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**TECHNICAL SPECIFICATIONS FOR
ARTICLE PARTS**

520.TY1

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Present technical specifications pertain to manufacture and acceptance of parts and assembly units of articles, as well as for replacement of materials.

1. GENERAL REQUIREMENTS

1.1 Parts should comply with existing design documentation and present technical specifications (TY).

1.2 Present TY is obligatory for parts and assembly units, in drawings, which have reference to 60.018TY and 432.И6-1.

1.3 While manufacturing parts and Assembly units with thermal cutting, welding, soldering, factory instructions approved by chief designer and representative of customer may be followed.

1.4 Manufacturing and usage of seals, glues, lubrication, zinc white pigment for sealing of joints, as well as chemical materials, specified in design documents, to be carried out as per technical instructions of factory-manufacturer.

1.5 Control of profile and contour of parts may be carried out by any method.

1.6 All parts and assembly units should be thoroughly cleaned from dirt, dust, sand, scales, cuttings and other foreign particles before assembly.

1.7 All threaded joints should be tightened with wrenches, specified in technological process, and locked in compliance with requirements of design documentation.

1.8 Placing of wires during locking of threaded joints should prevent their self-unscrewing.

1.9 Lugs of locking washers should be bent, so that they prevent self-unscrewing of fixing parts.

1.10 It is necessary to lubricate with thin layer of plastic lubricant used on article, thread and clean surface of bolts, nuts, rod, axial, shafts, tie rod, coupling and other, before assembly.

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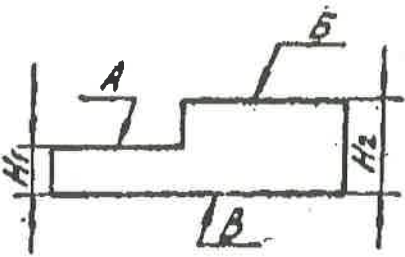
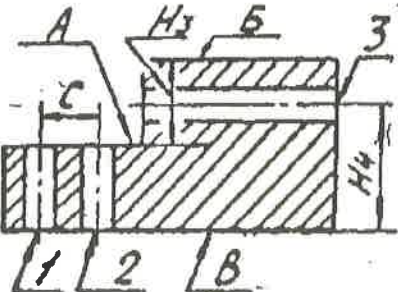
2. REQUIREMENTS FOR MACHINING OF PARTS

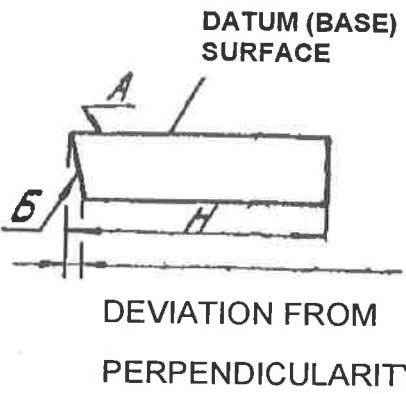
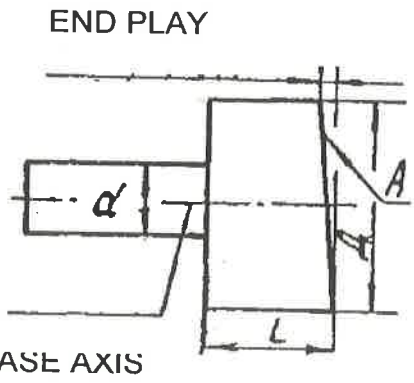
2.1. Surface of parts should not have sharp edges, burrs, and scratches.

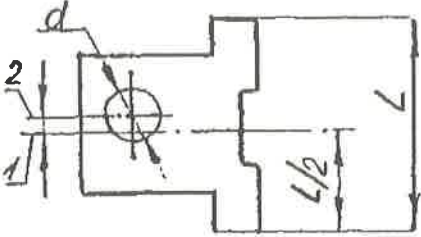
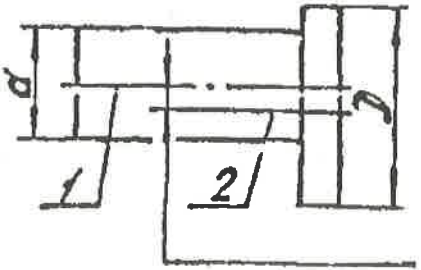
2.2. Limit deviations of surfaces, if they are not specified in drawings or in technical specifications for article, determine as per

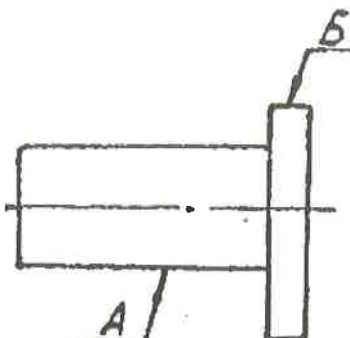
table 1.

Table 1

Term	Drawing	Determination
Deviation from parallelism		<p>Deviation from parallelism of surface A relative to surface B should be within tolerance range on dimensions H_1.</p> <p>Deviation from parallelism of surface B relative to surface B should be within tolerance range on dimensions H_2.</p>
		<p>Deviation from parallelism of surface A relative to surface B should be within tolerance range on dimensions H_3.</p> <p>Deviation of parallelism of axis 1 relative to axis 2 should be within tolerance range on dimension C.</p> <p>Deviation from parallelism of axis 3 relative to surface B should be within tolerance range on dimension H_4.</p>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Deviation from perpendicularity</p>	 <p style="text-align: center;">DATUM (BASE) SURFACE</p> <p style="text-align: center;">DEVIATION FROM PERPENDICULARITY</p>	<p>Deviation from perpendicularity of surface B relative to Surface A, should be with in tolerance range on dimension H.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">End play</p>	 <p style="text-align: center;">END PLAY</p> <p style="text-align: center;">BASE AXIS</p>	<p>End play of surface A relative to base axis should be with in tolerance range on dimension L.</p>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Deviation from symmetry</p>	 <p style="text-align: center;">DEVIATION FROM SYMMETRICITY</p>	<p>Deviation from symmetry of axis 2 relative to axis 1 should be within tolerance range on dimensions d and L (MMC tolerance).</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Deviation from coaxiality</p>	 <p style="text-align: center;">DEVIATION FROM ALIGNMENT</p>	<p>Deviation from co-axiality of axis 1 relative to axis 2 should be within half tolerance range on dimensions d and D (MMC tolerance).</p>

Run out		Radial run out of surface B relative to surface A should be within doubled tolerance range on coaxiality.
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2.3. Limit deviation of shapes of cylindrical surfaces should be within tolerance range of diameter.

2.4. Dimension determining positions of surface of parts with technological allowance need not be checked.

2.5. Threaded holes to be reamed at angles from 90° to 120° upto external diameter of threads.

2.6. While making threads by rolling, it is allowed to decrease diameter of unmachined parts of rod upto mean diameter of threads.

2.7. Unspecified limit deviation of chamfer should be as per table 2.

Table 2

In millimeters

Dimension of chamfer	0.3-0.4	0.5-1.0	1.2-3.0	3.5-5.0
Allowed deviation	± 0.2	± 0.3	± 0.5	± 1

2.8. Permissible limit deviation of radius should be as per table 3.

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Table 3

In millimeters

Dimension of radius	0.2	0.3-0.4	0.5 to 1.0	Above 1 to 3.0	Above 3 to 6.0	Above 6 to 15	Above 15 to 25	Above 25 to 30	Above 30
permissible deviations	±0.1	±0.2	±0.3	±0.5	±1.0	±2.0	±3.0	±4.0	±5.0

2.9. Unspecified limit deviation of angular dimensions should be as per table 4.

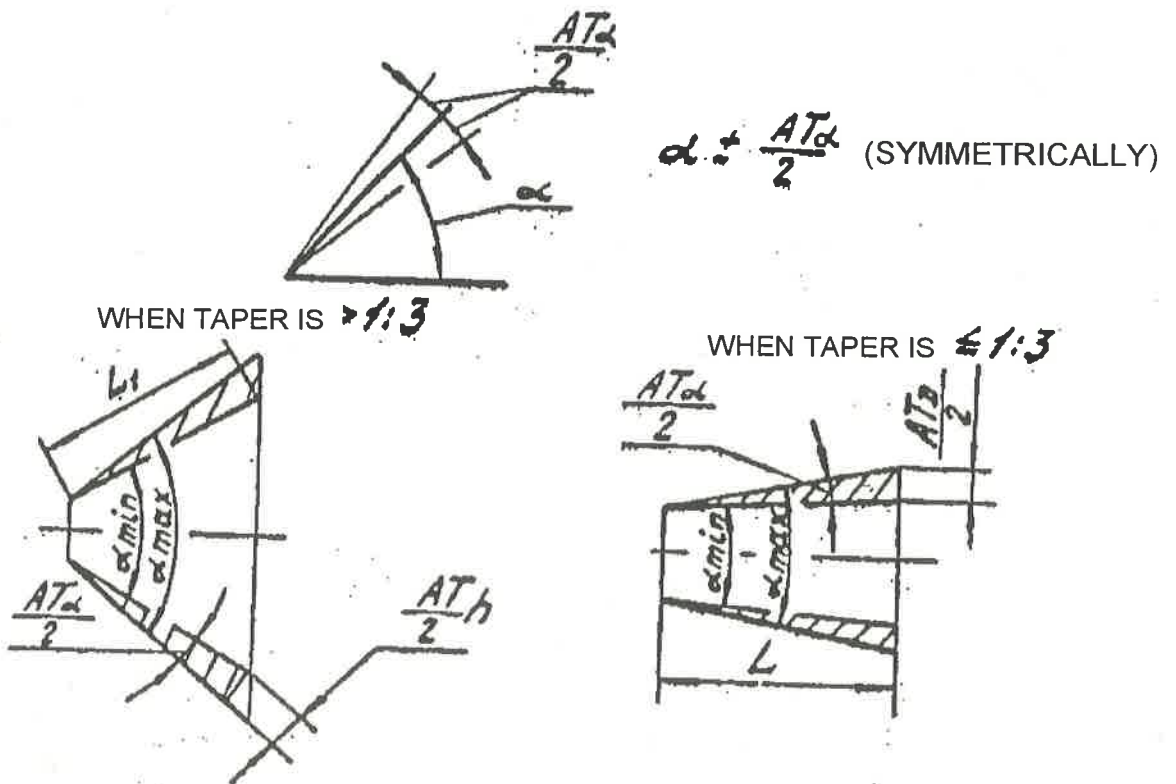


Table 4

Unit of measurement	Range of length L, L ₁ , mm												
	upto 10	ab. 10 to 16	ab. 16 to 25	ab. 25 to 40	ab. 40 to 63	ab. 63 to 100	ab. 100 to 160	ab. 160 to 250	ab. 250 to 400	ab. 400 to 630	ab. 630 to 1000	ab. 1000 to 1600	ab. 1600 to 2500

Limit deviation

AT	2°	1°	1°	1°	40'	40'	40'	20'	20'	20'	10'	10'	10'
AT _α													
AT _h													
AT _D	Upto 0.5	0.4-0.63	0.5-0.8	0.63-1	0.8-1.25	1-1.6	1.25-2	1.6-2.5	2-3.2	2.5-4	3.2-5	4-6.3	5-8
mm													

AT – Tolerance of angle (difference between maximum and minimum limit angles);

AT_α – Tolerance angle, expressed in terms of angular units;

AT_h – Tolerance angle, expressed with section on perpendicular to side of angle, lying opposite to angle AT_α at distance L₁ from vertex of that angle;

AT_D- Tolerance angle of taper, expressed by tolerance for difference of diameters in two normal to axis of cross-section of taper at given distance L between them (is determined as per perpendicular to axis of taper).

Tolerance of taper angles with taper more than 1:3 should be specified depending upon length of generatrix of taper L₁.

Tolerance angle of taper with taper not more than 1:3 should be specified depending upon normal length of taper L.

Note-During taper not more than 1:3 length of taper L approximately taken equal to length of generatrix of L₁ (difference of values not more than 2%).

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2.10. Deviation from perpendicularity of axis of threaded holes to supporting surfaces not more than $1^{\circ}30'$ is allowed (MMC tolerance).

2.11. Unspecified limit deviation of linear dimensions in design documentation, except fillet radii and chamfer, should be as per:

Holes as per H14;

Shafts as per h 14;

Others as per $\pm \frac{IT16}{2}$ as per table 5.

Table 5

In millimeters

Nominal dimensions	Limit deviation of dimensions			
	Holes	Shaft	Parts not related to holes or shaft	
	H14	h14	$\pm \frac{IT 14}{2}$	$\pm \frac{IT 16}{2}$
Less than 1	+0.10	0	± 0.050	± 0.07
	0	-0.10		
From 1 to 3	+0.25	0	± 0.125	± 0.30
	0	-0.25		
Above 3 to 6	+0.30	0	± 0.150	± 0.37
	0	-0.30		
Above 6 to 10	+0.36	0	± 0.180	± 0.45
	0	-0.36		
Above 10 to 18	+0.43	0	± 0.215	± 0.55
	0	-0.43		
Above 18 to 30	+0.52	0	± 0.260	± 0.65
	0	-0.52		
Above 30 to 50	+0.62	0	± 0.310	± 0.80
	0	-0.62		

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Above 50 to 80	+0.74	0	±0.370	±0.95
	0	-0.74		
Above 80 to 120	+0.87	0	±0.435	±1.10
	0	-0.87		
Above 120 to 180	+1.00	0	±0.500	±1.25
	0	-1.00		
Above 180 to 250	+1.15	0	±0.575	±1.45
	0	-1.15		
Above 250 to 315	+1.30	0	±0.650	±1.60
	0	-1.30		
Above 315 to 400	+1.40	0	±0.700	±1.80
	0	-1.40		
Above 400 to 500	+1.55	0	±0.775	±2.00
	0	-1.55		
Above 500 to 630	+1.75	0	±0.875	±2.20
	0	-1.75		
Above 630 to 800	+2.00	0	±1.000	±2.50
	0	-2.00		
Above 800 to 1000	+2.30	0	±1.150	±2.80
	0	-2.30		
Above 1000 to 1250	+2.60	0	±1.300	±3.30
	0	-2.60		
Above 1250 to 1600	+3.10	0	±1.550	±3.90
	0	-3.10		
Above 1600 to 2000	+3.70	0	±1.850	±4.60
	0	-3.70		
Above 2000 to 2500	+4.40	0	±2.200	±5.50
	0	-4.40		

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Above 2500 to 3150	+5.40 0	0 -5.40	±2.700	±6.75
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2.12 Changing from one surface to another is carried out as per radius with tool (fig. 1a, б). Dimensions are to be ensured by tool.

2.13. Taper angle in holes with drill bit, reamer or other tools need not be checked (fig. 1в). Dimensions are to be ensured by tool.

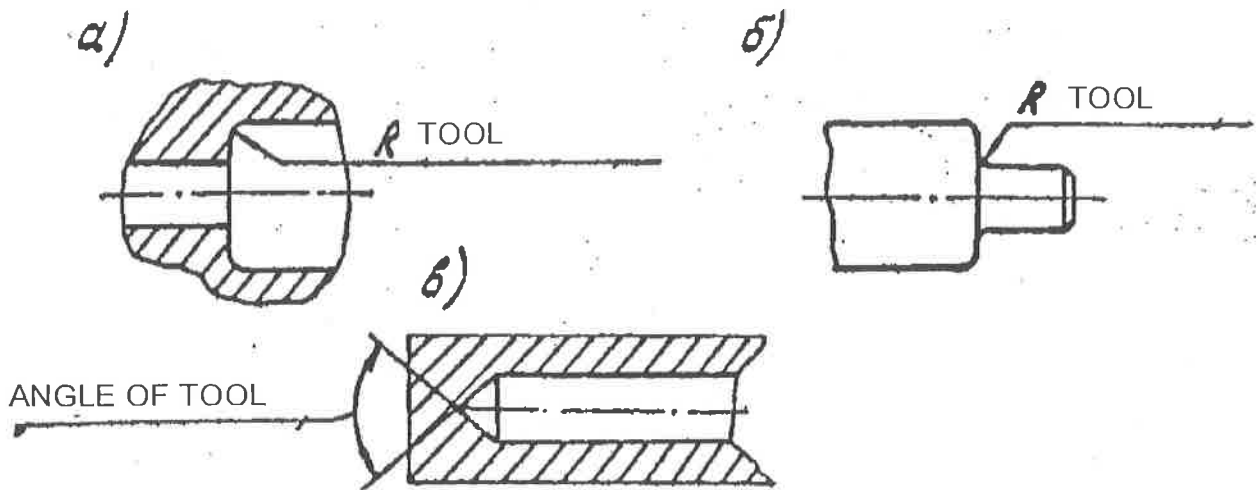


FIGURE 1

2.14. Blunting is carried out on external and internal angles of radii or by chamfering:

for external angles 0.2-0.5 mm;

for internal angles not more than 0.5 mm.

2.15. In holes surface finishing is as per 14 and lower, carried out by drilling, it is allowed to decrease diameters for values, equal to the half of tolerance range of surface finishing 12 for these diameters, except 172.54.003c6-3.

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2.16. it is allowed to make standard bolts, screws and studs with tolerance range 6h and 8h, in place of 6g and 8g and in case of necessity, it is allowed to measure zinc plating surface, during assembly.

2.17. While making threads by rolling , transition radius from cylindrical part to thread and chamfer on rod after rolling need not be checked.

2.18. Displacement of marks on parts with left threading, carried out as per GOST 2904-91, need not be checked.

2.19. Non-standard nuts, heads of non-standard bolts and screws should be manufactured at level of accuracy B as per GOST 1759.1-82, if there are no other specifications in drawing.

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3. REQUIREMENTS FOR PARTS, MANUFACTURED BY METHODS OF COLD STAMPING

3.1 Defects from raw materials, specified in compliance with standards and technical specifications of these materials are allowed on the surface of parts.

3.2 Traces of process of stamping as figures and bulge holes manufactured by extrusion, flanging, shaping and with bending, as well as local pressing and stamping of working surfaces of dies in depth not more than 12 % of actual thickness of parts is allowed on surfaces of parts.

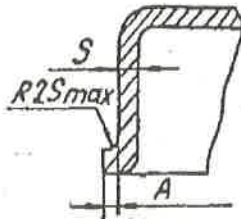
3.3 For parts, subjected to cutting after drawing, on surface of cut along external contour, edges A are allowed to project depending upon the overall dimensions of parts:

upto 150 mm not more than 0.5 mm;

upto 500 mm not more than 0.8 mm;

more than 500 mm not more than 1.2 mm;

At transition radii not more than 1.5 mm.



3.4 Projecting burrs of plane not more than 20 % thickness of parts, but not more than 1 mm, except specified in drawings on stamping parts.

3.5 On surface of cutting of parts from sheet material, draft, shrinkage of edges, double chips are allowed.

3.6 Dimensions, unspecified tolerances, given for design of tool and on parts need not be checked.

3.7 Decreasing of thickness of sheet above minus tolerance by 0.3 mm for thickness of 6mm and by 0.4 mm for thickness 8 mm and more are allowed during stamping thick sheet parts.

3.8 Other requirements as per OST 3-4343-87.

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4. REQUIREMENTS FOR PARTS MANUFACTURED BY METHODS OF DIE FORGING

4.1 Permissible deviation for rough dimensions of parts as per GOST 7505-89.

4.2 Drafts not more than 7° .

4.3 Unspecified fillet radii not more than 3 mm.

4.4 Local defects such as dents from scaling, burrs, taper cutting etc, as well as complete cutting or finishing defects on condition that dimensions of forging remain within tolerance range, on un-machined surfaces of forging.

4.5 Defects specified in standards or technical specifications on base material are allowed on un-machined surfaces of parts.

4.6 Thinning of cross section, while removing dents not more than 2 % above lower deviation is allowed on machined surfaces of parts.

4.7 On parts, manufactured from rod or sheets by the method of cutting on shear, drafts not more than 7° and folds are allowed.

4.8 Other technical requirements as per GOST 8479-70 and GOST 7505-89:

4.9 On parts, manufactured from rod or sheet by the method of bending, following are allowed:

- Thinning or ovality of cross section in place of bending not more than 10%;
- Occasional dents and folds at surfaces of bends.

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5. REQUIREMENTS FOR CASTING

5.1 Requirements:

- For structural steel casting as per 172.TY4;
- For castings from special steel casting as per 172.TY5;
- For ferrous casting as per 172.TY6;
- For non-ferrous casting as per 172.TY7;
- For steel castings by investment casting as per 172.TY10.

Above specified technical specifications are obligatory for parts in drawings, which have reference to 432.TY4, 432.TY5, 432.TY6, 432.TY7, and 432.TY10.

5.2 While manufacturing parts from antifriction cast-iron of grade A4C-1 GOST 1585-85, hardness should be 180-240 HB.

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6. REQUIREMENTS FOR MATERIALS AND ALTERNATE-MATERIALS

6.1 It is allowed to replace sheets with thickness 3.9 mm GOST 16523-97 of sheets with thickness 4 mm GOST 1577-93 with same grade of steel.

6.2 For all parts, which are stipulated in working drawings are manufactured from thin-sheet steel grade 08кп and 10кп GOST 16523-97, it is allowed to manufacture from steel 08пс and 10пс GOST 16523-97 and from 08кп and 08пс GOST 9045-93.

6.3 While manufacturing parts from rolled stock as per GOST 16523-97 of thickness from 2 to 3.9 mm, it is allowed to use rolled stock of IIIrd group of finished surface.

6.4 For manufacturing parts from low alloy steel. Steel 09Г2 GOST 19281-89, thickness higher than 5 mm, it is allowed to use steel from 6 to 12 categories.

It is allowed to use steel 09Г2Д GOST 19281-89 in place of steel 09Г2 of same category.

6.5 For all parts, which are stipulated in working drawings are manufactured from angular rolled stock of grade Ст3сп and Ст3кп GOST 380-94, it is allowed to manufacture from angular rolled stock of grades 09Г2 and 09Г2Д as per GOST 19281-89 of category 2 for rolled stock thickness of 4 mm and category 6 and 12 with thickness of 5 mm and higher and from angular rolled stock of type Ст3сп and 09Г2 as per TY 14-1-3023-80; but for parts from angular rolled stock grades 09Г2 and 09Г2Д as per GOST 19281-89, it is allowed to manufacture from angular rolled stock Ст3пс, Ст3сп and Ст3кп as per GOST 380-94 and from angular rolled stock of grades Ст3сп and 09Г2 as per TY 14-1-3023-80, except 175.64.093-1.

6.6 For all parts, which are stipulated in working drawings, are manufactured from aluminum alloy sheet grade Аmг6БМ GOST 21631-76, it is allowed to manufacture from aluminum alloy sheet Аmг6М GOST 21631-76 for all parts.

6.7 Parts, which are manufactured from copper grades М3 GOST 859-78 of all types of rolled stock, it is allowed to manufacture from copper grade М1 and М2 GOST 859-78.

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6.8 In assembly units and parts, where hot tinning and soldering with solder ПОССу-30-2 or ПОССу -40-2 is carried out, it is allowed to use solder grade ПОС-30 GOST 21930-76 or GOST 21931-76.

6.9 In place of solder ЛК62-0.5 and ЛО60-1, it is allowed to use soldering grade Л63 GOST 16130-90.

6.10 Bolts, screws and studs, of strength class 4.6 and screws with strength class 8, may be manufactured from steel grade 20nc GOST 10702-78, as well as steel grades 15 and 20 as per TY 3-80-80, during this for bolts, screws and studs strength class 5.8 is permitted, and for steel 40 GOST 1050-88 with specifications in accompanied documentation of strength class as per basic documentation.

6.11 Bolt M6x12.46.016 GOST 7798-70; Bolts M6-6gx12.66.016, M6-6gx14.66.016, M6-6gx16.66.016, M6-6gx10.66.016, 3M6-6gx10.66.016, 3M6-6gx12.66.016, 3M6-6gx16.66.016 GOST 7805-70 is allowed to manufactured from steel 40X GOST 10702-78 with heat treatment, providing strength class 6.6 GOST 1759.4-87 (heat treatment of bolts-strength class 8.8 is allowed).

6.12 Bolts M6-6gx14.66.016, M6-6gx16.66.016, M6-6gx10.66.016, 3M6-6gx10.66.016, 3M6-6gx12.66.016, 3M6-6gx16.66.016 GOST 7805-70 is allowed to manufactured as per GOST 7798-70 from steel 40X GOST 10702-78 with heat treatment, providing strength class 6.6 GOST 1759.4-87 (heat treatment of bolts-strength class 8.8 is allowed).

6.13 All Bolts and screws with designated strength class 8.8, except bolts, entering into groups 40, 43, 46, 64, it is allowed to manufacture from steel 35X and 40X GOST 4543-71 and by cold upsetting from steel 35X and 40X GOST 10702-78.

6.14 Asbestos board grade KAOH-1 GOST 2850-95, used for packing, to be ordered without markings of industrial cloth and straight lines of longitudinal knurling due to turning of drum.

6.15 It is allowed to manufacture screws GOST 17473-80 of strength class 4.6 together with screws GOST 1491-80 of strength class 4.6 except bolts M3-6gx6.46.016, M6-6gx18.46.016.

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6.16 Bolts of GOST 7808-70, in designation of which shows strength class 6.6, is allowed to manufacture from steel 40X GOST 10702-78 with strength class 8.8 or 6.6.

6.17 Operating drawings, which are stipulated in working drawing are manufactured from thin sheet rolling grade ПTK of TY 14-11-262-89, is allowed to manufacture from steel grade 10kn of any group GOST 16523-97 for all parts.

6.18 Bolt as per GOST 7798-70 is allowed to manufacture from high forging in head not more than 1 mm, with diameter $D \leq 0.8S$.

6.19 Parts with which are stipulated in working drawing are manufactured from ribbon grade Y7A GOST 2283-79, is allowed to manufacture from the same tape of grades Y8A GOST 2283-79.

6.20 For all parts, which are stipulated in working drawing are manufactured from aluminum sheets and table grade АД1, АД0 GOST 4784-74, is allowed to manufacture from aluminum sheets and plate grades A5, A6, A7 as per GOST 11069-74.

6.21 For all parts, which are stipulated in working drawings are manufactured from rolling with quality surface of group Б GOST 1051-73, is allowed to manufacture from same rolling with quality of surface Group B GOST 1051-73.

6.22 it is allowed to use white lead as per instructions АДК 25064.00028 in place of whiting lead hard removing MA-011-1 GOST 482-77 for packing connections.

6.23 In place of steel 20XГHP GOST 4543-71, allowed to use steel grade 20X2H4A.

6.24 It is allowed to manufacture and mount bolts GOST 7795-70 and GOST 7796-70, as replaceable.

6.25 It is allowed to use washer of accuracy class A in place of accuracy class C as per GOST 6958-78, GOST 10450-78, GOST 11371-78.

6.26 It is allowed to use bakelite varnish ЛБС-1 TY6-07.455-93 in place of varnish ЛБС-1 GOST 901-78.

6.27 It is allowed to replace nuts M3-6H.8.40.016 GOST 5927-70 and M4-6H.8.40.016 GOST 5927-70 to M3-6H.8.20.016 GOST 5927-70 and M4-6H.8.20.016 GOST 5927-70.

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7. REQUIREMENTS FOR HEAT TREATMENT OF PARTS

7.1 Hardness of heat treatment of parts, if it is not specified in drawings, they are to be checked on non working surfaces, allowances or standard samples, subjecting to heat treatment jointly with parts. During this slot for checking hardness should be:

- on un-machined surfaces of hot forging and casting not less than depth of decarbonised layer;
- on un-machined surfaces of cold stamping – not more than 1.0 mm;
- on un-machined (non operating) surfaces of parts – not more than 0.5 mm.

7.2 On parts, having hardness more than 302 HB ($d_{\text{отн}}$ 3.5) is allowed to check their hardness as per HRC, in separate cases for parts with cross section less than 10 mm with hardness 229-285 HB ($d_{\text{отн}}$ 4.0-3.6) is allowed to test hardness as per HRA.

7.3 Scope, methods of checking and place of measuring hardness, if this is not specified in drawings of parts, specified in technical documentation.

7.4 Standard bolts with diameter M6, M8, M10 from steel 38XC to be heat-treated till hardness 255-302 HB.

7.5 Measuring hardness of bolts is allowed to produce on face of heads or at end of rod in flush with not more 0.5 mm.

7.6 Mounting screws as per GOST 1478-93 and GOST 1481-84 of strength class 33H from steel 38XC heat treatment is allowed upto hardness 255-302 HB.

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8. REQUIREMENTS FOR PARTS MANUFACTURED FROM PIPES FOR PIPE LINES

8.1 Corrosion, cracks, burrs, cuts and other defects are not allowed on surfaces and ends of pipes.

8.2 Ovality of pipe in places of bend not more than 15% is allowed on external diameter.

8.3 Dents with out undercutting from depth not more than 10 % from external diameter is allowed on surface of pipe.

8.4 Corrugation with height 1.5 mm for pipe with diameter not more than 20 mm and height 2 mm for pipe with diameter more than 20 mm are allowed in places of bending pipes.

8.5 Permissible thinning of wall of bended pipe should not exceed following values of primary thickness:

- for pipe from aluminum alloys – 25 %;
- for pipe from steel – 20 %;
- for pipe from copper and copper alloys – 10 %.

8.6 Edges of broken pipes should not have burrs and sharp edges.

8.7 End of pipe should be cut at angle 90° with surface finishing not less than R_z^{160} .

8.8 Expanding pipe should be projected under nipple not less than at 0.5 mm uniformly throughout the contours.

8.9 Internal surface of tank, radiators and pipelines (Pipes, branching pipe and hose connection) should be clean – presence of mechanical impurities in planes is not allowed. During this after blowing pipe with compressed air mechanical parts, visible to naked eyes on white tissue paper should not be present.

Marks of liquid, used during tests for leak tight ness are allowed.

8.10 During assembly of pipe lines with soldering rings with the method of furnace soldering for providing required gap in mating parts calibration of ends of pipes to suit is allowed.

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8.11 During furnace soldering, it is allowed to leak, solder on surfaces of soldered parts.

8.12 While manufacturing steel or copper pipes with the use of gas soldering and induction and casehardening is allowed to use in following soldering rings:

- 520.20.001 replace with 54.05.233;
- 520.20.001-01 replace with 54.02.517;
- 520.20.001-02 replace with 54.03.101;
- 520.20.001-04 replace with 54.42.094

Pressing of rings of pipes during assembly is allowed.

8.13 Pipes of air systems are to be thoroughly purge with compressed gas, passed through moist-oil separator and with felted or felt filter.

8.14 Ends of pipes, branch pipes, hole and branch pipes in tanks, radiators, opened in ends of air systems should be protected from damages and getting dirt of polythene film or technological plugs.

Plugs should be carried out in type of thread caps made from metal or plastic, threaded caps or rubber cap. Plugs should be fitted tightly and should not allow entering dust and dirt.

Removing plugs or film is allowed only before connecting

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9. REQUIREMENTS FOR SPRINGS

9.1 Surface of spring should not have cracks, under cuts and folds.

9.2 End (non-working) coils of spring should be pressed compressed to operating coils. After loading springs, as mentioned in drawing, residual deformation of it, is not allowed.

9.3 Permissible deviation of external diameter of spring, if they are not mentioned in drawings, should be in limits as mentioned in table 6.

Table 6

In millimeters

External diameter of spring	Upto10 incl	ab.10 to 30 incl	ab.30 to 40 incl	ab.40 to 80 incl.
Permissible deviation	± 0.3	± 0.5	± 0.7	± 1

9.4 Permissible deviation number of complete turns ± 0.5 turns.

9.5 Thickness end of supporting turn of compressed spring should have not less than $0.15d$, and length of arc of machined surface should be not less than 0.75 length of circle of turn.

9.6. All springs, manufactured from wires as per GOST 9389-75, should be subjected to low temperature tempering.

9.7. Dimensions without allowances need not be checked.

9.8. For spring, in drawings of which are not specified gap between supporting and operating turns – specified gap is determined as per formula $0.15(t-d)$,

Where t – pitch spring;

d - diameter of wire.

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10 REQUIREMENTS FOR PARTS MANUFACTURED FROM NON-METALLIC MATERIALS

10.1 Acceptance and checking of rubber-industrial parts are produced as per TY 005216-99.

10.2 In drawings of rubber parts, in which connections are stipulated with gluing of cold hardening in inclined cut, it is allowed to carryout connection of edges by mating with the methods of vulcanization.

10.3 Presence of de-colorization of ingredients and products on surfaces of rubber mixture and parts.

10.4 Presence of glue layer and rubbers are allowed on rubber-metallic assembly units.

10.5 It is allowed to grind surfaces of parts to suit of mold connection.

10.6 In all before released drawings ПТДИ to their republication of dimensions, indicated in drawing without tolerances, execute by tolerances as per table 7.

Table 7

In millimeters

As per overall dimensions (length, width, diameter)		In height and thickness	
Normal dimensions	Tolerance	Nominal dimensions	Tolerance
Till 5.0	±0.3	Till 2.0	±0.3
Above 5.0 to 10.0	±0.5	Above 2.0 to 5.0	±0.5
Above 10.0 to 25.0	±0.6	Above 5.0 to 10.0	±0.8
Above 25.0 to 50.0	±0.8	Above 10.0 to 20.0	±0.7
Above 50.0 to 100.0	±1.0	Above 20.0 to 50.0	±1.0
Above 100.0 to 150.0	±1.5	Above 50.0 to 100.0	±1.5
Above 150.0 to 250.0	±2.0	Above 100.0 to 150.0	±2.0
Above 250.0	±1.0 %	Above 150.0	±1.5%

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10.7 Local scaling of rubber on rubber metallic assembly units is allowed to stick with gluing of cold hardening.

10.8 It is allowed to use industrial plate TY 38 105867-90, rubber mixture as per TY 38 0051166-98, to be replaced with same grades of rubbers and plates as per TY 005216-99.

10.9 It is allowed to use industrial plates HO-68-1M TY 005216-99 in place of plates HO-68-1 TY 005216-99.

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11. REQUIREMENTS FOR METALLIC AND NON-METALLIC (IN- ORGANIC) COATING

11.1 Requirements for metallic and non-metallic (In-organic) coating should comply with TY-16.

11.2 Technical specifications TY-16 are obligatory for parts and assembly units, in drawings, which have reference to 432.TY3.

11.3 Zinc coating with thickness of 3 microns (013) for bolts as per GOST 17473-80 and GOST 1491-80 with pitch of threads upto 0.45 is replaced with coating of thickness 6 micron (016).

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12. REQUIREMENTS FOR SOLDERING EQUIPMENT WITH PIPE LINES

12.1 Soldering equipment (nipples, unions, protractors and others) with pipelines should be done by soldering, grade of which is specified in compliance with drawings.

12.2 Defects type unspecified figures, dents and other defects in permissible limits with state standards of pipes are allowed on the surface of pipeline, subjected to soldering,.

12.3 Gap between fittings and pipe for copper-zinc soldering should be in limits from 0.05 to 0.45 mm (to side), but for solder ПС_p from 0.05 to 0.3 mm.

12.4 checking quality of soldering fitting with pipelines, as well as other requirements of soldering as per existing instructions of cheif welder, upon agreement with chief designer and representative of customer.

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13. REQUIREMENTS FOR PARTS OF INNER AND OUTER SHIELDS

13.1 Unspecified limit deviation of dimensions:

Linear ± 2 mm;

Angular $\pm 30'$;

13.2 It is allowed to increase drafts in holes and slots for ensuring the removal of parts from molds.

13.3 Double images and traces from marking sign with depth not more than 3 mm is allowed during marking molding.

13.4 In holes with diameter, not more than 15 mm, trim the flash from forging in customer-factory.

13.5 Unspecified radii not more than 5 mm.

13.6 It is allowed to round up angles with radius not more than 3 mm

13.7 Dimension, except thickness, given for projecting tool are not subjected for checking.

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14. REQUIREMENTS FOR PREMISES AND WORK PLACES

14.1 Premises and operating places where assembly is carried out for parts and air pipelines and heating system, lubricating and cooling systems, hydro-systems and hydro units should be with out dust particles, falling of dirt, abrasive and foreign inclusions.

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15. REQUIREMENTS FOR MOUNTING RUBBER-INDUSTRIAL PARTS (PTД)

15.1 Before mounting RIP should be cleaned from possible dirt, dust etc.

15.2 Mounting of RIP in mounting places is carried out with consideration of excluding bends and mechanical damages.

15.3 On mounting with RIP metallic surfaces sharp edges, dents and other mechanical damages are not allowed.

15.4 If while setting in mounting pin of RIP pass through groove, spline, thread it is recommended to use mandrel if necessary.

15.5 Before mounting, RIP and surface friction should be lubricated by lubricant or operating medium for preserving completeness of RIP.

15.6 Repeating setting of demounting ring and collars are not allowed.

15.7 Before assembling threads with parts, through which mounting of ring are carried out, should be lubricated by thin layer of lubricant or operating medium.

15.8 Pressing collar in bay is carried out with the help of fixture by fixing uniformly in all end surfaces of collar. During this should be carefully observe that bend of collar and damages of external rubber layer of collar.

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16. REQUIREMENT FOR NAME PLATES

16.1 Name plates should be flat, burrs are not allowed

16.2 Image on table should be short. Font as per GOST 2930-62.

16.3 Image should project or sink relative plane of tables.

16.4 It is allowed to obtain image on tables of photochemical methods. •

16.5 Image or background should not be cleaned with water, oil and diesel fuels.

16.6 Table around should be covered with colour less varnish.

16.7 Dimension of words, their location and frame executed by guiding with format.

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