Impact Factor:					
	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	РИНЦ (Russia) = 0.126	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

SOI: 1.1/TAS DOI: 10.15863/TAS

International Scientific Journal

Theoretical & Applied Science

p-ISSN: 2308-4944 (print) **e-ISSN:** 2409-0085 (online)

Year: 2021 **Issue:** 05 **Volume:** 97

Published: 23.05.2021 **http://T-Science.org**

QR – Issue QR – Article

Dmitry Olegovich Bordukh
Institute of Service and Entrepreneurship (branch) of DSTU
bachelor

Artur Aleksandrovich Blagorodov
Institute of Service and Entrepreneurship (branch) of DSTU
bachelor

Victoria Sergeevna Belysheva
Institute of Service and Entrepreneurship (branch) of DSTU
Ph.D., associate professor

Vladimir Timofeevich Prokhorov
Institute of Service and Entrepreneurship (branch) of DSTU
Doctor of Technical Sciences, Professor
Shakhty, Russia

Galina Yurievna Volkova
LLC TsPOSN «Ortomoda»
Doctor of Economics, Professor, Moscow, Russia

POSSIBILITIES OF MODERN INNOVATIVE TECHNICAL PROCESSES FOR MANUFACTURING DEMANDED PRODUCTS TAKING INTO ACCOUNT CONSUMER PREFERENCES AND AN UNSTABLE MARKET

Abstract: *In an article by the authorsan assortment policy was developed for the formation of competitive men's, women's and children's shoes, taking into account factors affecting consumer demand: compliance with the main fashion trends, economic, social and climatic characteristics of the regions of the Southern Federal District and the North Caucasus Federal District, the production of which using modern innovative technological processes, as well as to meet demand elite consumer, using manual labor, create the basis for meeting the demand for footwear for the buyer of these regions, including the development of innovative technological processes for the production of men's, women's and children's shoes using modern technological equipment with advanced nano technologies,forming the basis for reducing the cost of footwear and providing it with an increase in competitiveness with the products of leading foreign companies, with the possibility of a wide assortment of footwear not only by type, but also by fastening methods, which guarantees its demand in full.*

Key words: *model, assortment policy, technological innovation process, consumer preferences, demand, demand, profit, unstable market, competitiveness, import substitution, nano technologies, stable financial condition, stable TP.*

Language: *English*

Citation: Bordukh, D. O., Blagorodov, A. A., Belysheva, V. S., Prokhorov, V. T., & Volkova, G. Y. (2021). Possibilities of modern innovative technical processes for manufacturing demanded products taking into account consumer preferences and an unstable market. *ISJ Theoretical & Applied Science, 05 (97),* 325-365.

Soi: http://s-o-i.org/1.1/TAS-05-97-58 ***Doi***: crossref https://dx.doi.org/10.15863/TAS.2021.05.97.58

Scopus ASCC: *1400.*

Introduction

UDC 685: 43 519.17.

To select the optimal capacity, the authors have developed software that allows manufacturers, based on an innovative technological process using universal and multifunctional equipment, to produce the entire assortment of shoes with minimum, average and maximum costs, which creates the basis for varying the price niche, including through a gradual increase in the share of domestic components in the production of leather goods with a significant reduction in the cost of its manufacture. At the same time, as the criteria for a reasonable choice of the optimal power when forming the algorithm, it was justified to choose exactly those criteria that have the greatest impact on the cost of the finished product, namely:

- coefficient of workload of workers,%;
-productivity of labor of one worker, a pair;
- losses on wages per unit of production, rubles;
- specific reduced costs for 100 pairs of shoes, rub.

Of the four given criteria, in our opinion, the main ones are labor productivity of 1 worker and unit reduced costs.

Labor productivity of 1 worker is the most important labor indicator. All the main indicators of production efficiency and all labor indicators, to one degree or another, depend on the level and dynamics of labor productivity: production of products, number of employees, expenditure of wages, level of wages, etc.

To increase labor productivity, the introduction of new equipment and technology, widespread mechanization of labor-intensive work, automation of production processes, advanced training of workers and employees, especially when introducing innovative technological processes based on universal and multifunctional equipment, are of paramount importance.

Specific reduced costs - an indicator of the comparative economic efficiency of capital investments, used when choosing the best option for solving technological problems.

When comparing possible options for solving any technical problem, rationalization proposals, technical improvements, various ways to improve product quality, the best option, all other things being equal, is the option that requires a minimum of the reduced costs.

Main part

The given costs are the sum of current costs taken into account in the cost of production and one-time capital investments, the comparability of which with current costs is achieved by multiplying them by the standard coefficient of the efficiency of capital investments. Tables 1 and 2 show the calculations of the optimal power for the range from 300 to 900 pairs for men's and women's shoes for the entire range of footwear. Analysis of the characteristics obtained for three variants of a given technological process in the manufacture of the entire assortment of footwear confirmed the effectiveness of the software product for evaluating the proposed innovative technological process using universal and multifunctional equipment. So, with a range of 300 - 900 pairs, the best according to the given criteria is the volume of production of 889 pairs (for men) and 847 pairs (for women). If the production areas proposed by the regional and municipal authorities of the two districts - the Southern Federal District and the North Caucasus Federal District, according to the standard indicators, do not allow the calculated production volumes to be realized, then the option of the optimal capacity is chosen that is acceptable, for example, the production volume of 556 pairs, which corresponds to the standard indicators for the proposed production areas and is characterized by the best values of the designated criteria, which form the cost of the entire assortment of footwear. The authors have developed consolidated technological processes on the side of the blank of the upper of the shoe and for the assembly of shoes, respectively, for 12 models of men's and 12 models of women's shoes (Fig. 1 and 2). Tables 3 and 9 provide an example of the initial technological process for assembling the upper and shoe blanks using the example of a men's winter boot (model D). The summarized volumes of the main costs are shown in Table 10.

Table 1 - Calculation of the optimal power with a range of 300-900 couples on the example of men's shoes

Power	Equipment type	Optimal power, steam per shift	Labor productivity of 1 worker, steam	Worker load factor,%	Losses on wages per unit of production, rub	Specific reduced costs per 100 pairs of shoes, rub
300-500	1	500	28.09	61.39	13.68	6735.36
500-700	1	556	27.73	69.14	9.83	6404.71
700-900	1	889	28.09	77.20	6.42	5236.17
300-500	2	500	28.09	61.39	13.68	6728.68
500-700	2	556	27.91	68.70	9.97	6083.28
700-900	2	889	28.09	77.20	6.42	5240.72
300-500	3	500	28.09	61.39	13.68	7533.95
500-700	3	700	28.12	67.28	10.56	6734.02
700-900	3	889	28.09	77.20	6.42	5876.59

Table 2 - Calculation of the optimal power with a range of 300-900 couples on the example of women's shoes

Power options	Equipment type	Optimal power, steam per shift	Performance labor of 1 worker, couples	Worker load factor,%	Losses on wages per unit of production, rub	Specific reduced costs per 100 pairs of shoes, rub
300-500	1	500	27.73	62.18	13.40	6980.5
500-700	1	700	27.73	69.14	9.83	6277.43
700-900	1	847	27.73	74.50	7.54	5673.49
300-500	2	500	24.45	63.90	14.11	7630.92
500-700	2	556	27.73	69.14	9.83	6404.71
700-900	2	812	25.64	75.40	7.77	6060.55
300-500	3	500	27.00	61.74	14.02	7827.12
500-700	3	556	29.32	68.21	9.71	6607.65
700-900	3	847	27.00	74.70	7.66	6341.05

T a b l e 3 - Characteristics of the equipment for assembling the blanks of autumn women's boots (model E)

the name of the operation	1 set of equipment for innovative technological process								2 set of equipment for innovative technological process								3 set of equipment for innovative technological process							
	vendor code	weight	manufacturer	dimensions	power	performance	price		vendor code	weight	manufacturer	dimensions	power	performance	price		vendor code	weight	manufacturer	dimensions	power	performance	price	
Receiving and checking the cut	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	
Cutting into production	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		011 46 / P5	130 Kg	ST-B	ST-B	ST-B	ST-B	ST-B	178,000 rub
Lowering the edges of the outer baby top and lining	SS 20	135 kg	Comels	1050 * 550 * 1030	1.2 kW	75 pairs per hour	217 140 rub		3SE-RZ	140 KG	Fortuna (Germany)	1050 * 540 * 1160	0.5 kW	77 pairs / h	156,000 rub		011 46 / P5	130 Kg	Swee t (Cze ch Repu blic)	105 0 * 540 * 119 0	0.7 kW	63 pairs per hour	178,000 rub	
Duplication of upper details with interlining	A 200 0	180 Kg	Sabal (Italy)	1430 * 780 * 950	2.1 kW	150 pairs per hour	RUR 185640		C 1100V	180 Kg	Schön (Germany)	1800 * 130 * 950	0.8 kW	150 pairs per hour	123 150 rub		PR 86 A	180 Kg	NEV E (Italy)	125 0 * 900 * 135 0	3.1 kW	150 pairs per hour	123500 rub	
Bending with simultaneous application of hot melt glue, notching of curved sections and gluing tape	RP 67T E	180 KG	Sagita (Italy)	1100 * 550 * 1270	0.75 kW	60 pairs per hour	402 090 rub		S1031 C	170 kg	Schön (Germany)	1050 * 550 * 1200	1.0 kW	60 pairs per hour	234500 rub		012 80 / P1	186 kg	Swee t (Cze ch Repu blic)	900 * 600 * 128 0	0.5 kW	65 pairs per hour	320,700 rub	

Impact Factor:
ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500
SIS (USA) = 0.912
РИНЦ (Russia) = 0.126
ESJI (KZ) = 9.035
SJIF (Morocco) = 7.184
ICV (Poland) = 6.630
PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

Adjusting tibia detail 1 to tibia detail 2	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511 E5 BM00002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-726 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Glueing ankle boots and elastic bands for assembly. Drying	ST-B with vyt	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.
Gluing ankle boots on elastic bands	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.
Attaching elastic bands to the ankle boots with the 1st line	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511 E5 BM00002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-726 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Tightening the vamp on the ankle boots	Pfaff 574-900 cl	130 Kg	"PFAFF" Germ	520 * 180	0.27 kW	-	79600 rub	Typical GC24680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC24026	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl
Tapering of the back edges of the ankle boots with a stitching seam	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511 E5 BM00002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-726 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl

Smoothing the back seam while applying the tape	DELTACB	150 Kg	Sarema (Italy)	800 * 1200 * 1740	1.7	-	RUB 31080	01276 / P12	135 kg	"Sweet" Czech Republic	900 * 510 * 1380	0.175 kW	500 pairs / hour	18000 rbl	01276 / P12	135 kg	"Sweet" Czech Republic	900 * 510 * 1380	0.175 kW	500 pairs / hour	18000 rbl
Spreading with glue and gluing ZNR on the heel of the workpiece	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.
Top hemming	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.
Adjustment of ZNR	491GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511 E5 BM00 002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-726 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Adjusting the leather pocket on the lining under the ankle boots	491GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511 E5 BM00 002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-726 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Attaching the leather lining of the ankle boots to the textile lining of the vamp	491GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511 E5 BM00 002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-726 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl

Tearing of the lining at the back edge with a stitch seam and trimming the edges of the lining	GP 2	120 kg	Colli (Ital y)	900 * 500 * 850	0.27 kW	-	190,000 rubles	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27	-	190,000 rubles	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27	-	190,000 rubles
Smoothing the back seam of the leather lining	DE LT A CB	150 Kg	Sare ma (Ital y)	800 * 1200 * 1740	1.7	-	RU B 310 80	01276 / P12	135 kg	"Swee t" Czech Repub lic	900 * 510 * 1380	0.17 5 kW	500 pair s / hou r	180 00 rbl	012 76 / P12	135 kg	"Swe et" Czec h Repu blic	900 * 510 * 138 0	0.17 5 kW	500 pairs / hour	180 00 rbl
Bonding a thermoplastic toe cap between top and lining	A 200 0	180 Kg	Saba l (Ital y)	1430 * 780 * 950	2.1 kW	150 pairs per hour	RU R 185 640	C 1100V	180 Kg	Schön (Germ any)	1800 * 130 * 950	0.8 kW	150 pair s per hou r	123 150 rub	PR 86 A	180 Kg	NEV E (Italy)	125 0 * 900 * 135 0	3.1 kW	150 pairs per hour	123 500 rub
Glueing and gluing the assembly of the outer and inner parts of the top along the edge line	ST- B wit h vyt.	ST- B with vyt.	ST- B with vyt.	ST- B with vyt.	ST- B with vyt.	ST-B with vyt.	ST- B wit h vyt.	ST-B with vyt.	ST- B with vyt.	ST-B with vyt.	ST- B with vyt.	ST- B wit h vyt.	ST- B wit h vyt.	ST- B wit h vyt.	ST- B wit h vyt.	ST- B wit h vyt .	ST-B with vyt.	ST- B with vyt.	ST- B with vyt.	ST-B with vyt.	ST- B wit h vyt.
Stitching of the edge of the ankle boots with simultaneous trimming of the edges of the leather lining and attaching the elastic with the second line	GP 2	120 kg	Colli (Ital y)	900 * 500 * 850	0.27 kW	-	190,000 rubles	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27	-	190,000 rubles	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27	-	190,000 rubles

Table 4 - Characteristics of equipment for assembling shoes for autumn women's boots (model E)

the name of the operation	1 set of equipment for innovative technological process								2 set of equipment for innovative technological process								3 set of equipment for innovative technological process							
	vendor code	weight	manufacturer	dimensions	power	performance	price		vendor code	weight	manufacturer	dimensions	power	performance	price		vendor code	weight	manufacturer	dimensions	power	performance	price	
Receiving blanks;	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B																	
Pads selection and cleaning	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B																	
Cleaning ZVO	G1 2 / 1	100 Kg	GEL mini	760 * 855 * 1480	1.9 kW	120 pairs / hour	54,000 rub		KAR O 1	80 Kg	Leibrock (Germany)	520 * 1100 * 1370	2.2 kW	150 pairs per hour	54,000 rub		SP75AR	70 Kg	"NEVE" Italy	1100 * 900 * 1400	1.0 kW	120 pairs per hour	54,000 rub	
Accounting for production and return by performer	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	
Acquisition of ZVO in growth. assortment, bundling, accounting	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B		ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	
The amount of equipment costs	**RUB 1,972,560**								**RUB 1,035,156**								**RUB 1,163,312**							

Humidification of the ZVO	UT 12	100 Kg	Stema (Italy)	620 * 550 * 1230	12 kWt	120 per shift	231,000 rbl	URP / 2	110 Kg	ISM (Germany)	645 * 2485 * 1700 * 26	12 kWt	135 pairs per hour	RUB 150,000	U 17 BFV	100 Kg	Stema (Italy)	620 * 550 * 1230	12 kWt	120 pairs per hour	RUB 170,000
Pre-fastening of the insoles to the last with metal staples	10/11 / C	630 kg	"BESSER" Italy	800 * 900 * 1800	0.5 kW	250 pairs / h	RUB 250,000	10/11 / C	630 kg	"BESSER" Italy	800 * 900 * 1800	0.5 kW	250 pairs / h	RUB 250,000	04054 / P1	650 kg	"Sweet" Czech Republic	800 * 900 * 1800	0.27	250 pairs / h	280,000 rubles
Spreading talcum powder	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Insertion of backdrops from thermoplastic materials, pre-molding of the heel of the blanks	74 EE / S	670 kg	Cerim (Italy)	950 * 600 * 1500	2,5 kW	150 pairs per hour	RUB 531,720	1005/2	630 kg	Scheen Germany	900 * 500 * 1900	2,5 kW	800 pairs per hour	230,700 rbl	E 605	690 kg	"SELMAK" Italy	810 * 700 * 1720	1.8 kW	150 pairs per hour	RUB 210,000
Putting on the shoe upper blank on the last and installing the heel part	02015 / P5	120 kg	Sweet (Czech Republic)	600 * 745 * 1700	0.24 kW	150 pairs per hour	RUB 250,000	02015 / P5	120 kg	Sweet (Czech Republic)	600 * 745 * 1700	0.4 kW	150 pairs per hour	RUB 250,000	02015 / P5	120 kg	Sweet (Czech Republic)	600 * 745 * 1700	0.4 kW	150 pairs per hour	RUB 250,000

Covering and tightening of the toe-bundle part of the ZVO with hot melt glue with preliminary moistening of the toe-bundle part, insertion and activation of the toe cap	K 73S TIK	135 0kg	Cerim (Italy)	173 * 114 * 184	5.46 kW	350 steam per hour	RUB 1758120	SZH-9CD	1200 KG	Leibrock (Germany)	1700 * 1200 * 1750	4.0 kW	160 pairs per hour	RUB 1,577,800	K78 SZ	1250 kg	Swee t (Czech Republic)	1100 * 1050 * 1700	5.38 kW	220 pairs per hour	RUB 1,586,800
Tightening the gel part of the ZVO with brackets	K20 1T	900 kg	Cerim (Italy)	1000 * 1230 * 2055	5.46 kW	200 steam per hour	RUB 1,200,000	640 TT	860 kg	Schean Germany	1200 * 800 * 2000	3.25 kW	250 pairs per hour	RUB 1,400,000	0221 2 / P1	850 kg	Swee t (Czech Republic)	6402 * 7150 * 1700	0.42 kW	180 pairs per hour	RUB 1,200,000
Tightening the heel of the workpieces	PIC K24 SZ	1100 kg	"CERIM" Italy	1600 * 230 * 2100	5.5kw	200 pairs / h	RUB 1,851,000	640 TM	900 kg	Schön (Germany)	1200 * 800 * 1600	3.25 kW	250 pairs / h	RUB 1,750,000	PIC K24 SZ	1100 kg	"CE RIM" Italy	1600 * 2300 * 2100	5.5 kw	200 pairs / h	RUB 1,851,000
Wet-heat treatment of shoes	MV 5700	1250 kg	IRON FOX (Italy)	3050 * 1000 * 1450	27.9 kW	300 pairs in 8 hours	142840 rub	333E	1200 kg	Schön (Germany)	1400 * 2100 * 950	13.0 kW	250 pairs per hour	122840 rub	18002 / P2	1130 kg	Swee t (Czech Republic)	9663 * 3070 * 1465	15.0 kw	180 pairs per hour	142840 rub
Hot air smoothing of creases on shoes	RT07	800 Kg	IRON FOX (Italy	450 * 330 * 1100	2.0 kW	100 pairs per hour	RUB 63,000	F1	80KG	Leibrock (Germany)	450 * 330 * 1100	6.0	600 pairs	154740 rub	SR1006	90 kg	ELVI (Italy)	5808 * 6085 * 1450	0.18 kw	65-113 pairs / hour	155,000 rbl

Removing braces and tex from insoles	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Trimming excess draw-off edge, ruffle draw-in edge, dust removal	CF78N	228 kg	Cosmopol (Italy)	1480 * 1100 * 750	2.0 kW	100 pairs per hour	428400 rub	RW2-G	150 Kg	Leibrock (Germany)	700 * 700 * 1030	3.5 kW	150 pairs per hour	540,000 rubles	R 254	190 kg	Sweet (Czech Republic)	990 * 1510 * 1510	5.25 kW	180 pairs per hour	273,000 rbl
Treatment of the slow surface of the soles	A200 / D	100 Kg	GEL mini	760 * 855 * 1480	1.9 kW	120 pairs / hour	100000rub	D510	120 kg	Stema (Italy).	820 * 360 * 1215	1.1 kW	150 pairs per hour	120,000 rbl	A200 / D	100 Kg	GEL mini	760 * 855 * 1480	1.9 kW	120 pairs / hour	100000rub
First glue on the lingering edge and low-running surface of the sole, drying	02068 / P4	250 Kg	Sweet (Czech Republic)	650 * 500 * 1250	2,5 kW	150 pairs per hour	127900 rub	02068 / P4	250 Kg	Sweet (Czech Republic)	650 * 500 * 1250	2,5 kW	150 pairs per hour	127900 rub	02068 / P4	250 Kg	Sweet (Czech Republic)	650 * 500 * 1250	2,5 kW	150 pairs per hour	127900 rub
The second spreading of glue on the lingering edge and the slow surface of the sole, drying	02068 / P4	250 Kg	Sweet (Czech Republic)	650 * 500 * 1250	2,5 kW	150 pairs per hour	127900 rub	02068 / P4	250 Kg	Sweet (Czech Republic)	650 * 500 * 1250	2,5 kW	150 pairs per hour	127900 rub	02068 / P4	250 Kg	Sweet (Czech Republic)	650 * 500 * 1250	2,5 kW	150 pairs per hour	127900 rub
Activation of adhesive films and gluing of soles	FR27 / 2M	300 Kg	GRANUCCI (Italy)	700 * 700 * 1030	1.5kw	250 pairs per hour	RUB 900 480	133	350 Kg	Italy	600 * 650 * 1380	2.0 kW	250 pairs per hour	130000rub	133	350 Kg	Italy	600 * 650 * 1380	2.0 kW	250 pairs per hour	130000rub

Bonding soles	755 PC	450 Kg	Sigma (Italy)	760 * 855 * 1480	1.5 kW	150 pairs per hour	12,700,000 rubles	755 PC	450 Kg	Sigma (Italy)	760 * 855 * 1480	1.5 kW	150 pairs per hour	RUB 1,270,000	755 PC	450 Kg	Sigma (Italy)	760 * 855 * 1480	1.5 kW	150 pairs per hour	RUB 1,270,000
Cooling shoes after pressing	TR19	300 Kg	Stema (Italy).	1500 * 1000 * 1760	2.0 kW	600 - 800 pairs / h	RUB 504,000	FR3200	400 Kg	IRON FOX (Italy)	1500 * 1500 * 1760	1.9 kW	900 - 1000 pairs / h	198,000 rbl	TR 22	500 Kg	Stema (Italy).	1100x2800x1760	2.0 kW	from 1000 to 2000 pairs / h	583 800 rub
Cleaning the top and bottom of shoes	G12 / 1	100 Kg	GEL mini	760 * 855 * 1480	1.9 kW	120 pairs / hour	54,000 rbl	KARO 1	80 Kg	Leibrock (Germany)	520 * 1100 * 1370	2.2 kW	150 pairs per hour	84790 rub	SP75AR	70 Kg	"NEVE" Italy	1100 * 900 * 1400	1.0 kW	120 pairs per hour	54,000 rbl
Removing shoes from the last	LO 2	205 kg	Omsa (Italy)	1130 * 800 * 500	1.5 kW	300 pairs per hour	359520 rub	ASL-1	80 Kg	Leibrock (Germany)	420 * 330 * 1100	1.3kw	250 pairs per hour	186,000 rbl	LP 1	120 kg	Stema (Italy).	820 * 360 * 1215	1.1 kW	250 pairs per hour	352800 rub
Attaching heels from the inside	UV S80	140 kg	GRANUCCI (Italy)	700 * 600 * 1900	0.1 kW	100 pairs per hour	RUB 238740	123LHE	180 ru	Schön (Germany)	800 * 850 * 2100	0.6 kW	125 steam per hour	RUB 190,200	04222 / P1	135 kg	Sweet (Czech Republic)	550 * 800 * 1475	0.42 kW	150 pairs per hour	RUB 185600

Checking and cleaning nails inside shoes	Bonding heel pads and insoles	Retouching the top of the shoe	Finishing the upper of the shoe	Shoe marking	Quality control	Shoe packaging
attachment PES-R	ST-B	G12 / 1	TL 75	341 / BF	ST-B	ST-UO
attachment PES-R	ST-B	100 Kg	155 kg	115 ru	ST-B	ST-UO
attachment PES-R	ST-B	GEL mini	GRANUCCI (Italy)	IRON FOX (Italy	ST-B	ST-UO
attachment PES-R	ST-B	760 * 855 * 1480	1850 * 950 * 1000	750 * 600 * 1800	ST-B	ST-UO
attachment PES-R	ST-B	1.9 kW	2.0 kW	0.25	ST-B	ST-UO
attachment PES-R	ST-B	120 pairs / hour	150 pairs / hour	1500 pairs / 8h	ST-B	ST-UO
attachment PES-R	ST-B	54,000 rbl	98240 rub	RUB 40 320	ST-B	ST-UO
attachment PES-R	ST-B	KARO 1	TL 75	341 / BF	ST-B	ST-UO
attachment PES-R	ST-B	80 Kg	155 kg	115 ru	ST-B	ST-UO
attachment PES-R	ST-B	Leibrock (Germany)	GRANUCCI (Italy)	IRON FOX (Italy	ST-B	ST-UO
attachment PES-R	ST-B	520 * 1100 * 1370	1850 * 950 * 1000	750 * 600 * 1800	ST-B	ST-UO
attachment PES-R	ST-B	2.2 kW	2.0 kW	0.25	ST-B	ST-UO
attachment PES-R	ST-B	150 pairs per hour	150 pairs / hour	1500 children / hour	ST-B	ST-UO
attachment PES-R	ST-B	84790 rub	98240 rub	RUB 40 320	ST-B	ST-UO
attachment PES-R	ST-B	SP75AR	TL 75	05054 / P6	ST-B	ST-UO
attachment PES-R	ST-B	70 Kg	155 kg	110 Kg	ST-B	ST-UO
attachment PES-R	ST-B	"NEVE" Italy	GRANUCCI (Italy)	Sweet (Czech Republic)	ST-B	ST-UO
attachment PES-R	ST-B	1100 * 900 * 1400	1850 * 950 * 1000	70 * 800 * 1800	ST-B	ST-UO
attachment PES-R	ST-B	1.0 kW	2.0 kW	0.25	ST-B	ST-UO
attachment PES-R	ST-B	120 pairs per hour	150 pairs / hour	1200 pairs / 8 hours	ST-B	ST-UO
attachment PES-R	ST-B	54,000 rbl	98240 rub	RUB 35,950	ST-B	ST-UO

Delivery of shoes to the warehouse, paperwork	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
The amount of equipment costs	**RUB 10,453,280**							**RUB 8,906,320**							**RUB 9,110,930**						

T a b l e 5 - Characteristics of the equipment for assembling the workpiece model G (men's boots)

the name of the operation	1 set of equipment for innovative technological process							2 set of equipment for innovative technological process							3 set of equipment for innovative technological process						
	vendor code	weight	manufacturer	dimensions	power	performance	price	vendor code	weight	manufacturer	dimensions	power	performance	price	vendor code	weight	manufacturer	dimensions	power	performance	price
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Receiving and checking the cut	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Cutting into production	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Lowering the edges of the outer baby top and lining	SS 20	135 kg	Comels	1050 * 550 * 1030	1.2 kW	75 pairs per hour	15900 rbl	3SE-RZ	140 KG	Fortuna (Germany)	1050 * 540 * 1160	0.5 kW	77 pairs / h	15600 rbl	01146 / P5	130 Kg	Sweet (Czech Republic)	1050 * 540 * 1190	0.7 kW	63 pairs per hour	17800 rbl
Bending with simultaneous application of hot melt glue, notching of curved sections and gluing tape	RP67 TE	180 KG	Sagita (Italy)	1100 * 550 * 1270	0.75 kW	60 pairs per hour	402 090 rub	S103 1C	170 kg	Schön (Germany)	1050 * 550 * 1200	1.0 kW	60 pairs per hour	234500 rub	01280 / P1	186 kg	Sweet (Czech Republic)	900 * 600 * 1280	0.5 kW	65 pairs per hour	320,700 rbl

Duplication of upper details with interlining	M107 \R	180 Kg	Saba l (Italy)	1430 * 780 * 950	2.1 kW	150 pairs per hour	RUR 185640	C 1100 V	180 Kg	Schön (Germany)	1800 * 130 * 950	0.8 kW	150 pairs per hour	123 150 rub	PR 86 A	180 Kg	NEVE (Italy)	1250 * 900 * 1350	3.1 kW	150 pairs per hour	123500 rub
Spreading with glue and gluing inter-block blocks	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt	ST-B with vyt.	ST-B with vyt.	ST-B with vyt	ST-B with vyt	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt
Adjusting the sock to the vamp	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germ	520 * 180	0.27 kW	-	79600 rub
Glueing and stitching the vamp onto the tongue	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub
Tucking darts on the back	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub
Spreading with glue and stitching the back to the ankle boots	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub

Adjusting the overhead protectors on the ankle boots	Typical GC24680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC24026	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub
Glueing and gluing the vamp on the ankle boots	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt	ST-B with vyt.	ST-B with vyt.	ST-B with vyt	ST-B with vyt	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt
Tightening the vamp on the ankle boots while attaching the tongue	Typical GC24680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC24026	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub
Punching holes for lacing	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Adjusting the leather pocket on the leather lining under the ankle boots	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511E5BM00002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-900 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Adjusting the leather lining under the ankle boots to the textile lining under the vamp;	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180i-511E5BM00002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-900 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Spreading with glue gluing the outer and inner nodes of the upper parts	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt

Stitching the workpiece along the edge line with simultaneous trimming of the edges of the leather lining;	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27 kW	-	19,000 rbl	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27 kW	-	19,000 rbl	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27 kW	-	19,000 rbl		
Shoe uppers cleaning	G12 / 1	100 Kg	GEL mini	760 * 855 * 1480	1.9 kW	120 pairs / hour	54,000 rbl	KARO 1	80 Kg	Leibrock (Germany)	520 * 1100 * 1370	2.2 kW	150 pairs per hour	54,000 rbl	SP75AR	70 Kg	"NEVE" Italy	1100 * 900 * 1400	1.0 kW	120 pairs per hour	54,000 rbl		
Lacing the shoe upper	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Quality control, procurement of blanks, delivery to the warehouse	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
The amount of equipment costs	**RUB 946 438**							**636552 rub**							**RUB 694,000**								

Table 6 - Characteristics of equipment for assembling shoes model G (men's boots)

the name of the operation	1 type of equipment							2 type of equipment							3 type of equipment							
	vendor code	weight	manufacturer	dimensions	power	performance	price	vendor code	weight	manufacturer	dimensions	power	performance	price	vendor code	weight	manufacturer	dimensions	power	performance	price	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Receiving and checking the cut	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B

Cutting into production	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Lowering the edges of the outer baby top and lining	SS 20	135 kg	Comels	1050 * 550 * 1030	1.2 kW	75 pairs per hour	15900 rbl	3SE-RZ	140 KG	Fortuna (Germany)	105 0 * 540 * 116 0	0.5 kW	77 pairs / h	15600 rbl	011 46 / P5	130 Kg	Swe et (Cze ch Rep ublic)	105 0 * 540 * 119 0	0.7 kW	63 pairs per hour	17800 rbl
Bending with simultaneous application of hot melt adhesive,	RP67 TE	180 KG	Sagitta (Italy)	1100 * 550 * 1270	0.75 kW	60 pairs per hour	402 090 rub	S1031C	170 kg	Schön (Germany)	105 0 * 550 * 120 0	1.0 kW	60 pairs per hour	234500 rub	012 80 / P1	186 kg	Swe et (Cze ch Rep ublic)	900 * 600 * 128 0	0.5 kW	65 pairs per hour	320,700 rbl
Duplication of upper details with interlining	M107 \R	180 Kg	Sabal (Italy)	1430 * 780 * 950	2.1 kW	150 pairs per hour	RUR 185640	C1100V	180 Kg	Schön (Germany)	180 0 * 130 * 950	0.8 kW	150 pairs per hour	123 150 rub	PR 86 A	180 Kg	NEV E (Italy)	125 0 * 900 * 135 0	3.1 kW	150 pairs per hour	123500 rub
Spreading with glue and gluing inter-block blocks	ST-B with vyt.	ST-B with vyt.	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub
Adjusting the sock to the vamp	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub
Glueing and stitching the vamp onto the tongue	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Pfaff 574-900 cl	130 Kg	"PFAFF" Germany	520 * 180	0.27 kW	-	79600 rub

Tucking darts on the back	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff f 574-900 cl	130 Kg	"PFAFF" German y	520 * 180	0.27 kW	-	79600 rub
Spreading with glue and stitching the back to the ankle boots	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff f 574-900 cl	130 Kg	"PFAFF" German y	520 * 180	0.27 kW	-	79600 rub
Adjusting the overhead protectors on the ankle boots	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff f 574-900 cl	130 Kg	"PFAFF" German y	520 * 180	0.27 kW	-	79600 rub
Glueing and gluing the vamp on the ankle boots	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.	ST-B with vyt.
Tightening the vamp on the ankle boots while attaching the tongue	Typical GC24 680	130 Kg	Typical (China)	900 * 500 * 850	0.27 kW	-	58212 rbl	Typical GC2 4026	130 Kg	Typical (China)	900 * 500 * 850	0.2 7 kW	-	58212 rbl	Pfaff f 574-900 cl	130 Kg	"PFAFF" German y	520 * 180	0.27 kW	-	79600 rub
Punching holes for lacing	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Adjusting the leather pocket on the leather lining under the ankle boots	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180 i-511 E5 BM0 0002	130 Kg	Durkopp Adler	900 * 500 * 850	0.2 7 kW	-	132090 rub	Pfaff f 591-900 cl	130 Kg	Pfaff (German y)	900 * 500 * 850	0.27	-	79400 rbl

Adjusting the leather lining under the ankle boots to the textile lining under the vamp;	491 GRAMAC	130 Kg	Granucci (Italy)	520 * 180	1.76 kW	-	211596 rub	4180 i-511 E5 BM0 0002	130 Kg	Durkopp Adler	900 * 500 * 850	0.27 kW	-	132090 rub	Pfaff 591-900 cl	130 Kg	Pfaff (Germany)	900 * 500 * 850	0.27	-	79400 rbl
Spreading with glue gluing the outer and inner nodes of the upper parts	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt	ST-B with vyt
Stitching the workpiece along the edge line with simultaneous trimming of the edges of the leather lining;	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27 kW	-	19,000 rbl	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27	-	19,000 rbl	GP 2	120 kg	Colli (Italy)	900 * 500 * 850	0.27	-	19,000 rbl
Shoe uppers cleaning	G12 / 1	100 Kg	GEL mini	760 * 855 * 1480	1.9 kW	120 pairs / hour	54,000 rbl	KARO 1	80 Kg	Leibrock (Germany)	520 * 1100 * 1370	2.2 kW	150 pairs per hour	54,000 rbl	SP75AR	70 Kg	"NEVE" Italy	1100 * 900 * 1400	1.0 kW	120 pairs per hour	54,000 rbl
Lacing the shoe upper	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
Quality control, procurement of blanks, delivery to the warehouse	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B	ST-B
The amount of equipment costs	**RUB 946 438**							**636552 rub**							**RUB 694,000**						

Table 7 - Consolidated innovative technological process for assembling the blanks for the top of the assortment range for men's shoes

Name of operations	Model 1 winter	Model 2 winter	Model 3 winter	Model 4 spring	Model 5 spring	Model 6 spring	Model 7 years	Model 8 years	Model 9 years	Model 10 autumn	Model 11 autumn	Model 12 autumn
1	2	3	4	5	6	7	8	9	10	11	12	13
1. Receiving and checking the cut	+	+	+	+	+	+	+	+	+	+	+	+
2.Starting the cut into production	+	+	+	+	+	+	+	+	+	+	+	+
3. Descending the edges of the top parts	+	+	+	+	+	+	+	+	+	+	+	+
4. Bending the edges of the outer parts of the top	+	+	+	+	+	+	+	+	+	+	+	+
5. Duplication of upper details with interlining, vamp - with thermoplastic toe cap	+	+	+	+	+	+	*	+	*	+	+	+
6. Tightening darts on the back	*	*	*	+	+	*	*	*	*	+	*	+
7. Spreading with glue and gluing the back of the ankle	*	*	+	+	+	*	*	*	*	+	+	*
8. Adjusting the backs of the ankle boots	*	*	+	+	+	*	*	*	*	+	+	*
9. Adjusting the leather pocket on the leather lining under the ankle boots	+	*	+	+	+	+	*	+	*	+	+	+
10. Glueing and gluing the boot knot and the boot lining knot along the edge	+	*	+	+	+	*	*	*	*	*	*	+
11. Stitching of ankle boots with trimming of leather lining	+	*	+	+	+	*	*	*	*	*	*	+

12. Punching holes for laces	+	*	+	*	+	+	+	+	*	*	*	*
13. Spreading with glue and gluing the sock to the vamp	*	*	+	*	+	+	+	+	*	*	*	*
14 attaching the toe to the vamp	*	*	+	*	+	+	+	+	*	*	*	*
15.Adding leather tongue lining to textile vamp lining	+	*	+	+	+	+	+	+	*	*	*	*
16. Spreading with glue and gluing the vamp lining knot and the vamp knot along the edge	+	*	+	+	+	+	+	+	*	*	*	*
17. Stitching the edging of the vamp tongue with simultaneous trimming of the edges of the leather lining	+	*	+	+	+	+	+	+	*	*	*	*
18. Spreading with glue and gluing the back group to the front	+	*	+	+	+	+	+	+	*	*	*	*
19. Tailoring the back group to the front group while sewing the thread bartack	+	*	+	+	+	+	+	+	*	*	*	*
20. Spreading with glue and sticking the tabs on the vamp	+	*	+	*	+	+	+	+	*	*	*	*
21. Tying the reeds onto the vamp	+	*	+	*	+	+	+	+	*	*	*	*
22. attaching the overhead blocks to the ankle boots	+	*	+	*	+	+	+	+	*	*	+	*
23. Spreading with glue and gluing the vamp on the ankle boots	*	*	+	*	+	+	+	+	*	*	*	*

24. Attaching the vamp to the ankle boots while attaching the tongue (without tongue)	*	*	*	*	*	*	*	*	*
25.Adding a leather lining under the ankle boots to a textile lining under the vamp	*	*	+	*	*	*	+	+	+
26. Spreading with glue and gluing the outer and inner nodes of the upper parts	*	*	*	+	*	*	*	*	*
27. Stitching the workpiece along the edge line with simultaneous trimming of the edges of the leather lining	*	*	*	*	+	+	*	*	*
28. Spreading with glue and gluing the leather lining on the vamp parts	*	*	*	+	*	*	*	*	*
29. Tightening the leather lining with the upper	*	*	*	*	*	*	*	*	*
30. Shading the details of the ankle boots on the ankle boots	*	*	*	*	*	*	*	*	*
31. Glueing the harness belt, putting on the buckles, gluing the ends of the belt	*	*	*	*	*	*	*	*	*
32. Spreading the belt with glue, gluing the Velcro fastener	*	*	*	*	*	*	*	*	*
33. Attaching the leather lining under the	*	*	*	*	*	*	*	*	*

harness belt to the harness belt	*														
34. Attaching leather lining under the belt to the belt	*	*													
35. Adjusting the harness belts on the back	*	*	*												
36. Adjusting the belt on the back	*	*	*	*											
37. Tightening the back edges of the ankle boots	*	+	*	*	+										
38. Adjustment of ZNR	*	+	*	*	+	*									
39. Adjusting the leather podklochnikov on the textile lining of the vamp	*	*	*	*	*	*	*								
40. Adjusting the shtafers on the lining	+	*	*	+	*	*	*	*							
41. Spreading glue on the upper and front edges of the ankle boots and lining, drying	+	*	*	*	*	*	*	*	*						
42. Seam ankle boots with a lining under the inverted seam	+	*	*	*	*	*	*	*	*	*					
43. Spreading with glue and gluing a pad of a soft edge, drying	*	*	*	*	*	*	*	*	*	*	*				
44. Turning and banding the edge of the ankle boots	*	*	*	*	*	*	*	*	*	*	*	*			
45. Finishing the soft edging of the ankle boots	*	*	*	*	*	*	*	*	*	*	*	*	*		
46. Tightening of the ankle boots along the front edge	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

47. Spreading gum and gum parts with glue. Drying	*	+	*	*	*	*	*	*	*	*	*	*
48. Gluing parts of the elastic to the elastic	*	+	*	*	*	*	*	*	*	*	*	*
49. Attaching the details of the elastic to the elastic	*	+	*	*	*	*	*	*	*	*	*	*
50. Gluing the outer boot on the elastic butt to the elastic part	*	+	*	*	*	*	*	*	*	*	*	*
51. Gluing the vamp part to the elastic but butt to the elastic part	*	+	*	*	*	*	*	*	*	*	*	*
52. Tailoring the tibia detail to the knot of the outer tibia with one stitch + trimming with openwork on both sides of the stitching	*	+	*	*	*	*	*	*	*	*	*	*
53 Sewing the workpiece onto the zipper with double stitching	*	+	*	*	*	*	*	*	*	*	*	*
54. Tailoring the inner top to the zipper with the first line	*	+	*	*	*	*	*	*	*	*	*	*
55. Tailoring the inner top to the zipper with the first line	*	+	*	*	*	*	*	*	*	*	*	*
56. Tailoring the vamp on the knot of the ankle boots with a double stitching + one openwork inside	*	+	*	*	*	*	*	*	*	*	*	*
57. Bend of the upper edge of the vamp detail	*	+	*	*	*	*	*	*	*	*	*	*

58. Inversion, lining of a soft edging of ankle boots, a flap under a zipper	*	+	*	*	*	*	*	*	*	*	*	*	*
59. Tailoring the inner top to the zipper with the second line	*	+	*	*	*	*	*	*	*	*	*	*	*
60. Trimming soft edging, elastic and edging vamp details	*	+	*	*	*	*	*	*	*	*	*	*	*
61. Adjusting the knot of the lining under the vamp on the resulting group	*	+	*	*	*	*	*	*	*	*	*	*	*
62. Stitching decorative lines	*	*	+	*	*	*	*	*	*	*	*	*	*
63. Tucking of the lining along the back edge with a stitching seam	*	*	+	*	*	*	+	*	*	*	*	*	*
64. Tailoring a leather pocket on ankle boots	*	*	*	*	*	*	*	+	*	*	*	*	*
65. Attaching the elastic to the vamp with the 1st stitch	*	*	*	*	*	*	*	*	+	*	*	*	*
66. Trimming Thread	+	+	+	+	+	+	+	+	+	+	+	+	+
67. Shoe uppers cleaning	+	+	+	+	+	+	+	+	+	+	+	+	+
68. Lacing blanks	+	*	+	+	+	+	+	+	+	+	+	*	+

Table 8 - Consolidated innovative technological process for assembling footwear for the assortment range men's shoes

Name of operations	Model 1 winter	Model 2 winter	Model 3 winter	Model 4 spring	Model 5 spring	Model 6 spring	Model 7 years	Model 8 years	Model 9 years	Model 10 autumn	Model 11 autumn	Model 12 autumn
1	2	3	4	5	6	7	8	9	10	11	12	13
1.Receiving blanks	+	+	+	+	+	+	+	+	+	+	+	+
2.Starting workpieces	+	+	+	+	+	+	+	+	+	+	+	+
3.Moisturizing the workpiece	+	+	+	+	+	+	+	+	+	+	+	+
4. Selection and cleaning of pads	+	+	+	+	+	+	+	+	+	+	+	+
5.Attaching the insoles (insole knots)	+	+	+	+	+	+	+	+	+	+	+	+
6.Smearing pads with talcum powder	+	+	+	+	+	+	+	+	+	+	+	+
7.Inserting backdrops made of thermoplastic materials	+	+	+	+	+	+	+	+	*	+	+	+
8.Pre-forming the heel of the blanks	+	+	+	+	+	+	+	+	*	+	+	+
9. Putting on the shoe upper on the last and installing the heel part	+	+	+	+	+	+	+	+	*	+	+	+
10.Tightening and tightening of the nose-beam part of the ZVO with hot melt glue with preliminary moistening of the nose-beam part and activation of the toe cap	+	+	+	+	+	+	+	+	*	+	+	+
11.Adhesive tightening of the heel part with simultaneous	+	+	+	+	+	+	+	+	*	+	+	+

tightening of the heel part by tex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
12.Wet-heat treatment of shoes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13. Removing staples or tex from insoles	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14.Trimming off excess traction edge	+	+	+	*	+	+	+	+	+	+	+	+	+	+	*
15.Rouging of the pulling edge, dust removal	+	+	+	+	*	+	+	+	+	+	+	+	+	+	+
16.First glueing of the tightening edge, drying	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17.Second glueing of the tightening edge, drying	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18 matching shoe soles	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
19.Treatment of low-running surfaces of soles with a solvent	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
20.First and second spreading glue on the slow surface of the soles, drying	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
21.Activation of adhesive films and gluing of soles	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
22.Cleaning the top and bottom of shoes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
23. Removing shoes from the last	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
24. checking and cleaning the nails inside the shoes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
25. Bonding of heels and insoles	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

26.Cleaning and repairing shoe defects	+	+	+	+	+	+	+	+	+	+	+	+
27 retouching the upper of the shoe	+	+	+	+	+	+	*	+	+	+	+	+
28. Dressing the upper of the shoe	+	+	+	+	+	+	+	+	+	+	+	+
29.Smoothing out wrinkles on shoes	+	+	+	+	+	+	+	+	+	+	+	+
30 shoe markings	+	+	+	+	+	+	+	+	+	+	+	+
31. Packing shoes	+	+	+	+	+	+	+	+	+	+	+	+

Table 9 - Consolidated innovative technological process for the assembly of the top blank for assortment a row of women's shoes

No.	Name of operations	Model A1	Model B2	Model IN 3	Model G4	Model D5	Model E6	Model F7	Model Z8	Model I9	Model K10	Model L11	Model M12
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Receiving and checking the cut	+	+	+	+	+	+	+	+	+	+	+	+
2	Cutting into production	+	+	+	+	+	+	+	+	+	+	+	+
3	Aligning the top parts to thickness	+	+	+	+	+	+	+	+	+	+	+	+
4	Lowering the edges of the upper parts	+	+	+	+	+	+	+	+	+	+	+	+
5	Duplication of the outer details of the upper with a midsole and vamp with toe cap	+	+	+	+	+	+	+	*	*	+	+	+
6	Inserting metal fittings into a decorative belt part	+	*	*	*	*	*	*	*	*	*	*	*
7	Bending the edges of parts	+	+	+	+	+	+	+	+	+	+	+	+
8	Sewing decorative stitching on the shaft	+	*	*	*	*	*	*	*	*	*	*	*
9	Perforation of the upper part of the outer shaft	+	*	*	*	*	*	*	*	*	*	*	*
10	Adjusting the backs on ankle boot and bootleg rear internal double row stitching	+	+	*	*	*	*	*	*	*	*	*	*

11	Tightening the front shaft with the rear outer shaft	+	*	*	*	*	*	*	*	*	*	*	*
12	Glue the zipper tape and inner boot along the joint line. Drying	+	+	+	*	*	*	*	*	*	*	*	*
13	Bonding the edges of the inner zipped boot	+	+	+	*	*	*	*	*	*	*	*	*
14	Attaching the zipper with the 1st stitching	+	+	+	*	*	*	*	*	*	*	+	+
17	Re-hemming of the upper edge of the bootleg	+	+	+	*	*	*	*	*	*	*	*	*
18	Glue the vamp and bootleg for gathering. Drying	+	+	+	*	*	*	*	*	*	*	*	*
19	Applying the vamp to the bootleg	+	+	+	*	*	*	*	*	*	*	*	*
20	Tightening the vamp on the bootleg double-row stitching	+	+	+	*	*	*	*	*	*	*	*	*
21	Adjusting the shaft detail to the shaft	+	+	+	*	*	*	*	*	*	*	*	*
22	Adjusting the leather pocket on the fur lining	+	+	+	*	*	*	*	*	*	*	*	*
23	Adjusting the shtafers to inner and outer fur lining	+	+	+	*	*	*	*	*	*	*	*	*
24	Tapering of the fur lining at the back edge with a stitching seam	+	+	+	*	*	*	*	*	*	*	*	*
25	Smoothing the seam	+	+	+	*	*	*	*	*	*	*	*	*
26	Flap location under zipper on fur lining	+	+	+	*	*	*	*	*	*	*	*	*
27	Adjusting the flap under the zipper on the fur lining	+	+	+	*	*	*	*	*	*	*	*	*
28	Glue the outer knot details of the top and the knot of details of the fur lining along the line of the zipper for assembly. Drying	+	+	+	*	*	*	*	*	*	*	*	*
29	Bonding knot outside details of the top and knot of details of the fur lining along the line of the zipper	+	+	+	*	*	*	*	*	*	*	*	*
30	Attachment of the zipper with the 2nd line	+	+	+	*	*	*	*	*	*	*	+	+

31	Cutting the flap under the clasp lightning	+	+	+	*	*	*	*	*	*	+	+	+
32	Tightening of the bootlegs with backs along the back edge with a stitching seam	+	+	*	*	*	*	*	*	*	*	-	-
33	Seam smoothing and gluing webbing	+	+	+	*	*	*	*	*	*	+	+	+
34	Re-hemming of the upper edge of the bootleg	+	+	+	*	*	*	*	*	*	*	*	*
35	Tapering of the fur lining along the front edge with a stitching seam	+	+	+	*	*	*	*	*	*	*	*	*
36	Smoothing the seam	+	+	+	*	*	*	*	*	*	*	*	*
37	Turning out the ZVO	+	+	+	*	*	*	*	*	*	+	+	+
38	Glue the outer knot details of the top and knot of details of the fur lining along the edge line. Drying	+	+	+	*	*	*	*	*	*	*	*	*
39	Bonding the Outer Top Assembly and Fur Lining Assembly	+	+	+	*	*	*	*	*	*	*	*	*
40	Tightening the knot of the outer parts of the top and the knot of the fur lining parts along the edging line while trimming the excess	+	+	+	*	*	*	*	*	*	*	*	*
41	Pulling, securing and trimming the ends of the threads	+	+	+	+	+	+	+	+	+	+	+	+
42	Zipper opening	+	+	+	*	*	*	*	*	*	+	+	+
43	Trimming fur on a pulling edge	+	+	+	*	*	*	*	*	*	*	-	-
44	Glue the layers of the insole for assembly. Drying	+	+	+	+	+	+	+	+	+	+	+	+
45	Bonding of insole layers	+	+	+	+	+	+	+	+	+	+	+	+
46	Trimming the insole	+	+	+	+	+	+	+	+	+	+	+	+
47	Cleaning ZVO	+	+	+	+	+	+	+	+	+	+	+	+
48	Quality control	+	+	+	+	+	+	+	+	+	+	+	+
49	Picking up blanks	+	+	+	+	+	+	+	+	+	+	+	+
50	Adjusting the sock to the vamp	*	*	*	*	*	+	*	*	*	*	*	*
51	Attaching the vamp to the front shoulder	*	*	*	*	*	*	*	*	*	+	+	+
52	Adjusting the backs to the front and back inner sides	*	*	*	*	*	*	*	*	*	*	+	+

53	Tightening of the front tibia with the rear outer tibia	*	*	*	*	*	*	*	*	*	*	*	+	+	+
54	Glue the zipper tape and inner boot along the line of their connection. Drying	*	*	*	*	*	*	*	*	*	*	+	+	+	+
55	Gluing the edges of the inner ankle boots with a zipper	*	*	*	*	*	*	*	*	*	*	+	+	+	+
56	Tapering of the back edges of the ankle boots with a stitching seam	*	*	*	*	*	*	*	*	*	*	+	+	+	+
57	Bending of the upper edge of the ankle boots	*	*	*	*	*	*	*	*	*	*	+	+	+	+
58	Adjusting the back of the inner to the vamp	*	*	*	+	+	+	*	*	*	*	*	*	*	*
59	Adjusting the back to the ankle boots	*	*	*	*	*	+	*	*	*	*	*	*	*	*
60	Attaching the leather pocket to the leather lining	*	*	*	*	*	-	+	+	+	+	+	+	+	+
61	Adjusting staples on the inner and outer lining	*	*	*	*	*	*	*	*	*	*	+	+	+	+
62	Tucking of the lining at the back edge with a stitching seam	*	*	*	*	*	*	*	*	*	*	*	+	+	+
63	Fitting through the lifting straps onto the leather lining	*	*	*	*	*	*	+	*	+	+	*	*	*	*
64	Stitching through the lifting straps to the back	*	*	*	*	*	*	+	*	+	+	*	*	*	*
65	Tightening vamp with leather lining	*	*	*	*	*	*	+	*	+	+	*	*	*	*
66	Glue the assembly of the outer parts of the top and the assembly of the lining along the edge, through the lifting strap under the assembly.	*	*	*	*	*	*	+	*	+	+	*	*	*	*
67	Bonding of the outer outer parts of the upper assembly with the lining assembly while bonding through the lifting strap	*	*	*	*	*	*	+	*	+	+	*	*	*	*
68	Tapering the trailing edges of the outer parts of the top	*	*	*	*	+	*	+	*	*	*	*	*	*	*
69	Smoothing the seam and gluing the seam with adhesive tape	*	*	*	*	+	*	+	*	*	*	*	+	+	+
70	Lined zipper flap location	*	*	*	*	*	*	*	*	*	*	*	+	+	+
71	Tightening ankle boots with backs along the back edge with a stitching seam	*	*	*	*	*	*	*	*	*	*	*	*	+	+

72	Adjusting a one-sided side bartack on the inner back	*	*	*	+	+	+	*	*	*	*	*	*
73	Folding the top edge of the knot outer parts of the top	*	*	*	+	+	+	*	*	*	*	*	*
74	Bending of the upper edge of the ankle boots	*	*	*	*	*	*	*	*	*	+	+	+
75	Tucking of the lining along the front edge with a stitching seam	*	*	*	*	*	*	*	*	*	+	+	+
76	Adjusting the leather pocket on leather vamp lining	*	*	*	+	+	+	*	*	*	*	*	*
77	Tapering the leading edges leather lining	*	*	*	+	+	+	*	*	*	*	*	*
78	Tightening the knot of the outer parts of the top and the knot of the leather lining parts along the edging line while trimming the excess material	*	*	*	+	+	+	*	*	*	*	+	+
79	Stitching the edge of the workpiece with simultaneous trimming of the edges of the leather lining	*	*	*	*	*	*	+	+	+	*	*	*
80	Finishing of the workpiece in the toe-tuft part along the lingering edge	+	+	+	+	+	+	+	+	+	+	+	+

Table 10 - Consolidated innovative technological process for assembling shoes for women's assortment shoe

No.	Name of operations	Model A1	Model B2	Model IN 3	Model G4	Model D5	Model E6	Model F7	Model Z8	Model I9	Model K10	Model L11	Model M12
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Receiving blanks	+	+	+	+	+	+	+	+	+	+	+	+
2	Pads selection and cleaning	+	+	+	+	+	+	+	+	+	+	+	+
3	Attaching the insole knots	+	+	+	+	+	+	+	+	+	+	+	+
4	Spreading talcum powder	+	+	+	+	+	+	+	+	+	+	+	+
5	Insertion of backdrops made of thermoplastic materials	+	+	+	+	+	+	+	+	+	+	+	+
6	Pre-molding of the heel of the blanks	+	+	+	+	+	+	+	+	+	+	+	+
7	Putting on the shoe upper blank on the last and installing the heel part	+	+	+	+	+	+	+	+	+	+	+	+

8	Covering and tightening of the nose-beam part of the ZVO with hot melt glue with preliminary moistening of the nose-beam part and activation of the toe cap	+	+	+	+	+	+	+	*	*	+	+	+
9	Tightening the gel part of the ZVO	+	+	+	+	+	+	*	*	*	+	+	+
10	Tightening the heel of the workpieces	+	+	+	+	+	+	+	+	+	+	+	+
11	Wet-heat treatment of shoes	+	+	+	+	+	+	+	+	+	+	+	+
12	Hot air smoothing of creases on shoes	+	+	+	+	+	+	+	+	+	+	+	+
13	Removing lingering tex	+	+	+	+	+	+	+	+	+	+	+	+
14	Removing staples from insoles	+	+	+	+	+	+	+	+	+	+	+	+
15	Trimming excess traction edge	+	+	+	+	+	+	+	+	+	+	+	+
16	Ruffling the pulling edge, removing dust	+	+	+	+	+	+	+	+	+	+	+	+
17	Forgiveness of the footprint	*	+	+	+	+	+	+	+	+	+	+	+
18	First glue on the lingering edge and low-running surface of the sole, drying	+	+	+	+	+	+	+	+	+	+	+	+
19	The second spreading of glue on the lingering edge and the slow surface of the sole, drying	+	+	+	+	+	+	+	+	+	+	+	+
20	Flushing the stagnant surface of the soles	*	*	*	+	*	*	*	+	+	*	*	*
21	Activation of adhesive films and gluing of soles	+	+	+	+	+	+	+	+	+	+	+	+
22	Pre-attaching heels	*	*	*	+	*	*	*	+	+	*	*	*
23	Attaching heels	*	*	*	+	*	*	*	+	+	*	*	*
24	Sanding the edge of the sole	*	*	*	+	*	*	*	+	+	*	*	*
25	Application of varnish on the edge of leather soles and heels. Drying	*	*	*	+	*	*	*	+	+	*	*	*
26	Attaching high heels from the inside	*	*	*	+	*	*	*	+	+	*	*	*
27	Cleaning the top and bottom of shoes	+	+	+	+	+	+	+	+	+	+	+	+

28	Removing shoes from the last	+	*	+	+	+	+	+	+	+	+	+	+
29	Smoothing out wrinkles on shoes	*	*	+	+	+	+	+	+	*	+	*	*
30	Checking and cleaning nails inside shoes	+	*	+	+	+	+	+	+	*	+	+	+
31	Bonding heel pads and insoles	+	*	+	+	+	+	+	+	*	+	+	+
32	Retouching the top of the shoe	+	*	+	+	+	+	+	+	*	+	+	+
33	Finishing the upper of the shoe	+	*	+	+	+	+	+	+	*	+	+	+
34	Fastening finished shoes	+	*	+	+	+	+	+	+	*	+	+	+
35	Shoe packaging	+	*	+	+	+	+	+	+	*	+	+	+
36	Delivery of shoes to the warehouse, paperwork	+	*	+	+	+	+	+	+	*	+	+	+

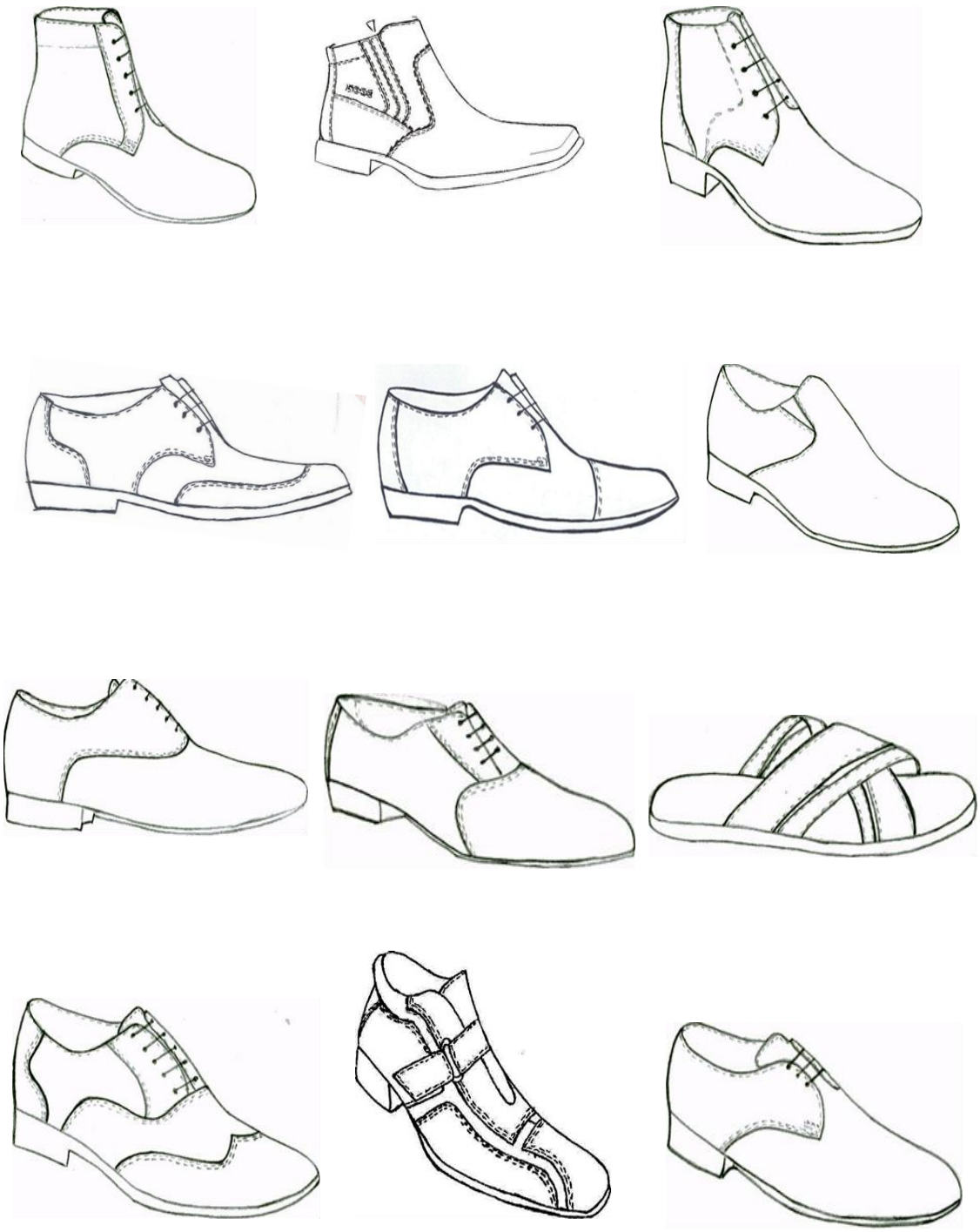

Figure 1 - Assortment of men's shoes

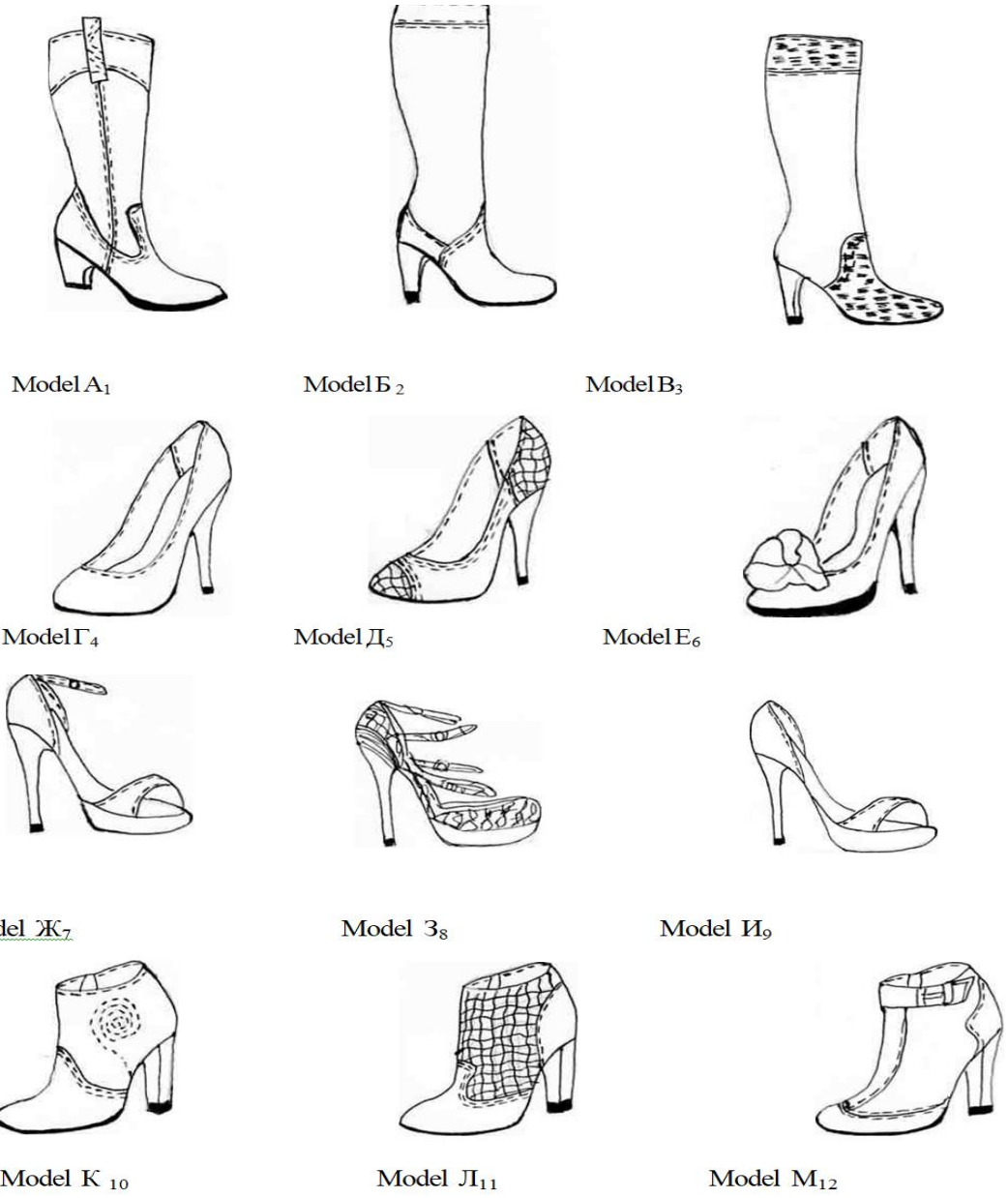

Figure 2 - Assortment of women's shoes

To assess the effectiveness of the production activity of a shoe company, it is necessary to analyze the annual results of the operation of the enterprise for the production of men's and women's assortment of shoes.

These calculations indicate that with 100% of the sale of men's and women's shoes in the specified period of time, not only the costs of production and sales of products are covered, but also a profit of 3,697.4 thousand rubles remains. This testifies to the efficient operation of the enterprise, as well as to the correct marketing and assortment policy. The product profitability is 14.9%.

Table 10 presents the annual results of the shoe enterprise for the production of men's and women's shoe assortment.

Most often, the company sells shoes through stores with payment after the sale, concluding contracts with the trade indicating the timing of the receipt of funds on the manufacturer's accounts.

In this case, if footwear is in demand and is fully sold, then the company receives money on time, which is also needed to pay wages, purchase working capital and other expenses to ensure the development of production.

During the year, the company produces 327,903 pairs of shoes. With 100% sales of these products, the enterprise will receive proceeds in the amount of 392,202.1 thousand rubles. However, this is not always the case.

For example, when selling autumn shoes in the amount of 80% of the production volume, the profit is reduced by 43.15% and amounts to only 1,178 thousand rubles, while the sale of footwear less than 47.4% of the production volume brings losses to the company. Due

to the lack of funds, it is necessary to reduce the volume of production, to delay the payment of wages to workers, for which at present the managers of the enterprise can be held accountable, even criminal. If such a situation arises, it is necessary to attract borrowed funds to cover costs and organize the subsequent production of products, which at the moment is associated with certain difficulties: interest on a loan has been significantly increased (up to 18%), loan repayment terms have been reduced, etc., leading to an even greater increase production costs.

Shoe enterprises should focus on both external (consumer enterprises, competition, market conditions, etc.) and internal factors such as sales volume, profitability, coverage of basic costs, etc. However, it is impossible to take into account and foresee all situations that may arise when selling shoes, i.e. some shoe models are no longer in demand at a certain stage. In this case, another, usually not advertised side of marketing should appear: if the shoes, even without taking into account the requirements of the market, have already been produced, then they must be sold. For this purpose, in order to respond to the lower prices of competitors, it is necessary to reduce too large stocks, get rid of damaged, defective shoes, eliminate leftovers, attract a large number of consumers, stimulate shoe consumption, using discounts for this. There are about twenty types of discounts, but for shoes the most common are those types of discounts that are used at various levels of the enterprise, sales organizations, trade. In addition to using discounts, an enterprise can initiate a price reduction in case of underutilization of production capacities, a reduction in market share under the pressure of competition from competing enterprises, etc. In this case, the enterprise takes care of its costs, developing measures to reduce them by improving equipment and technology, introducing new types of materials into production, and constantly improving the quality of products. And all this requires large financial costs from enterprises, but, nevertheless, promotes competitiveness of certain types of leather goods and the enterprise as a whole. In addition, the greater the number of footwear products produced, the more production costs decrease, which leads to lower prices, and most importantly, creates such conditions for the functioning of the market that would not allow other competing enterprises to enter it and would cause a positive reaction from consumers.

The developed software allows the head of the enterprise not only to monitor the flow of funds on a daily basis, but, which is especially important, to predict the replacement of one model, the demand for which has dropped to a critical volume, when funds to cover production costs associated with this model are not provided, and the transition to production of a new model, the demand for which, based on the analysis of the marketing service, seems to guarantee its viability and demand in a volume sufficient not only to cover the costs of its production, but also to obtain the necessary profit to ensure the production itself without provoking bankruptcy.

Of course, it is good when there is already the necessary supply of this very demand for a new model, namely:

— contracts with consumers for delivery with prepayment;

— a guarantee of branded stores that during the trial sale of the model aroused demand and there is a demand for them within the volumes at which a return of funds spent on their launch will be ensured and a profit will be ensured, which will ensure the enterprise obtain high TEP and stability in the formation and provision consumer of competitive and demanded products.

Thus, taking into account the software for tracking the movement of cash flow and the presence of a well-functioning marketing service that is able to provide the very process of regulating the demand for the company's products, it is always possible to make the right decision to replace one model with another, while creating the basis for obtaining high TEP and preventing the workforce from bankruptcy.

Of course, all this is just a desire, in reality, such work should be carried out daily. To do this, it is necessary to reconsider our attitude to the so-called break-even point, which, as it were, forms the conditions for the implementation of all our conclusions on the formation of competitive industries, providing labor collectives with high TEP and creating the basis for preventing their bankruptcy.

The traditional option of constructing a break-even point provides an understanding that the volume of output of a given model cannot be less than a certain number of pairs of a given model.

But with multi-assortment production, the number of pairs produced is formed by its demand, and if the demand does not ensure its implementation in the volume that provides the enterprise with a return of all funds spent on this model, in this case the manager must decide on the advisability of launching it into production. Therefore, we consider it justified when constructing a break-even point to indicate not only the volume of production of this model, which would guarantee the return of all costs for this model, but also how long it is necessary to replace it with a new one, so that the return of these funds is provided in full and with a profit.

T a b l e 1 0 - The annual results of the work of the shoe enterprise on production of men's and women's shoes

Indicators	Jan.	Feb	March	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Sales volume, pairs	26114	26114	29661	29661	29661	28168	28168	28168	25358	25358	25358	26114
Sales proceeds, thousand rubles	45032.84	45032.84	31026.82	31026.82	31026.82	24033.9	24033.9	24033.9	30640.47	30640.47	30640.47	45032.84
Unit cost, rub.	1435.54	1435.54	890.2	890.2	890.2	726.7	726.7	726.7	1024.58	1024.58	1024.58	1435.54
Full cost price, thousand rubles	37487.78	37487.78	26405.04	26405.04	26405.04	20373.34	20373.34	20373.34	25747.78	25747.78	25747.78	37487.78
Profit from sales, thousand rubles	7545.06	7545.06	4621.78	4621.78	4621.78	3660.56	3660.56	3660.56	4892.69	4892.69	4892.69	7545.06
Income tax, thousand rubles	1509	1509	924.36	924.36	924.36	732,112	732,112	732,112	978.5	978.5	978.5	1509
Net profit, thousand rubles	6036	6036	3697.4	3697.4	3697.4	2928,448	2928,448	2928,448	3914.19	3914.19	3914.19	6036
Product profitability,%	16.8	16.8	14.9	14.9	14.9	15.2	15.2	15.2	15.9	15.9	15.9	16.8

Conclusion

An assortment policy has been developed for the formation of competitive men's, women's and children's shoes, taking into account factors affecting consumer demand: compliance with the main fashion trends, economic, social and climatic characteristics of the regions of the Southern Federal District and the North Caucasus Federal District, the production of which using modern innovative technological processes, as well as to meet demand elite consumer, using manual labor create the basis for meeting the demand for footwear for the buyer of these regions.

Innovative technological processes have been developed for the production of men's, women's and children's footwear using modern technological equipment with advanced nanotechnologies, which form the basis for reducing the cost of footwear and providing it with an increase in competitiveness with the products of leading foreign companies, with the possibility of a wide-range production of footwear not only by type, but and by fastening methods, which guarantees its demand in full.

The layouts of technological equipment have been proposed, on the basis of which it is possible to form a technological process for the production of men's and children's, as well as women's shoes with an optimal capacity from the production area and the form of production organization.

Software has been developed for calculating cash flows from operating activities of shoe enterprises based on assessing the degree of implementation and dynamics of production and sales of products, determining the influence of factors on the change in the value of these indicators, identifying on-farm reserves

and developing measures for their development, which are aimed at accelerating product turnover and reduction of losses, which guarantees enterprises to obtain stable TEP and prevents them from bankruptcy.

Software has been developed for the formation of the technological process of assembling shoes and determining the cost of producing an assortment of shoes. A computer simulation model has been implemented that describes the dynamics of the shoe assembly process. The proposed methodology and the software implemented on this basis can reduce the duration of the technological preparation of production and increase, due to the rationalization of the technological process, the specific consumer effect of shoes.

Comprehensive indicators of the effectiveness of innovative technological processes of shoe manufacturing have been calculated. Taking into account the production program, promising options for technology and equipment have been formed, the most effective has been selected; the possibilities of streamlining the flow are revealed, allowing to exclude "bottlenecks", to minimize equipment downtime, which is one of the conditions for designing innovative technological processes. The reliability of the calculations for assessing the efficiency of technological processes by methods of target programming for various technological and organizational solutions is confirmed by calculations of indicators of economic efficiency: cost, profit and profitability, etc.

The proposed technique allows to reduce the duration of technological preparation of production and reduce the time of expert work while maintaining the required depth and validity of engineering conclusions. The economic effect of the research is expressed in the intellectualization of the technologist's labor with a reduction in the time spent on developing the range of manufactured shoes and assessing the effectiveness of technological processes in comparison with a typical economic calculation of the full cost of making shoes.

The analysis of the influence of the forms of organization of production and manufacturing technology on the cost of footwear is carried out on the example of the technological process of manufacturing children's, women's and men's shoes, taking into account the shift program. Theoretical dependencies have been obtained to assess the influence of the factor "organization of production" on individual calculation items as a whole and other technical and economic indicators in order to prevent enterprises from bankruptcy.

An effective solution has been developed to manage the competitiveness of shoe industry enterprises formed into a cluster, through the use of an innovative technological process for the entire product range of the shoe cluster, equipped with universal, highly efficient and multifunctional equipment.

Recommendations have been developed to ensure regulatory documentation for the formation of quality and confirmation of the conformity of footwear within the framework of the Customs Union, which will allow preparing certificates of conformity and declarations of conformity of the Customs Union for the entire assortment range of the shoe cluster.

Proposals for the creation of a testing laboratory within the cluster were substantiated, in which it is planned to test shoes to verify their compliance with the quality and safety indicators established in regulatory documents.

The role and main tasks of the metrological service have been formulated, and its organizational structure has been developed.

Measures have been developed for testing and assessing the quality and safety of footwear.

References:

1. (2008). *Quality management of competitive and in-demand materials and products*: Monograph / Yu. Mishin [et al.]; under the General editorship of doctor of technical Sciences, Professor VT Prokhorov. (p.654). Shakhty: Publishing house of GOU VPO "yurgues".
2. (2012). *Management of production of competitive and demanded products*: \ VT Prokhorov [et al.]; under the General editorship of doctor of technical Sciences, Professor VT Prokhorov; VPO yurgues. (p.280). Novocherkassk: yurgtu (NPI).
3. (2012). *Restructuring of enterprises-as one of the most effective forms of increasing the competitiveness of enterprises in markets with unstable demand:* monograph / NM Balandyuk [et al.]; under the General editorship of doctor of technical Sciences, Professor VT Prokhorov. FGBOU VPO "South-ROS. State. UN-t of Economics and service". (p.347). Mines: Fgbou VPO "yurgues".
4. (2014). *Revolution of quality: through advertising quality or through real quality:* monograph by VT Prokhorov [et al.]; under the General editorship of doctor of technical

Sciences, prof. VT Prokhorov; Isoip (branch) DSTU. (p.384). Novocherkassk: URGU (NPI).

5. (2015). *Advertising as a tool for promoting the philosophy of quality of production of competitive products* / Kompanchenko EV [and others]; under the General editorship of doctor of technical Sciences, prof. VT Prokhorov; Institute of service and entrepreneurship (branch) Don state technical University of Shakhty: ISO and P (branch) DSTU, (p. 623).
6. (2015). *Assortment and assortment policy*: monograph / TV Prokhorov, TM Osina, EV Kononenko [and others]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov, Institute of the service sector and entrepreneurship (Phil.) Federal state no. education. institutions of higher education. education "don state technical University. UN-t" in Shakhty, Rostov region (Isoip (branch) DSTU). (p.503). Novocherkassk: YURSPU (NPI).
7. (2017). *the Concept of import substitution of light industry products: prerequisites, tasks, innovations*: monograph / Prokhorov VT [et al.]; under the General editorship of Dr. sci.Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.334). Novocherkassk: Lik.
8. (2018). *enterprise Competitiveness and product competitiveness-the key to successful import substitution of goods in demand by consumers of the southern Federal district and the Northern Federal district*: collective monograph / Prokhorov VT [et al.]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.337). Novocherkassk: Lik.
9. (2018). *Management of real product quality and not advertising through the motivation of behavior of the leader of the collective of light industry enterprises*: monograph / OA Surovtseva [et al.]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.384). Novocherkassk: URGU (NPI).
10. (2019). *The quality management system is the basis for technical regulation for the production of import-substituting products*: monograph / VA Golovko [and others]; under the General editorship of Dr. sci. Sciences, Professor VT Prokhorov; the Institute of service sector and entrepreneurship (branch) Don state technical University. (p.326). Novocherkassk: URGU (NPI).
11. (2019). *On the possibilities of normative documentation developed within the quality management system (QMS) for digital production of defect-free import-substituting products*: monograph / AV Golovko [et al.]; under the General editorship of doctor of technical Sciences, prof. VT Prokhorov; Institute of service and entrepreneurship (branch) Don state technical University. (p.227). Novocherkassk: Lik.
12. Aleshin, B.S., et al. (2004). *Philosophy and social aspects of quality*. - Moscow: Logos.