



SPECIAL-PURPOSE EQUIPMENT • ATTACHMENTS • SPARE PARTS





Own Production

Production possibilities

The enterprise is equipped with up-to-date and high-technology equipment. Production facilities are as follows:

Gas cutting machine MESSER (Germany) — 1piece. Cutting thickness from 4 to 300mm	Plasma cutting machine Messer (Germany) — 2 pieces. Cutting thickness from 0.5 to 30mm	Semiautomatic welding machines Power Wave 445 and CV-505 from LINCOLN ELECTRIC (USA)			
Semiautomatic welding machines KempoWeld 5500W from KEMPPI (Finland)	Bandsaw machine SAR 331SAG DS (Italy)	MESSER Chamfer cutter (Germany)			
Radial drilling, turning, grinding, milling, boring machines	Compressor unit (Italy)	Heat-treatment area			
Sandblasting chamber	800/600-t	cons press			
Painting equipment	EHT Werkzeugmaschinen (Germany) – 2 pieces. Press main parameters:				
Manipulators	axe positioning accuracy (ram)—0.01mm				
Mid-frequency thyristor generator	Shearing press NG5223 (Russia)				

Portal thermal cutting machine Multiterm with Hiperterm 260 narrow-jet plasma cutters. It allows cutting of 0.5-30 mm thickness plates, and also of stainless steel and non-ferrous metals.







Own Production

Production of Attachments

The main own-manufactured products are:

- General Purpose buckets for excavators and loaders
- Mining buckets for excavators up to 75 t weight
- Rippers and ripper shanks for dozers and excavators
- Blades for dozers, graders and excavators
- Loading, digging grapples, log grapples
- Hydraulic pipelines
- Quick-couplers
- Booms and arms for any excavator
- Undercarriage beams
- Spares and consumables for domestic and overseas special machines
- Mounting plates for any type of hydraulic breakers and excavators
- Construction metal structures













Liebherr R994 Reinforced rock bucket excavator (11m³)







WELDING TECHNIGUE

Metal structures are welded by semi-automatic Kemppi and Lincoln Electric welding machines (Finland) with polished wire (made by ASAB) under a mixture of shielding gas called cargon: argon (82%) and CO_2 (18%).

Advanced welding technology and modern equipment ensure high strength of weld seams.

All weld seams are checked by using ultrasonic device.

All metal structure parts are made of low-alloyed steel that ensures their high strength and long service life.

Wear parts and cutting edges are made of imported high-strength wear-resistant steel (Brinell hardness 400, 450, 500).

Types of Manufactured Buckets



Thickness, mm

20

General Purpose Bucket for excavators 29-37 tons



1

3

4 wing

5

2 lip



Element	Material	Thickness, mm		Element	Material	Thickness mm
bottom	09G2S	12	6	wear plate	09G2S	12
lip	09G2S	40	7	beam	09G2S	20
side wall	09G2S	12	8	wing	i-160 (2	pieces)
wing	09G2S	30		tooth	Koma	atsu
wear plate	09G2S	12	9	tooth	207-70-14151	

Ripping Bucket for excavators 29-37 tons



	Element	Material	Thickness, mm		Element	Material	Thickness, mm
1	bottom	09G2S	12	6	wear plate	Steel HB	12
2	lip	HT	50	7	beam	09G2S	25
3	side wall	09G2S	16	8	ripper	09G2S	90
4	wing	09G2S	36	9	wear plate	Steel HB 400	30
5	wear plate	Steel HB 400	12	10	wear plate	Steel HB 450	12

Front Loaders Bucket for excavators 18-23 tons





	Element	Material	Thickness, mm		Element	Material	Thickness, mm		Element	Material	Thickness, mm		Element	Material	Thickness, mm
1	lip	09G2S	30	3	bottom	09G2S	10	5	crossbar	09G2S	20	7	beam	09G2S	12
2	wing	09G2S	20	4	side wall	09G2S	20	5	wear plate	09G2S	10	8	pipe	Steel 20	Ø180

wear plate Steel HB 450 Ditch Cleaning Bucket for excavators 18-23 tons

7

5

8

9

7

Thickness, mm

12

45

12

30

12

12

Material

09G2S

ΗТ

09G2S

09G2S

Steel HB 450

Element

bottom

side wall

wear plate

wing

1

2 lip

3

4

5

6

(3

4

6

Element

beam

⁸ wing

9 tooth

Material

09G2S

9J9600

Komatsu 207-70-14151

J400 7T3402 (205)

ESCO V-39RYL

ESCO U40C





ss,		Element	Material	Thickness, mm		Element	Material	Thickness, mm
	1	bottom	09G2S	10	6	wear plate	09G2S	8
	2	lip	09G2S	40	7	beam	09G2S	16
	3	side wall	09G2S	8	8	wing	i-130	
	4	wing	09G2S	20	9	tooth	209 (J350)	
	5	wear	09G2S	8				

In this page, buckets designs are displayed. Depending on the weight of the excavator/loader, steels and bucket design may vary. Please visit *www.en.profdst.ru* for more info.

4

6

Buckets. Execution options



Option Nº1 (For excavators 29-37 tons)

Standard Rock bucket

Applied for excavation of soils with consistency of up to 2,000 kg/m³ and abrasivity degree not exceeding I-II classes

	Element	Material	Thickness, mm			Element	Material	Thickness, mm
1	bottom	Steel HB 450	12		8	lug	10HSND	30
2	lip	Ht-360	45		9	heel	HS175-140	_
3	side wall	10HSND	12		10	protector	9J9600	_
4	wing	Steel HB 400	30		11	tooth	Esco U40C	
5	wear plate	Steel HB 450	12		12	lip shroud	MTG	_
6	wear plate	Steel HB 450	12				410125000	
7	beam	10HSND	20]				



Option Nº2 (For excavators 29-37 tons) **HEAVY DUTY BUCKET**

Applied for excavation of soils with consistency

of up to 2,200 kg/m³ and abrasivity degree not exceeding III-IV classes.

Additional strengthenings

(differences from Rock standard bucket):

1 - strengthenings of side wall - steel HB 450

2 – linings – steel HB 450

Option Nº3 (For excavators 29–37 tons) SUPER REINFORCED

ROCK BUCKET

Applied for excavation of soils with consistency of up to 2,500 kg/m³ and abrasivity degree not exceeding V-VI classes. Additional strengthenings (differences from Rock standard bucket): 1 - plates steel HB 450 2 – lining steel HB 450 3 – plate HB 450 4 – shroud BHTCH h=40 mm

5 – plate HB 450 * 6 – bearer steel HB 500

** 10 – additional protector

Option Nº4 (For excavators 29–37 tons)

EXTRA EXTREME DUTY BUCKET

Applied for excavation of soils with consistency of up to 2,800 kg/m³ and abrasivity degree not exceeding VII class. Additional strengthening (differences from Rock standard bucket): 1 - plates steel HB 450

- 2 lining steel Overlay
- 3 plate Overlay
- 4 BHTCH h=40 mm 5 - plate HB 450
- 6 plate Overlay
- 7 shroud BHTĆH h-40 mm
- 8 shroud BHTCH d-60 mm
- * 6 bearer steel HB 450, Overlay

** 10 – additional protector





Production of Mining Buckets

"Professional" company is a serial manufacturer of buckets for mining excavators and front loaders. The company design office continuously works on improvement of mining buckets consumer properties. Taking into account customer requirements and specific conditions of operation, specialists of our company are ready to develop new types of mining buckets which completely meet all requirements to the equipment strength, reliability and safety.



Komatsu PC 4000 (15.5m³) jaw of a "front shovel" bucket for a mining machine

- 1. Cutting edge is made of S690QL steel.
- 2. Jaw plate, bottom ribs, lining are made of wear resistant steel HB 400, HB 500.
- 3. Lips of jaws, side wall are made of wear resistant steel HT-360.
- 4. The jaws are equipped with original rock adapters, teeth and corner shroud ESCO Posilok (USA), lip shroud and heels ESCO.









Front shovel bucket for mining excavator RH 120E1 (15.0m³)



Extreme Duty Bucket "Front shovel"



- Back side wall HT 360 1.
- S690QL link 2.
- HT 360wing 3.
- 4.
- Wing shroud HB400 Wing shroud HB400 5.
- Crossbar HT-360 6.
- 7. Corner adapter ESCO S95
- 8. Wear plate Overlay S19
- Teeth ESCO S95 9.
- 10. Adapter ESCO S95 Shroud ESCO TBC140*420
- 11. Edge S690QL
- 12.
- Wear plate HB500 13. 14. Shroud White chrome steel
- 15. Wear plate Overlay S10
- Corner ES6697-5 16.
- Wear plate HB450 17.
- 18. Side wall HB 450
- Shroud White chrome steel 19.
- 20. Wear plates HT-360
- 21. Wear plate of bottom side HB500
- 22. Back wall S690QL
- 23. Hydraulic cylinders
- 24, 25, 26. Wear plate HB500
- 27. Bottom 10HSND S30

Production of Mining Buckets

Komatsu PC-5500 reinforced rock backhoe bucket (28 m³)



- 1. Bottom S690QL, S=25 mm
- 2. Cutting edge Hensley
- 3. Side wall HB450 S=25 mm
- 4. Wing \$690QL, \$=100 mm
- 5. Plate HB500, S=20 mm 6. Plate HB500, S=50 mm 7. Beam S690QL, S=40 mm 8. Heel ES6697-7
- 9. Wing protector Hensley
 10. Tooth Hensley
 11. Plate HB500, S=50 mm
 12. Protector BHCH
- 13. Lip shroud Hensley 14. Loop S690QL, S=100 mm





Extreme Rock Bucket EXTRA





- 1. Bottom HB-400, 20 mm
- 2. Edge HT-360, 90 mm/100 mm
- 3. Side wall HB-450, 15 mm
- 4. Wing HB-450, 15 mm
- 5. Plate HB-500, 15 mm
- 6. Bottom lining HB-500, 15 mm, Overlay 6+4
- Overlay 6+4 7. Beam S690QL, 25 mm
- 10. Adapter / tooth MTG 1MA180WC90 / MA180E1
 - 11. Plate HB-500, 15 mm
 - 12. Lining HB-500, 15 mm

8. Heels HS 230-190, 14 pcs

9. Protector 125-0800, 2 pcs

- 13. Side lining Overlay 6+4
- 14. Inner lining Overlay 6+4
- 15. Plate HB-500, 15 mm
- 16. Edge lining HB-500, 15 mm
- 17. Side lining BKCH-90, 8 pcs

Extreme Duty Bucket EXTRA for Komatsu PC1250-s-S-7 (6.7 m³) excavator





Extreme Duty Bucket EXTRA for Volvo EC (2.6m³) excavator



Buckets for Mining Machines

BUCKETS FOR LOAD HAUL DUMPS

		BUCKETS SERIA	AL PRODUCTION	
BUCKET CAPACITY	4.0 4.9 m³	5.0 9.0 m³	10.0 12.0 m ³	13.0 34.0 m³
LIEBHERR	R964C / 4.0 m ³ R974 / 4.5 m ³	R984C / 5.7 m ³	R994/ 11.0 m ³	R9250 / 15.0 m³ R9350 / 17.0 m³
CATERPILLAR	375LME / 4.0 m ³ 365CFS / 4.0 m ³	385CL ME / 5.2 m ³ CAT5090B / 5.7 m ³	5130/ 10.0 m ³ 6018 / 10.0 m ³	6030 / 15.0 m ³ 6060 / 34.0 m ³
KOMATSU	PC750 / 4.8 m ³ PC800LC-8 / 4.0 m ³	PC-1250 / 5.7 m ³ PC-1600 / 6.0 m ³	PC-1800LS/ 11.0 m ³ PC-2000 / 11.0 m ³	PC-3000 / 14.0 m ³ PC-4000 / 21.0 m ³ PC-5500 / 28.0 m ³
НІТАСНІ	ZX-800 / 4.0 m ³ ZX-850LD / 4.0 m ³ ZX-870LD / 4.0 m ³ ZX-850 / 4.3 m ³	EX-1200 / 5.7 m ³	EX-1900 / 12.0 m ³	EX-2600 / 15.0 m ³ EX-3600 / 15.5 m ³ EX-5500 / 29.0 m ³
VOLVO	EC-700 / 4.6 m ³	EC-950 / 6.0 m ³		
HYUNDAI	R-800LC-7A / 4.6 m ³	R1200 / 6.3 m ³		
TEREX-BUCYRUS		RH-70 / 6.0 m ³	RH-90 / 10.0 m³	RH-120 / 15.0 m ³ RH-170 / 20.0 m ³ RH-200 / 26.0 m ³ RH-340 / 34.0 m ³

BUCKETS FOR FRONT LOADERS MINING MACHINES										
	4.0 4.9 m³	5.0 9.0 m ³	10.0 12.0 m³	13.0	34.0 m³					
KOMATSU	WA-500 / 4.3 m ³	WA-600 / 6.1 m³ WA-700-3 / 8.7 m³	WA800 / 11.0 m ³	WA900 / 13.03 m ³	WA1200 / 17.00 m ³					
CATERPILLAR	980F / 4.5 m ³	988F / 6.3 m ³	992F / 11.0 m ³	993K / 13.0 m ³	994F / 17.0 m ³					
VOLVO	L220F / 4.5 m ³	L330E / 6.3 m ³								
HYUNDAI	HL780-7 / 4.5 m ³									
DOOSAN	MEGA400 / 4.5 m ³	MEGA500 / 5.0 m ³								
LETURNEAU				L950 / 13.0 m ³	L1100 / 15.0 m ³ L1150 / 16.0 m ³					

BUCKETS FOR LOA	BUCKETS FOR LOAD HAUL DUMPS										
	< 3 m ³	3.0 3.5 m ³	4.5 5.0 m ³	6.0 6.5 m ³	7.0 7.5 m³	9.0 9.5 m ³					
ATLAS COPCO	ST 3,5	ST 7	ST 1030	ST 14	ST 1520						
SANDVIK		LH 307 (Toro6)	LH 410 (Toro7)	LH 514 (Toro9)	LH 517 (Toro11)	LH 621					
CATERPILLAR		R 1300G	R 1300G	R 1600G	R 1700G	R 2900G					

Dump truck bodies

Professional plans to commence the production of dump truck bodies for industry leaders: DAF, Ford, IVECO, Foton, MAN, Renault, Scania, Volvo, KamAZ, MAZ.



Ripper Shanks for Bulldozer



For soils of class 4 and 2,500 kg/m³ maximum consistency ripper shanks completely made of high-tensile wear-resistant HT 360 steel are used.

All ripper shanks are equipped with cast changeable tips and cast protectors.



Production. Booms and arms





Production facilities allow manufacturing of booms and arms for excavators up to 120 t weight using S690QL high-tensile steel, which provides efficient and trouble-proof excavator operation under extreme conditions.





Reinforced booms for excavators									
Excavator	Length L, m	Dout number	Dimensions, mm						
weight, t			A	В	С				
18-22	5.6-5.9	BOOM20.57	6,050	1,700	650				
23 – 29	5.8-6.2	BOOM23.60	6,200	1,700	800				
30-38	6.4-6.6	BOOM30.65	6,700	1,700	800				
20 47	6.4-6.6	BOOM40.65	6,700	2,100	950				
39-47	6.9-7.1	BOOM40.70	7,200	2,100	850				
49 65	6.3-6.8	BOOM60.65	6,700	2,510	1,400				
48-65	7.0-7.2	BOOM60.72	7,140	2,510	1,400				
66 00	7.0-7.2	BOOM70.71	7,500	2,700	1,450				
66-90	8.2-8.4	BOOM70.82	8,500	2,600	1,500				
01 125	7.5-7.8	BOOM100.71	8,200	3,100	1,500				
91-125	9.0-9.2	BOOM100.82	9,500	2,900	1,500				

Weight and dimensions are specified approximately.

They depend on a specific model of excavator and the boom length.





Excavator booms								
Length	Dout number	Dim	ensions,	ons, mm				
L, m	Part number	Α	В	С				
Excavators 18–22t								
1.8-2.0	ARM20HD.19*	3,100	900	350				
2.3-2.5	ARM20.24	3,700	900	350				
	ARM20HD.24*	3,700	900	350				
20 21	ARM20.29	4,100	900	350				
2.9-5.1	ARM20HD.29*	4,100	900	350				
3.9-4.1	ARM20.40	5,100	900	350				
	Excavators 23-	29 t						
1.9-2.1	ARM23HD.20*	3,700	1,000	400				
2.4-2.6	ARM23HD.25*	3,700	1,000	400				
20 21	ARM23.29	4,000	1,000	400				
2.9-5.1	ARM23HD.29*	4,000	1,000	400				
3.6-3.8	ARM23.37	5,200	1,000	400				
4.5-5.0	ARM23.50	6,200	1,000	400				
5.5-6.2	ARM23.60	7,200	1,000	400				
* _ roinf	orcod							



Length	Part number	Dimensions, mm				
L, m	Part number	Α	В	С		
	Excavators 30-	38 t				
2.1-2.3	ARM30HD.22*	3,700	1,000	400		
2.4-2.6	ARM30HD.25*	4,000	1,000	400		
21 22	ARM30.32	4,500	1,000	400		
5.1-5.5	ARM30HD.32*	4,500	1,000	400		
20 / 1	ARM30.40	5,200	1,000	400		
5.9-4.1	ARM30HD.40*	5,200	1,000	400		
4.8-5.2	ARM30.50	6,200	1,000	400		
5.8-6.2	ARM30.60	7,200	1,000	400		
6.5-7.0	ARM30.70	8,100	1,000	400		
	Excavators 39 –	47 t				
2.4-2.6	ARM40HD.25*	4,000	1,100	400		
2.8-3.0	ARM40HD.29*	4,300	1,100	400		
2 2 2 F	ARM40.34	4,800	1,100	400		
5.5-5.5	ARM40HD.30*	4,800	1,100	400		
20 / 1	ARM40.40	5,200	1,100	400		
3.9-4.1	ARM40HD.40*	5,200	1,100	400		
4.5-4.8	ARM40.47	5,600	1,100	400		
5.8-6.2	ARM40.60	6,700	1,100	400		
6.5-7.0	ARM40.70	7,700	1,100	400		

reinforced

Weight and dimensions are specified approximately. They depend on a specific model of excavator and the boom length.

Production. Dozer Blades

Customized manufacturing of differently shaped blades for different applications for dozers, graders and municipal vehicles of both domestic and foreign origin: Komatsu, Caterpillar, Volvo, Liebherr, Dressta, ChTZ, Chetra and other brands.





Production. Grapples

Our company has mastered manufacturing of hydraulic grapples for metal scrap loading, and also digging and log grapples. Grapples are manufactured similar to German ones; imported components are used. Applications: handlers, crawler and wheel excavators.



5-jaw grapple manufactured by Professional Ltd. has welded design of base and jaws. Grapple metal structure durability is calculated by special programs using finite-element method. The calculation discovered the most loaded and most dangerous parts of the structure. As a result, new design of the grapple has been developed: the jaw section area is extended where the cylinder rod is fastened (item 1), cylinder shroud design is changed (item 2), high-tensile steel S960QL is applied (item 3).

For better wear-protection, inner surface and teeth of the jaws (item 4) are made of wear-resistant steel. Spades are additionally reinforced to avoid deformation of inner plates (item 5).

Imported hydraulic cylinders with dumpers are used to ensure smooth opening of the jaws and to prevent impacts at the end of cylinder stroke (item 6). For grapple turning GR16 (or CPR9) rotators from Baltrotors are used (360° rotation, dynamic load + 90kN, torque at 25 MPa is 3000 Nm), which proved themselves positively in the Russian market.

To prevent spontaneous loosening of threaded connections Loctite 542 thread sealant and high-strength bolts and nuts are used when assembling.



Log grapple CASE 1121F







Grapple for metal scrap and Log grapple

GRAPPLE MODEL	GF-0.4	GF-0.7	GP 5-400	GP 5-600	GLW-10	GLW-30	GLW-35	GLW-40
	Log grapple		Grapple for metal scrap		Grapple for front loaders			
Applicability, excavator, tons	8-20	20-35	18-25	22-30	8-10	22-26	26-30	30-35
Grapple weight, kg	540	850	1,260	1,450	1,200	2,600	2,900	3,200
Grapple lifting capacity, tons	2.5	3	3	4	—	—	—	—
Grapple capacity, m3	0.4*	0.7*	0.4	0.6	1.0*	3.00*	3.5*	4.0*
Max. opening width, mm	2,000	2,100	2,270	2,360	1,800	3,100	3,800	3,900
Grapple operating pressure, bar	250	250	250	250	—	—	—	—
Oil consumption, open/closed, l/min.	90	90	120	120	—	—	—	—
Rotator lifting capacity, tons	5	8	9	9	_	—	—	



Log grapple: GF-0.4 and GF-0.7 These grapples are applied with manipulators when loading logs, to process wood raw materials.

Warranty period — 6 months. * — capture area, m^2 .

Grapple for metal scrap: GP-5–600 (analog of the FMT 4–600 grapple manufactured by HGT, Germany). These grapples are applied to overload big size objects of an indeterminate and composite form (stones, scrap metal, garbage etc.). Warranty — 6 months.

Grapples for front loaders: GLW-10, GLW-13, GLW-15, GLW-20, GLW-24, GLW-30, GLW-35, GLW-40.

These grapples are applied to load logs, tubes. Warranty — 6 months.

|--|

Grapple model, for models with rotator — the letter "R" in the name		Loading									
	GK-12R-03* GK-12-03	GK-20R-06* GK-20-06	GK-20R-07* GK-20-07	GK-27R-08* GK-27-08	GK-27R-10* GK-27-10	GP-30R-15* GP-30-15					
Number of jaws, pcs	2	2	2	2	2	2					
Number of cylinders, pcs	2	2	2	2	2	2					
Excavator weight, tons	10-16	16-22	16-22	23-32	23-32	27-40					
Max payload, kg	800	1,200	1,500	1,700	2,000	3,000					
Capacity with jaws slammed, m ³	0.40	0.60	0.75	0.85	1.00	1.50					
Power liquid pressure (jaws) (G 3/4), MPa:											
- nominal - max	30 35	30 35	30 35	30 35	30 35	30 35					
Power liquid pressure (rotate drive) (G $1/2$), MPa											
- nominal - max	20 25	20 25	20 25	20 25	20 25	20 25					
Outside temperature, °C	from –40 to +40°C										
Weight: model with rotator, kg	590	920	1,015	1,430	1,530	1,990					
Weight: model without rotator, kg	530	830	925	1,340	1,440	1,900					

Digging and Loading grapples

About Company

Types of activities:

- Production of attachments for road-building and mining equipment;
- Sales of components and spare parts;
- Production of construction metal structures;
- Sales and servicing of road-building equipment.

Professional LLC is a leading manufacturer of attachments for heavy equipment in Russia and CIS countries. The company annually manufacturers and sells over 1500 units of buckets with the capacity from 0.01 m³ to 40 m³, as well as grapples, log grapples, rippers, dozer ripper shanks and blades, booms, arms and other equipment. For 12 years our products have been in high demand among Russian and foreign customers.

Modern technology and equipment, own engineering designs used in production of attachments allow fulfilling any non-standard and complex orders.

Today **Professional LLC carries out direct deliveries of own products around the world** (covered all continents, 44 countries); is the official dealer and a major supplier of hydraulic attachments.











Layout of the Enterprise and Surrpunding Area





 $\left(\right)$

Representative Offices and Warehouses

Saint Petersburg Versessan Vsecosian Vsec



M3

POSTAL ADDRESS: st. Kollektivnaya 3B, Ivanovo, Russia tel./fax: +7 4932 35 35 00 e-mail: info@profdst.ru www.profdst.ru