION WITH STEEL SERVICE CENTERS AND DISTRIBUTORS

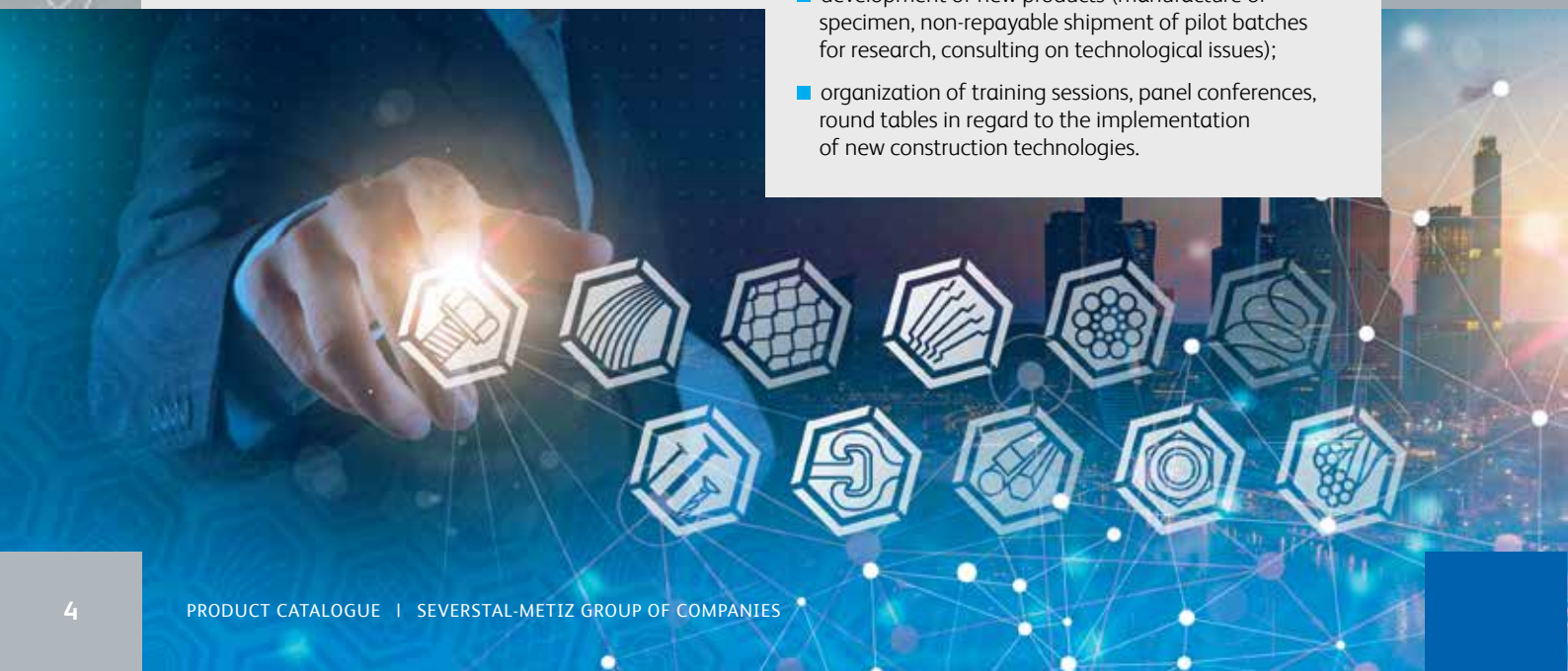
- crediting;
- individual delivery scope and schedule as well as shared responsibility for its accomplishment;
- the system of rolling schedules and stock replenishment requests: stock inventory monitoring and just-in-time delivery;
- consulting on product features and new products;
- feedback on claims and new product development;
- joint coordination boards;
- consignation stocks;
- delivery to the partners branches;
- manufacture of products in the customer's retail package;
- training and stimulation system of partner's sales personnel;
- joint advertising campaigns, exhibitions and product presentations for partner's customers;
- customer technical support.

PROGRAMMES OF COOPERATION WITH CONSTRUCTION COMPANIES IN REGARD TO THE PROVISION OF THE OBJECTS UNDER CONSTRUCTION

- individual delivery scope and schedule;
- open pricing, price fixing for a definite period;
- guaranteed manufacture and delivery time of standard products;
- integration of the distributor, the partner of Severstal-metiz, into the supply chain;
- crediting;
- feedback on claims and requests for new product development;
- coordination boards with the customer in regard to supply and technology compliance;
- technical support;
- technical specification development and customer's staff product treatment training;
- joint R&D;
- consignation stocks at customer's site or reserve raw material stock at Severstal-metiz.

PROGRAMMES OF COOPERATION WITH DESIGN ORGANISATIONS AND RESEARCH INSTITUTES

- financing of research and development aimed at technology implementation with the use of specialized products of Severstal-metiz;
- development of new products (manufacture of specimen, non-repayable shipment of pilot batches for research, consulting on technological issues);
- organization of training sessions, panel conferences, round tables in regard to the implementation of new construction technologies.



Severstal
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LOW-CARBON WIRE

LOW-CARBON STEEL WIRE FOR GENERAL PURPOSE APPLICATIONS

GOST 3282-74; EN 10218-2-2001; TU U 27.3-05393145-001-2004; DSTU EN 10218-2-2001

APPLICATIONS

The wire is designed for nails and mesh manufacture and for baling.
The following wire can be produced:

- bright wire, annealed wire;
- wire without coating and with bright zinc coating (galvanized).

MECHANICAL PROPERTIES

Nominal diameter from d up to d including, mm	Nominal tensile strength, N/mm²				Relative elongation %, for annealed wire, not less than	
	Bright wire		Annealed wire			
	Group I	Group II	Without coating	Zinc-coated	Without coating	Zinc-coated
0.2-0.45	690-1370	690-1370	290-490	340-540	15	12
Over 0.45-1.00	690-1270	690-1180	-//-	-//-	15	12
Over 1.00-1.20	590-1270	690-1180	-//-	-//-	15	12
Over 1.20-2.50	590-1180	690-980	-//-	-//-	15	12
Over 2.50-3.20	540-1080	640-930	-//-	-//-	20	18
Over 3.20-3.60	440-930	640-930	-//-	-//-	20	18
Over 3.60-4.50	440-930	590-880	-//-	-//-	20	18
Over 4.50-6.00	390-830	490-780	-//-	-//-	20	18

PACKAGING

Nominal wire diameter, mm	Coil/rosette coil parameters				Wrapping
	Weight, kg not less than	Outside diameter, mm	Inside diameter, mm	Height, mm	
bright					
0.2-0.45	10	Not specified	200	-	Wooden or cardboard containers with weight up to 1000 kg
0.45-0.80	20	Not specified	250	-	
0.80-1.60	60	Not specified	350	-	On agreement with customer rings and coils can be packed into soft wrapping
1.60-5.00	120	Not specified	550	-	
1.60-5.00	1000 (coil)	800	400	500	
6.00-8.00	250	-	650	-	No wrapping
6.00-8.00	1000 (coil)	800	400	500	
galvanized					
0.40-0.80	25	-	not less than 140	-	Wooden or cardboard containers with weight up to 1000 kg
0.90-1.40	60	-	not specified	800-1100	Rings can be packed into soft wrapping (film) – polypropylene laminated hose
0.90-1.40	200-300 (rosette)	500-550	not less than 360	800-1100	
1.60-4.00	100 (ring)	800-900	not less than 450	800-1100	
1.60-4.00	600 (rosette)	800-900	not less than 360	800-1100	

Wire with diameter from Ø 0.2 mm up to Ø 1.0 mm is packed.
In accordance with client's requirements it can be packed into soft wrapping (paper+fabric or film)

WIRE DIAMETER AND LIMIT DEVIATIONS OF DIAMETER UNDER GOST 3282-74

Nominal wire diameter, mm	Limit deviations of wire diameter, mm	
	High accuracy	Normal accuracy
0.20-0.25	-0.02	-0.02
0.28-0.36	-0.03	-0.03
0.37-0.40	-0.03	-0.04
0.45-0.60	-0.04	-0.04
0.63-1.00	-0.04	-0.05
1.10-1.20	-0.05	-0.06
1.30-1.60	-0.05	-0.10
1.80-2.00	-0.06	-0.10
2.20-2.50	-0.06	-0.12
2.80-3.20	-0.10	-0.12
3.50-6.00	-0.10	-0.16
6.30-9.00	-0.10	-0.20

Note. The wire with two-sided deviations can be supplied.

LOW-CARBON INDENTED STEEL WIRE FOR CONCRETE CONSTRUCTION REINFORCEMENT

GOST 6727-80; TU U 27.3-13473160-006:2005

APPLICATIONS

Wire is designated for concrete construction reinforcement.
The wire is manufactured with indented surface, class VR1.

MECHANICAL PROPERTIES, GOST 6727-80

Nominal diameter, d, mm	Breaking strength, kgs	Yield strength, kgs	Relative elongation %, not less than	Linear density, kg
3.0	400	355	2.0	0.052
4.0	720	630	2.5	0.092
5.0	1085	985	3.0	0.144

MECHANICAL PROPERTIES, TU U 27.3-13473160-006:2005

Nominal diameter, d, mm	Breaking force, kgf	Stress equal to yield strength, kgf	Relative elongation %, not less than	Linear density, kg
2.7	400	355	1.5	0.050
2.8	400	355	1.5	0.050
3.7	700	630	2.5	0.087
3.8	700	630	2.5	0.087
4.5	1085	985	3.0	0.133
4.6	1085	985	3.0	0.133
4.8	1085	985	3.0	0.133
5.5	1560	1420	3.5	0.190

PACKAGING

Ø, mm	Type	Weight, kg	Outside Ø, mm	Extra packing
2.7-5.5	Heavy weight coils	not more than 1000	not less than 380	none

COLD-FORMED REINFORCING STEEL B500C FOR CONCRETE CONSTRUCTION REINFORCEMENT

GOST R 52544-2006

APPLICATIONS

The wire is designed for concrete construction reinforcement;
it is produced with three-sided die-rolled section.

GEOMETRIES OF REINFORCING STEEL

Profile number (nominal diameter, d)	Rib height, mm	Rib spacing, mm	Nominal area of cross-section Fn, mm²	Relative area of transverse ribs deformation f_R, not less than	Weight of 1 running meter, g
6	0.30-0.60	2.4-2.6	28.3±1.3	0.039	222±10
8	0.40-0.80	3.2-8.0	50.3±2.3	0.045	395±18
10	0.50-1.00	4.0-10.0	78.5±3.5	0.052	616±28

MECHANICAL PROPERTIES OF REINFORCING STEEL

Tensile strength, δt, N/mm², not less than	Conventional yield strength, $\delta_{0.2}$, N/mm², not less than	Ratio $\delta t/\delta_{0.2}$	Total relative elongation at maximum stress δ_{max}, %	Single bend around 3dn diameter mandrel in cold state
550	500	1.05	2.5	180°

PACKAGING

The wire is shipped on spools or in heavy weight coils of weight up to 1000 kg.

POLYGRAPHIC WIRE

GOST 7480-73

APPLICATIONS

Polygraphic wire is designated for stitching up polygraphic, stationery and cardboard products. The wire is produced without coating.

MECHANICAL PROPERTIES

Nominal diameter, d,mm	Tensile strength, N/mm²	Bend test	
		Cylinder diameter, mm	Number of bends, not less than
0.5-0.7	690-880	3.50	6
0.8-1.0		5.00	
1.2		7.50	
1.6		10.0	

PACKAGING

Ø, mm	Type	Weight, kg	Inside Ø, мм
0.5-0.9	rings	15-20	Not less than 180
1.0-1.2	rings	20-60	Not less than 270
1.6	rings	40-150	Not less than 470

Note:

- The wire is supplied in corrugated cardboard containers placed on 800x1200 mm wooden pallet or in wooden containers.
- The weight of wire in a container is up to 1000 kg.
- The wire produced by Severstal-metiz is supplied in rings (<80 kg).

GALVANIZED STEEL WIRE FOR OVERHEAD COMMUNICATION LINES

GOST 1668-73

APPLICATIONS

The wire is designed for overhead communication lines.
It is manufactured from the telegraph steel grade “T”.

MECHANICAL PROPERTIES

Diameter, d, mm	Tensile strength, N/mm², not less than	Relative elongation %, not less than	Number of bends, not less than	Zinc surface density, g/m², not less than		Specific resistance, not more than
				1 class	2 class	
1.5	640	-	6	70	50	0.138 Ohm x mm²/m at 20°C
2.0		-	8	80	60	
2.5	360	10	-	90	70	
3.0			-		90	
4.0			-	110	100	

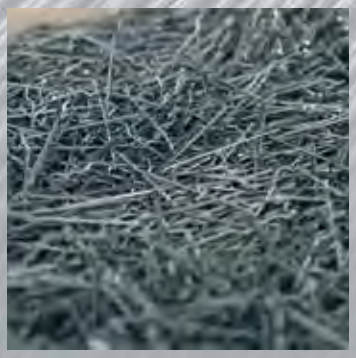
- Diameter 1.5-2.0 mm - untreated
- Diameter 2.5-4.0 mm - heat-treated

PACKAGING

Ø, mm	Type	Weight, kg	Inside Ø, mm	Supplemental packing
1.5-4.0	rings	60-80	Not less than 450	Non-woven fabric + crepe paper. Film packing - on request
1.5-4.0	rosettes	600	Not less than 360	On request - soft packing in polypropylene laminated hose

LOW-CARBON WIRE FOR FIBER MANUFACTURE

TU 14-178-370-99; TU U 27.3-136-009-2003



APPLICATIONS

The wire is designed for fiber manufacture; the following types are available:

- Based on treatment type – untreated.
- Based on surface type – without coating.

MECHANICAL PROPERTIES

Nominal diameter, d, mm	Tensile strength, N/mm²	Number of bends, not less than
0.75-0.90	1100-1400	4
0.95-1.20	1100-1300	4

The wire is supplied without wrapping in heavy weight coils up to 1000 kg, placed on wooden pallets. Upon the customer's request cone-shaped coils can be produced; this type of winding helps to avoid waps falling during the unwinding.

LOW-CARBON WIRE FOR MESH MANUFACTURE

TU 14-4-1563-89

APPLICATIONS

The wire is intended for mesh manufacture. It can be produced as follows:

- Untreated: without coating, galvanized.
- Heat-treated (annealed): bright, black, galvanized.

MECHANICAL PROPERTIES OF HEAT TREATED WIRE

Nominal diameter, d, mm	Without coating		Galvanized	
	Tensile strength, N/mm^2, not less than	Relative elongation %, not less than	Tensile strength, N/mm^2, not less than	Relative elongation %, not less than
0.2-0.4	290-440	25	340-540	16
0.4-2.5	290-440	20	340-540	15

MECHANICAL PROPERTIES OF NON-HEAT TREATED WIRE

Nominal diameter, d, mm	Without coating		Galvanized	
	Tensile strength, N/mm^2, not more than	Relative elongation %, n not more than	Tensile strength, N/mm^2, not more than	Number of bends, not less than
0.90 - 1.0	1270	10	-	-
1.10	1270	17	-	-
1.20-1.30	1270	4	-	-
1.40 - 1.50	1180	4	-	-
1.60 - 1.80	1180	8	1180	8
2.0	1180	6	1180	6
2.20	1180	11	1180	11
2.50	1180	10	1180	10
2.80 - 3.0	980	6	980	6
3.15 - 3.40	980	9	980	9
3.60	930	6	930	6
4.0	830	6	830	6
4.20 - 4.50	830	8	-	-
5.0	690	8	-	-
5.60 - 6.0	690	4	-	-
6.30 - 7.0	690	6	-	-
7.10 - 9.0	690	4	-	-

PACKAGING

- Galvanized wire is supplied in rosette coils.
- Untreated wire with the diameter of (1.8-6.0) mm is supplied in heavy weight coils up to 1000 kg.
- Heat-treated wire with the diameter of (4.0-9.0) mm can be supplied in heavy weight coils up to 1300 kg.

POLYMER-COATED WIRE

TU 14-178-290-95, TU 14-178-351-98

APPLICATIONS

The wire is used for manufacture of plaited mesh and gabion mesh structures.

WIRE MANUFACTURE

General purpose low-carbon wire is manufactured in accordance with GOST 3282-74. Low density polymer coating provides a higher resistance to temperature differences and higher ecological safety in comparison with PVC (polyvinyl chloride).

Coating colors:

- Wire for mesh manufacture: RAL 6005 Moss green or bright-green upon the customer's request;
- Light-grey: wire for gabion mesh structures.

Coating types:

- Polymer
- Zinc (1 class zinc-coating) + polymer
- Zinc (3 class zinc coating) + polymer

MECHANICAL PROPERTIES

Wire with no coating	Wire with no coating Ø, mm	Coated wire Ø, mm	Diameter deviations, mm	Tensile strength, N/mm²	Relative elongation, %	Zinc coating
TU 14-178-351-98						
Heat-treated	2.2	3.2	+/- 0.06	340-540	Not less than 12	1 or 3 class zinc coating
	2.7	3.7	+/- 0.08			
	3.4	4.4	+/- 0.10			
TU 14-178-290-95						
Untreated	1.8	2.5	+ 0.12	500-700	-	1 class zinc coating or non zinc coated
	2.0	2.8				

PACKAGING

- Rosette coils
- Weight 200-250 kg
- Outside diameter 800-900 mm
- Inside diameter not less than 360 mm
- Height not more than 1000 mm
- Four packing belts are used, packing rings can be used

Note:
Each rosette coil can have up to two breaks about 100 mm length (welded joint) without polymer coating. Welding points are marked with paper.

LOW-CARBON POLISHED STEEL WIRE FOR PLATING

GOST 3282-74

APPLICATIONS

The wire is intended for wire product manufacture (shop equipment, price holders, railings, shop baskets and carts).

DESCRIPTION / ADVANTAGES

The wire is wet drawn, which ensures perfect surface quality and geometrical parameters (bright polished surface without external or internal defects: shrinkage cavities, fractures, laps, burrs, etc.) providing high quality coating of the products made of this wire (zinc and chrome coating, cathode enamel coating applied by dip method, powder paint coating).
Increased weight of a coil reduces the number of set-ups and related production costs. The surface of the wire has a corrosion resistant coating, which does not affect the quality of welding and ensures the safety of the product.

MECHANICAL PROPERTIES OF THE WIRE

Wire properties are as per GOST 3282-74 for non-heat treated wire without coating (on customer's request the wire can be manufactured with tensile strength range 200 N/mm^2).

PACKAGING

Diameter range, mm	Packing	Coil parameters			
		Weight, kg	Outside diameter, mm	Inside diameter, mm	Height, mm
2.5-3.9	Heavy weight coils	up to 1000	max 800	min 400	500±20
4.0-9.0	Heavy weight coils	1300	950	550	570

LOW-CARBON INDENTED STEEL WIRE FOR CONCRETE CONSTRUCTION REINFORCEMENT (intermediate diameters)

TU 14-1-5572-2008

DESCRIPTION

Low-carbon indented steel wire of diameters 3.8 and 4.8 mm, produced according to TU 14-1-5572-2008, is intended for concrete construction reinforcement and manufacture of brick welded mesh as an alternative to wire with the diameter of 4 and 5 mm according to GOST 6727-80 without recalculation respectively (based on the certification tests carried out by Research Institute of Reinforced Concrete – certificate GOST P No.POCC RU.0001.11АЯ12). Severstal-metiz has an exclusive right to manufacture the wire according to the said technical specifications.

ADVANTAGES

Certified low-carbon indented steel wire of 3.8 and 4.8 mm diameters instead of 4 and 5 mm diameters ensures 11% and 8% reduction of metal weight in reinforced concrete products and meshes respectively.

DIMENSIONS

Wire diameter, mm	Depth of dent, mm	Max dent depth deviation, mm	Dent pitch, mm	Max pitch deviation, mm	Rib length B, mm	Limit deviations B, mm
3.8	0.20	+0.05 -0.02	2.5	±0.2	0.8	±0.2
4.8	0.25		3.0		1.0	

MECHANICAL PROPERTIES

Nominal diameter, d, mm	Tensile strength, kgf	Stress equal to yield strength, kgf	Number of bends	Relative elongation, %, not less than	Linear density, kg, not more than
3.8	720	630	4	2.5	0.082
4.8	1085	985	4	3.0	0.132

PACKAGING

Diameter, mm	Type	Weight, kg	Inside coil diameter, not less than, mm	Extra packing
3.8; 4.8	Heavy weight coil	700-1100	380	None

WIRE IN BARS

STO 71915393-TU 099-2010

The bars are produced from Untreated wire under GOST 3282-74 galvanized and without coating.

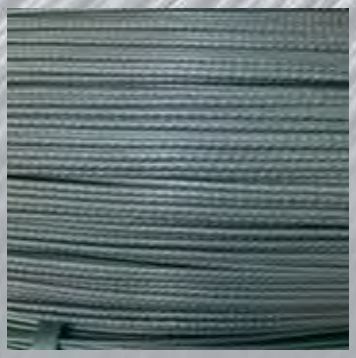
The bar length is stipulated during order placement and is within the range of 1.0 up to 3.5 m.

PERMISSIBLE LIMIT DEVIATIONS OF BAR LENGTH

Bar length, m	Limit deviations per cutting accuracy, mm	
	Normal accuracy	High accuracy
from 1.0 up to 2.0 including	±5.0	+2.0; -1.0
from 2.0 up to 3.5 including	±10.0	±2.0

INDENTED WIRE IN BARS

STO 71915393-TU 081-2010



The bars are produced from indented wire as per TU 14-1-5572-2008 and GOST 6727-80.

Upon the agreement between the manufacturer and the customer the bars can be manufactured according to any other requirements document.

The bar length is stipulated during order placement and is within the range of 1.5 up to 12.0 m.

PERMISSIBLE LIMIT DEVIATIONS OF BAR LENGTH

Bar length, m	Limit deviations per cutting accuracy, mm	
	Normal accuracy	High accuracy
Up to 6.0 including	+50	+25
from 6.0	+70	+35

STEEL WIRE FOR MUSELET PRODUCTION

STO 71915393-TU 192-2020

APPLICATIONS

Zinc coated or lacquered wire with exceptional physical, mechanical, resistance and adhesion properties guarantee ultra-high speed production of muselet and stable quality from factory to the customer.

Our muselet wire is eco-friendly, produced with Tau's DryCycle® technology, zero VOC emissions and a minimum carbon footprint. It offers exceptional mechanical, physical/twisting properties, reliable surface quality and superior adhesion for an ultra-high speed production of muselet. The wire of choice for any carbon-conscious customer.

MECHANICAL PROPERTIES OF WIRE

Diameter range of wire, mm	Maximum deviations in diameter, mm	Tensile strength, N/mm²	Zinc coating, g/m²
0.9 - 1.2	± 0.02	320 - 430	35 - 65

COLORS OF COATING

- Colors of coating available according to RAL color chart.
- Standard colors: black, red, gold.

PACKAGING

- Wire is produced in rosette coils (up to 400 kg) on cardboard barrels.
- Winding on metal anchors (inner diameter 260 mm) is available upon request.
- Wire on metal anchors is shipped on 1200x1200 mm wooden pallets (4 pcs/pallet).

GALVANIZED BINDING WIRE FOR OVERHEAD COMMUNICATION LINES

GOST 15892-70

APPLICATIONS

Galvanized wire of that type is designed for fastening cables to insulators and joining the separate ends of a linear wire. The manufactured wire is classified by zinc coating in two classes.

MECHANICAL PROPERTIES

Nominal diameter, mm	Limit diameter tolerance, mm	Mechanical properties				Zinc coating		Minimal inside diameter of a ring, mm	Weight of wire in the ring, kg
		Tensile strength, N/mm²	Relative elongation, %	Number of bends	Number of twists	Zinc surface density, g/m², not less than			
		Not less than				Class 1	Class 2		
1	± 0.06	290-490	12	8	12	50	60	Not specified	20-50
1.2	± 0.06	290-490	12	15	17	60	60	Not specified	20-50
1.4	± 0.06	290-490	12	10	15	60	60	Not specified	20-50
2	± 0.06	290-490	12	15	20	60	80	450	20-100
2.5	± 0.06	290-490	12	21	22	70	90	450	20-100

HEAT-TREATED GALVANIZED WIRE

EN 10244

DESCRIPTION

Heat-treated galvanized wire GOST 3282-74 as per EN 10244 is made of low-carbon steel. Zinc coating is applied by hot-dip galvanizing method which makes protective coating more durable.

ADVANTAGES

Main features of galvanized wire are plasticity, durability and the ability to hold prefabricated form. The wire is easily bent at any angle, has a good bend-resistance. Hot-dip galvanization has a number of advantages: high corrosion-resistance, long-lasting rust protection, high impact-resistance. Hot-dip galvanized wire needs no additional color treatment.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²	Zinc-coated surface density, g/m²				
			A	AB	B	C	D
0.80 - 0.89	± 0.06	350-550*	145	100	70	50	20
0.90 - 0.99			155	110	70	55	25
1.00 - 1.19			165	115	80	60	25
1.20 - 1.39			180	125	90	65	25
1.40 - 1.64			195	135	100	70	30
1.65 - 1.84			205	145	100	75	30
1.85 - 2.14	± 0.10		215	155	115	80	40
2.15 - 2.49			230	170	125	85	45
2.50 - 2.79			245	185	125	95	45
2.80 - 3.19			255	195	135	100	50
3.20 - 3.79			265	210	135	105	60
3.80 - 4.39			275	220	135	110	60
4.40 - 5.20			-	-	-	-	70

Tolerance varies depending on specification requirements but should be not less than 0.10 mm for 0.8 - 1.85 mm wire and less than 0.20 mm for 1.86 - 4.40 mm wire.

Note: * - tensile strength may vary depending on specification requirements.
Requirements to zinc coating may vary depending on specification requirements.

SINGLE BARBED WIRE (INDENTED)

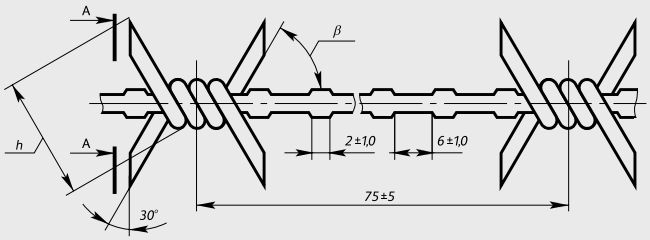
GOST 285-69

APPLICATIONS

The wire is intended for manufacture of fencing and barriers of different types. The wire is produced from low-carbon steel of (1-2) unkilled, (1-2) semi-killed, (1-2) killed types. It has a corrosion-resistant zinc coating.

ZINC SURFACE DENSITY

Wire component	Diameter, mm	Zinc surface density, g/mm²
Base	2.8	80
Barb	2.0	60



PACKAGING

The wire is shipped in rings up to 35 kg.

DOUBLE BARBED WIRE

TU 14-170-219-95; TU U 27.1.-136-001-2002; EN 10223-1

DESCRIPTION

The wire consists of a pair of twisted wires (base) and sets of two or four barbs spaced at equal distances.

Rotating of the barbs around the base is allowed providing it does not exceed 30˚.

The wire which forms the barbs is wound around the base with 1 ¾ or 2 ¼ turns.

WIRE MANUFACTURE

The wire base is made of heat-treated galvanized steel wire according to GOST 3282-74 with tensile strength not less than 36 kg/mm² (350 N/mm²) with or without zinc-coating (with subsequent phosphate polymer coating of barbed wire coils). Barbs are made of non heat treated wire according to GOST 3282-74.

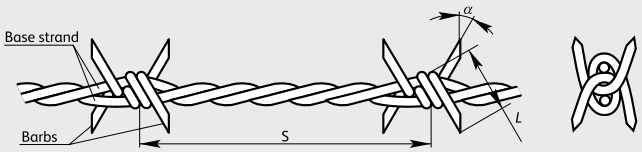
GEOMETRIES

Base strand diameter, mm	Barb wire diameter, mm	Distance between the barbs, mm	Barb length, mm	Barb bend angle
1.6-2.8	1.4-2.5	75, 100, 125, 150	Not less than 13	Not less than 30°

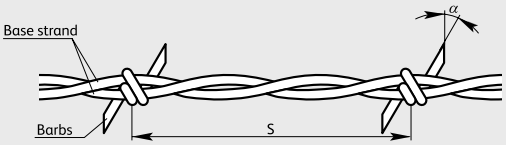
THE WIRE IS DISTINGUISHED BY THE FOLLOWING STRUCTURE TYPES:

JOWA type. Twisting begins on one of the base strands, ends on two.

4-barbs
Step (S) - 3; 3 ½ ; 4; 6 inches (76.2; 88.9; 101.6; 152.4 mm)

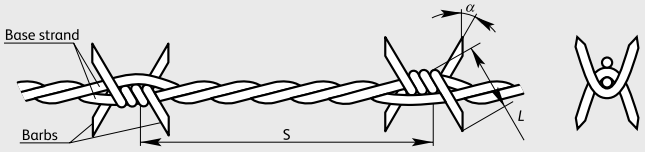


2-barbs
Step (S) - 2 3/8; 5 inches (60.0; 127 mm)

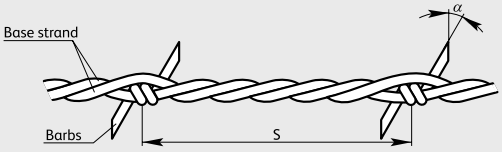


GLIDDEN type. The barb is twisted on one base strand.

4-barbs
Step (S) - 3; 3 ½ ; 4; 6 inches (76.2; 88.9; 101.6; 152.4 mm)



2-barbs
Step (S) - 2 3/8; 5 inches (60.0; 127 mm)



Severstal
Metiz

HIGH-CARBON WIRE

SPRING WIRE FOR FURNITURE INDUSTRY

STO 71915393- TU 079-2009

DESIGNATION

The wire is used for manufacture of furniture springs.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²	Minimal number of twists
1.3	- 0.04	1750 - 1930	32
1.4	- 0.04	1750 - 1930	32
1.6	- 0.04	1850 - 2050	32
1.7	- 0.04	1850 - 2050	32
1.8	- 0.04	1850 - 2050	32
1.9	- 0.04	1850 - 2050	31
2.1	- 0.04	1700 - 1880	30
2.2	- 0.04	1700 - 1880	30
2.3	- 0.04	1700 - 1880	28

PACKAGING

Type	Internal diameter, mm	Weight, kg
rosette coils	400-450	Up to 800

STO 71915393- TU 080-2009

DESIGNATION

The wire is used for manufacture of furniture springs.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²		Minimal number of twists
1.4	- 0.04	1570 - 1770		32
1.8	- 0.04	1570 - 1770		32
2.2	- 0.04	1 class	1570 - 1670	32
		2 class	1570 - 1770	

PACKAGING

Type	Internal diameter, mm	Weight, kg
rosette coils	400-450	Up to 800
rings	450	100

SPRING WIRE FOR FURNITURE INDUSTRY

TU 14-178-459-2004

DESIGNATION

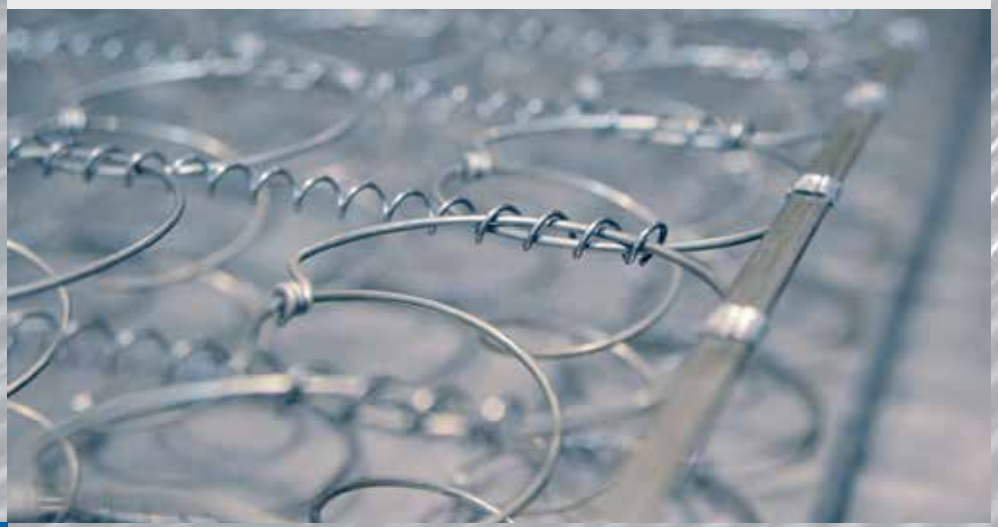
The wire is used for manufacture of furniture springs.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²	Minimal number of twists	Minimal number of bends
1.4	±0.02	1670-1870	20	10
1.8	±0.02	1570-1770	20	10
2.2	±0.02	1620-1820	15	13
2.4	±0.03	1570-1770	15	12
2.5	±0.03	1570-1770	15	12

PACKAGING

Diameter, mm	Type	Weight, kg	Internal diameter, mm
1.4	spools	up to 1000	-
1.4	rosette coils	400-600	350-360
1.8	spools	up to 550	-
2.2; 2.4; 2.5	spools	up to 850	-
1.8-2.5	rosette coils	500-800	380-400



STEEL SPRING WIRE

STO 71915393- TU 165-2019; EN 10270

DESIGNATION

- manufacture of bolting machines
- manufacture of mechanical springs
- for farming equipment

PRODUCT DESCRIPTION

Spring wire is a high strength metal product.

The wire is manufactured as per STO 71915393 - TU 165 - 2019 classes 1, 2, 3; EN 10270.

Table containing parameters of large diameter spring wire produced by Severstal-metiz in accordance with STO 71915393-TU 165 -2019, classes 1, 2, 3. (equivalent to EN10270-1)

Nominal diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²		
		class 3	class 2	class 1
5.00 ≤ d ≤ 5.30	± 0.035	1240–1430	1440–1630	1640–1820
5.30 < d ≤ 5.60	± 0.040	1230–1420	1430–1610	1620–1800
5.60 < d ≤ 6.00	± 0.040	1210–1390	1400–1580	1590–1770
6.00 < d ≤ 6.30	± 0.040	1190–1380	1390–1560	1570–1750
6.30 < d ≤ 6.50	± 0.040	1180–1370	1380–1550	1560–1740
6.50 < d ≤ 7.00	± 0.040	1160–1340	1350–1530	1540–1710
7.00 < d ≤ 7.50	± 0.045	1140–1320	1330–1500	1510–1680
7.50 < d ≤ 8.00	± 0.045	1120–1300	1310–1480	1490–1660
8.00 < d ≤ 8.50	± 0.045	1110–1280	1290–1460	1470–1630
8.50 < d ≤ 9.00	± 0.045	1090–1260	1270–1440	1450–1610
9.00 < d ≤ 9.50	± 0.050	1070–1250	1260–1420	1430–1590
9.50 < d ≤ 10.00	± 0.050	1060–1230	1240–1400	1410–1570
10.00 < d ≤ 10.50	± 0.070	1050–1220	1220–1380	1390–1550
10.50 < d ≤ 11.00	± 0.070	1040–1220	1210–1370	1380–1530
11.00 < d ≤ 12.00	± 0.080	1030–1210	1180–1340	1350–1500
12.00 < d ≤ 12.50	± 0.080	1020–1200	1170–1320	1330–1480
12.50 < d ≤ 13.00	± 0.080	980–1160	1160–1310	1320–1470
13.00 < d ≤ 14.00	± 0.080	900–1080	1130–1280	1290–1440

PACKAGING

Winding	Diameter, mm	Inner diameter, mm	Outer diameter, mm	Height, mm	Weight, kg
Coils	6.0 – 14.0	600 – 800	1300	max. 400	max. 500
Z4 Coils	6.0 – 14.0	500	max. 960	max. 650	max. 1600
A type Coils	6.0 – 14.0	590	950	600	max. 1600
B type Coils	6.0 – 14.0	506	900	480	max. 1200

STEEL SPRING WIRE

GOST 9389-75

DESIGNATION

Wire is used for manufacture of springs by cold coiling method without subsequent hardening.

PRODUCT DESCRIPTION

According to mechanical properties wire is produced of 3 grades (“А”, “Б”, “В”) and 3 classes (1, 2, 3); normal and high accuracy.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	
	High accuracy	Normal accuracy
0.20 - 0.30	+0.005 -0.003	+0.020 -0.015
0.32 - 0.40	+0.005 -0.003	±0.020
0.45 - 0.80	±0.010	±0.020
0.90 - 1.90	+0.015 -0.013	±0.020
2.00 - 3.00	±0.020	±0.030
3.20 - 3.50	+0.030 -0.020	±0.030
3.60 - 5.60	+0.030 -0.020	±0.040
6.00 - 7.00	±0.030	±0.050
7.50 - 8.00	±0.040	±0.050

PACKAGING

Diameter, mm	Type	Weight, kg	Internal diameter, mm
0.2-0.5	Rings	10-30	140
0.2-0.5	Spools	30	-
0.5-0.8	Rings	30-40	140
0.6-1.20	Rings	30-80	350
0.8-1.3	Rings	50-70	250-350
0.8-5.0	Spools	600-1000	-
1.3-5.0	Rings	100	450
3.0-6.0	Coils	1000	390-410
6.0-8.0	Coils	800-1000	550
1.4; 2.0-2.5	Rosette coils	500-800	400-450
1.4; 2.0-2.5	Sandwich-like rosettes*	500-800	400-450
0.8-1.6	Rings Z2	500	360
1.4-3.0	Rings Z3	1000	360

* - Sandwich-like rosettes are rosette coils, consisting of several wire coils

FLAT STEEL STRIP FOR FURNITURE BLOCKS

TU 14-4-1338-85

DESIGNATION

The steel strip is intended for furniture industry.

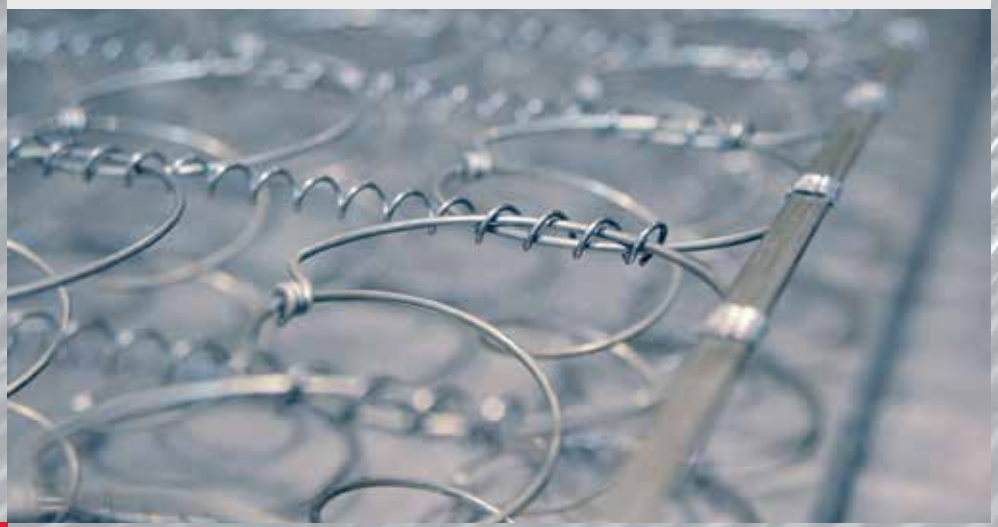
MECHANICAL PROPERTIES

Size, AxB mm	Tolerance A, mm	Tolerance B, mm	Tensile strength, N/mm²
2.5 x 9.0	-0.25	-1.2	880-1230

Steel strip of tensile strength exceeding 1230 N/mm² can be shipped on customer request.

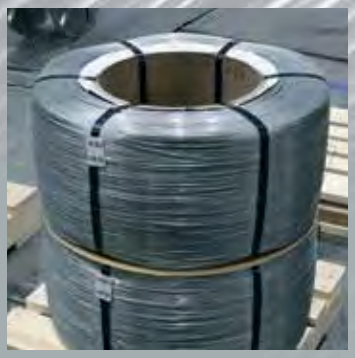
PACKAGING

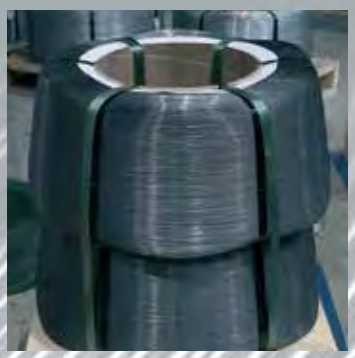
Type	Weight, kg	Internal diameter, mm
rings	200	300
rings	500-600	400-500



STEEL ROPE WIRE

DIN 2078, EN 10264-2





DESIGNATION

The wire is intended for manufacture of steel wire ropes.

The wire can be manufactured as follows:

- uncoated
- zinc-coated (class B)

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm
0.20 - 0.29	± 0.008
0.30 - 0.49	± 0.010
0.50 - 0.99	± 0.015
1.00 - 1.79	± 0.020
1.80 - 2.79	± 0.025
2.80 - 5.00	± 0.030

Diameter, mm	Minimal zinc surface density, g/m²
0.20 - 0.24	20
0.25 - 0.39	30
0.40 - 0.49	40
0.50 - 0.59	50
0.60 - 0.79	60
0.80 - 0.99	70
1.00 - 1.19	80
1.20 - 1.39	90
1.40 - 1.84	100
1.85 - 2.14	115
2.15 - 2.79	125
2.80 - 4.39	135
4.40 - 5.00	150

TENSILE STRENGTH

Diameter, mm	Tensile strength, N/mm²				
	1370	1570	1770	1960	2160
uncoated					
0.20-0.30	-	-	+	+	+
0.31-0.65	-	+	+	+	+
0.70-3.00	+	+	+	+	+
3.01-3.50	+	+	+	+	-
3.51-4.00	+	+	+	-	-
4.01-5.00	+	+	-	-	-
zinc-coated					
0.20-0.30	-	-	+	+	+
0.31-0.65	-	+	+	+	+
0.70-2.20	+	+	+	+	+
2.21-3.50	+	+	+	+	-
3.51-4.00	+	+	+	-	-
4.01-5.00	+	+	-	-	-

PACKAGING

Diameter, mm	Type	Weight, kg	Internal diameter, mm
0.2-0.5	Rings	5-30	200
0.5-0.8	Rings	30-40	250
0.8-1.3	Rings	50-80	350
0.8-1.6	Rings Z2	up to 500	360
1.3-5.0	Rings	80-180	500-550
1.3-3.0	Rings Z3	Up to 1000	360

STEEL WIRE FOR FLEXIBLE SHAFTS

TU 14-4-851-77

DESIGNATION

The wire is intended for manufacture of flexible shafts.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²	Minimum number of bends	Breaking force with a knotted wire, not less than, %
0.30	± 0.02	1570-1960	-	60
0.40	± 0.02	1570-1960	-	60
0.50	± 0.02	1570-1960	-	60
1.20	± 0.05	≤ 440	-	-
2.00	± 0.06	980-1370	9	-
2.40	± 0.06	980-1370	17	-
2.80	± 0.06	980-1370	9	-

PACKAGING

Diameter, mm	Type	Weight, kg not less than	Internal diameter, mm
0.30 - 0.50	Rings	0.8	200 - 250
	Spools	Up to 20	
1.20	Rings	8.0	300 - 350
	Spools	Up to 20	
2.0-2.8	Rings	8.0	500 - 600
	Spools	Up to 20	

STEEL WIRE FOR FLEXIBLE SHAFTS

TU 14-4-121-72

DESIGNATION

The wire is intended for manufacture of flexible shafts in automotive industry.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm^2	Number of twists on the length of 76 mm	Percent elongation, % not less than
0.38	+ 0.010 - 0.005	1700-1930	45	1.5 on the length of 50 mm
0.45	± 0.01	740-1180	36	1.0 on the length of 100 mm

PACKAGING

Type	Weight, kg
Rings	> 8

STEEL SPRING WIRE FOR PULP EXTRACTORS

TU 1221-036-71915393-2006

DESIGNATION

The wire is intended for manufacturing of pulp extractors.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²	Minimum number of bends	Minimum number of twists
0.80	± 0.02	1440.6 - 1558.2	12	17

PACKAGING

Diameter, mm	Type	Weight, kg	Internal diameter, mm
0.80	Rings Z2	Up to 300	360

STEEL CARD WIRE

GOST 3875-83

DESIGNATION

General-purpose wire.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm		Tensile strength, N/mm²	
	Normal accuracy	High accuracy	Class 1	Class 2
0.24 - 0.28	+0.010; -0.005	±0.007	1770-1960	1961-2160
0.32 - 0.80		+0.010; -0.005		

PACKAGING

Type	Weight, kg	Internal diameter, mm
Rings	Up to 12	200

CARBON WIRE FOR PIN MANUFACTURE

TU 14-178-271-94

DESIGNATION

The wire is intended for pin manufacture.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm
0.55	-0.05

Tensile strength range: 637-882 N/mm²

Other requirements are according to GOST 5468-88 for the class B ("Б") wire.

PACKAGING

Type	Weight, kg	Internal diameter, mm
Rings	10-15	200

NEEDLE WIRE

GOST 5468-88

DESIGNATION

The wire is intended for manufacture of technical needles and special products used in textiles and light industry.

The wire is produced from steel grades “И1”, “И2”, “И3”, “И4” (customer’s raw material).
According to manufacturing accuracy four groups of wire are produced - 1, 2, 3, 4.
According to mechanical properties – classes “А”, “Б”.
According to the type of finishing treatment - annealed (A), cold- drawn (seized) (C).

HEAT-TREATED WIRE FOR BINDING OF COTTON BALES

TU 14-178-368-2000

DESIGNATION

The wire is intended for cotton baling.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²	Percent elongation, % not less than	Wire link breaking strength, kgf, not less than
3.6	±0.04	1270-1470	5	900
3.8				950
4.0				1000

PACKAGING

Type	Weight, kg	Internal diameter, mm
Coils	500 - 1000	400

STO 71915393 - TU 073 - 2009

DESIGNATION

The wire is intended for cotton baling.

MECHANICAL PROPERTIES

Diameter, mm	Tensile strength, N/mm²	Diameter tolerance, mm	Percent elongation, %, not less than	Wire link breaking strength, kgf, not less than
3.6	1270-1470	±0.04	5	900
3.8	1270-1470		5	950
4.0	1270-1470		5	1000
3.6	1400-1600		3.5	900
3.8	1400-1600		3.5	950
4.0	1400-1600		3.5	1000

PACKAGING

Type	Weight, kg	Internal diameter, mm
Coils	500 - 1000	400

GALVANIZED HEAT-TREATED PULP-BALING WIRE

TU 1221-015-71915393-2006

DESIGNATION

The wire is intended for pulp baling.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²
1.80	± 0.03	1150 - 1250
2.00	± 0.03	1150 - 1250
2.30	± 0.03	1150 - 1250
2.30	± 0.03	880 - 1080
2.70	± 0.03	900 - 1100
2.75	± 0.03	880 - 1080
3.00	± 0.03	880 - 1100
3.00	± 0.03	1080 - 1250
3.00	± 0.03	1175 - 1300
3.06	± 0.03	900 - 1100

PACKAGING

Type	External diameter, mm	Internal diameter, mm	Height, mm	Weight, kg
rosette coils	800±30	400±20	650-1000	800-1000

ZINC-COATED STEEL WIRE

BS EN 50189:2000

DESIGNATION

The zinc-coated steel wire is used in the construction and/or reinforcement of conductors for overhead power transmission purposes.

ZINC COATING REQUIREMENTS

Nominal wire diameter, mm		Min mass of Zn, g/m²	
Over	Up to and incl.	Class A	Class C
1.50	1.75	200	160
1.75	2.25	215	175
2.25	2.75	230	190
2.75	3.00	230	190
3.00	3.50	245	205
3.50	4.25	260	260

MECHANICAL PROPERTIES, ST1A

Nominal wire diameter, mm		Diameter tolerance, mm	Stress at 1% extension R_e 1.0, N/mm², minimum	Tensile strength R_m, N/mm², minimum	Elongation on 250 mm A_{250}, %, minimum
Over	Up to and incl.				
1.50	1.75	± 0.03	1170	1400	3.0
1.75	2.25	± 0.03	1170	1400	3.0
2.25	2.75	± 0.04	1140	1350	3.0
2.75	3.00	± 0.05	1140	1350	3.5
3.00	3.50	± 0.05	1100	1300	3.5
3.50	4.25	± 0.06	1100	1300	4.0

MECHANICAL PROPERTIES, ST6C

Nominal wire diameter, mm		Diameter tolerance, mm	Stress at 1% extension R_e 1.0, N/mm², minimum	Tensile strength R_m, N/mm², minimum		Elongation on 250 mm A_{250}, %, minimum	Mandrel diameter for wrapping test	No. of torsion twists, %, minimum
Over	Up to and incl.			of individual wires	mean of a lot			
1.50	1.75	± 0.03	1450	1700	1800	2.0	4	14
1.75	2.25	± 0.04	1450	1700	1800	2.0	4	14
2.25	2.75	± 0.04	1410	1650	1750	2.0	4	14
2.75	3.00	± 0.05	1410	1650	1750	2.5	4	12
3.00	3.50	± 0.05	1380	1600	1700	2.5	4	12
3.50	4.25	± 0.06	1340	1600	1700	2.5	5	10

PACKAGING

Type	Weight, kg	Internal diameter, mm
Coils	Up to 1000	400
Rosette coil	Up to 1000	400 - 450

GALVANIZED STEEL WIRE FOR CONDUCTORS AND CABLES

TU 14-4-1457-87

DESIGNATION

The wire is used for conductor and cable manufacture.

PRODUCT DESCRIPTION

The wire is manufactured according to mechanical properties – of classes I and II, according to zinc-coating – medium galvanized groups.

MECHANICAL PROPERTIES

Diameter, mm	Diameter tolerance, mm	Tensile strength, N/mm²		Minimal number of twists		Zinc surface density, g/m²
		I class	II class	I class	II class	
0.25	-0.02	2060-2440	1670-2050	50	55	30
0.30	-0.02	1960-2340	1570-1950	50	55	30
0.40	-0.03	1860-2240	1470-1850	45	50	40
0.50	-0.03	1760-2070	1370-1750	35	40	50

While performing a tensile strength test with a knot, breaking strength should be not less than 52% of its tensile strength without a knot.

PACKAGING

Type	Weight, kg
rings	10-25
spools	10
spools	30

PC WIRE

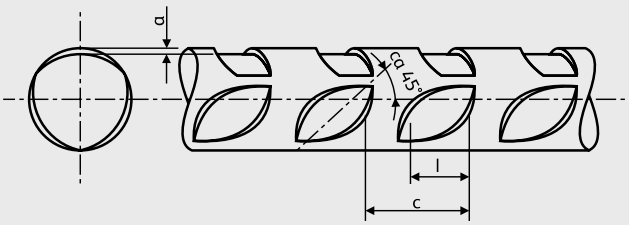
prEN 10138-2-2006

DESIGNATION

The wire is intended for reinforcement of prestressed concrete constructions.

PRODUCT DESCRIPTION

The manufactured wire has round or three-sided die-rolled section.



MECHANICAL PROPERTIES

Diameter, mm	Range of nominal depths of indentation, a, mm	Depth tolerance on chosen nominal depth, mm	Length, l mm	Spacing, c mm	Tensile strength, N/mm²	Weight, g/m	Breaking load, kN
5.0	0.06-0.13	± 0.03	3.5±0.5	5.5±0.5	1770	153.1	34.7
6.0	0.09-0.16	± 0.04	5.0±0.5	8.0±0.5	1670	221.0	47.3
7.0	0.09-0.16	± 0.04	5.0±0.5	8.0±0.5	1670	300,7	64.3

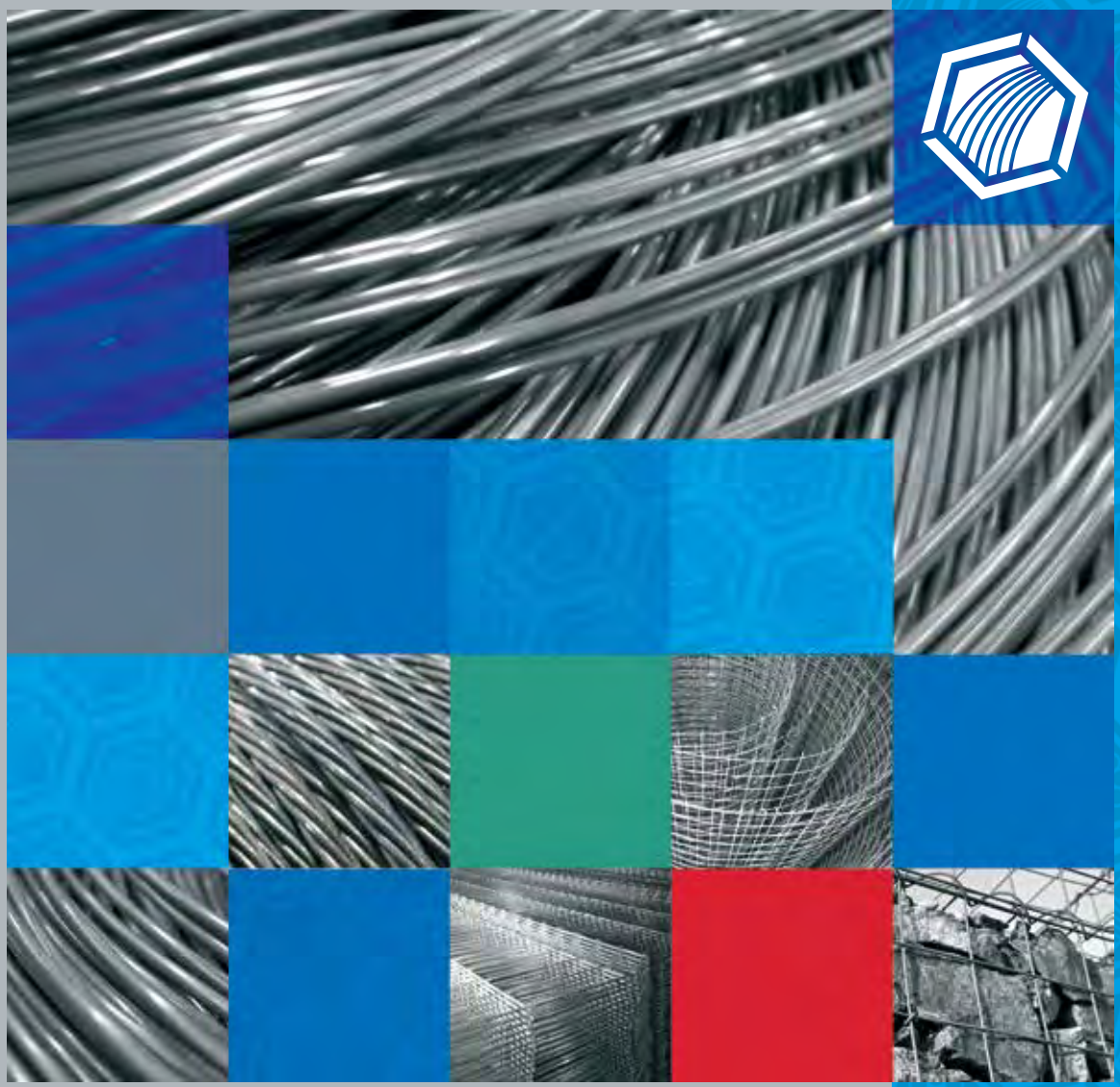
PACKAGING

Type	Weight, kg	Internal diameter, mm
Coils	up to 2000	1400

ZnAl

Severstal
Metiz

WIRE AND PRODUCTS WITH ZINC-ALUMINUM COATING



WIRE AND PRODUCTS WITH ZINC-ALUMINUM COATING

INNOVATIVE PRODUCTS

ZINC-ALUMINUM COATING

Traditional ZnAl coating for wire was first developed around 1980 at the Centre de Recherches Metallurgies (CRM) in Belgium under the sponsorship of The International Lead Zinc Research Organization (ILZRO). The new alloy product was called Galfan®.

Its aim is to improve the corrosion resistance properties of Galvanize while keeping its sacrificial protection. Aluminum corrodes fast in the atmosphere forming an oxide surface barrier layer, which is chemically passive and not subject to destruction over time preventing steel from corrosion, especially in areas of exposed steel surfaces, such as: cut edges and scratches on the coating surface.

Conventional technology of ZnAl coating (two-bath method) involves use of ZnAl alloy with mischmetals. Single-bath technology allows to produce wire with ZnAl coating either with or without mischmetals.

The old version of GOST standard for wire meshes describes wire with ZnAl coating containing mischmetals, while the new one describes pure ZnAl coating. Severstal-metiz can produce wire with both types of coating on customer's request.

ADVANTAGES

The corrosion rate of ZnAl coatings decreases over time as the corroding surface becomes enriched in more stable aluminium containing corrosion products.

The decrease in corrosion rate with time is stated in ASTM A875/SA875M and has been referred to as the Galfan® Performance Ratio (GPR). The GPR increases with exposure time as seen in figure 1. It shows Galfan® as being twice as effective as heavy galvanized at 8-1/2 years, 2-1/2 times better at 15 years, 3 times at 25 years and almost 4 times better at 50 years.

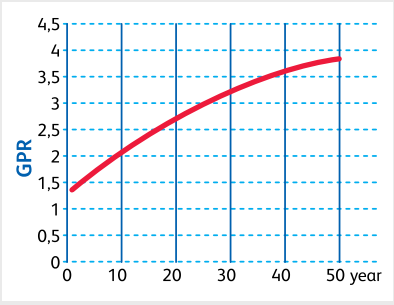


Figure 1. The Galfan® Performance Ratio (GPR) shows Galfan becoming more effective over time than regular galvanizing.

* Retrieved from Bronx International Pty. www.bronxintl.com

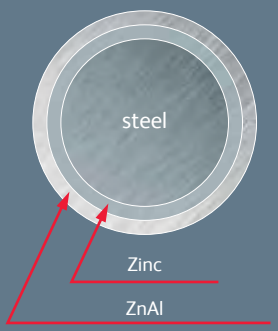
Other common coating techniques include:

Up to 10% Al (Japan),

Al - 4.0-8.0% (Arcelor Mittal, R.F. Patent RU2522049C2 dd. 10.07.2014).

They are produced in a double-dip coating process (the first dip is molten zinc, the second dip is Zn/Al alloy).

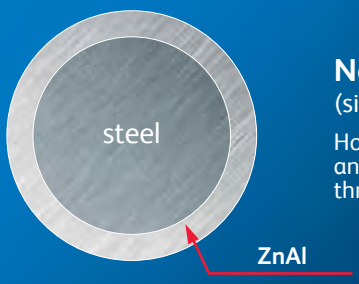
Conventional Zinc-Aluminum coating
(two-bath method)



For applying ZnAl coating, Zinc coating is applied first. Wire section has two layers of coating (Zn and ZnAl) due to the different temperatures of application.

WIRE WITH ZnAl COATING PRODUCED BY SEVERSTAL-METIZ

- INNOVATIVE TECHNOLOGY
- IMPROVED PERFORMANCE



New ZnAl coating
(single-bath method by Severstal-metiz)

Homogeneous ZnAl coating and sacrificial protection throughout the whole section.

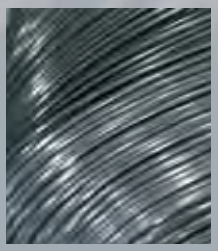
GUARANTEE 50 years

eco

Environmentally friendly manufacturing technology. No acid wastes.

Maximum corrosion resistance.

ZnAl








ZnAl coated products produced by Severstal-metiz

Low-carbon wire

Application:

- As a standalone product
- For manufacture of various products, including those to be used in highly aggressive fluids
- Gabions of woven or welded mesh
- Welded mesh panel fencing
- Animal cages

High-carbon wire

Application:

- As a standalone product
- For manufacture of various products, including those to be used in highly aggressive fluids
- Geosystems
- Power transmission lines
- PSC strands
- Wire ropes
- Gabions of woven or welded mesh
- Welded mesh panel fencing
- Animal cages

Gabion mesh structures welded gabions

Application:

- Construction of sea and river bank protection structures
- Construction of multipurpose engineering structures
- Construction of channels
- Construction of artificial road structures
- Landscape design works
- Reinforcement of unstable soil.
- Reinforcement of slopes and slides, including gravity walls

Fencing systems

Application:

- Fencing and protection of sport, educational, transport, and industry facilities and territories
- Fencing of enhanced security objects

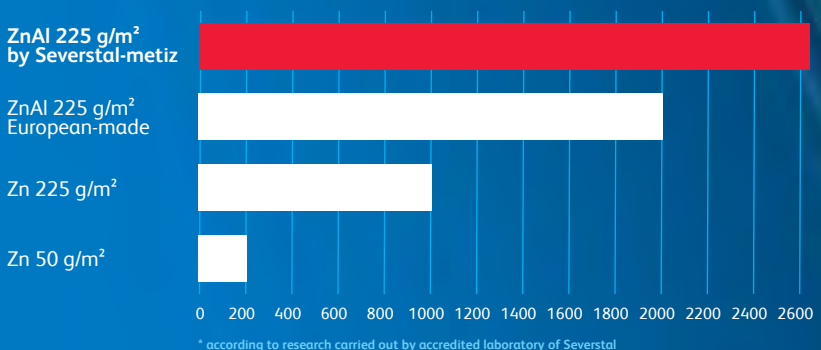
Mesh panels and wire for animal cages

Application:

- Fencing and protection of territories
- Manufacture of animal and bird cages

Wire coating corrosion resistance

Salt spray test, hours



* according to research carried out by accredited laboratory of Severstal

Innovative coating Severstal-metiz provides 2.6 times higher resistance compared to thick Zn coating, and 1.3 times higher resistance compared to conventional ZnAl coating.

Severstal
Metiz

NAILS

CONSTRUCTION NAILS

GOST 4028-63

APPLICATIONS

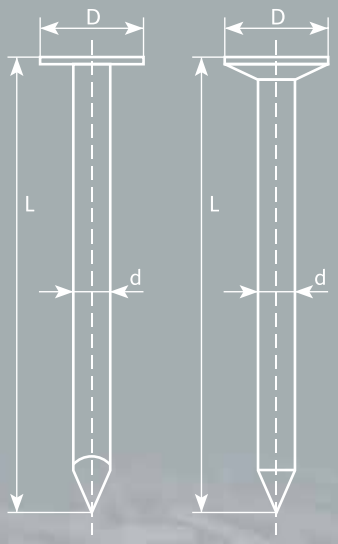
Construction nails are designed for fastening of wooden parts and constructions.

DESCRIPTION

Round nails with flat- or tapered head can be produced. Flat-head side surface is plain. Tapered head surface is corrugated.

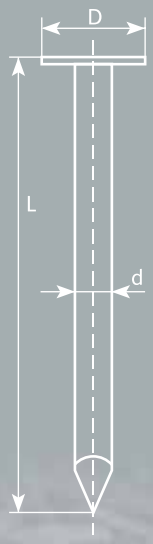
SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
Flat head nails			
1.2	16	2.4	0.147
1.2	20	2.4	0.183
1.2	25	2.4	0.219
1.4	25	2.8	0.302
1.4	32	2.8	0.385
1.4	40	2.8	0.482
1.6	25	3.2	0.397
1.6	40	3.2	0.633
1.6	50	3.2	0.791
Tapered head nails			
1.8	32	3.5	0.640
1.8	40	3.5	0.787
1.8	50	3.5	0.967
1.8	60	3.5	1.160
2.0	40	4.0	0.949
2.0	50	4.0	1.190
2.5	50	5.0	1.870
2.5	60	5.0	2.230
3.0	70	6.0	3.770
3.0	80	6.0	4.330
3.5	90	7.0	6.600
4.0	100	7.5	9.500
4.0	120	7.5	11.500
5.0	120	9.0	17.800
5.0	150	9.0	21.900
6.0	150	11.0	32.400
6.0	200	11.0	43.100
8.0	250	14.0	96.200



CLOUT ROUND NAILS

GOST 4029-63



APPLICATIONS

Clout nails are designed for fastening of soft roofing material (roofing felt or ruberoid).

DESCRIPTION

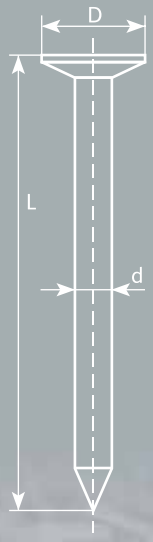
Round nails with flat head. Head side surface is plain.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
2.0	20	5.0	0.482
2.0	25	5.0	0.605
2.5	32	6.3	1.220
2.5	40	6.3	1.520
3.0	40	7.5	2.230

ROOFING NAILS

GOST 4030-63



APPLICATIONS

Roofing nails are intended for fastening metallic plates to wooden parts.

DESCRIPTION

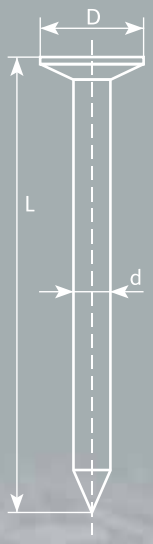
Round nails with tapered head. Head side surface is corrugated.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
3.5	40	8.0	2.670

ROOFING NAILS

STO 719115393-TU122-2012



APPLICATIONS

Round nails with tapered head. Head side surface is corrugated.

DESCRIPTION

Round nails with tapered head. Head side surface is corrugated or plain.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
3.5	30	8.0	2.308

CASING NAILS

GOST 4034-63

APPLICATIONS

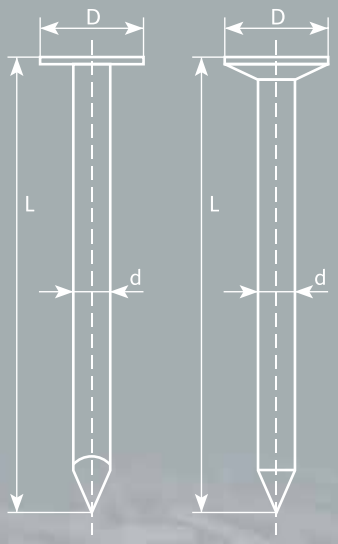
Casing nails are used to fix wooden packaging (boxes, containers) either with nailing machines or manually.

DESCRIPTION

These are round nails with plain or tapered head. Tapered head side surface is corrugated or plain, plain head side surface is plain. Enlarged head diameter facilitates using nails for cardboard application at box factories and furniture plants.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
Flat head nails			
1.4	25	3.5±0.2	0.308
1.4	30	3.5±0.2	0.369
1.6	25	4.0±0.2	0.404
1.6	35	4.0±0.2	0.562
1.8	32	4.5±0.2	0.652
1.8	40	4.5±0.2	0.812
1.8	45	4.5±0.2	0.912
2.0	40	5.0±0.2	1.004
2.0	45	5.0±0.2	1.128
2.2	50	5.5±0.3	1.516
2.5	50	6.0±0.3	1.950
2.5	60	6.0±0.3	2.335
3.0	70	6.5±0.3	3.880
3.0	80	6.5±0.3	4.434
Tapered head nails			
1.6	25	4.0±0.2	0.405
1.6	35	4.0±0.2	0.562
1.8	32	4.5±0.2	0.654
1.8	40	4.5±0.2	0.813
1.8	45	4.5±0.2	0.913
2.0	40	5.0±0.2	1.006
2.0	45	5.0±0.2	1.129
2.2	50	5.5±0.3	1.518
2.5	50	6.0±0.3	1.954
2.5	60	6.0±0.3	2.339
3.0	70	6.5±0.3	3.888
3.0	80	6.5±0.3	4.442



SCREW NAILS

TU 14-4-1161-2003

APPLICATIONS

Designed for fastening of wooden euro pallets and containers, floorboards and other wooden constructions requiring high joining strength.

DESCRIPTION

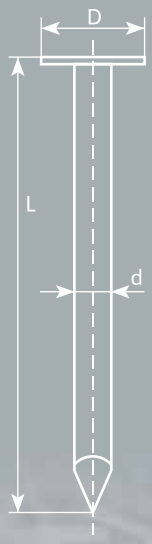
The nails are produced from twisted square steel wire with screw surface. They have tapered head, head side has corrugated surface.

SPECIFICATION

Shank diameter, d1, mm (outer)	Shank diameter, d2, mm (inner)	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
3.0	2.6	60	5.3	3.164
3.0	2.6	70	5.3	3.695
3.0	2.6	80	5.3	4.225
3.0	2.6	90	5.3	4.756
3.5	2.8	40	6.0	2.431
3.5	2.8	45	6.0	2.739
3.5	2.8	60	6.0	3.662
3.5	2.8	70	6.0	4.278
3.5	2.8	80	6.0	4.893
3.5	2.8	82.5	6.0	5.047
3.5	2.8	90	6.0	5.508
4.5	3.8	90	7.0	10.070
4.5	3.8	100	7.0	11.203
4.5	3.8	120	7.0	13.471

EXTRA LARGE FLAT-HEAD WIRE NAILS

TU 14-178-259-2004 (analogue to DIN 1160)



APPLICATIONS

The nails are used for roofing works, fastening of thin materials at a low density (soft sheets, cardboards, fiberboards, plasterboards, etc.) against hard surfaces.

DESCRIPTION

Round nails with plain flat head. The nails of two types are manufactured:

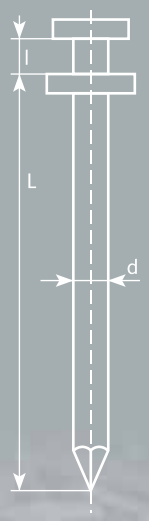
- **form A:** head diameter is three times bigger than shank diameter
- **form B:** head diameter is four times bigger than shank diameter

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm	Approximate weight per 1000 pcs., kg
Form A (head diameter ~ 3d)			
2.0	20	5.5-6.5	0.545
2.0	30	5.5-6.5	0.792
2.0	35	5.5-6.5	0.915
2.2	30	6.0-7.0	0.948
2.2	32	6.0-7.0	1.008
2.2	35	6.0-7.0	1.098
2.4	27	6.5-7.5	1.107
2.5	20	7.0-8.0	0.865
2.5	25	7.0-8.0	1.057
2.5	30	7.0-8.0	1.250
2.5	32	7.0-8.0	1.327
2.5	35	7.0-8.0	1.442
2.5	40	7.0-8.0	1.635
2.7	30	7.5-8.5	1.530
2.8	20	8.0-9.0	1.077
2.8	25	8.0-9.0	1.319
2.8	30	8.0-9.0	1.560
2.8	32	8.0-9.0	1.657
2.8	35	8.0-9.0	1.802
2.8	40	8.0-9.0	2.044
2.8	45	8.0-9.0	2.285
2.8	50	8.0-9.0	2.527
2.8	55	8.0-9.0	2.768
3.0	20	8.5-9.5	1.276
3.0	25	8.5-9.5	1.572
3.0	30	8.5-9.5	1.868
3.0	35	8.5-9.5	2.164
3.0	40	8.5-9.5	2.460
3.1	60	9.0-10.0	3.679
4.0	90	11.5-12.5	9.292
4.0	100	11.5-12.5	10.278
4.0	120	11.5-12.5	12.250

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm	Approximate weight per 1000 pcs., kg
Form B (head diameter ~4d)			
2.0	20	7.0-8.0	0.543
2.0	30	7.0-8.0	0.790
2.0	35	7.0-8.0	0.913
2.2	30	7.5-8.5	0.999
2.2	32	7.5-8.5	1.059
2.2	35	7.5-8.5	1.148
2.4	27	8.5-9.5	1.226
2.5	20	9.0-10.0	0.990
2.5	22	9.0-10.0	1.067
2.5	25	9.0-10.0	1.183
2.5	30	9.0-10.0	1.376
2.5	32	9.0-10.0	1.453
2.5	35	9.0-10.0	1.568
2.5	40	9.0-10.0	1.761
2.7	30	9.5-10.5	1.663
2.8	20	10.0-11.0	1.218
2.8	25	10.0-11.0	1.459
2.8	30	10.0-11.0	1.701
2.8	32	10.0-11.0	1.798
2.8	35	10.0-11.0	1.942
2.8	40	10.0-11.0	2.184
2.8	45	10.0-11.0	2.426
2.8	50	10.0-11.0	2.667
2.8	55	10.0-11.0	2.909
2.8	60	10.0-11.0	3.150
3.0	20	11.0-12.0	1.465
3.0	25	11.0-12.0	1.761
3.0	30	11.0-12.0	2.058
3.0	35	11.0-12.0	2.354
3.0	40	11.0-12.0	2.650
3.1	60	11.5-12.5	3.878

DOUBLE-HEAD WIRE NAILS TO DRAWING DW1



APPLICATIONS

The nails are used for the construction of temporary wooden structures.

DESCRIPTION

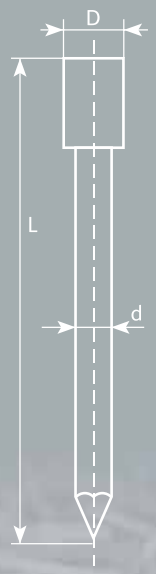
Round nails with two flat heads. The end surface of the lower head is made plain, the end surface of the upper head is made plain or corrugated.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Distance between heads, l, mm	Approximate weight per 1000 pcs., kg
2.8	55	11	3.283
3.0	70	11	4.651
3.1	55	11	4.048
3.1	60	11	4.344
3.1	65	11	4.640
3.1	70	11	4.936
3.1	75	11	5.232
3.1	80	11	5.458
3.4	65	11	5.504
3.4	80	11	6.665
3.4	90	11	7.285

FLAT-HEAD CASING NAILS

TU 1271-012-71915393-2005



APPLICATIONS

The nails are used for finishing works.

DESCRIPTION

Head end surface is made plain.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
1.6	30	2.2±0.2	0.472
1.8	20	2.5±0.2	0.399
1.8	30	2.5±0.2	0.599
1.8	32	2.5±0.2	0.639
1.8	40	2.5±0.2	0.798
1.8	50	2.5±0.2	0.998
1.8	60	2.5±0.2	1.198
2.0	20	2.8±0.2	0.494
2.0	22	2.8±0.2	0.543
2.0	25	2.8±0.2	0.617
2.0	40	2.8±0.2	0.987
2.0	50	2.8±0.2	1.233
2.0	60	2.8±0.2	1.480
2.2	45	3.1±0.3	1.340
2.2	50	3.1±0.3	1.490
2.2	55	3.1±0.3	1.643
2.5	55	3.5±0.3	2.120
2.5	60	3.5±0.3	2.313
2.8	50	4.0±0.3	2.429
2.8	65	4.0±0.3	3.154
3.1	70	4.4±0.3	4.311
3.1	80	4.4±0.3	4.751
3.4	90	4.8±0.3	6.424
3.8	100	5.3±0.3	8.900

MOULDING NAILS

TU 1271-029-71915393-2006

APPLICATIONS

The nails are used for finishing works.

DESCRIPTION

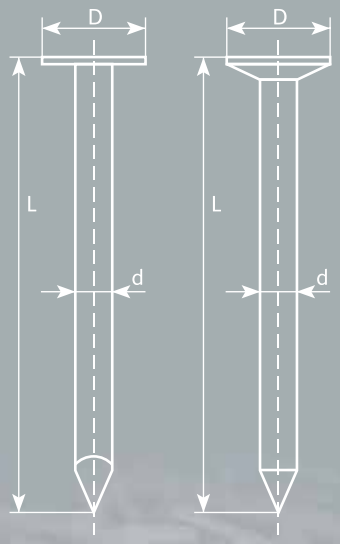
Flat-head round wire nails.
Head end surface is made plain.

SPECIFICATION

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
2.0	120	3.5	2.993

ROUND WIRE NAILS

TU 14-178-326-2004



APPLICATIONS

The nails are used for fastening wooden components and constructions.

DESCRIPTION

Round wire nails are manufactured either with tapered or with flat head. The end surface of a tapered head is either plain or corrugated; the end surface of a flat head is plain.

SPECIFICATION (TAPERED HEAD NAILS)

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm	Approximate weight per 1000 pcs., kg
1.8	20	3.6	0.391
1.8	25	3.6	0.491
1.8	30	3.6	0.592
1.8	35	3.6	0.691
1.8	40*	3.6	0.791
1.8	45	3.6	0.891
1.8	70	3.6	1.389
2.0	20	4.0	0.481
2.0	25	4.0	0.604
2.0	30	4.0	0.729
2.0	35	4.0	0.853
2.0	40*	4.0	0.976
2.0	45	4.0	1.099
2.0	50	4.0	1.222
2.2	35	4.4	1.030
2.2	40	4.4	1.179
2.2	45	4.4	1.329
2.2	50	4.4	1.478
2.2	55	4.4	1.627
2.4	40	4.8	1.402
2.4	45	4.8	1.580
2.4	50	4.8	1.757
2.4	55	4.8	1.935
2.5	40	5.0	1.521
2.5	45	5.0	1.713
2.5	50*	5.0	1.906
2.5	55	5.0	2.098
2.5	60*	5.0	2.291
2.65	50	5.3	2.164
2.65	65	5.3	2.813
2.7	27	5.4	1.213
2.7	40	5.4	1.797
2.7	45	5.4	2.022
2.7	50	5.4	2.247
2.7	55	5.4	2.471
2.7	60	5.4	2.696
2.7	65	5.4	2.920
2.8	50	5.6	2.412
2.8	55	5.6	2.654
2.8	60	5.6	2.895
2.8	65	5.6	3.137
2.8	70	5.6	3.378
2.8	75	5.6	3.620
3.0	50	6.0	2.768
3.0	55	6.0	3.045
3.0	60	6.0	3.323
3.0	65	6.0	3.600
3.0	70*	6.0	3.877
3.0	80*	6.0	4.432
3.1	65	6.2	3.841
3.1	70	6.2	4.138
3.1	75	6.2	4.434
3.1	80	6.2	4.730
3.35	65	6.7	4.465
3.4	65	6.8	4.598
3.4	75	6.8	5.311
3.4	80	6.8	5.667
3.4	90	6.8	6.379
3.5	50	7.0	3.740
3.5	55	7.0	4.117
3.5	60	7.0	4.495
3.5	65	7.0	4.872
3.5	70	7.0	5.249
3.5	80	7.0	6.004
3.75	75	7.1	6.412
3.8	65	7.1	5.694
3.8	75	7.1	6.583
3.8	80	7.1	7.028
3.8	90	7.1	7.918
3.8	100	7.1	8.808
3.8	120	7.1	10.609
4.0	80	7.5	7.790

*the nails are manufactured with the plain head end surface only.

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm	Approximate weight per 1000 pcs., kg
4.0	90	7.5	8.778
4.0	100*	7.5	9.764
4.0	105	7.5	10.227
4.0	110	7.5	10.750
4.0	115	7.5	11.243
4.0	120	7.5	11.734
4.0	125	7.5	12.227
4.0	145	7.5	14.199
4.0	150	7.5	14.692
4.0	165	7.5	16.171
4.0	185	7.5	18.142
4.2	100	7.9	10.783
4.2	110	7.9	11.870
4.2	120	7.9	12.957
4.5	100	8.5	12.356
4.5	120	8.5	14.852
4.5	125	8.5	15.476
4.6	110	8.5	14.198
4.6	120	8.5	15.502
4.6	130	8.5	16.806
4.6	140	8.5	18.110
4.6	145	8.5	18.761
5.0	55	9.3	8.286
5.0	90	9.3	13.708
5.0	95	9.3	14.478
5.0	100	9.3	15.219
5.0	110	9.3	16.759
5.0	115	9.3	17.559
5.0	120	9.3	18.329
5.0	125	9.3	19.070
5.0	140	9.3	21.381
5.0	150*	9.3	22.922
5.0	155	9.3	23.721
5.0	160	9.3	24.492
5.0	165	9.3	25.262
5.0	185	9.3	28.343
5.5	80	10.7	14.664
5.5	100	10.7	18.392
5.5	110	10.7	20.256
5.5	125	10.7	23.053
5.5	140	10.7	25.849
5.5	145	10.7	26.781
5.5	150	10.7	27.713
5.5	160	10.7	29.803

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm	Approximate weight per 1000 pcs., kg
5.5	180	10.7	33.305
6.0	140	11.0	30.708
6.0	150*	11.0	32.926
6.0	160	11.0	35.144
6.0	180	11.0	39.581
6.0	200*	11.0	44.018
6.0	300	11.0	14.852
6.5	160	11.9	41.203
6.5	180	11.9	46.410
6.5	200	11.9	51.617
6.5	215	11.9	55.523
7.0	200	12.8	59.724
7.0	210	12.8	62.744
7.0	220	12.8	65.763
7.0	230	12.8	68.783
7.0	250	12.8	74.822
7.0	260	12.8	77.841
7.0	300	12.8	89.952
7.5	230	13.7	78.830
7.5	245	13.7	84.058
7.5	260	13.7	89.258
7.5	280	13.7	96.190
7.6	200	13.9	70.334
7.6	220	13.9	77.453
7.6	230	13.9	81.012
7.6	250	13.9	88.131
7.6	260	13.9	91.690
7.6	280	13.9	98.809
7.6	290	13.9	102.368
7.6	300	13.9	106.189
8.0	260	14.0	101.311
8.0	290	14.0	113.143
8.0	300	14.0	117.087
8.5	275	14.9	120.963
8.5	300	14.9	132.093
8.8	260	15.4	122.438
8.8	280	15.4	131.982
8.8	290	15.4	136.754
8.8	300	15.4	141.526
8.8	310	15.4	146.298
8.8	320	15.4	151.070
8.8	360	15.4	170.159
8.8	380	15.4	179.703
8.8	400	15.4	189.247

SPECIFICATION (FLAT HEAD NAILS)

Shank diameter, d, mm	Nail length, L, mm	Head diameter, D, mm, not less than	Approximate weight per 1000 pcs., kg
1.2	15	2.4	0.133
1.4	20	2.8	0.262
1.4	30	2.8	0.362
1.6	30	3.2	0.472
1.6	32	3.2	0.504
1.6	35	3.2	0.551

SPECIAL NAILS FOR PNEUMATIC TOOLS

DIN EN 10230-1-2000

APPLICATIONS

Special nails are designed for automatic fastening of wooden constructions where a high strength of joined parts is required. Designed for boarding with wood, assembly of window and door frames, nailing of floor coatings, manufacture and repair of pallets, manufacture of containers, fencing and other construction works including facing and finishing.

DESCRIPTION

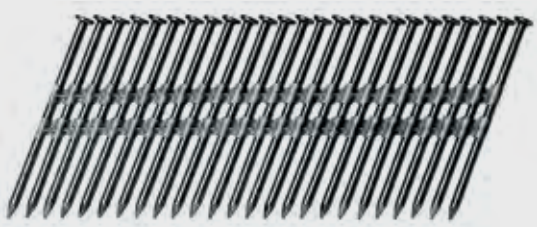
Plain nails, nails with screw or ring shank. Nails with screw or ring shank have an additional advantage in comparison with plain surface nails. Nails with screw shank provide easier penetration (twisting-in) into wood which eliminates splitting of the nailed blank. Nails with ring shank have cross incisions ensuring higher resistance to pulling out. Due to ring and screw shank the level of joint safety is 4-5 times higher in comparison with ordinary construction nails.

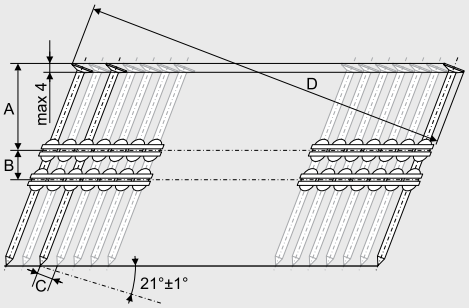
There are different types of nails depending on tool type:

- machine nails
- nails coiled with copper plated wire (coil nails)
- nails in plastic coil (PE-Strip)

Machine nails are used in fixed machines for industrial manufacturing of wooden products when several nails are simultaneously clouted by means of compressed air.
Gun nails in coils (coil nails, PE-Strip) are used for pneumatic tools (hand-held machines with built-in pneumatic drive designed as labor saving appliances) in construction, manufacture or repair of wooden containers.

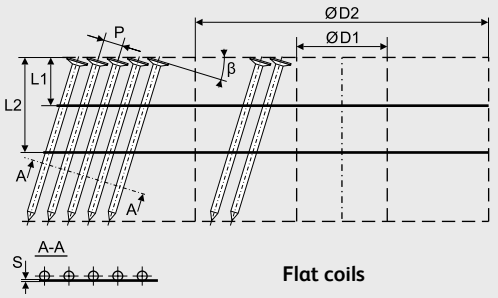
PE-STRIP COIL CHARACTERISTICS AND PACKAGING



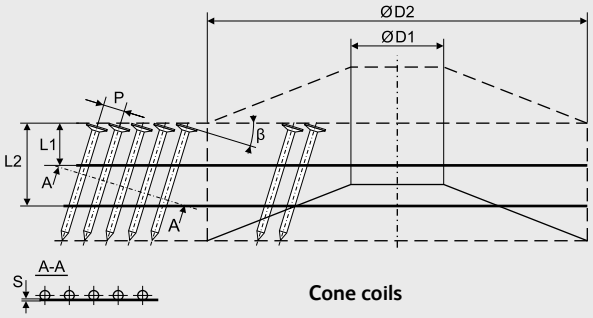


Dimensions, mm	Coil drawing	Pieces in coil	Packing table	Pieces in box	Weight of 1 box, kg	Number of boxes on pallet, pcs.	Number of nails on pallet, pcs.	Pallet weight, kg	Box type
2.5x(45-65)	PM61	30	PV0K1	5 490-8 100	11.00-15.49	65-91	390 00-526 500	932-1007	P1
2.8x(64-85)	PM61	30	PV0K1	3 540-5 700	12.82-18.46	52-78	218 400-341 640	833-1056	P1
3.1x(65-90)	PM61	25	PV0K1	2 200-3 600	10.24-17.57	52-78	166 400-187 200	743-942	P1
3.4x(75-120)	PM61	25	PV0K1	2 000-3 100	11.97-18.59	52-78	104 000-161 200	848-964	P1
3.8x(100-145)	PM61	25	PV0K1	1 200-1 600	13.74-15.33	65	78 000-104 000	893-996	P1
4.0x100	PM61	25	PV0K1	1525	15.32	65	99 125	996	P1
4.2x(70-150)	PM61	25	PV0K1	800-1 800	12.93-15.62	65-84	65 000-117 000	882-1086	P1, P2
4.6x(130-160)	PM61	20	PV0K1	500	8.41-10.35	84	42 000	706-869	P2
5.0x(145; 160)	PM61	20	PV0K1	500	11.11-12.23	84	42 000	933-1028	P2

COIL CHARACTERISTICS AND PACKAGING



Flat coils



Cone coils

Dimensions, mm	Coil drawing	Pieces in coil	Packing table	Pieces in box	Weight of 1 box, kg	Number of boxes on pallet, pcs.	Number of nails on pallet, pcs.	Pallet weight, kg	Box type
Flat coils									
2.3x(30-64)	CM00	300	CV011	7 200-18 000	15.50-18.79	30	216 000-540 000	465-564	CA, CB1
2.5x(40-80)	CM00	300	CV011	5 400-12 600	17.06-21.39	30	162 000-378 000	512-612	CA, CB1
2.6x(64-75)	CM00	300	CV011	7 200	19.81-23.11	30	216 000	594-693	CA, CB1
2.8x(40-88)	CM00	250	CV011	4 500-10 500	19.58-21.32	30	135 000-315 000	587-639	CA, CB1
3.10x(42-90)	CM00	250	CV011	4 500-10 500	24.53-27.37	30	135 000-315 000	736-821	CA, CB1
3.25x(64-83)	CM00	225	CV011	4 500-5 400	23.21-27.08	30	135 000 -162 000	696-812	CA, CB1
3.4x(64-93)	CM00	200	CV011	3 600-4 800	22.58-25.66	30	108 000-144 000	677-770	CA, CB1
2.3x(30-64)	CM00	300	CV111	7 200-16 200	15.50-18.79	40	288 000-648 000	620-751	CA, CB1
2.5x(40-80)	CM00	300	CV111	5 400-12 600	17.06-20.39	40	216 000- 504 000	683-860	CA, CB1
2.8x(40-88)	CM00	250	CV111	4 500-10 500	17.84-22.48	40	180 000-420 000	713-899	CA, CB1
3.10x(42-90)	CM00	250	CV111	4 500-10 500	21.86-27.55	40	180 000-420 000	875-1102	CA, CB1
3.25x75	CM00	225	CV111	5 400	27.08	40	216 000	1083	CB1
3.4x(64-98)	CM00	200	CV111	3 600-4 800	21.04-26.34	40	144 000- 192 000	842-1054	CA, CB1
2.1x(25-55)	CM04	325	CV031	11 700-27 300	18.13-22.80	28	327 600-764 400	508-638	CC
2.3x(30-64)	CM04	300	CV031	9 000-18 000	15.26-18.79	30	270 000-540 000	458-564	CA, CB1
2.5x(25-60)	CM04	300	CV031	9 000-25 200	18.03-26.22	28-30	270 000-705 600	541-734	CA, CB1
2.1x(25-55)	CM04	325	CV131	11 700-27 300	18.13-22.80	35	409 500-955 500	635-798	CC
2.3x(30-57)	CM04	300	CV131	9 000-18 000	15.26-18.79	40	360 000-720 000	611-751	CA, CB1
2.5x(42-60)	CM04	300	CV131	9 000-12 600	18.03-21.50	40	360 000-504 000	721-860	CA, CB1
2.8x83	CM80	250	CV141	4 500	18.49	40	180 000	740	CA
3.10x(83-98)	CM80	250	CV141	4 500	22.66-26.66	40	180 000	907-1066	CA
3.25x(88-100)	CM80	225	CV141	4 050	23.74-26.90	40	162 000	949-1076	CA, CB1
3.4x(88-100)	CM80	200	CV141	3 600	23.09-26.17	40	144 000	924-1047	CA, CB1
2.1x(32-55)	CM80	1000	CV611	–	–	1	231 000-429 000	358-397	CD1
2.3x(35-64)	CM80	1000	CV611	–	–	1	150 000-275 000	323-354	CD1
2.5x(42-80)	CM80	1000	CV611	–	–	1	120 000-216 000	356-401	CD1
2.8x(50-88)	CM80	1000	CV611	–	–	1	90 000-144 000	335-397	CD1
3.1x(60-90)	CM80	1000	CV611	–	–	1	90 000-126 000	411-463	CD1
3.4x(75-88)	CM80	1000	CV611	–	–	1	72 000-90 000	462-526	CD1
Cone coils									
2.1x(28-55)	CM02	350	CV021	12 600-25 200	17.81-21.47	28	352 800-705 600	499-601	CC
2.1x(28-55)	CM02	350	CV121	12 600-25 200	17.81-21.47	35	441 000-882 000	624-751	CC


HENDIX ™
SOLUTIONS
HENDIX™
Solutions for concrete structures
HENDIX ™
CUT JOINT FLOORS
HENDIX ™
JOINTLESS FLOORS
HENDIX ™
PILE SUPPORTED FLOORS
HENDIX ™
STRIP FOUNDATION
HENDIX ™
SINGLE FOUNDATION
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WALLS
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HENDIX ™
RAFTS
HENDIX ™
SHOTCRETE
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ROADS
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AIRFIELD
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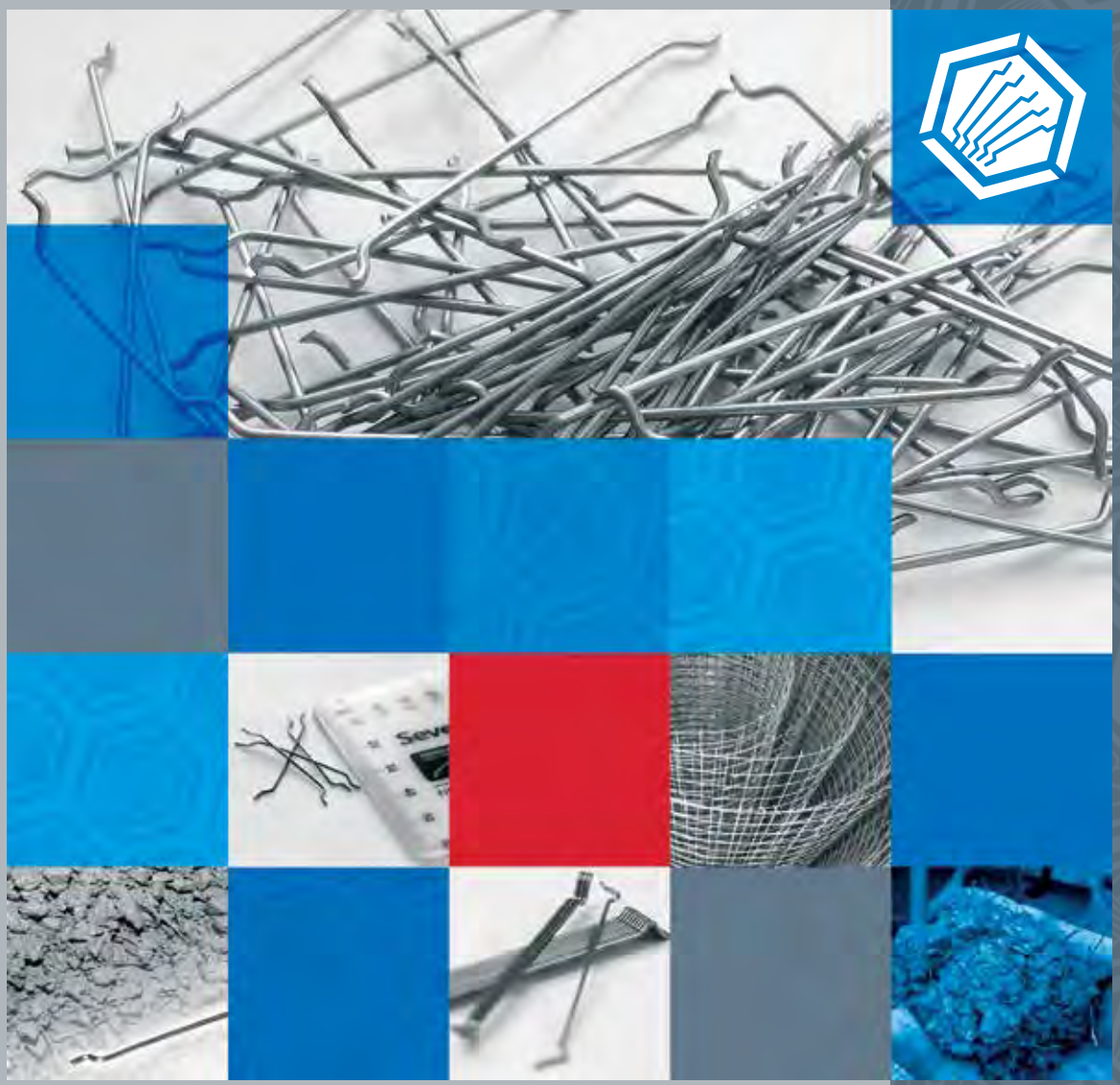
BRIDGES

Severstal
Metiz

STEEL FIBER



HENDIX 1/50 HENDIX™ Solutions HOOKED END STEEL FIBER

EN 14889-1:2006; TU 1211-205-46854090-2005; STO 71915393-TU 106-2011

DESCRIPTION

Steel wire fiber Hendix 1/50 with hooked ends, randomly distributed in the concrete can reduce or even replace traditional rebar and welded mesh reinforcement. It can be applied in industrial floors, roads, strip foundation, road surfacing, bridges and other constructions with standard structural demands.

ADVANTAGES

Hendix 1/50 fiber provides a good performance of reinforcement effect in the concrete while it is batched easily with a low tendency to form clumps when added to the concrete mixture.

RECOMMENDED SCOPE OF APPLICATION

- All types of industrial floors (cut joint, jointless, pile supported)
- Roads, strip and single foundations

PACKAGING

- Corrugated cardboard boxes (25 kg). Fibers in the box are oriented in the same direction for easy dosing.
- Big Bags (600 kg).

CERTIFICATION

- Russian Certificate of Conformity according to GOST P No.РОСС RU.АЯ64.Н05417.
- European Certificate of Compliance with the Requirements of EN 14889-1:2006 No.1397-CPD-0386.

TECHNICAL STANDARD DOCUMENTATION

- Code of Regulations 360.1325800.2017 “Steel Fiber Reinforced Concrete Structures. Design Rules”.
- EN 1992-1-1 Design of Concrete Structures. – Part 1-1: General Rules and Rules for Buildings.
- DIN EN 1045-1 Concrete Reinforced and Prestressed Concrete Structures. – Part 1: Design and Construction.
- DAfStb Directive “Steel Fiber Reinforced Concrete” 11/2012 (as a supplement to DIN EN 1992-1-1, DIN EN 206-1, DIN 1045-2, DIN EN 13670, DIN 1045-3 for concrete structures).
- TR34 Concrete Industrial Ground Floors. A Guide to Design and Construction. (UK Concrete Society CS).
- TR550 Industrial Floors Design (UK Concrete Society CS).

Fiber diameter, mm	1.00 ± 0.04
Fiber length, mm	50.0 + 2.0
Hooked ends length, mm	2.0 -1.0/+2.0
Hook height, mm	2.1 +0.5/-0.0
Bend angle	40° -5°/+10°
Tensile strength, MPa	1235
Modulus of elasticity, MPa	≥ 200000

HENDIX PRIME 75/52 HENDIX™ Solutions HOOKED END STEEL FIBER

EN 14889-1:2006; STO 71915393-TU 106-2011

DESCRIPTION

Steel wire fiber Hendix Prime 75/52 with hooked ends, randomly distributed in the concrete can reduce or even replace traditional rebar and welded mesh reinforcement. It can be applied both in standard applications of steel fiber reinforced concrete, and in load bearing concrete structures (foundations, walls, ceiling slabs, pile supported floors, bridge constructions, reinforced concrete constructions).

ADVANTAGES

Hendix Prime 75/52 fiber has an improved length/diameter ratio, a big amount of fiber per kg, a good saturation of fiber in the concrete matrix and an increased tensile strength for high performance.

RECOMMENDED SCOPE OF APPLICATION

- All types of industrial floors (cut joint, jointless, pile supported, screeds).
- Load bearing constructions (foundation rafts, elevated slabs supported by columns and/or walls).
- Roads, reinforced concrete constructions, strip and single foundations.

PACKAGING

- Corrugated cardboard boxes (25 kg). Fibers in the box are oriented in one direction for easy dosing.
- Big Bags (600 kg).

CERTIFICATION

- Russian Certificate of Conformity according to GOST P No.РОСС RU.АЯ64.Н05417.
- European Certificate of Compliance with the Requirements of EN 14889-1:2006 No.1397-CPD-0384.

TECHNICAL STANDARD DOCUMENTATION

- Code of Regulations 360.1325800.2017 “Steel Fiber Reinforced Concrete Structures. Design Rules”.
- EN 1992-1-1 Design of Concrete Structures. – Part 1-1: General Rules and Rules for Buildings.
- DIN EN 1045-1 Concrete Reinforced and Prestressed Concrete Structures. – Part 1: Design and Construction.
- DAfStb Directive “Steel Fiber Reinforced Concrete” 11/2012 (as a supplement to DIN EN 1992-1-1, DIN EN 206-1, DIN 1045-2, DIN EN 13670, DIN 1045-3 for concrete structures).
- TR34 Concrete Industrial Ground Floors. A Guide to Design and Construction. (UK Concrete Society CS).
- TR550 Industrial Floors Design (UK Concrete Society CS).

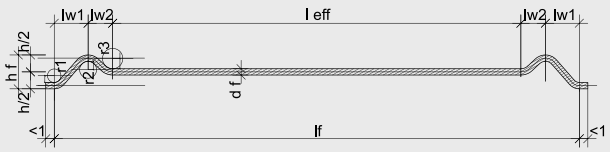
Fiber diameter, mm	0.75 ± 0.04
Fiber length, mm	52 ± 2.0
Hooked ends length, mm	2.0-1.0/+2.0
Hook height, mm	2.1+0.5/-0.0
Bend angle	40° -5°/+10°
Tensile strength, MPa	1500
Modulus of elasticity, MPa	≥ 200000

HENDIX PRIME XP 75/62 GLUED HOOKED END STEEL FIBER

HENDIX™ SOLUTIONS

EN 14889-1:2006; STO 71915393-TU 148-2016

Fiber of this type was designed by applying state-of-the-art developments in the field of dispersed reinforcement. Anchor unique shape and extended length are the features that make steel fiber reinforced concrete a unique product. Application: industrial floors, walls and loadbearing constructions with high demands on crack width limitation.



Fiber diameter, mm	0.75 ± 0.04
Fiber length, mm	62.0 ± 2.0
Hooked ends length, mm	6.9 ± 1.0
Hook height, mm	4.0 +0.1/-0.3
Ratio l_f/d_f	83
Tensile strength R_m (average standard value), N/mm²*	1500
Module of elasticity**, N/mm²*, not less than	200 000
Number of fibers per 1 kg, pcs.	4651
Total length of 10 kg of fiber, m	2883.49

* 1 N/mm²=1 MPa; ** not regulated, based on the used steel grades.

ADVANTAGES

Hendix XP 75/62 is a perfect steel fiber for structural applications with high performance requirements and strength of concrete in tension. Optimized and improved anchor ensures superior performance of steel fibers.

PACKAGING

- Corrugated cardboard boxes (25 kg).
- Big Bags (600 kg).

DOSING

To avoid the well-known balling-effect of fiber with an effective performance-oriented shape during the dosing-process this fiber is glued into cages while being manufactured. The used glue later dissolves in the fluids of the concrete in the process of preparing the fiber-reinforced-concrete-mixture without compromising the quality of the mixture.

CERTIFICATION

- CERTIFICATE OF CONSTANCY OF PERFORMANCE 1397-CPR-0580

SPSC STATYBOS PRODUKCIJOS SERTIFIKAVIMO CENTRAS

Notified body No. 1397

CERTIFICATE OF CONSTANCY OF PERFORMANCE
1397-CPR-0580

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011, this certificate applies to the construction product:

Construction product: **steel fibres**

Parameters (type): **Hendix prime XP 75/62:**
- **group I, length 62 mm, diameter 0,75 mm;**
- **shape - deformed (with hooked ends);**
- **without coating, glued to leaflets;**
- **tensile strength: 1500 N/mm²;**
- **consistence with 15 kg/m³ fibres - Vebe time 8 s;**
- **effect on strength of concrete - 15 kg/m³ to obtain 1,5 N/mm² at CMOD=0,5 mm and 1,0 N/mm² at CMOD=3,5 mm**

Intended use: **for structural use in concrete, mortar and grout**

Manufacturer: **JSC "Severstal-metiz", 50-letiya Oktyabrya str. 1/33, 162610, Cherepovets, Vologda region, Russia company code 1043500252058**

Manufacturing plant: **JSC "Severstal-metiz", 50-letiya Oktyabrya str. 1/33, 162610, Cherepovets, Vologda region, Russia**

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 14889-1:2006*

under system 1 for the performances set out in this certificate are applied and that the construction product fulfils all the prescribed requirements for these performances.

This certificate was first issued on **2017-03-31** and will remain valid as long as the mentioned harmonised standard or manufacturing conditions in the plant or factory production control are not modified significantly. Information about validity of this certificate is published at www.spsc.lt

Director — Ribenas Enclus

Vilnius, 2017-03-31

HENDIX PRIME 60/32 HENDIX™ SOLUTIONS HOOKED END STEEL FIBER

EN 14889-1:2006; STO 71915393-TU 106-2011

Steel wire fiber Hendix Prime 60/32 with hooked ends can be used as reinforcing material as a replacement for traditional rod-reinforcement and meshes. Short and thin fiber (l=32 mm, d=0.6 mm) allows its use in thin concrete structures of any type with a maximum size of fillers 8-16 mm and in all types of sprayed concrete structures in shaft construction and tunneling.

ADVANTAGES

Steel fiber Hendix Prime 60/32 provides an optimized indicator of the aspect-ratio l/d to provide an exceptional performance in concrete. The values of length and diameter were determined to ease dosing fibers into the concrete using conventional dosing equipment available on concrete-plants. The geometry of the fiber is set and controlled to small tolerances ensuring a reliable performance in thin concrete structures and providing extraordinary energy-absorption in the fracture behavior of sprayed concrete structures. A very large number of fibers per kg (2.5 times greater than Hendix Prime 75/52 and 4.3 times greater than Hendix 1/50 with the same dosages) ensures maximum saturation of the concrete matrix with fiber.

PACKAGING

- Cardboard boxes (25 kg) with fiber on pallets, 48 boxes on each. Net weight per pallet: 1200 kg.
- Big bags (800x1200, weight 600 kg), 2 big bags on a pallet, pallet weight: 1200 kg, for all types of fibers.

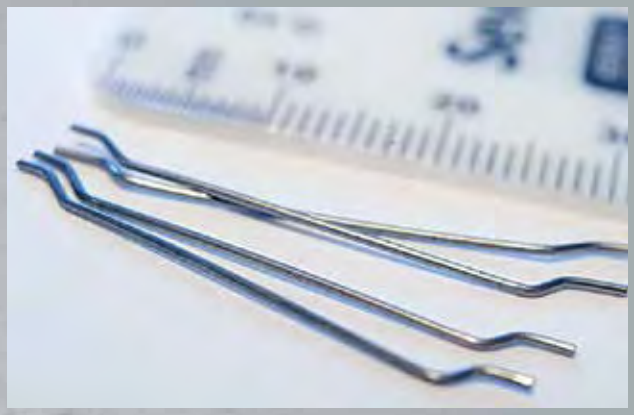
CERTIFICATION

- Russian Certificate of Conformity according to GOST P No.POCC RU.АЯ64.H05417.
- European Certificate of Compliance with the Requirements of EN 14889-1:2006 No.1397-CPR-0478.

TECHNICAL STANDARD DOCUMENTATION

- Code of Regulations 360.1325800.2017 “Steel Fiber Reinforced Concrete Structures. Design Rules”.
- EN 1992-1-1 Design of Concrete Structures. – Part 1-1: General Rules and Rules for Buildings.
- DIN EN 1045-1 Concrete Reinforced and Prestressed Concrete Structures. – Part 1: Design and Construction.
- DAfStb Directive “Steel Fiber Reinforced Concrete” 11/2012 (as a supplement to DIN EN 1992-1-1, DIN EN 206-1, DIN 1045-2, DIN EN 13670, DIN 1045-3 for concrete structures).

Fiber diameter, mm	0.6 ± 0.04
Fiber length, mm	32.0 ± 1.5
Hooked ends length, mm	2.0 -1.0/+1.5
Hook height, mm	1.7 +0.3/-0.0
Bend angle	40°± 5°
Tensile strength, MPa	1450
Modulus of elasticity, MPa	≥ 200000



Severstal
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MESH AND MESH CONSTRUCTIONS

WELDED MESH FOR REINFORCED CONCRETE CONSTRUCTIONS

TU 14-178-266-94, TU 14-1-5272-2006

Meshes are made of low-carbon indented wire VR-1 and cold-formed reinforcing steel of B500C class by contact-spot welding mutually crossing bars together. The notches on the rods made in every 2 to 3 mm provide better grip with the solution. Used for reinforcement of brickwork, floors, ceilings, foundations, asphalt covering, concrete sections of front fences, plastering, monolithic housing building, etc.

To reduce metal consumption of concrete products manufacture of wire VR-1 diameters 3.8 and 4.8 mm produced according to TU 14-1-5572-2008 is accaptable upon customer's request.

PACKAGING

- Stacked panels.

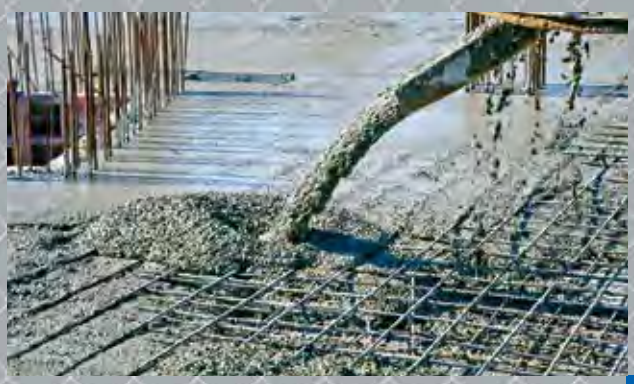
ZnAl The described products can be manufactured from ZnAl wire.

CERTIFICATION

- Certificate of Conformity РОСС RU.0001.10АЯ64 No.1241633, issued by ООО "Vologda Center of Certification".

BASIC PARAMETERS AND DIMENSIONS

Bar diameter, mm	Dimension between vertical and horizontal bars, mm	Mesh width, mm	Mesh length, mm	Free ends length, mm	
				vertical	horizontal
4.0	50	1500	3000; 6000	factor of 25	25
4.0	100	2000; 2350	3000; 6000	factor of 25	50
4.0	150	2000; 2350	3000; 6000	factor of 25	75
5.0	100	2000; 2350	3000; 6000	factor of 25	50
5.0	150	2000; 2350	3000; 6000	factor of 25	75
5.0	200	2000; 2350	3000; 6000	factor of 25	100
6.0	100	2000; 2350	6000	minimum 25	-
6.0	150	2000; 2350	6000	minimum 25	-
6.0	200	2000; 2350	6000	minimum 25	-
8.0	150	2000; 2350	6000	minimum 25	-
8.0	200	2000; 2350	6000	minimum 25	-



STEEL WELDED MESH WITHOUT COATING AND ZINC-COATED IN CLOTH

TU 127500-245-00187211-96

Mesh is suitable for fencing of territories and production of fences. Also is used as a reinforcing material for facing works with additional requirements for corrosion resistance. Manufactured from low carbon wire with rectangular and square apertures.

The manufacture of grids of other sizes is permitted upon customer's agreement.

PACKAGING

- Supplied in rolls. Maximum roll length – 50 m.

ZnAl The described products can be manufactured from ZnAl wire.

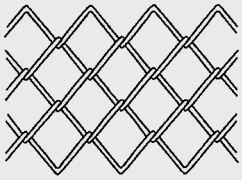
BASIC PARAMETERS AND DIMENSIONS

Mesh number	Wire diameter, mm	Nominal size of mesh cell along the wire axis, mm		Mesh width, mm	Theoretical weight of 1 m² of mesh, kg	
		horizontal	vertical		uncoated	galvanized
48 x 48	2.0	-	-	-	-	-
48 x 48	2.5	48	48	1488	1.01	1.13
48 x 48	3.0	48	48	1488	-	-
48 x 72	2.0	48	48	1488	-	-
48 x 72	2.5	72	48	1488	0.8	1.02
48 x 72	3.0	72	48	1488	-	-
25x12.5	2.0	12.5	25	1488	-	-
25x12.5	1.7	12.5	25	1488	1.01	1.13
25x25	1.8	25	25	1000	-	1.5
25x50	1.8	50	25	1000	-	2.5
50x50	1.5	50	50	1000, 1500, 2000	0.57	0.55
50x50	1.6	50	50	1000, 1500, 2000	0.7	0.61
50x50	1.7	50	50	500, 1500, 2000	-	0.7
50x50	1.8	50	50	500, 1500, 2000	-	0.77
50x75	1.8	50	50	500, 1500, 2000	0.84	-

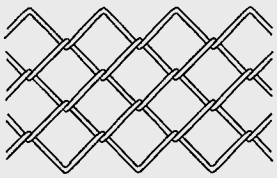
SINGLE-PLAITED STEEL MESH WITH PROTECTIVE COVERINGS

GOST 5336-80, TU 14-178-287-2003

Steel woven mesh is widely used in fencing, as well as for reinforcement during plastering in the construction industry. Made of untreated wire without coating, galvanized wire or wire with a polymer coating. Available with square and rhomb shaped apertures. Upon customer's request it is possible to produce meshes of other sizes.



With diamond aperture



With square aperture

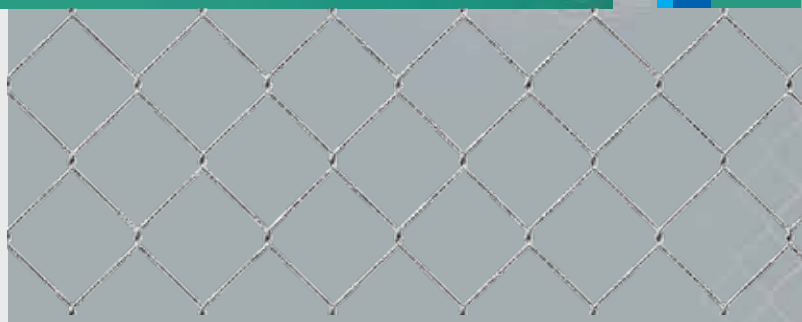
PACKAGING

- Packs of 10-30 rolls.

CERTIFICATION

- Certificate of Conformity РОСС RU.0001.10АЯ64 No.1469416, issued by ООО "Vologda Center of Certification".
- Certificate of Conformity РОСС RU.0001.10АЯ64 No.1241632, issued by ООО "Vologda Center of Certification".

ZnAl The described products can be manufactured from ZnAl wire.



GEOMETRICAL DIMENSIONS OF MESH ACCORDING TO GOST 5336-80

Mesh No.	Diameter of wire, mm		Mesh width, mm	Weight 1 m², kg
	without coating	galvanized		
With diamond aperture				
5	1.2	-	1000	3.798
6	1.2	-	1000	3.583
8	1.2	-	1000	2.780
8	1.4	-	1000	3.800
10	1.2	-	1000, 1500	2.045
10	1.4	-	1000, 1500	2.713
With square aperture				
20	2.0	2.0	1000,1500	2.500 (2.660)
25	2.0	2.0	1000, 1500, 2000	2.150 (2.169)
25	2.5	2.5	1000, 1500, 2000	3.360 (3.360)
35	2.0	2.0	1000, 2000	1.429 (1.560)
35	2.5	2.5	1000, 2000	2.440 (2.440)
45	2.0	-	1000, 1500, 2000	1.190
45	2.5	2.5	1500, 2000	1.870 (1.790)
45	3.0	3.0	1500, 2000	2.465 (2.700)
50	2.5	-	1500, 2000	1.680
50	3.0	3.0	1500, 2000	2.352 (2.420)
60	3.0	-	1500, 2000	2.000
100	5.0	5.0	2000, 2500	3.361

GEOMETRICAL DIMENSIONS OF MESH ACCORDING TO TU 14-178-287-2003

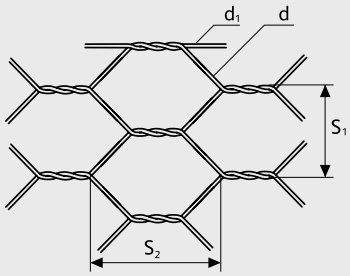
Mesh No.	Diameter of wire, mm			Mesh width, mm	Weight 1 m², kg
	without coating	galva-nized	with a poly-mer coating		
With diamond aperture					
5	1.4	-	-		5.283
15	1.2	-	-		1.314
With square aperture					
20	1.6	1.6	-	1000, 1500	1.660 (1.605)
35	1.6	1.6	-	1000, 1500, 2000	0.888 (0.937)
35	-	-	2.5	1000, 1500, 2000	[1.324]
45	-	2.0	-	1000, 2000	(1.190)
45	-	-	2.8	1000, 2000	[1.324]
50	-	1.6	-	1200, 1500, 1600, 2000	0.700 (1.670)
50	-	-	2.8	1500, 2000	[1.324]
55	-	-	2.0	1500	[0.640]
80	5.0	-	-	1500, 2000	3.740
100	4.0	4.0	-	2000	2.100

Values in round brackets refer to meshes manufactured of galvanized wire.
Values in square brackets refer to meshes manufactured of polymer coated wire.
Other dimensions may be agreed with a customer.

STEEL STRANDED HEXAGONAL MESH

GOST R 51285-99, TU 14-178-351-98

Meshes are made of low-carbon zinc-coated wire and zinc-coated wire with polymer coating according to double twist technology (twisting two wires by 180° in one direction).
Meshes are used for the manufacture of gabion mesh structures, fencing objects, protection of steep slopes against rockfalls, erosion, landslides, avalanches, bank strengthening, reinforcement of road surfaces, including the construction of bridges and overpasses. Mesh is designed for use in particularly aggressive environments (sea water, polluted water, extra levels of acidity, etc.), covered by a protective polymer coating, which ensures its durability.



GEOMETRICAL DIMENSIONS OF MESH

Aperture size		Wire diameter, mm	Mesh width, mm		Coil length, m	
Nominal, mm	Maximum deviations, %		Nominal	Maximum deviations	Nominal	Maximum deviations
60	(+18) / (-4)	2.4	1000 2000 3000 4000	+/- 60	25; 50; 100	+1
80	(+16) / (-4)	2.7	1000 2000 3000 4000	+/- 80	25; 50; 100	+1
80	(+16) / (-4)	3.0	1000 2000 3000 4000	+/- 80	25; 50; 100	+1

PACKAGING

- Meshes are supplied in rolls of 25-100 running meters.

CERTIFICATION

- Certificate of Conformity
  РОСС RU.0001.10АЯ64 No.1023181,
  issued by ООО “Vologda Center of Certification”.
- Certificate of Conformity
  РОСС RU.0001.10АЯ64 No.1023180,
  issued by ООО “Vologda Center of Certification”.

ZnAl The described products can be manufactured from ZnAl wire.

MESH FOR SIEVE APPLICATIONS

GOST 3306-88, TU 14-178-393-2000, TU 14-178-457-2004

Mesh is suitable for apparatus used for sieving of black coal, coke, ore of ferrous and nonferrous metals, agglomerate, pellets, rock etc.

SPECIFICATIONS

Mesh R 10-3.0 GOST 3306-88
Corrugated mesh with 10 mm aperture size made from carbon wire of 3.0 mm diameter.

Mesh CR 40-5.0 GOST 3306-88
Complex-corrugated mesh with 40 mm aperture size made from carbon wire of 5.0 mm diameter.

Mesh R 5/20-3.0-45 TU 14-178-393-2000
Corrugated mesh with rectangular apertures and distance between wires 5.0 mm and 20.0 mm made from carbon wire of 45 steel grade and 3.0 mm diameter.

MESH DESCRIPTION

Mesh is classified by construction:

- Corrugated. Wire has curves in cross points.
- Complex-corrugated. Wire has additional curves on the aperture sides.

Mesh is manufactured:

- With square apertures (GOST 3306-88)
- With rectangular apertures (TU 14-178393-2000)

Dimensions of raw material:

Mesh is made from untreated carbon wire of 45-55 steel grade as well as from low-carbon wire to TU 14-4-1563-89.

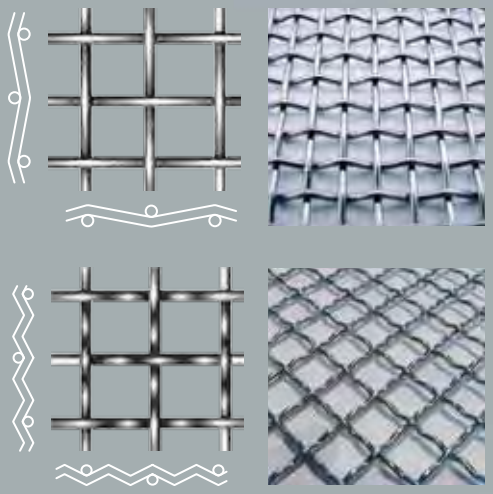
Mesh is produced in panels:

- Width is 1000-2000 mm
- Length is 6000 mm

PACKAGING

Panels are formed in packages.
Weight of package is not more than 1500 kg.

ZnAl The described products can be manufactured from ZnAl wire.



GAUGE AND GEOMETRICS OF THE MESHES

Aperture size (Mesh No.)	Diameter of wire, mm	Weight 1 m², kg	Characteristics
4	1.6	6.000	Corrugated
5	2.0	7.321	-//-
6	2.2	7.700	-//-
8	3.0	11.352	-//-
10	3.0	9.000	-//-
10	3.6	12.245	-//-
12	4.0	13.600	-//-
13	4.0	12.200	-//-
13	3.0	7.400	-//-
14	3.0	6.600	-//-
15	3.0	6.270	-//-
15	3.6	9.100	-//-
16	5.0	15.500	-//-
18	5.0	14.200	-//-
20	5.0	12.698	-//-
23	5.0	11.041	-//-
25	5.0	10.800	-//-
32	5.0	8.900	Complex-corrugated
35	5.0	8.200	-//-
40	5.0	7.153	-//-
50	5.0	5.690	-//-
60	5.0	4.990	-//-
18	3.6	9.448	Pressed

GABIONS

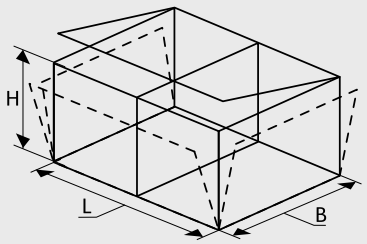
GOST P 52132-03, TU 14-178-350-98

APPLICATION
Mesh constructions are suitable for bank, slope ditch, ground reinforcement and other erosion preventive applications.

MESH DESCRIPTION
Meshes are made of double-twisted mesh with hexagonal apertures according to TU 14-178-351-98.

Constructions of hexagonal meshes are classified by aperture shape and number:

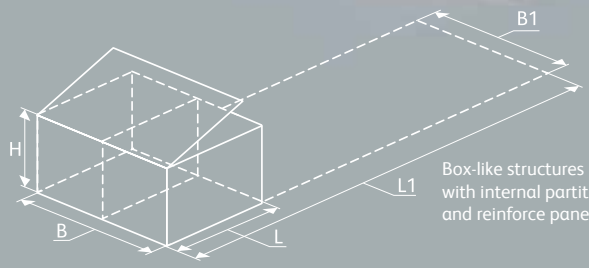
- Box-like structures (K)
- Box-like structures with internal partitions (KD)
- Polybrochate structures with internal partitions (MD)
- Box-like structures with internal partitions and reinforcing panel/board (KD)



Box-like structures

PACKAGING:
Mesh constructions are packed by not more than 1500 kg.

ZnAl The described products can be manufactured from ZnAl wire.



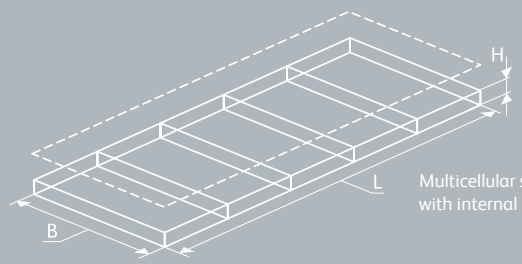
Box-like structures with internal partitions and reinforce panel

GAUGE AND GEOMETRICS OF BOX-LIKE STRUCTURES WITH INTERNAL PARTITIONS

Length, L	Breadth, B	Height, H	Number of partions, pcs.
2	1	0.5	1
3	1	0.5	2
2	1	1	1
4	1	0.5	3
3	1	1	2
4	1	1	3

GAUGE AND GEOMETRICS OF BOX-LIKE STRUCTURES WITH INTERNAL PARTITIONS AND REINFORCE PANEL

Dimensions, м					Number of partions, pcs.
Box-like structure			Reinforce panel		
Length, L	Breadth, B	Height, H	Length, L_1	Breadth, B_1	
2	2	1	5	2	1



Multicellular structures with internal partitions

GAUGE AND GEOMETRICS OF MULTICELLULAR STRUCTURES WITH INTERNAL PARTITIONS

Length, L	Breadth, B	Height, H	Number of partions, pcs.
3	2	0.17	2
3	2	0.23	2
3	2	0.3	2
3	2	0.5	2
4	2	0.17	3
4	2	0.23	3
4	2	0.5	3

Tolerance on construction dimensions is 5%;
tolerance on height multicellular structure is ±10%.

3D-WELDED PANELS WITH V-SHAPED BEND
LIGHT SERIES

TU 5262-001-97495310-2011

3D curve from 2 to 4 curves depending on the height of the panel. The number of bends is determined by the size of the panel and upon customer's request. Bends increase the stiffness of the panel, as well as allow to place electric cables, etc.

APPLICATION

- Parkings
- Temporary fencing of construction objects
- Railway stations
- Parks and recreation zones
- Auto and railway tracks

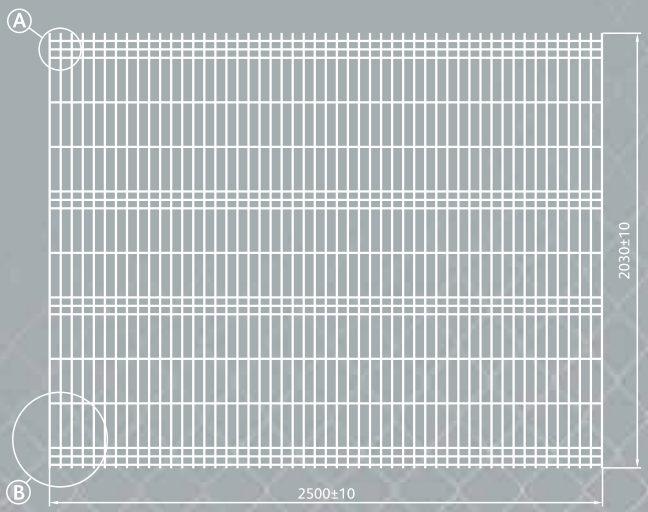
MARKING

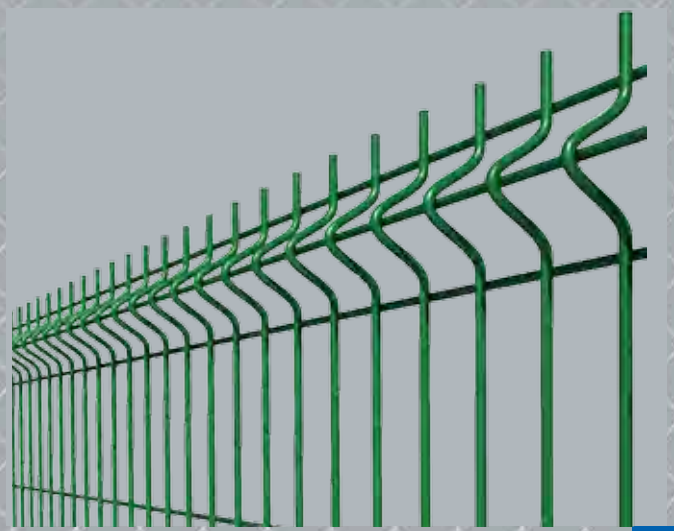
P-Ts50/50-200-3.0 2030x2500 4P -
Fencing panel with the following parameters:
height of 2030 mm, length of 2500 mm, galvanized and coated with polyester paint, aperture size 50/200 mm, wire diameter 3.0 mm, with 4 curves (ribs).

ZnAl The described products can be manufactured from ZnAl wire.

Wire diameter	3.0 mm
Height of the panels	from 530 to 2900 mm
Width of the panels	up to 3100 mm
Pitch of vertical rods	multiples of 50 mm
Pitch of horizontal rods	continuously variable from 25 mm

THE DRAWING FOR LIGHT AND STANDARD SERIES





3D-WELDED PANELS WITH V-SHAPED BEND
STANDARD SERIES

TU 5262-001-97495310-2011

3D curve from 2 to 4 curves depending on the height of the panel. The number of bends is determined by the size of the panel and upon customer's request. Bends increase the stiffness of the panel, as well as allow to place electric cables, etc.

APPLICATION

- Parkings
- Airports
- Schools, kindergartens
- Warehouses and terminals
- Dangerous production facilities, etc.
- Cottage villages and local area
- Parks and recreation zones
- Auto and railway tracks

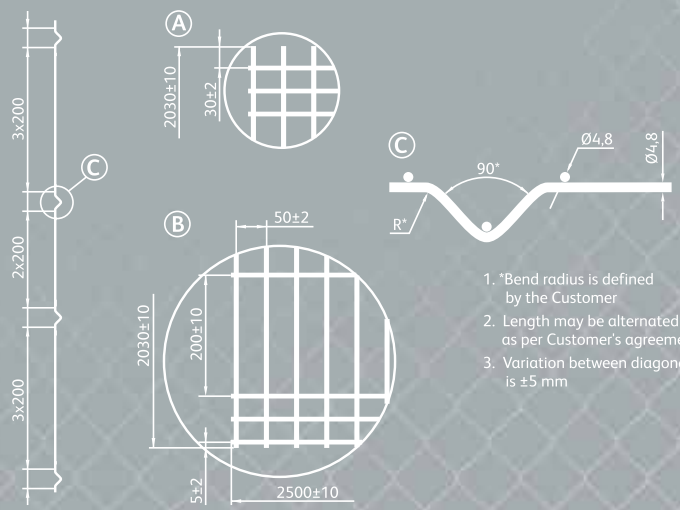
MARKING

P-Ts50/50-200-4.0 2030x2500 4P -
Fencing panel with the following parameters:
height of 2030 mm, length of 2500 mm, galvanized and coated with polyester paint, aperture size 50/200 mm, wire diameter 4.0 mm, with 4 curves (ribs).

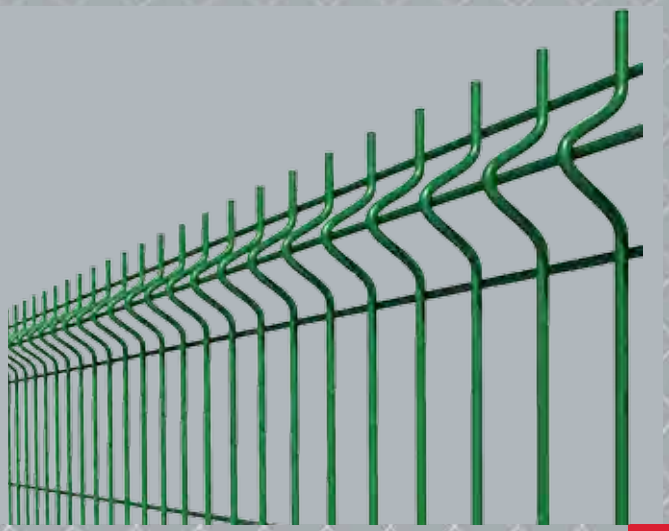
ZnAl The described products can be manufactured from ZnAl wire.

Wire diameter	from 4.0 to 5.0 mm
Height of the panels	from 530 to 2900 mm
Width of the panels	up to 3100 mm
Pitch of vertical rods	multiples of 50 mm
Pitch of horizontal rods	continuously variable from 25 mm

THE DRAWING FOR LIGHT AND STANDARD SERIES



1. *Bend radius is defined by the Customer
2. Length may be alternated as per Customer's agreement
3. Variation between diagonals is ±5 mm



2D-WELDED PANELS
BARRIER SERIES

TU 5262-001-97495310-2011

2D welded panels are specially designed for sensitive sites and facilities requiring a high degree of perimeter protection.

APPLICATION

- Airports
- Dangerous production facilities, etc.
- Auto and railway tracks
- Enhanced security sites

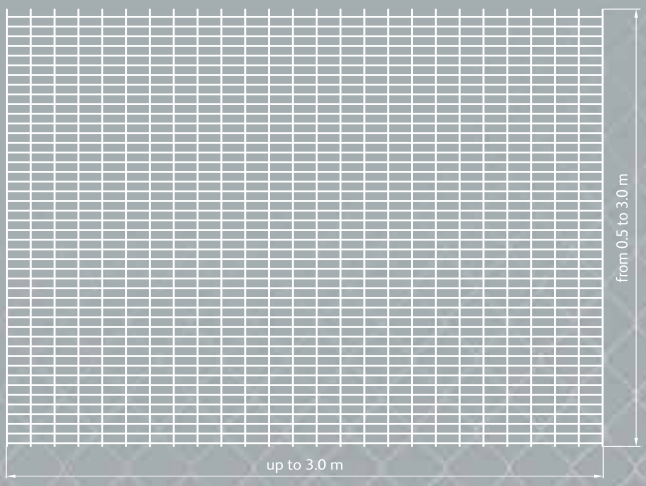
MARKING

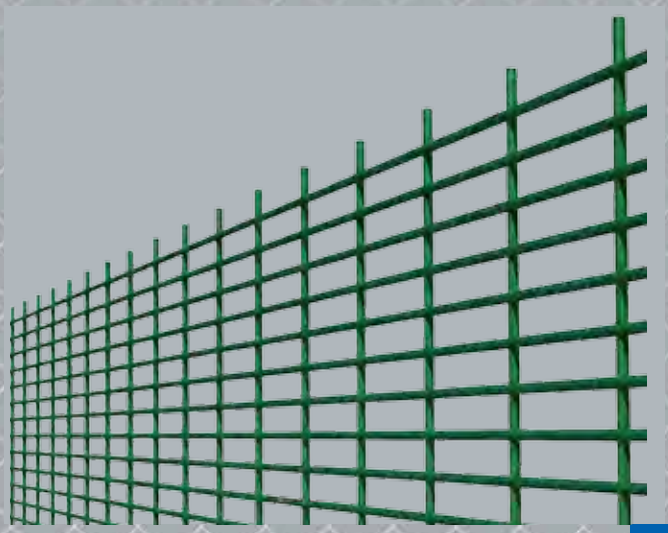
Ts100-25 -6.0 -1530x2500 -
fencing panel with a height of 1530 mm,
length of 2500 mm, galvanized,
aperture size 100x25 mm, wire diameter 6.0 mm.

ZnAl The described products can be manufactured from ZnAl wire.

Wire diameter	from 4.0 to 6.0 mm
Height of the panels	from 530 to 3000 mm
Width of the panels	up to 3100 mm
Pitch of vertical rods	multiples of 50 mm
Pitch of horizontal rods	continuously variable from 25 mm

THE DRAWING FOR BARRIER SERIES





2D-WELDED PANELS
HARD SERIES

TU 5262-001-97495310-2011

Hard serie (wire Ø 4.0-8.0 mm):
2D-welded panels with double horizontal rod.

APPLICATION

- Sports grounds and facilities
- Airports
- Schools and kindergartens
- Warehouses and terminals
- Dangerous production facilities, etc.
- Auto and railway tracks
- High security objects

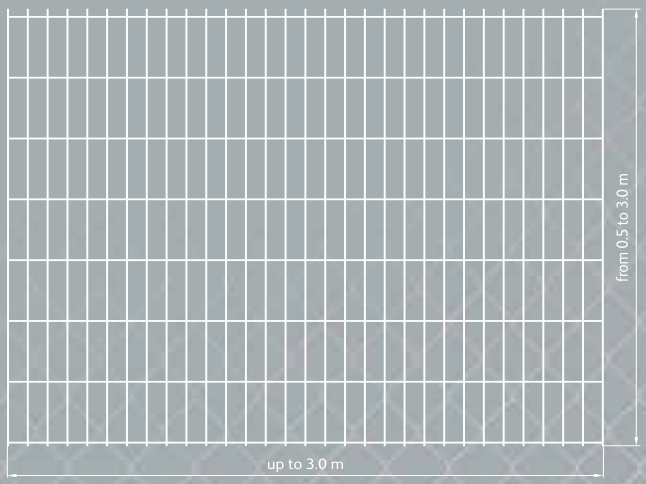
MARKING

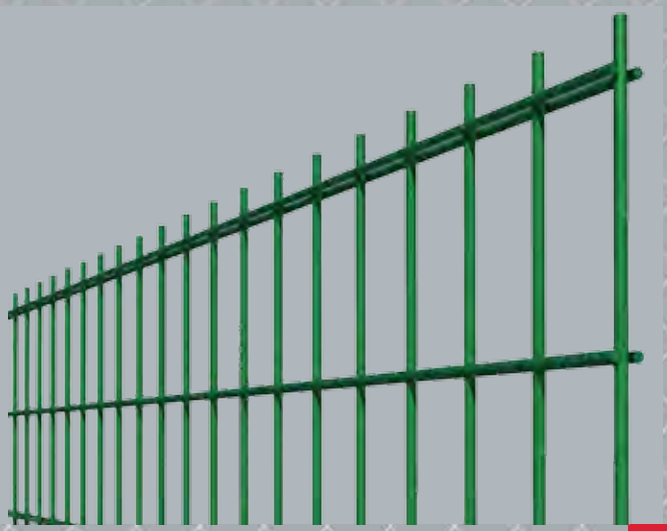
P-Ts50/50-200-8.0/6.0/8.0-2T 2430x3000 - fencing panel with a height of 2430 mm, length of 3000 mm, galvanized and coated with polyester paint, aperture size 50/200 mm, vertical rod diameter - 6.0 mm, horizontal double rods diameter - 8.0 mm, flat.

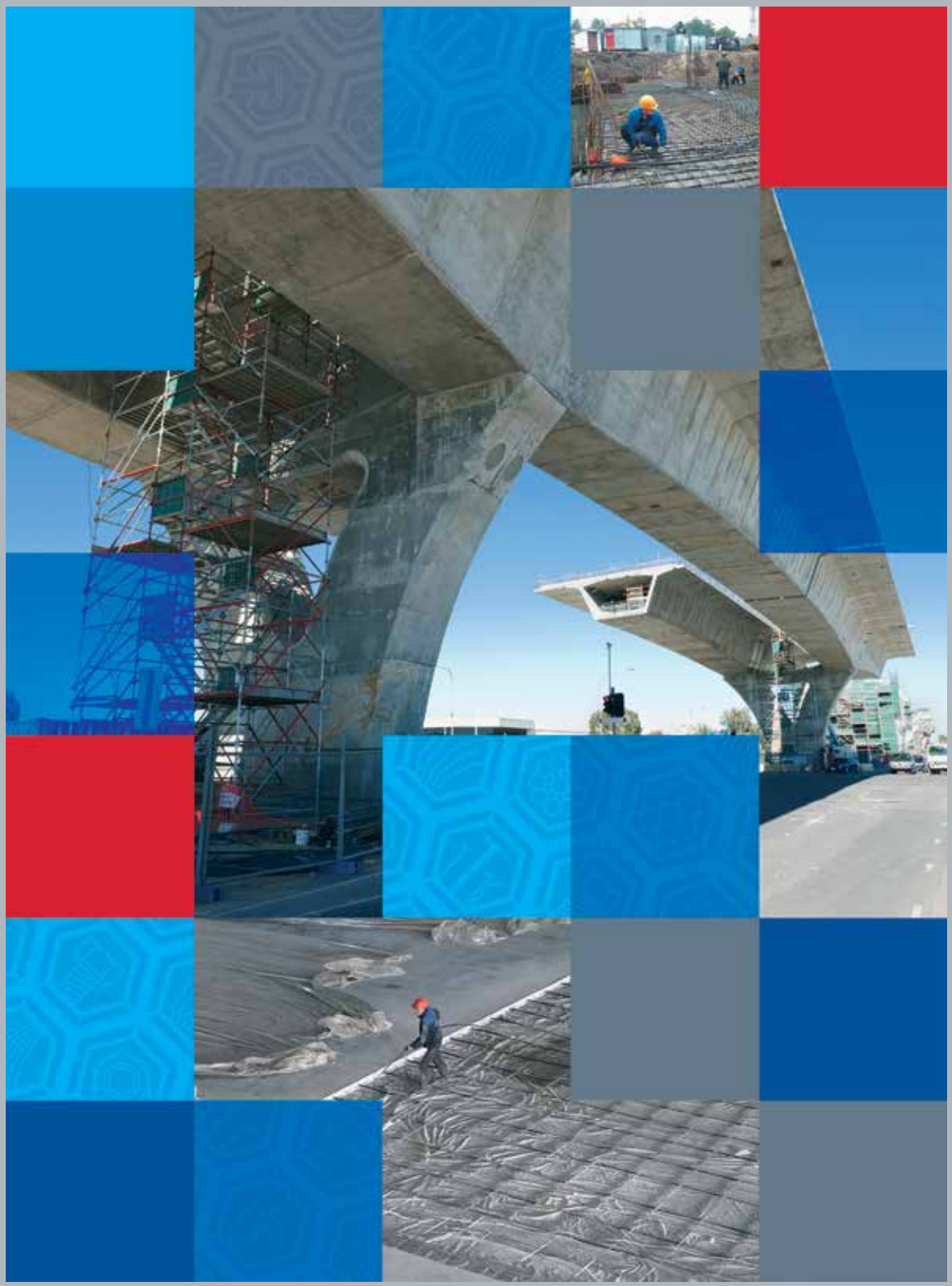
ZnAl The described products can be manufactured from ZnAl wire.

Wire diameter	from 4.0 to 8.0 mm
Height of the panels	from 1030 to 3000 mm
Width of the panels	up to 3100 mm
Pitch of vertical rods	multiples of 50 mm
Pitch of horizontal rods	continuously variable from 100 mm

THE DRAWING FOR HARD SERIES







Severstal
Metiz

PC STRANDS

HDPE SHEATHED STRAND

STO 71915393-TU 100-2011

DESIGNATION

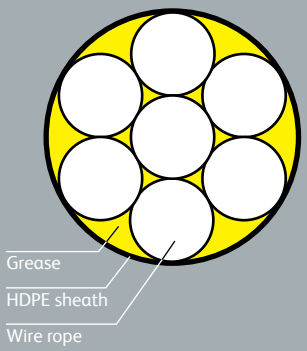
Applied as steel reinforcement of unbonded post-tensioned concrete structures.

CONSTRUCTION

1x7

Strands are manufactured from:

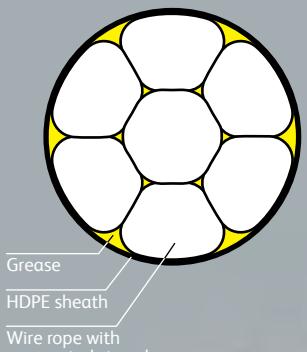
- Round wires – K7 type.
- Round wires, compacted – K7O type.



TECHNICAL CHARACTERISTICS

Nominal diameter, mm	Actual diameter, mm	Weight 1000 m (steel part), g	Tensile strength, N/mm²	Minimum breaking load, kN
12.5	14.5 – 15.9	726	1770	165
			1860	173
12.9	14.9 – 16.3	781	1770	177
			1860	186
15.2	18.2 – 19.4	1086	1770	246
			1860	259
(15.2)		1289	1820	300
			1860	307
15.7	18.7 – 19.9	1172	1770	266
			1860	279

(15.2) – this dimension type of the strand is performed with compaction.
Compacted strands have high constructional density and a high breaking force.



PACKAGING

HDPE sheathed strands are supplied in coils (maximum weight 3000 kg) or on wooden drums.

Diameter, mm	Maximum weight, kg	Maximum length, m	Drum diameter, mm	Drum flange diameter, mm	Drum width, mm
12.5	3000	3700	960	1650	750
12.9		3460			
15.2		2470			
(15.2)		2120			
15.7		2280			

PC STRAND

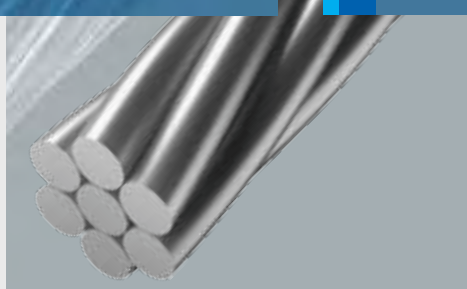
GOST 13840-68

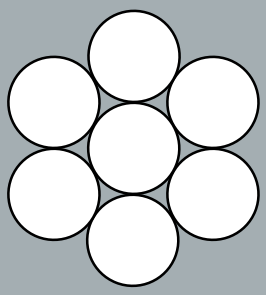
DESIGNATION

Applied as a steel reinforcement of pre-stressed concrete constructions.

PSC strands possess a number of advantages over those manufactured using tempering technology: 10-15% increased yield strength and breaking strength; 25-30% increase of elongation limit; 5-8% decrease of relaxation strain losses; increase of construction reliability and durability.

It is possible to manufacture PC strand from round wires as well as from profiled wires.





CONSTRUCTION

1x7

TECHNICAL CHARACTERISTICS

Diameter, mm	Weight 1 m, kg	Minimum breaking load, kN	Tensile strength, N/mm²
9.0	0.419	93.5	1770
12.0	0.736	164	1770
15.0	1.099	232	1670

COIL OVERALL DIMENSIONS

Diameter, mm	Rope length in a coil, m	Inner diameter of a coil, mm	Outer diameter of a coil, mm	Coil width, mm	Weight, kg
9.0	4800-9500	800	Max 1600	750	2000-4000
12.0	2700-5400				
15.0	1800-3600				

Uncoiling is performed from the inside. Layer by layer winding prevents strands from tangling and crossing, and measured coiling prevents any wastes when processing, thus reducing operational costs.

PC STRAND

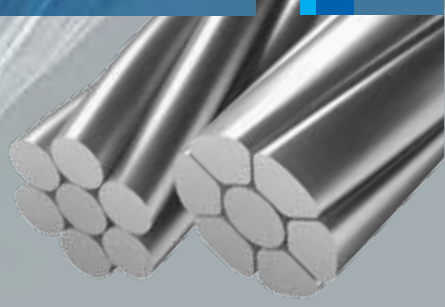
BS 5896-1980, prEN 10138-3-2006, GOST R 53772-2010

DESIGNATION

Applied as a steel reinforcement of prestressed concrete constructions.

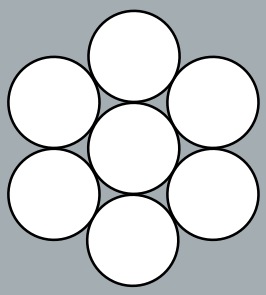
PC strands possess a number of advantages over those manufactured using tempering technology: 10-15% increased yield strength and breaking strength; 25-30% increase of elongation limit; 5-8% decrease of relaxation strain losses; increase of construction reliability and durability.

It is possible to manufacture PC strand from round wires as well as from profiled wires.



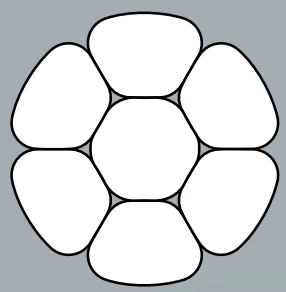
CONSTRUCTION

1x7



TECHNICAL CHARACTERISTICS

Diameter, mm	Tensile strength, N/mm²	Nominal cross-sectional area, mm²	Weight 1 m, kg	Minimum breaking load, kN
6.85	2060	28.2	0.220	58.1
6.9	1860	29	0.227	53.9
9.0	1860	50	0.391	93.0
9.3	1770	52	0.406	92.0
	1860			96.7
9.6	1860	55	0.430	102.0
11.0	1860	71.8	0.661	133.0
12.5	1770	93	0.726	165.0
	1860			173.0
(12.7)	1860	112	0.875	208.0
12.9	1860	100	0.781	186.0
15.2	1670	139	1.086	232.0
	1770			246.0
	1860			259.0
(15.2)	1860	165	1.289	307.0
15.7	1770	150	1.172	266.0
	1860			279.0
18.0	1770	200	1.562	354.0
(18.0)	1700	223	1.742	379.0



(12.7) – this dimension type of the strand is performed with compaction.
Compacted strands have high constructional density and a high breaking force.

COIL OVERALL DIMENSIONS

Diameter, mm	Strand length in a coil, m maximum	Inner diameter of a coil, mm	Outer diameter of a coil, mm	Coil width, mm	Weight, kg
6.85	9050	700-850	Up to 1400	520-800	1400-2000
6.9	8800				
9.3	9850	800	Up to 1600	760	2000-4000
9.6	9300				
12.5	5500				
(12.7)	4570				
12.9	5120	900		710	
15.2	3680				
(15.2)	3100	956		500	
15.7	3400				
18.0	2560				
(18.0)	2300				

Uncoiling is performed from the inside. Layer by layer winding prevents strands from tangling and crossing, and measured coiling prevents any wastes when processing, thus reducing operational costs.

PC STRAND 1X2 AND 1X3

STO 71915393-TU 096-2010, prEN 10138-3-2006

DESIGNATION

Applied as a steel reinforcement of prestressed thin concrete constructions.

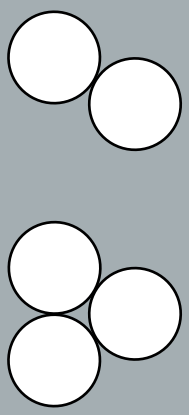
This type of PC strands is used for concrete beams, railway sleepers and concrete posts for vineyards and intensive orchard systems.

Severstal-metiz the only manufacturer this type of PC strands in Russia.

PC strands are produced from round wire or indented wire.

CONSTRUCTION

1x2; 1x3



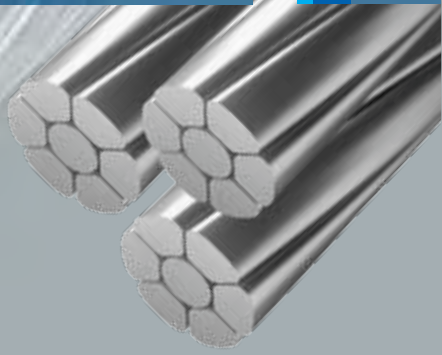
TECHNICAL CHARACTERISTICS

Diameter, mm	Tensile strength, N/mm²	Nominal cross-sectional area, mm²	Weight 1 m, kg	Minimum breaking load, kN
4.5	1860	7.95	0.062	14.8
4.9	1860	11.9	0.094	22.1
4.9	1960	11.9	0.094	23.3
5.2	2060	13.6	0.106	28.0
6.5	1860	21.2	0.166	39.4
6.9	1860	23.4	0.183	43.5

COIL OVERALL DIMENSIONS

Diameter, mm	Strand length in a coil, m maximum	Inner diameter of a coil, mm	Outer diameter of a coil, mm	Coil width, mm	Weight, kg
4.5	3500	290	Up to 700	200	190-230
4.9	2400				
4.9	2400				
5.2	18800	700-850	Up to 1400	520-800	1400-2000
6.5	12000				
6.9	10900				

THE WORLD'S FIRST STRAND FOR HEAVY LIFTING PRODUCED BY SEVERSTAL-METIZ



Strand jacking is a type of installation method in heavy industry. The cargo is secured by rigging equipment, which is connected to a set of steel cables («strands»). The strand jack pulls the strands and lifts the load. If numerous strand jacks are assembled together, they can lift thousands of tons of load.

There are three pillars of the strand jacking:

- Quality of strands jacks and their components
- Qualification and expertise of the company perfoming the work
- Quality of strands

Severstal-metiz met the world's leading heavy lifting companies and collected the specific parameters of a strand which makes it the most common for the heavy lifting process. We found out that most of the strands currently produced are designed for post-tension. And heavy lifting companies need a different product. And we made it. So we are going to present an optimized strand:

Severstal-metiz special heavy lifting strands are 18 and 18.2 mm compacted strands with the 1860 MPa Nominal Tensile Strength. The characteristics of this strand are higher than those provided by BS and EN standards. It performs:

- Better safety
- More resistance for the surface damage
- Suits much more for the reuse of strands

Please request us for more information and samples.

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Severstal
Metiz

WIRE ROPES

SPECIAL WIRE ROPES

Wire rope products of AO “Severstal Wire Ropes” represent a wide range of steel wire ropes, including different grades, types and directions of lay, as well as coating types. The Company’s Product range includes wire ropes produced in accordance with GOST, EN and TU. Currently, the company offers more than 100 types of wire ropes of various constructions.

Special attention is paid to the quality control of raw materials for wire ropes, rope wire and finished products. The Quality Management System of AO “Severstal Wire Ropes” is certified according to the international standard ISO 9001:2015. All manufactured products comply with Russian and European standards and have necessary quality certificates.

Wire rod acceptance control carried out prior to production includes inspection of microstructure and surface for defects as well as chemical composition and mechanical properties tests.

Rope wire, both bright and galvanized, passes the following mechanical tests: tensile test, torsion test, bend test, wrap test, tensile test with knotted wire. All wire ropes go through standard compliance tests under laboratory conditions to ensure product quality control.

All production sites of the Company have advanced testing equipment for steel wire ropes and wire rope products unique for Russian industry such as machine for breaking strength and tensile testing. This machine allows to carry out product testing providing certificate confirming the quality.

We developed

product lines of special wire ropes with unique characteristics and extended life.

- assurance of quality
- easier and faster order processing
- improved characteristics of wire ropes
- minimization of your costs

Talpa

Application:
- surface mining: shovels, draglines, rotary excavators
- underground mining: drum winders, friction winders, shaft sinking
- blasthole drill rig

Advantages:
- extra strength
- multiple impact strength and transverse load resistance
- reduction of traction elements wear
- increased wear resistance

Octopus

Application:
- drilling rigs and mobile drilling rigs

Advantages:
- high flexibility combined with wear resistance
- operation at low temperatures
- exact diameter match
- lower impact of dynamic loads on the rope

Alerion

Application:
- elevators

Advantages:
- higher endurance limit resulting from increased number of wires in the rope
- high damping capacity (better vibration absorption)
- higher elasticity caused by smaller diameter of wires
- reduced surface stress between the rope and pulleys

Triniks

Application:
- cableways: material, passenger
- trolley and zip line rides

Advantages:
- minimum elongation
- extra strength
- deformation resistance and diameter consistency

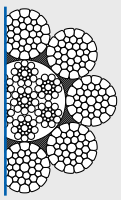
SPECIAL WIRE ROPES FOR MINING INDUSTRY

We developed

a product line of special wire ropes for mining called Talpa® with unique characteristics and extended life.

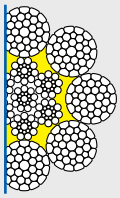
Advantages of Talpa® Wire Ropes

- extra strength
- multiple impact strength and transverse load resistance
- reduction of traction elements wear
- increased wear resistance



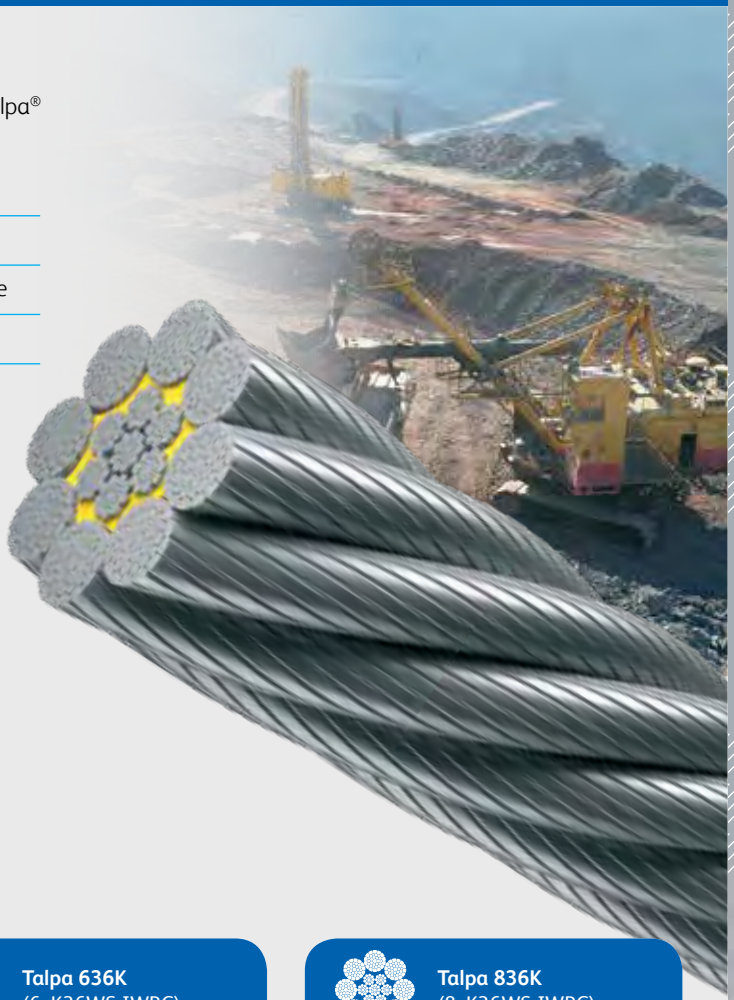
Fiber fillers

01 are located between outer strands and metal core
02 serve as an additional source of lubricant during whole operational life
03 reduce internal corrosion of a rope caused by pollutants



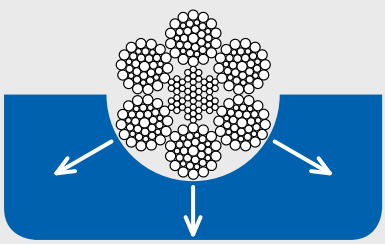
Plastic impregnation

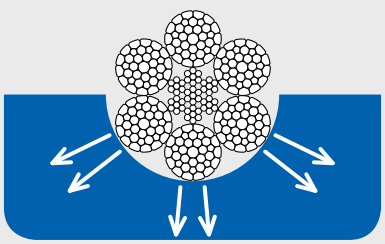
01 fill all available space between strands and core
02 prevent ropes from dimensional changes
03 increase resistance to transverse load, rotation, impact loads

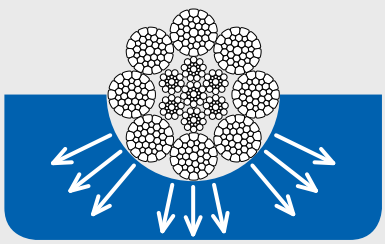


Performance comparison

GOST 7669-80 (6x36WS-IWRC)	Talpa 636K (6xK36WS-IWRC)	Talpa 836K (8xK36WS-IWRC)
01 Diameter: 39.0 mm	01 Diameter: 39.0 mm	01 Diameter: 39.0 mm
02 Weight: 6.53 kg/m	02 Weight: 6.72 kg/m	02 Weight: 6.99 kg/m
03 Grade: 1770 N/mm²	03 Grade: 1770 N/mm²	03 Grade: 1770 N/mm²
04 MBL: 972 kN	04 MBL: 1082 kN	04 MBL: 1160 kN

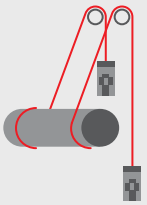




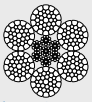


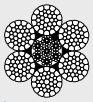
UNDERGROUND MINING

Drum winders

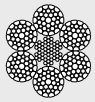


Hoisting ropes


Talpa Optima 636K


Talpa Optima 636KF


Talpa Optima 636KP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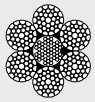
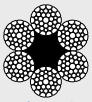
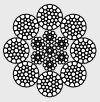
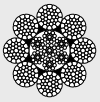

Talpa 636KF


Talpa 636KP

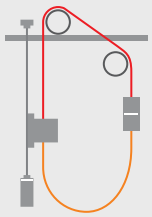

Talpa 6K


Talpa 836K

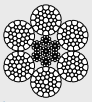

Talpa 836KF

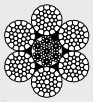

Talpa 836KP

Friction winders

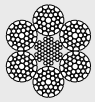


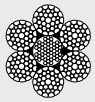
Hoisting ropes


Talpa Optima 636K

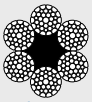

Talpa Optima 636KF

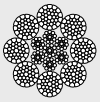

Talpa Optima 636KP


Talpa 636K


Talpa 636KF


Talpa 636KP


Talpa 6K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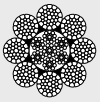
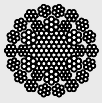
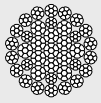

Talpa 836KF


Talpa 836KP


Talpa 36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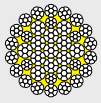
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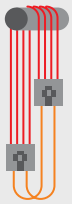
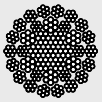


Balance ropes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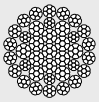
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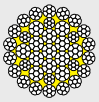
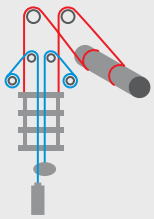
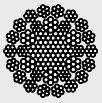
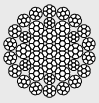

Talpa 36KP

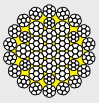
Shaft sinking



Kibble ropes

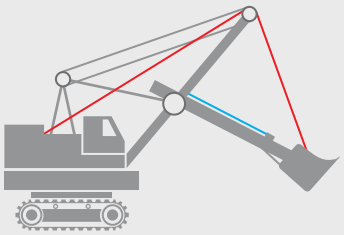

Talpa 36


Talpa 36K

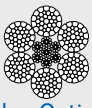

Talpa 36KP

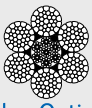
SURFACE MINING

Shovels



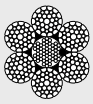
Hoisting ropes


Talpa Optima 636K

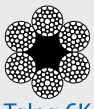

Talpa Optima 636KF


Talpa Optima 636KP


Talpa 636K

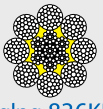

Talpa 636KF


Talpa 636KP


Talpa 6K

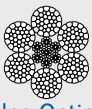

Talpa 836K

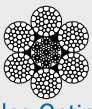

Talpa 836KF


Talpa 836KP

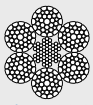

Talpa PM

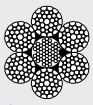
Crowd & retract ropes


Talpa Optima 636K


Talpa Optima 636KF


Talpa Optima 636KP


Talpa 636K

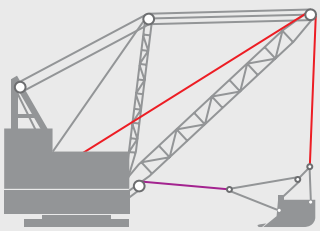

Talpa 636KF


Talpa 636KP

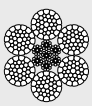

Talpa 6K

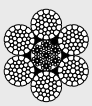

Talpa PM

Draglines

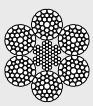


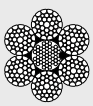
Hoisting ropes


Talpa Optima 636K


Talpa Optima 636KF


Talpa Optima 636KP


Talpa 636K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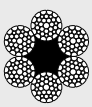
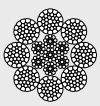
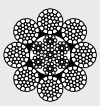
Talpa 636KP


Talpa 6K


Talpa 836K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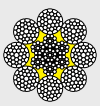
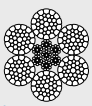
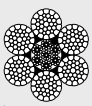

Talpa 836KP


Talpa PM

Drag ropes


Talpa Optima 636K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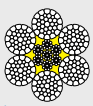
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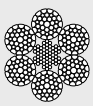
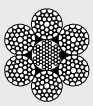

Talpa 636K


Talpa 636KF


Talpa 636KP

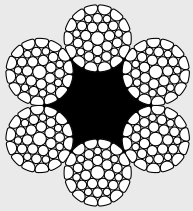
Talpa 6K

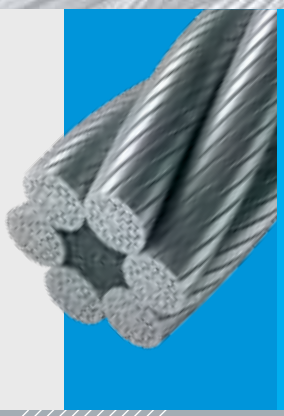
6-Strand Wire Ropes with Compacted Outer Strands and Fiber Core

STO 71915393-TU 040-2007

Construction: 6x36 (1+7+7/7+14)+ 1 fiber core
Diameter: 36.5 – 68.0 mm
Advantages in comparison with standard solutions

- high flexibility
- increased wear resistance of wires
- less pulley groove wear





Talpa 636K

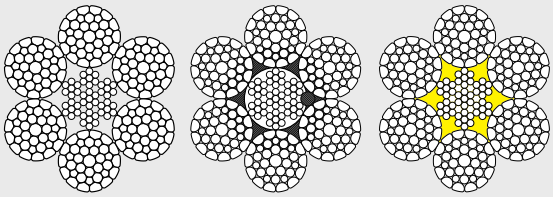
6-Strand Wire Ropes with Compacted Outer Strands

STO 71915393-TU 090-2010

Construction:
6x36 (1+7+7/7+14) + 7x7 (1+6)
Diameter: 36.0 – 68.0 mm
Advantages in comparison with standard solutions

- increased wear resistance of wires
- high strength characteristics
- less pulley groove wear
- increased resistance against transverse crushing

636K 636KF 636KP



Talpa Optima 636K

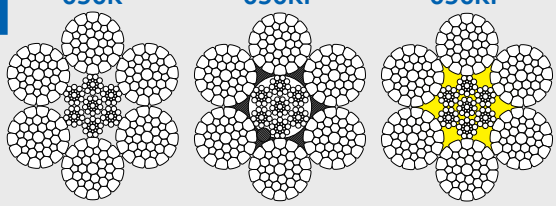
6-Strand Wire Ropes with Compacted Outer Strands

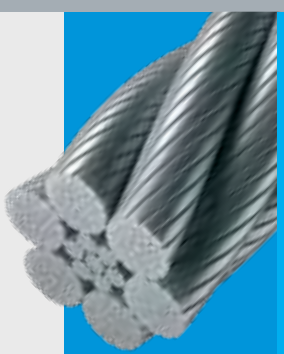
STO 71915393-TU 057-2014

Construction:
6x36(1+7+7/7+14) + 6x19(1+9+9) + 1x19(1+9+9)
Diameter: 36.5 – 68.0 mm
Advantages in comparison with standard solutions

- higher flexibility
- increased wear resistance of wires
- high strength characteristics
- less pulley groove wear
- increased resistance against transverse crushing

636K 636KF 636KP





Talpa 836K

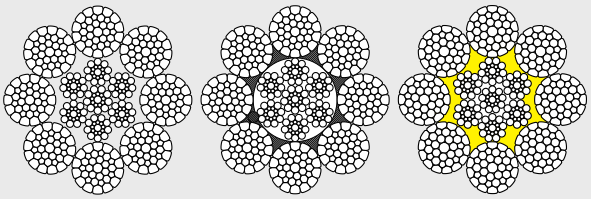
8-Strand Wire Ropes

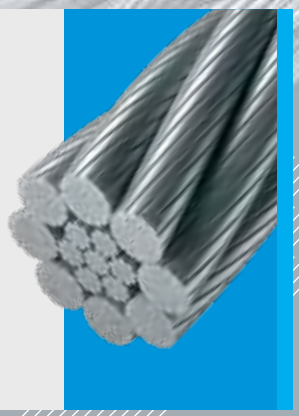
STO 71915393-TU 053-2008

Construction: 8x36(1+7+7/7+14) + + 6x19(1+9+9) + 1x19(1+9+9)

Diameter: 39 – 80 mm

836K 836KF 836KP





Advantages in comparison with standard solutions

- high flexibility
- increased wear resistance of wires
- high strength characteristics
- less pulley groove wear
- increased resistance against transverse crushing

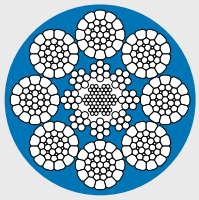
Talpa PM

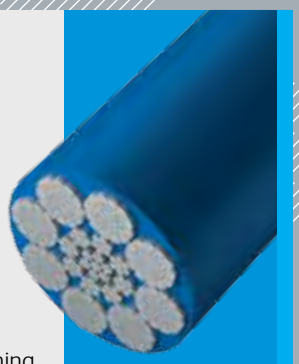
Plastic-sheathed 8-Strand Wire Ropes with Compaction of Outer Strands

STO 34269720-TU 777VR-2014

Construction: 8x37(1+6.6+12+12)+8x7(1+6)+6x7(1+6)+1x7(1+6) with compacted outer strands and plastic sheath

Diameter: 57.2 – 69.9 mm





Advantages in comparison with standard solutions

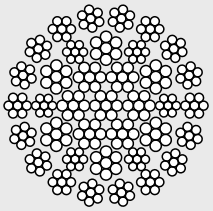
- reduced contact stress between strands as well as between rope and pulley grooves
- increased wear resistance
- increased corrosion resistance, including extended rope lubrication
- increased resistance against transverse crushing
- extended rope service life

Talpa 36

Multistrand Non-rotating Wire Ropes

STO 71915393-TU 102-2010

Construction: 18x7+6x7/6x7+6x7+1x7
Diameter: 38 – 54 mm



Advantages in comparison with standard solutions

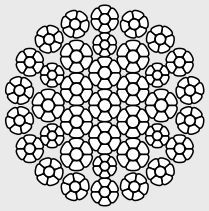
- high flexibility
- high strength
- reduced friction between outer wires in strands and pulley groove surface
- rotation resistance

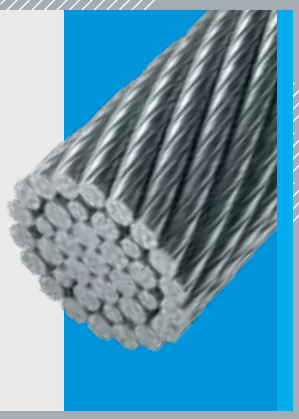
Talpa 36K

Multistrand Non-rotating Wire Ropes with Compacted Outer Strands

STO 71915393-TU 102-2010

Construction: 18x7+6x7/6x7+6x7+1x7
Diameter: 38 – 54 mm





Advantages in comparison with standard solutions

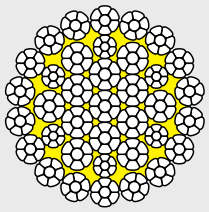
- high strength
- high abrasion resistance
- high fatigue failure resistance
- less wear of sheaves and capstans
- expanded contact with bearing surface area
- rotation resistance

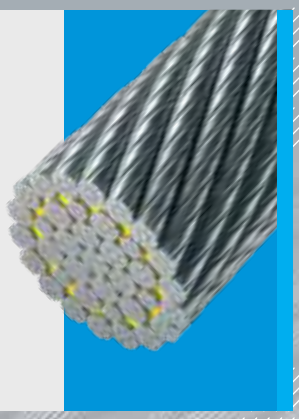
Talpa 36KP

Multistrand Non-rotating Wire Ropes with Compacted Outer Strands and Plastic Coated Core

STO 71915393-TU 102-2010

Construction: 18x7+6x7/6x7+6x7+1x7
Diameter: 38 – 54 mm





Advantages in comparison with standard solutions

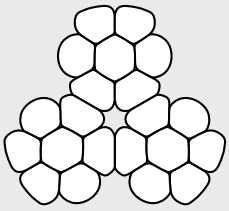
- high strength
- high abrasion resistance
- high fatigue failure resistance
- less wear of sheaves and capstans
- expanded contact with bearing surface area
- rotation resistance

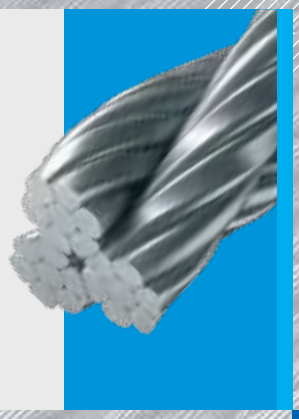
Talpa S3

3-Strand Wireline Ropes

STO 34269720-TU 004-2015

Construction: 3x7(1+6)
Diameter: 4.76; 6.35 mm





SPECIAL WIRE ROPES FOR OIL & GAS

We developed

a product line of special wire ropes called Octopus®
with unique characteristics and extended life.

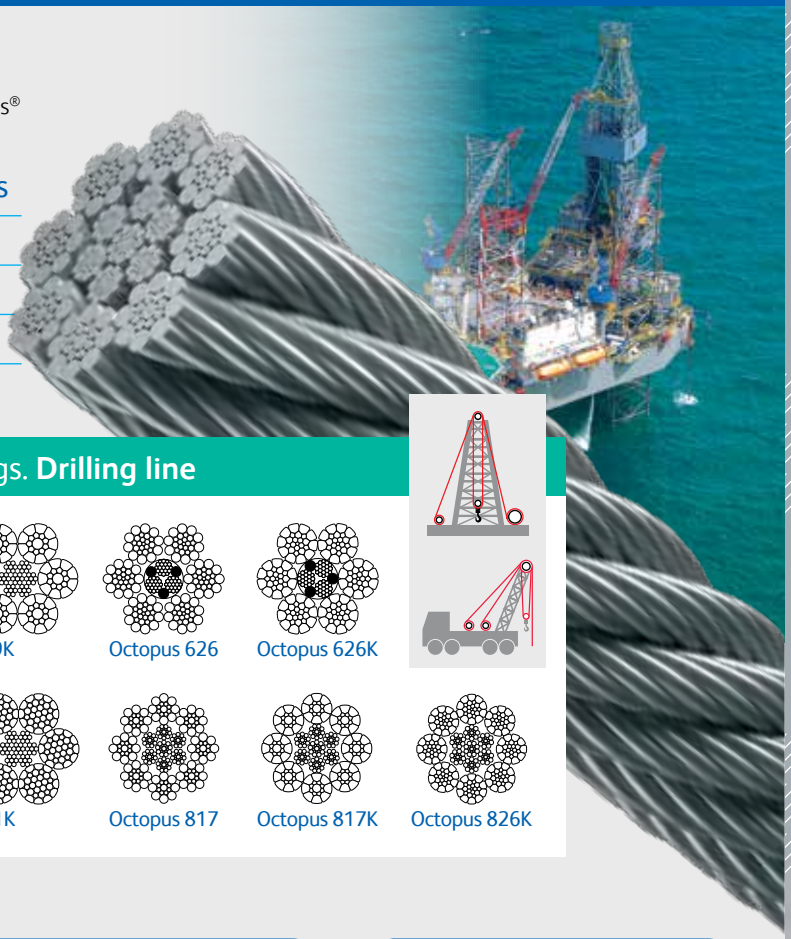
Advantages of Octopus® Wire Ropes

high flexibility combined with wear resistance

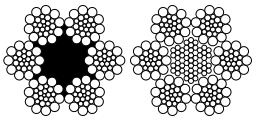
operation at low temperatures

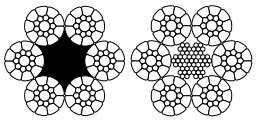
exact diameter match

lower impact of dynamic loads on the rope



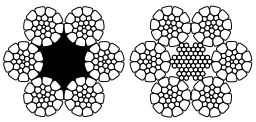
Drilling rigs and mobile drilling rigs. **Drilling line**

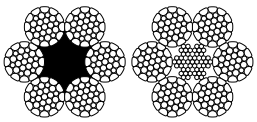

Octopus 6


Octopus 619K

Octopus 626

Octopus 626K


Octopus 6K


Octopus 631K

Octopus 817

Octopus 817K

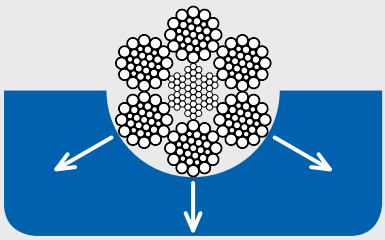
Octopus 826K

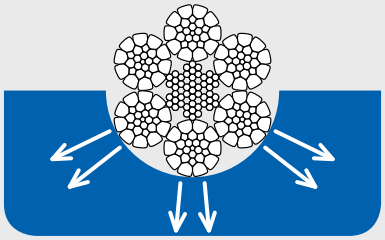
Performance comparison

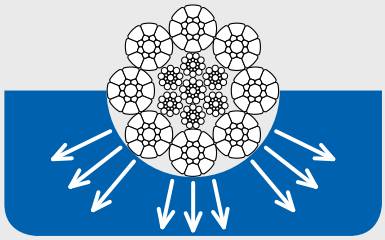
GOST 16853-88 (6x31WS-IWRC)	
01	Diameter: 25.0 mm
02	Weight: 2.66 kg/m
03	Grade: 1770 N/mm²
04	Total breaking load: 531 kN

Octopus 6K (6xK26WS-IWRC)	
01	Diameter: 25.0 mm
02	Weight: 2.72 kg/m
03	Grade: 1770 N/mm²
04	Total breaking load: 542 kN

Octopus 817K (8xK17S-IWRC)	
01	Diameter: 25.0 mm
02	Weight: 2.78 kg/m
03	Grade: 1770 N/mm²
04	Total breaking load: 548 kN







Octopus 6

6-Strand Drill Line

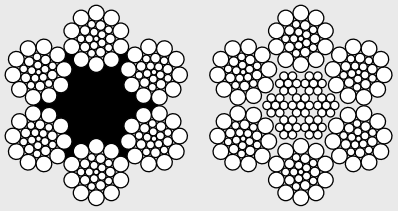
STO 71915393-TU 068-2008

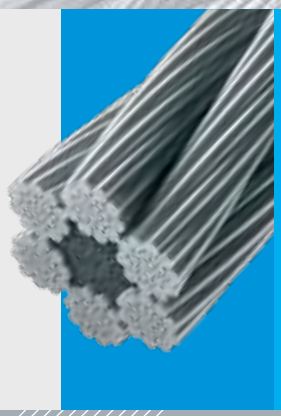
Construction: 6x26 (1+5+5/5+10) + 1 fiber core
6x26 (1+5+5/5+10) + 7x7 (1+6)

Diameter: 25 – 38 mm

Advantages in comparison with standard solutions

- increased abrasion resistance
- high flexibility
- lower impact of dynamic loads on the rope





Octopus 6K

6-Strand Drill Line with Compacted Outer Strands

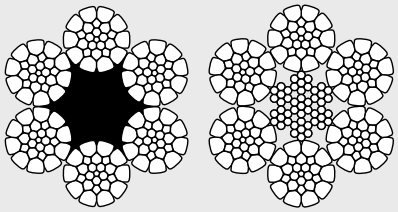
STO 71915393-TU 068-2008

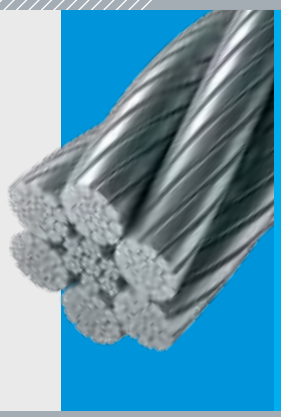
Construction: 6x26 (1+5+5/5+10) + 1 fiber core
6x26 (1+5+5/5+10) + 7x7 (1+6)

Diameter: 25 – 38 mm

Advantages in comparison with standard solutions

- increased abrasion resistance
- high flexibility
- lower impact of dynamic loads on the rope





Octopus 626

6-Strand Drill Line with Mixed Core

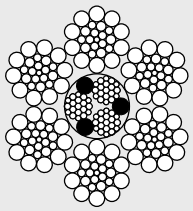
STO 71915393-TU 049-2007

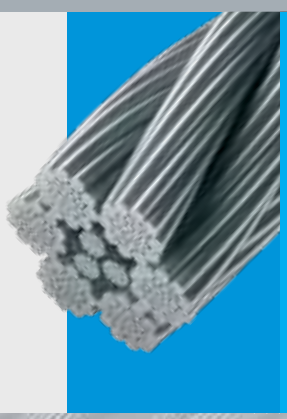
Construction: 6x26 (1+5+5/5+10)+3x19(1+6+6/6)+3 fiber fillers

Diameter: 25 – 38 mm

Advantages in comparison with standard solutions

- increased abrasion resistance
- high flexibility
- lower impact of dynamic loads on the rope





Octopus 626K

6-Strand Drill Line with Compacted Outer Strands & Mixed Core

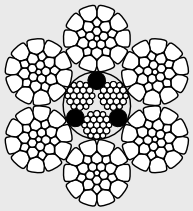
STO 71915393-TU 049-2007

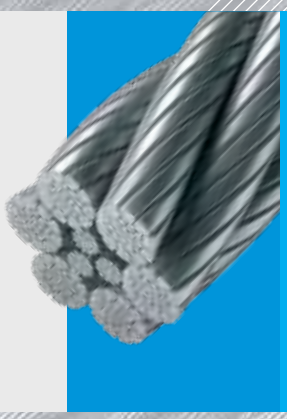
Construction: 6x26 (1+5+5/5+10)+3x19(1+6+6/6)+3 fiber fillers

Diameter: 25 – 38 mm

Advantages in comparison with standard solutions

- increased abrasion resistance
- high flexibility
- lower impact of dynamic loads on the rope





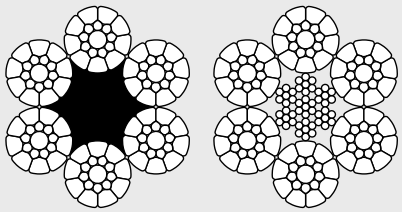
Octopus 619K

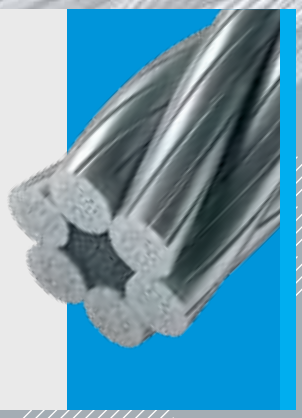
6-Strand Drill Line with Compacted Outer Strands

Construction: 6x19 (1+9+9) + 1 fiber core
6x19 (1+9+9) + 7x7 (1+6)

Diameter: 25.4 – 38.1 mm

- Wire ropes are manufactured in accordance with the requirements of American Petroleum Institute API 9A;
- Stricter diameter tolerances.





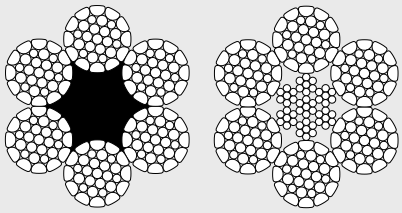
Octopus 631K

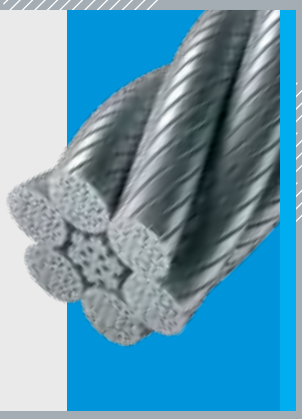
6-Strand Drill Line with Compacted Outer Strands

Construction: 6x31 (1+6+6/6+12) + 1 fiber core
6x31 (1+6+6/6+12) + 7x7 (1+6)

Diameter: 25.4 – 38.1 mm

- Wire ropes are manufactured in accordance with the requirements of American Petroleum Institute API 9A;
- Stricter diameter tolerances.





Octopus 817 and 817K

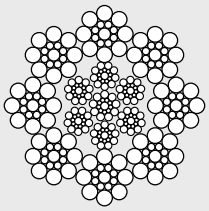
8-Strand Drill Line

STO 71915393-TU 072-2009

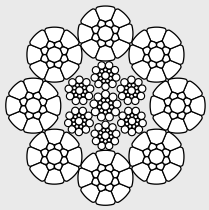
Construction: 8x17(1+8+8)+6x19(1+9+9)+1x19(1+9+9)
Diameter: 25 – 38 mm

Advantages in comparison with standard solutions

- higher flexibility in comparison with 6-strand wire ropes
- high strength
- reduced friction between outer wires of strands and pulley groove surface



Octopus 817



Octopus 817K

Octopus 826K

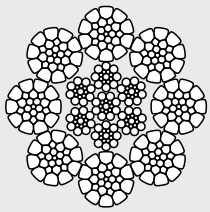
8-Strand Drill Line with Compacted Outer Strands

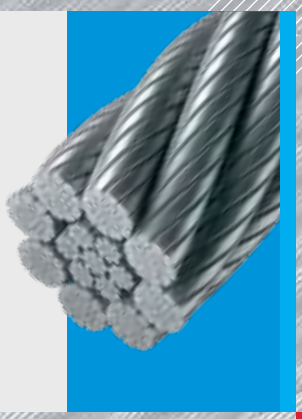
STO 71915393-TU 051-2007

Construction: 8x26(1+5+5/5+10) + 6x17(1+8+8) + 1x17(1+8+8)
Diameter: 25 – 38 mm

Advantages in comparison with standard solutions

- increased wire abrasion resistance;
- less pulley groove wear;
- improved strength characteristics;
- increased resistance against transverse crushing.





SPECIAL WIRE ROPES FOR ELEVATORS

We developed

a product line of special wire ropes called Alerion® with unique characteristics and extended life.

Advantages of Alerion MC8

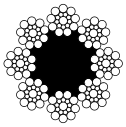
higher endurance limit resulting from increased number of wires in the rope

high damping capacity (better vibration absorption)

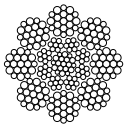
higher elasticity caused by smaller diameter of wires

reduced surface stress between the rope and pulleys

Hoisting ropes

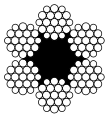


Alerion 819
8x19S-FC

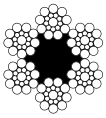


Alerion MC8
8x19W-IWRC

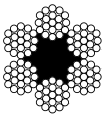
Wire ropes for overspeed governors



Alerion 619
6x19W-FC



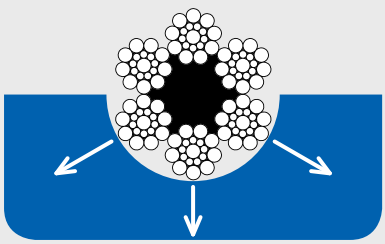
Alerion 619
6x19S-FC

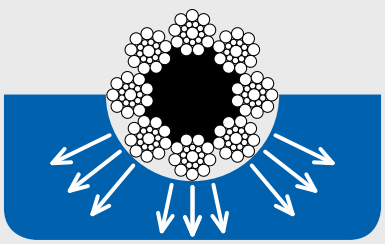


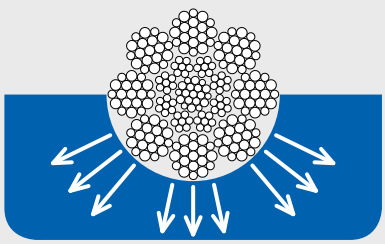
Alerion 619
6x19M-FC

Performance comparison

	GOST 3077-80 (6x19S-FC)	Alerion 819 (8x19S-FC)	Alerion MC8 (8x19W-IWRC)
01	Weight 0.220 kg/m	Weight 0.223 kg/m	Weight 0.260 kg/m
02	MBL 29.9 kN	MBL 29.4 kN	MBL 42.9 kN
03	Elastic elongation - n/a	Elastic elongation ≤0.20%	Elastic elongation ≤0.08%
04	Structural elongation - n/a	Structural elongation ≤0.14%	Structural elongation ≤0.02%





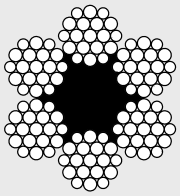


Alerion 619

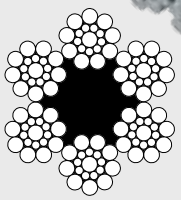
6-strand wire rope with fiber core

EN 12385-5 class 6x19

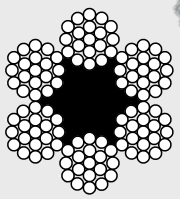
Diameter: 6 – 22 mm



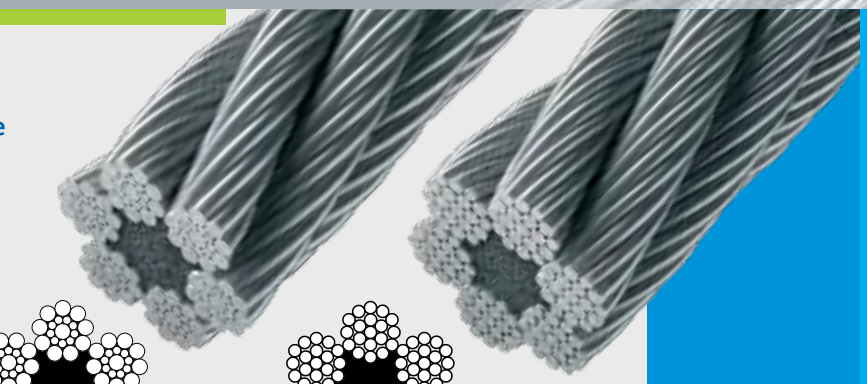
6x19W-FC



6x19S-FC



6x19M-FC

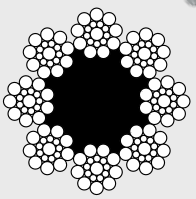


Alerion 819

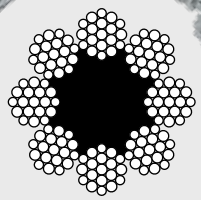
8-strand wire rope with fiber core

EN 12385-5 class 8x19

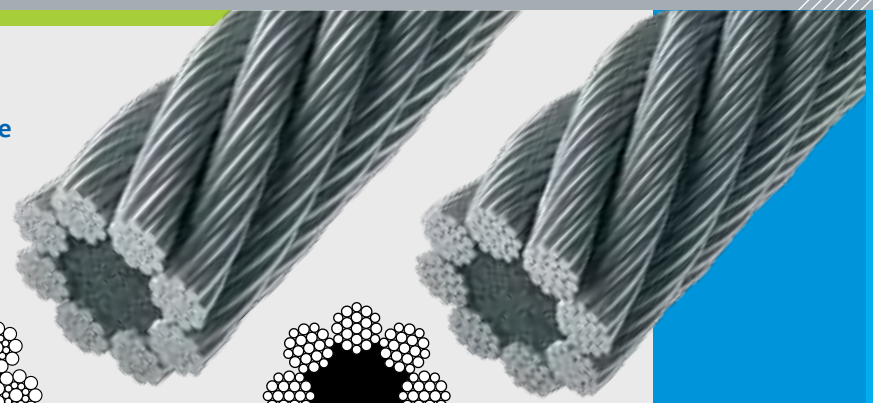
Diameter: 8 – 16 mm



8x19S-FC



8x19W-FC

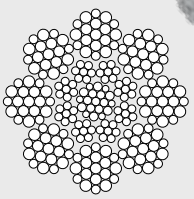


Alerion MC8

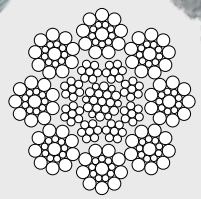
8-strand wire rope with metal core

EN 12385-5 class 8x19

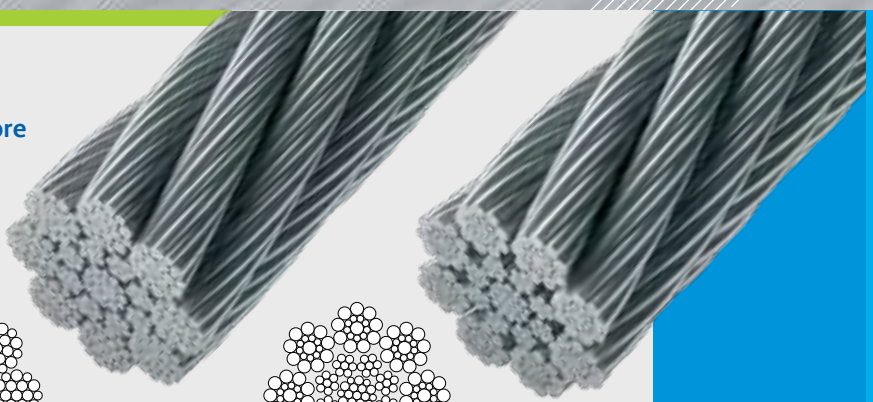
Diameter: 8 – 16 mm



8x19W-IWRC



8x19S-IWRC



SPECIAL WIRE ROPES FOR CABLEWAYS

Triniks® wire ropes are specially designed for mountain skiing.
Optimal wire rope constructions for the wide range of cableways.

Advantages:

- Innovative core
- Minimum elongation
- Minimum reduction of cross-section area
- Fixed position of strands
- Increased lay length

Rope construction

Compacted and non-compacted
6-strand wire ropes: 6x19, 6x19K, 6x36, 6x36K

Diameters

17.5 - 54 mm

Core

Innovative HPC (High Performance Core) consisting of 3 or 4-strand polypropylene core covered with extruded polymeric coating.

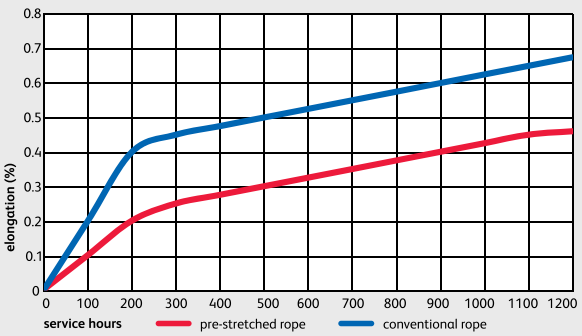
Pre-stretching

Wire ropes are subjected to residual elongation during the initial operating period. In order to reduce the residual elongation wire ropes by AO “Severstal Wire Ropes” are prestretched at 50% of breaking load. Pre-stretching provides equal distribution of load on all wire rope elements.

Compared with conventional products, pre-stretched wire ropes have the following advantages:

- 20% higher modulus of elasticity,
- much lower torque,
- lower residual constructional elongation.

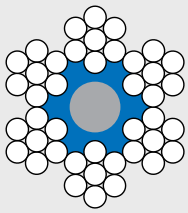
The difference between residual constructional elongation of conventional rope and pre-stretched rope of the same construction is shown on the diagram.

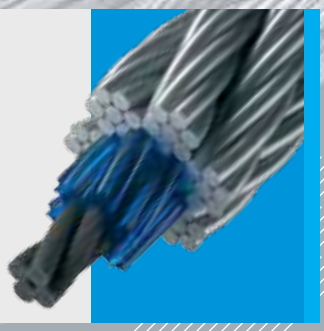


Triniks 67 HPC

6-Strand Wire Ropes with High Performance Core

Construction: 6x7 (1+6) + HPC
Diameter: 12 – 40 mm

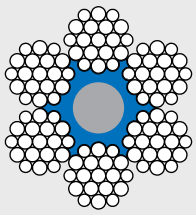




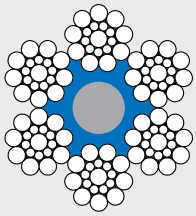
Triniks 619 HPC

6-Strand Wire Ropes with High Performance Core

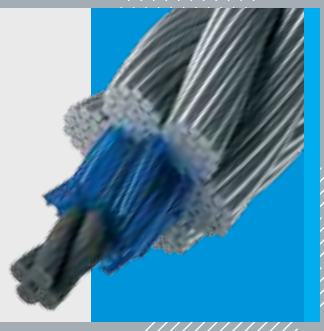
Construction: 6x19 (1+6+6/6)(W) + HPC
6x19 (1+9+9)(S) + HPC
Diameter: 12 – 60 mm



619W



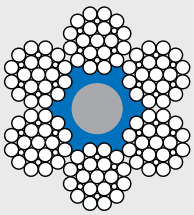
619S



Triniks 625 HPC

6-Strand Wire Ropes with High Performance Core

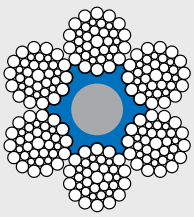
Construction: 6x25 (1+6; 6+12) + HPC
Diameter: 12 – 60 mm



Triniks 636 HPC

6-Strand Wire Ropes with High Performance Core

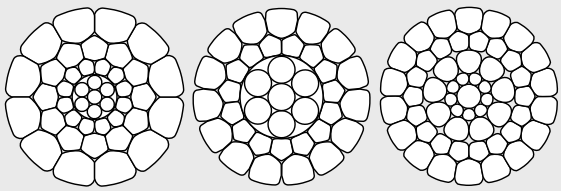
Construction: 6x36 (1+7+7/7+14)(WS) + HPC
Diameter: 12 – 60 mm

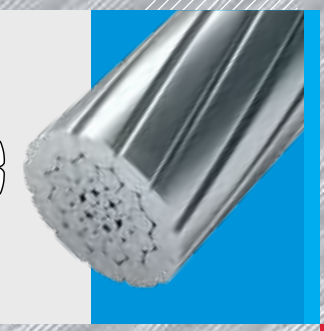


Triniks ZL

Spiral Wire Ropes with Compacted Outer Layer

Construction:
Triniks ZL I - 1xK43 (1+6+12+12+12)
Triniks ZL II - 1xK37 (1+6+15+15)
Triniks ZL III - 1xK55 (1+9+9+18+18)
Diameter: 10 – 16 mm

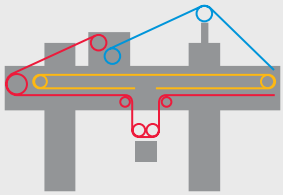


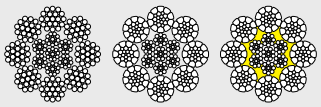
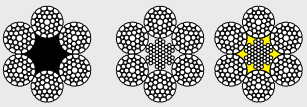
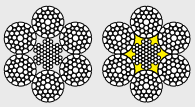


SPECIAL WIRE ROPES FOR CRANES AND LIFTING MECHANISMS

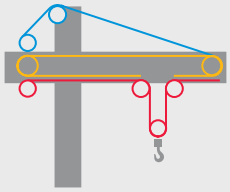
ROPE SELECTION GUIDE

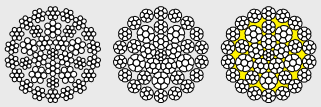
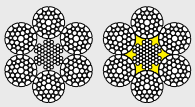
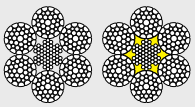
Ship-to-shore



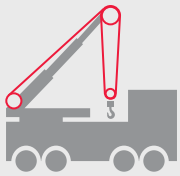
Hoisting rope	Trolley rope	Boom hoist rope
 TU 051	 TU 040 TU 090	 TU 090

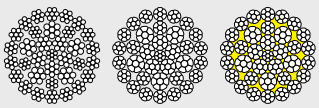
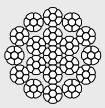
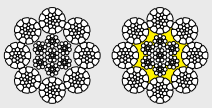
Tower



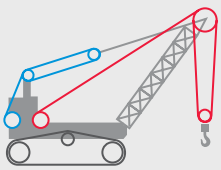
Hoisting rope	Trolley rope	Boom hoist rope
 TU 061	 TU 090	 TU 090

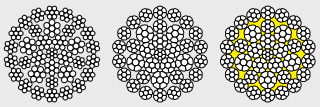
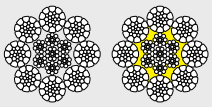
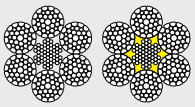
Mobile



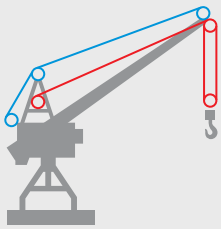
Hoisting rope	Boom telescoping rope
 TU 061  EN 12385	 TU 051

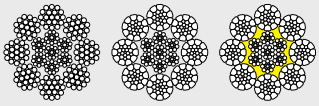
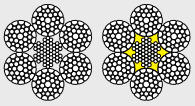
Crawler



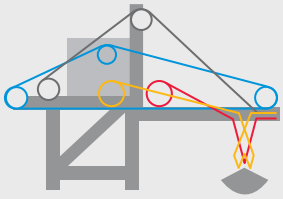
Hoisting rope	Boom hoist rope
 TU 061  TU 051	 TU 090

Portal

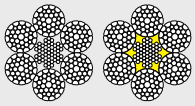


Hoisting rope	Boom hoist rope
 TU 051  TU 040	 TU 090

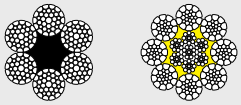
Grab-bucket



Hoisting rope

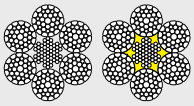


TU 090



TU 040 TU 051

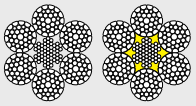
Auxiliary hoist rope



TU 090

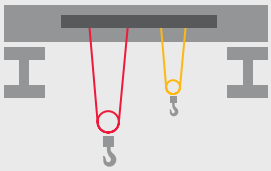
TU 040

Boom hoist rope

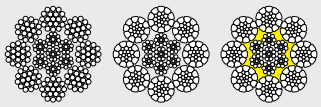


TU 090

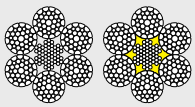
Bridge



Hoisting rope

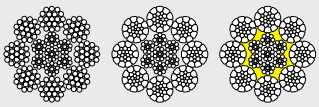


TU 051



TU 090

Auxiliary hoist rope



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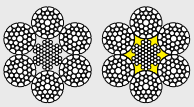
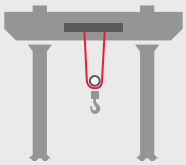
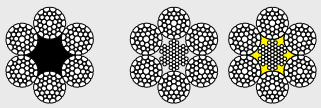


TU 090

Gantry

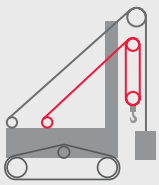


Hoisting rope

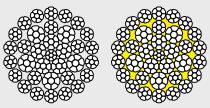


TU 040 TU 090

Pile-driver

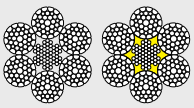


Hoisting rope



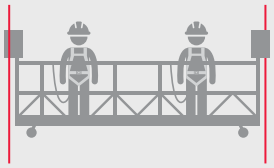
TU 061

Auxiliary hoist rope

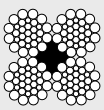


TU 090

Suspended platform



Hoisting rope

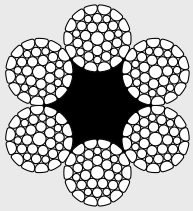


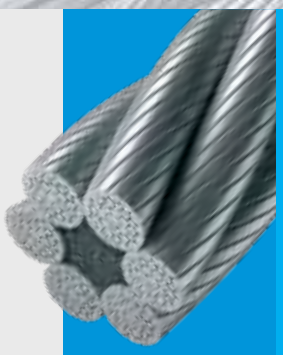
TU 144

6-Strand Wire Ropes with Compacted Outer Strands and Fiber Core

STO 71915393-TU 040-2007

Construction: 6x36 (1+7+7/7+14)+ 1 fiber core
Diameter: 20 – 34 mm

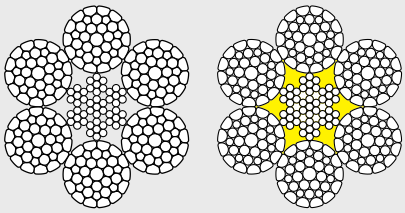


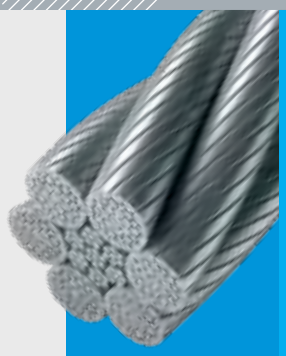


6-Strand Wire Ropes with Compacted Outer Strands

STO 71915393-TU 090-2010

Construction: 6x36 (1+7+7/7+14) + 7x7 (1+6)
Diameter: 16.0 – 36.5 mm



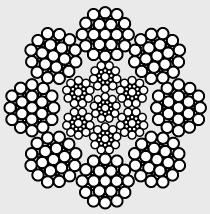


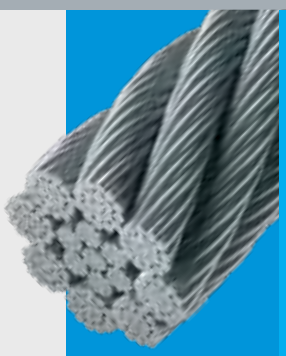
8-Strand Wire Ropes

STO 71915393-TU 051-2014 (Type 1)

Construction: 8x25(1+6; 6+12) + 6x17(1+8+8) + 1x17(1+8+8)
Diameter: 21 – 42 mm
Advantages

- high flexibility in comparison with 6-strand wire ropes
- high strength
- reduced friction between outer wires in strands and pulley groove surface



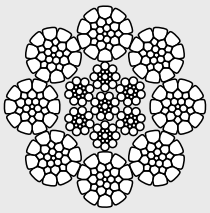


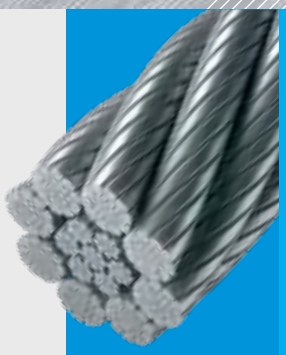
8-Strand Wire Ropes with Compacted Outer Strands

STO 71915393-TU 051-2014 (Type 2. Configuration I)

Construction: 8x26(1+5+5/5+10)+6x17(1+8+8)+1x17(1+8+8)
Diameter: 8 – 37 mm
Advantages

- increased wear resistance of wires
- high strength characteristics
- less pulley groove wear
- increased resistance against transverse crushing



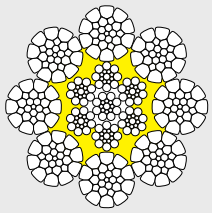


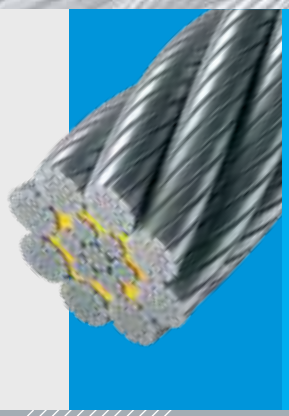
8-Strand Wire Ropes with Compacted Outer Strands and Plastic Coated Core

STO 71915393-TU 051-2014 (Type 2. Configuration III)

Construction: 8x26(1+5+5/5+10)+6x17(1+8+8)+1x17(1+8+8)
Diameter: 18 – 37 mm
Advantages in comparison with standard solutions

- steady operation of rope elements as a result of the core polymeric coating
- less wear of wires in the strands contact points
- better resistance to lateral and impact loads
- less corrosion damage
- increased service life



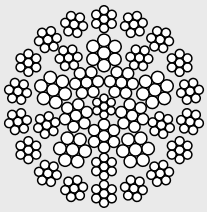


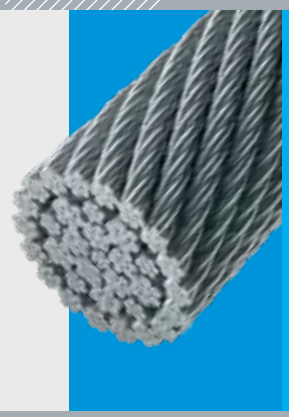
Multistrand Non-rotating Wire Ropes

STO 71915393-TU 061-2014

Construction: 18x7+5x7/5x7+5x7+1x7
Diameter: 18 – 36 mm
Advantages in comparison with standard solutions

- high flexibility
- high strength
- reduced friction between outer wires in strands and pulley groove surface
- rotation resistance



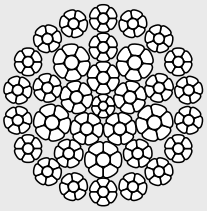


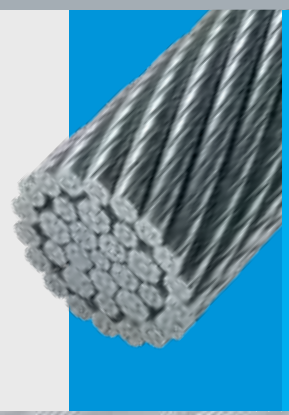
Multistrand Non-rotating Wire Ropes with Compacted Strands

STO 71915393-TU 061-2014

Construction: 18x7+5x7/5x7+5x7+1x7
Diameter: 18 – 36 mm
Advantages in comparison with standard solutions

- high strength
- high abrasion resistance
- high fatigue failure resistance
- expanded contact with bearing surface area
- less wear of sheaves and capstans
- rotation resistance



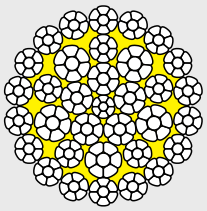


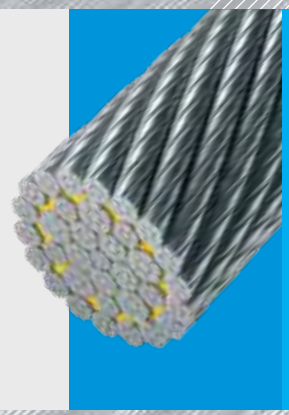
Multistrand Non-rotating Wire Ropes with Compacted Strands and Plastic Coated Core

STO 71915393-TU 061-2014

Construction: 18x7+5x7/5x7+5x7+1x7
Diameter: 18 – 36 mm
Advantages in comparison with standard solutions

- steady operation of rope elements as a result of the core polymeric coating
- less wear of wires in the strands contact points
- less wear of sheaves and capstans
- less corrosion damage
- increased service life
- rotation resistance



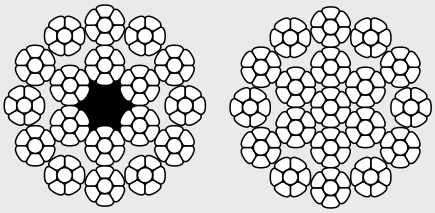


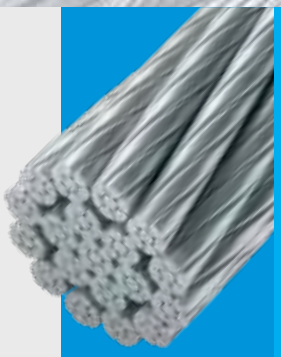
Multistrand Non-rotating Wire Ropes with Compacted Strands

EN 12385 18xK7-KWSC

Construction: 18x7 (1+6) + 1 fiber core
18x7 (1+6) + 1x7 (1+6)
Diameter: 12 – 20 mm
Advantages

- high flexibility
- high strength
- less wear of wires in the strands contact points
- less wear of sheaves and capstans
- rotation resistance

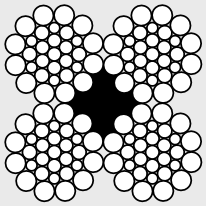


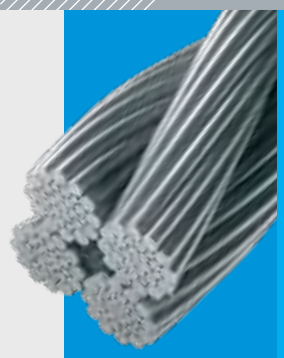


4-Strand Ropes for Suspended Platforms

STO 71915393-TU 144-2015

Construction: 4x31(1+6+6/6+12)+1 fiber core (4x31WS-FC)
Diameter: 8.3 mm



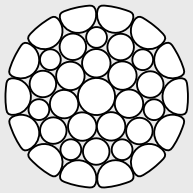


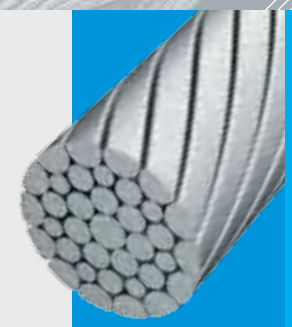
SPECIAL WIRE ROPES FOR ELECTRICITY

Ground Wire for Overhead Power Transmission Lines, Compacted

STO 71915393-TU 062–2008

Construction: 1x36 (1+7+7/7+14)
Diameter: 8.0 – 22.5 mm

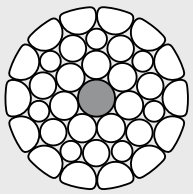




Optical Pilot Ground Cable for Overhead Power Transmission Lines, Compacted

STO 71915393-TU 113-2014

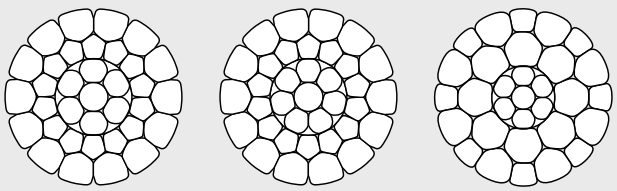
Construction: 1x36 (OP+7+7/7+14)
Diameter: 9.2 – 22.5 mm

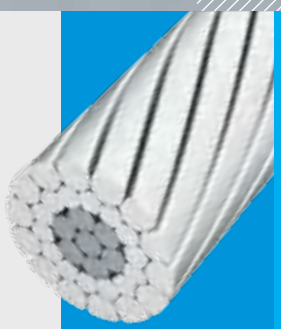


Aluminium Cable Steel Reinforced, Compacted

STO 71915393-TU 120-2013

	Subtype I	Subtype II	Subtype III
Construction:	1x35(K(1+6)+K(14+14))	1x36(K(1+7)+K(14+14))	1x36(K(1+7)+K(14+14))
Diameter:	15.2 – 26.0 mm	15.2 – 26.0 mm	26.9 – 30.0 mm

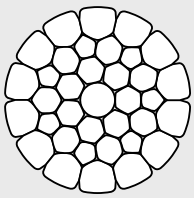




Cables for Overhead Contact Line of Railway

STO 71915393-TU 134-2013

Construction: 1x36 (K(1+7+7/7+14))
Diameter: 10.7 – 15.8 mm

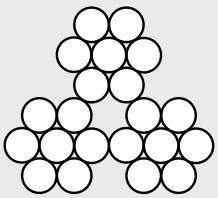


SPECIAL WIRE ROPES FOR ROAD INFRASTRUCTURE

3-Strand Wire Ropes for Road Fencing

STO 71915393-TU 110-2011

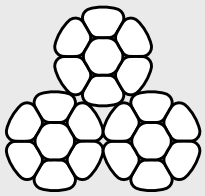
Construction: 3x7(1+6)
Diameter: 19 mm



3-Strand Wire Ropes for Road Fencing with Compacted Strands

STO 34269720-TU 002-2015

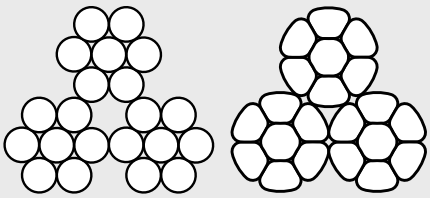
Construction: 3xK7 1+6)
Diameter: 19 mm



3-Strand Wire Ropes for Rockfall protection systems

STO 34269720-TU 003-2015

Construction: 3x7(1+6)
Diameter: 8.2; 12.0 mm

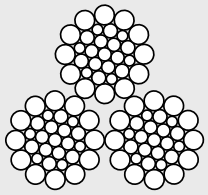


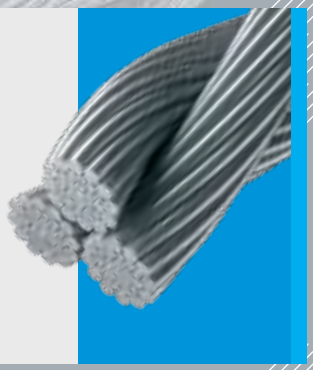
FISHING STEEL WIRE ROPES

3-Strand Fishing Ropes

STO 34269720-TU 008-2016

Construction: 3x31(1+6+6/6+12)
Diameter: 12 – 44 mm

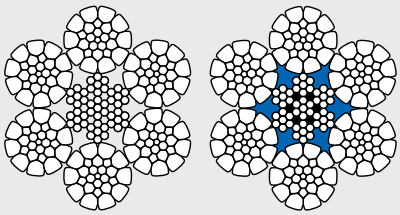


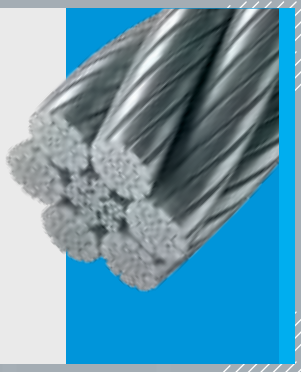


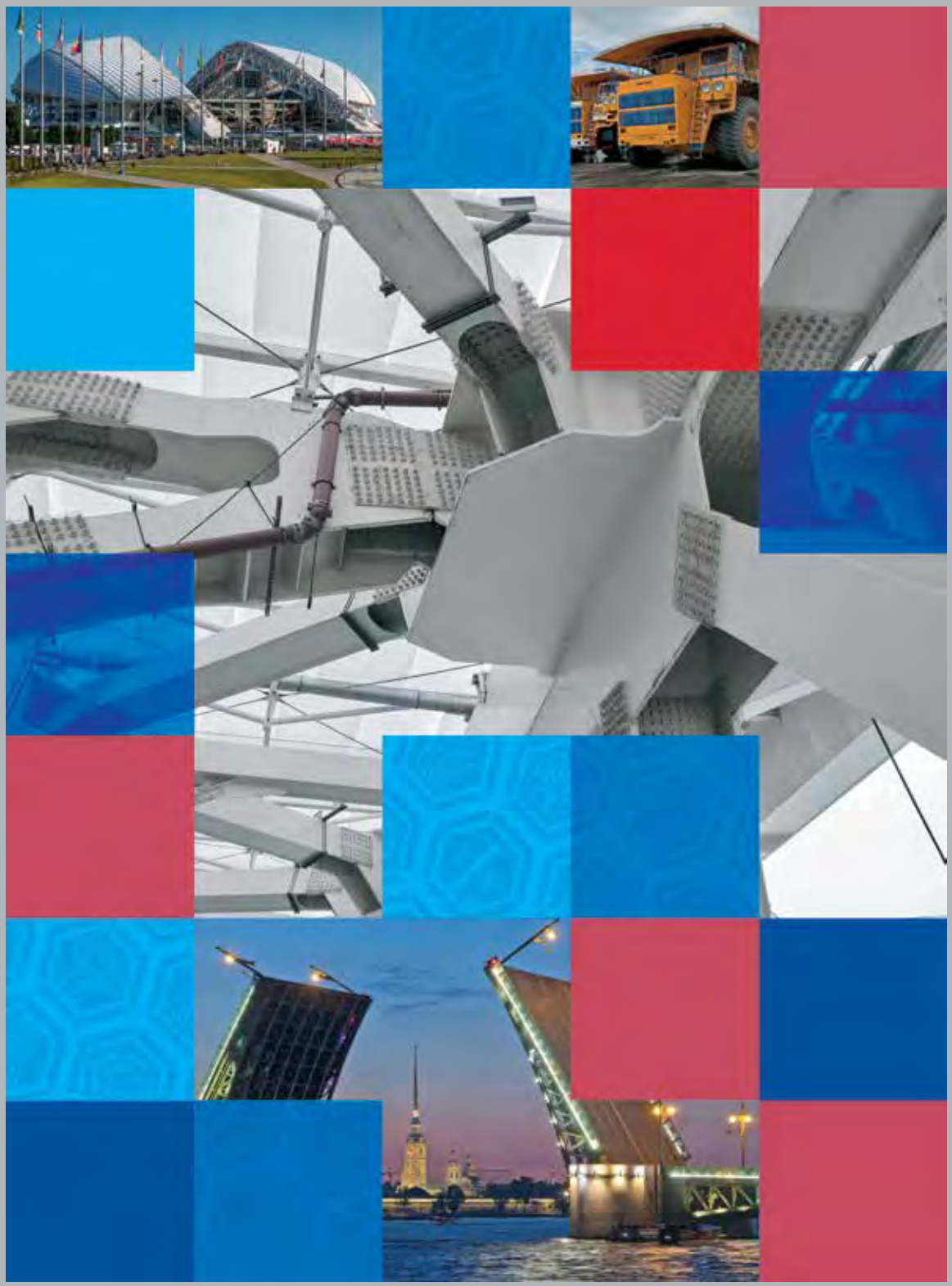
6-Strand Wire Ropes with Compacted Outer Strands for Trawl Warp

STO 71915393-TU 121-2012

Construction: 6x26(1+5+5/5+10)+6x7(1+6)+1x7(1+6)
Diameter: 16 – 44 mm







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GENERAL PURPOSE FASTENERS

HEXAGON HEAD BOLTS WITH INCOMPLETE THREAD OF A AND B ACCURACY GRADES

DIN 931

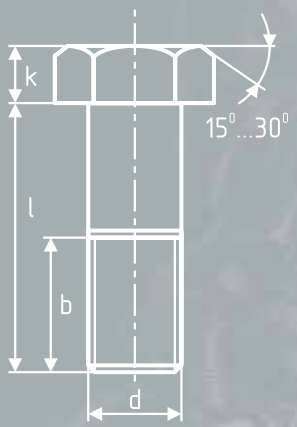
APPLICATION

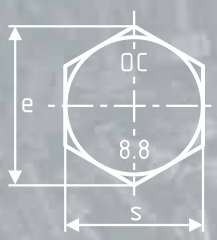
For fastening of parts and components.

KEY SPECIFICATIONS

d, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M6-M30	A, B	6g	4.8, 5.8, 8.8, 10.9, 12.9	4.8, 5.8 - 10, 20; 8.8, 10.9 - 20Г2Р, 30Г1Р

d, mm	Accuracy grade	Pitch, p	S, mm	e_{min}, mm	k, mm	L, mm
M6	A	1.0	9.78...11.0	11.05	3.85...4.15	25-70
M8	A	1.25	12.73...13.0	14.38	5.15...5.45	28-100
M10	A	1.5	16.73...17.0	18.9	6.22...6.58	35-120
M12	A	1.75	18.67...19.0	21.1	7.32...7.68	40-120
M12	B	1.75	18.48...19.0	20.88	7.21 ...7.79	40-120
M14	A	2.0	21.67...22.0	24.49	8.62...8.98	45-140
M14	B	2.0	21.16...22.0	23.91	8.51...9.09	45-140
M16	A	2.0	23.67...24.0	26.75	9.82...10.18	45-200
M16	B	2.0	23.16...24.0	26.17	9.71...10.29	45-200
M18	A	2.5	26.67...27.0	30.14	11.28...11.72	55-140
M18	B	2.5	26.16...27.0	29.56	11.15...11.85	55-140
M20	A	2.5	29.67...30.0	33.53	12.28...12.72	55-240
M20	B	2.5	29.16...30.0	32.95	12.15...12.85	55-240
M22	A	2.5	31.61...32.0	35.72	13.78...14.22	65-240
M22	B	2.5	31.0...32.0	35.03	13.65...14.35	65-240
M24	A	3.0	35.38...36	39.98	14.78...15.22	65-240
M24	B	3.0	35...36	39.55	14.65...15.35	65-240
M27	B	3.0	40...41	45.2	16.65...17.35	70-240
M30	B	3.5	45...46	50.85	18.28...19.12	80-240





COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

HEXAGON HEAD BOLTS WITH FULL THREAD OF A AND B ACCURACY GRADES

DIN 933

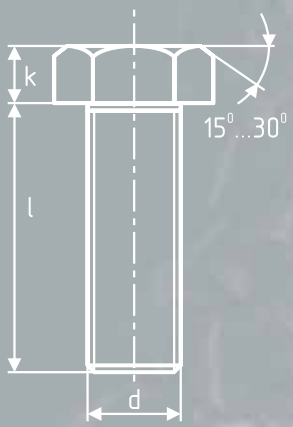
APPLICATION

For fastening of parts and components.

KEY SPECIFICATIONS

d, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M16-M30	A, B	6g	4.8, 5.8, 8.8, 10.9, 12.9	4.8, 5.8 - 10, 20; 8.8, 10.9 - 20Г2Р, 30Г1Р

d, mm	Accuracy grade	Pitch, p	S, mm	e_{min}, mm	k, mm	L, mm
M6	A	1.0	9.78...10.0	11.05	3.85...4.15	12-70
M8	A	1.25	12.73...13.0	14.38	5.15...5.45	12-80
M10	A	1.5	16.73...17.0	18.9	6.22...6.56	14-80
M12	A	1.75	18.67...19.0	21.1	7.32...7.68	16-100
M12	B	1.75	18.48...19.0	20.88	7.21 ...7.79	16-100
M14	A	2.0	21.67...22.0	24.49	8.62...8.98	25-100
M14	B	2.0	21.16...22.0	23.91	8.51...9.09	25-100
M16	A	2.0	23.67...24.0	26.75	9.82...10.18	20-120
M16	B	2.0	23.16...24.0	26.17	9.71...10.29	20-120
M18	A	2.5	26.67...27.0	30.14	11.28...11.72	25-100
M18	B	2.5	26.16...27.0	29.56	11.15...11.85	25-100
M20	A	2.5	29.67...30.0	33.53	12.28...12.72	30-180
M20	B	2.5	29.16...30.0	32.95	12.15...12.85	30-180
M22	A	2.5	31.61...32.0	35.72	13.78...14.22	40-170
M22	B	2.5	31.0...32.0	35.03	13.65...14.35	40-170
M24	A	3.0	35.38...36.0	39.98	14.78...15.22	40-170
M24	B	3.0	35...36	39.55	14.65...15.0	40-170
M27	B	3.0	40...41	45.2	16.65...17.35	40-220
M30	B	3.5	45...46	50.85	18.28...19.12	40-220



COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

LOW CUP HEAD AND SQUARE NECK BOLTS OF C ACCURACY GRADE

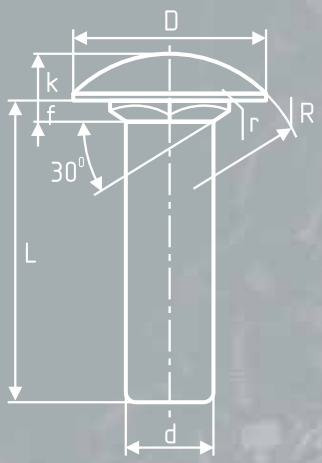
DIN 603

APPLICATION

The bolts are intended for fastening of road fence components. The use of these bolts allows to reduce costs for fastening due to less flat washers application.

KEY SPECIFICATIONS

d, mm	Pitch, p	D, mm	R	k, mm	f, mm	L, mm	Weight per 1000 pieces, kg
M16	2.0	37.2...38.8	29.3	8.05...8.95	5.0...5.5	35-45	35 mm – 93.2 40 mm – 98.0 45 mm – 103.5



COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

HEXAGON HEAD BOLTS WITH LOW THREAD PITCH OF A AND B ACCURACY GRADES

DIN 960

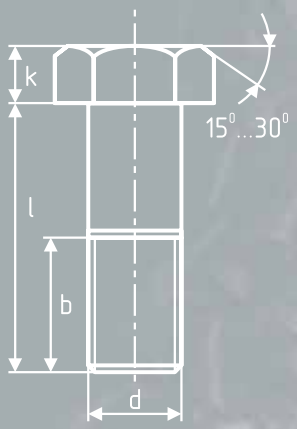
APPLICATION

For fastening of parts and components.

KEY SPECIFICATIONS

d, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M16-M20	A, B	6g	4.8, 5.8, 8.8, 10.9	4.8, 5.8 - 10, 20; 8.8, 10.9 - 20Г2Р, 30Г1Р

d, mm	Accuracy grade	Pitch, p	S, mm	e_{min}, mm	k, mm	L, mm
M16	A	1.5	23.67...24.0	26.75	9.82...10.18	55-145
	B		23.16...24.0	26.17	9.71...10.29	
M18	A	1.5	26.67...27.0	30.14	11.28...11.72	65-200
	B		26.16...27.0	29.56	11.15...11.85	
M20	A	1.5	29.67...30.0	33.53	12.28...12.72	65-200
	B		29.16...30.0	32.95	12.15...12.85	



Dimensions M6-M14 are manufactured according to GOST 7798 (analogue of DIN 960 accuracy grade B). M16-M30 bolts with thread pitch 1.5, 2.0 can be manufactured (the length is according to the table of weight per 1000 pcs).

COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

WEIGHT 1000 PCS, KG (DIN 931)

L, mm	M16	M18	M20	M22	M24	M27	M30
55	118	-	-	-	-	-	-
60	126	-	-	-	-	-	-
65	134	174	225	-	-	-	-
70	142	184	237	287	-	-	-
75	150	194	250	302	-	-	-
80	157	204	262	317	393	-	-
85	165	214	274	332	410	-	-
90	173	224	287	347	428	570	733
95	181	234	299	362	446	592	761
100	189	244	311	376	464	615	788
110	205	264	336	406	500	660	843
120	221	284	360	436	535	705	899
130	235	302	384	464	568	747	952
140	251	322	409	494	603	792	1007
150	-	342	433	524	639	837	1063
160	-	362	458	553	674	882	1118
170	-	382	483	583	710	927	1174
180	-	402	507	613	745	972	1229
190	-	422	532	643	781	1017	1285
200	-	442	556	673	816	1061	1340
220	-	-	-	-	886	1149	1445
240	-	-	-	-	956	1247	1556

HEXAGONAL NUTS OF A AND B ACCURACY GRADES

DIN 970

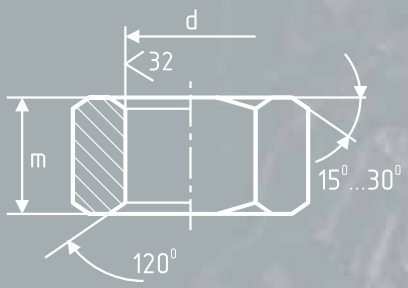
APPLICATION

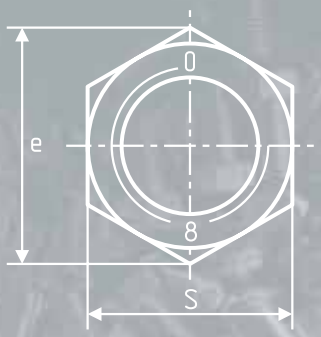
For fastening of parts and components.

KEY SPECIFICATIONS

d, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M16-M30	A, B	6H	5, 6, 8, 10	Ст. 20, 30, 45, 20Г2Р, 40Х

d, mm	Pitch, p	S, mm	e_{min}, mm	m, mm	Weight per1000 pieces, kg
M20	1.5; 2.5	30	33	18	71.4
M22	1.5; 2.5	34	35	19.4	103.2
M24	1.5; 3.0	36	39.6	21.5	122.9
M27	1.5; 3.0	41	45.2	23.8	175.3
M30	1.5; 3.5	46	50.9	25.6	242.5





COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

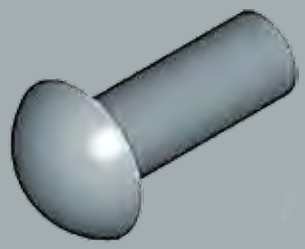
- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

CUP HEAD RIVETS

DIN 124, 660



APPLICATION

For fastening of parts and components.

KEY SPECIFICATIONS

Core diameter, mm	Accuracy grade	Steel grade
Ø 5-24	B, C	10, 20

DIN	d1, mm	d2, mm	k, mm	e, mm	l, mm
660	Ø 5	8.8	3.0	3	10-60
660	Ø 6	11	3.6	4	10-60
660	Ø 8	14	4.8	4	18-70
124	Ø 10	16	6.0	5	20-100
124	Ø 12	19	7.2	6	26-110
124	Ø 14	22	8.4	7	26-120
124	Ø 16	25	9.5	8	30-140

Rivets Ø18-24 are manufactured according to GOST 10299-80

GOST 10299 analogue of DIN124	d1, mm	d2, mm	k, mm	e, mm	l, mm
124	Ø 18	27*	11	8	30-140
124	Ø 20	30*	12	8	30-140
124	Ø 22	35*	13	8	40-170
124	Ø 24	37*	16	8	40-180

COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

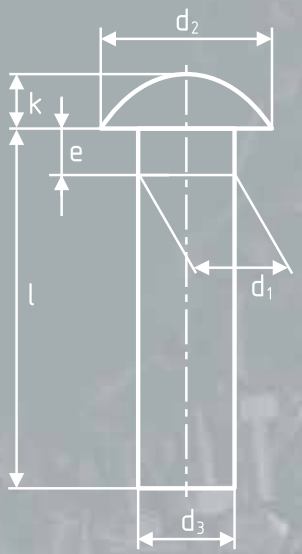
- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

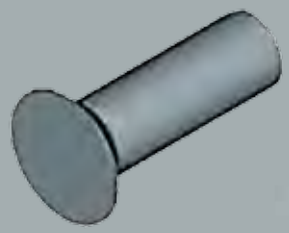
WEIGHT 1000 PCS, KG

L, mm	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 22	Ø 24
10	2.368	3.751	-	-	-	-	-	-	-	-	-
12	2.676	4.194	-	-	-	-	-	-	-	-	-
14	2.985	4.638	8.7	-	-	-	-	-	-	-	-
16	3.293	5.082	9.663	-	-	-	-	-	-	-	-
18	3.601	5.526	10.452	-	-	-	-	-	-	-	-
20	3.909	5.97	11.242	17.93	27.28	-	53.33	-	-	-	-
22	4.218	6.414	12.203	19.17	29.05	-	56.49	-	-	-	-
24	4.526	6.858	12.82	20.4	30.83	43.94	59.65	-	-	-	-
26	4.834	7.302	13.609	21.63	32.61	46.36	62.8	-	-	-	-
28	5.142	7.746	14.398	22.87	34.38	48.78	65.96	-	-	-	-
30	5.451	8.19	15.187	24.1	36.16	51.19	69.12	-	-	-	-
32	5.759	8.633	15.977	25.33	37.93	53.61	72.27	-	-	-	-
34	6.067	9.077	16.766	26.56	39.71	56.03	75.43	-	-	-	-
36	6.375	9.521	17.555	27.8	41.48	58.44	78.59	-	-	-	-
38	6.684	9.965	18.344	26.03	43.26	60.86	81.74	-	-	-	-
40	6.992	10.4	19.13	30.26	45.03	63.28	84.9	-	-	-	-
42	7.3	10.85	19.92	31.5	46.81	65.69	88.06	-	-	-	-
45	7.763	11.52	21.11	33.35	49.47	69.32	92.8	120	151.3	201.2	-
48	8.225	12.19	22.29	35.2	52.14	72.95	97.53	126	158.7	207.2	-
50	8.533	12.63	23.08	36.43	53.91	75.36	100.7	130	163.6	213.1	-
52	8.842	13.07	23.87	37.66	55.69	77.78	103.8	134	168.6	222.1	-
55	9.304	13.74	25.05	39.51	58.35	81.4	108.6	140	176	231.1	-
58	9.766	14.4	26.24	41.36	61.02	85.03	113.3	146	183.3	237	-
60	10.075	14.85	27.03	42.59	62.79	87.45	116.5	150	188.3	251.9	297.3
65	-	-	29	45.68	67.23	93.49	124.4	160	200.6	266.9	315
70	-	-	30.97	48.76	71.67	99.53	132.2	170	213	281.8	332.8
75	-	-	-	51.84	76.11	105.6	140.1	180	225.3	296.7	350.5
80	-	-	-	54.93	80.55	111.6	148	190	237.6	311.6	368.3
85	-	-	-	58.01	84.99	117.7	155.9	200	250	326.5	386
90	-	-	-	61.09	89.43	123.7	163.8	210	262.3	341.5	403.8
95	-	-	-	64.17	93.86	129.7	171.71	220	274.6	356.4	421.6
100	-	-	-	67.25	98.3	135.8	179.6	230	287	386.2	439.3
110	-	-	-	-	107.2	147.9	195.4	250	311.6	416.1	474.8
120	-	-	-	-	-	160	211.2	270	336.3	445.9	510.3
130	-	-	-	-	-	-	226.9	290	360.9	475.7	545.8
140	-	-	-	-	-	-	242.74	310	385.6	505.6	581.4
150	-	-	-	-	-	-	-	-	-	535.6	616.9
160	-	-	-	-	-	-	-	-	-	565.3	652.4
170	-	-	-	-	-	-	-	-	-	595.1	687.9
180	-	-	-	-	-	-	-	-	-	-	723.4



CUP HEAD RIVETS

DIN 302, 661



DESCRIPTION

Applied for fastening of parts and components.

KEY SPECIFICATIONS

Core diameter, mm	Accuracy grade	Steel grade
Ø 5-24	B, C	10, 20

Rivets Ø 5-24 are manufactured according to GOST 10300-80

GOST 10300 equivalent to DIN	d, mm	D*, mm	H*, mm	I*, mm	l, mm
661	Ø 5	8.8	2.0	4	10-60
661	Ø 6	10.3	2.4	4	10-60
661	Ø 8	13.9	3.2	4	18-60
302	Ø 10	17	4.8	6	20-75
302	Ø 12	20	5.6	6	26-85
302	Ø 14	24	6.8	6	26-100
302	Ø 16	24	7.2	6	30-100
302	Ø 18	27	8	8	40-140
302	Ø 20	30	9	8	38-140
302	Ø 22	33	10	8	40-170
302	Ø 24	36	11	8	40-180

* - the difference between DIN 124 and GOST dimensions

COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

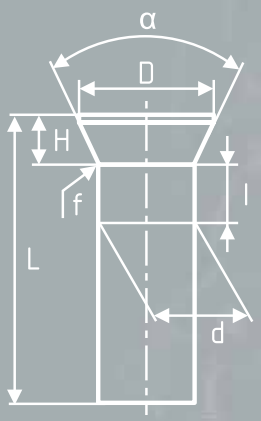
- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

WEIGHT 1000 PCS, KG

L, mm	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20	Ø 24
10	1.831	2.679	5.083	-	-	-	-	-	-
11	1.985	2.901	5.478	-	-	-	-	-	-
12	2.139	3.123	5.873	-	-	-	-	-	-
14	2.447	3.563	6.656	-	-	-	-	-	-
16	2.755	4.007	7.445	13.41	-	-	-	-	-
18	3.064	4.451	8.234	14.64	19.93	-	-	-	-
20	3.372	4.895	9.023	15.88	21.7	-	-	-	-
22	3.68	5.309	9.812	17.11	23.48	33.67	-	-	-
24	3.989	5.783	10.603	18.34	25.26	36.09	44.36	-	-
26	4.297	6.227	11.391	19.58	27.03	38.51	47.52	-	-
28	4.605	6.671	12.18	20.81	28.81	40.93	50.68	-	-
30	4.913	7.115	12.969	22.04	30.58	43.34	53.83	-	-
32	5.222	7.559	13.758	23.28	32.36	45.76	56.99	-	-
34	5.53	8.002	14.547	24.51	34.133	48.18	60.15	-	-
36	5.838	8.446	15.337	25.74	35.91	50.59	63.3	-	-
38	6.146	8.89	16.126	26.97	37.68	53.01	66.46	106.4	-
40	6.455	9.334	16.915	28.21	39.46	55.43	69.92	111.4	164.4
42	6.763	9.778	17.704	29.44	41.24	57.84	72.77	116.3	171.5
45	7.225	10.444	18.888	31.29	43.9	61.47	77.51	123.7	182.2
48	7.688	11.11	20.072	33.14	46.56	65.09	82.24	131.1	192.8
50	7.996	11.554	20.861	34.37	48.34	67.51	85.4	136	199.9
52	8.304	11.998	21.65	35.61	50.11	69.93	88.56	140.9	207
55	8.767	12.663	22.834	37.46	52.78	73.55	93.29	148.3	217.7
58	9.229	13.329	24.017	39.31	55.44	77.18	98.03	155.7	228.3
60	9.537	13.773	24.806	40.54	57.22	79.6	101.18	160.7	235.4
65	-	-	-	43.62	61.66	85.64	109.07	173	253.2
70	-	-	-	46.7	66.09	91.68	116.97	185.3	270.9
75	-	-	-	49.79	70.53	97.72	124.85	197.7	288.7
80	-	-	-	-	74.97	103.8	132.75	210	306.5
85	-	-	-	-	79.41	109.8	140.64	222.3	324.2
90	-	-	-	-	-	115.8	148.53	234.7	341.9
95	-	-	-	-	-	121.9	156.42	247	359.6
100	-	-	-	-	-	127.9	164.32	259.3	377.5
110	-	-	-	-	-	-	-	284	413
120	-	-	-	-	-	-	-	308.6	448.5
130	-	-	-	-	-	-	-	333.3	484
140	-	-	-	-	-	-	-	358	591.5
150	-	-	-	-	-	-	-	382.6	555
160	-	-	-	-	-	-	-	-	590.6
170	-	-	-	-	-	-	-	-	626.1



SPRING LOCK WASHER

DIN 7980

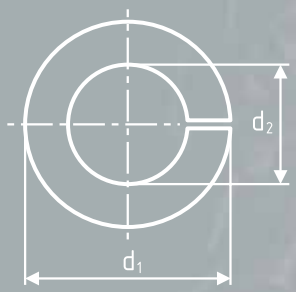
DESCRIPTION

Applied for fastening of parts and components.

KEY SPECIFICATIONS

d, mm	d2, mm		s, mm		Weight 1000 pieces, kg
	Nominal	Tolerance	Nominal	Tolerance	
M6	6.5*	+0.58*	1.4*	±0.1	0.376
M8	8.5*	+0.58*	2.0	±0.1	1.034
M10	10.2	+0.7*	2.5	±0.15	1.96
M12	12.2	+0.7*	3.0*	±0.15	3.45
M14	14.2	+0.7*	3.2*	±0.15	4.48
M16	16.3	+0.7*	3.5	±0.2	5.94
M18	18.3	+0.84	4.0*	±0.2	6.6
M20	20.5	+0.84	4.5	±0.2	12.3
M22	22.5	+0.84	5.0*	±0.2	13.6
M24	24.5	+0.84	5.5*	±0.2	18.1
M27	27.5	+0.84	6.0*	±0.2	20.6
M30	30.5	+1.0	6.5*	±0.2	32.0
M36	36.5	+1.0	8.0*	±0.25	52.5
M42	42.5	+1.0	9.0*	±0.25	80.0

* - the differences between DIN 7980 and GOST 6402-70 dimensions



COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

STEEL GRADE

- 65G
- 70

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

COTTER PINS

DIN 94

DESCRIPTION

Cotter pins are intended for fastening parts under tension, or for locking nuts to prevent self-unfastening.

KEY SPECIFICATIONS

d, mm	d1, mm	a max, mm	b, mm	c, mm	L, mm
2	1.7...1.8	2.5	4.0	3.2...3.6	12-40
2.5	2.1...2.3	2.5	5.0	4.0...4.6	12-40
3.2	2.7...2.9	3.2	6.4	5.1...5.8	18-50
4	3.5...3.7	4.0	8.0	6.5...7.4	20-80
5	4.4...4.6	4.0	10.0	8.0...9.2	25-90
6.3	5.7...5.9	4.0	12.6	10.3...11.8	32-100
8	7.3...7.5	4.0	16.0	13.1...15.0	50-112
10	9.3...9.5	6.3	20.0	16.6...19.0	63-112

COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

STEEL GRADE

- 15

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

WEIGHT 1000 PCS, KG

L, mm	Ø 2	Ø 2.5	Ø 3.2	Ø 4	Ø 5	Ø 6.3	Ø 8	Ø 10
12	0.324	0.54	-	-	-	-	-	-
14	0.362	0.603	-	-	-	-	-	-
16	0.4	0.663	-	-	-	-	-	-
18	0.441	0.723	1.27	2.23	-	-	-	-
20	0.479	0.782	1.37	2.39	3.93	7.3	-	-
22	0.517	0.842	1.46	2.55	4.18	7.7	-	-
25	0.573	0.931	1.61	2.79	4.55	8.4	-	-
28	0.63	1.021	1.75	3.03	4.93	9	-	-
32	0.705	1.14	1.95	3.35	5.43	9.8	-	-
36	0.781	1.268	2.14	3.67	5.93	10.7	-	-
40	0.856	1.387	2.33	3.99	6.43	11.5	-	-
45	-	-	2.58	4.39	7.05	12.5	-	-
50	-	-	2.82	4.79	7.8	13.6	23.3	40.6
56	-	-	-	5.27	8.55	14.8	25.4	43.9
63	-	-	-	5.83	9.43	16.3	27.7	47.7
71	-	-	-	6.47	10.42	17.9	30.4	52
80	-	-	-	7.18	11.55	19.8	33.5	57
90	-	-	-	-	12.8	21.9	36.8	62.4
100	-	-	-	-	-	23.9	40.2	67.8
112	-	-	-	-	-	-	44.3	74.3

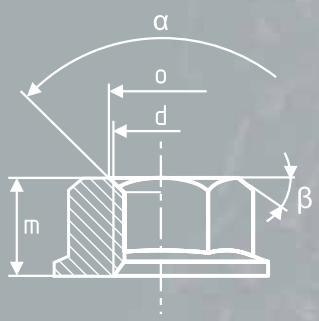
HEXAGON FLANGED NUTS

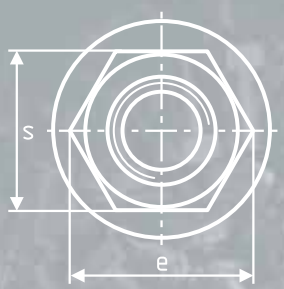
DIN EN 1661

KEY SPECIFICATIONS

Thread diameter, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M6, M8, M16	A	6H	6, 8, 10	20. 20Г2Р

d, mm	Accuracy grade	Pitch, p	S, mm	e_{min}, mm	m, mm	$d_{c\,max}$	Weight per 1000 pieces, kg
M6	A	1.0	9.78...10	11.05	5.7...6.0	14.2	3.45
M8	A	1.25	12.73...13.0	14.38	9.78...10.0	17.9	7.06
M16	A	2.0	15.3...16.0	26.75	23.67...24.0	34.5	43.01





COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

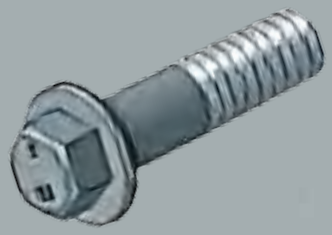
CERTIFICATE

- F3.1 Fastener test report ISO 16228.

BOLTS WITH HEXAGON HEAD AND FLANGE

DIN EN 1665

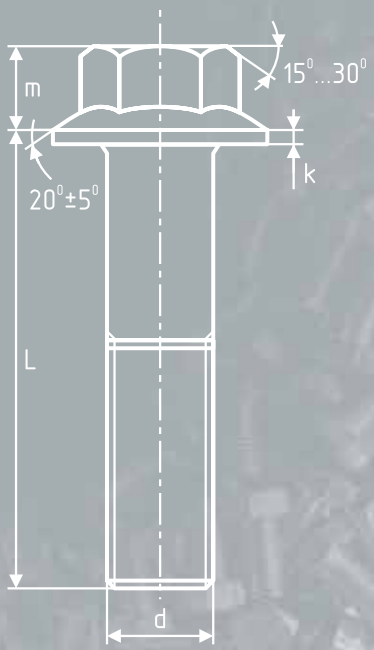
Standard dimensions of wrench headed bolts, heavy range.



KEY SPECIFICATIONS

d, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M16	A	6g	8.8, 10.9	20Г2Р, 30Г1Р

d, mm	Accuracy grade	Pitch, p	S, mm	e_{min}, mm	k_{max}, mm	D_{max}, mm	L, mm
M16	A	2.0	23.67...24.0	26.51	15.4	35.0	60-130



COATING

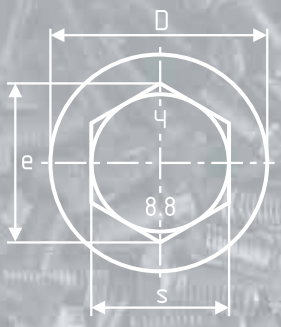
- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

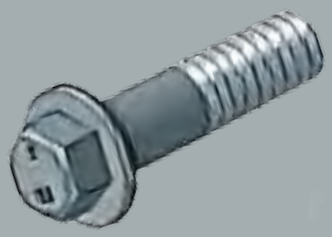
CERTIFICATE

- F3.1 Fastener test report ISO 16228.



BOLTS WITH REDUCED HEXAGON HEAD AND FLANGE

DIN EN 1662

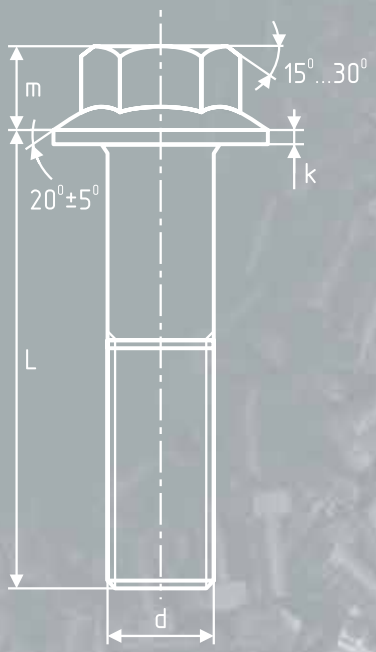


Reduced dimension of wrench headed bolts, light range.

KEY SPECIFICATIONS

d, mm	Accuracy grade	Thread tolerance limits	Strength grade	Steel grade
M6-M10	A	6g	8.8, 10.9	20Г2Р, 30Г1Р

d, mm	Accuracy grade	Pitch, p	S, mm	e_{min}, mm	k_{max}, mm	D_{max}, mm	L, mm
M6	A	1.0	7.64...8.0	8.56	6.8	13.6	12-60
M8	A	1.25	9.64...10.0	10.8	8.5	17.0	14-80
M10	A	1.5	12.57...13.0	14.08	9.7	20.8	25-95



COATING

- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

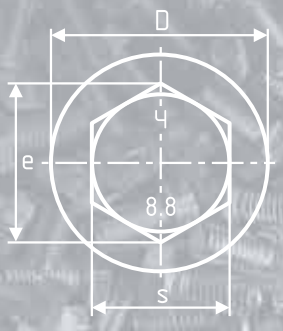
- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.

WEIGHT PER 1000 PCS, KG

L, mm	M6	M8	M10
12	6.076	-	-
16	6.781	12.674	-
20	7.487	13.948	-
25	8.369	15.540	26.558
30	9.797	17.132	29.068
35	10.907	19.710	31.579
40	12.017	21.680	35.686
45	13.127	23.650	38.766
50	14.237	25.620	41.846
55	15.347	27.590	44.926
60	16.457	29.560	48.006
65	-	31.530	51.086
70	-	33.500	54.166
80	-	37.440	60.326
90	-	-	66.486



HEXAGON NUTS OF A AND B ACCURACY GRADES

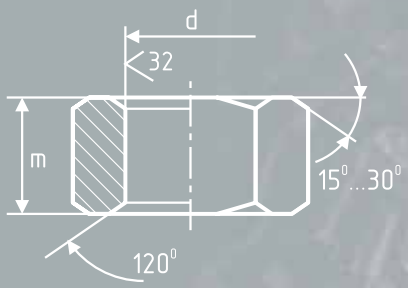
DIN 934

APPLICATION

For fastening of parts and components.

KEY SPECIFICATIONS

d, mm	Pitch, p	S, mm	e_{min} , mm	m, mm	Weight per 1000 pieces, kg
M6	1.0	9.78...10.0	11.05	4.7...5.0	2.5
M8	1.25; 1.0	12.73...13.0	14.38	6.14...6.5	5.2
M16	2.0, 1.5	23.67...24.0	26.75	12.3...13	37.61



COATING

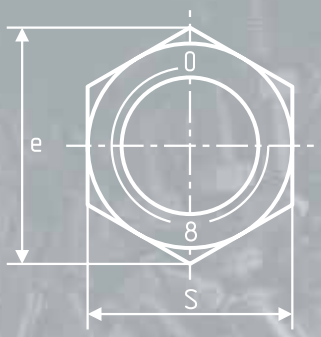
- HD Galvanazing (HDG).
- Zinc coating up to 20 micrometres.
- Thermo-diffusion up to 30 micrometres.
- Black oxide coating with oiling.
- Oiled without coating.
- Other types.

PACKAGING

- Cardboard boxes, 25 kg net weight, 15 kg and less.
- The boxes are stacked on pallets.

CERTIFICATE

- F3.1 Fastener test report ISO 16228.



Severstal
Metiz

RAILWAY FASTENERS

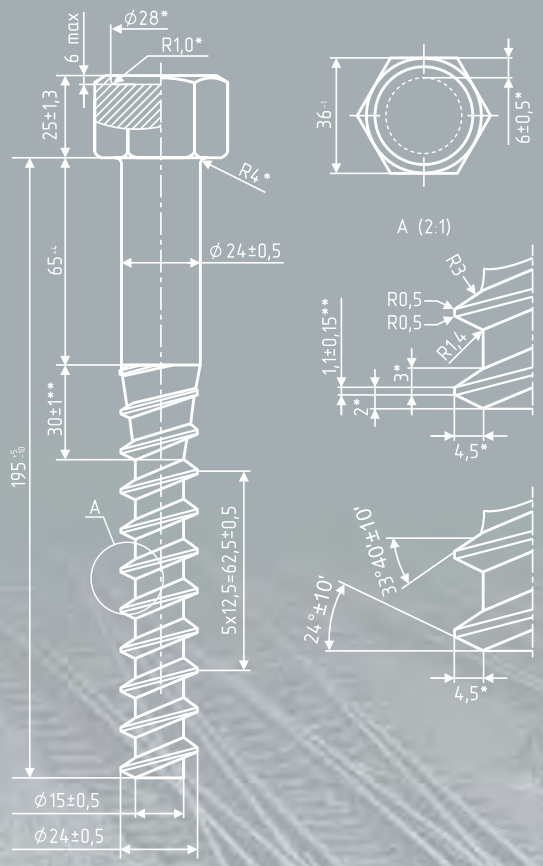
LONG HEX HEAD SLEEPER SCREW TSP 54 (ЦП 54 - RUS) FOR RAILWAY FASTENING

GOST 809-2014

The product is a constituent part of track structure railway fastening of ZHBR-65 (ЖБР-65 - Rus) type, applied for ferroconcrete sleepers and track switch cross bars. Used in types of railway fastening such as: ZHBR-65SH (ЖБР-65Ш - Rus), ZHBR-65PSH (ЖБР-65ПШ - Rus), ZHBR-65PSHM (ЖБР-65ПШМ - Rus), SM-1 (СМ-1 - Rus) and others.

Marking: on the face of the head the letter of manufacturer is applied – "Ч" (Cherepovets plant).

Dimension range	24x195
Accuracy grade	C
Steel grade	20
Weight 1000 pcs., kg	660



INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF ZHBR-65PSHM TYPE

Declaration of Conformity

ЕАС

ТАМОЖЕННЫЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Сведения о регистрации декларации о соответствии

Регистрационный номер декларации о соответствии
ТС N RU Д-RU.ЭТ02.В.00284
Дата регистрации декларации о соответствии
15.04.2016

SLEEPER SCREW OF VOSSLOH TYPE WITH FIXED WASHER ULS7

GOST 809-2014

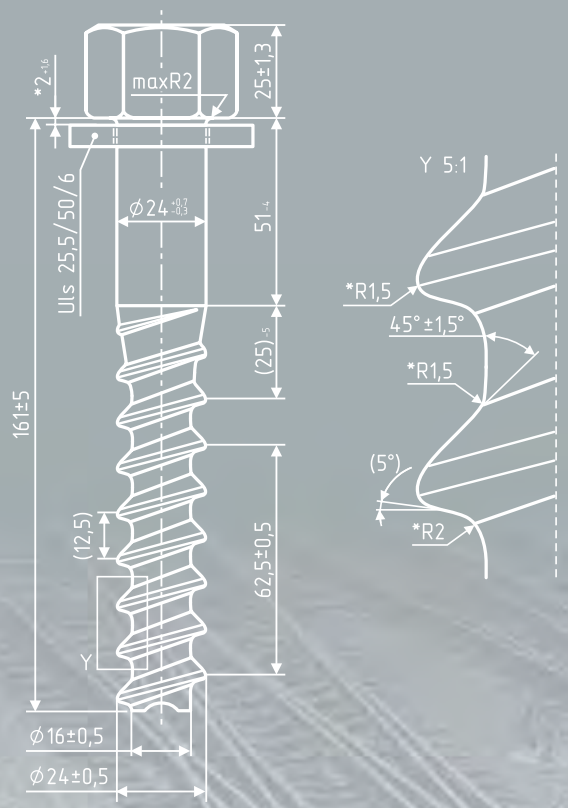
The product is a constituent part of track structure railway fastening of Vossloh type, applied for ferroconcrete sleepers and track switch cross bars. Applied in railway fastening of System W-30 type.

Screws are supplied in 2 types: with hexagon head and square head.

Marking: on the face of the head the letter of manufacturer is applied – "Ч"(Cherepovets plant).

Upon customer's request additional marking can be applied.

Dimension range	24x161
Accuracy grade	B
Steel grade	25G2A
Weight 1000 pcs., kg	685



INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF SYSTEM W-30 TYPE

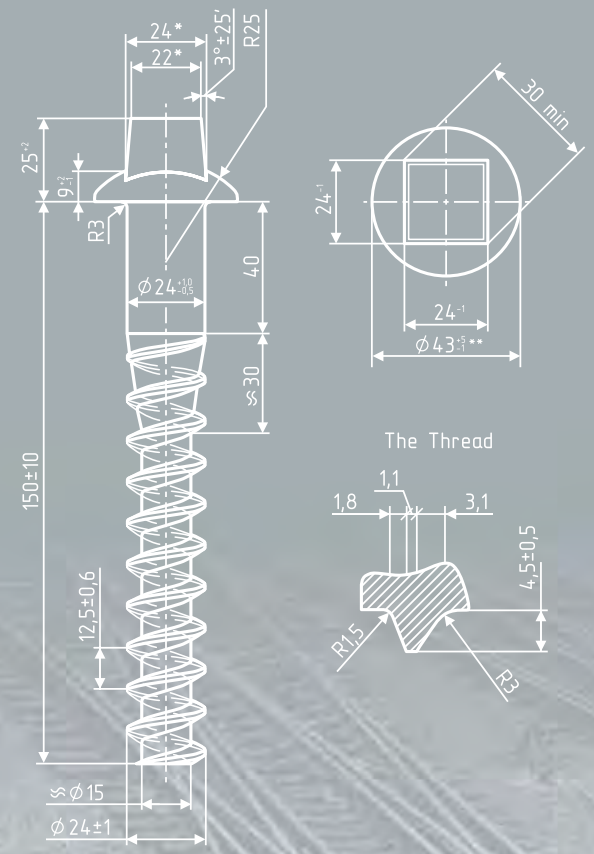
SLEEPER SCREWS FOR RAILWAY FASTENING

GOST 809-2014

The product is a constituent part of track structure railway fastening of wooden sleepers.
Applied in railway fastening of KD-65 type.

Marking: on the face of the head the letter of manufacturer is applied – "Ч" (Cherepovets plant).

Dimension range	24x150
Accuracy grade	C
Steel grade	20
Weight 1000 pcs., kg	520-540



Declaration of Conformity

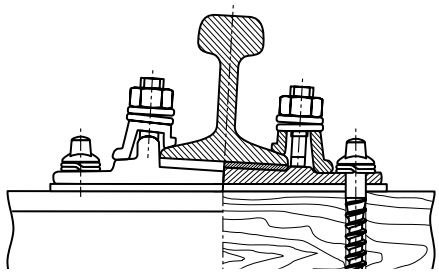
ТАМОЖЕННЫЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Сведения о регистрации декларации о соответствии:

Регистрационный номер декларации о соответствии: ТС N RU Д-RU.ЖТ02.В.00143

Дата регистрации декларации о соответствии 14.10.2015

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF KD-65 TYPE



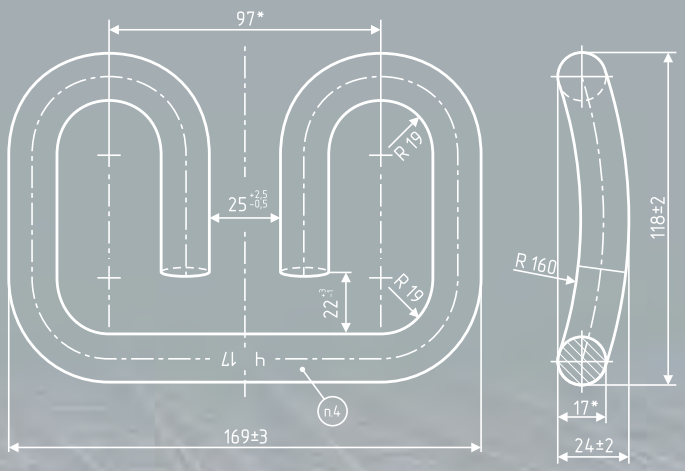
RAILWAY SPRING CLIP OF ZHBR-65 TYPE (ЖБР-65 - RUS)

TSP 369 TU-1 (ЦП 369 ТУ 1 - RUS)

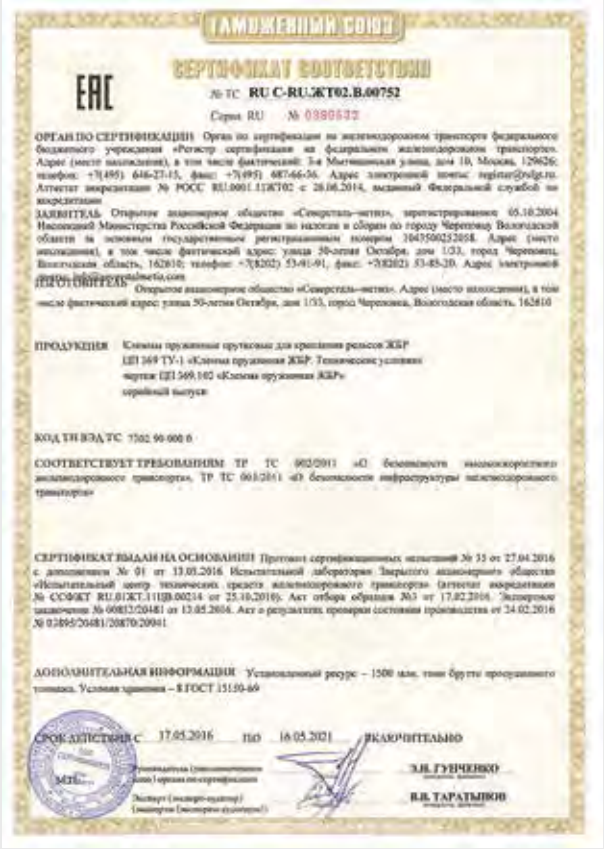
The product is a constituent part of track structure railway fastening of ZHBR-65 (ЖБР-65 - Rus) type, applied for ferroconcrete sleepers. Used in types of railway fastening such as: ZHBR-65SH (ЖБР-65Ш - Rus), ZHBR-65PSH (ЖБР-65ПШ - Rus), ZHBR-65PSHM (ЖБР-65ПШМ - Rus), SM-1 (СМ-1 - Rus) and others.

Marking: on the reference branch of railway spring clip the letter of manufacturer – "Ч" (Cherepovets plant) and 2 last letters of the year of manufacture are applied.

Dimension range	ZHBR-65
Hardness	42-49 HRC
Steel grade	40C2
Weight 1000 pcs., kg	920



Certificate of Conformity



ТАМОЖЕННЫЙ СОЮЗ

ЕАС

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ТС RU C-RU.ЖТ02.В.00752

Серия RU № 0380532

ОРГАН ПО СЕРТИФИКАЦИИ Орган по сертификации на железнодорожном транспорте федерального бюджетного учреждения «Регистр сертификации на федеральном железнодорожном транспорте». Адрес (место нахождения), в том числе фактический: 3-я Мытищинская улица, дом 10, Москва, 129626; телефон: +7(495) 646-27-15, факс: +7(495) 687-66-36. Адрес электронной почты: registar@rzdgt.ru. Аттестат аккредитации № РОСС RU.0001.11ЖТ02 с 28.06.2014, выданный Федеральной службой по аккредитации

ЗАЯВИТЕЛЬ Открытое акционерное общество «Северсталь-метиз», зарегистрированное 05.10.2004 Инспекцией Министерства Российской Федерации по налогам и сборам по городу Череповцу Вологодской области за основным государственным регистрационным номером 1043500252058. Адрес (место нахождения), в том числе фактический адрес: улица 50-летия Октября, дом 1/33, город Череповец, Вологодская область, 162610; телефон: +7(8202) 53-91-91, факс: +7(8202) 53-85-20. Адрес электронной почты: info@severstalmetiz.com

ИЗГОТОВИТЕЛЬ Открытое акционерное общество «Северсталь-метиз». Адрес (место нахождения), в том числе фактический адрес: улица 50-летия Октября, дом 1/33, город Череповец, Вологодская область, 162610

ПРОДУКЦИЯ Клеммы пружинные крутосовые для крепления рельсов ЖБР ЦП 369 ТУ-1 «Клеммы пружинные ЖБР. Технические условия» чертеж ЦП 369.102 «Клемма пружинная ЖБР» серийный выпуск

КОД ТН ВЭД ТС 7302 90 000 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 002/2011 «О безопасности высокоскоростного железнодорожного транспорта», ТР ТС 003/2011 «О безопасности инфраструктуры железнодорожного транспорта»

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ Протоколов сертификационных испытаний № 35 от 27.04.2016 с дополнением № 01 от 13.05.2016 Испытательной лаборатории Закрытого акционерного общества «Испытательный центр технических средств железнодорожного транспорта» (аттестат аккредитации № ССФЖТ RU.ИЛЖТ.11ЦВ.00234 от 25.10.2016). Акт отбора образцов №3 от 17.02.2016. Экспертное заключение № 00813/20481 от 13.05.2016. Акт о результатах проверки состояния производства от 24.02.2016 № 0.0895/20681/20870/20901

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Установленный ресурс – 1500 млн. тонн брутто пропущенного тоннажа. Условия хранения – 8 ГОСТ 15150-69

СРОК ДЕЙСТВИЯ С 17.05.2016 ПО 16.05.2021 ВКЛЮЧИТЕЛЬНО

Э.Н. ГУЧЕНКО

В.В. ТАРАТЫНОВ

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF ZHBR-65PSH TYPE

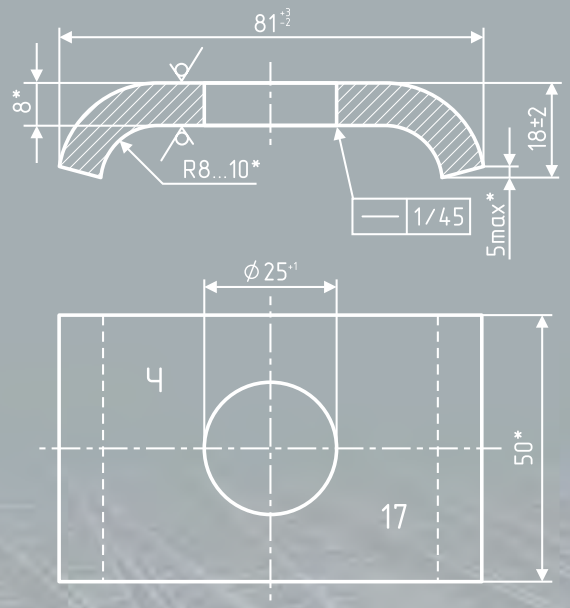
CONNECTION CLIP FOR RAILWAY FASTENING OF ZHBR-65 TYPE (ЖБР-65 - RUS)

TSP 369 TU-3 (ЦП 369 ТУ 3 - RUS)

The product is a constituent part of track structure railway fastening of ZHBR-65 (ЖБР-65 - Rus) type, applied for ferroconcrete sleepers. Used in types of railway fastening such as: ZHBR-65 (ЖБР-65 - Rus), ZHBR-65Sh (ЖБР-65Ш - Rus).

Marking: on one side of the clip the letter of manufacturer – "Ч" (Cherepovets plant) and 2 last letters of the year of manufacture are applied.

Dimension range	8x50
Steel grade	3
Bore diameter, mm	25^{+1}
Weight 1000 pcs., kg	230



INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF ZHBR-65SH TYPE

FLAT ROUND WASHER FOR RAILWAY FASTENING

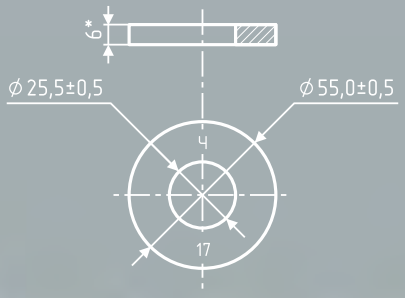
STO 71915393 - TU 097, GOST 18123-82

The product is a constituent part of track structure railway fastening of ZHBR-65 (ЖБР-65 - Rus) type, applied for ferroconcrete sleepers. Used in railway fastening such as: SM-1, ZHBR-65PSH (ЖБР-65ПШ - Rus), ZHBR-65PSHM (ЖБР-65ПШМ - Rus) types and others.

Marking: on one side of the washer the letter of manufacturer – "Ч" (Cherepovets plant) and 2 last letters of the year of manufacture are applied.

Upon customer's request washers can be produced with other geometrical parameters and of other steel grades.

Type	1	4	5
Outer diameter, mm	48	50	55
Internal diameter, mm	25.5	25.5	25.5
Thickness, mm	6	6	6
Steel grade	20; 35; 45	20; 35; 45	20; 35; 45



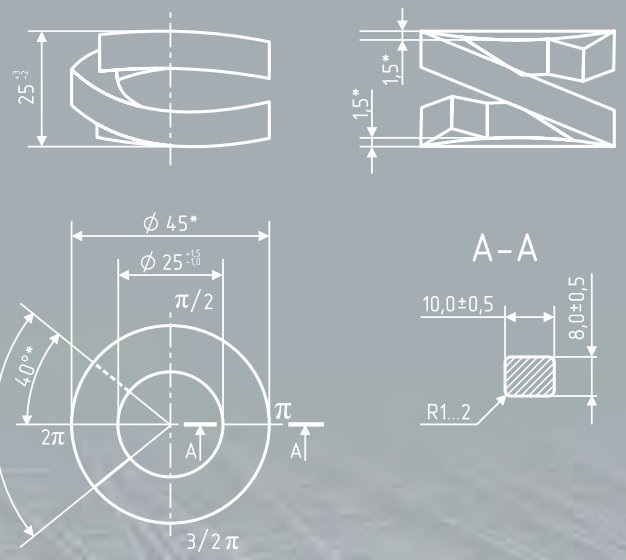
INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF SM-1 TYPE

DOUBLE COIL SPRING LOCK WASHER

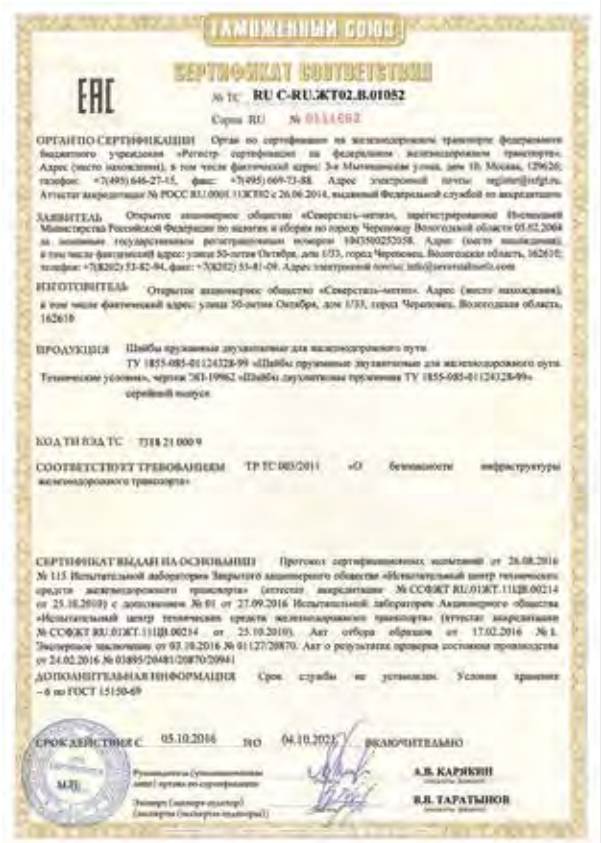
TU 1855-085-01124328

The product is a constituent part of track structure railway fastening of KB-65 (КБ-65 - Rus) type, applied for ferroconcrete sleepers.

Internal diameter, mm	25
Accuracy grade	C
Steel grade	40C2
Weight 1000 pcs., kg	120



Certificate of Conformity



ТАМОЖЕННЫЙ СОЮЗ

ЕАС

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ТС RU C-RU.ЖТ02.В.01052

Серия RU № 0116582

ОРГАН ПО СЕРТИФИКАЦИИ Орган по сертификации на железнодорожном транспорте федерального бюджетного учреждения «Регистр сертификации на федеральном железнодорожном транспорте». Адрес (место нахождения), в том числе фактический адрес: 3-я Мытищинская улица, дом 10, Москва, 129626; телефон: +7(495) 646-27-15, факс: +7(495) 669-73-88. Адрес электронной почты: reginter@refgt.ru. Аттестат аккредитации № РОСС RU.0001.11ЖТ02 с 26.06.2014, выданный Федеральной службой по аккредитации

ЗАЯВИТЕЛЬ Открытое акционерное общество «Северсталь-метиз», зарегистрированное Инспекцией Министерства Российской Федерации по налогам и сборам по городу Череповцу Вологодской области 05.02.2004 за основным государственным регистрационным номером 1043500255058. Адрес: (место нахождения), в том числе фактический адрес: улица 50-летия Октября, дом 1/33, город Череповец, Вологодская область, 162610; телефон: +7(8202) 53-82-94, факс: +7(8202) 53-81-09. Адрес электронной почты: info@severstalmetiz.com

ИЗГОТОВИТЕЛЬ Открытое акционерное общество «Северсталь-метиз». Адрес (место нахождения), в том числе фактический адрес: улица 50-летия Октября, дом 1/33, город Череповец, Вологодская область, 162610

ПРОДУКЦИЯ Шайбы пружинные двухвитковые для железнодорожного пути. ТУ 1855-085-01124328-99 «Шайбы пружинные двухвитковые для железнодорожного пути. Технические условия», чертеж ЭБ3-19962 «Шайбы двухвитковые пружинные ТУ 1855-085-01124328-99». серийный выпуск

КОД ТН ВЭД ТС 7318 21 000 9

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 003/2011 «О безопасности инфраструктуры железнодорожного транспорта»

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ Протокол сертификационных испытаний от 26.08.2016 № 115 Испытательной лаборатории Закрытого акционерного общества «Испытательный центр технических средств железнодорожного транспорта» (аттестат аккредитации № СОЮЗ RU.0103ЖТ.11ЦВ.00214 от 25.10.2010) с дополнением № 01 от 27.09.2016 Испытательной лаборатории Акционерного общества «Испытательный центр технических средств железнодорожного транспорта» (аттестат аккредитации № СОЮЗ RU.0103ЖТ.11ЦВ.00214 от 25.10.2010). Акт отбора образцов от 17.02.2016 № 1. Экспертное заключение от 03.10.2016 № 01127/20870. Акт о результатах проверки состояния производства от 24.02.2016 № 03895/20481/20870/2016

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Срок службы не установлен. Условия хранения – 6 по ГОСТ 15150-69

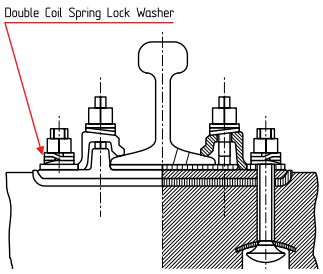
СРОК ДЕЙСТВИЯ С 05.10.2016 ПО 04.10.2021 ВКЛЮЧИТЕЛЬНО

М.П.

А.В. КАРЯКИН

В.В. ТАРАТЫНОВ

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF KB-65 TYPE



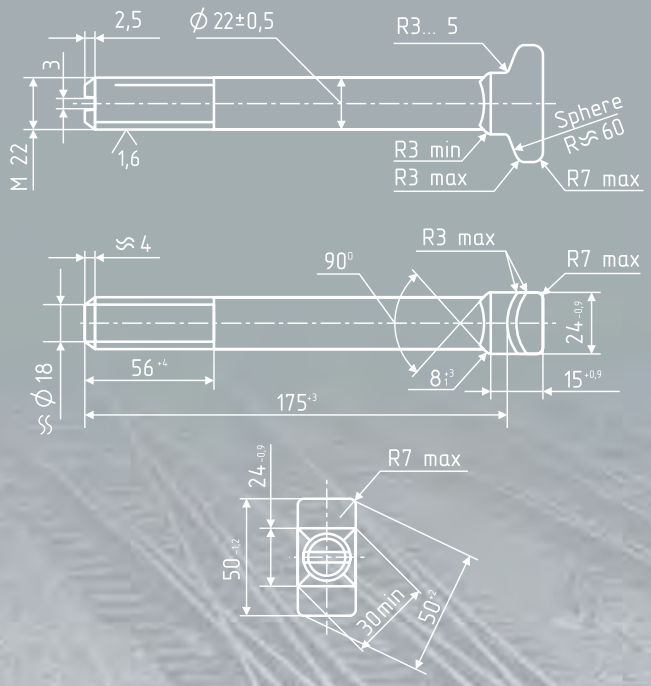
EMBEDDED BOLT FOR RAILWAY TRACK FASTENING

GOST 16017-2014

The product is a constituent part of track structure railway fastening of КВ-65 (КБ-65 - Rus), ZHBR-65 (ЖБР-65 - Rus) types, applied for ferroconcrete sleepers.

Upon customer's request bolts can be produced with other geometrical parameters and of other steel grades. Bolts can be supplied completed with nuts or separately.

Dimension range	M22x175
Accuracy grade	B
Tolerance zone of the thread	8g
Tensile strength grade	5.8
Steel grade	5.8
Weight 1000 pcs., kg	620-640



Declaration of Conformity

ЕАС

ТАМОЖЕННЫЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Сведения о регистрации декларации о соответствии:
Регистрационный номер декларации о соответствии
ТС N RU Д-RU.ЖТ02.В.00212
Дата регистрации декларации о соответствии 25.12.2015

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF ZHBR-65 TYPE

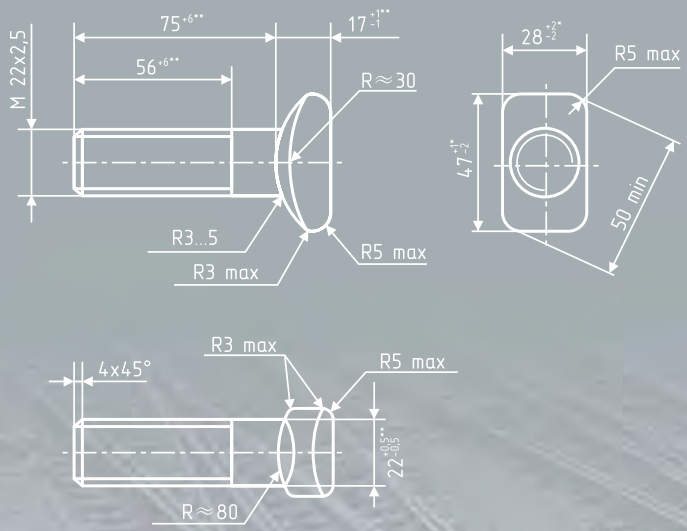
TERMINAL-BLOCK BOLT FOR RAILWAY TRACK FASTENING

GOST 16016-2014

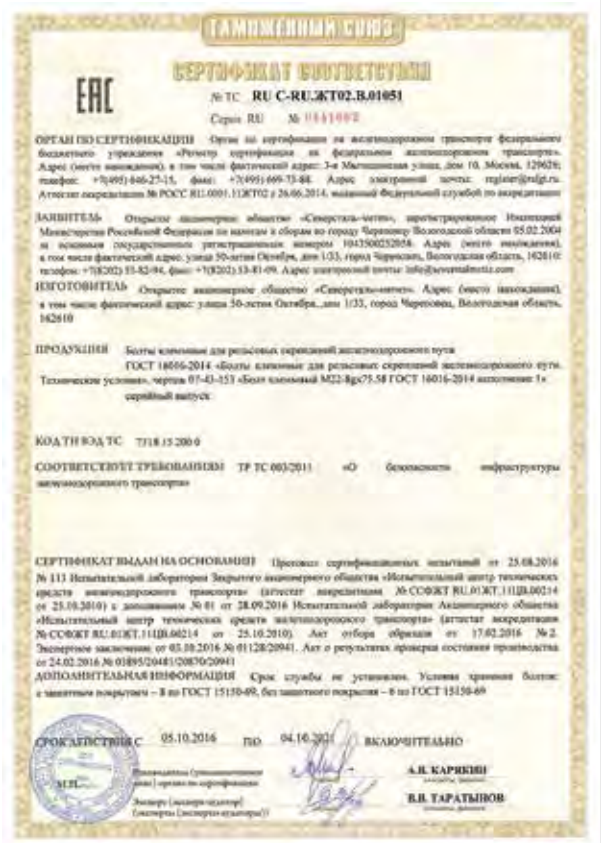
The product is a constituent part of track structure railway fastening of КВ-65 (КБ-65 - Rus) type, applied for ferroconcrete sleepers.

Upon customer's request bolts can be produced with other geometrical parameters and of other steel grades. Bolts can be supplied completed with nuts or separately.

Dimension range	M22x75
Accuracy grade	B
Tolerance zone of the thread	8g
Tensile strength grade	5.8
Steel grade	20
Weight 1000 pcs., kg	330-345



Certificate of Conformity


ТАМОЖЕННЫЙ СОЮЗ

ЕАС

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ТС RU C-RU.ЖТ02.В.01051

Серия RU № 0441002

ОРГАН ПО СЕРТИФИКАЦИИ ... Адрес (место нахождения), в том числе фактический адрес: 3-я Мытищинская улица, дом 10, Москва, 129626; телефон: +7(495) 646-27-15, факс: +7(495) 699-73-88. Адрес электронной почты: register@rzlgt.ru. Аттестат аккредитации № РОСС RU.0001.11ЖТ02 от 26.06.2014, выданный Федеральной службой по аккредитации

ЗАЯВИТЕЛЬ Открытое акционерное общество «Северсталь-метиз», зарегистрированное Инспекцией Министерства Российской Федерации по налогам и сборам по городу Череповцу Вологодской области 05.02.2004 за основным государственным регистрационным номером 1043500252058. Адрес (место нахождения), в том числе фактический адрес: улица 50-летия Октября, дом 1/33, город Череповец, Вологодская область, 162610; телефон: +7(8202) 55-82-94, факс: +7(8202) 53-81-09. Адрес электронной почты: info@severstalmetiz.com

ИЗГОТОВИТЕЛЬ Открытое акционерное общество «Северсталь-метиз». Адрес (место нахождения), в том числе фактический адрес: улица 50-летия Октября, дом 1/33, город Череповец, Вологодская область, 162610

ПРОДУКЦИЯ Болты клиновые для рельсовых скреплений железнодорожного пути ГОСТ 16016-2014 «Болты клиновые для рельсовых скреплений железнодорожного пути. Технические условия», чертеж 07-43-153 «Болт клиновый М22-8gх75.58 ГОСТ 16016-2014 исполнение 1», серийный выпуск

КОД ТН ВЭД ТС 7318 15 200 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 003/2011 «О безопасности инфраструктуры железнодорожного транспорта»

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ Протоколов сертификационных испытаний от 25.08.2016 № 113 Испытательной лаборатории Закрытого акционерного общества «Испытательный центр технических средств железнодорожного транспорта» (аттестат аккредитации № СОЮЖТ RU.0ЖТ.11ЦВ.00214 от 25.10.2010) с дополнением № 01 от 28.09.2016 Испытательной лаборатории Акционерного общества «Испытательный центр технических средств железнодорожного транспорта» (аттестат аккредитации № СОЮЖТ RU.0ЖТ.11ЦВ.00214 от 25.10.2010). Акт отбора образцов от 17.02.2016 № 2. Экспертное заключение от 03.10.2016 № 01128/20941. Акт о результатах проверки состояния производства от 24.02.2016 № 01895/20481/20870/20941

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Срок службы не устанавлен. Условия хранения болтов: с защитным покрытием – 8 по ГОСТ 15150-69, без защитного покрытия – 6 по ГОСТ 15150-69

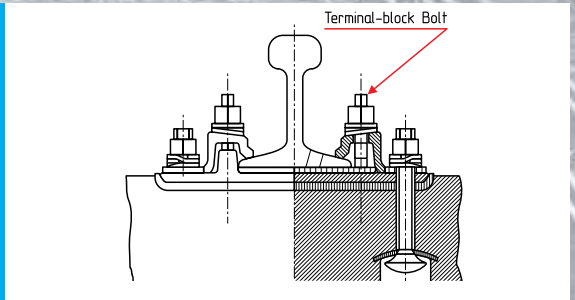
СРОК ДЕЙСТВИЯ С 05.10.2016 ПО 04.10.2021 ВКЛЮЧИТЕЛЬНО

М.П.

А.Н. КАРИКИН

В.В. ТАРАТЫНОВ

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF KB-65 TYPE



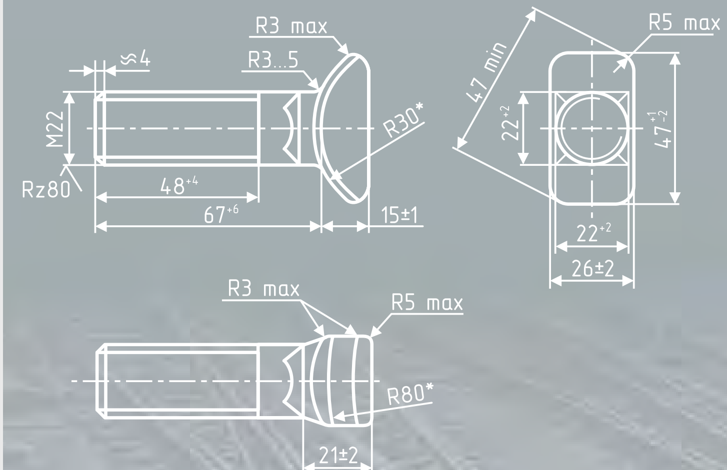
TERMINAL-BLOCK BOLT FOR RAILWAY TRACK FASTENING

OST 32.161-2000

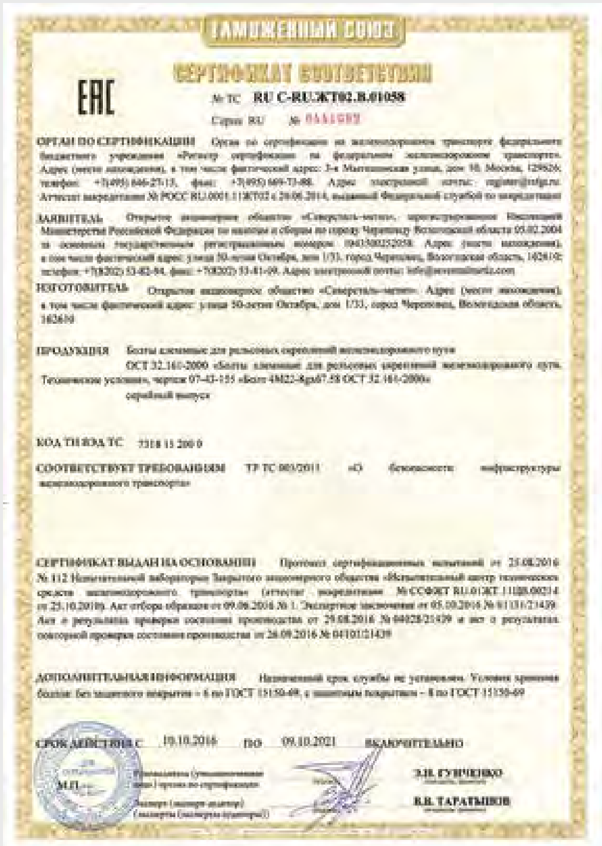
The product is a constituent part of track structure railway fastening of KB-65 (КБ-65 - Rus) type, applied for track switches.

Upon customer's request bolts can be produced with other geometrical parameters and of other steel grades. Bolts can be supplied completed with nuts or separately.

Dimension range	M22x67
Type	4
Accuracy grade	B
Tolerance zone of the thread	8g
Tensile strength grade	5.8
Steel grade	20
Weight 1000 pcs., kg	315-325



Certificate of Conformity



ТАМОЖЕННЫЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ТС RU C-RU.ЖТ02.В.01058

ОРГАН ПО СЕРТИФИКАЦИИ [illegible]

ЗАЯВИТЕЛЬ [illegible]

ИЗГОТОВИТЕЛЬ [illegible]

ПРОДУКЦИЯ [illegible] ОСТ 32.161-2000 [illegible]

КОД ТН ВЭД ТС 7318 15 200 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 003/2011 «О безопасности инфраструктуры железнодорожного транспорта»

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ [illegible]

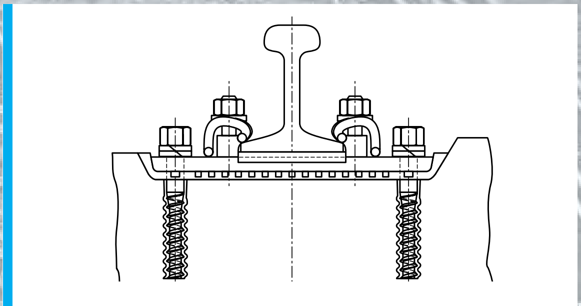
ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ [illegible]

СРОК ДЕЙСТВИЯ С 10.10.2016 ПО 09.10.2021 ВКЛЮЧИТЕЛЬНО

Э.В. ГУНЧЕНКО

В.В. ТАРАТЫНОВ

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING FOR TRACK SWITCHES

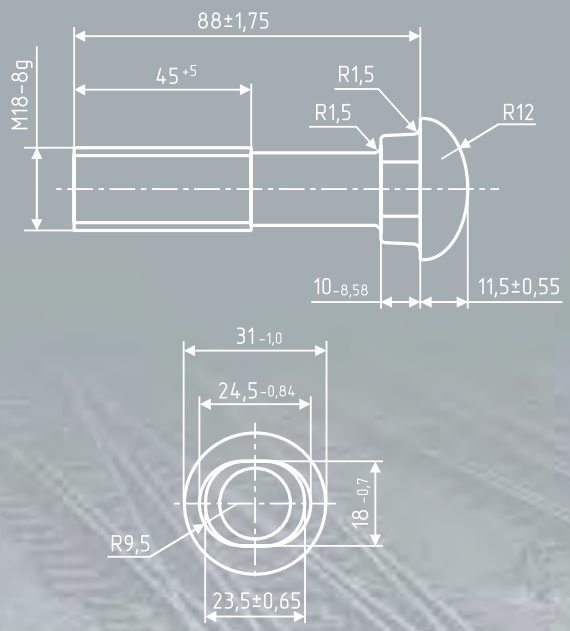


TRACK BOLT FOR FASTENING OF RAILS OF THE NARROW GAUGE

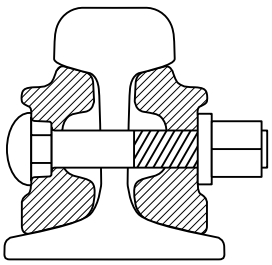
GOST 8144-73

The product is applied for joint of rails of the narrow gauge.
Upon customer's request bolts can be produced with other geometrical parameters and of other steel grades.

Dimension range	M18x88
Accuracy grade	B
Tolerance zone of the thread	8g
Tensile strength grade	3.6; 5.8
Steel grade	10; 20
Weight 1000 pcs., kg	200-215



RAILS JOINT



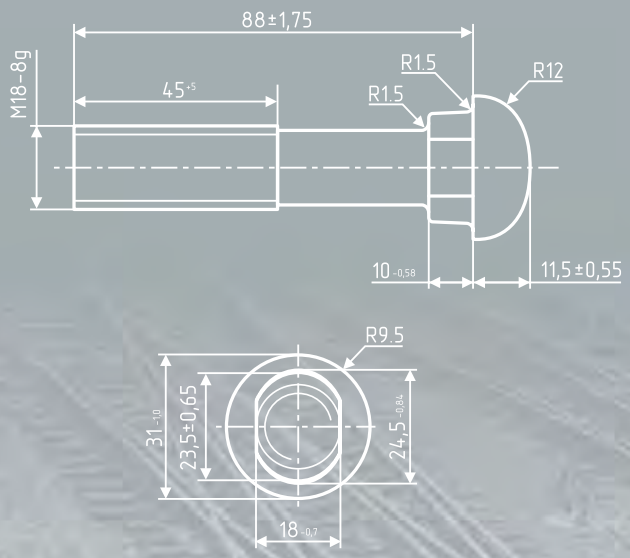
BOLT FOR RAILS JOINT OF RAILWAY TRACK

GOST 11530-2014

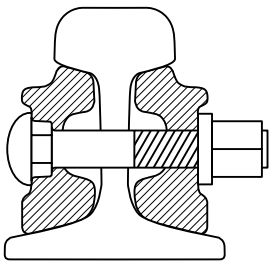
The product is applied for joint of rails of R65 type.

Upon customer's request bolts can be produced with other geometrical parameters and of other steel grades. Bolts can be supplied completed with nuts or separately.

Dimension range	M22x135
Type	1
Accuracy grade	C
Tolerance zone of the thread	8g
Tensile strength grade	5.8
Steel grade	20
Weight 1000 pcs., kg	810-835



RAILS JOINT



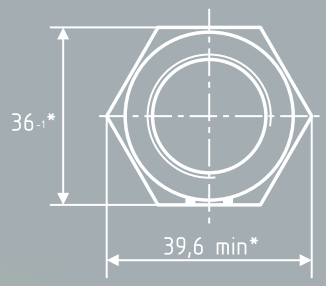
NUTS FOR TERMINAL-BLOCK AND EMBEDDED BOLTS FOR RAILWAY TRACK FASTENING

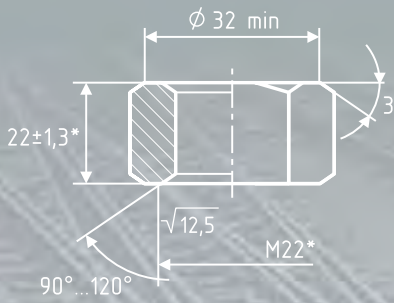
GOST 16018-2014

The product is a constituent part of track structure railway fastening of КВ-65 (КБ-65 - Rus) type, applied for ferroconcrete sleepers.

Upon customer's request nuts can be produced with other geometrical parameters and of other steel grades. Nuts can be supplied completed with bolts or separately.

Dimension range	M22
Accuracy grade	B
Tolerance zone of the thread	7H
Tensile strength grade	5 or 6
Steel grade	20; 25
Weight 1000 pcs., kg	120-130





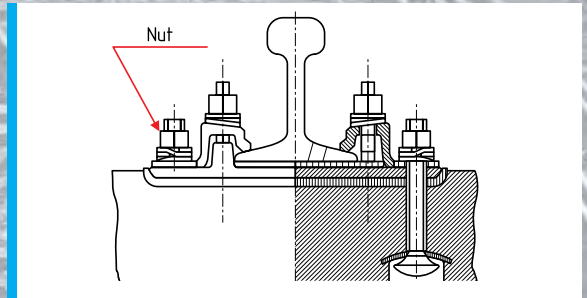
Declaration of Conformity

ЕАС

ТАМОЖЕННЫЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Сведения о регистрации декларации о соответствии
Регистрационный номер декларации о соответствии:
ТС N RU Д-RU.ЖТ02.В.00254
Дата регистрации декларации о соответствии:
10.03.2016

INTERMEDIATE RAILWAY TRACK STRUCTURE FASTENING OF КВ-65 TYPE



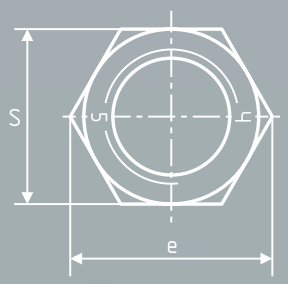
NUT FOR RAILS JOINT OF RAILWAY TRACK

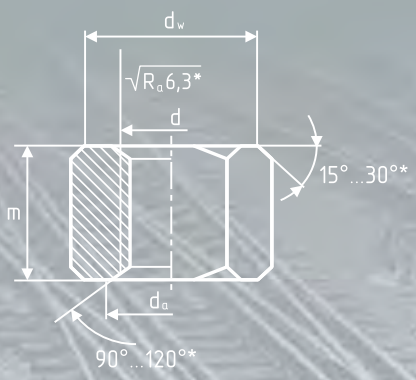
GOST 11532-2014

The product is applied for joint of rails of R65 type.

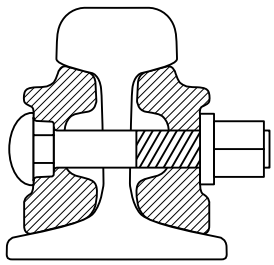
Upon customer's request nuts can be produced with other geometrical parameters and of other steel grades. Nuts can be supplied completed with bolts or separately.

Dimension range	M24	M27
Type	2	2
Accuracy grade	B	B
Tolerance zone of the thread	7H	7H
Tensile strength grade	5	5
Steel grade	35	35
Weight 1000 pcs., kg	135-150	215-225





RAILS JOINT



INTERMEDIATE RAILWAY FASTENING OF SM-1 TYPE

Railway fastening SM-1 refers to the inseparable unlined types of railway fastening with steel spring terminals clamping rails to under-rail base.

Railway fastening of SM-1 type includes the following items:

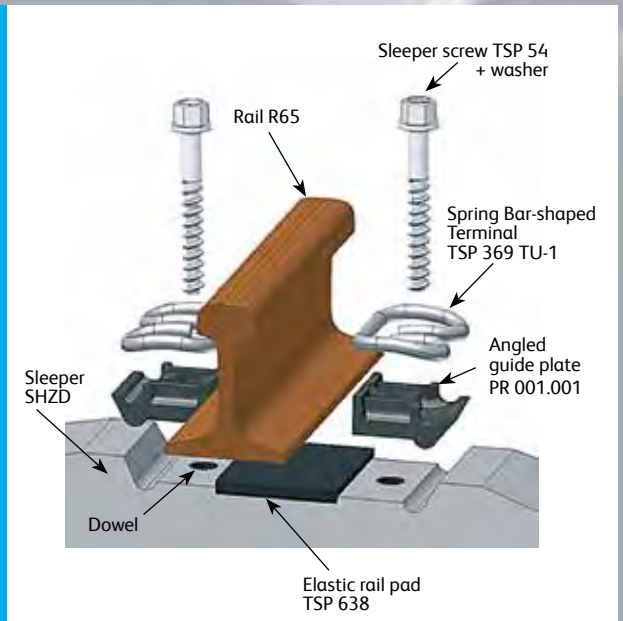
Sleeper screw TSP 54 GOST 809-2014 – 2 pcs.

Spring bar-shaped terminal of ZHBR type TSP 369 TU-1 – 2 pcs.

Flat round washer STO 71915393-TU097 – 2 pcs.

Polymer side guide TU-PR-01 – 2 pcs.

Elastic rail pad of ZHBR type TSPT 638 – 1 pc.



Certificate of Conformity

СИСТЕМА СЕРТИФИКАЦИИ
НА ФЕДЕРАЛЬНОМ ЖЕЛЕЗНОДОРОЖНОМ ТРАНСПОРТЕ
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА

Федеральное бюджетное учреждение
«Регистр сертификации
на федеральном железнодорожном транспорте»
(ФБУ «РС ФЖТ»)

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ССФЖТ RU.ЦП07.А.08694

Действителен до

НАСТОЯЩИЙ СЕРТИФИКАТ УДОСТОВЕРЯЕТ, ЧТО ДОЛЖНЫМ ОБРАЗОМ ИДЕНТИФИЦИРОВАННАЯ ПРОДУКЦИЯ

РЕЛЬСОВЫЕ СКРЕПЛЕНИЯ СМ-1

3 (три) образца (№№ 1-3),

ОКП 31 8544

ТН ВЭД 7302 90 0000

соответствующая требованиям технической документации СМ 01.000 и технических условий ЦПТ ВАО ОАО «РЖД» на детали:
клемма пружинная ЖБР - чертеж ЦП 369.102,
технические условия ЦП 369 ТУ-1;
упор боковой полимерный - чертеж ПР 001.001,
технические условия ТУ-ПР-01;
шуруп путевой удлиненный с шестигранной головкой - чертеж 2005-15.00.000, ТУ 1293-165-01124323-2005;
прокладка для рельсовых скреплений железнодорожного пути ЦП 638 категория К, исполнение ПД - чертеж ЦП 638, ТУ 2539-101-01124323-2004;
шайба плоская круглая - чертеж СМ.01.001, технические условия СТО 71915393-ТУ097-2010)

СООТВЕТСТВУЕТ НОРМАМ БЕЗОПАСНОСТИ, УСТАНОВЛЕННЫМ НБ ЖТ ЦП 122-2033 (ПУНКТЫ 1.1, 1.2, 1.3, 1.4, 2.1, 2.3, 3.1, 3.2, 4).

ЗАЯВИТЕЛЬ: Открытое акционерное общество «Северсталь-метиз», ул. 50-летия Октября, 1/33, г. Череповец, Вологодская область, 162610.

Руководитель
Регистра сертификации
Э.Н. Гуренко

Severstal
Metiz

STEEL SHAPED PROFILES

HOT-ROLLED SHAPED PROFILES

TU 14-1-5144-92

DESCRIPTION

Hot-rolled profiles are produced for manufacture of billets designated for products or component parts requiring additional mechanical finishing.

TECHNICAL REQUIREMENTS

Bar twisting around the long axis is not more than 3° per 1 m length.

Bar straightness - not more than 3 mm per 1 m length.

Profiles are produced in bars of random lengths from 2.0 to 7.0 m, specific cut length or length multiple of specific cut length from 1.5 to 7.0 m.

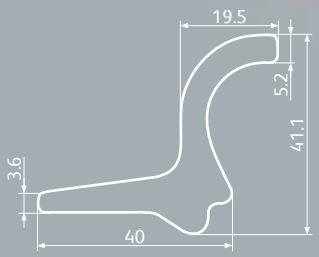
Delivery is made in packs up to 5000 kg.

Profiles are produced from steel grades according to EN 10025, steel grade S235J2; GOST 1050-88; GOST 4543-71.

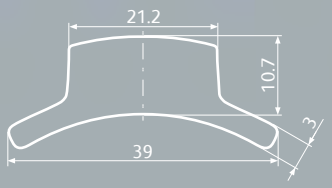
Profiles can be produced from different steel grades in accordance with customers' request.

Steel shaped profiles of any configuration according to customer's drawings can be produced.

Shaped Profile No.1577



Shaped Profile No.1892



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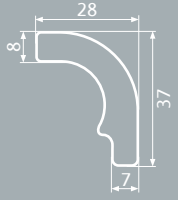
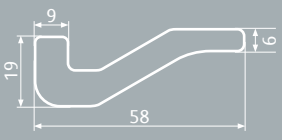
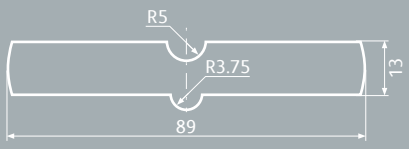


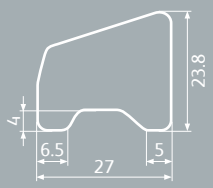
Shaped Profile No.2080



Shaped Profile No.2215



Shaped Profile No.2170



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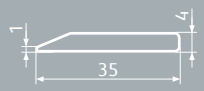
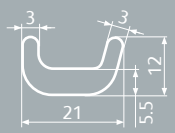
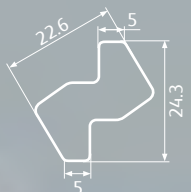


Shaped Profile No.2461



Shaped Profile No.2589

Shaped Profile No.2118



HOT-EXTRUDED SHAPED PROFILES

TU 14-1-3602-2009

DESCRIPTION

Profiles are produced by hot extrusion.
Cross section form is a closed loop, formed by chain of straight and curved lines.

TECHNICAL REQUIREMENTS

Bar twisting around the long axis does not exceed 2° per 1 m length.

Bar straightness is not more than 2 mm per 1 m length.

Total straightness does not exceed the product of permissible bar straightness per one meter and bar length measured in meters.

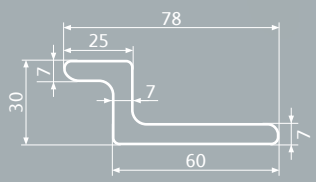
Convexity and concavity in cross section are not more than 1% of overall profile width.

Profiles are produced from steel grades according to EN10025, steel grade S355J2, S355JO, S235JR, S355J2; GOST 1050-88, GOST 4543-71.

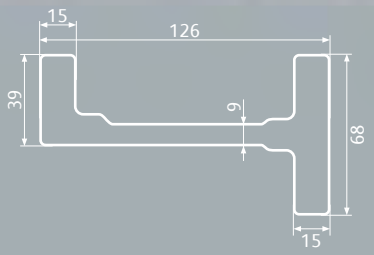
Profiles can be produced from different steel grades in accordance with customers' demand.

Steel shaped profiles of any configuration according customer's drawings can be produced.

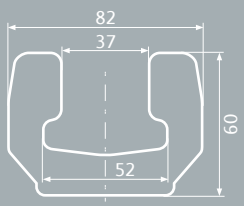
Shaped Profile No.510



Shaped Profile No.1252



Shaped Profile No.633



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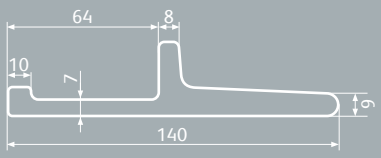

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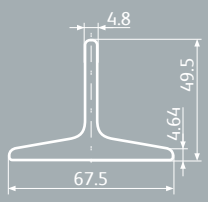

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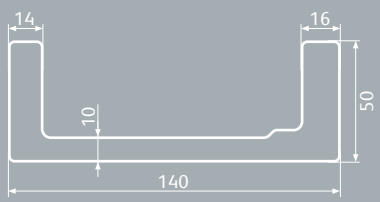

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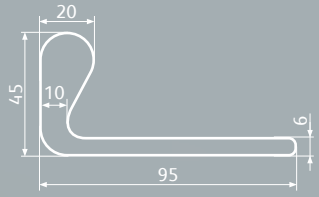
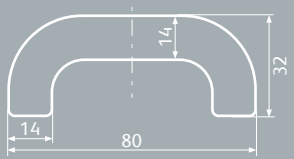


Shaped Profile No.2503



HIGH PRECISION COLD-FORMED SHAPED PROFILES

TU 14-11-245-88

DESCRIPTION

Cold-deformed profiles with a solid cross section are intended for manufacture of component parts without or with insignificant additional finishing.

Tolerance frames of dimensions and profile elements comply with the quality grade H11.

Accuracy of the particular profile manufacturing is determined by the lowest tolerance of quality grade of any cross-section element.

The profiles are produced in bars of specific cut length and multiple specific cut length from 1m up to 7 m.

Profiles with cross section up to 200 mm² can be shipped in rings.

Profiles are produced from steel grades according to EN10025, steel grade S235J2, GOST 1050-88, GOST 4543-71.

Profiles can be produced from different steel grades in accordance with customers' demand.

Steel shaped profiles of any configuration according customer's drawings can be produced.

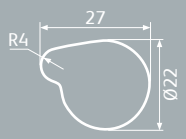
DIMENSIONS OF HIGH ACCURACY COLD-DEFORMED PROFILES

Bar width, mm	Bar thickness, mm														
	18-22	23	24	25	26	27-30	31	32	35	36-40	41	43	44	45-50	55
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24-25	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
27-29	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
30	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-
31-34	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-
35-39	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
40-49	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-
50-55	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-
57-62	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-
63-64	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
65-78	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
79-85	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
86-90	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
95-100	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
105-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115-120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124-127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Shaped Profile No.2588

Shaped Profile No.2205

Shaped Profile No.2442



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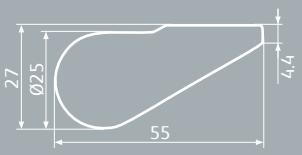

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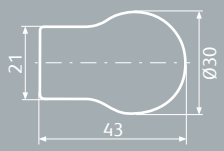

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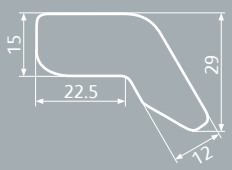

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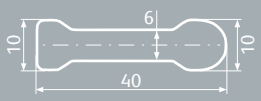
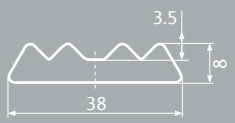
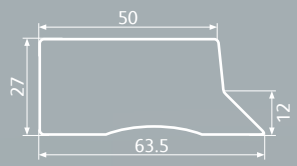


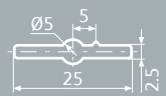
Shaped Profile No.2513



Shaped Profile No.2609



Shaped Profile No.2382



STEEL SHAPED PROFILES FOR SHEET PILING INTERLOCK

TU 14-1-3602-2009

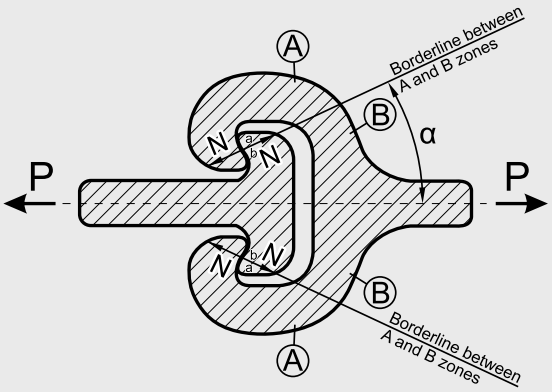
Our company has developed and patented a special system of profiles to make a sheet piling interlock. Such profiles' system can be applied as an interlock in welded, pipe and other sheet piling panels in the process of construction of hydraulic engineering, transport and industrial-civil projects. The interlock has passed the tests in Research and Development Center "Bridges" (Moscow) and in the certified testing center of JSC Severstal-metiz.

Test results of profiles, steel grade 09Г2С with chemical composition according to GOST 19281-89 (minimum tensile grade 325), have been carried out in the certified laboratory of Severstal-metiz and show that:

- Actual breaking force of an interlock on running centimeter basis is: $P1_{\text{specific breaking force}}$ from 38.5 kN/running centimeter up to 46.0 kN/running centimeter.
- Actual maximum normal stresses in flat parts of profiles in case of interlock break are: $\sigma1_{\text{max flat part}}$ from 326 N/mm² (MPa) up to 389 N/mm² (MPa).

Application of this interlock in sheet piling constructions is recommended by the following technological normative documents:

- GOST R 536-29-2009
  Sheet piles of steel cold-formed sections
- TU 5264-001-07851735-2009
  Welded sheet piling profiles
- TU 5264-015-01393674-2012
  Welded sheet piles of half-round section
- TU 5264-016-01393674-2012
  Welded pipe sheet piles




РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ПОЛЕЗНУЮ МОДЕЛЬ

№ 93092

СИСТЕМА ПРОФИЛЕЙ ДЛЯ СОЗДАНИЯ ЗАМКОВОГО СОЕДИНЕНИЯ

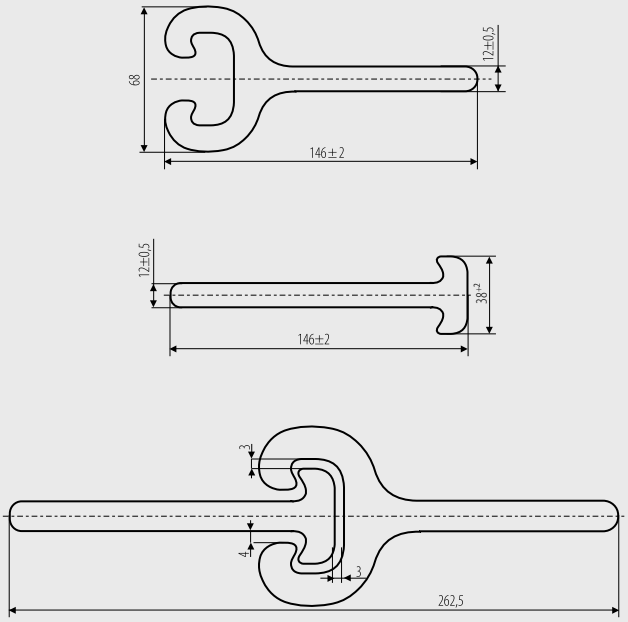
SHAPED PROFILES No.2400, No.2401

TU 14-1-3602-2009

Shaped Profile No.2401	
Area of section	F=2883 mm²
Specific weight	22.6 kg/running meter
Bars length	4400^{+100} (3500^{+100} ... 4400^{+100} mm)

Shaped Profile No.2400	
Area of section	F=2059 mm²
Specific weight	16.2 kg/running meter
Bars length	4400^{+100} (4000^{+100} ... 6200^{+100} mm)

Interlock	
Utilized shaped profiles	No.2400 and No.2401



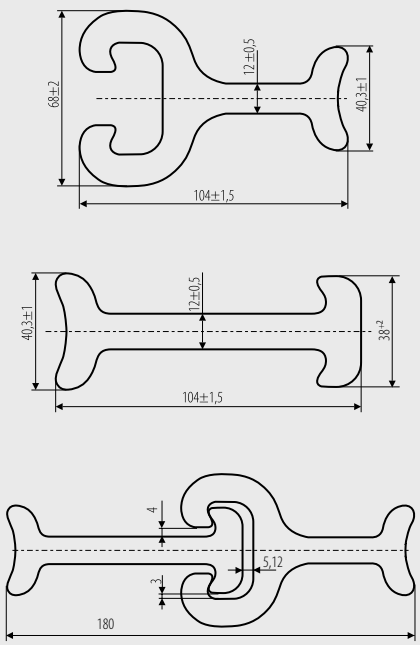
SHAPED PROFILES No.2415, No.2416

TU 14-1-3602-2009

Shaped Profile No.2415	
Area of section	F=2651 mm²
Specific weight	20.8 kg/running meter
Bars length	4000^{+50} (3500^{+50} ... 4700^{+50} mm)

Shaped Profile No.2416	
Area of section	F=1827 mm²
Specific weight	14.3 kg/running meter
Bars length	6000^{+50} (4500^{+50} ... 7000^{+50} mm)

Interlock	
Utilized shaped profiles	No.2415 and No.2416



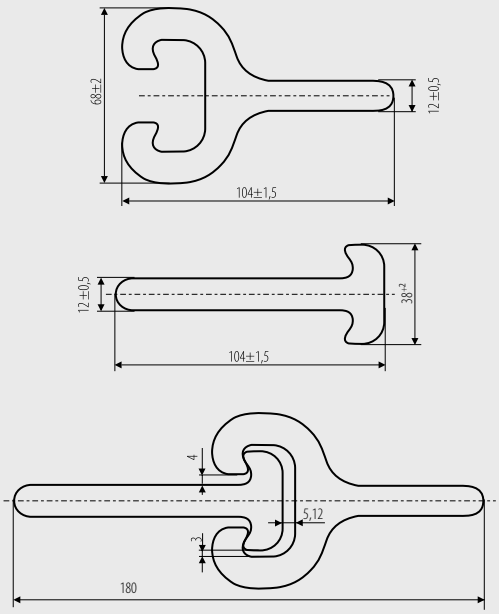
SHAPED PROFILES No.2417, No.2418

TU 14-1-3602-2009

Shaped Profile No.2417	
Area of section	F=2379 mm²
Specific weight	18.7 kg/running meter
Bars length	4000^{+50} ... 5400^{+50} mm

Shaped Profile No.2418	
Area of section	F=1555 mm²
Specific weight	12.2 kg/running meter
Bars length	5200^{+50} ... 7500^{+50} mm

Interlock	
Utilized shaped profiles	No.2417 and No.2418



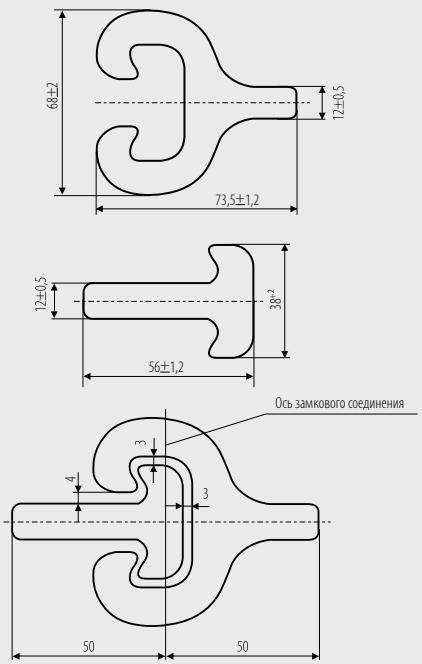
SHAPED PROFILES No.2420, No.2421

TU 14-1-3602-2009

Shaped Profile No.2420	
Area of section	F=2027 mm²
Specific weight	15.9 kg/running meter
Bars length	6000^{+100} (4500^{+100} ... 6400^{+100} mm)

Shaped Profile No.2421	
Area of section	F=990 mm²
Specific weight	7.77 kg/running meter
Bars length	7000^{+100} (7000^{+100} ... 7500^{+100} mm)

Interlock	
Utilized shaped profiles	No.2420 and No.2421



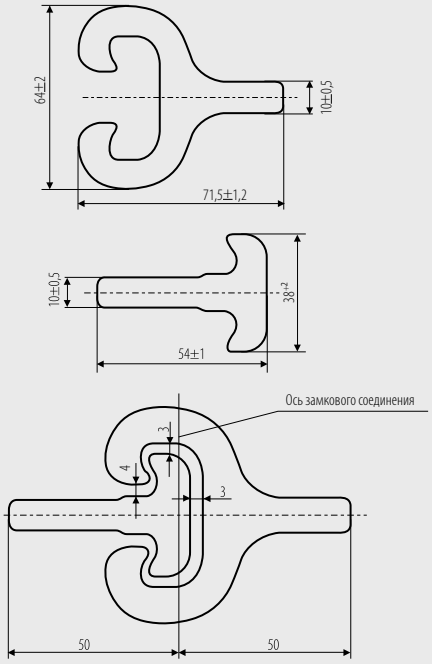
SHAPED PROFILES No.2422, No.2423

TU 14-1-3602-2009

Shaped Profile No.2422	
Area of section	F=1646 mm²
Specific weight	12.9 kg/running meter
Bars length	4500^{+100} ... 6000^{+100} mm

Shaped Profile No.2423	
Area of section	F=851 mm²
Specific weight	6.68 kg/running meter
Bars length	5000^{+100} ... 6200^{+100} mm

Interlock	
Utilized shaped profiles	No.2422 and No.2423



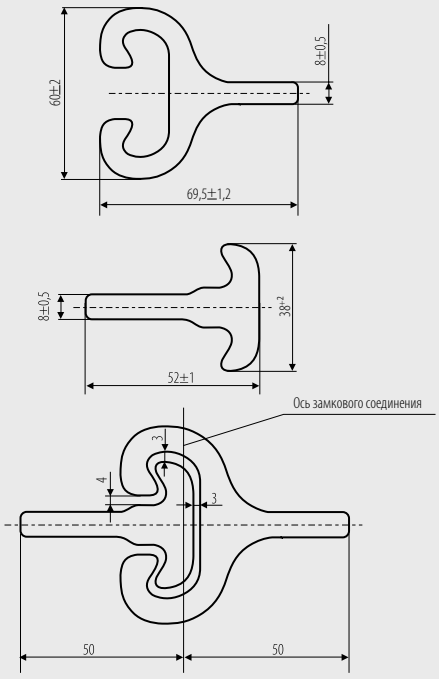
SHAPED PROFILES No.2424, No.2425

TU 14-1-3602-2009

Shaped Profile No.2424	
Area of section	F=1295 mm²
Specific weight	10.2 kg/running meter
Bars length	5000^{+100} ... 7000^{+100} mm

Shaped Profile No.2425	
Area of section	F=709 mm²
Specific weight	5.57 kg/running meter
Bars length	5800^{+100} ... 7500^{+100} mm

Interlock	
Utilized shaped profiles	No.2424 and No.2425



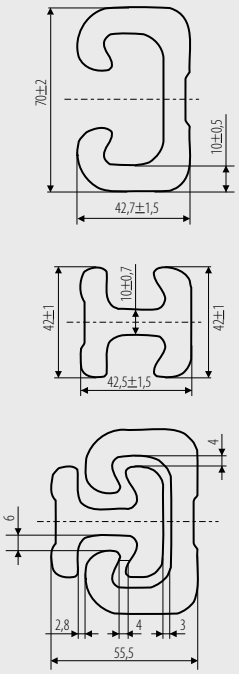
SHAPED PROFILES No.2443, No.2444

TU 14-1-3602-2009

Shaped Profile No.2443	
Area of section	F=1539 mm²
Specific weight	12.1 kg/running meter
Bars length	6500^{+50} (4400^{+50} ... 6500^{+50} mm)

Shaped Profile No.2444	
Area of section	F=1080 mm²
Specific weight	8.48 kg/running meter
Bars length	6500^{+50} (5900^{+50} ... 7500^{+50} mm)

Interlock	
Utilized shaped profiles	No.2443 and No.2444



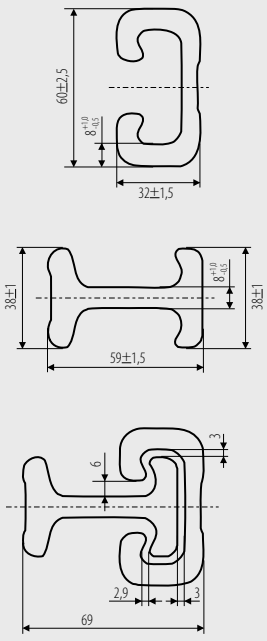
SHAPED PROFILES No.2450, No.2451

TU 14-1-3602-2009

Shaped Profile No.2450	
Area of section	F=959 mm²
Specific weight	7.53 kg/running meter
Bars length	5000^{+50} (4000^{+50} ... 5400^{+50} mm)

Shaped Profile No.2451	
Area of section	F=1019 mm²
Specific weight	8.00 kg/running meter
Bars length	5000^{+50} (3800^{+50} ... 5100^{+50} mm)

Interlock	
Utilized shaped profiles	No.2450 and No.2451



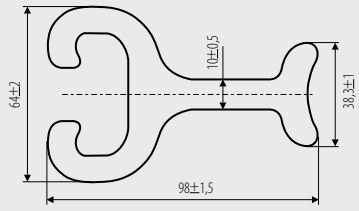
SHAPED PROFILES No.2453, No.2454

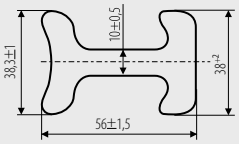
TU 14-1-3602-2009

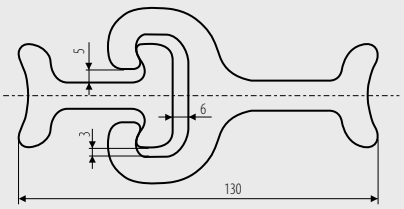
Shaped Profile No.2453	
Area of section	F=2184 mm²
Specific weight	17.1 kg/running meter
Bars length	4000^{+50} ... 5900^{+50} mm

Shaped Profile No.2454	
Area of section	F=1115 mm²
Specific weight	8.75 kg/running meter
Bars length	5700^{+50} ... 7500^{+50} mm

Interlock	
Utilized shaped profiles	No.2453 and No.2454







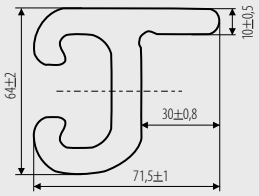
SHAPED PROFILES No.2467, No.2468

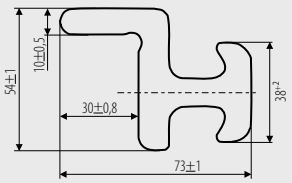
TU 14-1-3602-2009

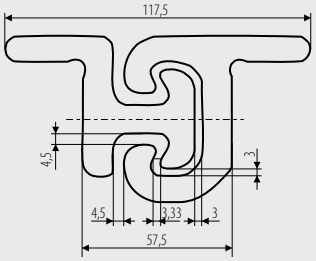
Shaped Profile No.2467	
Area of section	F=1736 mm²
Specific weight	13.6 kg/running meter
Bars length	4700^{+50} ... 7500^{+50} mm

Shaped Profile No.2468	
Area of section	F=1538 mm²
Specific weight	12.1 kg/running meter
Bars length	5300^{+50} ... 7500^{+50} mm

Interlock	
Utilized shaped profiles	No.2467 and No.2468







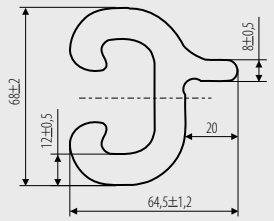
SHAPED PROFILES No.2469, No.2470

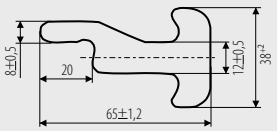
TU 14-1-3602-2009

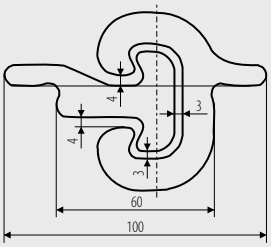
Shaped Profile No.2469	
Area of section	F=1773 mm²
Specific weight	13.9 kg/running meter
Bars length	4500^{+50} ... 7300^{+50} mm

Shaped Profile No.2470	
Area of section	F=1090 mm²
Specific weight	8.56 kg/running meter
Bars length	5900^{+50} ... 7500^{+50} mm

Interlock	
Utilized shaped profiles	No.2469 and No.2470







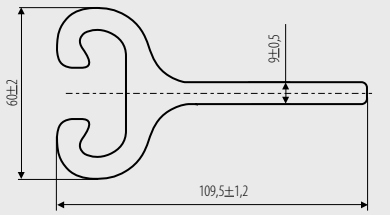
SHAPED PROFILES No.2525, No.2526

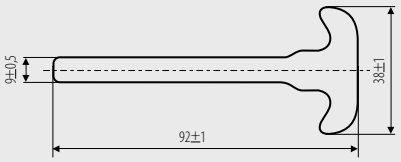
TU 14-1-3602-2009

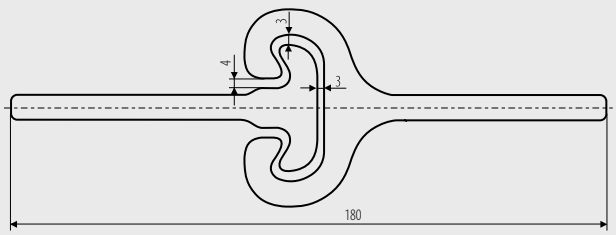
Shaped Profile No.2525	
Area of section	F=1693 mm²
Specific weight	13.3 kg/running meter
Bars length	4000^{+100} (4000^{+100} ... 5800^{+100} mm)

Shaped Profile No.2525	
Area of section	F=1101 mm²
Specific weight	8.64 kg/running meter
Bars length	5500^{+100} (5500^{+100} ... 7000^{+100} mm)

Interlock	
Utilized shaped profiles	No.2525 and No.2526







HIGH PRECISION FLAT STEEL PROFILES IN COILS WITH PRECISION LAYING

EN10139, GOST 503-81, GOST 10234-77

PRODUCT

- Steel strips and flat steel profiles of different configurations in coils with precision laying
- Square section steel profiles from 5x5 to 8x8 in coils with precision laying

The following non-alloy structural steel grades are used for flat steel manufacturing:

- Steel grades according to international standards such as DC01 in accordance with EN10139, C4C, C10C in accordance with EN10263
- Steel grades according to with Russian requirements documents such as GOST 1050, GOST 10702, TU 14-1-5545
- Other steel grades by agreement with a customer

FINISHED PRODUCT CHARACTERISTICS

- Thickness - 1-10 mm
- Width - 3-20 mm
- Thickness tolerance for geometrical dimensions is up to 0.05 mm
- Tensile strength of finished product is not more than 1250 N/mm²
- The surface is smooth, clean. Surface undulation is Ra≤0.5 мμ according to EN 10139

APPLICATION

Profiles are used as semi-finished product in the manufacture of:

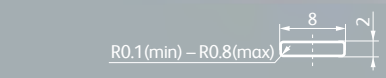
- Window and furniture fittings
- Auto parts (car components)
- Elements of mechanisms in machine-building
- Metal grill flooring, industrial floors
- Shop fittings
- Consumer goods

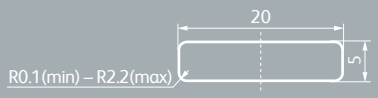
PACKAGING

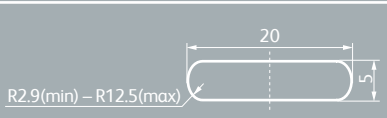
The product is supplied in coils with precision laying.

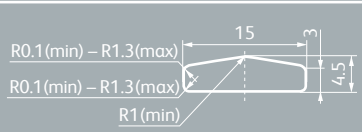
Parameters of the coil:

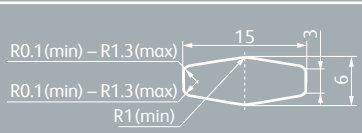
- outer Ø - up to 1200 mm
- inner Ø - 400-450 mm
- width - 250-400 mm
- tolerance specified for straightness of sides - up to 1.5 mm for 1000 mm

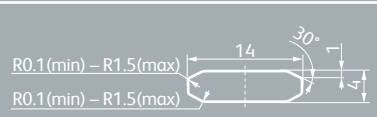


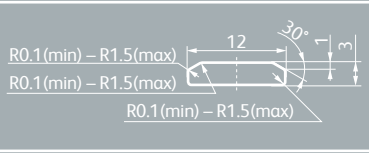


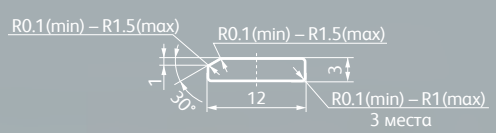


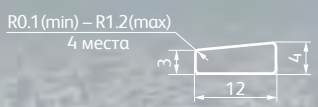












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COLD-DRAWN STEEL

COLD-DRAWN BEARING STEEL IN BARS

GOST 801

APPLICATION
Used for the manufacture of rolling elements (balls, rollers) and bearing races

DESCRIPTION
The product is made of bearing steel as per GOST 801 or specifications agreed by the Customer

STEEL GRADES
“ШХ15В” (rus) - eq. to 100Cr6; “ШХ15СГВ” (rus) - eq. to 100CrMn6

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
8 ÷ 34	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 5

Mechanical properties – as per GOST 801 or specifications agreed by the Customer

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
-	-	+	+	+	+	+

COLD-DRAWN BEARING STEEL IN COILS

GOST 801

APPLICATION
Used for the manufacture of rolling elements (balls, rollers) and bearing races

DESCRIPTION
The product is made of bearing steel as per GOST 801 or specifications agreed by the Customer

STEEL GRADES
“ШХ15В” (rus) - eq. to 100Cr6; “ШХ15СГВ” (rus) - eq. to 100CrMn6

SPECIFICATIONS

Size, mm	Coil diameter (inner), mm	Coil diameter (outer), mm	Weight of coil, kg	Weight of bundle, tons
7.5 ÷ 15	700 ÷ 1100	900 ÷ 1400	100 ÷ 830	0.1 ÷ 5.0

Mechanical properties – as per GOST 801
or specifications agreed by the Customer

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
-	-	+	+	+	+	+

COLD-DRAWN SPRING STEEL IN BARS

GOST 14959

APPLICATION

Used for the manufacture of front and rear suspension coil springs, stabilizers, various types of coil and leaf springs and a wide variety of machine components and mechanisms.

DESCRIPTION

Spring steel is a low-alloyed, medium carbon steel with an extremely high yield strength level. This allows objects made of spring steel to recover its original state after intense bending or twisting. The product made of spring steel corresponds to GOST 14959, international standards and specifications agreed by the Customer.

STEEL GRADES

54SiCr6; “40C2” (rus); “55C2” (rus) - eq. to 55Si7; “60C2A” (rus) - eq. to 60MnSiCr4; “60C2Г” (rus) - eq. to 60SiCr7; “602ХФА” (rus); “65Г” (rus) - eq. to A29(1566).

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
8 ÷ 34	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 5

Mechanical properties - according to specifications agreed by the Customer

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

COLD-DRAWN SPRING STEEL IN COILS

GOST 14959

APPLICATION

Used for the manufacture of front and rear suspension coil springs, stabilizers, various types of coil and leaf springs and a wide variety of machine components and mechanisms.

DESCRIPTION

Spring steel is a low-alloyed, medium carbon steel with an extremely high yield strength level. This allows objects made of spring steel to recover its original state after intense bending or twisting. The product made of spring steel corresponds to GOST 14959, international standards and specifications agreed by the Customer.

STEEL GRADES

54SiCr6; “40C2” (rus); “55C2” (rus) - eq. to 55Si7; “60C2A” (rus) - eq. to 60MnSiCr4; “60C2Г” (rus) - eq. to 60SiCr7; “602ХФА” (rus); “65Г” (rus) - eq. to A29(1566).

SPECIFICATIONS

Size, mm	Coil diameter (inner), mm	Coil diameter (outer), mm	Weight of coil, kg	Weight of bundle, tons
6.1 ÷ 15	700 ÷ 1100	900 ÷ 1400	100 ÷ 830	0.1 ÷ 5.0

Mechanical properties - according to specifications agreed by the Customer

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

SPRING STEEL WITH SPECIAL SURFACE TREATMENT (PEELED) IN BARS

GOST 14959

APPLICATION

Used for the manufacture of front and rear suspension coil springs, stabilizers, various types of coil and leaf springs and a wide variety of machine components and mechanisms.

DESCRIPTION

Spring steel is a low-alloyed, medium carbon steel with an extremely high yield strength level. This allows objects made of spring steel to recover its original state after intense bending or twisting. The product made of spring steel corresponds to GOST 14959, international standards and specifications agreed by the Customer.

STEEL GRADES

54SiCr6; “40C2” (rus); “55C2” (rus) - eq. to 55Si7; “60C2A” (rus) - eq. to 60MnSiCr4; “60C2Г” (rus) - eq. to 60SiCr7; “602ХФА” (rus); “65Г” (rus) - eq. to A29(1566).

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
11 ÷ 34	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 5

Mechanical properties - according to specifications agreed by the Customer

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“Г” (rus) - class 4; “Д” (rus) - class 5

TOLERANCE CLASSES AS PER GOST 14955 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
9.00 – 10.00	-0.036	-0.058	-0.090	-0.150
10.25 – 11.00	-0.043	-0.070	-0.110	-0.180
11.25 – 18.00	-0.043	-0.070	-0.110	-0.180
18.50 – 24.00	-0.052	-0.084	-0.130	-0.210
25.00 – 30.00	-0.052	-0.084	-0.130	-0.210
31.00 – 50.00	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 14955

Class of surface quality	Tolerance class	Surface roughness as per GOST 2789-73		Surface defects	Maximum depth of permissible surface defects
		Ra max, mkm	Basic line, mm		
“А” (rus) - class 1	h5, h6, h7, h8, h9, h10	0.32	0.25	No defects allowed	No defects allowed
“Б” (rus) - class 2	h6, h7, h8, h9, h10, h11	0.63	0.8		
“В” (rus) - class 3	h7, h8, h9, h10, h11	1.25	0.8		
“Г” (rus) - class 4	h8, h9, h10, h11	2.5	0.8	Specific surface defects of mechanical origin	½ tolerance
“Д” (rus) - class 5	h9, h10, h11, h12	-	-	Specific surface defects of mechanical origin	Tolerance (maximum deviation from the nominal dimension)
“Е” (rus) - class 6	h8, h9	-	-	Longitudinal scratches	½ tolerance

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

COLD-DRAWN STEEL FOR COLD HEADING IN BARS

GOST 10702

APPLICATION

Used for cold heading and cold extrusion of a wide variety of fasteners, small parts, machine components and mechanisms.

DESCRIPTION

The product is made of special carbon steel or alloy steel as per GOST 10702, EN 10263, international standards or specifications agreed by the Customer.

STEEL GRADES

C10C; 23MnB4; 30MnB; “08” (rus); “10” (rus) - eq. to 2C10; “10пс” (rus); “12Г1Р” (rus); “12ХН” (rus); “15” (rus) - eq. to 2C15; “15ФЮА” (rus); “15Х” (rus) - eq. to 15Cr2; “20” (rus) - eq. to C22; “20Х” (rus) - eq. to 20Cr4; “30Г1Р” (rus); “35” (rus) - eq. to 1.1181; “35Х” (rus) - eq. to 34Cr4; “38ХА” (rus) - eq. to 37Cr4; “38ХГНМ” (rus) - eq. to 40NiCrMo2KD; “40Х” (rus) - eq. to 37Cr4; “40ХН” (rus); “45” (rus) - eq. to C45; “06Ю” (rus).

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
5 ÷ 60	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8

Mechanical properties – as per GOST 10702, EN 10263 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“Б” (rus) - class 2; “B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	+	+	+	+	+

COLD-DRAWN STEEL FOR COLD HEADING IN COILS

GOST 10702

APPLICATION

Used for cold heading and cold extrusion of a wide variety of fasteners, small parts, machine components and mechanisms.

DESCRIPTION

The product is made of special carbon steel or alloy steel as per GOST 10702, EN 10263, international standards or specifications agreed by the Customer.

STEEL GRADES

C10C; 23MnB4; 30MnB; “08” (rus); “10” (rus) - eq. to 2C10; “10пс” (rus); “12Г1Р” (rus); “12ХН” (rus); “15” (rus) - eq. to 2C15; “15ФЮА” (rus); “15Х” (rus) - eq. to 15Cr2; “20” (rus) - eq. to C22; “20Х” (rus) - eq. to 20Cr4; “30Г1Р” (rus); “35” (rus) - eq. to 1.1181; “35Х” (rus) - eq. to 34Cr4; “38ХА” (rus) - eq. to 37Cr4; “38ХГНМ” (rus) - eq. to 40NiCrMo2KD; “40Х” (rus) - eq. to 37Cr4; “40ХН” (rus); “45” (rus) - eq. to C45; “06Ю” (rus).

SPECIFICATIONS

Size, mm	Coil diameter (inner), mm	Coil diameter (outer), mm	Weight of coil, kg	Weight of bundle, tons
4 ÷ 24	700 ÷ 1100	900 ÷ 1400	100 ÷ 830	0.1 ÷ 5.0

Mechanical properties – as per GOST 10702, EN 10263 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“Б” (rus) - class 2; “B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	+	+	+	+	+

STEEL WITH SPECIAL SURFACE (PEELED) FOR COLD HEADING IN BARS

GOST 10702

APPLICATION
Used for cold heading and cold extrusion of a wide variety of fasteners, small parts, machine components and mechanisms.

DESCRIPTION
The product is made of special carbon steel or alloy steel as per GOST 10702, EN 10263, international standards or specifications agreed by the Customer.

STEEL GRADES
C10C; 23MnB4; 30MnB; “08” (rus); “10” (rus) - eq. to 2C10; “10пс” (rus); “12Г1Р” (rus); “12ХН” (rus); “15” (rus) - eq. to 2C15; “15ФЮА” (rus); “15Х” (rus) - eq. to 15Cr2; “20” (rus) - eq. to C22; “20Х” (rus) - eq. to 20Cr4; “30Г1Р” (rus); “35” (rus) - eq. to 1.1181; “35Х” (rus) - eq. to 34Cr4; “38ХА” (rus) - eq. to 37Cr4; “38ХГНМ” (rus) - eq. to 40NiCrMo2KD; “40Х” (rus) - eq. to 37Cr4; “40ХН” (rus); “45” (rus) - eq. to C45; “06Ю” (rus).

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
23 ÷ 36	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8

Mechanical properties – as per GOST 10702, EN 10263 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“Г” (rus) - class 4; “Д” (rus) - class 5

TOLERANCE CLASSES AS PER GOST 14955 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
9.00 – 10.00	-0.036	-0.058	-0.090	-0.150
10.25 – 11.00	-0.043	-0.070	-0.110	-0.180
11.25 – 18.00	-0.043	-0.070	-0.110	-0.180
18.50 – 24.00	-0.052	-0.084	-0.130	-0.210
25.00 – 30.00	-0.052	-0.084	-0.130	-0.210
31.00 – 50.00	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 14955

Class of surface quality	Tolerance class	Surface roughness as per GOST 2789-73		Surface defects	Maximum depth of permissible surface defects
		Ra max, mkm	Basic line, mm		
“А” (rus) - class 1	h5, h6, h7, h8, h9, h10	0.32	0.25	No defects allowed	No defects allowed
“Б” (rus) - class 2	h6, h7, h8, h9, h10, h11	0.63	0.8		
“В” (rus) - class 3	h7, h8, h9, h10, h11	1.25	0.8		
“Г” (rus) - class 4	h8, h9, h10, h11	2.5	0.8	Specific surface defects of mechanical origin	½ tolerance
“Д” (rus) - class 5	h9, h10, h11, h12	-	-	Specific surface defects of mechanical origin	Tolerance (maximum deviation from the nominal dimension)
“Е” (rus) - class 6	h8, h9	-	-	Longitudinal scratches	½ tolerance

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	+	+	+	+	+

COLD-DRAWN ALLOY STEEL IN BARS

GOST 4543

APPLICATION

Used for the manufacture of a wide variety of parts, products, machine components and mechanisms.

DESCRIPTION

The product is made of alloy constructional steel as per GOST 4543 or specifications agreed by the Customer. Compared to carbon steel, the given steel is of a greater strength, hardness, hot hardness, wear resistance, hardenability and toughness.

STEEL GRADES

“12ХН3А” (rus) - eq. to 14NiCr14; “15Х” (rus) - eq. to 15Cr2; “15ХР” (rus); “18ХГТ” (rus) - eq. to 20MC5; “20Х” (rus) - eq. to 20Cr4; “20ХНМ” (rus) - eq. to A304(4320H); “25ХГТ” (rus); “30ХГТ” (rus) - eq. to 30MnCrTi4; “35Х” (rus); “35ХГСА” (rus); “40Х” (rus) - eq. to 37Cr4; “40ХН” (rus); “45Х” (rus) - eq. to 41Cr4.

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
rounds			
5 ÷ 60	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8
hexagons			
5 ÷ 55	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8

Mechanical properties – as per GOST 4543 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

COLD-DRAWN ALLOY STEEL IN COILS

GOST 4543

APPLICATION

Used for the manufacture of a wide variety of parts, products, machine components and mechanisms.

DESCRIPTION

The product is made of alloy constructional steel as per GOST 4543 or specifications agreed by the Customer. Compared to carbon steel, the given steel is of a greater strength, hardness, hot hardness, wear resistance, hardenability and toughness.

STEEL GRADES

“12ХН3А” (rus) - eq. to 14NiCr14; “15Х” (rus) - eq. to 15Cr2; “15ХР” (rus); “18ХГТ” (rus) - eq. to 20MC5; “20Х” (rus) - eq. to 20Cr4; “20ХНМ” (rus) - eq. to A304(4320H); “25ХГТ” (rus); “30ХГТ” (rus) - eq. to 30MnCrTi4; “35Х” (rus); “35ХГСА” (rus); “40Х” (rus) - eq. to 37Cr4; “40ХН” (rus); “45Х” (rus) - eq. to 41Cr4.

SPECIFICATIONS

Size, mm	Coil diameter (inner), mm	Coil diameter (outer), mm	Weight of coil, kg	Weight of bundle, tons
4 ÷ 24	700 ÷ 1100	900 ÷ 1400	100 ÷ 830	0.1 ÷ 5.0

Mechanical properties – as per GOST 4543 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

FREE-CUTTING COLD-DRAWN STEEL IN BARS

GOST 1414

APPLICATION

Free-cutting steel is intended for use where easy machining is the primary requirement. The product is used for a wide variety of machine components.

DESCRIPTION

The product is made of constructional rolled steel of improved and high cutting machinability as per GOST 1414 or specifications agreed by the Customer.

STEEL GRADES

“A12” (rus) - eq. to 10S20, “AC14” (rus) - eq. to 10SPb20.

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
rounds			
5 ÷ 60	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8
hexagons			
5 ÷ 55	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8

Mechanical properties – as per GOST 1414 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	-	-	+	+	+	+

FREE-CUTTING STEEL WITH SPECIAL SURFACE (PEELED) IN BARS

GOST 1414

APPLICATION

Free-cutting steel is intended for use where easy machining is the primary requirement. The product is used for a wide variety of machine components.

DESCRIPTION

The product is made of constructional rolled steel of improved and high cutting machinability as per GOST 1414 or specifications agreed by the Customer.

STEEL GRADES

“A12” (rus) - eq. to 10S20, “AC14” (rus) - eq. to 10SPb20.

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
10 ÷ 50	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 5

Mechanical properties – as per GOST 1414 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 14955 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
9.00 – 10.00	-0.036	-0.058	-0.090	-0.150
10.25 – 11.00	-0.043	-0.070	-0.110	-0.180
11.25 – 18.00	-0.043	-0.070	-0.110	-0.180
18.50 – 24.00	-0.052	-0.084	-0.130	-0.210
25.00 – 30.00	-0.052	-0.084	-0.130	-0.210
31.00 – 50.00	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 14955

Class of surface quality	Tolerance class	Surface roughness as per GOST 2789-73		Surface defects	Maximum depth of permissible surface defects
		Ra max, mkm	Basic line, mm		
“A” (rus) - class 1	h5, h6, h7, h8, h9, h10	0.32	0.25	No defects allowed	No defects allowed
“Б” (rus) - class 2	h6, h7, h8, h9, h10, h11	0.63	0.8		
“B” (rus) - class 3	h7, h8, h9, h10, h11	1.25	0.8		
“Г” (rus) - class 4	h8, h9, h10, h11	2.5	0.8	Specific surface defects of mechanical origin	½ tolerance
“Д” (rus) - class 5	h9, h10, h11, h12	-	-	Specific surface defects of mechanical origin	Tolerance (maximum deviation from the nominal dimension)
“E” (rus) - class 6	h8, h9	-	-	Longitudinal scratches	½ tolerance

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	-	-	+	+	+	+

FREE-CUTTING STEEL WITH SPECIAL SURFACE (PEELED) IN BARS

GOST 1414

APPLICATION

Free-cutting steel is intended for use where easy machining is the primary requirement. The product is used for a wide variety of machine components.

DESCRIPTION

The product is made of constructional rolled steel of improved and high cutting machinability as per GOST 1414 or specifications agreed by the Customer.

STEEL GRADES

“A12” (rus) - eq. to 10S20, “AC14” (rus) - eq. to 10SPb20.

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
10 ÷ 50	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 5

Mechanical properties – as per GOST 1414 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 14955 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
9.00 – 10.00	-0.036	-0.058	-0.090	-0.150
10.25 – 11.00	-0.043	-0.070	-0.110	-0.180
11.25 – 18.00	-0.043	-0.070	-0.110	-0.180
18.50 – 24.00	-0.052	-0.084	-0.130	-0.210
25.00 – 30.00	-0.052	-0.084	-0.130	-0.210
31.00 – 50.00	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 14955

Class of surface quality	Tolerance class	Surface roughness as per GOST 2789-73		Surface defects	Maximum depth of permissible surface defects
		Ra max, mkm	Basic line, mm		
“A” (rus) - class 1	h5, h6, h7, h8, h9, h10	0.32	0.25	No defects allowed	No defects allowed
“Б” (rus) - class 2	h6, h7, h8, h9, h10, h11	0.63	0.8		
“B” (rus) - class 3	h7, h8, h9, h10, h11	1.25	0.8		
“Г” (rus) - class 4	h8, h9, h10, h11	2.5	0.8	Specific surface defects of mechanical origin	½ tolerance
“Д” (rus) - class 5	h9, h10, h11, h12	-	-	Specific surface defects of mechanical origin	Tolerance (maximum deviation from the nominal dimension)
“E” (rus) - class 6	h8, h9	-	-	Longitudinal scratches	½ tolerance

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	-	-	+	+	+	+

COLD-DRAWN CARBON STEEL FOR GENERAL ENGINEERING PURPOSES IN BARS

GOST 1050, GOST 1051

APPLICATION
Used for general engineering purposes, for the manufacture of a wide variety of parts, products, machine components and mechanisms.

DESCRIPTION
The product is made of carbon constructional steel as per GOST 1050, GOST 14955 or specifications agreed by the Customer.

STEEL GRADES
“10” (rus) - eq. to C10; “20” (rus) - eq. to C22; “30” (rus) - eq. to C30; “35” (rus); “40” (rus); “45” (rus) - eq. to 2C45; “50” (rus).

SPECIFICATIONS

Size, mm	Length, m	Length tolerance, mm	Weight of pack, tons
rounds			
5 ÷ 60	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8
squares			
12÷ 40	2 ÷ 6	-0.0/+50.0 or -0.0/+100.0	1 ÷ 5
hexagons			
5 ÷ 55	2.5 ÷ 6.5	-0.0/+50.0 or -0.0/+100.0	1 ÷ 8

Mechanical properties – as per GOST 1050 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

COLD-DRAWN CARBON STEEL FOR GENERAL ENGINEERING PURPOSES IN COILS

GOST 1050, GOST 1051

APPLICATION

Used for general engineering purposes, for the manufacture of a wide variety of parts, products, machine components and mechanisms.

DESCRIPTION

The product is made of carbon constructional steel as per GOST 1050, GOST 14955 or specifications agreed by the Customer.

STEEL GRADES

“10” (rus) - eq. to C10; “20” (rus) - eq. to C22; “30” (rus) - eq. to C30; “35” (rus); “40” (rus); “45” (rus) - eq. to 2C45; “50” (rus).

SPECIFICATIONS

Size, mm	Coil diameter (inner), mm	Coil diameter (outer), mm	Weight of coil, kg	Weight of bundle, tons
4 ÷ 24	700 ÷ 1100	900 ÷ 1400	100 ÷ 830	0.1 ÷ 5.0

Mechanical properties – as per GOST 1050 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

COLD-DRAWN CARBON STEEL FOR GENERAL ENGINEERING PURPOSES IN COILS

GOST 1050, GOST 1051

APPLICATION
Used for general engineering purposes, for the manufacture of a wide variety of parts, products, machine components and mechanisms.

DESCRIPTION
The product is made of carbon constructional steel as per GOST 1050, GOST 14955 or specifications agreed by the Customer.

STEEL GRADES
“10” (rus) - eq. to C10; “20” (rus) - eq. to C22; “30” (rus) - eq. to C30; “35” (rus); “40” (rus); “45” (rus) - eq. to 2C45; “50” (rus).

SPECIFICATIONS

Size, mm	Coil diameter (inner), mm	Coil diameter (outer), mm	Weight of coil, kg	Weight of bundle, tons
4 ÷ 24	700 ÷ 1100	900 ÷ 1400	100 ÷ 830	0.1 ÷ 5.0

Mechanical properties – as per GOST 1050 or specifications agreed by the Customer.

TOLERANCE CLASSES AND SURFACE QUALITY

Tolerance class	Class of surface quality
h9; h10; h11; h12	“B” (rus) - class 3

TOLERANCE CLASSES AS PER GOST 7417 (eq. to EN 10278, ISO 286-2)

Nominal dimension, mm	Tolerance (max), mm			
	h9	h10	h11	h12
≤ 3.0	-0.025	-0.040	-0.060	-0.100
3.1 - 6.0	-0.030	-0.048	-0.075	-0.120
6.1 - 10.0	-0.036	-0.058	-0.090	-0.150
10.2 - 18.0	-0.043	-0.070	-0.110	-0.180
18.5 - 30.0	-0.052	-0.084	-0.130	-0.210
31.0 - 50.0	-0.062	-0.100	-0.160	-0.250

Surface quality as per GOST 1051

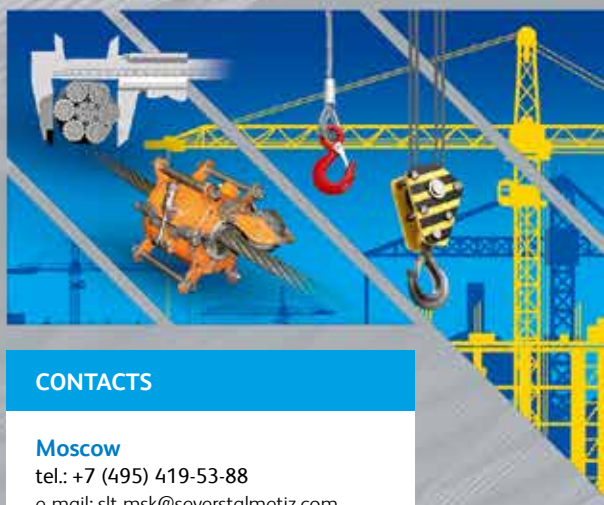
Class of surface quality	Tolerance class	Surface defects	Maximum depth of permissible surface defects
“A” (rus) - class 1	h9	Single small scratches of mechanical origin	As agreed upon with the Customer/ Supplier
	h10		½ tolerance
“Б” (rus) - class 2	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives	Tolerance (maximum deviation from the nominal dimension)
	h11		
	h12		
“B” (rus) - class 3	h10	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Tolerance (maximum deviation from the nominal dimension)
	h11		
“B” (rus) - class 3	h12	Single small mechanical scratches, scale residues, impressions, ripple markings, sloping cleanup traces, cleanup marks from abrasives, single small expanded blisters, impurities and crazing	Maximum deviation from the nominal dimension for tolerance class h12
			Maximum deviation from the nominal dimension for tolerance class h11

CONDITION AS SUPPLIED AND PACKAGING

Steel without heat treatment	Heat-treated steel		Packaging			
	Recrystallization annealing	Spheroidizing annealing	Without corrosion protection	With corrosion protection	Soft packaging without corrosion protection	Soft packaging with corrosion protection
+	+	-	+	+	+	+

WIRE ROPE SERVICE DISTRIBUTION CENTER “SEVERSTAL LIFTING TECHNOLOGIES”

OOO “Severstal Lifting Technologies” – wire rope service distribution center of “Severstal Wire Ropes” Companies. Today branch network of the Company covers the territory of Russia and includes 8 cities: Moscow, Saint Petersburg, Cherepovets, Volgograd, Nizhny Novgorod, Yekaterinburg, Krasnoyarsk and Vladivostok. “Severstal Lifting Technologies” offers a wide range of standard and special ropes as well as different types of slings (chain, wire rope, polyester slings) and accessories for lifting equipment.



THE COMPANY PROVIDES FULL RANGE OF ROPE PRE-INSTALLATION SERVICES:

- Cut-to-length
- Socketing with state-of-art end fittings
- Fitting with clamping elements
- Pre-stretching of ropes
- Finished product testing
- Packing and shipping

SERVICES AVAILABLE BY THE CUSTOMER’S REQUEST:

- Technical assistance in selection of steel wire ropes and portable loadlifting gear in accordance with the requirements.
- Rope installation support
- Development of operational guidelines for steel wire ropes and portable loadlifting gear
- Project development for creation of new types of portable loadlifting gear
- Auditing

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Severstal
Metiz

PORTFOLIO

Office building at Kreutzwaldi street.
Tallin, Estonia.

Steel fiber concrete for making foundation slab.

Adamant, logistics center, ca. 75000 m².
Saint-Petersburg, Russia.

Jointless floors. Concrete B30;
d=150 mm Hendix prime 75/52, 40 kg/m³.
Services of Severstal-metiz: design, economic optimization of design, technical supervision.

Building of National Museum.
Tartu, Estonia.

75 000 tons of steel fiber concrete. Production of fiber, project estimation, construction design supervision.
Square area of building foundation - 25 000 m².

VR-Transpoint, logistics center.
Kouvola, Finland.

Jointless floors (d=180mm); bearing piles (d=260mm); concrete C30/37 Hendix prime 75/52, 35 kg/m³.
Services of Severstal-metiz: design, economic optimization of design, technical supervision.

Bridge over Shokhonka river.
Plyos town, Ivanovo region, Russia.

Solid-cast framework
made of steel fiber concrete .

Production of “sandwich panel” using fiber concrete together with Lipabetoni.
Pieksämäki, Finland.

Internal wall made from concrete sandwich panels produced from reinforced steel fiber concrete; concrete C25/30 Hendix prime 75/52 40 kg/m³. Services of Severstal-metiz: design elaboration in accordance with EC2, supervision of concrete production at the factory.

Pile supported floors 1230 m², logistics center.
Kokkola, Finland.

Fiber.

Air cargo terminal at "Domodedovo" airport, floor slabs up to 22 m and load up to 6 tons to 1 m².
Moscow, Russia.

HDPE sheathed PSC strands.

Business center "Moscow-city".
Moscow, Russia.

Steel wire BP-1 and HDA.

Shopping and leisure center "Iyun".
Kransogorsk, Russia.

HDPE sheathed PSC strands.

Liquid natural gas terminal.
Isle of Grein, UK.

PSC strands.

Warehouse complex, industrial floors.
Kotelniki, Russia.

HDPE sheathed PSC strands.

Modernization of Palace Bridge.
Saint-Petersburg, Russia.

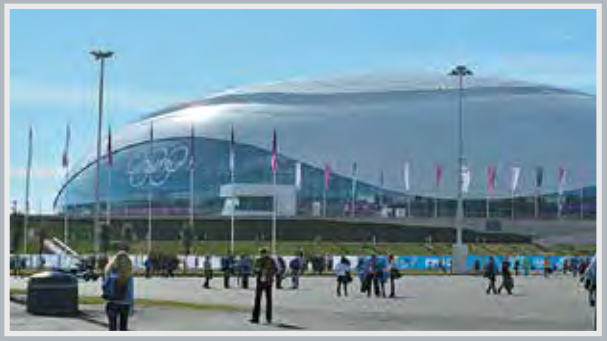
High-strength fasteners with thermodiffusion coating.

“Fisht” Olympic Stadium.
Sochi, Russia.

High-strength fasteners.

CSKA Stadium.
Moscow, Russia.

Fasteners, quality grade 12.9.



“Bolshoi” Ice Palace.
Sochi, Russia.

High-strength fasteners.

The bridge over the strait Eastern Bosporus to the isle Russian.
Vladivostok, Russia.

High-strength fasteners.

The Shayba Arena.
Sochi, Russia.

High-strength fasteners.

Race track construction for “Folmula-1”.
Sochi, Russia.

High-strength fasteners.

Western High-Speed Diameter.
Saint-Petersburg, Russia.

Shear bolts.

New unit of Beryozovskaya GRES.
Sharypovo, Krasnoyarsk krai, Russia.

Bridge fasteners.

Podilsko-Voskresenskyi Bridge.
Kiev, Ukraine.

Shear bolts.

HVTL

Fasteners with M14-M30, GOST 7798, nut 5915, lockwasher 6402.

Hypermarket “Metro”.
Odessa, Ukraine.

Nails, steel meshes.

“Krasnodar” Stadium.
Kransodar, Russia.

Bridge fasteners, Guy rope roof structure.

Foot bridge “Pavshinskaya poyma”.
Moscow, Russia.

Shear bolts, Guy rope structure.

“Otkrytiye Arena” – “Spartak” Stadium
Moscow, Russia.

High-strength fasteners.

Atyrau Oil Refinery.
Atyrau, Kazakhstan.

Bridge fasteners.

“Yamal NGL”
(Yamal plant for natural gas liquefaction).
Russia

Bridge fasteners.

Verkhny Tagil hydroelectric power station.
Verkhniy Tagil, Russia.

Bridge fasteners.

NOVATEK-Murmansk LNG plant.
Murmansk, Russia.

High strength fasteners, steel shaped profiles for pipe piles and PC strands.

Baikal-Amur mainline
Russia.

Railway fasteners.

Lakhta Center Skyscraper.
Saint-Petersburg, Russia.

High strength fasteners.

Zhuravka-Millerovo rail bypass.
Russia.

BP2 wire for cross-ties.

Zenit Arena Stadium.
Saint-Petersburg, Russia.

High strength fasteners.

Section of the West-Siberian railway.
Russia.

Cables for overhead contact line of railway.

Bridge over Velesa river.
Motorway M-9 “Baltiya”, Tver’ region, Russia.

Steel shaped profile for bridge joint.

Sochi Port Cargo Handling Area, South-Western pier.
Sochi, Russia.

Steel shaped profiles for sheet pile cutoff s of pipe piles.

Principal units of seaport near the village Sabetta.
Yamal peninsula, Russia.

Steel shaped profiles for sheet pile cutoff s of pipe piles.

Transportation hub “Vostochny – Nakhodka (Primorsky Krai)”.
Nakhodka, Russia.

Steel shaped profiles for sheet pile cutoff s of pipe piles.

Modernization of Bolshaya Nevka and Malaya Nevka embankments from Ushakovsky Bridge to Kamennoostrovsky Bridge.
Saint-Petersburg, Russia.

Steel shaped profiles for sheet pile cutoff s of pipe piles.

Specialized oil seaport “Koz’mino”. Approaching dam. Modernization.
Nakhodka, Russia.

Steel shaped profiles for sheet pile cutoff s of pipe piles.

Sverdlovsk railway.
1665 km, Vagulka – Shalya, Russia.

Gabion mesh constructions.

Protection of railway bridge pillars.
The Yuzhno-Uralskaya railway,
river Belaya, Russia.

Gabion mesh constructions.

Modernization of railroad and motor road junction.
Moscow region, Russia.

Gabion mesh constructions.

Railway bridge over river Belekes.
Protection of railway bridge pillars.
Bashkortostan, Russia.

Gabion mesh constructions.

Mountain ski resort Gazprom.
Krasnaya Polyana, Russia.

Gabion construction of retaining wall.

Repairing and shore protection works at 27 km of running line Urakovskaya - Erken - Shakhar of the North Caucasus Railway.
Russia.

Gabion mesh constructions.

PO “Zinkograd”.
Kaluga region, Russia.

Mesh panels.

Sports area.
Moscow, Russia.

Mesh panels.

Rowing Sports Center.
Kazan, Russia.

Mesh panels.

Terminal (Hub).
Kaluga region, Russia.

Mesh panels.

Laura Biathlon and Ski Complex.
Sochi, Russia.

Mesh panels.

Lukoil gasoline station.
Samara, Russia.

Mesh panels.

Pedestrian fencing at Dzerzhinskogo street.
Tolyatti, Russia.

Mesh panels.

Sports area, summer camp “Lesnaya skazka”.
Vologda region, Russia

Mesh panels.

Parking lot at Shopping Center “Vega”.
Tolyatti, Russia.

Mesh panels.

Hypermarket “Metro”.
Kazakhstan.

Mesh panels.

School.
Zhigulevsk, Russia.

Mesh panels.

Sports area.
Vologda region, Russia

Mesh panels.

Russian aircraft carrier Admiral Kuznetsov.

The system of wire ropes for aircraft landing.

Tallinn bridge.
Saint-Petersburg, Russia.

Cable-stayed structure.

Shell drilling.
Offshore platform. Russia.

Wire ropes for lifting equipment.

Arboretum botanical garden Dendrariy.
Sochi, Russia.

Locked coil ropes.

HVTL.

Ground wire rope for protection
of overhead lines against lightning.

Rescue towing boat Zvezdochka.

Wire ropes for lifting equipment.

Pendant footbridge in Novruz recreation park.
Tashkent, Uzbekistan.

High-strength locked-coil wire rope with galvanized wires. Supply of stay cables. Fitting system design, rope uncoiling, developing of technical procedures for installation and tensioning.

Medoviy (Honey) Extreme Park.
Kislovodsk, Russia.

Triniks® ZL compacted galvanized wire ropes.

Footbridges in the atrium of Skolkovo Innovation Center.
Moscow, Russia.

Carrying ropes, pendant ropes, connection clamps.

Suspended Canopy Crocus City Aquarium.
Moscow, Russia.

Construction: FLC. Diameter: 52 mm.
Anchor sockets: nonadjustable + adjustable fork.

Restoration of Motherland Calls sculpture.
Volgograd, Russia.

STO TU 115 pre-stretched wire ropes with compacted strands.

Motorway arch bridges Vuoksa River.
Saint-Petersburg, Russia

Rope construction: FLC + HDPE sheath. Diameter: 40 mm.
Anchor sockets: nonadjustable + adjustable fork .

GAZELLE - Business

Washer OST (ОСТ) 115 252136 10.0Т Р (П) 2 К25.
Bolt 290S039-81 D1662 M10x40 10.9 A3L К25.
Splint OST (ОСТ) 171 258038 3,2x16 Р (П) 29 К25.
Nut OST (ОСТ) 124 250514 1М12 6 Р (П) 29 К25.

PAZ

Bolt Ch. (Ч) 290939 M12x50 8.8 Р (П) 29 К25.
Bolt 210383 M8x40 4.8 Р (П) 29 К25.
Washer OST (ОСТ) 115 252139 16.0Т Р (П) 2 К25.
Nut OST (ОСТ) 124 250508 1М6 6 Р (П) 29 К25.

MAZ

Washer OST (ОСТ)115 252136 10.0Т Р (П) 2 К25.
Washer OST (ОСТ)115 252137 12.0Т Р (П) 2 К25.
Washer OST (ОСТ)115 252140 18.0Т Р (П) 2 К25.

URAL

Bolt D1662 290S013-71 M6x20 8.8 A3L К25.
Bolt D1662 290S014-71 M6x25 8.8 A3L К25.
Splint OST (ОСТ) 171 258069 5x36 К25.
Washer OST (ОСТ) 115 252141 20ОТ Р (П) 2 К25.

BELAZ

Washer G (Г) 6402 1.22Т К25.
Nut G (Г) 5915 1М10 6 019 К25.
Splint G (Г) 397 6,3x63 019 К25.
Washer G (Г) 6402 1.36 К25.
Bolt G (Г) 7808 1М20x80 10.9 019 К25.

UAZ - Patriot

Bolt D931 M10x1,25-85 8.8 016 К25.
Washer OST (ОСТ) 115 252140 18.0Т Р (П) 2 К25.
Cold-heading steel.
Spring steel.
Alloy steel.

DON combine harvester.

Structural commercial cold section steel.
Cold section alloy steel.

Central Ring Road
is under construction in Moscow region,
50 km from the Moscow Automobile Ring Road.
Moscow, Russia.

Shear Connectors.

LADA Granta.

Steel with special surface treatment spring steel.
Cold-drawn section steel for cold heading.

Bolshaya Koltsevaya line of the Moscow Metro.
Moscow, Russia.

Tunneling shield was lowered by means of Ø18.0 mm PC strands manufactured by Severstal-metiz (Cherepovets production site). Severstal-metiz is the only Russian company producing such products.

BOSCH spark plug.

Cold-drawn section steel for cold heading.

Abrau-Durso Champagne Wine Factory.
Abrau-Durso, Russia.

Enameled muselet wire.

Severstal
Metiz

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