

# Chelyabinsk Metallurgical Plant

Product	Size rang			Product specification	Steel grade	Steel specification	Use	Form of delivery
	Sketch	Dimensions, mm	Max. weight of forgings, kg					
Bars after abrasive conditioning		A      L 200      700-2500 205-600      700-6000* 610-720      1000-5000 L/A < 20 *Depending on assortment	1000 7500 7500	TY 14-1-1530-75	20; 35; 45 and others	Carbon quality structural steel, ГOCT 1050-88	For manufacture of the parts required to be highly ductile (cl.20); parts required to be highly strong (cl.45)	Minimum batch - one forging (on condition to distribute heat norm regarding the principal orders). Packaging and marking should be conducted according to ГOCT 7566-81.
		A      L 200-600      1000-6000 L/A < 20	7500					
		A      B      L 140-450      200 - 800 1000-4000 L/A < 15, B/A < 5	1400					
Forgings-washer		120 ≤ H ≤ 350 300 ≤ D ≤ 800	7500		12X1MΦ; 15X5M and others	Thermostable, ГOCT 20072-74	For manufacture of the parts to be operated in load conditions at temperature up to 600° — during long period	
Circular section stepped shaft		D      d 300-630      200-450 L 600-6000	7500		5X3B3MΦC (ДИ 23); 4X5B2ΦC (ЭИ958); 4X5MΦC; 5X2MНΦ; 4X4BМΦC (ДИ22); 5XHM; 9X1; XBГ and others.	Tool alloy steel, ГOCT 5950-73	For manufacture of the tools applied mainly for metal forming at temperature over 300° C	
Forged circular section bars after cutter treatment		A      L 180-250      1000-3000 255-500      1000-6000 505-700      1000-5000 L/A < 20	6500	TY 14-1-1530-75 (extreme deviations +/- 10 mm)				
Forged circular section bars after abrasive conditioning		A      L 180-250      900-6000 250-600      900-4000 L/A < 20	3000 7000		08X18H10T; 12X18H10T; 10X17H13M2T; 08X17H13M2T; 03X17H14M3-ВИ; 13X11H2B2MΦ; 20X13; 10X11H20T3P-ВД and others.	Corrosion-resistant, high-temperature and heat-resistant steel, ГOCT 5632-72	For manufacture of the parts and mechanisms intended to be applied in corrosive media and at temperature over 500° C.	



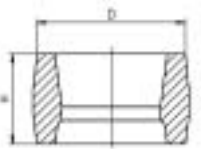
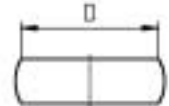

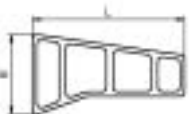
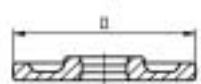
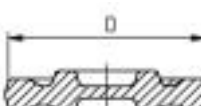
Product	Size rang			Product specification	Steel grade	Steel specification	Use	Form of delivery
	Sketch	Dimensions, mm	Max. weight of forgings, kg					
Bars after abrasive conditioning		A L 180-450 700-6000 180-250 900-6000 L/A < 20	7000	ТУ 14-1-1530-75 (extreme deviations +/- 10 mm)	5X3B3MΦC (ДИ 23); 4X5B2ΦC (ЭИ958); 4X5MΦC; 5X2MНΦ; 4X4BMΦC (ДИ22); 5XHM; 9X1; XBГ and others.	Tool alloy steel, ГОСТ 5950-73	For manufacture of the tools applied mainly for metal forming at temperature over 300° C	Minimum batch - one forging (on condition to distribute heat norm regarding the principal orders). Packaging and marking should be conducted according to ГОСТ 7566-81.
		A B L 180-250 500-800 2000-3900 L/A < 15, B/A < 6	4300					
Forgings-washer after ends cutter treatment and lateral surface (sphere) abrasive conditioning		110 ≤ H ≤ 300 300 ≤ D ≤ 800	1300					
Circular section stepped shaft after cutter treatment		D d L 250-600 180-450 600-2000	6000	*As well as from all the steel grades listed on page 3				
Heavy forging steel		A=280-620мм L=2000-6000мм (в зависимости от диаметра поковки) L/A < 20	7000	SEW 550	Ck 22; Ck 35; Ck 45; Ck 50; Ck 60; 20Mn 5; 28Mn 6; 20MnMoNi 45; 22NiMoCr4 7; 24CrMo5; 34CrMo 4; 42CrMo 4; 50CrMo 4; 32CrMo 12; 34CrNiMo 6; 30CrNiMo 8; 28NiCrMoV 8 5; 33NiCrMo 14 5	SEW 550	For mechanical engineering to manufacture parts and mechanisms heat-treated additionally	Minimum batch - 60 tons. Packaging and marking should be conducted according to the manufacturer's methods
Forged bars		A: 90; 95; 100; 105; 110; 115; 120; 125; 130; 135; 140; 145; 150; 155; 160; 170; 180 L=500-2300		ГОСТ 1133-71	20X; 40X; 30XГСА; 38X2MЮА; 20X2H4A; 30XГЧ2A; 40XГНМ; 40XH2MA; 18X2H4MA	Structural alloy steel, ГОСТ 4543-71	For manufacture of cutting tools applied at working of hardened alloy and corrosion-resistant steel	Minimum batch - 0,5 tons (on condition to distribute heat norm - 10 tons regarding the principal orders). Packaging and marking should be conducted according to ГОСТ 7566-81.
		A: 80; 85; 90; 95; 100; 105; 110; 115; 120; 125; 130; 135; 140; 145; 150; 155; 160; 165; 170; 175; 180 L= 500-2300						
		A:30x150; 40x160; 40x200; 50x150; 50x175; 50x200; 50x250; 60x180; 60x240; 60x300; 75x200; 75x250; 75x300; L=500-2300		ГОСТ 4405-75	X; 12X1; 8XΦ; 9XΦ; 7X3; 8X3; 4XC; 6XC; 9XC; X12; X12Φ1; X12MΦ; 5XHM; XBГ; 9XBГ; 5XHB; 5X2MНΦ; 3X3M3Φ; 4X4BMΦC; 4X5B2ΦC; 4X5MΦC; 5X3B3MΦC; 6X6B3MΦC; 7XГ2BMΦ; X6BΦ	Tool alloy steel, ГОСТ 5950-73		





Product	Size rang			Product specification	Steel grade	Steel specification	Use	Form of delivery	
	Sketch	Dimensions, mm	Rough weight, kg						
Collar flanges		D from 95 to 1060; Dy from 15 to 800	from 1 to 350	ГОСТ 12821-88	20; 09Г2С; 15Х5М; 12Х18Н10Т and others	ГОСТ 1050-88; ГОСТ 4543-71; ГОСТ 19281-89	Flanges of reinforcement, connectors and pipelines	Minimum batch - 50 forgings (if needed to develop new die fixture - at least 150 pcs.).	
Flat flanges		D from 160 to 335	from 3 to 17	ГОСТ 12820-80	20; 25; 35 and others			Minimum batch - 50 forgings (if needed to develop new die fixture - at least 200 pcs.).	
Collar flanges according to ANSI		D from 280 to 815	from 30 to 170		A105				
Pull hook from Кч0,5Х1 to Кч16Х1 Crane hook from 10А2 to 24В1		—	from 0,27 to 440	by consent of the Parties	20; 09Г2С	ГОСТ 1050-88; ГОСТ 4543-71	Cargo gripping devices	Minimum batch - 50 forgings (if needed to develop new die fixture - at least 150 pcs.).	
Connecting-rods		L from 200 to 1180	from 1,1 to 310		45; 40X; 45Г2; 40XH2MA and others.				Propulsion engineering
Solid-rolled rings		D from 240 to 800 H from 50 to 200	from 1,1 to 310		45; 40X; 45Г2; 38XH3BA; 38XH3MA; 18X2H4MA; 38X2H2MA; 40XMΦA; 43XMΦA; 55X3MΦA; 40XH2MA; 12X2H4MA and others.				Mechanical engineering



Product	Size rang			Product specification	Steel grade	Steel specification	Use	Form of delivery
	Sketch	Dimensions, mm	Rough weight, kg					
<b>Covers, cases, balls</b>		D to 900 H to 400	from 10 to 1000	by consent of the Parties	20Г, 09Г2С, 20	ГОСТ 1050-88; ГОСТ 4543-71; ГОСТ 19281-89	Oil and gas equipment	Minimum batch - 30 forgings (if needed to develop new die fixture - at least 100 pcs.)
<b>Open forgings, washers</b>		D to 1250	to 2000		45; 40Х; 45Г2; 38ХН3ВА; 38ХН3МА; 18Х2Н4МА; 38Х2Н2МА; 40ХМФА; 43ХМФА; 55Х3МФА; 40ХН2МА; 12Х2Н4МА and others	ГОСТ 1050-88; ГОСТ 4543-71	Mechanical engineering	
<b>Open forgings, bars</b>		D to 500, L to 4000	to 2000		45; 40Х; 45Г2; 38ХН3ВА; 38ХН3МА; 18Х2Н4МА; 38Х2Н2МА; 40ХМФА; 43ХМФА; 55Х3МФА; 40ХН2МА; 12Х2Н4МА and others			Minimum batch - one forging
<b>Case-shaped parts of for aircraft industry</b>		L to 1800, B to 900	to 350		30ХГСА, 30ХГСН2МА, ЭИ961, ЭИ787, ВНС-5, ЭП-866, ЭП-517, ЭП-33, ЭП-817, ВТ-14, ВТ-20, ВТ-22 and others.	ТУ14-1-950, 14-1-1885, 14-1-744, 14-1-2996, 1.90013, and others	Aircraft propulsion engineering	Minimum batch - 5 forgings (if needed to develop new die fixture - at least 20 pcs.).
<b>Titanium discs</b>		D to 700	to 200		ВТ-3, ВТ-6, ВТ-9, ВТ-25	ОСТ 1.90013, ОСТ 1.90197	Aircraft propulsion engineering	Minimum batch - 5 forgings (if needed to develop new die fixture - at least 25 pcs.).
<b>High-temperature discs</b>		D to 1200	to 200		ЭИ698, ЭП742	ГОСТ 22411, ТУ14-1-5329, 14-1-1466, 14-1-285, 14-1-3998		Minimum batch - 3 forgings (if needed to develop new die fixture - at least 10 pcs.).



# Mechel Targoviste

Product	Size rang		Product specification	Steel grade	Steel specification	Use	Form of delivery
	Section size, mm	Length, m					
Annealed round bars	∅30-150	2,5-6	ГОСТ1133, DIN7527/6	S18-1-2-5; S18-0-1; S6-5-3; S6-5-2; S3-3-2; S2-9-2 and others	Tool high-speed steel, ГОСТ 19265, EN, ISO 4957, DIN17350, ASTMA600 (*)	Manufacture of cutting tools: drills, mills, cutters, tooling for thread	Weight of one batch of the same size is up from 1 ton
	∅30-300			C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ 1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	∅30-250			X6Cr13; X12Cr13; X20Cr13; X39Cr13; X46Cr13 and others	Stainless steel, ГОСТ5632, SEW400, EN10088/3, ASTM276, ASTM479, ASTM314	Parts of machines and manufacturing equipment	
	∅30-250			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	ГОСТ5950, EN, ISO 4957, DIN17350 ASTMA681 DIN 17350; EN ISO 4957; ГОСТ 5950; ASTM A 681	Manufacture of tools for hot molding: stencils and tools for pressing; for cold working: cutters, stamps, mandrels	
	∅30-200			X12CrNiTi18 9; X15CrNiSi20 12; X12CrNi25 21 and others	High-temperature stainless steel ГОСТ5632, SEW470, ASTM314, DIN17243	High-temperature materials and of manufacturing equipment	
	∅255-300*	2,5-5	DIN7527/6	55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	Alloy tool steel for cold working, ГОСТ5950, EN, ISO4957, DIN17350, ASTMA681	Manufacture of tools for cold working: cutters, stamps, mandrels	
	∅145-350	2,5-6	ГОСТ1133, DIN7527/6	St37-2; St37-3; St44-2 and others	ГОСТ380, EN10025, DIN17100, DIN17200; EN 10083; ГОСТ 1050; ASTM A 29, DIN 17210; EN 10084; ГОСТ 4543, DIN 17221; ГОСТ 14959.	Parts of metal structures, machinery	
Annealed square bars	□50-150	2,5-6	ГОСТ1133, DIN7527/6	S18-1-2-5; S18-0-1; S6-5-3; S6-5-2; S3-3-2; S2-9-2 and others	Tool high-speed steel, ГОСТ 19265, EN, ISO 4957, DIN17350, ASTMA600	Manufacture of cutting tools: drills, mills, cutters, tooling for thread	Weight of one batch of the same size is up from 1 ton
	□40-300			C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	□50-250			X6Cr13; X12Cr13; X20Cr13; X39Cr13; X46Cr13 and others	Stainless steel, ГОСТ5632, SEW400, EN10088/3, ASTM276, ASTM479, ASTM314	Parts of machines and manufacturing equipment	
	□40-250			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	ГОСТ5950, EN, ISO 4957, DIN17350 ASTMA681 DIN 17350; EN ISO 4957; ГОСТ 5950; ASTM A 681	Manufacture of tools for hot molding: stencils and tools for pressing; for cold working: cutters, stamps, mandrels	
	□50-300			St37-2; St37-3; St44-2 and others	ГОСТ380, EN10025, DIN17100, DIN17200; EN 10083; ГОСТ 1050; ASTM A 29, DIN 17210; EN 10084; ГОСТ 4543, DIN 17221; ГОСТ 14959.	Parts of metal structures, machinery	
	□255-300*	DIN7527/6	55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	ГОСТ5950, EN, ISO4957, DIN17350, ASTMA681 DIN 17350; EN ISO 4957; ГОСТ 5950; ASTM A 681	Manufacture of tools for hot molding: stencils and tools for pressing; for cold working: cutters, stamps, mandrels		
Annealed flat bars	50-130x60-150 (max 1:4)	2,5-6	DIN7527/6	S18-1-2-5; S18-0-1; S6-5-3; S6-5-2; S3-3-2; S2-9-2 and others	Tool high-speed steel, ГОСТ 19265, EN, ISO 4957, DIN17350, ASTMA600	Manufacture of cutting tools: drills, mills, cutters, tooling for thread	Weight of one batch of the same size is up from 1 ton
	40-250x50-300 (max 1:4)			C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	60-220x70-250 (max 1:4)			X6Cr13; X12Cr13; X20Cr13; X39Cr13; X46Cr13 and others	Stainless steel, ГОСТ5632, SEW400, EN10088/3, ASTM276, ASTM479, ASTM314	Parts of machines and manufacturing equipment	
	40-220x50-300 (max 1:4)			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	ГОСТ5950, EN, ISO4957, DIN17350, ASTMA681 DIN 17350; EN ISO 4957; ГОСТ 5950; ASTM A 681	Manufacture of tools for hot molding: stencils and tools for pressing; for cold working: cutters, stamps, mandrels	
	50-210x60-350 (max 1:4)			St37-2; St37-3; St44-2 and others	ГОСТ380, EN10025, DIN17100, DIN17200; EN 10083; ГОСТ 1050; ASTM A 29, DIN 17210; EN 10084; ГОСТ 4543, DIN 17221; ГОСТ 14959.	Parts of metal constructions, machinery	
Annealed turned bars	∅30-150	2,5-6	DIN1013	S18-1-2-5; S18-0-1; S6-5-3; S6-5-2; S3-3-2; S2-9-2 and others	Tool high-speed steel, ГОСТ 19265, EN, ISO 4957, DIN17350, ASTMA600 (*)	Manufacture of cutting tools: drills, mills, cutters, tooling for thread	Weight of one batch of the same size is up from 1 ton
	∅160-230*			C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	∅30-300			X6Cr13; X12Cr13; X20Cr13; X39Cr13; X46Cr13 and others	Stainless steel, ГОСТ5632, SEW400, EN10088/3, ASTM276, ASTM479, ASTM314	Parts of machines and manufacturing equipment	
	∅30-250			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	Alloy tool steel for hot working, ГОСТ5950, EN, ISO 4957, DIN17350 ASTMA681*	Manufacture of tools for hot molding: stencils, tools for pressing;	
	∅30-250			C22; CK22; Cm22; C25 and others	ГОСТ1050, DIN17200, EN10083, A29, ГОСТ380, EN10025, DIN17100, DIN 17210; EN 10084; ГОСТ 4543, DIN 17221; ГОСТ 14959.	Heat-treated parts for machines: gears, crankshafts, axes, rods and etc.	
	∅260-300*						
	∅145-350						

\*Electroslag remelting

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	Section size, mm	Length, m					
Annealed turned bars	Ø30-200	2,5-6		X12CrNiTi18 9; X15CrNiSi20 12; X12CrNi25 21; X15CrNiSi25 20; X12NiCrSi36 16 and others	ГОСТ5632, SEW470, ASTM314, DIN17243, X45CrSi93, X53CrMnNiN21 9, DIN 17480; EN 10090, ГОСТ5632	High-temperature parts of manufacturing equipment	
	Ø30-100						
Annealed milled bars	□80-150	2-5		S18-1-2-5; S18-0-1; S6-5-3; S6-5-2; S3-3-2; S2-9-2 and others	Tool high-speed steel, ГОСТ 19265, EN, ISO 4957, DIN17350, ASTMA600 (*)	Manufacture of cutting tools: drills, mills, cutters, tooling for thread	
	□80-300			C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	ГОСТ1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	□80-250			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	ГОСТ5950, EN, ISO 4957, DIN17350 ASTMA681 DIN 17350; EN ISO 4957; ГОСТ 5950; ASTM A 681	Manufacture of tools for hot molding: stencils and tools for pressing; for cold working: cutters, stamps, mandrels	
	□100-280			C22; CK22; Cm22; C25 and others	ГОСТ1050, DIN17200, En10083, A29, ГОСТ380, EN10025, DIN17100, DIN 17210; EN 10084; ГОСТ 4543	Heat-treated parts for machines: gears, crankshafts, axes, rods and etc.	
Annealed flat milled bars	80-140x100-150 (max 1:4)	2-5		S18-1-2-5; S18-0-1; S6-5-3; S6-5-2; S3-3-2; S2-9-2 and others	Tool high-speed steel, ГОСТ 19265, EN, ISO 4957, DIN17350, ASTMA600 (*)	Manufacture of cutting tools: drills, mills, cutters, tooling for thread,	
	80-250x100-300 (max 1:4)			C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	80-210x100-300 (max 1:4)			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	Alloy tool steel for hot working, ГОСТ5950, EN, ISO 4957, DIN17350 ASTMA681	Manufacture of tools for hot molding: stencils, tools for pressing	
	100-200x140-350 (max 1:4)			C22; CK22; Cm22; C25 and others	ГОСТ1050, DIN17200, En10083, A29, DIN 17210; EN 10084; ГОСТ 4543, DIN 17221; ГОСТ 14959	Heat-treated parts for machines: gears, crankshafts, axes, rods and etc.	
Annealed turned semi-finished products	Ø270-400	2-5	DIN1013	C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ1435, EN, ISO 4957, DIN17350	Manufacture of tools: cutters, chisels, stencils, knives	
	Ø370-430			55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	Alloy tool steel for cold working, ГОСТ5950, EN, ISO4957, DIN17350, ASTMA681	Manufacture of tools for cold molding: cutters, stamps, mandrels	
Annealed semi-finished products	Ø370-450	2-5	DIN7527/6	38Cr2; 38CrS2; 34Cr4; 34CrS4; 37Cr4; 37CrS4 and others	ГОСТ380, EN10025, DIN17100, EN 10083; ГОСТ1050; ASTM A 29, DIN 17210; EN 10084; ГОСТ4543	Heat-treated parts for machines: gears, crankshafts, axes, rods and etc.	
Annealed cleared semi-finished products	□100-140, □270-400	2-5		C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Carbon tool steel, ГОСТ1435, EN, ISO 4957, DIN17350		
	□100-140	4-6		55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others	ГОСТ5950, EN, ISO 4957, DIN17350 ASTMA681 DIN 17350; EN ISO 4957; ГОСТ 5950; ASTM A 681	Manufacture of tools for hot molding: stencils and tools for pressing; for cold working: cutters, stamps, mandrels	
	□160-200	2-5		X12CrNiTi18 9; X15CrNiSi20 12; X12CrNi25 21; X15CrNiSi25 20; X12NiCrSi36 16 and others	ГОСТ5632, SEW470, ASTM314, DIN17243, DIN 17480; EN 10090, EN 10088/3; SEW 400 ГОСТ5632; ASTM A 276; ASTM A 479; ASTM A 314	High-temperature parts of manufacturing equipment	
	□320-400	2-5		X6Cr13; X12Cr13; X20Cr13; X39Cr13; X46Cr13 and others	ГОСТ4543, ГОСТ1050, DIN17200, En10083, A29, ГОСТ380, EN10025, DIN17100, DIN 17210; EN 10084; ГОСТ 4543, DIN 17221; ГОСТ 14959	Steel for case-hardening	
Prismatic blocks	max 350x350	до 350		C22; CK22; Cm22; C25 and others	Alloy tool steel for cold working, ГОСТ1435, EN, ISO 4957, DIN17350 (*)	Manufacture of tools: cutters, chisels, stencils, knives	
	max 350x350	до 350		C45W; C60W; C70W2; C80W1; C85W; C105W1 and others	Alloy tool steel for cold working, ГОСТ5950, EN, ISO4957, DIN17350, ASTMA681(*)	Manufacture of tools for cold working: cutters, stamps, mandrels	
	max 550x550*	до 550		55NiCrMoV6; 55NiCrMoV7; X32CrMoV33; X38CrMoV51; X40CrMoV51 and others			
Wheels (solid) straight or stepped	Ø145-254	max 10		C10; CK10; C15; CK15; Cm15; 17Cr3; 16MnCr5 and others	ГОСТ4543, DIN17200, En10083, A29, ГОСТ380, EN10025, DIN17100, EN 10083; ГОСТ 1050; ASTM A 29	Steel for case-hardening	

\*Electroslag remelting

Weight of one batch of the same size is up from 1 ton