

Limited liability company Composit

OPERATION MANUAL

FLEXIBLE SLURRY HOSE SYSTEMS

COMPOSIT

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1. General information

1) **“Composit” Flexible slurry hose systems** manufactured according to TY2550-017-110740942014 standards and designed for operation at the following conditions: working pressure of 1,0 MPa (10 kg/cm²); maximum vacuum of 0,08 MPa (0,8 kg/cm²); 4,5-9 pH factor; environment temperature of -55...+ 80° C. “Composit” hoses are used for pneumatic and hydro transportation of abrasive materials in the pressure lines with possible vacuum forming and drain lines (at zones of crushing, floatation, separation, tailings disposal and other mining plants of chemical and metal industry including the hazardous ones because of gas and dust presence). According to the standards of ГOCT 15150- 69 the pipes belong to the 3rd location category and the atmosphere type II.

2) **Flexible Slurry Hose Systems** consist of **“Composit” slurry hoses**, **“Composit” split flange couplings** and **“Composit” gaskets** (fig. 1) further mentioned as slurry hoses, split flange couplings and gaskets respectively. All hoses included in the flexible slurry hose system assembled with two split flange couplings and two gaskets of the corresponding size.

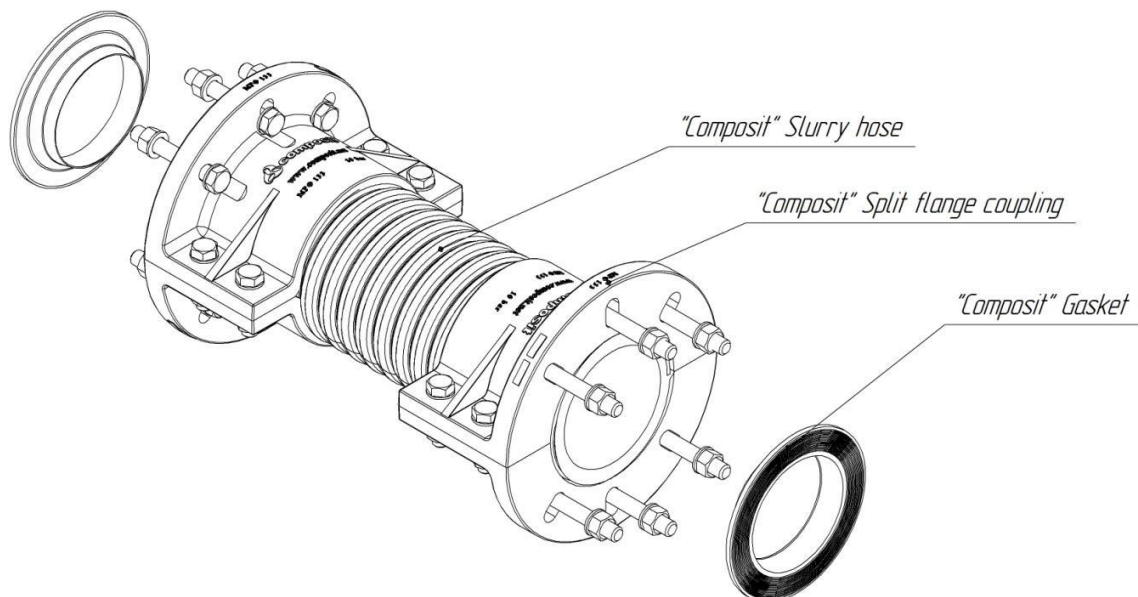


Fig.1

3) The split flange couplings designed for connection of flexible slurry hoses and other elements of the slurry hose system. They consist of two or four parts, which fastened with bolts and nuts to each other. The split flange couplings fixed mechanically in the slurry hose system. As they do not contact with the transported material the period of their durability does not depend on the slurry hose's lifetime.

4) Gaskets are rubberized metal rings with conical inner seating arrangement. They designed for leak tightness of the split flange coupling connection.

5) Flexible slurry hose systems have high leak resistance and can stand the hydraulic pressure of 1,5 MPa (15 kg/cm²) (1,5 P, P=1,0 MPa) without deformation, inner layer breakaway, damage of split flange couplings and gaskets.

2. Assembly and operation principle

2.1. “Composit” Slurry hose

1) The inner part of a hose is made of rubber. Structure of a hose makes it stronger and provides equal inner tension distribution, it consists of rubberized cord fabric and steel spirals.

Outer part of a hose is made of rubber resistant to mechanical, chemical and environmental influence.

2) Construction of a hose designed for operation at conditions of definite line pressure, temperature, transported material acidity and abrasion; these constructions provide a definite bending radius for each diameter of a hose. The main technical features of slurry hoses given in the table below.

Table 1

| Code | Inner diameter d, mm | Outer diameter D, mm | Length L, mm | Working pressure P, MPa | Vacuum, MPa | Min bending radius, R, mm |
|--------|-------------------------|-------------------------|-----------------|-------------------------------|----------------|------------------------------------|
| FH-050 | 50±2,0 | 85±2,0 | 5000± 50 | 1,0 | 0,08 | 150 |
| FH-065 | 65±2,0 | 102±2,0 | | | | 200 |
| FH-076 | 76±2,0 | 113±2,0 | 230 | | | |
| FH-102 | 102±3,0 | 138±2,0 | 310 | | | |
| FH-114 | 114±3,0 | 152±2,0 | 350 | | | |
| FH-133 | 133±3,0 | 170±2,0 | 530 | | | |
| FH-152 | 152±3,0 | 188±2,0 | 650 | | | |
| FH-159 | 159±3,0 | 198±2,0 | 640 | | | |
| FH-170 | 170±3,0 | 211±2,0 | 850 | | | |
| FH-200 | 200±4,0 | 245±2,0 | 1200 | | | |
| FH-219 | 219±4,0 | 265±2,0 | 1400 | | | |
| FH-245 | 245±4,0 | 294±2,0 | 1470 | | | |
| FH-273 | 273±4,0 | 322±2,0 | 1640 | | | |
| FH-300 | 300±4,0 | 349±2,0 | 1800 | | | |
| FH-325 | 325±4,0 | 376±2,0 | 1950 | | | |
| FH-351 | 351±6,0 | 417±2,0 | 2110 | | | |
| FH-377 | 377±6,0 | 422±2,0 | 2300 | | | |
| FH-402 | 402±6,0 | 470±2,0 | 2500 | | | |
| FH-426 | 426±6,0 | 494±2,0 | 2600 | | | |
| FH-457 | 457±6,0 | 529±2,0 | 0,06 | | 2800 | |
| FH-508 | 508±6,0 | 590±2,0 | 0,8 | 0,045 | 3200 | |
| FH-530 | 530±6,0 | 610±2,0 | | 0,04 | 3500 | |
| FH-610 | 610±6,0 | 712±2,0 | | 0,025 | 4000 | |

3) Type codes of hoses according to TY2550-017-11074094-2014 standards.

Below there is an example of a flexible hose type code with 200 mm inner diameter for hydraulic transportation of medium with +0,2...+10,0 mm fraction size in mines:

“Composit” Slurry Hose FH-200.1.1.2 (FH-200 – standard size, the rest of the code can be deciphered according to TY2550-017-11074094-2014 standards).

2.2. “Composit” split flange couplings

1) Split flange couplings are made of heavy-duty aluminum alloy and consist of two or four parts.

2) Split flange couplings, used in slurry hose systems, provide easy installation (precise and fast adjustment of the mounting holes with the flange holes of the hoses and other tools to be connected).

The main technical features of split flange couplings indicated in the drawing (fig.2) and the table 2:

n – quantity of bolt gutters on a coupling

n_1 – quantity of holes in a flange to be connected

m – quantity of a coupling parts

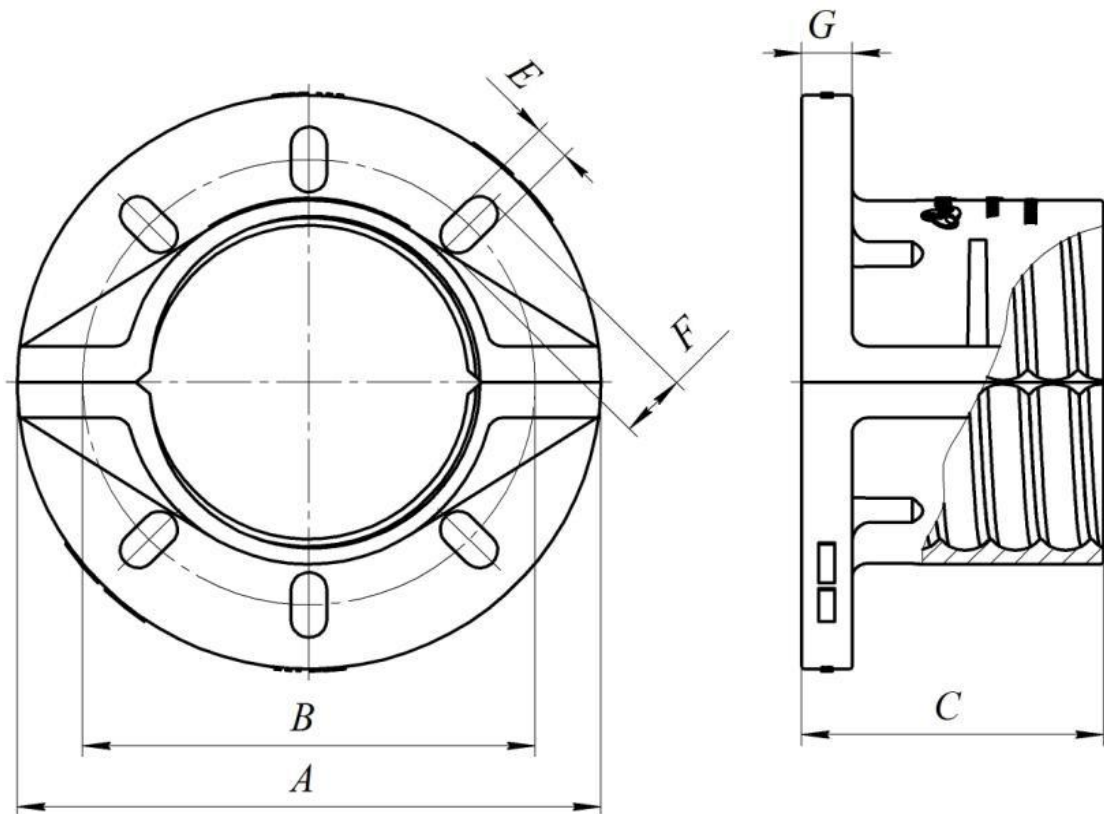


Fig.2

Table 2

| Standard size | Inner diameter of a slurry hose, d, mm | Working pressure (vacuum), MPa, | m | L, mm | ØD, mm | ØD1, mm | ØD2, mm | a x b, mm x mm | n | n1 | h, mm | |
|---------------|--|---------------------------------|-----|-------|--------|---------|---------|----------------|---------|----|-------|----|
| C 050 | 50±2,0 | 1,0 | 2 | 100 | 160 | 123 | 134 | 23.5x18 | 4 | 4 | 15 | |
| C 065 | 65±2,0 | | | 120 | 185 | 145 | 150 | 20,5x18 | | | | |
| C 076 | 76±2,0 | | | 125 | 198 | 156 | 164 | 22x18 | | | 6 | 8 |
| C 102 | 102±3,0 | | | | 220 | 180 | 190 | 23x18 | | | | |
| C 114 | 114±3,0 | | | 150 | 185 | 285 | 210 | 240 | 33x18 | 6 | 8 | 25 |
| C 133 | 133±3,0 | | | | | | | | | | | |
| C 152 | 152±3,0 | | | 185 | 290 | 240 | 240 | 250 | 27x22 | 6 | 8 | 25 |
| C 159 | 159±3,0 | | | | | | | | | | | |
| C 170 | 170±3,0 | | | | | | | | | | | |
| C 200 | 200±4,0 | | | 200 | 320 | 260 | 280 | 30x22 | 8 | 10 | 12 | 25 |
| C 219 | 219±4,0 | | | | | | | | | | | |
| C 245 | 245±4,0 | | | | | | | | | | | |
| C 273 | 273±4,0 | | 210 | 476 | 400 | 430 | 37x22 | 14 | 10 | 12 | 25 | |
| C 300 | 300±4,0 | | | | | | | | | | | |
| C 325 | 325±4,0 | | | | | | | | | | | |
| C 351 | 351±6,0 | | 0,8 | 4 | 300 | 530 | 455 | 490 | 29,5x22 | 12 | 16 | 30 |
| C 377 | 377±6,0 | | | | | 575 | 490 | 525 | 44,5x27 | | | |
| C 402 | 402±6,0 | | | | | 600 | 515 | 550 | | | | |
| C 426 | 426±6,0 | | | | 350 | 650 | 560 | 585 | 39,5x27 | 16 | 20 | 40 |
| C 457 | 457±6,0 | | | | 375 | 690 | 600 | 635 | 44,5x27 | | | |
| C 508 | 508±6,0 | 450 | | 720 | 638 | 660 | 38x27 | 16 | 20 | 50 | | |
| C 530 | 530±6,0 | 480 | | 810 | 700 | 730 | 45x30 | | | | | |
| C 610 | 610±6,0 | 550 | | 890 | 780 | 820 | 50x30 | | | | 55 | |

3) Below there is a type code example of a split flange coupling for a flexible slurry hose with 50 mm inner diameter equipped with an assembling kit for the hoses fixation: **“Composit” Split flange coupling C 050.1**, (C-050 – standard size, the rest of the code can be deciphered according to TY2550-017-11074094-2014 standards).

2.3. Composit Gaskets

- 1) The gaskets are rubber-covered steel rings with conical inner mounting surfaces.
- 2) Embedded steel elements of gaskets provide a durable and airtight joint.
- 3) Standard sizes of gaskets fit the dimensions of hoses and split flange couplings listed in the Table 3.

Table 3

| Standard size | ID, d , mm |
|---------------|--------------|
| G 050 | 50±2,0 |
| G 065 | 65±2,0 |
| G 076 | 76±2,0 |
| G 102 | 102±3,0 |
| G 114 | 114±3,0 |
| G 133 | 133±3,0 |
| G 152 | 152±3,0 |
| G 159 | 159±3,0 |
| G 170 | 170±3,0 |
| G 200 | 200±4,0 |
| G 219 | 219±4,0 |
| G 245 | 245±4,0 |
| G 273 | 273±4,0 |
| G 300 | 300±4,0 |
| G 325 | 325±4,0 |
| G 351 | 351±6,0 |
| G 377 | 377±6,0 |
| G 402 | 402±6,0 |
| G 426 | 426±6,0 |
| G 457 | 457±6,0 |
| G 508 | 508±6,0 |
| G 530 | 530±6,0 |
| G 610 | 610±6,0 |

4) Example of designation (due to the size) of a gasket for completing of a flexible rubber hose with ID 50mm:

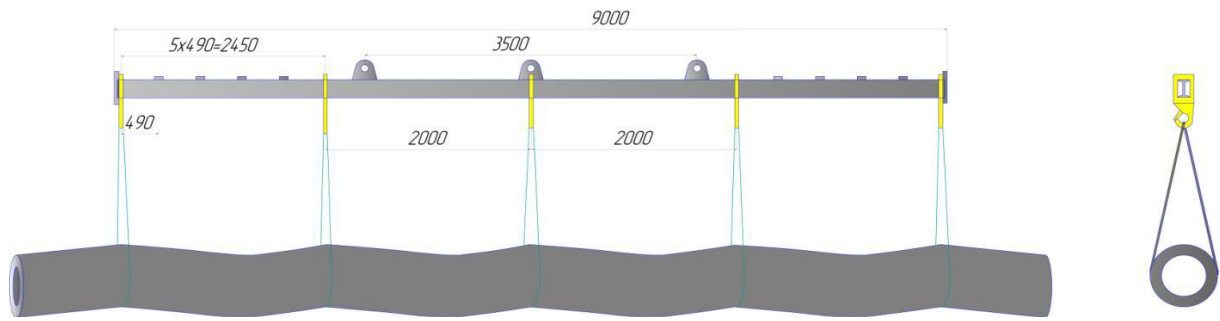
Gasket Composit G 050, G 050 – a standard size in accordance with Specification (TY 2550-017-11074094-2014)

The manufacturer reserves the right to make changes in the design that do not affect the product specifications. Physical form of the product may vary slightly from the product shown on the drawing.

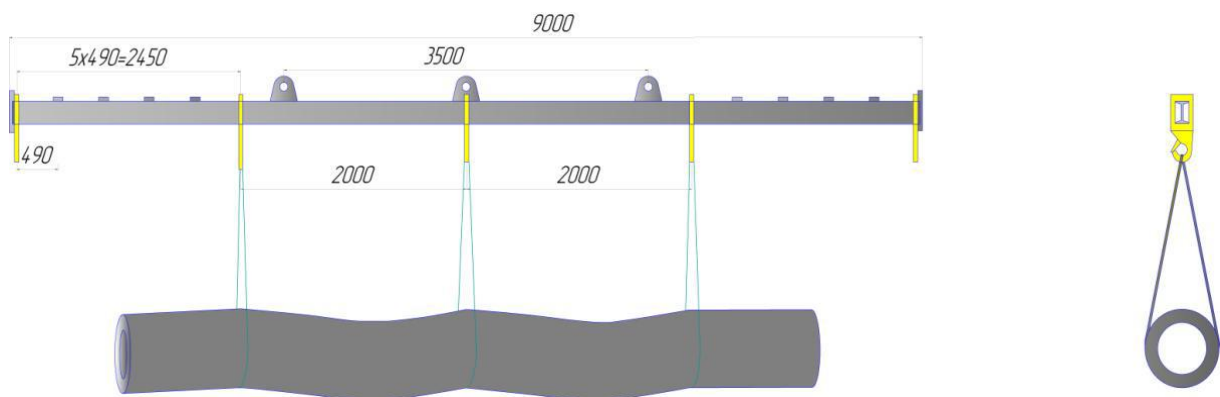
3. Handling and Transportation

1) Loading and unloading of hoses, that a part of flexible slurry hose system, recommended with using special spreader bar and soft straps, avoiding hose collapses and bends.

Sling arrangement of the hose with the length in 10 m (strapping with soft straps in 5 sections).



Sling arrangement of the hose with the length in 5 m (strapping with soft straps in 3 sections).



2) Loading and unloading of components to the slurry hose systems, packed in the boxes, recommended to do with using hoisting machines.

3) Recommendations for loading and transportation.

Single hoses that are a part of slurry hose systems, in amount of several pieces, joined together in unit loads or bunch, not allowed to move by traction on a solid surface.

The transportation of hoses, that are part of slurry hose systems, and their components, packed in the boxes, is by road or by rail and only on the flat horizontal platform with the length not less than a hose diameter and with the width not less than diameter of a hose bunch.

During transportation, it is necessary to exclude the possibility of mechanical damage of the hose outer rubber layer.

4. Installation arrangements

4.1. Assembling of slurry hose systems

Prior to coupling of slurry hose systems, it is necessary to take the segments of split flange couplings, gaskets and fittings out of the box, to ensure in absence of damages of the spirals of split flange coupling segments and sealing surface of gaskets. Coupling produced according to the following.

1) Measure the right size of the hose and mark the cut place with the colouring pencil. Put the beam under the hose. The beam height must be not less than 10 cm, and the length of it should allow turning the hose 360°. The beam put under the hose by the cutting-off side at the distance of 60-100 mm from the end of the hose. For making a clean layout recommended to use assembled (or tied up with G-cramps) segments of the split flange coupling. Layout should made along the whole length of the hose outer diameter. To loose the fasteners (remove G-cramps) and remove the segments of the split flange coupling after measuring.

2) Cutting of hoses carried out by hacksaw and silicone oil.

In the first place, in the cutting of the hose with a hacksaw you need to pass the whole length of the outer diameter with the depth of the hacksaw blade 5-8 mm along the contour with the hose rotating.

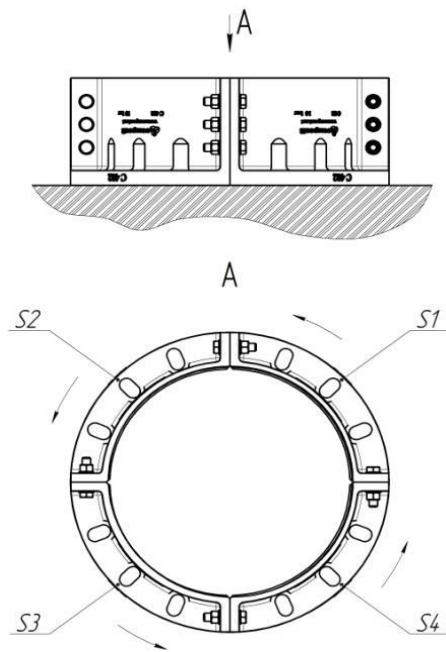
After the first pass on diameter, it is necessary to continue the cutting with the assistant. The cutting should began between a hose corrugation, thus it is important to trace the location of linen exactly in the place, which was cut through earlier, and admit withdrawals of the linen aside. At the cutting, the linen can escape on the reinforcing element of a hose. In this case, it is necessary to turn the hose on 45-90 ° and continue the cutting, greasing the linen.

3) After the cutting of a rubber and fabric layers it is necessary to cut off the reinforcing element. Stretch halves of the hose from each other so to extend a spiral from a section. Cut off it nippers or a hacksaw so that the spiral did not go beyond over the edge.

The asperity at the cutting is allowed within ± 5 mm.

4) Connect segments of a split flange coupling on the hose so that the inner spiral of split flange coupling set down on an external spiral of the hose. It is important don't confuse segments and don't install segments with equal corner of a call of a spiral. Segments of the split flange coupling have marking of S1, S2 (or S1, S2, S3, S4). At an assembling with one party these segments of the split flange coupling are established. Split flange coupling for hoses with an inner diameter from 50 to 377 inclusive consist of two segments, and with a diameter from 351 to 610 at four segments.

Marking of segments of the split flange coupling made according to the underwritten scheme.



Draw together segments of the split flange coupling with bolted connections; make a tightening before an appearance of the first wavy deformations of inner of the hose. At that between segments of the split flange coupling the gap is possible. Pay attention that the gap from both parties was equal size. In addition, weak or too hard assembling can seriously reduce the durability of the system.

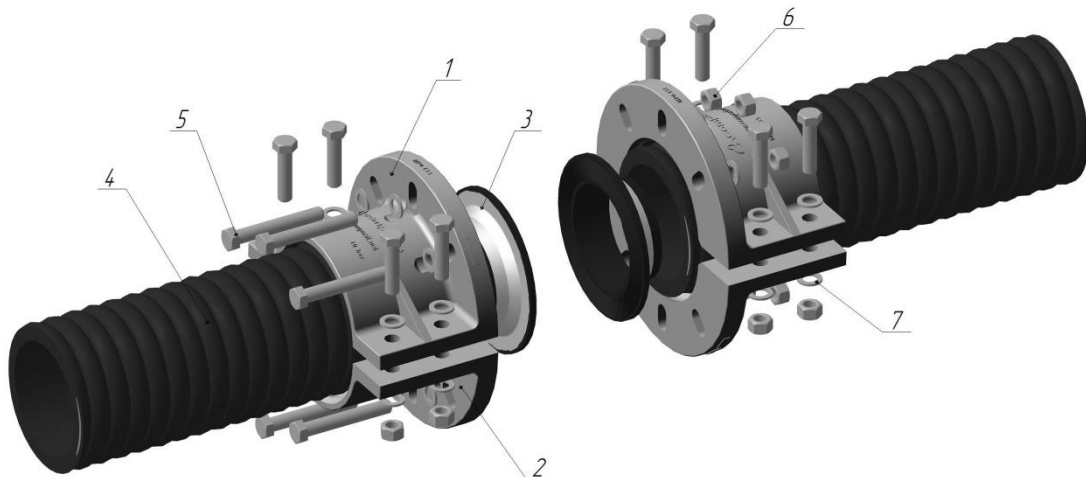
The end of the hose has to go on the 10-12th beyond edge of a flange!

5) For tight connection of two hoses require of two split flange coupling 1 and two gaskets 3. Apply and center previously a gasket on an inner diameter of the hose. At the drawing to a flange of the connected hose, the inner surface of the hose will border to an inner bevel of a gasket. At transportation of a pulp on flexible slurry hose system the inner part of the gasket scuff even quickly with the hose, leaving full-sized pass for a pulp, that free from turbulence.

The gasket centers itself on the inner diameter of the hose.

The bevel of the gasket also compensates an asperity of the cut-off of the hose, which cut at essential length on an installation site.

The drawing of the bolts position 5 makes crisscross.



Working conditions and regime of an exploitation of slurry hose system on a place of the exploitation must conform to requirements of the technical documentation acting at the enterprise of the customer.

In lines of an installation of slurry hose system for protection of hoses against a water hammering and vacuum (to 0,8 kg s/cm²) it is necessary to provide:

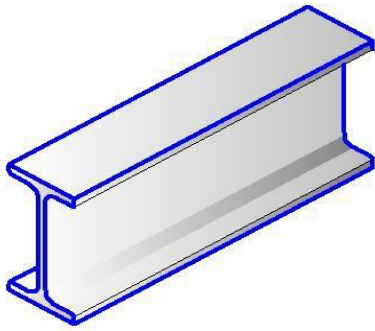
- the application of the devices increasing a time of closing of bolts and cranes;
- the installation on hoses before bolts of air caps and antivacuum valves;
- the application of back valves, etc.

Before the installation of flexible slurry hose system should install maintaining hardware (support beams) with clamps.

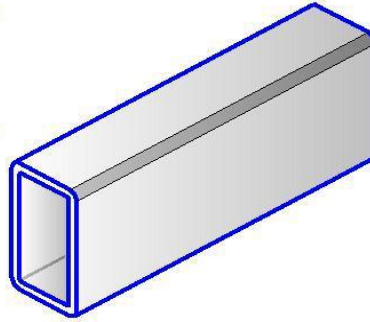
4.2. Support beams

Support beams (lodgments) serve for support of flexible hoses on all length of the hose. **The profile and characteristics of the supporting beams** basic choose at the business-to-consumer on the calculation depending on distance between supports, standard size of the installed hose and the density of the pumped-over material.

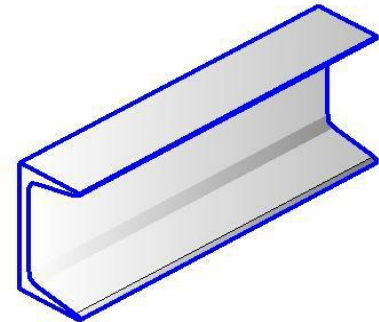
The recommended options of support beams:



I-beam



Shaped tube



Beam channel

See the recommendations on the choice of the reference beams and their arrangement in the tables 4 and 5. (All values given based on pulp density 3 tons/m³)

The support beams are not included in the product range "Composite" LLC.

Table 4

| Design load | | | | | | | | | | | | | | |
|---------------------------------|-----|---------|-----|-------|----------|----------|--------------|----------------|----------------|----------------|--------|-------|-------|------------|
| Inner diameter of a product, mm | | | | | | | | | | | | | | |
| mm | 50 | 65-76 | 102 | 114 | 133-152 | 159-200 | 219-245 | 273-300 | 325-351 | 377-402 | 426 | 457 | 508 | 530-610 |
| inch | 2 | 2 1/2-3 | 4 | 4 1/2 | 5 1/2 -6 | 6 1/4 -8 | 8 1/2 -9 3/4 | 10 3/4 -11 3/4 | 12 3/4 -13 3/4 | 14 3/4 -15 3/4 | 16 3/4 | 18 | 20 | 20 3/4 -24 |
| Design load (kg/m) | 10 | 22 | 36 | 54 | 75 | 135 | 202 | 287 | 396 | 508 | 641 | 712 | 795 | 1133 |
| Pin load (kg) | 8,6 | 9,8 | 12 | 14,6 | 77,4 | 86,2 | 87,2 | 107,8 | 119 | 155,8 | 167,6 | 176,3 | 188,4 | 224 |

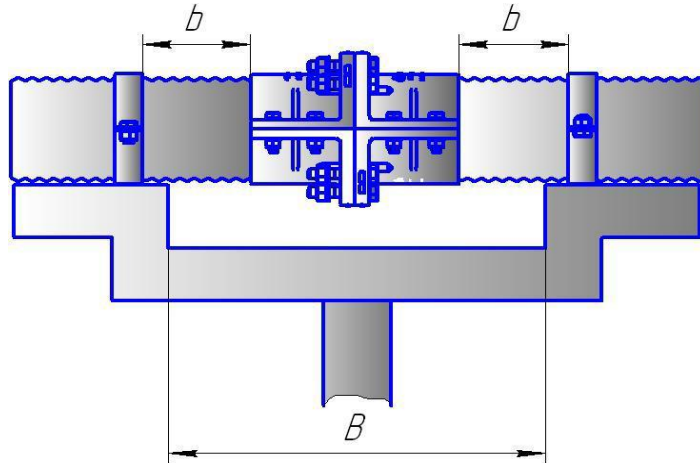
Table 5

| Distance between beams (m) | Required section modulus, W (x 10 ³ mm ³) | | | | | | | | | | | | |
|----------------------------|--|-------|----|-----|-------|-------|-----|-------|-------|-----|-------|-------|--------|
| | Inner diameter of a product | | | | | | | | | | | | |
| mm | 50 | 65 | 76 | 102 | 114 | 133 | 152 | 159 | 170 | 200 | 219 | 245 | 273 |
| inch | 2 | 2 1/2 | 3 | 4 | 4 1/2 | 5 1/2 | 6 | 6 1/4 | 6 3/4 | 8 | 8 1/2 | 9 3/4 | 10 3/4 |
| 1 | 0 | 1 | 1 | 1 | 1 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 6 |
| 2 | 1 | 2 | 2 | 2 | 3 | 8 | 8 | 11 | 11 | 11 | 14 | 14 | 20 |
| 3 | 2 | 3 | 3 | 5 | 7 | 14 | 14 | 22 | 22 | 22 | 29 | 29 | 40 |
| 4 | 3 | 5 | 5 | 8 | 12 | 23 | 23 | 36 | 36 | 36 | 49 | 49 | 68 |
| 5 | 4 | 8 | 8 | 13 | 19 | 33 | 33 | 53 | 53 | 53 | 74 | 74 | 103 |
| 6 | 6 | 11 | 11 | 18 | 26 | 45 | 45 | 74 | 74 | 74 | 104 | 104 | 145 |
| 7 | 8 | 15 | 15 | 24 | 36 | 59 | 59 | 98 | 98 | 98 | 139 | 139 | 194 |
| 8 | 10 | 20 | 20 | 31 | 46 | 75 | 75 | 125 | 125 | 125 | 179 | 179 | 251 |
| 9 | 12 | 25 | 25 | 39 | 58 | 93 | 93 | 156 | 156 | 156 | 224 | 224 | 315 |
| 10 | 15 | 30 | 30 | 48 | 71 | 113 | 113 | 190 | 190 | 190 | 274 | 274 | 385 |

Table 5 (continuation)

| Distance between beams (m) | Required section modulus, W (x 10 ³ mm ³) | | | | | | | | | | |
|----------------------------|--|--------|--------|--------|--------|--------|------|------|--------|------|--|
| | Inner diameter of a product | | | | | | | | | | |
| mm | 300 | 325 | 351 | 377 | 402 | 426 | 457 | 508 | 530 | 610 | |
| inch | 11 3/4 | 12 3/4 | 13 3/4 | 14 3/4 | 15 3/4 | 16 3/4 | 18 | 20 | 20 3/4 | 24 | |
| 1 | 6 | 8 | 8 | 10 | 10 | 12 | 15 | 15 | 20 | 20 | |
| 2 | 20 | 26 | 26 | 33 | 33 | 40 | 49 | 49 | 68 | 68 | |
| 3 | 40 | 53 | 53 | 69 | 69 | 85 | 104 | 104 | 144 | 144 | |
| 4 | 68 | 91 | 91 | 117 | 117 | 145 | 178 | 178 | 249 | 249 | |
| 5 | 103 | 138 | 138 | 178 | 178 | 221 | 272 | 272 | 382 | 382 | |
| 6 | 145 | 196 | 196 | 252 | 252 | 314 | 386 | 386 | 544 | 544 | |
| 7 | 194 | 263 | 263 | 338 | 338 | 422 | 520 | 520 | 733 | 733 | |
| 8 | 251 | 340 | 340 | 437 | 437 | 547 | 673 | 673 | 951 | 951 | |
| 9 | 315 | 427 | 427 | 549 | 549 | 687 | 847 | 847 | 1198 | 1198 | |
| 10 | 385 | 524 | 524 | 674 | 674 | 844 | 1040 | 1040 | 1473 | 1473 | |

The recommended scheme of installation



At installation of flexible hoses on support beams, it is necessary to exclude the contact of surfaces of splits flange coupling with the support beam. The sizes for installation are pointed to table 6.

Table 6

| Hose standard size | B, mm, no less | b,mm, no less |
|--------------------|----------------|---------------|
| FH-050 | 230 | 100 |
| FH-065 | 280 | |
| FH-076 | 290 | |
| FH-102 | 420 | |
| FH-114 | 490 | 150 |
| FH-133 | 520 | |
| FH-152 | 610 | |
| FH-159 | 820 | |
| FH-170 | 700 | 250 |
| FH-200 | 790 | |
| FH-219 | 810 | |
| FH-245 | 860 | |
| FH-273 | 890 | |
| FH-300 | 730 | |
| FH-325 | 800 | |
| FH-351 | 860 | |
| FH-377 | 900 | |
| FH-402 | 1220 | |
| FH-426 | 1400 | |
| FH-457 | 1450 | |
| FH-508 | 1520 | |
| FH-530 | 1700 | |
| FH-610 | 1820 | 600 |

4.3. Clamps

The clamps intended for fastening of flexible hoses to support beams. At bend of a hose in the line of installation of hoses should place clamps in bend places. The clamps strengthen to support beams by welding (fig.3)

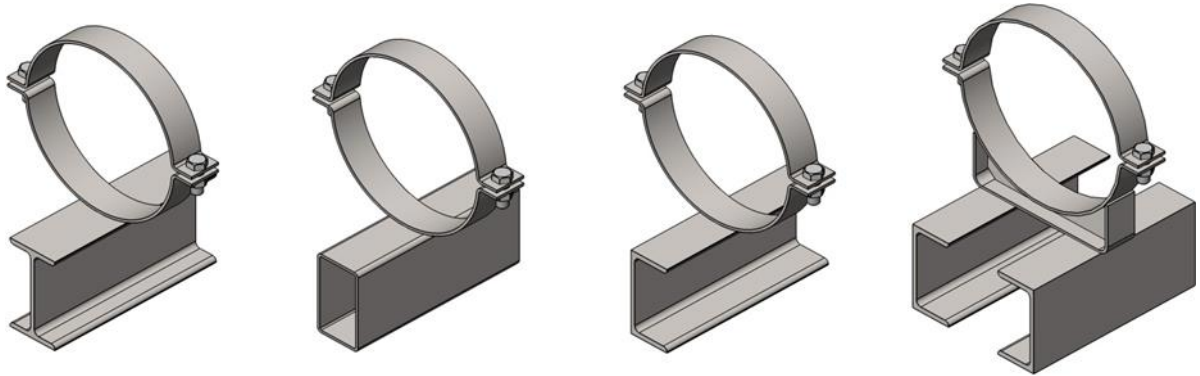
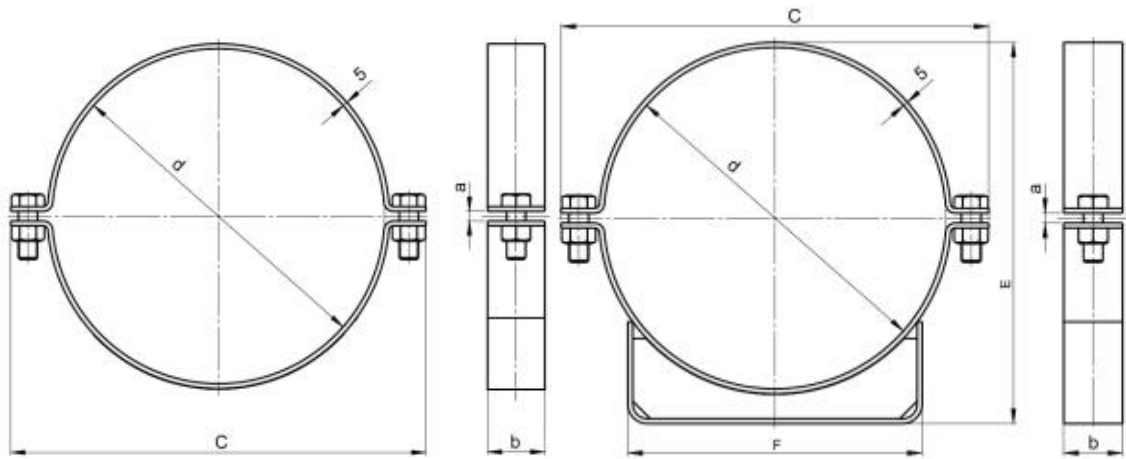


Fig.3

Production and installation of clamps is manufactured at the enterprise-consumer

Basic parameters of the clamps reflect in the drawing of a product (fig.4) are specified in table 7.



For products with ID 050-273 mm

For products with ID 300-630 mm

Fig.4

Table 7

| Typical size | d | C | b | a | E | F | Bolt size |
|--------------|---------|-----|-----|----|-----|-----|-----------|
| FH-050 | 85±1,0 | 138 | 40 | 8 | | | M10x40 |
| FH-065 | 100±1,0 | 155 | | | | | |
| FH-076 | 113±1,0 | 172 | 50 | 10 | - | - | M16x50 |
| FH-102 | 138±2,0 | 216 | | | | | |
| FH-114 | 152±2,0 | 230 | | | | | |
| FH-133 | 170±2,0 | 250 | | | | | |
| FH-152 | 184±2,0 | 262 | | | | | |
| FH-159 | 198±2,0 | 276 | | | | | |
| FH-170 | 211±2,0 | 290 | 60 | 10 | | | M20x80 |
| FH-200 | 245±2,0 | 327 | | | | | |
| FH-219 | 265±2,0 | 352 | | | | | |
| FH-245 | 294±2,0 | 382 | | | | | |
| FH-273 | 322±2,0 | 410 | | | | | |
| FH-300 | 349±2,0 | 436 | | | | | |
| FH-325 | 376±2,0 | 463 | 70 | 12 | 390 | 300 | M20x80 |
| FH-351 | 417±2,0 | 505 | | | 455 | 350 | |
| FH-377 | 465±2,0 | 552 | | | 505 | 380 | |
| FH-402 | 470±2,0 | 557 | | | 510 | 385 | |
| FH-426 | 499±2,0 | 627 | | | 540 | 405 | |
| FH-457 | 457±2,0 | 570 | | | 510 | | |
| FH-508 | 585±2,0 | 690 | 100 | 15 | 630 | 470 | M24x100 |
| FH-530 | 610±2,0 | 715 | | | 650 | 490 | |
| FH-610 | 690±2,0 | 800 | | | 730 | 560 | |

When installing the hose in a straight horizontal section it recommended having the support beam directly under the hose and the clamps should place at intervals of:

1 m for hoses typical size from FH-050 to FH-114;

1,25m for hoses typical size from FH-114 to FH-219;

1,5m for hoses typical size from FH-219 and more.

Using vertical installation it recommended to place the clamps at intervals of not less than 0,8m for all sizes of hoses.

IMPORTANT! When installing the clamp it should fit tightly on the outer diameter of the hose and when tightening the clamps on the hose it is not allowed the deformation on the outside diameter of the hose.

When installing the hose *at the bending areas, there are three types of positions of the supporting beam:*

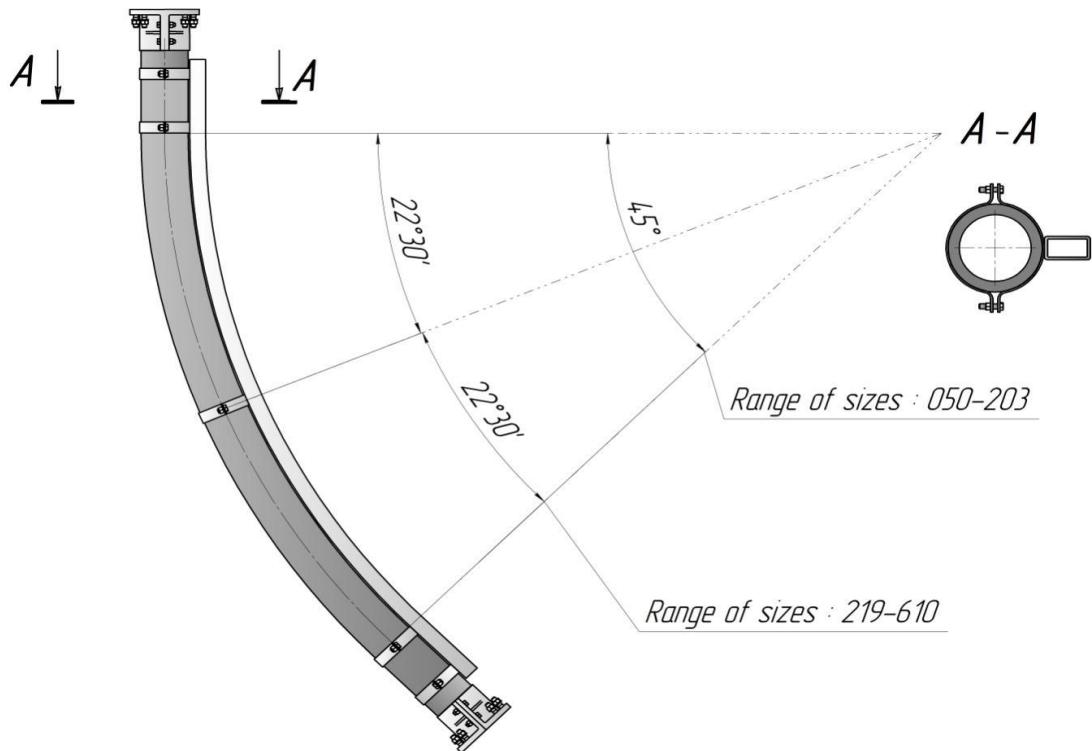
directly below the hose;

lateral position from the outside bending radius of the hose;

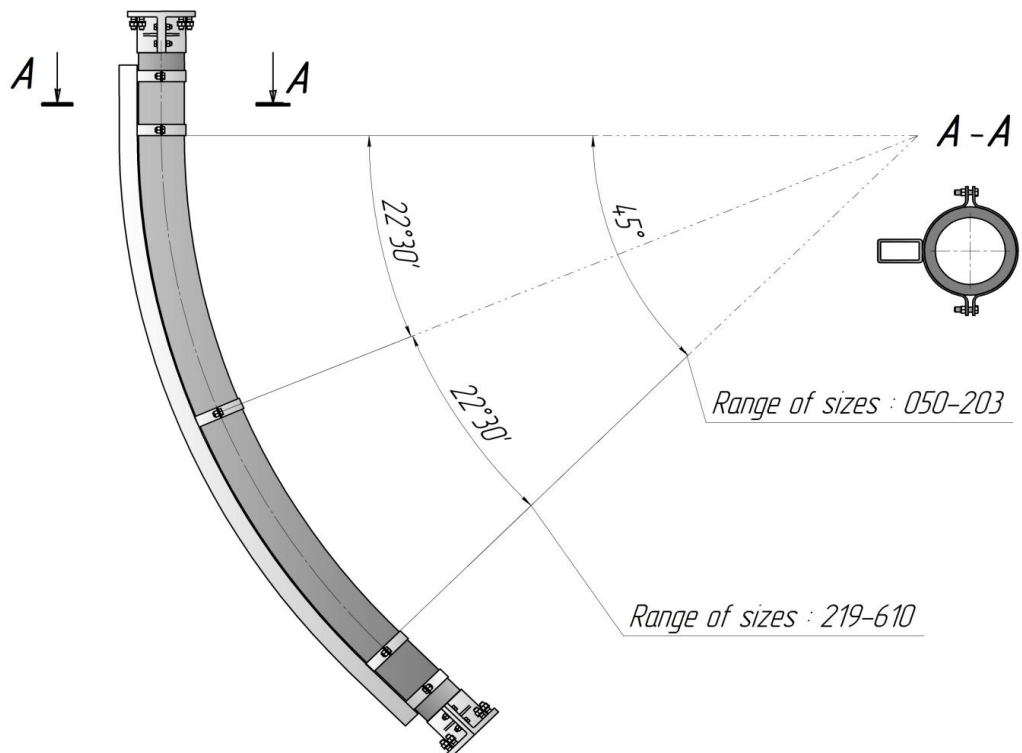
lateral position from the inside bending radius of the hose. 16

It recommended having the clamps according to the following schemes:

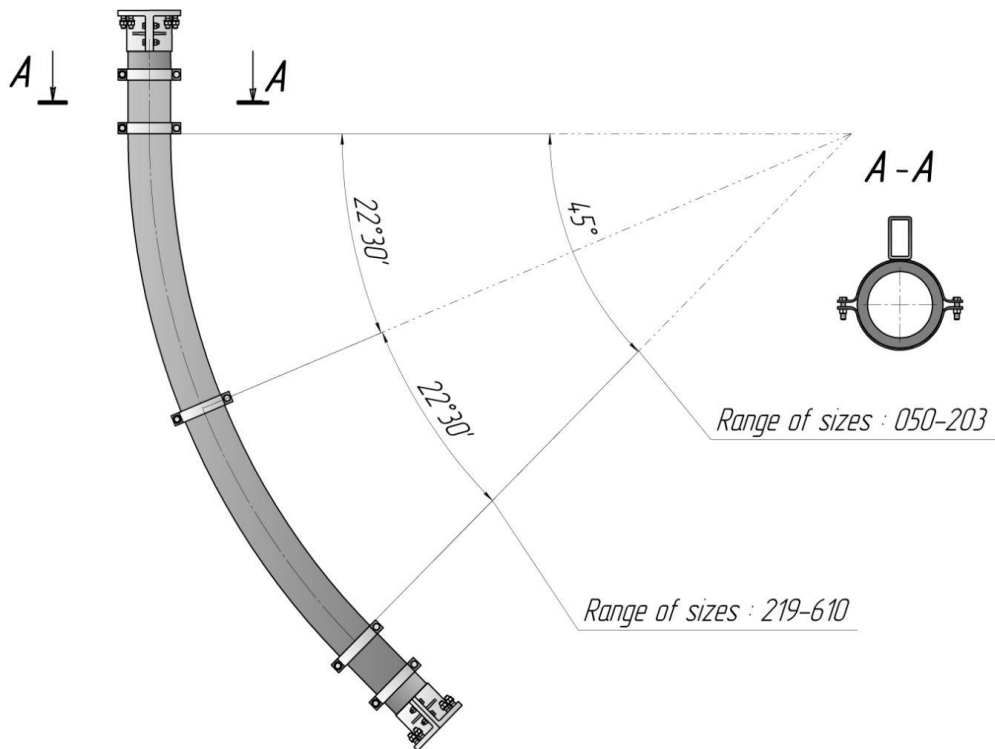
4.4. Types of support beams and clamps installation



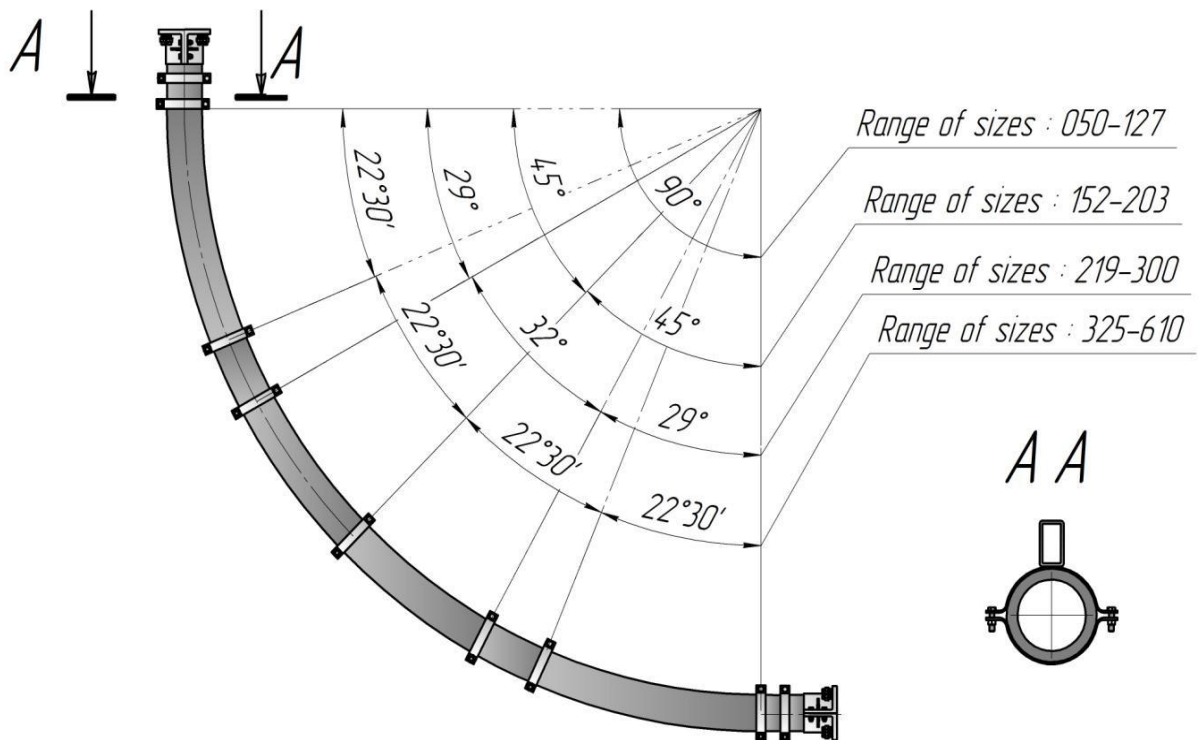
Fixing the hose with clamps on the support beam placed to the inner bending radius of the hose (bending angle 45 °)



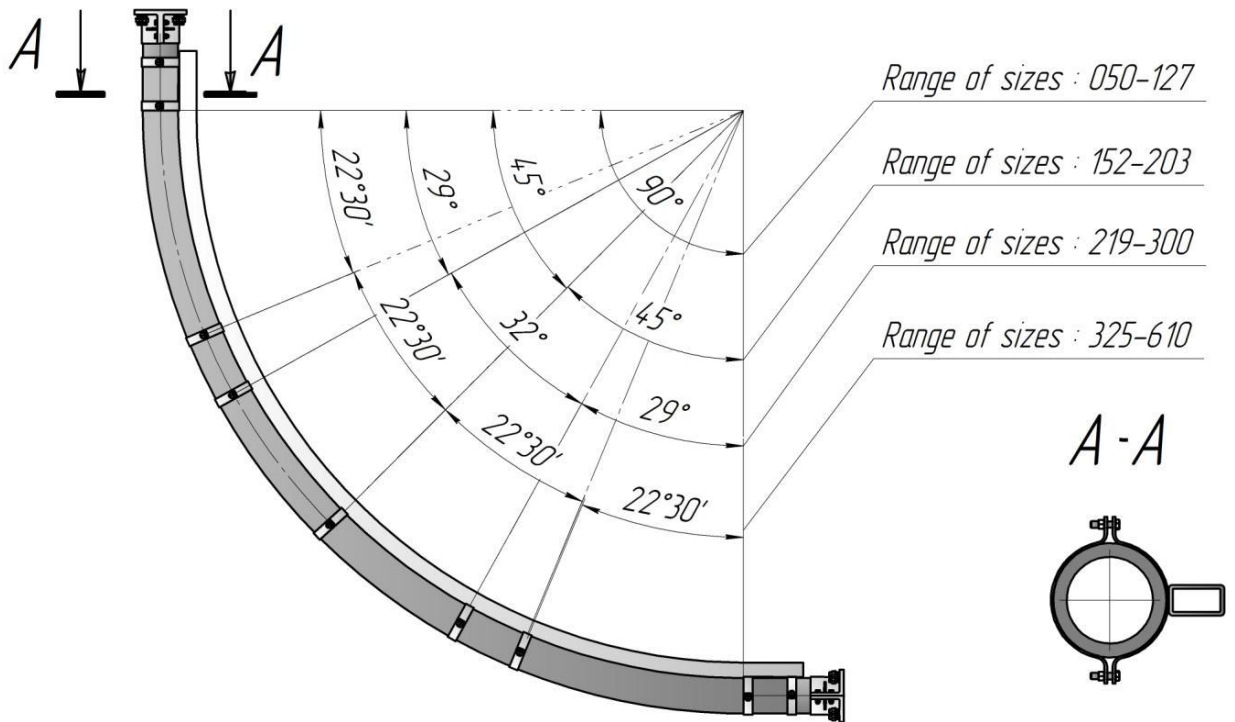
Fixing the hose with clamps on the support beam placed to the outer bending radius of the hose (bending angle 45°)



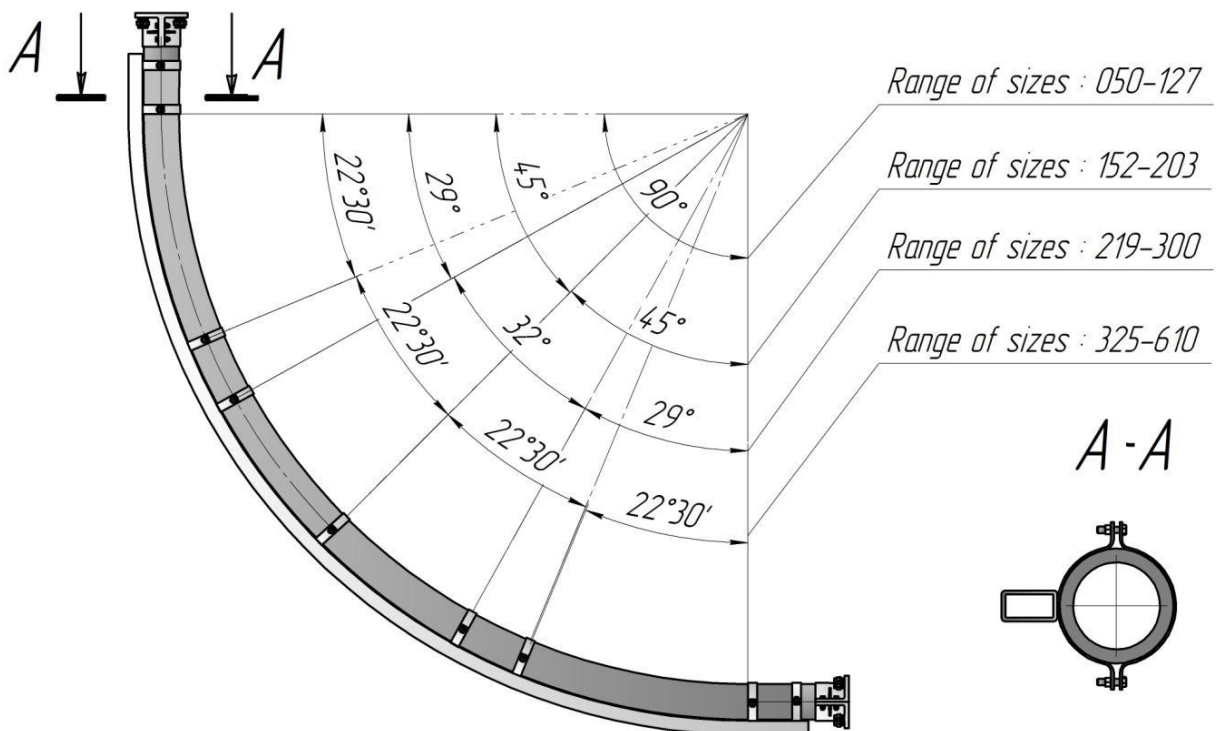
Fixing the hose with clamps on the support beam placed directly under the hose (bending angle 45°).



Fixing the hose with clamps on the support beam placed directly under the hose (bending angle 90°)



Fixing the hose with clamps on the support beam placed to the inner bending radius of the hose (bending angle 90 °)



Fixing the hose with clamps on the support beam placed to the outer bending radius of the hose (bending angle 90 °)

5. Operation

5.1. Use of products

1) Use of products should be in accordance with the requirements of the technical project.

2) During the use of the product in the lines of transporting the products, it is necessary to control the parameters of the working process with the help of instrumentation (pressure gauge, vacuum gauge, etc.).

PROHIBITED:

– use hoses for transporting the products not provided for it by the technical specifications;

– leave in the hose transported product for a long period of time;

– perform welding or other hot works closer than 1 meter from the location of the hose.

ATTENTION:

– creases, wrinkles in the process of moving the hose, operation and storage can lead to the destruction of the hose;

– it is not allowed to bend the hoses included in the slurry hose systems radii less than indicated on the drawings of products and in this manual;

– the use of hoses with a deviation in the geometric shape when changing the roundness of the passage diameter (dents, creases, convex, concave, etc.) can lead to the destruction of the hose in the areas of geometrical form violation;

– vertical hose installation without supporting structures can lead to sagging of the hose and weakening the contact of the outer surface of the hose and of the inner split flange coupling which creates the prerequisites for an emergency situation breakdown of the hose from the split flange coupling;

– repetitive mechanical action on the outer surface of the hose (friction) without rubber gaskets can cause destruction of the hose;

– it is recommended to turn flexible slurry hose systems, which are used to transport materials, 90 degrees every 3 months to ensure smooth wear.

PROHIBITED:

– execution of installation and dismantling works in the installation lines of hoses during the work of hydrotransport at the enterprise;

– use hoses as support structures.

5.2. Maintenance

1) Maintenance of hoses performed in order to prevent failure of the hose during the warranty period and after warranty period.

2) Visual inspection should be carried out once a week.

Moreover it should be detected the presence of delamination of the outer layer, availability of wrinkles, depressions, inflations and places with a visible softening of the outer layer.

All places of split flange couplings and hose connections must be tightened.

It is also necessary to check the availability and integrity of seals and other parts that protect the hose surface from premature wear.

If you notice wrinkles, indentations, blisters, places with the softened outer layer it should be decided on the possibility of further operation of the hose based on the degree of integrity of the internal frame structure of the hose.

If you find a leak in the hose, it must change.

6. Storage

1) The storage of hoses that are the part of flexible slurry hose system and its components packed in boxes, must be carried out in enclosed spaces; permitted short-term storage, no more than thirty days, at manufacturer enterprise outdoors in the closed position. Storage temperature from - 55° to + 80°C.

2) The storage of hoses that are the part of flexible slurry hose system, should made on the horizontal surface but no more than three rows in height, avoiding bends on hoses.

At sub-zero temperatures, the storage of hoses only permitted in the straightened form.

3) Storage of boxes with components should made on a horizontal surface, no more than two rows in height.

4) It not allowed storing the hoses that are the part of flexible slurry hose system close to working of radio electronic and other equipment, contribute to the formation of ozone, as well as artificial light sources emitting ultraviolet light.

5) Keep the hoses that are the part of flexible slurry hose system should be away from radiators, the distance to the heaters must be at least 1 meter.

6) Keep the hoses that are the part of flexible slurry hose system in the same room with oil, gasoline, etc. substances that have a negative impact on the industrial rubber goods products not recommended.

7) The storage of hoses that are the part of flexible slurry hose system under the influence of external and internal pressure, as well as with excesses, not permitted.



Limited liability company Composit,
Kursk 305022 Russia, 49 Solovinaya St.

8-800-550-22-55
info@composit.net