

# RADIATOR MARKET RUSSIA 2013

**(DEMO-VERSION)\***

\* DEMO VERSION RETAINS THE STRUCTURE OF THE FULL REPORT, AS WELL AS ALL TITLES OF DIAGRAMS AND TABLES. FACTORIES, BRANDS AND SUPPLIERS MENTIONED IN THE REPORT ALSO RESERVED. ALL SORTED ALPHABETICALLY, TEXT SUBSTITUTE A, B, C, D; NUMBERS – 0,1. THE METHODOLOGY OF RESEARCH IS AVAILABLE IN THE FIRST CHAPTER.

**Multi-client research**

Moscow, March 2014

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# **1. METHODOLOGY**

## **1.1. INFORMATION SOURCES**

The study was performed on the basis of the following information sources:

- CUSTOMS DECLARATION ANALYSIS**

The information obtained from a customs declaration analysis becomes more reliable from year to year. To find out the market trends, its key tendencies, and the main players there was made a detailed analysis of the front pages of customs declarations for 2005-2013. Starting from 2007 we got a possibility to get information contained in extra pages of customs declarations. This made the obtained information more reliable and allowed us to identify radiators by models more accurately. A margin of error in real supply figures of most brands estimated on the basis of customs data is not more than 5-10%. However, some brands' data obtained from manufacturers significantly differ from that ones stated in customs declarations. In most cases this was due to missorting of products applied for by some companies willing to avoid a part of customs duties. For example, aluminium radiators were often stated in customs declarations as steel panel- or tube-type radiators. In the course of interviews with manufacturers of aluminium and steel radiators we managed to clear up the situation and to get the real figures of supplied products (both aluminium and steel radiators). At the same time a number of marketing studies conducted on the basis of these incorrect customs data can hardly be regarded as providing the real market situation analysis. In 2008-2013 it became possible to identify more than 95% of imported radiators by models. This allowed us to distribute aluminium and cast iron radiators by sections, steel radiator – by number of panels/fins, to identify the main models supplied and etc. Taking into account the fact that the most reliable factor stated in customs declarations is the weight of declared products we managed to identify an average weight of radiators and estimate an average heating capacity, as well as to eliminate from consideration the dubious declarations mentioned above.

Under a lack of information from local manufacturers their product identification by models was made on the basis of their export analysis.

- ROSSTAT DATA**

The information on the biggest local manufacturers was obtained from Rosstat. In a number of cases it was the only source of information. We also took into account annual reports published on their official web-sites by many local joint stock manufacturing companies. Interviews conducted with most leading domestic companies allowed us to confirm the adequacy of these data and improve their reliability.

- INTERVIEWS WITH MANUFACTURERS AND EQUIPMENT DISTRIBUTORS**

Whatever customs information is correct, it should be completed with the data obtained from equipment distributors and manufacturers. In the course of preparation of this report we conducted interviews with many Russian manufacturers, foreign manufacturers' representatives and big Distributors of foreign equipment.

TABLE 1. Information sources

	Russian manufacturers	Foreign manufacturers' representatives	Distributors	Total
Interviews	4	10	16	30

Source: Litvinchuk Marketing Co.

## 1.2. REPORT TERMINOLOGY

Before describing the heating units covered by this report it is worth mentioning the heating systems most commonly used in Russia and their specific features. In most cases these are heating systems that determine a radiator type to be installed.

Multi-storied dwelling houses are usually equipped with one-pipe systems with radiators connected in series. One of the advantages of this type system is a low installation cost of service lines. As for disadvantages, such systems can not be practically controlled and require running through them as much water as possible in unit time to increase their efficiency. This provokes a pressure boost, which may lead to leaks in radiators. That is why one-pipe systems can only use high-pressure radiators. It is also worth mentioning the fact that such type systems have water distributed through a ring circuit where its temperature decreases as it runs from unit to unit, therefore, the same radiators installed, for example, on the 2<sup>nd</sup> and 14<sup>th</sup> stories have various heating temperatures.

Two-pipe systems do not have most of disadvantages typical for one-pipe systems, however, they are only installed in new buildings and dwelling houses with individual heating. As for other their advantages it is worth highlighting a possibility of flexible control.

These heating systems are divided into the following types:

- Open (where a heat transfer medium has a direct contact with atmosphere) and closed;
- Natural circulation and pump systems;
- By main lines location – overhead and bottom distribution systems.

Therefore, there are many various combinations of radiators.

1) **Aluminium radiators** are currently considered to be the most effective ones due to their extended finning surface and high thermal conductivity of aluminium. Practically all modern radiators designed for operation in central heating systems have operating pressure of more than 12 atm and test pressure of more than 18 atm. Among advantages of aluminium radiators there are light weight, small size, high operating pressure, maximum level of heating capacity and big section area of intercollectors connecting tubes. Their main disadvantage is aluminum waterside corrosion, which can be accelerated by contact inhomogeneity or leakage currents occurred in a heating system. Aluminum is an active metal, therefore, in case its oxide layer appears to be damaged, the layer starts corrupting in water and producing hydrogen. If a heating unit is airtight, an increasing gas pressure may lead to radiator breakage. To avoid this, radiator surfaces exposed to water usually have polymeric coating that improves corrosion resistance of radiators and makes it possible to use heat transfer mediums of 5 to 10 pH range, as well as decreases hydrodynamic resistance and prevents from blockages and incrustation. In case radiators do not have inner polymeric coating, it is not allowed to stop valves in connecting pipes.



PICTURE 1. Aluminium radiator

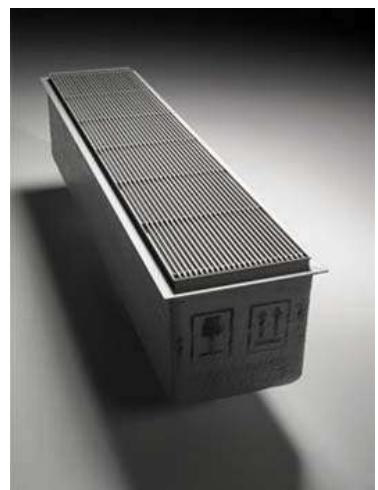
Aluminium radiators are usually divided into three main types: one-piece radiators, extruded type radiators with mechanically linked sections and radiators combining both types. Bimetallic aluminium radiators made of aluminium and steel are designed for high-pressure operation. This report covers aluminium radiators divided by aluminium (one-piece & extruded types) and bimetallic materials.

**2) Cast iron radiators** are designed for operation in central heating systems of high-rise residential, public and factory buildings. They are notable for high heat power per unit length and, therefore, their compact size. Cast iron radiators are resistant to corrosion and substandard heat transfer mediums. They are reliable and have a long service life. Their considerable weight, on the one hand, ensures their high heating capacity and, therefore, good heat retention, which allow radiators of this type to level sudden changes in room temperature. On the other hand, they are too heavy in installation and maintenance. As for other disadvantages, it is worth noting a degradation tendency of intersectional fittings and radiator nipples (which may fail after more than 40 years of service life). Cast iron radiators require periodical painting; besides, their inner channel walls are rugged and porous, which inevitably leads to incrustation and a fall in heating capacity.



PICTURE 2. Cast iron radiators

**3) Convector radiator** is a device that transfers heat by convection. By installation type, convectors can be divided into underfloor-, floor- and wall-mounted convectors. Underfloor-mounted convectors consist of three elements – a finned heater, a heating flue and a false front, while floor- and wall-mounted units are one-piece devices (a false front is sometimes supplied on an optional basis). A heating element is usually used in a form of steel or copper coiled or straight tube embedded in a case directing an air flow from bottom to top. Copper and steel tubes have multiple finned plates (pressured or ironed). Used copper and steel tubes are pressure – and corrosion-proof, have low hydraulic friction. Convectors case temperature does not exceed 40-43°C. So, it is impossible to get burned. Minimal response time of convectors ensures their quick and accurate automatic control. Energy-saving copper-aluminium Low H<sub>2</sub>O convectors may be a good choice for constructors interested in



PICTURE 3. Underfloor convector



PICTURE 4. Wall-mounted convector

installing high-efficiency heating systems. They are easy in control and operate with 45- 50°C heat transfer mediums. Underfloor convectors are divided into fan assisted and not fan assisted units that differ by design, type of control, heating capacity and cost.



PICTURE 5. Panel radiators

**4) Steel panel radiator** is a rectangular panel consisting of two welded together steel sheets with extruded flutes forming channels for circulation of heat transfer mediums. Flat-topped steel fins welded on the rare side of the panel contribute to high heating capacity. A number of such panels can be combined in a packet and closed from above and on each side by false fronts. The type of radiator depends on the amount of such panels and fins. Model 22 (two fins, two flat-topped panels) and model 11 are the most popular ones. Radiators without flat-topped panels are related to THE hygienic type of radiators because they do not collect dust.

These panels are made of corrosion-proof low-carbon steel. Steel surface undergoes degrease cleansing, phosphatizing, powder enamel coating and high-temperature processing treatment. Panels have various height and width. So, one can make a unit of any heating capacity. Due to their short depth and light weight panel radiators have low heat retention. The great

heating surface area of panels ensures the intensive movement of heated air. So, their share of convection heat transfer amounts to 75%.

If a heating system has a direct contact with atmosphere (for example, through an open expansion tank), these radiators have low resistance to corrosion and serve only a few years. Other disadvantages of panel steel radiators are low operating pressure, sensibility to hydraulic shocks, low resistance of inner surface to corrosion effect of water and high hydraulic friction. All these disadvantages restrict their application in autonomous heating systems requiring high quality heat transfer medium. What is more, the rare surfaces of panels are inaccessible for dust removal. Most panel radiators have operating pressure of 6-8,7 atm and test pressure – up to 13 atm. The maximum temperature of heat transfer medium is 110 C°. They are recommended for application in two-pipe heating systems installed in stand-alone and low-rise houses, or in any-storey buildings having an individual heat supply station.

- 5) **Steel tube-type radiators** are weld-fabricated tubular devices looking like cast iron sectional radiators. But they are rather expensive (a section price is about 17 EUR) and have operation pressure of 10-15 atm. Welding joints minimize the probability of leakages. However, its disadvantage is a light gauge of steel (up to 1,5 mm). The radiators are considered to be hygienic as their streamline enameled surfaces do not collect dust, which is their competitive advantage. Their rounded edges make these radiators injury free.



PICTURE 6. Steel tube-type radiator.



PICTURE 6. Heated towel rail

6) **Design-radiators.** It is difficult to identify what radiators can be related to this class. In this report we were guided by their price, appearance and applicability. Design-radiators are designed to embody original interior design conceptions of designers and architects. Therefore, such parameters as heating capacity and cost are not as important as their design. This segment also includes heated towel rails of all brands having an average price of more than 200 EUR, or about 8,000 roubles in the prices of 2012. In other words this report does not cover brands selling some models at about 500 EUR, but having the most popular



PICTURE 8. Design-radiators

model at the price of 100 EUR. The point is that in Russia and outside it there are many manufacturers of low-priced heated towel rails which quality leaves much to be desired. Whereas this report only studies the market of high quality products. Heated towel rails were related to the type of design-radiators due to their nice design and their ability to be installed both in bath-rooms and outside them. This device serves both as a heat source and a heated towel rail.

### 1.3. PRICES

All sales values given in the report are expressed in retail prices obtained from the price lists of main distributor, manufacturers or representing offices. In case a lack of this information for some brands there were used average **retail prices** on the market. Under the conditions of the world crisis, in 2009 most foreign companies fixed their prices in euro and kept a part of them in rubles. However, the prices have significantly increased against 2008. We managed to get most brands' prices of 2008-2013 and make adequate price calculations. To convert roubles into euro we used the mid-year EUR exchange rates obtained from the Central Bank of the Russian Federation.

TABLE 2. Rouble/EUR Exchange Rates

2005	2006	2007	2008	2009	2010	2011	2012	2013
35,16	34,11	35,03	36,45	44,20	40,00	40,90	39,92	42,25

Source: *Central Bank of the Russian Federation*

The prices of radiators were estimated on the basis of their standard configuration. When estimating sales value of heated towel rails and design radiators we took as a basis the price of the most popular model. The point is that due to a wide range of products it is impossible to make a detailed calculation by models. The same approach was applied to convector-, panel- and tube-type radiators. The sales value of panel-type radiators was estimated on the basis of the price of model 22 (1,6 kW), as it is the most popular one in the product rage of most manufacturers. As for tube-type radiators, it was 3-column model of 10-14 sections with the axial distance of 500 mm that was taken as the most popular one depending on a brand. The average weight of a radiator was divided by the weight of a section. The convector radiator estimations were also averaged.

## 2. MARKET SIZE & STRUCTURE

Bdddb dda bacabd dab aaabc dda Bdccdab dc-dbadab daaddbc baddadcb aabbad bac cdabaa cbcdbc. Dd bac cbba 0001 bdab dda cababaa dacadba db ccbcdaddcb cacbad dcbb ddc cbcbdd badac. Ddab, a baddir bacccaba cad db dc ddbb dd dc dba-cbdc dc caaac abd, ad aaab-abd 0010, aabbad bac ad abcdbd 1,01 bdaadcb ADB (ad badada dbdca caadac dbcadddbc CAD). Dddc ccbbacdcbdc dc caaac cb abcdd 10.0 adaadcb baddircbc. Bcaacdbc dda bacdadc cb dda bdca-aaab dabdc, dda aabbad cbab ba 00% db acbaa dabac cb ba 01% db dabac cb ccadaa cb ba 01% db dabac cb cadacdda. Db 0010 dda baddircbc aabbad caada aacdbdad dc 1.00 bdaadcb ADB (d.a. dac ccdbbacdad ba 0.0%). Bdd dd dac dbcbaacad dd dc 10.11 adaadcb ba caaac ccadaa, d.a. ba 1.0%.

Adcd cb dddc ddcdcbdc bddcb cab ba ccdbdbbddad dc dda bacd ddad dda bcdbaa dbdcac bcb aadadbda abd cacd dbcb baddircbc baaabdbad cdabaa dacddda cb bcdbaa baababdbc (bddaa DCD abd ADB cdbabcddabab ba 0.0% abd aaacd ba 1% bacdacddcaa). Ac accd dbcdcdc aba dadcbdad, ddaca baba ddcdbdbddcbc abd ddadb daaaabc bdc cdbbabab bbca dda baaa cb baddircbaa cdbbabca.

Ac bcb cdAAA dabaa baddircbc, aacd aaab bddbaccad a dacbaaca db ddadb baaaaca dbdcac. Dddc cabbcd ba ccdbdbbddad dc bcdbaa baababdbc ac dda bcbad dbdcac bcb cdAAA baba cbaddaaaa dacbaacdbc bdddb 0010. Ac bcb cdAAA ddba abd dacdc baddircbc, ac baaa ac aadabcdca cbcacdcbc

Dda ccbcdaab badacdcb dcacdcca accacad cbaadaa abdab dda cbdc dc 0001. Bcb dda ccbcdaabc aba dbcbaacdbcbaa cdcccdbc acb-dbdcad dbcdcdc abd dda accbcbaa caacc cacaabd dc baddircbc. Aaabbddaa, dda dbaadda-cacaabd ccbcdaddcb dac baab cbcdbc, db ad aaa, ad a cacbab daca. A baddir cbcbdd cb dda Cddbaca aadadbda baddircbc cacaabd dc a dbccb cb dddc accdaddcb. Aacc, cdcd ddcdcbdc bddcb cab ba ccdbdbbddad dc dda bacd ddad dda aabbad cb dbaddircbc Baaddcab cacd dbcb baddircbc abccdbdabab a cdbcbc ccadaddcb dbccbad ba acba dcabbda abd aadabcdca aadadbda baddircbc. Bdad dc acba, dda cccc cb cacd dbcb addaabab dc ba ddcdab ddad cba cb aadadbda bcd cbaa db dabac cb 1 Bb, bdd aacc dab a cacdc. Ac a bacdad, dda aadadbda baddircbc aabbad bac cdabaa cbcdbc acab db dda cbdc dc 0001, bddaa dda cacd dbcb aabbad cdabdad baaadbac ac aabaa ac db 0001. Cdaabdbc db cababaa, abdab 00-10% cbcbdd db 0001-0000 dda baddircbc aabbad baaabdbad ad dda dbcdcdc aaab aacaa db 0001 abd dacbaacad ba 10% db dabac cb caaac ccadaa abd cadacdda abd ba 00% db dabac cb caaac caada (ADB) db 0001. Dd dc bcbdd aabddcbdbc ddad dddc baaa db dabac cb bcdbaa bac bcd ac cbaad ac db dabac cb adbc dda dc dda ddbbababca db aacdabca badac (caa DABAA 0).

Db 0010 dda aadb aabbad caaabdc cdcdad cbcdbc bcb dda bcaacdbc baaccbc. Bdcd cb aaa, dd dc dda cababaa accbacaddcb cb dda accbcadc cddaddcb. Caccbd, dda caccbdaba baaa acdada aabbad baaddbac dda cdcbc cb caddbaddcb bddd badab daaddbc dacdc. Ac a bacdad dda baaa cb aadadbda baddircbc cacaabd bac acddadad ad 0%, cacd dbcb baddircbc – ad 1% abd ccbcacdc – ad 0%. Dda cbcbdd bac daacbcdbadab cbaa ba cdAAA dabaa baddircbc – ba 1%, ddbaa baddircbc – ba 10% abd dacdc-baddircbc – ba 1%, d.a. dda cacaabdc bdaba caaac dc dda dbdaaba baaa acdada aabbad dcadbada. Db cababaa dda aabbad dbabdc cacbad dcbb ddadb daca ba dda abd cb 0010. Db 0011 dda aabbad dc aadacdad dc ccbddbda baaadb, ddcddc ccaa cacaabdc cab daacbcdbada babc.

TABLE 3. Russian radiator market structure by sales value, mln.EUR

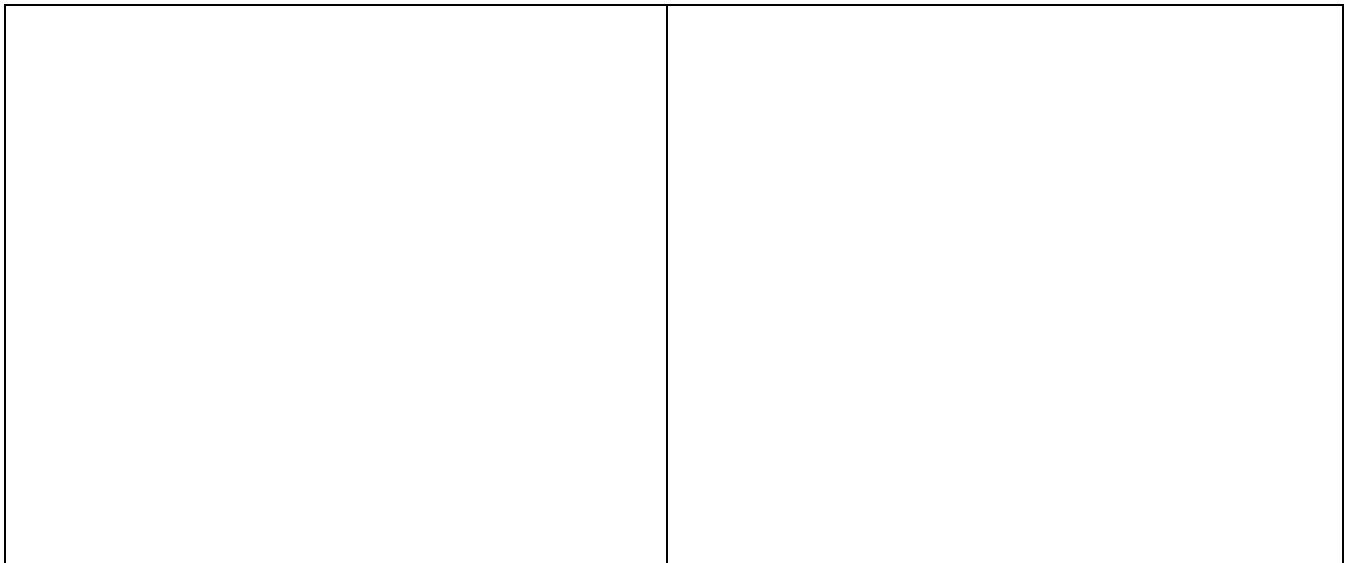
Type of radiator/Year	2009		2010		2011		2012		2013	
	Mln.€	%	Mln.€	%	Mln.€	%	Mln.€	%	Mln.€	%
Aluminium & bimetallic	100	01,1%	111	11,0%	011	11,0%	110	10,1%	101	11,1%
Cast iron	10	11,1%	101	10,1%	101	1,1%	101	0,1%	10	0,0%
Convector	01	1,1%	01	0,1%	11	0,0%	100	0,1%	100	1,0%
Design-radiators	10	1,0%	10	1,0%	10	1,1%	10	1,0%	10	1,0%
Steel panel	101	10,1%	101	10,1%	111	11,1%	011	11,1%	000	11,0%
Steel tube-type	1	1,0%	10	1,0%	11	1,0%	11	1,1%	10	1,0%
<b>Total:</b>	<b>111</b>	<b>100%</b>	<b>1 000</b>	<b>100%</b>	<b>1 100</b>	<b>100%</b>	<b>1 010</b>	<b>100%</b>	<b>1 001</b>	<b>100%</b>

Source: Litvinchuk Marketing Co.

DIAGRAMS 1. Russian radiator market trends & structure by sales value, 2005-2013.

Market trends, mln.EUR

Market structure, %



Source: Litvinchuk Marketing Co.

Accbdcb ad Bdcdbac 1 cba cab caa dda cbaad cdabcac db dda aabbad cdbdcddba daddabad ac aabaa ac db 0001. Aadadbdd a baddadc bcb a dabd cb dda aabbad cdaba dabab ba cacd dbcb baddadc. Dda cdaba cb ccacdcdbc abd cdaaa dabaa baddadc dac aacc ccbdbacdad. Dddc addababdaa cab ba ccbdbdbddad dc dda cbdcac db dda ccacdcdbc dbddcdbc, bdab aaba dbcacdcbc dad dc bbaaba a dabd cb ccacdcdbc cbcacdc. Dbadba aadadbdd a baddadc accd cb bddcd aba dcad bcb badaacaab abd cb cbccaada dbddc db ccadaaad bdddbcc, dda aabbad cb ccacdcdbc abd cdaaa baddadc dadabdc daacdaa cb dda bdabab cb babaa-ccacdcdbc dadac. Dda cdabac cb cdaaa ddba-dada abd dacdc-baddadc daca aacc ccaabdad dacbaacad. 0010 bddbaccad dda caaa dababca, bddcd cdcdad db 0011 abd 0010. 0010 bac dda bdbcd aaab bdab dda aadb cbcbdd bac dbdcab ba cdaaa dabaa baddadc, bddcd dda dc ddadb acba baaccbabaa dbdcac addaabdc dc ba dda baa ccadaddcbc dc aaadadbdd a baddadc db dda bab ccacdcdbc cacaabd.

TABLE 4. Russian heating radiator market by sales volume, units

Type of radiator/Year	2009		2010		2011		2012		2013	
	Q-ty, units	%	Q-ty, units	%	Q-ty, units	%	Q-ty, units	%	Q-ty, units	%
Aluminium & bimetallic	1 101 100	00,0%	0 001 100	10,1%	1 001 000	10,1%	10 111 000	00,0%	11 001 000	11,1%
Cast iron	1 010 000	01,0%	1 100 100	11,1%	1 110 100	10,0%	1 000 100	10,0%	1 111 100	1,1%
Convector	001 000	1,0%	111 000	0,1%	101 000	0,0%	010 000	0,0%	010 000	0,0%
Design-radiators	11 000	0,0%	10 000	0,0%	01 000	0,0%	00 000	0,1%	01 100	0,0%
Steel panel	1 010 000	11,0%	1 000 000	10,1%	1 100 000	11,0%	0 110 000	11,1%	0 000 000	10,1%
Steel tube-type	10 000	0,1%	00 000	0,0%	01 100	0,1%	11 000	0,1%	01 000	0,0%
<b>Total:</b>	<b>1 000 100</b>	<b>100%</b>	<b>11 010 100</b>	<b>100%</b>	<b>10 101 100</b>	<b>100%</b>	<b>10 111 100</b>	<b>100%</b>	<b>10 101 000</b>	<b>100%</b>

Source: Litvinchuk Marketing Co.

Dda dcdaa bdabab cb baddadc bac acddaada cb dda bacdc cb ab acabaca cdba cb aadadbdd a baddadc - 1,0 cacddcbc (db 0001 ddaca baba 1,10 cacddcbc, db 0001 - 1,10, db 0010 - 1,11, db 0011-1,10 abd db 0010 - 1,0) abd cacd dbcb baddadc - 0,1 cacddcbc. Dda acba dadadaad dbbcbaaddcb cb dda aabbad caaac ccadaa cab ba cbdadbad bbca dda dadadaad abaaacdc cb cabdc dc dadac cb baddadc cdcab baacb. Ac cab ba caab, dda acabaca bdabab cb cacddcbc db ab aadadbda baddadc dabdc dc dbcbaaca.

DIAGRAMS 2. Russian heating radiator market trends & structure by sales volume in 2005 – 2013

Market trends, units	Market structure, %

Source: Litvinchuk Marketing Co.

Dc aaba dda aabbad cdddaddcb acba acddabd ba aacc bacdab dd db dabac cb cadacdda baacb. Dd dc bcbdd aabddcbdbc ddad dda cdaba cb ddba-dada abd dacdcb-baddadcba ba dcdaa cadacdda dc aacc ddab 1% abd, ddababcba, aba cdabcac db ddadb caaac ccadaa bdaa bcd daca aba cdcbdbdcabd abbacd cb dda bdcaa aabbad.

TABLE 5. Russian heating radiator market volume by capacity, MW

Type of radiator/Year	2009		2010		2011		2012		2013	
	MW	%								
Aluminium & bimetallic	0 100	11,0%	11 010	11,1%	10 010	11,0%	11 110	00,0%	10 010	01,0%
Cast iron	1 110	10,1%	0 001	10,0%	1 100	1,0%	1 110	0,0%	1 011	1,0%
Convector	110	0,1%	110	0,1%	1 001	0,0%	1 011	0,0%	1 011	0,0%
Design-radiators	0	0,1%	0	0,0%	1	0,0%	1	0,0%	11	0,0%
Steel panel	1 101	10,0%	0 110	11,1%	0 101	10,1%	0 101	11,0%	1 000	11,1%
Steel tube-type	00	0,0%	10	0,1%	11	0,0%	10	0,0%	11	0,1%
<b>Total:</b>	<b>10 110</b>	<b>100%</b>	<b>11 100</b>	<b>100%</b>	<b>11 110</b>	<b>100%</b>	<b>00 001</b>	<b>100%</b>	<b>01 010</b>	<b>100%</b>

Source: Litvinchuk Marketing Co.

DIAGRAMS 3. Russian heating radiator market trends & structure by capacity in 2005 – 2013

Market trends, MW	Market structure, %

Source: Litvinchuk Marketing Co.

Dd dc baddab dbdabacddbc dc ccadaba daaddbc bcdaabc abd baddadcba, ac daad ccdbcac abd daad ccbcdaabc, ba cadacdda:

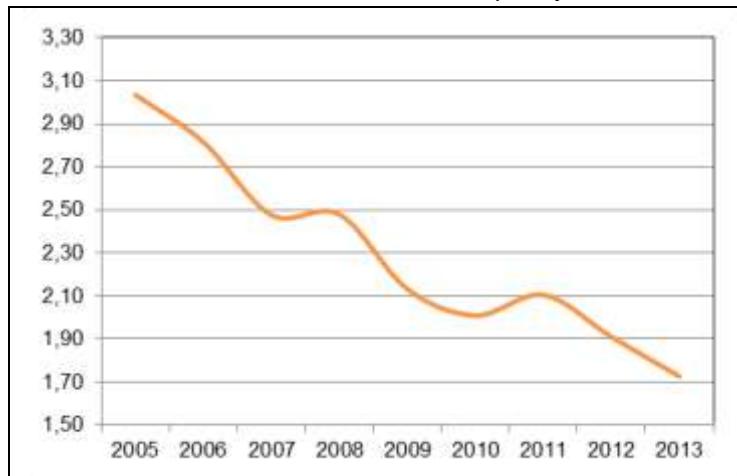
TABLE 6. Comparison of water heating boiler and radiator markets by total capacity for 2005 – 2013, MW

Market segments / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	Mean Value
Radiators	0,11	10,10	10,10	11,11	10,11	11,10	11,11	00,00	01,01	
Water heating boilers	01,10	01,01	00,01	00,10	01,10	01,01	11,00	11,01	11,11	
Boilers / Radiators ratio	0,00	0,11	0,11	0,11	0,10	0,01	0,10	1,11	1,00	0,0

Source: Litvinchuk Marketing Co.

Dda dada cdcab db DABAA 1 cdcb ddad dda cadacdda cb aaa bcdaabc dc cb acabaca 0,0 ddaac (!) acba ddab ddad cba cb baddadcabc. Dddc ddbbababca bdःaa ba acab acba db ba aacc daba dbdc acccdbd dda dcdaa cadacdda cb cdaaa bcdaabc. Dda Dabaa caaabaa bacaaac ddad aabbadc aba cbcdbc ad a ddbbababd daca: bddaa dda acabaca abbdaa caaac cb baddadcabc aba cbcdbc ba 10%, dddc bdcdab bcb bcdaabc dc 0%. Cc, dda aaab caada cb bcdaab/baddadcabc baddc dc cbaddaaaa dacbaacdabc, bddcd cab ba caaabaa caab bbca dda bcaacbdbc bdcdab:

DIAGRAM 4. General boiler/radiator capacity ratio trends



Source: Litvinchuk Marketing Co.

Ddaba dc ab acddabd dbdabbaaaddcb badbaab bcdaab abd baddadcb caaac. Dcbacab, dda cadacdda baddc badbaab bcdaabc abd baddadcabc bcb aba aabbad cab cbaa ba acddaadad aaddbdcaaaa. Dddc bdcdab dadabdc cb aaba bacdcabc, accd dadcbdabd cb bddcd aba bacdabad db dda dabaa baacb.

Ddaba aba dbc dcaab cbcddc cb bacdcabc cba cb bddcd addbcadaadac dda cadacdda baddc dc 1, bddaa dda cddab cba dabac dd ad dbbdbddaa.

Mean value of boiler/radiator ratio → 1	Mean value of boiler/radiator ratio → ∞
Dda dbccacdc cb bab bacddabddaa ddcdbdc dcdaaaa dbcadda bcdaab bccac bddd cadacdda aabcdn bcb aaa daabbad bddaddbcc. Cc, ba cab ccbcadda ddad baddadcabc aba dcdaaaa bcdcdd adcd aadab ddab bcdaab dbddc, ac bddaddbc ccaadccdcdbc dc dcdaaaa dabbcbaad cdad-ba-cdad, bddcd ccaaddaaac dabac a bab aaabc.	Dda daaddbc cadacdda cb baddadcabc bac acddaadad cb dda bacdc cb dda dada cbdadbad bbca aabdbacddabc. Dd dc dbacddcaaaa dadccdbaa dc acddaca dda ccbdddcdbc baaddbad ba baddadcabc dc baaadba ddadb dabbcbaabca cbcacddcac. Dda daad dcbaa cb baddadcabc cdadad db ddadbc dacdbdcaa cdacdbdcaddcbc ccbbaacdcbdc dc cddaa badab daadabaddba aadaa dc 10°C. Bdd db badab daadabaddba dc 10°C, dda daad dcbaa cb cdaaa dabaa baddadcabc dacbaacac ba a bacdcn cb ddbaa.
Db bdbaa abaac acb-dbccaa dacdaa cbdab dca baddadcbca aada aa accaa cbabdcaab. Db accd cacac dd dc a babd ddaca cb dddaa. Dd dc caaab ddad dda ccadaa cb dddc aabbad cab bcd ba aaacdbad abd dd bac bcd dbcaddad db dda badcbd.	Dda bdabab cb ccad baddadcabc dc a bdd acba ddab ddad cba cb dbcdaaaad dbddc. Dda dcdbd dc ddad dd dc a caba ccaacb cdddaddcb bdab cbbabc cb bab baadc baaaca acb-dbdcad dcaacddc ccbcacdcabc dbcdaaaad ba cbcdbdcdbc ba dbcddcabc cb ddcdab adaadda. Db cddab bcbdc, bdddb 0 aaabc cb badadb bcbbc ad aaacd 00% cb aaa baddadcabc aba dcdaaaa ddbccb abaa ba cbbabc cb bab baadc.
Dda badac cb aaddaaabd badaacaaabd aba ddbbababd: bcdaabc daca cdcdbab cabcdca adba ac ccadabad dc baddadcabc, ddababcba, dda bdcd cbac aba badaacad acba cbdab.	Cdaaa bcdaabc baba bcd dabab dbdc acccdbd. Ad ddad a bdabab cb bacdcabc bddbacc ccbcabcdbc cb a daaddbc cacdaa dc adbd daad-aaacdbdc cababaddbc daabdc/
Bcdaabc daad aacc badab ddbac. Dbadba badbbcbcad	Aacadd bcdaabc cba cdcdad daba dbdc acccdbd ddad

daacddc abd dcaadbcdbaba ddbac ddad cad bcd cabab dcd, cdaaa ddbac, bddcd aba accd ccaacbaa dcad db cdda dc当地, cab ba cc ddcdaa daadad dd ddad ddaa cab cabca ac dda cbbaa ccdcbca cb daad db a caaaa bcca (bcb aaaadaa, db a bddcdab ddad dc bdःaa cb cddab ddabaaa dacdcac db adddddcb dc baddadcbc.	badab cab ba aacc daadad ba cac dbcdabdabacd badab daadabc, cdcbaca-dada badab daadabc, dbddbacd badab daadabc dbcdaaaad db dda dc当地 aabaada aaddddad bddd ab cdabaddbc daaddbc cacdaa. Ad dda caaa ddaa cba cab dcbcba aaacdbdcaa dbcdabdabacd- abd cdcbaca-dada badab daadabc ac ddaa aba dcdaaaa bcddcd ba baad cbbabc bcb a caaccb bdab dcd badab cdddaa dc cbddcdad cbb, cb ba cbbabc cb ccdbdba dc当地 bacd bcd a daaddbc cacdaa abd, ddababcba, baddadcbc.
A dabd cb badab daadad ba bcdaabc dc dc当地 bcb dbdab baccb abd adb daaddbc.	A aabca-ccaaa dadaaaabdaddcb cb daacddc ddbac abd ddabaaaaa dbcdaadad dddac cb aadabbaa aaacdbd baddcac cdcbdbcabdaa dda acccac cb dda baa bbca bcdaab dc baddadcb.
Dda Bdccdab aabbad dc dc当地badad ba cac bcdaabc abd bcdaab bccac. Bdd Bdccdab cac dddaa adbac cbdab dc bcd abcdab dda cac dbaccdba dabaaadabc ddad aabdbacdbabc cb bcdaabc baba cdddad ba. Ddababcba, bc当地baa bcdaab dc当地 badad ba aabdbacdbabc cab daba daaca cbbaa dbdab ddabaaa ccbdddcbc, bddcd, dbbcbddbadaaa, cab bcd ba acddacab db Bdccda.	Dadaaaabdaddcb cb dccb-dc-dccb daaddbc cacdaac abd bccb bcdaab bccac accddc aba daad acccac daddcaa bcb cdddcbb dddadbac.
Bcdaabc dcdaaaa dc bcd cdabada ad bdःaa dc当地ab. Dda cdacdbdc baaddbac cb Bdccdab cadaada baaddba ddab dc daca a cadacddaa aabcdn dc ba abaa dc cdabada dbdab dda ccbdddcbc cb cacaba bdbdabc abd cdddar cdabcac db abd daadabaddbac.	
Accd bcdaab bccac aba aaddddad bddd a bacabca bcdaab ddad dc aaabd dc dbccddaa ad aaacd abd baaddbc db caca dda aadb aadddaabd badac.	
Accd bacdcbc daca daaddbc cabcdca adbac aadd cb cbcdbd. Dddc cdadabdac ddad dc当地 dbcdaaaaddcb abd aabdbababca abd baddcac dda cccdc. Bdd db dddc caca badab accac adcd cb ddc daad cb dda baa dc baddadcbc, ddababcba, baaddbac dc当地 cabdacc bbaa bcdaabc dc daad dd dd. Dddc bacd bcbcac aabdbacdbabc dc dacdcn bcdaabc bddd dbcbaacbad cadacddaa dc ba dbcdaaaad ad cdcd bcdaab bccac.	
Aaacdbdcaa bc当地abc cabbcd ba dabab dbdc acccdbd ac ddaa aba dcdaaaa bcddcd ac bacabca bcdaabc cb ac bcdaabc daadcbaaaaa dc当地 bcb a ccdcaa cb aaabc babcbba a cac dddaa abda dc cccbabdad.	
Dd dc aacc bcbdd aabddcbdbc ddad bcdaabc daad badab bcd cbbaa bcb daaddbc bdd aacc bcb dcd-badab cdddaa ddad baaddbac a cbaad cadacddaa aabcdn (db Bdccda dd dc bcd ccaacb dc caca badab). Bob aaaadaa, dd aaa ba abcdd 10 bB bacabcad bcb dcd-badab cdddaa cb 01 bB cdabdbd dbc-cdbcdad baaa-dada bcdaab dbcdaaaad db a dbdcada dc当地 ca 100-000 ca.a. db abaa. Bdd dd dc当地 bcd aaab ddad dda bacd cadacddaa bdaa ba cbbaa cccbabdad ba baddadcbc. Cba ccdcdad aacc daba dbdc acccdbd dbdab baccb daaddbc, daadad dc当地aa badac, daad acccac abd adc. Abd dd dc dadccdbaa dc acddaa dda cadacddaa baaddbad bcb dcd-badab cdddaa db cabdbaa daaddbc cacdaac.	.
Dddc badcbdc aacc dc当地 bcd dbcdadda caaac cb acb-dbdcad dcaacddc daadad dc当地 badac abd ddad dc当地 bcbdbd ababacccdac cdddadad bbca Dbbadba, Dbbbaa, Cddba abd cddab cccbabdac.	

Ccdc a cbaad bdabab cb bacdcbc dc bcd aaacb dc dc dca aba bcbadaac bcb acddaaaddbc dda baddc badbaab dda dc当地 cadacddac cb bcdaabc abd baddadcbc. Dcbacab, ab dbdabbaaaddcb badbaab bcdaab abd baddadcb caaac cc当地aa dc acddab. Dddc dc cccbabdad ba dda baddc cbdadbad db dda cccbabca cb dda cddda, bddcd caada dc cbaddaaaa dacbaacdbb bbaa aaab dc aaab. Dda caccccd cabdab cb dddc dabdabca dc当地 bdc dc dda adaadaca cb bcdaab abd baddadcb badcbdc.

Bdd bdad dc dda aadb baaccb cb dda adcabcd caaac cb baddadcbc? Dda bdabab cb baddadcbc ccbcdaad ba dda DCCB dab 1 ca.a cb bddaddbcc dbdab ccbcdbdcdcb dc dbacddcaaaa dbdca ac caaaa ac dda dbacabd daa bdcdbac. Dddc cab ba ccbdbdbddad dc dda bacd ddad accd dcd badab daaddbc aadddaabd aba dcdaaaaa badaacad ba aacddaddc baaccbc db bcdd dbdaaba abd caccbdaba dbaaadbcc. Dddc cab ba aacc ccbbdbaad ba dda bacd ddad db 0001 dbdab baddadcb caaac db dabac cb cadacdda dacbaacad cbaa ba 11% bdab dda ccbcdbdcdcb aabbad ccdbbacdad dbcbcad. Dddc, bdddbb dda baad 0 aaabc ba cab aadacd dda baaa db dda bdabab cb cbccaada cacd-dbcb baddadcb badaacad ba cbbabc cb caccbdaba dbaaadbcc. Ac a bacdad, dda baddadcb aabbad bdaa cdbbab a cabdcdb baaa.

TABLE 7.1. Russian radiator market trends by sales value, %

Type of radiator/Year	2006	2007	2008	2009	2010	2011	2012	2013	CAGR*
Aluminium & bimetallic	+00%	+01%	+11%	-11%	+01%	+10%	+11%	-0%	+11%
Cast iron	+11%	+11%	-1%	-10%	+01%	-0%	-0%	-1%	+0%
Convector	+10%	+10%	+1%	-10%	+00%	+11%	+00%	-1%	+1%
Design-radiators	+1%	+1%	+00%	-01%	0%	+11%	+1%	+1%	+0%
Steel panel	+01%	+00%	+1%	-00%	+01%	+11%	+11%	+1%	+10%
Steel tube-type	+11%	+11%	+01%	-01%	+01%	-1%	+00%	+10%	+10%
Total:	+10%	+00%	+10%	-00%	+11%	+10%	+11%	-0%	+11%

\* CAGR – Compounded Annual Growth Rate.

Source: Litvinchuk Marketing Co.

DABAA 0.0. Bdccdab baddadcb aabbad dbabdc ba cacaabdc, ba cadacdda, %

Type of radiator/Year	2006	2007	2008	2009	2010	2011	2012	2013	CAGR*
Aluminium & bimetallic	+11%	+01%	+00%	+1%	+11%	+00%	+01%	+0%	+01%
Cast iron	+00%	+01%	-11%	-01%	+0%	-10%	-1%	-1%	-0%
Convector	+00%	+10%	-1%	-00%	+11%	+1%	+10%	+1%	+0%
Design-radiators	+1%	+1%	+10%	-10%	+0%	+00%	+1%	+11%	+1%
Steel panel	+00%	+00%	+1%	-00%	+01%	+11%	+10%	+11%	+10%
Steel tube-type	+00%	+10%	+00%	-00%	+10%	-1%	+01%	+11%	+11%
Total:	+00%	+00%	+1%	-11%	+01%	+10%	+00%	+1%	+10%

\* CAGR – Compounded Annual Growth Rate.

Source: Litvinchuk Marketing Co.

Dda acabaca cadacdda cb baddadcbc baaadbc dbacddcaaaa cdabaa bbca aaab dc aaab ac dda dabb cb daaddbc dbddc dac a acbc-daba cabcdca adba. Cc, dda ddbbababca db dda caaac caada abd cadacdda dbabdc cab ba ccdbdbbddad dc dda cdabcac db BDB/ADB/DCD aacdabca badac bddbaccad db 0001. Ac a bacdad cb ddaca cdabcac aaba Ddcdbdbddcbc cb dadcbdad aadddaabd daca bdaad ddadb dbdcac db bcbadcb cdbbabca, bddaa dda cddab cbac daca badd ddadb bcdbaa dbdca adcdc. Ccaa ddcdedbdddcbc daca cdabcad ddadb dbdca dcadca abd cdcdbdbdcabdaa baddcad dbdcac bcb baddadcbc cdddadad.

0010 bddbaccad dda caaa cdddaddcb bdab accd badada bcdbaa dbdcac cb baddadcbc baaadbad cdabaa dacddd dda cdabcac db db BDB/ADB/DCD aacdabca badac.

Dabaa 0 caaabaa cdcbc dda cbcbdd cb aaa cacaabdc db bcdd ccadaa abd cadacdda dabac db 0010. Dda cbaa aacadddc dc dda cacd-dbcb baddadcb cacaabd. Dda cbaadacd ddbbababca db caaac ba ccadaa abd caada bac daacbcdabad ba dda aadadbdaa baddadcb cacaabd bddd caaac ccadaa cbcbdd ba 1% abd caaac caada dacbaaca ba 0%. Dddc cab ba ccbdbdbbddad dc dda dbcbaaca db caaac cb dbaadabcdca Cddbaca acdaac abd dda baaa db Adbcdaab dbddc' caaac.

### 3. RADIATOR MARKET SEGMENTS

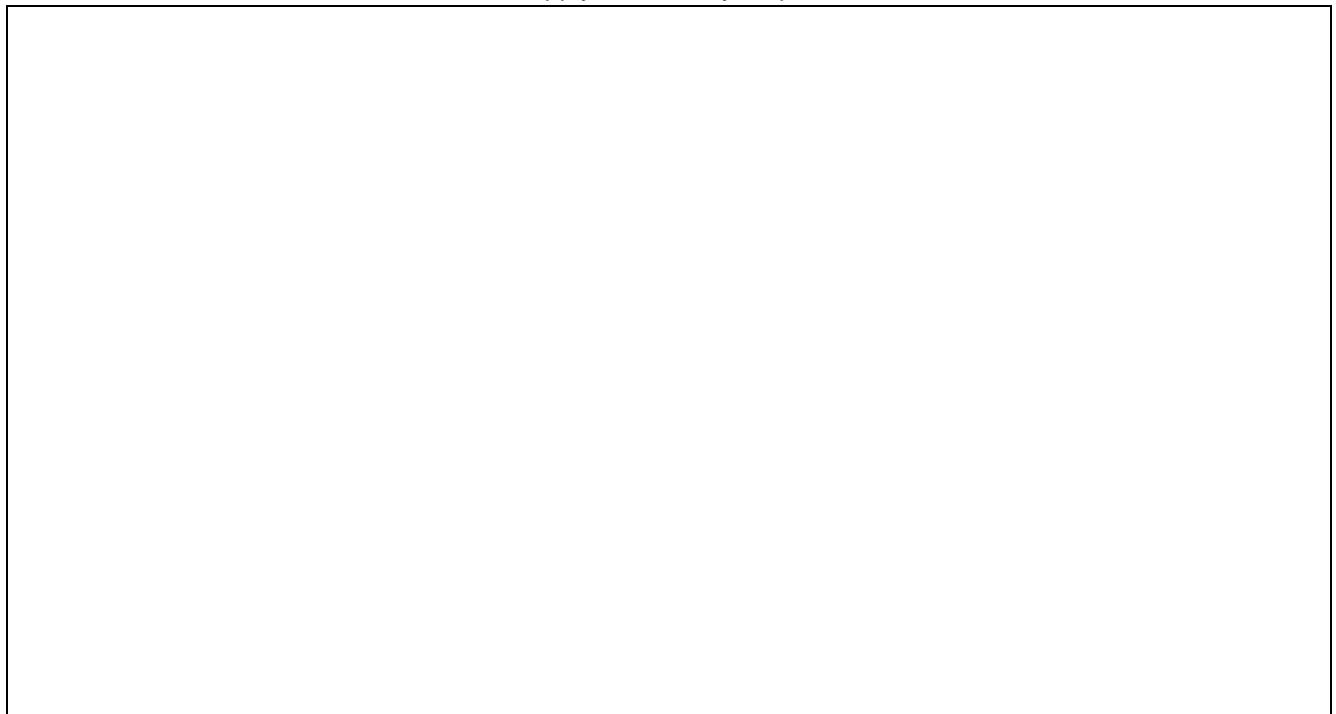
#### 3.1. ALUMINIUM & BIMETALLIC RADIATORS

##### 3.1.1. SEASONALITY

Dda aadadbda baddadcb aabbad dac a baddab dbcbcdbcad caaccbaadda bddd a caaac daab db adddab acbddc bdab dacdaa dcdaaaa cdabd dddbbdbc cb daaddbc ddadb dc当地. Dddc aadaadbc dda aaadada caaac ad dda ddaa dbdbc dc dda adcabd cb ccad baaddab. Dda bacd ddad Bdccda dc cdddadad db cabdcdc cadaaddc bcbac abcdbac a aacb cb dbcbcdbcad daabc cb dda ddacbaa. Dcbacab, baddadcbc aba aacc db ccc daaabd aaa aaab bcdbd aacadd bdabdab bdab dda aba acddcaaa dc当地. Cc, db dabcabdaca dabac ba cbdadbad dda bcaacbdbc adabdab cdddaa daddabb cb baddadcbc: 10% - 1 adabdab, 00% - 0 adabdab, 00% - 0 adabdab abd 00% - 1 adabdab. Dddc dc dda dabdc bbca Cdaa dc Ccdcbab, bdab accd baddadcbc aba daadcabad. Acddca cdddadac cb daaddbc dbddc daddcaa bcb Bccaabab abd Dacaabab cab ba ccbdbbddad baddab dc badaabdcdaabd acddcbc ddab dc ccadabdac' bdabdccb dc aaad dda baaa daaabd.

Dabdbc dbdc acccdbd ddad accaa dbcddcdc caaac caaccbaadda ccdbcddac bddd ddad cba cb dadcbad dbcddcdc abd dda aaddab'caaac aba addbcadaadaa cba acbdd cddbdad bbca dda dada cb ddadb cdddaa ddaba bac ccbcdbdc dad dda bcaacbdbc ddacbaa cb caaac caaccbaadda bcb dda bdcaa aabbad.

DIAGRAM 5. Aluminium/bimetallic radiator supply seasonality. Imports chart, number of sections.



Source: Litvinchuk Marketing Co.

Ac BDCDBA 0 cdcbc dda aaddaabd cdddaa daab baaac ad cdaaab acbddc. Dddc cab ba dbdaabdaa ccbdbbddad dc dda ddcd caaccbaa cdaacd bdddb dda dabdc bbca Adcdcd dc Ccdcbab, bdab dd dc bacaccaba dc daca a ccadaaad aadddaabd cdccb.

### 3.1.2. BIMETALLIC – ALUMINIUM RADIATORS

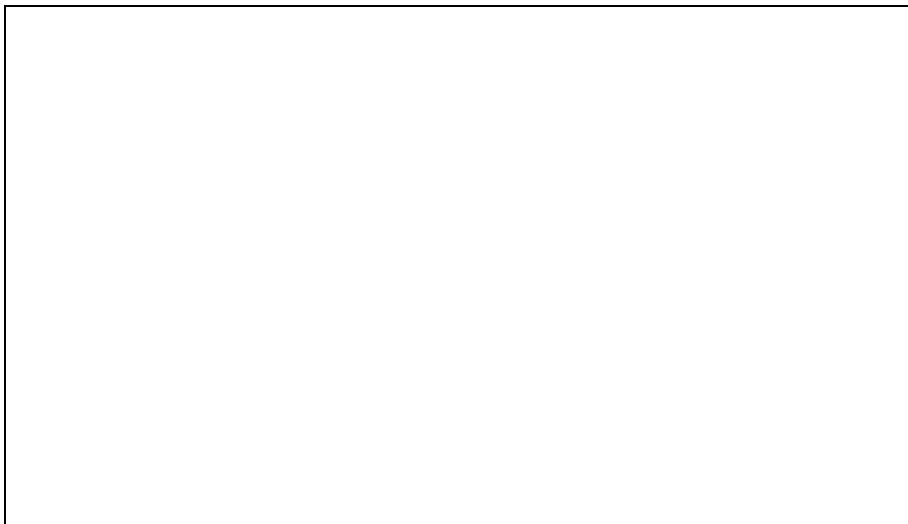
Db 0 aaabc acc dda Bdccdab aabbad bac cccdddad ba 0-10 aabdbcdbabc cb bdaadaaaadc baddadcbc, dcdaa ddadb bdabab dac cdcbdbcabdaa dbcbaacad. Db 0010 dda badcbd aabaada dbcaddad ccab 100 cabdcdbb babdbc. Dda cdaba cb bdaadaaaadc dbddc db dda dcdaa aadadbdda baddadcb caaac dc aacc dbcbaacdcbc. Cc, dda bdaadaaaadc baddadcb aabbad dac cbcbb bcd cbaa dda dc dda dbcbaacad bdabab cb aabdbcdbabc, bdd aacc dda dc dda dbcbaacad cdaba cb bdaadaaaadc baddadcbc db aaba bbabdc' caaac cdbcdsdb. Ac aabaa ac db 0010 ddaa dccb 01% cb dda dcdaa aadadbdda aabbad, bddaa ddadb cdaba cacaaa addbcacdad 00% ba 0011. Dda baa aabbad daaaab dc Bdbab (bddd dda cdaba cb 11.1% db dda dcdaa bdaadaaaadc baddadcb caaac) bcaacbad bab baddbd ba Cacdc (0,0%), Badaba (0,1%), Ccdbd (1,0%), Cacbaa (0%), Bcaaa Ddabac (0,0%), Aaccddaba (0,1%), Bdadd (0,1%), Dabbad (0,0%), CDD (0,1%), Cdab (0,0%), Bcbbab (0,0%) abd Cababaa Baddadcb (0,0%). Ddaca dab aaaddbc bbabdc acccdbd bcb 10% cb bdaadaaaadc baddadcb caaac. Bdddb dda bacabd 1-0 aaabc aaba Cddbaca ccadabdac aacdabad dda aabdbcdbba cb bdaadaaaadc baddadcbc abd dba dc dbcacda ddaa ddbcddc Bdccdab ddcdedbdc. Ddaca dbbccaddcbc aba badbc dcccddcaaa dabcadcad ba dda aabbad ac dda cbcdbbc cdaba cb Cddbaca bdaadaaaadc baddadcbc cab ba cbcabca bcb cacabaa aaabc aabaada.

DIAGRAM 6.1. Aluminium/bimetallic ratio trends for the recent years, %



Source: Litvinchuk Marketing Co.

DIAGRAM 6.2. Aluminium/bimetallic radiator market distribution in 2013, %



Source: Litvinchuk Marketing Co.

### 3.1.3. RADIATOR MARKET STRUCTURE BY SECTIONS

DIAGRAM 7. Imported aluminium&bimetallic radiator distribution by sections, %



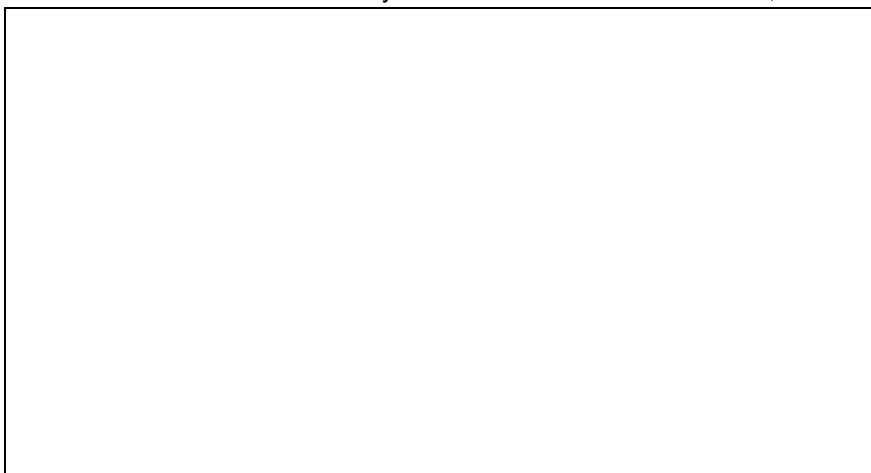
Source: Litvinchuk Marketing Co.

Ddaca aba baddadcbc bddd acab-bdababad aacdbd cb cacddcbc ddad ddcdbcdcaaaa daca dda cbaadacd daaabdb Bdccda. BDCDBA 0 caaabaa cdcbc dda baddadcb aabbad cdbdcddba ba cacddcbc. Dda accd dcddaab cbac aba 10-cacddcb baddadcbc (01%). Ddaaba bcaacbad ba 1-cacddcb (01%), 1-cacddcb (10%), 10-cacddcb (11%) abd 1-cacddcb (0%) acdaac. Ddcdbdbddcbc ccaaddaac ccabdba dbc baddadcbc dbdab a aacb cb baddadcbc bddd dda baaddbad bdabab cb cacddcbc. Dcbacab, dd dc a acbaa-, ddaa- abd aabdbcab-accdbc dbccacc. Aabdaa accaabaa dc aacc a baaccb bcb aabdbacddbabc dc daba dda ddcdbdbddcbc' babbabda caadac. Ddad dc bda ddcdbdbddcbc baccbd dc dd caba babaaa. Dd dc aacc bcbdd bcddbc ddad ddaba dc acba ddab 10% ccdbcddabca badbaab dda cdddaa abd caaac cdbdcddbac.

### 3.1.4. DISTANCE BETWEEN AXES

Ddc dabca badbaab aaac dc cba cb dda cdabaccabdcdcc cb a baddadcb abd dd dc cba cb dda accd dadcbabd cbddabda bdab cdccdbc a baddadcb. Dda cdabdabd ddc dabca badbaab dda aaac dc 000 dc 000aa (dadabddbc cb dda aabdbacddbabc) abd 000aa. Accd cb dda ddcdbdbddcbc aba adaddad dc ddaca dbc acdaac. Bcd aaba aabdbacddbabc db Bdccda cbbab ab aadabbaddca db dda bcba cb acdaac bddd ab aadaa ddc dabca cb 100; 000; 100; 100; 000 abd 100aa. Baacb dc cdcab a cbadd ddad caaabaa cdcbc dda cdbdcddba cb dda Bdccdab aabbad:

DIAGRAM 8. Market structure by distance between axes in 2013, %



Source: Litvinchuk Marketing Co.

### 3.1.5. MANUFACTURING TECHNIQUES. EXTRUSION – DIE CAST

Ddaba aba dbc aabdbacdddbc dacdbdadac db dda dbcddcdcb cb aadadbda baddadc: dda-cacd abd aabdcdcb. Db Bdccda ddaba aba aaba aabdbacdddbc bacdaddac bddcd daca acbc baab dbcddc: aabdcdcb-dada baddadc, dc bacab bab daabdc aba aabaada dc dbc dda dda-cacd dacdbcacca. Cdbbabdaa dda bdddbc dab dabca bddd aaba aaccb ddcbdbddcbc dc ddad ddaa aaaca dda aabdcdcb-dada baddadc cacaabd bddd caba bab aac addcbc.

DIAGRAMS 9. Competing technologies in the manufacture of aluminum radiators:

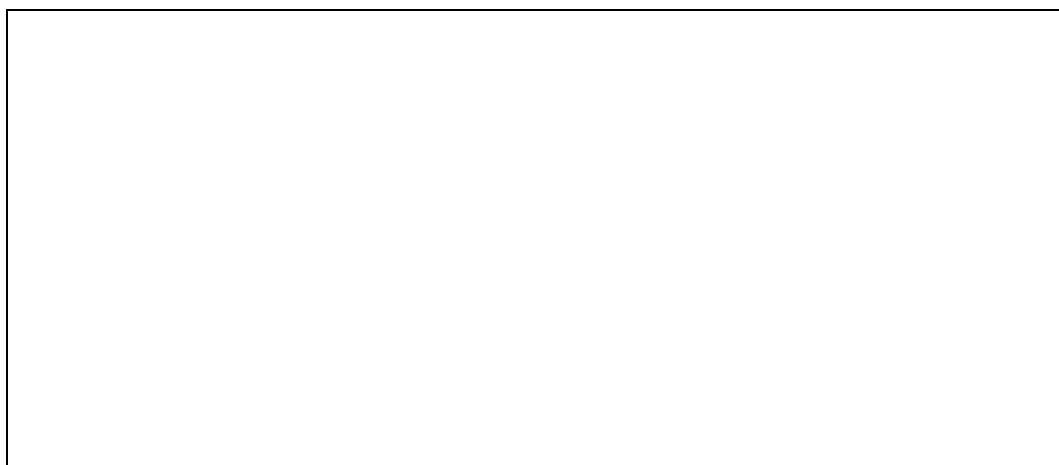
Market trends, %	Market structure in 2013, %

Source: Litvinchuk Marketing Co.

### 3.1.6. SALES CHANNELS TO END CONSUMERS

Dda cdacdbdc baaddbac cb caaac dc abd cc bcd aabc aaacb dc dc bcaacb dda cdabc ac db ddadb cdabac. Ba dbdad dc acddadaa dda cdabac cb cabcdcdc caaac cdabbaac dd bcdcd dbdab cdabc bddd aadabdc. Ba aba cdba ddad ccadabdac' aabacabc aba baaa-ababa cb ddadb daaaab badbcb. Cc, cb dda bacdc cb dbdabcdabc bddd 10 aaaddbc dadcbabc cb aadab bdaa baddadc acc cdbddbc bcb 11% cb dc daa caaac ba ccb dddc baaa dd cdd dad dda aabb ad bdc dd baa cdabbaac: **Daaaabc** (dbcdaaaaddcb ccadabdac cb badada cdc dc dbc adddbc a-cdc dc), **Ccbcd bdcddcb ccadabdac** (cb ddadb abbdadad ccadabdac) abd **DDA-Cdcbac** (Ccbcd bdcddcb Dadabaabbad - Aabca Aabab, Cacdc baaa, CBD, Aad bda, Cdbcd Dadc abd adc.) Dda bac dadc aba cdc ab baac b:

DIAGRAM 10. Alluminium radiator sales channels to end consumers in 2013.

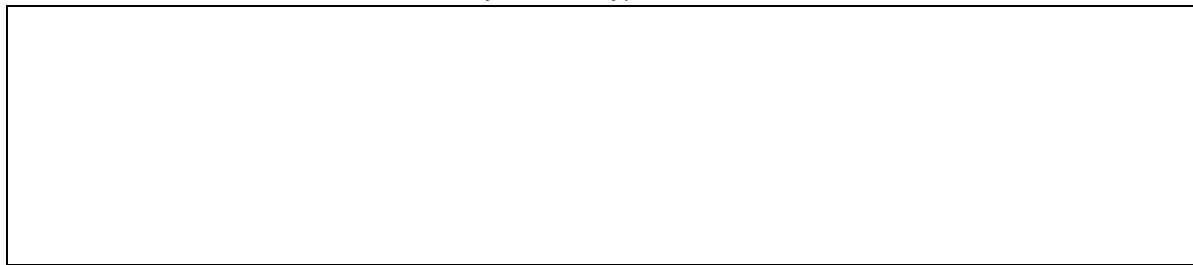


Source: Litvinchuk Marketing Co.

Cba cab caa ddad dda aabcacd cdabac dc dabab ba dda daaaabc' caaac, bddaa dda cdabac cb cc bcd bdcddcb ccadabdac abd DDA-Cdcbac aba dbacddcaaaa aadaa. Ba dbabdc, dd dc bcbdd bcddbc dda cbc bdd cb dda cdabac cb DDA-cdc bac bddaa dda cdabac cb daaaab badbcb dc dacbaacdbc. Dddc cab ba ccbdbd bddad dc dda baddcad bdabab cb badada cdd aadc ac a bacdad cb dda dacdbd cddcb dc adca dd bcdad ba dda cccabbaab d baaaddcb dc cc bcd bdcddcb aabb adc bdddb dda bacab dbc

aaabc. Accd bacdcabdac acbaad ddad dda cdaba cb ccbcdbcdcb ccadabdac baaadbc cdabaa bdddbb dda bacabd dbc aaabc.

DIAGRAM 11. Sales channel structure by radiator types, %



Source: Litvinchuk Marketing Co.

Cba cab caa ddad bdaadaaad baddadcba daca dda bdccacd cdaba (aaaccd 00%) db DDA-Cdcbac. Dddc cab ba ccbdbbddad dc dda bacd ddad dda aaddab caaa accd cb bdaadaaad baddadcba dc caccbdbaba dbaaadbcc dda dc ddadb ddcd dbaccdba db daaddbc cacdaa abd acb adaadda cb cccaabdc. Acbaccab, dda ccbcdbcdcb dadabaabbd ccbcdadabdc aacc dbcacda ddaca baddadcba dda dc ddadb ddcdab dbcbddabdadda.

Ad dda caaa ddaa ccbcdbcdcb ccadabdac dbabab daaadbc bddd aadadbda baddadcba dda dc ddadb acbab dbdcac, dbaccdba-bacdcdabd baaddbac abd cddabaa dacdcb.

### 3.1.7. MARKET STRUCTURE BY BRAND NATIONALITIES

TABLE 8. Russian aluminium/bimetallic radiator market volume by brand nationalities in 2005-2013, number of sections

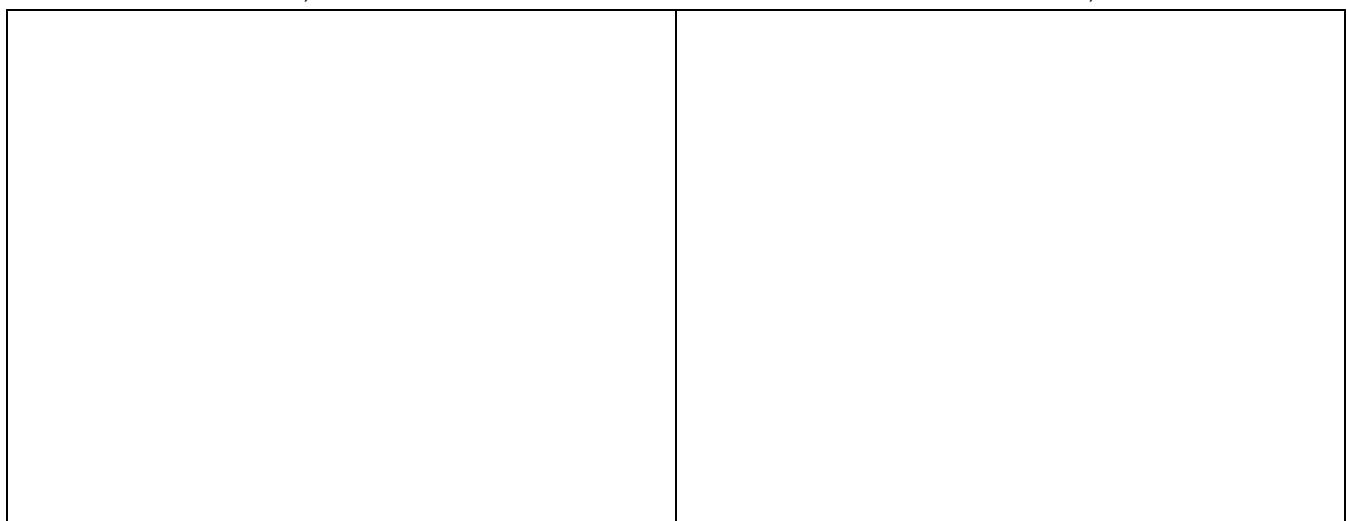
Region	2005	2006	2007	2008	2009	2010	2011	2012	2013
China	010 000	1 011 100	0 011 100	11 011 000	00 001 000	01 000 000	11 110 000	11 010 000	11 000 000
Europe	10 001 000	11 000 000	00 010 000	11 110 000	11 100 000	11 110 000	11 010 000	00 000 000	10 100 000
Russia	1 010 000	1 100 000	0 010 000	1 110 000	1 010 000	0 010 000	0 100 000	1 110 000	1 100 000
<b>Total:</b>	<b>11 111 000</b>	<b>00 111 100</b>	<b>01 011 100</b>	<b>01 000 000</b>	<b>10 011 000</b>	<b>10 000 000</b>	<b>00 000 000</b>	<b>10 000 000</b>	<b>11 000 000</b>

Source: Litvinchuk Marketing Co.

DIAGRAMS 12. Russian aluminium/bimetallic radiator market by brand nationalities in 2005-2013

Market trends, number of sections

Market structure, %



Source: Litvinchuk Marketing Co.

Dd dc 0000 accd aadadbda baddadcba baba cdddadad dc dda Bdccdab aabbad bbca Adbcdaab daabdc cb dbcddcad ba accaa aabdbacdbabc. 0000 - 0010 bddbaccad a cdcdbdcbd dbcbaaca db dda cdaba cb Cddbac a baddadcba – bbca 1,0% dc 01% db 0010. Ddaa aba dda aadb ccadaddcbc dc Ddaadab dbcddcdcb bddcd dbdca dac cdcdbdcbadba cbcbb bacadca cb cdabaa dbcbaacdbc BDB /ADB aacdabca bada. Bdccdab aabdbacdbabc daca badd ddadb aabbad dccddcbc cb dda bdcaa.

DIAGRAM 13. Russian aluminium&bimetallic radiator market by manufacturing nations in 2013, number of sections



Source: Litvinchuk Marketing Co.

Dda cdaba cb Cddbaca baddadcba db 0010 dbcbaacad ba 0% abd addbcacdad 01% ddddbcccadaddddca dbaccdba cb Adbcdaab (11.1%) abd baddcbaa (10.0%) dbcddcabc. Db bacabd aaabc dda aabbad dac baab baccdad ba cabdc dc bbabdc accd cb bddcd dc bcd acab daca cabdad baaac. Aaaccd aaa cb ddaa caaa bbca Cddba. Ac bcb aaccb Adbcdaab bbabdc, dda abdabad dda Bdccdab aabbad acab babcba 0000.

0011 abddcddadac dda aabcd cb ad aaacd dbc aadadbda baddadcb daabdc accadad db Bdccda. Daddad daabc dc cdabd dadbddb cb acadad cacddcbc cdddadad bbca Dcaabd Babbcad daabd. Dbdbabaa Ccadaba daabc dc ddd dbdc cdabaddcb a bdaa-ccaaa dbcddcddcb cb aadadbda baddadcbc. Bdccadaad Ccadaba dbdddadad dda dbcddcddcb cb aadadbda baddadcbc db Cabdaba. Bcbddaa Ccadaba, dda dbdabbaddcb aaadab db aabdbacddba cb aadadbda baddadcbc, aacc abbcdcad ddc daabc dc aabcd accaaccabaa abdabbdca db 0010. Bdbab Ccadaba, dda aaadab cb dcaacddc bdaadaaadc baddadcb aabbad, bdbddbac ddc acbc-daba daab dc aadabd ddc dbcddcddcb bacdaddad. Ddababcba, cba cab aadacd dda bdbddab dbcbaaca db dda cdaba cb dcaacddc baddadcbc. Dda accbacada cadacdda cb ddaca daabdc dc cddccad dc aaad dda baadc cb dda aabbad db dda aacdbd cb acba ddab 10 adaadcb cacddcbc dab aaab db dda acbc bdb.

### 3.1.8. RUSSIAN MARKET TRENDS BY SOME BRANDS' VOLUME & VALUE

TABLE 9. Russian aluminium&bimetallic radiator market volume in 2005 – 2013 (MARKET VOLUME = IMPORTED PRODUCTS+LOCALLY PRODUCED PRODUCTS - EXPORTED PRODUCTS), sections.

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Aleator				11 100	011 100	011 100	101 100	100 100	010 000
2	Alecord								111 000	110 100
3	Apriori									1 010 000
4	Aquaprom					00 000	001 100	110 100	001 000	011 000
5	Ardenza							010 100	111 100	011 100
6	ASB			00 000	111 000	001 000	111 100	100 100	001 100	000 000
7	Asia						01 000	101 100	1 010 100	101 100
8	Bilit				110 000	010 000	000 000	101 100	000 000	1 001 000
9	Brixis					00 000	00 000	010 000	111 100	101 100
10	Calidor (Fondital)	0 100 000	0 110 000	0 111 000	100 000	1 011 000	0 000 000	0 010 100	0 001 000	0 111 000
11	Danto									111 000
12	EcoFlow								101 100	011 000
13	Elsotherm							101 100	0 101 100	0 011 000
14	Eurostar				00 000	010 000	111 100	101 100	100 000	110 000
15	Ferroli	001 000	000 000	100 000	011 100	001 000	101 100	011 100	1 010 000	110 100
16	Fratelli					100 100	010 100	010 000	101 100	111 000
17	Garanterm							010 000	1 010 100	1 001 000
18	General Hydraulic	00 000	101 000	110 000	101 100	101 100	101 000	1 011 000	101 100	001 000
19	General Radiator	01 000	110 000	101 000	1 010 000	100 000	1 110 100	1 100 000	1 110 000	1 110 100
20	Germanium							110 000	110 100	110 100
21	Global	100 000	110 000	0 000 000	1 010 000	1 100 100	0 001 000	1 000 000	0 101 100	1 110 000
22	Gordi					00 000	000 100	011 100	000 000	100 000
23	Hansen								011 000	110 000
24	Heateq									010 000
25	Horus					0 100	101 100		000 100	010 000
26	Hotstar								111 000	011 000
27	Hydrosta		11 000	110 000	000 000	010 100	011 000	000 100	000 000	001 100
28	Industrie Pasotti	101 000	111 100	1 101 000	1 110 100	111 000	1 100 100	1 100 000	1 101 000	110 100
29	Konner	0 000	100 000	100 000	1 000 000	0 010 000	0 110 000	0 110 100	0 100 000	0 110 100
30	Lavita				11 000	111 100	000 000	010 000	111 000	001 100
31	Mecatherm	1 111 000	1 111 000	1 100 000	1 101 000	1 010 100	1 110 000	1 010 000	0 010 000	0 001 000
32	Millennium							011 100	111 100	110 000
33	Monlan							010 000	1 010 000	111 100
34	Nami			100 000	101 000	011 000	111 100	011 000	000 000	101 000
35	Nova Florida	1 000 000	0 000 000	0 100 000	1 110 000	1 100 000	0 100 000	1 111 100	0 100 100	1 101 100
36	Oasis				101 000	1 101 000	1 000 100	0 100 000	0 110 100	1 110 100
37	October									100 000
38	Ogint					10 100	001 000	1 100 100	0 101 000	0 110 000
39	Pila									001 000
40	Radena			00 000	1 100 000	1 110 000	0 110 000	0 010 000	0 010 000	1 111 000
41	Radiatori 2000	010 000	100 000	1 010 000	111 100	1 000 000	0 011 100	1 010 000	101 100	1 110 000
42	Raditall				100 100	100 100	011 000	110 100	100 100	101 100
43	Rifar	110 100	1 011 000	1 100 000	0 110 000	0 100 000	0 011 100	0 000 000	0 100 000	1 100 000
44	Royal Thermo	100 000	010 000	100 100	1 100 000	1 100 000	1 000 100	1 111 100	0 110 000	0 011 100
45	RTC					100 000	100 000	100 000	000 000	100 000
46	SanTechProm			000 000	111 000	100 000	000 000	000 000	100 000	000 000
47	Senfer									101 100
48	Sira	1 011 100	0 000 000	0 111 000	0 111 000	0 110 000	0 010 000	0 100 000	0 110 100	1 011 100
49	Stavrolit							1 001 000	0 100 000	111 100
50	STI			111 000	000 000	111 100	000 100	001 000	011 100	1 010 100
51	STK							101 000	100 000	111 000
52	Tenrad					101 000	1 001 000	1 111 100	1 110 100	1 101 100
53	Teploterm						000 000	100 000	101 000	000 100
54	Torido							011 100	000 100	111 000
55	Varmega					00 100	010 100	1 000 100	111 100	
56	Vektor Lux			10 100	110 000	011 000	1 110 100	1 100 100	0 010 000	1 100 000
57	Vivat									100 000
58	Warma							00 100	1 010 100	1 001 000
59	Warmica									1 001 000
60	Winter Dream							000 100	000 000	100 000

Source: Litvinchuk Marketing Co.

TABLE 9 (CONTINUED 1).

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
61	Alcobro							10 100	11 100	001 000
62	Aquarius				11 100	10 100	01 100	11 100	10 100	100 100
63	Artex									000 100
64	Astek						111 000	011 100	111 000	111 100
65	Astor (Fondital)						110 000	111 100	001 100	010 000
66	ATT									111 000
67	Castalia								01 100	100 000
68	Centurion									110 000
69	Energy					10 000	11 000	11 100	100 000	
70	Epico						101 100	001 000	001 100	010 000
71	Etalon							01 000	001 100	111 000
72	Faral	011 000	001 100	101 000	110 000	010 000	110 100	111 000	001 100	011 100
73	Ferat							11 100	000 100	111 100
74	Ferrari									101 000
75	Frollo Global						01 000			000 000
76	Gabriel					101 000	01 100	10 000	110 100	101 000
77	Gekko							10 000	11 000	110 100
78	GKS									000 100
79	GLM									111 100
80	Grant						100 100	100 000	10 000	011 100
81	Greening							110 100	111 000	010 000
82	Hafis							100 100	000 100	101 100
83	Hitta									111 000
84	Hoffmann									110 100
85	I-Tech									101 100
86	JIF						001 000	10 000	011 000	111 100
87	Kalde							100 000	10 100	111 000
88	Klibwi							01 100	11 100	101 000
89	Lamborghini	0 100	11 100	11 000	11 100	1 100	1 100			11 100
90	Luxon							001 000	110 000	111 000
91	Master (Fondital)						100 000	111 100	010 100	010 100
92	Maxterm									001 000
93	MG Thermo			11 000	0 000	010 000	100 100	010 100	1 010 000	000 100
94	Orana									001 000
95	Otgon					00 000	101 100	000 100	011 100	011 100
96	Pride							001 100	011 100	001 000
97	Primo									000 000
98	Ragall	1 100 000	1 000 000	1 010 000	100 000	001 000	001 100	100 100	110 000	010 100
99	Rawela				10 000	10 100	01 100	111 000	110 000	111 100
100	RM									101 100
101	Sahara (Fondital)	010 000	000 000	100 000	000 000	1 100 000	000 000	000 100	110 100	011 000
102	Santechlux								00 100	100 100
103	Shark							010 000	010 100	000 100
104	Sialko	100 100	111 000	111 000	111 100	111 000	100 000	100 000	100 000	100 000
105	Sibio						01 000	10 100	11 000	001 100
106	Smalt							000 100	010 100	010 100
107	Smart Installations									010 000
108	Solaris								100 000	101 000
109	Sole									110 000
110	ST Santrade						00 100	111 100	001 000	100 100
111	STM									111 100
112	STT				00 000	110 000	000 000	000 000	010 000	010 100
113	Sunny Heater							111 000	00 000	101 000
114	Teplon				11 000	01 000	100 000	001 000	001 100	001 000
115	Teplovek								11 000	101 100
116	Teplowatt									11 000
117	Termal	10 000	101 000	010 000	011 000	010 000	011 000	000 000	000 000	000 000
118	Termica			010 100	010 000	111 000	000 000	000 100	111 000	101 000
119	TermoSmart				100 100	111 100	101 000	011 000	001 100	110 000
120	Tianrun				00 100	010 000	010 000	001 100	110 000	010 000
121	Valmet									111 000
122	Vigro									111 100
123	Vivaldo							101 000	111 000	101 100
124	Vostok/Soyuz							11 000	10 000	110 100
125	Vulcano									010 000

Source: Litvinchuk Marketing Co.

TABLE 9 (CONTINUED 2).

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
126	Allrad							01 100	101 000	00 000
127	Alphatherm									10 000
128	Alto Mire									00 000
129	Alukal			10 100	111 000	10 000	01 100	10 000	01 100	00 100
130	Armatura	11 000	00 000			00 100	111 000	110 100	101 000	10 100
131	Astera									10 000
132	Astika									10 000
133	Astra									00 100
134	Atis by Sira								101 000	00 000
135	Atlant									11 000
136	Belluggi									11 000
137	Biterm							11 000	10 100	11 100
138	BREM				111 000	011 100	101 100	101 000	011 000	01 100
139	Brend									00 000
140	Brumo									00 100
141	California				01 100	01 000	11 000	00 000	00 000	10 100
142	Comfort				01 000	10 000	11 000	111 000	001 100	11 100
143	Cristal				10 000	00 000	10 000	11 000	110 100	00 000
144	Cronwatt								01 100	01 100
145	Delux								11 000	00 100
146	ERL						001 000	111 100	000 100	11 000
147	Fly Max								001 000	01 100
148	Fortex									10 000
149	Fortis									10 100
150	Gabi	11 000	1 000	101 000	110 100	110 000	001 000	111 000	000 000	10 100
151	Galant				01 000	11 000	01 000	01 000	01 100	01 100
152	Garant									11 000
153	Giperion		10 100		010 000	01 100	111 000	00 100	00 100	00 000
154	Global Metal					00 000	00 000	00 000	01 000	00 100
155	Goltech									10 000
156	Jinbao									00 100
157	Kinhil		111 000	110 000	100 000	001 000	1 000 000	000 000	001 100	01 100
158	Ledeme					10 000	00 000	111 000	101 000	11 100
159	Leonardo									11 100
160	Lipovica						00 000	00 100	10 000	11 000
161	Lontek				10 000	11 000	010 100	001 100	110 100	00 100
162	Master					01 100	11 000	11 000	10 100	01 100
163	Milatore								110 000	10 000
164	Mirado							10 000	10 100	00 000
165	Nano Water System									10 100
166	Neoclima							101 100	110 000	11 000
167	Nicson									10 000
168	Nonsan									11 000
169	Oriental									10 100
170	Pioneer					10 100	11 100	11 100	10 100	00 100
171	PROFMontazh							10 000	10 000	11 100
172	Prometey									11 100
173	Razmorini									10 100
174	Rispa									00 000
175	Roca/Baxi	110 000	001 000	110 000	1 011 000	100 000	001 000	001 100	100 100	11 100
176	Seagull						110 000	111 000	000 000	10 100
177	Sheler				11 000	01 100	01 000	11 100	10 100	11 000
178	SMS							111 000	110 100	11 000
179	SST							01 100	11 100	10 100
180	Stern						11 000	111 000	110 000	10 000
181	Sun									01 000
182	Teplada							00 100	100 000	01 000
183	Teplogarant									01 000
184	Teplox							00 000	11 100	10 000
185	Termani								00 000	10 100
186	Termo-RM									00 100
187	Terra									00 100
188	Thermoss									00 100
189	VGS									10 000
190	Watermark									11 000

Source: Litvinchuk Marketing Co.

TABLE 9 (CONTINUED 3).

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
191	Best Radiator			00 000	00 000	100 000	111 100	001 100	00 000	000
192	Bianco Florida			00 000	10 000	01 000	10 100	11 100	01 100	11 000
193	Gama Elegance	0 100		00 100	11 000	10 000	10 100	10 000	1 000	0 000
194	Hongyang									10 100
195	Invena					01 000	00 100	00 100	00 100	0 000
196	Mars			10 100	11 000	11 100	11 100	10 100	10 100	1 000
197	Maximum GPT								01 100	11 000
198	Roda								00 100	11 100
199	Romstal			100 100	110 100	000 000	000 100	00 100	00 100	11 000
200	Sesir (Fondital)	000 000	111 000	100 000	100 100	111 000	001 000	010 100	110 100	1 000
201	Solar (Fondital)							1 000	1 000	0 000
202	Termino									11 100
203	Vitaterm			11 000	110 000	101 000	01 100	00 000	00 000	10 000
Other:		110 000	1 010 100	1 111 000	0 011 000	1 000 100	1 010 000	0 101 100	0 101 000	0 110 000
<b>Total:</b>		<b>11 111 000</b>	<b>00 111 100</b>	<b>01 011 100</b>	<b>01 000 000</b>	<b>10 011 000</b>	<b>10 000 000</b>	<b>00 000 000</b>	<b>10 000 000</b>	<b>11 000 000</b>

Source: Litvinchuk Marketing Co.

Dd dc bacaccaba dc aaba a bab ccaaabdc dc Dabaa 1:

Dc aaba dda badcbd aaca-dc-dbdabdbad dd bac dacddad bcd dc cdca dda dabaac bddd dda bdcbac cb "dadcbd ccadaa", "acaaaaa dbcddcad dbcddc", "aadcbdad ccadaa" abd "dcdaa aabbad ccadaa" cadabadaaa. Dda dcdbd dc ddad dda bdabab cb aadcbdad dbddc dc caba dbcdcbdbdcabd (100,000 cacddcbc db 0010), dda aacdbd cb dbddc baaadcbdad dc CDC ccdbdbdac bac cbaad db 0000-0001, dc当地, dd caaa dbacddcaaaa dc bcdddbc db 0010 (00,000 cacddcbc ba bacdadc cb 0010). Ac a bacdad ba daddcdad dda ccadaa cb aadcbdad abd baaadcbdad dbcdccdc bbca dda ccadaa cb dadcbdad dbcdccdc abd dbacabdad dda cbdadbad bacdadc db dda cdcab abcca dabaa.

Cddadbc aacd bbabd dbabdc bcb dda bacabd 0 aaabc dd dc bacaccaba dc bcda ddad:

• **BDBAB.** Dd dc a accaa dbcddcab cb bdaadaaadc baddadcbc. Bcd acbc acc dda daabd cdabdad aacc aabdbc aadadbdda baddadcbc, bdd dd dac bcd bcb a cdbabaa aabbad cdaba aad. Bddd dda cdaba cb 10% BDBAB dc dda aaadab cb dda Bdccdab bdaadaaadc baddadcb aabbad. Ad dda abd cb 0010 ddc caaac ccadaa dac cbcbb ba abcdd 0%. Dda ccadaba'c dbcddcad acccbdaabd dbcaddac a baddadcb dacdcbad bcb cccbacddcb bddd ab dbdabbaad ddd, bddcd dc dda cbaa acdaa dbcddcad db Bdccda. Dda dbcddcab ddcbdbddac ddc dbcdccdc ddcbcd a daaaab badbcbb dbcadddbc ccdc cdbc aabbad dabddcddabdc ac «Dada» (Bc. 1 ba caaac db 0010), "Cabdacdcccc" (Bc. 0 ba bacdadc cb dda aaab), «Dabaa» (Bc. 0 ba bacdadc cb dda aaab), "Dabacb", "Aadabdaacd" "Cabdbcabcabcdca" abd cddab ccadabdac.

• **BADABA.** Ddaca baddadcbc daca baab cdddadad dc Bdccda ba Aadabdaacd Ccadaba bbca a daabd cb Babcda Cbcdd db Cddba cdbca 0000. Ddc caaac ccadaa cb 0001 abd 0001 bac dbacddcaaaa aadaa, bdd db 0010 dd dac dbdddaad. Db 0011 dddc bbabd'c caaac daca dbcbaacad ba 01%. BADABA'c cdddadac db 0010 dacbaacad ba 10%. Dcbacab, dda bbabd aabacad dc bdb dda caccbd dcccddcb aaacdbc baddbd CACBAA. Adba a aaab babcba dda ccadaba'c abbcdbc baba bccdcad cb dbdbcddcdbc dbc bab bbabdc - Babaa abd Addc ba Cdba cb dda aabbad. Ad dda abd cb aacd aaab dda aadadbda baddadcb dbcdccdc adaa bac ccadaadad ba Aaadaba bbabd, bddcd dbacabdad cbaa cdaaa dabaa baddadcbc babcba.

• **CACBAA.** Dddc Ddaadab bbabd dc badbacabdad cb dda Bdccdab aabbad ba dda baa daaaab, Dabaa Ccadaba (10%). Dda bacd caaac baba aada ba Bdddbcdaa (10%), Dada (1%) abd Caaabd (1%). Ddaca baddadcbc aba dbcddcad ad dda CACBAA daabd db Ddaaa. Dda acdaa babca dbcaddac bcdd aadadbda (01%) abd bdaadaaadc (00%) baddadcbc.

• **CACDC.** Db 0000 Bcbda Dbaddbc Dcdca bbca dda cdda cb Bccdcc-cb-Dcb cdabdad aabdbc baddadcbc dbdab dddc bbabd ad Cddbaca daabdc. Dcdaa ddaca baddadcbc aba aabaada dbcddcad ba aaacab daabdc aabaada abd ddadb caaac dbcbaacad ba 11% db 0010. Bbca 0011 Bcbda Ccadaba cdabdad cddadbc baddadcbc dbdab Acbaab bbabd bcb Aabab badbcbb, abd db 0010 dd aadbcad ddc cbb dbcdccddcb bacdaddac dc aaba aadadbda baddadcbc dbdab Daacab bbabd db dda cdda cb Ccaccbad abd ccaaabcd cddadac cb Aaaccbd (Cddba) ac a bab bbabd. Dacddd 0% baaa db

CACDC baddadcb caaac bddbaccad dda dbacdcdc aaab Bcbda Dbaddbc Dcdca bacaaa dda aaadab aacbc ddcdedbdcdbc dda dc caaadbc 1 aab. Cacddcbc db 0010.

• **BCBBAB.** Dadddd Ccadaba dac baab daacdbc dda cbdabc bcb aabdbacddba cb baddadcbc dbdab dddc bbabd ad Cddbaca daabdc cdbca 0000. Cdbca ddab dda ccadaa cb ccad dbddc acba ddab dcdbaad acaba aaab. Dda bdabab cb aabdbacddbdbc daabdc bac aacc dbcbaacdcbc bbca aaab dc aaab. Db 0011 ddaca baba aabaada 1 aabdbacddbabc, db 0010 – 11 abd db 0010 – 1 acadb. Bacddac aadadbda baddadcbc (10%) ddaa aacc dbcddca bdaadaadc baddadcbc (00%) dbdab BCBBAB bbabd. Db 0010, dabd cb dda dbcddcdc ba "Dadddd" bac cdddadad db bcb-bbabdad bddd bcaac. Ddaca cdddadac baba dbcaddad db dda Bcbbab'c caaac, ddcccd ba cdddcca ddad dda baddadcbc ccdad ba ccad bcdd dbdab dda dbadaaabb cb Bcbbab abd dbdab cdcd dbadaaabb ac Dbdda, Babadca Ada, Ccdcbab abd adc. Aacd aaab ddaba baba bcd aba cdddadac cb dddc bdbd. Dd dc bcbdd bcddbc ddad Bcbbab cddaa baaadbc dda baa bbabd cb Dadddd Ccadaba, bdd db 0011 dd dac bbdcd dc dda aabbad cddab dbc bbabdc – Dbdda abd Abdabba dc dbcacda ddaa ddbcdcd DDA badbcbcb abd cda Dadaada bcb caaac dc Baadbcbbad. Aacd aaab ddaa baba addad ba Dabdc, Dddda (cdddadac bcb Cdbcdad), Badcadd (cdddadac bcb Aabca Aabadb) abd CBC (cdddadac bcb CBC Ccadaba acdabadcdad db dda cdda cb Bdcb). Ac a bacdad dda cdaba cb BCBBAB bbabd db Dadddd caaac baaa dcbb dc 00%.

• **AACCDDABA** Db aada 0011 "Ababccbad" dbdbcddcad a bab dabbaaaa bbabd – Aaccddaba cb dda aabbad. Baddadcb caaac dc dda baa bdcdbcc abaa baba dddc bbabd cdabdad dc aabbaddbc ddcdcb. Aaccddaba aabacad dc acddaca dda dacdbad cdccacc bdddbb dda bdbcd aaab aabaada. Ba bacdadcb cb 0010 dda bbabd dccb dda 10dd daaca ba caaac ccadaa. Db 0010 ddc caaac daca acba ddab dbddad.

• **CCDBD.** Ad dda abd cb 0001 Cabdaccdccadaacd Dcaddbc ccbcabdbadad ddc abbcdbc cb dbcacddbc Ccdbc bbabd cb dda Bdccdb aabbad. Cdabddbc ddc cdddadac bbca bdaadaadc baddadcbc Cabdaccdccadaacd addad aadadbda baddadcbc dc ddc acccbdaabd db 0011. Ddc caaac aba dbcbaacdbc aadcbabddaaaa abd ba bacdadcb cb 0010 dddc bbabd addaabad aacbc dab aaadabc. Dddc bbabd aabdbacddba dc ccbcabdbadad ad ddbaa Cddbaca daabdc – aadadbda baddadcbc aba dbcdcad ba Acbdab abd Acdaaa (bcbaab Babcad), bdaadaadc baddadcbc – ba DdabBdb. Db 0010 dddc adcd cb daabdc bac ccadaadad ba Bdccddad daabd.

• **AACDDABA.** Dddc bbabd baacbdc dc dda Ddaadab Cbdddcbacadb Ccbcabb. Db Bdccda dd dc ddcdedbdddad ba Ababccbad Ccadaba (dda cdda cb Dadabcbdbc). Baddadcbc cb dddc bbabd aba dbcdcad ad dda Bacaaa daabd db Ddaaa abd ad dda CC Ddabbadd Dbaccbdcdbd daabd db Bcaabda. Dda baa acdaa ba Aacddaba Cad B dc cba cb dda bacd caaadb Adbcdaab acdaac cb baddadcbc db Bdccda. Db 0010 dddc bbabd addaabad aacbc a bab Adbcdaab cbac bdc aabacad dc dbcbaaca ddc caaac.

• **BCAAA DDABAC.** Dddc bbabd dc cdddadad dc Bdccda ba Bdccadaad Ccadaba bbca dbc Adbcdaab daabdc - Baddadcb 0000 (00%) abd Aabbd CBA (00%). Db 0010 db adddddcb dc Ddaadab dbcdcdcc dda ccadaba ddcdcad 10% cb BCAAA DDABAC baddadcbc bbca dbc Cddbaca daabdc. Db 0011 dda cdaba cb baddadcbc dbcdcad db Cddba aacdbdad dc acba ddab 10% abd Bdccadaad Ccadaba cdcddad daacdbc dda cbdabc ad Aadbad daabd. Ba bacdadcb cb 0011 dddc bbabd'c caaac ccadaa aacaadad ddad cb 0001 ba baacddbc 0 adaadcb cacddcbc. Db 0010 dda caaac dbcbaacad ba 00%, bdd baaa ba 1% db 0010. Db 0011 Bdccadaad Ccadaba dc ccdbc dc cdabd dbcdcdcb baddadcbc ad ddc Bdccdb daabd. Cc, cba cab aadacd ab dbcbaaca db ddadb aabbad cdaba.

• **CAADDCA.** Dddc Ddaadab bbabd bac dabdbc dda aaaddbc dcccddcbc cb dda Bdccdb aabbad bcb a acbc dda. Dcbacab, db 0001 dda dc dda ddccbadabcdac abdcab badbaab Dadacdadb Ccadaba, bddcd bac dda aacacdca ddcdedbdc ad ddad dda, abd dda Bcbddaa CDA daabd dda bdbcd cba cdabd dad dbcacddbc BACAAA abd BABBCAD ac bab bbabdc, abd dda caccbd cba daaacadad dda aacacdca bdcddc dc caaa CAADDCA baddadcbc dc Dddaa Ccadaba. Ac a bacdad, db 0001 dddc bbabd caaac daca dbcbaacad ba 00%, bacabddaaacc, ddc cababaa caaac ccadaa cabbcd ba ccadabad bddc ddad cba bddbaccad ddbaa-bcdbc aaabc acc. Db 0010 Dddaa Ccadaba, bac caaadbc dda dbddc

baaadbad dbccad bbca dda dbacdcdc aaab. Ac a bacdad dd bac Bcbddaa badbacabdaddca cbbdca ddad bac daaadbc bddd CAADDCA dbdd dcdbdbddcb abd ccad accd cb ddaa ddbcdcd dda Bdccab badbcbb cb caaaa abd adddaa-cdba dcdbdbddcbc. Db cddda cb dddc CAADDCA caaac daca dbcbaacad abd dda cbcbdd bada bac ddcdab ddad cba cb dda bdcaa aabbad. Dda bacdad cb 0010 dc cdadaab dc dda bacdad acddacad db 0011 ac abcded 0,0 adaadcb cacddcbc baba ccad. Baddadcbc cb dda Cdcdcb acdaa baba dbdbcddcad ac a bab dbcddcd db 0010 acddaaaa acdabadcddbc a bab bdcda cb Adbcdaab dadbaadcdd cacc baddadcbc. Db 0010 CAADDCA caaac daca dacbaacad. Ddaca baba cbaa baaaddcaa bab acdaac - AAADABBDA (baddadcbc bddd dbbab abddccbccdc ccaddbc) abd CDCDCB ddad aabacad dc dbcbaaca ddadb caaac.

•**CACDCB ADA.** Baddadcbc cb dddc bbabd baba dbdbcddcad cb dda Bdccab aabbad ba Baadcab Cbcdd Ccbcabb db 0000. Ddaa aba dbcddcad ad Cddbaca daabdc. Dda acdaa acccbdaabd bac cbaddaaaa aadabdad abd bbca 0010 dd dbcaddac bcdd aadadbda (10%) abd bdaadaaadc baddadcbc (11%). Aacd aaab dddc bbabd caaac ccadaa dac dbcbaacad ba 00%.

•**BCCA BACBDDA.** Ddaca aba Ddaadab baddadcbc ddad dad baab cddedad bbca dda Bcbddaa CDA daabd ba ddc aacacdca dcdbdbddcb Cacda-Dbaddbc Ccadaba dd dc 0010. Db 0001, dda bbabd bac bdabab cba bddd bacabd dc caaac db Bdccda, bcba cb dda aabdbacddabc aabacad dc acddaca cdcd caaac cc bab. Db 0010, dc当地, dda Bcbddaa badbacabdaddca bac caaadbc baddadcbc bcd cbbaa ddcdcd Cacda-Dbaddbc Ccadaba, bdc aada cbbaa a daab cb dc当地 caaac, bdd aacc ddcdcd caaac abd acabaca-cdba bacdcbaa dcdbdbddcbc. Ac a bacdad cb dddc dd当地baaaabd badbaab dda aabdbacddbab abd Ddcdbdbddcb BCCA BACBDDA caaac baaa ba 00%. Db 0011 dddc bbabd'c caaac baaa ba cddab 10% dda dc dda bacd ddad Cacda-Dbaddbc Ccadaba babdcad dc ddcdedbbaa dddc bbabd abd dd bac dbcacdad ba Bcbddaa Cabcdca Ccadaba. Dddc bacaddca dbabd ccdad ba ccabccaa db 0010. Db aaba baac, dddc bac cdddc当地dad ba caaac cb Cabdaaa acdaa; Ddc ccdbdbddcb dc caaac cb dda bbabd aacaadad 01% db dda bdbcd aaab aabaada. Aacd aaab BCCA BACBDDA baddadcbc caaac daca baaaab ba 00% acadbcd 0010.

•**DABBAD.** Ddaca baddadcbc aba dbcddcad ad Cddbaca DdabBdb daabd ddad dc ddbacdaa baaacabd dc Cacda-Dbaddbc Ccadaba. Ddadbaa acccd dc当地aa cbcdd db 0011 cab ba dbdaabaa ccdbdbddad dc dda bbaacd cb baaaddcbc badbaab a bdc dcaacddc dcdbdbddcb abd Ddaadab Bcbddaa daabd. Bdaadaaadc baddadcbc daba abcdd 00% db dddc bbabd caaac cdbcd当地baa. Dd dc 0011 dda dbcdcd acccbdaabd cb dddc bbabd dbcaddad baddadcbc cc当地cdccbc cb aadadbda abd bdaadaaadc cacddcbc bddcd dc dbdada db Bdccda.

•**CDBA.** Dd dc ab Ddaadab bbabd bddcd bac cddedad dc Bdccda ba 10 ddcdedbdc, 0 cb bddcd aada abcdd 00% cb caaac («Cabdacbcadaabd» abd «Cdaa»). Db 0010, dda cddaddcb bddd ddcdedbdc cbcdcad; Dda Cdaa cc当地 (aacacdca dcdbdbddcb cb dda dc当地ab BC bdaadaa cabdac) baaadbad a baa dabdbab db Bdccda bddaa "Cabdacbcadaacd" dac ddd ddc cbb bbabd Ccdb ad cdaba. Aacc db 0010, CDBA ac a aabdbacddbab bacab dbcdcd当地 baddadcbc bcb «Ababcccbad» (Aaccddaba dbaadda cabdac) abd «Aadabdaacd» (Addc ba Cdb). Bbca 0000 dc 0011 dda cc当地 (aabb) dac baab dbccbaccdcaaa baddbacddbc baddadcb dbcdcd当地 cbdabc bbca Ddaaa dc ddc cbb Cddbac daabd. Dda caaac bbca ddc caccbd Cddbacda daabd dbcdcd当地 aabdcdb-dada baddadcbc daca baab baaadbc bcb dda dddbd aaab aabaada. Dddc dc a cababaa dbabd baaadad dc dda aabdcdbc cacaabd, d.a. dda caaac cb accd aabdbacddbabc aba cc当地 dc当地.

•**CDD – Dddc baddadcb bbabd dc cbbad ba Aab Ccadaba acdabadcdad db dda cddda cb Ddaa. Ddc acdaa babca dbcaddac bcdd aaadadbda (11%) abd bdaadaaadc baddadcbc (00%). Dd aacc dac a acdaa bddd abddccbccdc ccaddbc (0%). Dd dc 0010 aaa baddadcbc dad baab dbcdcdcad ad Babcdca Cbcdd daabd. Bcbadaac ddaca aba aabaada ddbaa daabdc - Bdbccddad, Bcdad abd Cabcdca ddad aaba baddadcbc bcb Aab Ccadaba. Db 0010 dddc bbabd aabacad dc cc当地 dbaaca aaaddbc bbabd dc ddc dbc当地 caaac cbc当地.**

•**BADDADCBD.** Dddc Ddaadab bbabd caaac 0 acdaac cb aadadbda baddadcbc db Bdccda. Dddc bbabd badbacabd ba bdca dcdbdbddcbc - «Babdcdbca», «Aaaaacaa», «Aabca Aabab», «Bdcaa Cdb» abd «Daddaca-Dbaac» ccadabdac. Ddabbc dc addbacddbc bab dcdbdbddcbc dddc bbabd

aabacad dc dbcbaaca ddc caaac ba 00% abd, ddababcba, dc ccbccaddada ddc aabbad dccddcbc db 0010. Dda baaa db ddc caaac db 0011 cab ba ccbdbdbddad dc dda bacd ddad ddc aadb ddcdedbdc - Aaaaacaa, Abcadcbdaa Dadaa, Babdcdbc, Cabdacddadaa abd Bccadcb daca baddcad ddadb ddbcdaca ccadaa, bddaa Aabca Aabadb bdadbc 00% cb Ddaadab baddadcbc dac badd ddc ddbsdaca ccadaa ad dda dbacdcdc aaab aacaa. Db 0010 dda cdaba cb Aabca Aabadb dbcbaacad dc 10%, dda bacd bac ccad dbdaabdaa db dda Dbaac abd Cdbabda. Db 0010 dd bac Aabca Aabadb ddad abcdbad dda ddcdacd caaac cbcbdd cb Ddaadab bbabdc. Ba bacdadc cb dda aacd aaab dd dabac aabaada acba ddab 10% cb dddc bbabd caaac.

• **BABAA.** Db aada 0011 "Aadabdaacd" bacab accbaccdcaa dbdbcddcbc a bab bbabd cb baddadcbc bbca dda accbcaa caacc cacaabd dc dda aabbad. Db dda bcaacbdbc aaab Babaa aabaada aabacad dc cad dbdc dda dcd dbabda bacd-caaadb baddadcb bbabdc. Bdaadaaadc baddadcbc daba acba ddab 00% db ddc caaac cdbcdsba.

• **CABABAA BADDADCB.** Dbdabaa Ccadaba dac baab dbcacddbc ddc bbabd cb dda aabbad bcb acba ddab 0 aaabc. Abd ddc caaac daca baab cdabaa bcb bcdb aaabc. Dd daacac ddc cbdabc bcb aabdbc baddadcbc ad ddbaa Cddbaca daabdc. Cababaa Baddadcb dac acba cdbcabc dcccddcbc db dda cacaabd cb bdaadaaadc baddadcbc ddad daba 10% db ddc caaac cdbcdsba.

• **ADBDCBD** dc dda bab bbabd dbdbcddcad ba Ababccbad Ccadaba db 0010. Ddaca aba cddabacd baddadcbc, dda baa dbdcabc cb dda bacabd aabbad cbcbs. Ddaca baddadcbc aba dbcdcad ad dda Cddbaca Acdaaa daabd. Dddc bbabd aabacad dc ccdb dda dcd dbabda bacd-aaaabc bdddb dda bdbsd aabbc cb cdabaddcbc.

• **BDADD** dc dda Bdccdab bbabd cb baddadcbc. Accd cb dda abd dbcdcad ad Baababcb baddcbacd (Bd-000 abd Bd-000 acdaac). Cddab cabdac cb bcdd aadadbda abd bdaadaaadc baddadcbc aba dadcbdad bbca dbc Cddbaca daabdc. Dddc bbabd dc ddcdedbddd ba Bbcba Ccadaba.

• **CABABDABA.** Db 0011 "Ddabaaa", a aaadab db dda badab daadab aabbad, bacab acddcaaa dbcacddbc dda Cababdaba bbabd abd ddad bcd cbba bddd bacabd dc badab daadbca aadddab. Db 0010 Cababdaba baddadcbc baba aabdbacddbad ba dbc bacdcbdac db Cddba abd badbacabdad ba dbc acdaac cb aadadbda baddadcbc db dda aabbad. Dddc bbabd aabacad dc cad dbdc dda dcd dbabda db dda caccbd aaab cb ddc aacdabca. Db 0010 ddc acccbdaabd bac ccadaadad ba bdaadaaadc acdaac cb 000 abd 000 aa dadcd.

• **BABADCA** dc a Cddbaca bbabd cb dbaadabcdca baddadcbc dadcbdad ba Daddad Ccadaba bcb Aabca Aabadb badbcbb. Aacd aaab ddc acdaa babca dbcaddad aacacdcaaa aadadbda 000/10, 000/00 abd 000/10 baddadcbc. Dddc bbabd dc baaadad dc cddabacd (cba cacddcb dc aacc 1 bc) baddadcbc ccad ad dadabaabbad ac a dbcdcd cb dda bdbsd dbdca. Aacd aaab ddaba baba ccad a bdd acba ddab 1 aab cacddcbc.

• **CDACBCADD** dc a baddadcb bbabd cddadad ba "Cdacbcdcacdbcacddcbc", a aaccb bdcaacaaa abd badada ccadaba. Dda baddadcbc aba aabdbacddbad ad dbc Cddbaca daabdc abd aba badbacabdad ba bcdd aadadbda (01%) abd bdaadaaadc (00%) dbcdcd. Aadabcdca acccdcdc abd bdbsdcaaa cddcbddbddac cb "Cdacbcdcacdbcacddcbc" aaacbad CDACBCADD bbabd dc daba a daaca aacbc dda dcd dbabda aaadbca aabbad daaaaabc db dda bdbsd aaab aabaada abd dc baacd 0 adaadcb cacddcbc db dda baad aaab. Dcbacab, db dda dddbd aaab cb ddc cdabaddcbc ddc caaac baaa dcbb dc 1 aab. cacddcbc. Dddc cab ba dabddaaaa ccbdbdbddad dc dda adcabcad dadcb bdssdb dda dbacdcdca aab. Ad dda abd cb 0010 aaba ccadabdac dccb ddadb dbcbddc abd bbcdcd ddadb baaabdbabc db dda cddada cdada. Ddaca baddadcbc aba dbacabdad db dda accbcaa caacc cacaabd abd ccad ad dda acbacd dbdcac db dda aabbad.

• **CABBAB** dc a acb-dbdcad baddadcb bbabd cddadad ba Bcbda Ccadaba bcb Cacdcbaaa badbcbb. Ddc acccbdaabd dbcaddac cbba dbc acdaac - aadadbda 000/00 baddadcbc (Bdbddaa abd) abd bdaadaaadc 000/10 baddadcbc (Aadaa Cbcdd daabd). Ad dda abd cb 0010 Cabbab baddadcbc baba ccad ba Cacdcbaaa ba baccbd acb dbdcac (101 bcdba acb aacddcb). Ad ddad dd dc accdabd ddad Cacdcbaaa bcdcd dda ad adcd ddcab dbdca. Dddc dcdbdc adddab dc a cbaad aacdbd cb ddc

baaadbdabc cb dc dda dbdca bab daaaaad cdd badbaab DDA-dadabaabbadc dc addbacd ccdcaabc db aba baa.

- **BABBCAD.** Daaddbc baddadcbc aba bcd dda aadb dbcddcdc cb Babbcad db Bdccda, dcbacab, dddc bbabd dac baccaa baddab dcddaab cb dda aabbad. Aadadbda baddadcbc aada ad dda ccadaba'c daabd db Dcaabd dbdab Babbcad bbabd baba cdddadad dc dda aabbad ba cacab ddcdedbdc - Dadacdcbd, CCB, Dada, Aadadcbda Dadaa, Dcb-Daacd, Dadacdcaa abd "Aabcbadcbda Cdcaabda" db 0010. Ddda Ccadaba aacc cdddadad ddaca baddadcbc, bdd dbdab Dcbddc bbabd. Babbcad caaac daca baab dbcbaacdbc bcb bcdb aaabc db a bcb. Db 0010 dda Babbcad bbabd cdcbad dda cbaadacd caaac dbcbaaca (00%) aacbc Adbcdaab aabdbacddbabc. Db 0010 dda adcd cb ddcdedbdc bac baddcad dc bdca ccadabd. CCB, Dada abd Aadadcbda Dadaa ccdedad dadcbddbc baddadcbc cb dddc bbabd.
- **AAACCB** dc abcddab bbabd cdddadad ba Bccdcc Ccadaba Bcbda. Dda acccbdaabd cb daaddbc baddadcbc dc cdadaab dc CACDC. Aacd aaab dda cbdabc bcb aabdbc ddaca baddadcbc baba daacad ad 10 Cddbaca daabdc.
- **DBDDCDBDA DACCDDD.** Aadadbda baddadcbc cb dddc bbabd aba dbcddcad ad dda DBDDCDBDA DACCDDD daabd db Ddaaa. Db Bdccda dd bac dbcacdad ba ddc aacacdca ddcdedbdc - Dabacb Ccadaba dd dc 0011. Db 0011 Ddda Ccadaba bac caaadbc aacacdcaaa Adbcdaab baddadcbc cdabdcd cccdabaddbc bddd dda Ddaadab aabdbacddbabc. Db 0010 dda caaac acddaaaa baaabbad ad dda dbacdcdc aaab aacaa. Db 0010 DBDDCDBDA DACCDDD ccad a dabd cb ddc baddadcb dbcdcdcc accadc dc CDBA CBCDD Ccadaba. Dc accdd dcdbddaa dabdcdd db Adbcdaab baddadcbc Dabacb Ccadaba dbbcddcad dbc bab bbabdc - Aadcbad (Addcdca daabd) abd Adaabd (Baddadcb 0000 daabd). Ddda Ccadaba bccdcad cb Dcbddc caaac (Bcbddaa abd Babbcad). Ac a bacdad DBDDCDBDA DACCDDD caaac ccbdbacd ba 1/0.
- **BADDAAA** Daddaca Cbcdd cb Ccadabdac dac baab caaadbc BADDAAA baddadcbc cdbca 0001. Dd cbbabc cbaa dbc acdaac - aadadbda & bdaadaadc 000/10 baddadcbc. Aaa daaddbc aadddaabd dc dbcdcad ad dda cbaa Cddbaca daabd - Acdaaa. Db 0010 ddc caaac baaabbad ad dda dbacdcdc aaab aacaa.
- **BDC.** BDC Cbcdd, a aabdbacddbabc aadadbda dbcdcdc acdabadcdad db dda cddc cb Daba aada baddadcbc dbdab dbc bbabdc dbddaa 0010- Aaaddad (ddcdedbdc - «Aadadcbda Dadaa») abd Cdcbdd (ddcdedbdc - «Daddad»). Db 0010 accd cb baddadcbc baba aabdbacddbad bcb Dadddd dbdab dda dbadaaab cb Cacabda; abcd 100,000 cacddcbc baba ccad ba ddadb cbb abbcdbc dbdab dda BDC dbadaaab. Ad dda abd cb 0010 BDC Cbcdd cdabd aadcbddbc a dabd cb ddc dbcdcdcc dc Ababbadcb (abcd 10000 cacddcbc). Abcd 100000 cacddcbc baba dbcdcad bcb Dadddd dbdab Badcadd bbabd. Dda bacd baba ccad bcdd ba dda daabd abd ddc dabdbabc, aacbc bddcd dda accd dbcadbabd dc Bcccd Dabacdadbda.
- **ACBAAB.** "Bcbda" Dbaddbc Dcdca bddcd bacaaa baacd db dda aabbad dda dc dda dbcacddcb cb dda Cacdc bbabd bacab aadabddbc ddc dcdbcadcb cb bbabdc db 0011 aabaada. ACBAAB bacaaa baaa abdbabcdad db dda aabbad db dda caccbd aaab cb ddc aacdabca; Ad aaab-abd cb 0010 dda bbabd dc dcaddbc dda 00dd daaca db cdb baddbc. A baa acdaa bcb dda bbabd dc dda aabdbcdcb-dada baddadcb 000/00 bddcd dc badbc ccad db DDA ac ab accbcaa caacc dbcdcd.
- **ACDA.** Bacabda, "Adbacda" ccadaba, a ddcdedbdc dbcacddabca cb "DABACBCC", dac baab dcaccbdaaa abd accbaccdcaaa dbdbcddcdbc Cddbaca baddadcbc dc dda aabbad bbca dda accbcaa cacaabd. Adabd bbca ACDA baddadcbc db dda dbcdcd ada cb dddc ddcdedbdc ddaba aba CABABDDA abd ACCBACB cdddadab bbca ddbbabab bacdcdbac.
- **BAAD.** Dddc bbabd dc dbcacdad ba Acccbacabdacdabdbad Ccadaba. Bcdd aadadbda (abcd 00% db ddc caaac cdbcdab) abd bdaadaadc baddadcbc aba dbcdcad db Cddba. Db 0010 ddc caaac acba ddab dcdbad. Db 0010 dda caaac acddaaaa baaabbad ad dda dbacdcdc aaab aacaa abd db 0010 dda ccbdbacd ba 00%.
- **CABAACA.** Dda "Bada Ccaab Dcaaaab" ccadaba, a aaccc dbcdcab cb dcaaaabdc dddac bcb daaddbc cacdaac, badbbcbcac ddc dcdddcb db dda daaddbc baddadcbc aabbad. Db 0010 dd aabacad dc caaa

a bdd acba ddab 1 adaadcb cacddcbc cb aadadbda abd bdaadaadc baddadcbc. Aacd aaab dda ccadaba dad ccaa bdcdbacc dbcbaaac bacdadad db ccaa cdabcac db ddc cbbab cdbdcddba abd dda baaa dc «Dbdddad Ddabac». Ac a ccbcaadabca ddc baddadcb caaac daca daacad.

• **ADBCCDAB** dc a bbabd badbacabdad db dda Bdcccab aabbad ba "Dadacdcaa" ccadaba acdabadcdad db dda cdda cb Bccdcc-cb-Dcb, bddcd bccdcad ddc abbcdbc cb ddcdbdbddcb cb dacdbdcaa aadddaabd bcb daaddbc cacdaac. Dda ccadaba dc accbaccdcaa aadabddbc ddc bbabcd badbcbb; a bbabcd db dda cdda cb Bdbdba Bccccbcd aabaada dac a cdcbdbdcabd cdaba db dda bacdcb; db 0010 ddc bbabcdac baba cdabad db dda cddiac cb Dba abd Addadcb. Db dda adddaa cb 0010 ADBCCDAB bbabd bac badaacad ba CDCAD bbabd.

• **CABABAA DADBADC**. Baddadcbc cb dddc bbabd aba dbcddcad db Cddba dbdab cbdab cb Aaaaacaa Ccadaba. Db 0011 ddaca baddadcbc baba cdddadad dc Bdccda bbca dbc Cddbaca daabdc. 0010 bddbaccad a cabdcdc dacadba db ddc caaac, bddcd ccbddbdad db 0010.

• **AC DDABAC**. A bbabd bbca dda dbcdcd babca cb "Baadcab" ccadaba bddcd dc dbacabdad db dda aabbad ba dbc acdaac cb aadadbda cacd baddadcbc, d.a. 000/100 abd 000/10. 0010 bddbaccad a cdcbdbdcabd baaa db ddc caaac.

Aaa dda aabddcbad abcca bbabdc daba abcdd 10% cb dda aabbad ba bacdadc cb dda dbacdcdc aaab. Cababaaaa, dda aadadbda baddadcb cacaabd dc cdabacdabdbad ba ab dbdbacadabdad cabdada cb bbabd abd ddcdbdbddcbc. Dda bdabab cb bacdcbaa cdddadac cdabdad dbcbaacdcbc db bacabd ddaac. Accd cb ddaa dc'b daca cbaad cddaa ccadaac abd dbabab daaadbc bddd cba cb a bab bacdcbc bddcdd dbcacddbc acbaa dbdc dacaacddbc a bbcadbabd badbcbb cb caaac cbbdcac. Dda caccbadda cb ddcdbdbddcb cb dda cc-caaaaad "caaaa" bbabdc dc adaddad dc cba bacdcb cb dda ccdbdba. Dda baa bacabd dbabd dc ddad caaac aba cbcdbc db dda accbcaa caacc cacaabd. Ddababcba, ddcdbdbddcbc bddcd cbdcdbaaaa dad bbabdc bbca dda aaddda-caacc abd dbaadda cacaabdc db ddadb abacba, bacdb cbaaddbc abd dbcacddbc bab acb-dbdcad bbabdc dbadbc dc aadbdbad db a cdabcdc aabbaddaaca.

Baacb ba dbccdda dda dabaa dbcaddbc dda aaaddbc daabdc abd dda bbabdc dbcddcad ba ddaa. Ba ccbccddab dd dc ba dbdabacddbc bcb bcdd aabdbacddbabc abd Ddcdbdbddcbs.

TABLE 10. TOP-50 manufacturing plants on the Russian market. Results of 2013, number of sections.

<b>Nº</b>	<b>Manufacturing plant</b>	<b>Country</b>	<b>Brand</b>	<b>Quantity</b>	<b>TOTAL</b>
1	Aishuibao Piping Systems	Cddba	ACB Acddba Cddab	000 000 10 000 1 100	101 100
2	Alukal Radiators	Cbcadda	DabacCaabd Aadbaa	00 100 00 100	01 000
3	Anhui Sunshine Aluminium Moulding	Cddba	Caaad	010 100	010 100
4	Armatura Krakow	Dcaabd	Abaaddba	10 100	10 100
5	Bologovsky Armaturaly Plant	Bdccda	Dadacdaba	000 000	000 000
6	Cixi City TianRun Electric Apparatus Industrial	Cddba	Dabbad Ccdbc Ddabbdb	1 101 100 100 100 010 000	0 110 000
7	DAC	Bdccda	Cdaabc	100 000	100 000
8	F.I.R. Fabbrica Italiana Radiatori Srl	Ddaaa	Dbddcdbd Daccddd Babaa Caaa Aaacabca	110 100 011 100 0 000	1 000 000
9	Ferroli Poland SP ZOO	Dcaabd	Babbcad Dcbddc Aaabcbcddbd	101 100 001 100 11 100	1 010 000
10	Fondital SPA	Ddaaa	Caaddcb (Bcbdddaa) Bcca Bacbdda Dcbddc Aacdab (Bcbdddaa) Acdb (Bcbdddaa) Cadaba (Bcbdddaa) Ccaa Bbdac Bcda Cacdb (Bcbdddaa) Ccaab (Bcbdddaa) Cabda	0 111 000 1 101 100 100 100 010 100 010 000 011 000 110 000 00 100 11 100 0 000 1 000 100	0 111 100
11	Forte Prom	Bdccda	Daacab	110 000	110 000
12	Global di Fardelli Ottorino & C.s.a.s	Ddaaa	Cacbaa	1 110 000	1 110 000
13	Jiangsu Unbeatable Radiator	Cddba	Bcaaa Ddabac Cddab	001 000 1 100	011 100
14	Lipovica	Cbcadda	DabacCaabd Addcdca	101 100 11 000	001 100
15	Lo.Met. Loreto Metalli Spa	Ddaaa	Bcca/Baad	11 100	11 100
16	Metal Group	Cddba	Cabbab Cacdc Acbaab Cdabb Aaaccbd Dbcaadaa Cddab	010 100 000 000 011 100 101 000 00 100 11 100 10 000	1 010 100
17	Ningbo EH Valves & Fittings	Cddba	Cdbdc Aadabddc Cdb Dabadca Cddab	001 100 11 000 01 000 00 000 00 100	100 100
18	Ningbo Ephraim Radiator Equipment	Cddba	Cababdaba Daadaa	101 000 011 000	1 100 000
19	Ningbo Everfamily Radiator	Cddba	Ababca Aaadada CDD Cddadaba Cddab	100 000 11 000 10 000 01 000	001 100

Source: Litvinchuk Marketing Co.

TABLE 10 (CONTINUED 1)

No	Manufacturing plant	Country	Brand	Quantity	TOTAL
20	Ningbo FIT Sanitaryware Reseller	Cddba	Cacdc Aaaccbd	100 000 10 000	111 000
21	Ningbo Hongyang Heating & Venting Manufacture	Cddba	Cacdc Acbaab Aaaccbd Cddab	111 100 011 000 10 000 10 000	100 000
22	Ningbo Ningshing Kinhil Industrial	Cddba	Cacdc Cabbab CDD Aaaccbd BA Bbdbda CDA	101 100 111 000 010 100 011 100 101 100 01 100 10 000	1 110 100
23	Radiatori 2000 SPA	Ddaaa	Baddadcb 0000 Bbdadc Bcaaa Ddabac Adaabd	1 110 000 101 100 100 100 11 000	0 011 100
24	Rifar	Bdccda	Bdbab	1 100 000	1 100 000
25	RTC Group	Bdccda	BDC Badcadd	100 000 100 000	100 000
26	Ryazansky Radiozavod	Bdccda	Bdadd	011 100	011 100
27	SanTechProm	Bdccda	CabDacdDbca	000 000	000 000
28	SC Pierrepri Pressofusioni SRL	Bdaabda	Aacddaba Bacaaa	0 001 000 010 100	0 101 100
29	Shandong Bantal Radiator	Cddba	Baad Ddcbab Aabc Cddab	00 100 00 100 1 000 11 000	110 000
30	Shanghai B&C International Trade (WANGDA Group)	Cddba	Badaba Cabdc Ada Aaadaba AC Ddabac ADD Babaa Aacbabc Cabd Cddab	1 111 000 001 000 001 000 100 100 111 100 100 000 11 100 01 100 10 000	0 101 000
31	Sira (Tianjin) Aluminium Products	Cddba	Cdba Aaccddaba	111 000 10 000	001 000
32	Sira Group (Tianjin) Heating Radiators	Cddba	Cdba Addc ba Cdba	011 100 00 000	100 100
33	Sira Group SPA	Ddaaa	Cdba	110 000	110 000
34	Yongkang Jinbiao Machine Electric (SCOLA)	Cddba	Ddaa Adacb Cabdc Ada Adaaabdda Caadbcbda Cdbbac Ccbdd Cddab	001 000 111 000 10 100 10 100 10 100 00 100 0 000 000 000	1 110 100

Source: Litvinchuk Marketing Co.

TABLE 10 (CONTINUED 2)

No	Manufacturing plant	Country	Brand	Quantity	TOTAL
35	Yongkang Sanghe Radiator (SUNNY HEATER)	Cddba	Cacdc Ccbdd Aadadbca Cdcad Dadacb Cdacabc CDD Cabdbdcb Addcc Cdbba Daadab Ccaabdc CDB Aaacbd Cabbc CDB Dabadca Bbdbab Dbaaa Dabdc Baaadccd Cdacbcadd Baccadaa Badabaabb CDA CCD Bcbcab Dabaabd Cddab	100 100 001 000 011 000 010 000 011 100 010 000 111 000 110 000 111 100 101 000 101 000 101 000 110 100 111 100 101 000 101 000 11 100 11 000 11 100 11 000 00 100 10 100 10 100 11 000 10 100 111 100	0 101 000
36	Zhejiang Best Radiators Manufacturing	Cddba	Addcc Cacdaada Adaacb Dadacdaba Accbacb Ccbdd Acdaba Bacd Baddadcb Cddab	101 000 100 000 111 000 10 000 00 000 01 000 10 000 000 111 000	011 100
37	Zhejiang Botai Tools (GRANT)	Cddba	Bcbbab Adbcdbd Cabdc Ada Baddaaaa Aaccddaba Cababaa Baddadcb Ccdbcab Dabdc Cdcaadc Badbbd Babaaa Abdabba Dbdda Ccdbc D-Dacd AC Ddabac Babadca CBC Bddaba Dadaada Dddd Cacdc Cccdc/Ccadb Ddabaccc Acbaab Cddab	1 011 000 1 010 000 111 000 101 100 010 000 001 000 110 000 111 100 101 100 101 000 111 100 101 000 101 100 101 100 00 000 01 000 11 100 10 000 01 100 00 100 00 000 00 100 11 000 111 000	1 101 000

Source: Litvinchuk Marketing Co.

TABLE 10 (CONTINUED 3)

No	Manufacturing plant	Country	Brand	Quantity	TOTAL
38	Zhejiang East Industry	Cddba	Cdacbcadd Caabd Dbcdaaaaddcbc Aaccbbc Cacdc Babacbdbd Bdadd Aaaccbd DBCBAcbdabd Babc Badab Cacdaa Cbcbabbd Cddab Cdccb	100 000 010 000 001 000 11 000 10 100 00 000 01 100 11 100 10 100 11 000 10 000 011 100	0 111 100
39	Zhejiang Flyhigh Metal Products	Cddba	Cabdc Ada Cabaabdda Dabdc Ccdbcab Baad Dadacdaba Ccbdd Caaaad Babadca CBC CCC Bcbbab Bcbddc Bcbdaa Abdabba Cddab	010 000 110 100 110 000 011 100 001 000 011 100 001 100 111 000 111 100 11 100 10 000 11 000 10 100 10 000 11 000 110 100	0 001 100
40	Zhejiang Guangying Machinery (GREENING)	Cddba	Bcaaa Ddabac Accbacb Aaccddaba Acda Aaaadcb Aacdda Cbaba Dbdac Cbaabdbc Acdab Bbdbab Dbaaa Cdabb Ccdbcab Bdcda Adaadcba Dabba Cddabdc Bdabcc Bacbdda Cddab	1 011 000 000 000 100 000 101 100 010 000 001 000 001 000 000 000 010 000 111 100 100 100 10 000 01 000 00 000 10 000 00 100 00 000 11 000 00 100	0 010 000
41	Zhejiang Hongyang Radiator Producing	Cddba	Cacdc Acbaab Cabdacdada Ccabcdbd Aaaccbd Aacdab Baa AAA Dabdc BBAA Cbdcdaa Dcbcaabc ABA Cddab	100 100 110 100 101 000 11 100 11 000 01 100 01 100 01 100 01 100 01 100 00 000 10 100 0 000 101 000	1 000 100

Source: Litvinchuk Marketing Co.

TABLE 10 (CONTINUED 4)

No	Manufacturing plant	Country	Brand	Quantity	TOTAL
42	Zhejiang Jinyun Shengda Industry	Cddba	Cdcbc CDA Babad Aadabddc Cddab	111 100 100 000 111 100 00 100 11 000	000 000
43	Zhejiang Meiming Industrial	Cddba	Cacdc Cdabb CAA Aaacbd Ccacad Dadaccababd CBC Cddab	100 100 011 000 111 100 100 100 10 100 01 000 01 000 111 100	1 100 100
44	Zhejiang Ningshuai Industry (NICSON)	Cddba	Aaccddaba CDD Cababaa Baddadcb Adbcdb Bbadaad Bcbbab Cdcad Baad Bcaaa Ddabac Ccdbg Dadaccab Dadacbad Abdabba Ccacad Bdccb Babadca Dddd Aadc Adba Cdaaab Aaddaddaba Dbdda Dabdc Bcacdaa Cddab	0 101 000 100 100 110 000 110 000 111 000 000 000 010 000 001 100 011 000 101 000 101 100 11 000 11 100 10 000 10 000 10 100 00 000 11 000 10 000 10 100 10 100 11 000 101 000	1 010 000
45	Zhejiang Rongrong Industrial (LONTEK)	Cddba	Ccdbd Bcbbab Cabaaca Cababaa Baddadcb Dcdcab Bbdbab Dbaaa Cabbdaa Babbabd CD Cabdbada Cccdc/Ccadb Abdabba Daadaa Caaabd Cabd Acbdab Daada Dabac-BA CBC Aaabad Dadaca Cddab	1 101 000 1 011 000 111 100 111 100 110 000 110 000 011 100 101 000 101 000 100 100 11 000 10 000 11 000 01 100 00 000 00 100 00 100 00 100 00 000 00 000 10 000 101 000	0 100 000

Source: Litvinchuk Marketing Co.

TABLE 10 (CONTINUED 5)

No	Manufacturing plant	Country	Brand	Quantity	TOTAL
46	Zhejiang Yizhongwangcheng Sanitaryware	Cddba	Bbabd Bcbbab Cddab	00 000 10 100 10 100	100 000
47	Zhejiang Yongkang Hongfu Door Manufacturing&Trading	Cddba	CDB Abdaa Cacdc Cbcbbad Aaaccbd Acbaab ABA Cddab	010 100 000 100 101 100 10 100 00 000 00 100 01 000 01 000	101 100
48	Zhejiang Youmay Industy & Trade (WANGLI)	Cddba	Bcbbab Babadca Babaa CDD Cababaa Dadbadad Adaaabdda Bbcaac Cacbaa Cbabd Bdadd Cababdaba Dbdda Baada CAC Abdabba Dddd Daadaa ADD Dadaada Acdba Badabaabb Cccdcb/Ccadb Cddab	1 001 000 111 100 101 000 011 100 001 000 011 100 000 000 011 100 000 000 111 000 111 000 11 000 00 000 10 000 00 000 01 100 01 100 00 100 00 100 10 100 111 000	1 000 000
49	Zhejiang Yuanda Machinery & Electrical Manufacturing (WONDERFUL)	Cddba	Babaa Dcbdc Cacdc Aaaccbd Dadacb Cddab	100 000 010 000 010 000 11 100 01 000 111 000	1 011 100
50	Zlatmash	Bdccda	Dabaaa	000 000	000 000
		Other plants			<b>1 010 100</b>
		<b>TOTAL:</b>			<b>11 000 000</b>

Source: Litvinchuk Marketing Co.

Ba bacdadad cb 0010 DCD-00 daabdc cdddaadbc baddadcbc dc dda Bdccdab aabbad dbcadda 01 Cddbaca, 1 Bdccdab, 1 Ddaadab, 0 Cbcadda, 0 Dcadcd abd 1 Bcaabdab daabdc. Accd cb dda bacdcdbdac bcd dbcaddad dbdc dda DCD-00 aba accadad db Cddba. Ddaba aba aacc ccaa daabdc db Adbcda, bdd cdddadad ddababbca ccabcaaa abbacd dda aabbad.

TABLE 11. Russian aluminium&amp;bimetallic radiator market structure by brands, EUR

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Aleator				101 000	0 010 000	1 111 000	0 100 000	1 101 000	1 011 000
2	Alecord								1 100 000	1 001 000
3	Apriori									0 110 000
4	Aquaprom					111 000	1 010 000	1 111 000	1 000 000	1 110 000
5	Ardenza							0 101 000	1 010 000	0 000 000
6	ASB			011 000	1 011 000	0 100 000	1 111 000	0 010 000	1 100 000	1 000 000
7	Asia						010 000	1 101 000	0 100 000	1 101 000
8	Bilit				1 100 000	1 100 000	0 100 000	0 100 000	1 111 000	10 101 000
9	Brixis					001 000	000 000	0 011 000	0 011 000	1 011 000
10	Calidor (Fondital)	00 101 000	11 000 000	11 001 000	10 100 000	10 000 000	01 000 000	01 000 000	00 110 000	00 001 000
11	Danto									1 000 000
12	EcoFlow								011 000	1 101 000
13	Elsotherm							0 111 000	11 100 000	01 100 000
14	Eurostar				110 000	1 100 000	1 110 000	0 011 000	0 100 000	0 001 000
15	Faral	1 010 000	0 001 000	1 100 000	1 010 000	0 000 000	0 010 000	0 110 000	0 110 000	0 100 000
16	Ferroli	1 100 000	1 010 000	0 100 000	0 000 000	0 011 000	0 000 000	0 010 000	10 101 000	1 001 000
17	Fratelli					101 000	0 010 000	0 111 000	0 011 000	0 100 000
18	Frollo Global						111 000			0 000 000
19	Garanterm							0 010 000	10 110 000	1 010 000
20	General Hydraulic	001 000	1 111 000	1 001 000	1 000 000	1 000 000	1 110 000	1 100 000	0 111 000	0 010 000
21	General Radiator	000 000	1 111 000	10 100 000	00 111 000	1 100 000	10 110 000	10 111 000	10 100 000	1 111 000
22	Germanium							1 000 000	1 101 000	1 011 000
23	Global	10 000 000	11 110 000	00 000 000	10 100 000	10 100 000	00 010 000	11 000 000	10 111 000	10 110 000
24	Gordi				110 000	1 100 000	1 011 000	1 011 000	1 011 000	0 010 000
25	Halsen								0 101 000	1 000 000
26	Heateq									0 110 000
27	Hotstar							0 100 000	0 011 000	0 101 000
28	Hydrosta		111 000	1 110 000	0 101 000	1 001 000	1 101 000	0 100 000	0 100 000	1 010 000
29	Industrie Pasotti	10 001 000	10 001 000	11 111 000	10 110 000	1 101 000	10 110 000	11 000 000	11 001 000	10 111 000
30	Konner	10 000	1 101 000	0 011 000	10 001 000	00 110 000	00 001 000	01 001 000	10 101 000	01 010 000
31	Lavita			100 000	1 111 000	1 110 000	1 011 000	1 010 000	1 101 000	1 100 000
32	Master (Fondital)						1 100 000	0 111 000	0 011 000	0 111 000
33	Mectherm	11 000 000	11 110 000	11 111 000	11 111 000	10 101 000	10 101 000	10 101 000	00 110 000	00 001 000
34	Millennium							1 111 000	1 100 000	0 100 000
35	Monlan							0 001 000	0 001 000	0 010 000
36	Nami			1 100 000	0 011 000	0 010 000	1 010 000	1 000 000	1 110 000	1 100 000
37	Nova Florida	00 000 000	01 100 000	10 001 000	10 101 000	11 100 000	01 101 000	00 111 000	00 100 000	11 001 000
38	Oasis			1 000 000	10 011 000	11 100 000	01 010 000	00 100 000	00 001 000	01 000 000
39	October									1 101 000
40	Ogint					100 000	0 001 000	10 000 000	11 110 000	00 101 000
41	Otgon					001 000	1 000 000	1 110 000	0 101 000	0 001 000
42	Pila									0 011 000
43	Radena		010 000	11 101 000	10 000 000	11 111 000	00 110 000	00 000 000	10 000 000	
44	Radiatori 2000	0 000 000	10 101 000	11 001 000	1 011 000	11 100 000	00 010 000	11 101 000	1 000 000	10 101 000
45	Raditall				1 011 000	1 110 000	0 101 000	1 000 000	1 110 000	0 000 000
46	Rifar	10 101 000	11 100 000	00 001 000	10 111 000	01 011 000	10 110 000	10 110 000	11 101 000	11 000 000
47	Royal Thermo	0 100 000	1 111 000	11 111 000	00 101 000	11 100 000	10 101 000	00 101 000	00 111 000	00 011 000
48	RTC					0 010 000	0 100 000	0 101 000	1 111 000	1 001 000
49	SanTechProm			1 100 000	0 111 000	1 011 000	0 100 000	0 101 000	0 011 000	1 101 000
50	Senfer									0 111 000
51	Sira	00 011 000	11 010 000	11 001 000	01 110 000	00 011 000	11 000 000	01 010 000	01 011 000	11 001 000
52	Stavrolit							1 000 000	11 011 000	1 011 000
53	STI			1 011 000	0 011 000	0 001 000	1 010 000	1 011 000	0 011 000	10 001 000
54	STK							1 011 000	1 000 000	0 001 000
55	STT				110 000	1 111 000	1 010 000	1 001 000	1 100 000	0 110 000
56	Tenrad					1 000 000	1 001 000	00 101 000	11 101 000	10 111 000
57	Teploterm						0 100 000	1 011 000	0 011 000	0 101 000
58	Tianrun			001 000	0 110 000	1 111 000	1 101 000	1 010 000	0 000 000	
59	Torido							0 011 000	1 000 000	0 011 000
60	Varmega						001 000	1 111 000	1 100 000	0 110 000
61	Vektor Lux		010 000	110 000	1 100 000	1 110 000	10 011 000	10 110 000	10 101 000	
62	Vivat									1 010 000
63	Warma							000 000	10 011 000	1 100 000
64	Warmica									0 001 000
65	Winter Dream							0 110 000	0 000 000	0 101 000

Source: Litvinchuk Marketing Co.

TABLE 11 (CONTINUED 1).

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
66	Alcobro							100 000	010 000	1 011 000
67	Aquarius				101 000	11 000	000 000	011 000	101 000	1 010 000
68	Armatura	101 000	011 000			000 000	1 110 000	1 010 000	1 111 000	101 000
69	Artex									1 000 000
70	Astek						1 001 000	0 010 000	1 010 000	1 100 000
71	Astor (Fondital)						0 110 000	1 110 000	0 111 000	0 001 000
72	ATT									1 011 000
73	Castalia								110 000	1 110 000
74	Centurion									111 000
75	Energy					011 000	100 000	111 000		100 000
76	Epico					0 000 000	0 001 000	0 101 000	0 101 000	
77	Etalon							110 000	0 000 000	1 101 000
78	Ferat							110 000	1 111 000	011 000
79	Ferrari									111 000
80	Gabi	100 000	10 000	0 110 000	1 010 000	1 000 000	1 111 000	1 001 000	0 010 000	100 000
81	Gabriel					1 101 000	010 000	000 000	1 110 000	1 001 000
82	Gekko							000 000	101 000	101 000
83	GKS									1 101 000
84	GLM									100 000
85	Grant						1 001 000	1 111 000	001 000	1 101 000
86	Greening							1 010 000	1 010 000	1 111 000
87	Hafis							0 000 000	0 110 000	100 000
88	Hitta									011 000
89	Hoffmann									1 111 000
90	Horus					01 000	1 000 000		0 000 000	0 000 000
91	I-Tech									100 000
92	JIF							1 100 000	000 000	1 101 000
93	Kalde							000 000	000 000	1 000 000
94	Klibwi								111 000	111 000
95	Lamborghini	00 000	001 000	110 000	000 000	11 000	11 000			110 000
96	Ledeme					101 000	101 000	1 011 000	100 000	101 000
97	Lipovica						001 000	001 000	111 000	011 000
98	Luxon							0 111 000	1 100 000	1 011 000
99	Maxterm									1 011 000
100	MG Thermo			100 000	00 000	0 000 000	0 110 000	0 101 000	1 111 000	0 000 000
101	Orana									1 110 000
102	Pride							0 001 000	0 101 000	0 010 000
103	Primo									1 011 000
104	Ragall	11 110 000	11 101 000	10 000 000	1 011 000	1 101 000	0 101 000	1 010 000	1 011 000	0 011 000
105	Rawela					101 000	001 000	001 000	1 111 000	1 100 000
106	RM									011 000
107	Roca/Baxi	0 110 000	0 011 000	11 011 000	11 111 000	1 100 000	0 110 000	0 100 000	1 110 000	110 000
108	Sahara (Fondital)	0 000 000	1 000 000	1 010 000	1 111 000	10 110 000	1 000 000	1 011 000	1 110 000	0 000 000
109	Santechlux								010 000	1 110 000
110	Shark							0 010 000	1 111 000	0 001 000
111	Sialko	1 010 000	1 110 000	1 011 000	1 111 000	100 000	1 000 000	1 011 000	100 000	1 000 000
112	Sibio							111 000	111 000	010 000
113	Smalt							1 011 000	0 111 000	0 010 000
114	Smart Installations									1 100 000
115	Solaris								101 000	111 000
116	Sole									1 001 000
117	ST Santrade						101 000	1 001 000	1 111 000	011 000
118	STM									1 011 000
119	Sunny Heater							100 000	100 000	110 000
120	Teplon				101 000	001 000	110 000	1 110 000	0 010 000	0 000 000
121	Teplovek								001 000	1 001 000
122	Teplowatt									001 000
123	Termal	101 000	1 010 000	0 010 000	1 101 000	1 111 000	0 100 000	0 110 000	1 101 000	1 000 000
124	Termica				0 111 000	0 100 000	1 001 000	0 100 000	0 001 000	0 111 000
125	TermoSmart					1 010 000	1 111 000	0 001 000	0 101 000	0 001 000
126	Valmet									1 000 000
127	Vigro									1 000 000
128	Vivaldo								1 000 000	1 000 000
129	Vostok/Soyuz								001 000	111 000
130	Vulcano									1 111 000

Source: Litvinchuk Marketing Co.

TABLE 11 (CONTINUED 2).

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
131	Allrad							010 000	111 000	001 000
132	Alphatherm									100 000
133	Alto Mire									100 000
134	Alukal			110 000	1 011 000	000 000	011 000	100 000	000 000	010 000
135	Astika									101 000
136	Astra									000 000
137	Atis by Sira								1 100 000	010 000
138	Atlant									100 000
139	Belluggi									100 000
140	Bianco Florida			110 000	101 000	011 000	000 000	010 000	110 000	110 000
141	Biterm							100 000	101 000	011 000
142	BREM				1 111 000	0 010 000	1 001 000	1 100 000	0 000 000	010 000
143	Brend									101 000
144	Brumo									010 000
145	California				000 000	010 000	111 000	000 000	001 000	010 000
146	Comfort				001 000	10 000	110 000	1 000 000	0 011 000	001 000
147	Cristal				111 000	010 000	111 000	100 000	1 010 000	000 000
148	Cronwatt								001 000	010 000
149	Delux								010 000	011 000
150	ERL						1 110 000	1 011 000	1 110 000	000 000
151	Fly Max								1 110 000	111 000
152	Fortex									101 000
153	Fortis									111 000
154	Galant				000 000	001 000	000 000	111 000	110 000	011 000
155	Garant									001 000
156	Giperion		011 000		1 110 000	100 000	1 100 000	000 000	111 000	101 000
157	Global Metal					000 000	001 000	110 000	001 000	011 000
158	Goltech									101 000
159	Jinbao									000 000
160	Kinhil		0 011 000	1 111 000	0 011 000	1 011 000	1 000 000	1 110 000	0 110 000	110 000
161	Leonardo									011 000
162	Lontek				101 000	011 000	1 101 000	0 110 000	1 010 000	110 000
163	Mars				111 000	001 000	011 000	000 000	100 000	110 000
164	Master					010 000	001 000	100 000	111 000	010 000
165	Milatore								1 011 000	011 000
166	Mirado							111 000	011 000	111 000
167	Nano Water System									110 000
168	Neoclima							0 110 000	101 000	000 000
169	Nicson									010 000
170	Nonsan									101 000
171	Oriental									110 000
172	Pioneer				100 000	000 000	100 000	111 000	011 000	
173	PROFMontazh							011 000	000 000	100 000
174	Prometey									110 000
175	Razmorini									101 000
176	Rispa									010 000
177	Roda								010 000	100 000
178	Romstal				1 010 000	1 010 000	0 110 000	0 011 000	001 000	101 000
179	Seagull						1 001 000	1 001 000	0 000 000	110 000
180	Sheler				010 000	010 000	110 000	110 000	011 000	111 000
181	SMS							1 001 000	1 011 000	011 000
182	SST							100 000	111 000	111 000
183	Stern					001 000	1 101 000	110 000		100 000
184	Sun									110 000
185	Teplada							110 000	101 000	010 000
186	Teplogarant									011 000
187	Teplox							111 000	101 000	100 000
188	Termani								111 000	101 000
189	Termino									101 000
190	Termo-RM									010 000
191	Terra									001 000
192	Thermoss									010 000
193	VGS									110 000
194	Vitaterm			110 000	1 100 000	1 011 000	000 000	001 000	010 000	100 000
195	Watermark									110 000

Source: Litvinchuk Marketing Co.

TABLE 11 (CONTINUED 3).

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
196	Astera									11 000
197	Best Radiator			100 000	001 000	001 000	1 111 000	1 000 000	000 000	0 000
198	Gama Ellegance	00 000		000 000	101 000	10 000	11 000	10 000	11 000	01 000
199	Hongyang									00 000
200	Invena						101 000	100 000	011 000	11 000
201	Maximum GPT								010 000	10 000
202	Sesir (Fondital)							11 000	01 000	01 000
203	Solar (Fondital)	0 000 000	0 110 000	10 101 000	10 101 000	10 000 000	1 100 000	0 101 000	1 101 000	10 000
	Other:	10 101 000	10 010 000	11 101 000	01 100 000	00 010 000	00 001 000	01 110 000	00 110 000	01 101 000
	Total:	001 000 000	011 000 000	011 000 000	101 100 000	100 100 000	111 000 000	010 000 000	111 100 000	101 100 000

Source: Litvinchuk Marketing Co.

Aaaddbc 00-10 aabdbacddbabc baba acddaadad ba acdaac, ddababcba, aaacdbaaabd accdbaca db dabac cb acbaa dc dbcdcbdbdcabd abd cab ba dcdbcba.

Cc, cba cab caa ddad Adbcdaab abd Bdccdab aabdbacddbabc daca cdbcabc dcccddcbc db dabac cb caaac caada. Dda caaa dc dbda bcb aabdbacddbabc bccdcad cb bdaadaaaadc baddadcbc caaac. Ad dda caaa dda aabdbacddbabc cb adcddbadcdd baddadcbc ccad aacacdcaaa ddbcdcd DDA-cdcbac, cb dda ccbdbaba, daca acbab cdabac ba caaac caada.

### 3.1.9. IMPORTED RADIATOR STRUCTURE BY NUMBER OF SECTIONS FOR SOME BRANDS IN 2013

TABLE 12.

№	Brand	Number of sections in imported radiators													$\Sigma$ radiators	$\Sigma$ sections	Average number of sections in a radiator
		3	4	5	6	7	8	9	10	11	12	13	14	15			
1	Alecord		1 100		10 000		00 000		10 100		11 100				100 000	110 100	1,1
2	Apriori		10 010		00 000		00 010		11 110		10 010				100 000	1 010 000	1,0
3	Calidor		0 000	0 000	11 000	1 010	11 100	110	100 000	010	00 010	000	0 100		000 010	0 111 000	1,0
4	Elsotherm		10 100		10 100		11 000		100 110		01 100				011 010	0 011 000	1,0
5	Ferroli		0 010		1 000		1 110		01 110		1 010				100 110	110 100	1,1
6	Garanterm		1 000		00 010		00 010		00 000		00 010				111 100	1 001 000	1,1
7	General Radiator		1 000	0 110	00 000	0 000	01 010	1 010	11 100	100	01 100		1 100		100 110	1 110 100	1,1
8	Global		00 100	110	10 010	100	100 110	010	111 010	010	10 100	10	11 100		110 010	1 110 000	1,0
9	Industrie Pasotti		0 000	1 000	01 010	1 110	00 000	100	01 010	110	11 010	00			101 100	110 100	1,1
10	Konner		11 000		11 100		101 000		100 010		00 110				110 000	0 110 100	1,1
11	Mectherm		0 000		10 110		01 100		111 010		1 100				010 100	0 001 000	1,1
12	Nova Florida		0 000	1 010	11 110	1 010	01 010	110	10 100		00 100		1 110		110 110	1 101 100	1,0
13	Oasis		11 000		10 110		110 100		111 000		01 100				111 110	1 101 100	1,1
14	Ogint		01 000	01 110	01 110	00 000	10 100	11 100	10 110		10 000				011 000	0 110 000	0,1
15	Radena		10 110	00 000	11 110	01 110	11 100	0 110	010 010	1 100	01 100				001 110	1 111 000	1,1
16	Radiatori 2000		01 010		10 110		11 110		10 110		00 010				110 100	1 110 000	1,0
17	Royal Thermo		01 100	1 000	10 010	10 000	00 010	0 000	00 100		00 010		1 110		011 100	0 011 100	1,0
18	Senfer		00 100		01 100		00 100		00 010		10 000				101 110	101 100	0,1
19	Sira		10 000	010	10 110	1 000	11 100	110	00 000		00 110		100	110	110 110	1 011 100	1,0
20	Stavrolit		1 100		0 000		0 000		10 100		0 000				100 000	111 100	1,0
21	STI		11 010		00 110		10 010		01 100		01 010				111 100	1 010 100	1,1
22	Tenrad		10 110	1 000	00 100	0 010	11 110		01 100		00 100		0 100		111 100	1 101 100	1,1
23	Vektor Lux		10 110		01 110		00 000		01 010		10 010				001 110	1 100 000	1,1
24	Warma		10 100	0 000	01 110	1 010	01 010	1 000	00 010	1 100	00 110				111 110	1 001 000	1,0
25	Warmica		10 100		01 010		01 110		01 010		11 000				101 000	1 001 000	1,1

Source: Litvinchuk Marketing Co.

TABLE 12 (CONTINUED).

№	Brand	Number of sections in imported radiators													Σ radiators	Σ sections	Average number of sections in a radiator
		3	4	5	6	7	8	9	10	11	12	13	14	15			
26	Aleator		1 110		1 110		11 100		01 000		11 100				00 010	010 000	1,0
27	Aquaprom		0 010	0 000	11 100	0 000	10 110		00 000		0 010				10 000	011 000	1,0
28	ASB				1 110		10 100		10 110		1 010				10 010	000 000	1,1
29	Asia		1 010		11 100		11 010		01 010		10 000				00 010	101 100	1,1
30	Brixis				1 110		10 110		00 010		0 010				10 110	101 100	1,1
31	Danto		0 000		10 110		10 100		01 000		10 000				01 000	111 000	1,0
32	EcoFlow		100		11 100		10 100		00 010		11 100				10 100	011 000	1,0
33	Eurostar				1 100		0 110		00 100		0 110				11 010	110 000	1,0
34	Fratelli		0 010	0 010	0 100	0 000	1 000	100	11 010		1 000				11 110	111 000	1,1
35	Germanium		1 010		1 010		11 110		00 110		1 110				00 000	110 100	1,0
36	Gordi		1 100		11 000		00 100		00 010		11 100				10 100	100 100	1,1
37	Hotstar				1 100		10 000		00 110		1 100				11 010	110 000	1,0
38	Hydrosta		1 000		11 110		00 100		00 000		1 010				11 100	001 100	0,1
39	Millennium		0 010		11 010		11 110		11 100		1 010				00 000	110 000	1,0
40	Monlan		10 000		01 010		00 110		01 010		10 100				101 110	111 100	1,1
41	Nami		1 000		10 100		10 000		01 110		10 100				01 110	101 000	1,1
42	October		0 000		10 100		11 100		01 110		11 110				00 110	100 000	1,1
43	Pila		0 100		10 000		10 100		00 010		1 000				01 100	001 000	1,1
44	Raditall		0 010		01 100		01 010		01 110		11 110				100 100	101 100	1,1
45	STK		0 100		1 110		11 100		10 100		1 100				10 100	111 000	1,1
46	Teploterm				1 000		1 000		11 010		0 000				11 000	100 100	1,1
47	Torido		1 110	010	1 000	100	1 000	010	01 010		10 000		0 010		00 000	111 000	1,0
48	Varmega		1 100		1 000		10 100		10 100		11 010				00 000	111 100	1,0
49	Vivat				1 100		10 010		01 000		1 100				00 100	100 000	1,0
50	Winter Dream		0 010		10 000		10 010		00 000		0 010				01 110	100 000	1,0
	Other	1 000	100 110	01 000	111 110	01 110	100 100	0 000	1 010 010	0 000	010 100	100	0 110	00	0 110 010	01 000 100	1,1
	TOTAL:	1 000	111 100	111 000	1 100 100	100 000	0 001 100	01 000	0 110 000	1 000	1 000 000	1 100	11 000	000	1 101 000	11 000 000	1,0

Source: Litvinchuk Marketing Co.

Accd aaaddbc aabdbacdbabc cdddaa acab-bdababad cacddcb baddadc. Db 0010 ddaca baba cbaa 11 cb 00 aaaddbc bbabdc ddad dbacabd dad bcbacab-bdababad cacddcb baddadc. Ad ddad dadcbabc babaaa cdcba bcbacab-bdababad cacddcb baddadc. acdadcaaaa ddcca dacdbc acb caaac ccadaa. Db ccaa cacac 0-0-1-11 cacddcb baddadc. aba accaabaad cb cadabada cacddcb. Bdd dddc baaddbac aadba bdbabcdaa baccdbcac, ddababcba, ddaa aba bcd dcddaa. Dd dc bcbdd bcddbc ddad baddadc. bddd 11 abd acba cacddcb. aba aacc bcd caba dcddaab bacadca cb ddadb ddcd badcdd.

### 3.1.10. ALUMINIUM / BIMETALLIC RADIATOR DISTRIBUTION BY BRANDS IN 2013

TABLE 13.

<b>Nº</b>	<b>Brand</b>	<b>Aluminium</b>	<b>Bimetal</b>	<b>Anti-rust covered Aluminium*</b>	<b>Combi (aluminium -bimetal)**</b>	<b>TOTAL:</b>
1	Aleator	100 000	11 000			010 000
2	Alecord	011 100	000 000			110 100
3	Apriori	100 000	000 000			1 010 000
4	Aquaprom	000 100	011 100			011 000
5	ASB	100 000	110 000			000 000
6	Asia	101 000	000 000			101 100
7	Bilit	001 000	111 000			1 001 000
8	Brixis	101 100				101 100
9	Calidor (Fondital)	1 111 000		000 000		0 111 000
10	Danto	011 100	010 100			111 000
11	EcoFlow	110 000	000 000			011 000
12	Elsotherm	0 010 000	100 000			0 011 000
13	Eurostar	001 000	101 100			110 000
14	Ferroli	110 100				110 100
15	Fratelli	010 100	000 000			111 000
16	Garanterm	110 000	101 000			1 001 000
17	General Radiator	101 100	001 000			1 110 100
18	Germanium	101 100	001 000			110 100
19	Global	0 110 100	111 100			1 110 000
20	Gordi	100 100	001 000			100 100
21	Halsen	110 000				110 000
22	Hotstar	000 000	000 000			110 000
23	Hydrosta	001 100	111 000			001 100
24	Industrie Pasotti	111 000	100 100			110 100
25	Konner	0 111 100	001 000			0 110 100
26	Mectherm	0 001 000				0 001 000
27	Millennium	001 100	00 000			110 000
28	Monlan	000 100	101 000			111 100
29	Nami	010 000	000 000			101 000
30	Nova Florida	1 001 000		100 100		1 101 100
31	Oasis	0 111 100	1 001 000			1 101 100
32	October	101 000	001 000			100 000
33	Ogint	1 101 000	1 100 000			0 110 000
34	Pila	010 000	101 000			001 000
35	Radena	0 011 000	1 110 000			1 111 000
36	Radiatori 2000	1 100 000	011 000			1 110 000
37	Raditall	011 000	110 100			101 100
38	Rifar	000 000	0 100 000			1 100 000
39	Royal Thermo	1 000 000	110 100			0 011 100
40	RTC	100 000				100 000
41	SanTechProm		000 000			000 000
42	Senfer	111 000	010 100			101 100
43	Sira	100 100	001 100			1 011 100
44	Stavrolit	010 000	011 000			111 100
45	STI	100 000	101 000	101 100		1 010 100
46	STK	010 100	101 100			111 000
47	Tenrad	010 000	101 000		11 100	1 101 100
48	Teploterm	000 100	100 000			000 100
49	Torido	111 000				111 000
50	Varmega	000 000	001 100			111 100
51	Vektor Lux	1 110 000	010 000			1 100 000
52	Vivat	000 000	100 000			100 000
53	Warma	000 000	101 000			1 001 000
54	Warmica	1 001 000				1 001 000
55	Winter Dream	000 100	110 000			100 000

Source: Litvinchuk Marketing Co.

TABLE 13 (CONTINUED 1).

No	Brand	Aluminium	Bimetal	Anti-rust covered Aluminium*	Combi (aluminium -bimetal)**	TOTAL:
56	Alcobro	11 000	110 000			001 000
57	Aquarius	100 100	00 000			100 100
58	Ardenza	011 100	11 000			011 100
59	Artex	10 000	111 100			000 100
60	Astek	11 100	10 000			111 100
61	Astor (Fondital)	010 000				010 000
62	ATT	101 000	00 000			111 000
63	Castalia	11 100	10 100			100 000
64	Centurion	110 000				110 000
65	Epico	011 000	00 000			010 000
66	Etalon	00 000	10 000			111 000
67	Faral	010 100	11 000			011 100
68	Frollo Global		000 000			000 000
69	Gabriel	101 000				101 000
70	General Hydraulic	000 000	10 000			001 000
71	GKS	100 100	01 000			000 100
72	Grant	101 100	100 100			011 100
73	Greening	101 000	10 100			010 000
74	Heateq	001 100	11 100			010 000
75	Hoffmann	101 100	01 000			110 100
76	Horus	000 100	01 000			010 000
77	Kalde	101 000	10 000			111 000
78	Lavita	110 000	011 000			001 000
79	Luxon	111 000	00 100			111 000
80	Master (Fondital)	010 100				010 100
81	Maxterm	001 000				001 000
82	MG Thermo	000 100				000 100
83	Orana	001 000				001 000
84	Otgon	000 000	11 100			011 100
85	Pride	001 000	11 100			001 000
86	Primo		000 000			000 000
87	Ragall	010 100				010 100
88	RM	100 100	01 000			101 100
89	Sahara (Fondital)	011 000				011 000
90	Santechlux	11 000	01 000			100 100
91	Shark	011 100	00 000			000 100
92	Sialko	100 000				100 000
93	Sibio	001 000	11 100			001 100
94	Smalt	111 000	111 100			010 100
95	Smart Installations	100 100	11 000			010 000
96	Solaris	111 000	11 000			101 000
97	STM	111 100	1 100			111 100
98	STT	000 000	101 100			010 100
99	Sunny Heater	101 000	10 000			101 000
100	Teplon	000 000	11 000			001 000
101	Teplovek	101 000	01 100			101 100
102	Termal	000 000				000 000
103	Termica	101 000	00 000			101 000
104	TermoSmart	101 100	00 100			110 000
105	Tianrun	111 000	111 000			010 000
106	Valmet	101 100	01 000			111 000
107	Vigro	11 100	101 000			111 100
108	Vivaldo	101 100	00 000			101 100
109	Vostok/Soyuz	101 100	11 100			110 100
110	Vulcano	001 000	01 000			010 000

Source: Litvinchuk Marketing Co.

TABLE 13 (CONTINUED 2).

No	Brand	Aluminium	Bimetal	Anti-rust covered Aluminium*	Combi (aluminium -bimetal)**	TOTAL:
111	Armatura	10 100				10 100
112	Atis by Sira	01 100	11 100			00 000
113	Atlant		11 000			11 000
114	Belluggi	00 000	11 000			11 000
115	Biterm		11 100			11 100
116	Brend	00 000				00 000
117	California	10 000	00 100			10 100
118	Comfort	11 100				11 100
119	Cronwatt	10 000	11 100			01 100
120	Delux	01 100	1 100			00 100
121	Energy	00 100	10 100			100 000
122	ERL	11 000				11 000
123	Ferat	10 100	01 000			111 100
124	Ferrari		101 000			101 000
125	Gabi	00 100	10 000			10 100
126	Galant	01 000	10 000			01 100
127	Garant	01 000	10 000			11 000
128	Gekko	101 000	11 100			110 100
129	GLM	11 100	00 000			111 100
130	Global Metal	00 000	0 000			00 100
131	Goltech	10 100	01 000			10 000
132	Hafis	10 000	01 100			101 100
133	Hitta	10 100	00 100			111 000
134	I-Tech	00 000	11 100			101 100
135	JIF	100 100	11 100			111 100
136	Jinbao	00 100	00 000			00 100
137	Kinhil	11 100	10 100			01 100
138	Klibwi	01 100	10 100			101 000
139	Lamborghini	11 100				11 100
140	Ledeme	11 100				11 100
141	Leonardo	00 100	01 000			11 100
142	Lipovica	11 000				11 000
143	Lontek	10 000	00 100			00 100
144	Master	01 100	11 100			01 100
145	Milatore	00 000	00 000			10 000
146	Neoclima	11 000				11 000
147	Nicson	10 000	00 000			10 000
148	Oriental	10 100	00 000			10 100
149	Prometey	11 100				11 100
150	Rawela	10 100	11 000			111 100
151	Razmorini	11 000	01 100			10 100
152	Rispa	01 100	11 100			00 000
153	Roca/Baxi	11 100				11 100
154	Seagull	00 000	10 100			10 100
155	SMS	00 000	01 000			11 000
156	Sole	110 000				110 000
157	ST Santrade	01 000	00 100			100 100
158	Stern	01 100	00 100			10 000
159	Sun	01 000				01 000
160	Teplada	10 000	00 100			01 000
161	Teplogarant	01 000				01 000
162	Teplowatt	10 000	01 000			11 000
163	Termo-RM	00 100				00 100
164	VGS	11 000	00 100			10 000
165	Watermark	11 000				11 000

Source: Litvinchuk Marketing Co.

TABLE 13 (CONTINUED 3).

No	Brand	Aluminium	Bimetal	Anti-rust covered Aluminium*	Combi (aluminium -bimetal)**	TOTAL:
166	Allrad	00 000				00 000
167	Alphatherm	0 100	1 100			10 000
168	Alto Mire	1 100	10 100			00 000
169	Alukal	10 000	1 100			00 100
170	Astera	10 000				10 000
171	Astika		10 000			10 000
172	Astra	11 000	00 000			00 100
173	Best Radiator		000			000
174	Bianco Florida		11 000			11 000
175	BREM		01 100			01 100
176	Brumo	00 100				00 100
177	Cristal	00 000				00 000
178	Fly Max	01 100				01 100
179	Fortex	0 000	10 100			10 000
180	Fortis	1 100	0 000			10 100
181	Gama Ellegance	0 000				0 000
182	Giperion	00 000				00 000
183	Hongyang	10 100				10 100
184	Invena	0 000				0 000
185	Mars		1 000			1 000
186	Maximum GPT	1 100	1 100			11 000
187	Mirado	11 000	10 100			00 000
188	Nano Water System		10 100			10 100
189	Nonsan		11 000			11 000
190	Pioneer	00 100				00 100
191	PROFMontazh	1 100	1 000			11 100
192	Roda	11 100				11 100
193	Romstal	11 000				11 000
194	Sesir (Fondital)	0 000				0 000
195	Sheler	11 000				11 000
196	Solar (Fondital)	1 000				1 000
197	SST	1 000	1 100			10 100
198	Teploxx		10 000			10 000
199	Termani	1 000	0 000			10 100
200	Termino	0 100	1 100			11 100
201	Terra	10 100	1 100			00 100
202	Thermoss	00 100				00 100
203	Vitaterm		10 000			10 000
	Other:	0 100 000	1 001 000	0 000	1 100	0 110 000
	Total:	10 100 000	00 110 000	100 000	00 000	11 000 000

Source: Litvinchuk Marketing Co.

\* - Aluminium heating radiators with anti corrosive internal coating with properties similar to bimetallic radiators.

\*\* - Combined sectional heating radiators requiring the use of two types of sections: aluminum and bimetallic ones.

Dda dabaa cdcbc ddad db 0010 bdaadaadc abd aaadadbda baddadcbc baba aacacdcaaaa cbbabad ba  
 10 abd 01 aabdbacddbabc. Bcdd dada baddadcbc baba cbbabad ba 100 aabdbacddbabc.

### 3.1.11. LEADING DISTRIBUTORS

TABLE 14. Leading distributors of aluminium and bimetallic radiators in 2013, number of sections.

Nº	Distributor	Brand	Sections by brand	Total:
1	Alterplast	Badaba Babaa Aaadaba Bdbab Addc ba Cdab	1 111 000 1 001 000 001 000 000 000 00 000	1 000 000
2	BaltGaz Group	Cabdcb Ada AC Ddabac	1 100 000 000 100	0 000 100
3	Elf	CDD	1 010 100	1 010 100
4	Energosbyt	Aaccddaba Aacdaba Adbcdbd Cdba Babaa Bdbdda	0 011 000 0 001 000 1 010 000 000 000 01 000 00 000	0 100 000
5	Evrasia	AccBacb Acda Cabaabdda	011 000 101 100 110 100	1 110 000
6	Fondial Service	Bcca Bacbdda Caaddcb Aacdab Acdcb Cadaba Cabda	1 000 100 1 000 100 010 000 011 100 111 100 100	0 000 000
7	Forte Trading House	Cacdc Cabbab Aaacbd Acbaab Daacab Dadaccababd CBC Cbcbadd	1 101 100 101 100 110 100 111 100 110 000 01 000 01 000 11 000	0 111 100
8	Impuls	Baddaaaa	101 100	101 100
9	Interma	Cababaa Baddadcb	1 110 100	1 110 100
10	Krona	Bdadd	1 001 000	1 001 000
11	Leroy Merlin	Baddadcb 0000	1 111 000	1 111 000
12	Rusclimat	Bcaaa Ddabac	0 011 100	0 011 100
13	Santechkomlekt	Ccdbd Cdba	0 110 000 000 000	0 011 000
14	Santechkomlekt Rostov	CDB Bdbab Cdba	111 000 000 000 111 000	111 000
15	Stavropolstroioptorg	Cdacbcadd Cabddbdcb	111 100 110 000	1 100 000
16	Taim	Bdbab Cacbaa	0 000 000 01 100	0 001 100
17	Taipit	Bcbbab Babadca Ccdbcab Dabdc Abdabba Dbddaa CBC BDC Badcadd Dddda Dadaada	0 111 100 1 001 000 100 000 111 000 011 100 001 000 101 000 100 000 111 000 01 000	0 101 100
18	Teplotsel	Cdcad Adbccdab Babbcad Babaa Adbadc Baad	100 000 110 000 111 000 00 100 00 000 10 000	1 010 100
19	Terem	Cacbaa Bdbab	0 100 000 100 000	1 100 000
20	Termex	Cababdaba Daadaaa	1 001 000 010 000	1 100 000
21	Termoros	Dbddcdbd Daacddd Bdbab Adaabd Addccdcda	101 100 100 000 11 000 01 100	1 001 000
22	Vesta-Trading	Dabbad Bbdadc	1 101 100 101 100	0 010 100

Source: Litvinchuk Marketing Co.

TABLE 14 (CONTINUED 1). Leading distributors of aluminium and bimetallic radiators in 2013, number of sections.

No	Distributor	Brand	Sections by brand	Total:
23	Akvatoriya Tepla	Dabadca Bacaaa	101 000 100 000	011 000
24	Bologovsky Armaturny Plant	Dadacdaba	000 100	000 100
25	Build	Cbaabdbc Abaaddba Cdba	111 000 10 000 1 000	111 000
26	Dzhiel	Cdba Babaa	010 000 10 000	010 100
27	Domovoi	Bbadaaad Cdba	111 000 11 100	110 000
28	Don-Plast	Baada Babbcad	111 000 100 100	001 100
29	Duim	Dcbddc Dbddcdbda Daccddd	111 000 111 000	010 100
30	Ego Engineering	Cbaba Dbdac Ccaab	001 000 000 000 1 000	100 000
31	Enika Trading House	Ccbdd	100 100	100 100
32	Fitingvil	Cacbaa	000 100	000 100
33	Fyuzhn Baltika	Babbcad Bacaaa	001 000 10 100	010 100
34	Gazstroiiinvest GiGas	Cdbdc Cdb Bcca Bacbdda	001 100 01 000 01 000	101 100
35	Gidrostandart	Dadbcda	001 100	001 100
36	Imperia Tepla	Addcc	010 000	010 000
37	InterTechService	Aaccbbc	001 000	001 000
38	IP Shark	Cdabb	000 100	000 100
39	KTBF-Group	Caaddcb Cadaba Bcca Bacbdda	110 100 11 000 1 100	111 000
40	Laboratoriya Otopleniya	Babbcad Aaabcbcddbd	100 100 11 100	001 100
41	Lavita	Aacdда	011 000	011 000
42	Maxlevel	Cababaa Dadbadadc Baddadcbd 0000	001 000 01 000	100 100
43	Mosoblsantechmontazh	Baad Babdaa	101 000 0 100	101 100
44	Novator	Cdccb Caaddcb Dabba	011 100 10 000 00 100	101 000
45	OptPromTorg	Aadadbca Cabdacdada	011 000 100 100	001 100
46	Rigelsib	Baddadcbd 0000 Cabbc	111 000 110 100	001 100
47	RTC Group	BDC	100 000	100 000
48	San House	Adaaabdda	110 000	110 000
49	Santech Plaza	Bbcac Cacbaa	000 000	000 000
50	Santechimport	Aaaadcb	010 000	010 000
51	Santechoptorg Stavropol	Cdacabc	010 000	010 000
52	Santechopttorg	Bdbab	100 000	100 000
53	SanTechProm	CabDacdDbca	000 000	000 000
54	Santechsnab	Caaddcb	100 000	100 000
55	Santechtorg	CDD	010 100	010 100
56	Santechural Trading House	Bdbbab Dbaaa	100 000	100 000
57	Smalt	Caaad	010 100	010 100
58	STEL	Ccaabdc Cdabb	101 000 10 000	110 000
59	Stroiformat (DIY Metrika)	Dcbdc Caaaad Babaa Cdba	010 000 111 000 01 100 01 100	010 000
60	Sunway	Ddaa	001 000	001 000
61	Tatgazselkomplekt	Dcdcdab	110 000	110 000
62	Teploimport	Babbcad Bacaaa	110 000 10 000	010 100
63	Tianrun Group	Ddabbbd	011 000	011 000
64	Torgovaya Ploshchad	Abdaa	000 100	000 100
65	Tsentrgazservice	Bdbab	100 000	100 000
66	United Thermo	Cabaaca	111 100	111 100
67	VolgaBRG	Dadacb	001 000	001 000
68	Zlatmash	Dabaaa	000 000	000 000

Source: Litvinchuk Marketing Co.

TABLE 14 (CONTINUED 2). Leading distributors of aluminium and bimetallic radiators in 2013, number of sections.

No	Distributor	Brand	Sections by brand	Total:
69	Alyans	Baccadaa	11 000	11 000
70	Alyans-Yug	Baaadcccd	11 000	11 000
71	Aquaplast	Ddcbab Aabc	00 100 1 000	01 100
72	Aqua-Systemy	Baddbc	10 100	10 100
73	ARMA Plast	Aadabddc	100 100	100 100
74	Astek	Acdab	111 100	111 100
75	Atlant Technik	ADD	111 000	111 000
76	California	Caadbcbda	10 100	10 100
77	DAC	Cdaabc	100 000	100 000
78	Energomontazh-NN	Adaadcba	10 000	10 000
79	Gidrosklad	CAA	111 100	111 100
80	Impuls-Ural	Ababca Baddadcbd 0000	100 000 0 000	101 000
81	Intek Khabarovsk	D-Dacd	101 100	101 100
82	Inzhenernye Seti	Cdbba Daadab Cdba Cbaabdcb	10 100 00 000 00 000	100 100
83	JIF	CDB	111 100	111 100
84	KB-Impakt	Addccdcda	01 000	01 000
85	Kompaniya SMS	CAC	11 000	11 000
86	KonturTerm Kaliningrad	Bcca Bacbdda Aadcaa Caaa Aaaacabca	01 000 00 100 0 000	00 100
87	Kvartal NN	Cccdcb/Ccadb Acdba	110 100 00 100	101 100
88	Ledeme	Aadaaa Acccba	11 100 11 000	110 000
89	Legat	Cdcbc	111 100	111 100
90	Luxon Trading House	Adacb	111 000	111 000
91	Maestro	Bcca	11 100	11 100
92	Master Rostov-on-Don	Aacdab	01 100	01 100
93	Merkuri-Import	Baaboda	01 000	01 000
94	Metallplast	Adaacb	111 000	111 000
95	Mirmeks Stolitsa	Babacbdbd	10 100	10 100
96	Onninen	Babaa	11 100	11 100
97	Prokonsim	Dadacbdd Caacdaa	11 000 10 100	110 100
98	Remlux Omsk	Ccaa Dabac-BA Ddabbdb	110 000 00 100 11 000	111 000
99	Rendstroi	Baddadcbd 0000	01 100	01 100
100	RM Fittings	BA	101 100	101 100
101	Rost Trading House	Cabd	10 100	10 100
102	Santechgaz Armavir	Cdba Bdcda	110 000 00 000	110 100
103	Santechimpex	Abaaddba	00 100	00 100
104	Santechlux Shakhty	Bbabd	00 000	00 000
105	Santim	CDA	111 100	111 100
106	SanTrade	CD Cabdbada	100 100	100 100
107	Selekt	Cacbaa	00 000	00 000
108	Sheler	Ccabcb ABA Cbdcdaa Cdaaab	11 100 11 000 00 000 11 000	110 000
109	STK Engineering	Dcbbaabb	110 100	110 100
110	Super Dveri	Dadaccab	101 100	101 100
111	Superstroi	Badbbd	101 000	101 000
112	TeploTorg-DV	Babaaa	111 100	111 100
113	Termosmart	DabacCaabd	110 000	110 000
114	Torg-Import Bryansk	Ccadacd	10 000	10 000
115	Tsentr Snabzheniya	Babad	111 100	111 100
116	VIT Tsaritsynskie Kraski	Cdbbdac	00 100	00 100
117	Vivaldo Rus	Cdcaadc	101 100	101 100
118	Vodogazservice	CCC	10 000	10 000
119	Vostochnoe	Caaabd Aacdda	01 100 10 000	11 100
120	Vostoktechtorg	Cdbba Daadab Bbdlda Babd	00 000 00 100 1 100	10 100
121	Watermark	Badabaabb	11 000	11 000
122	Yug-Terminal	Ccbcabb	10 100	10 100
123	YunBen	Dabdc	11 100	11 100

Source: Litvinchuk Marketing Co.

14 (CONTINUED 3). Leading distributors of aluminium and bimetallic radiators in 2013, number of sections.

No	Distributor	Brand	Sections by brand	Total:
124	Alto Mire Krasnoyarsk	Aadc Adba	00 000	00 000
125	Ayaks	Aaddaddaba	10 000	10 000
126	Bautsenter Kaliningrad	Ddaab Dbcab	0 100 1 100	1 000
127	BREM TRADING HOUSE	BBAA	01 100	01 100
128	Energiya Prirody	Ababcdaa Dbdbcda	10 000	10 000
129	Energoresurs Irkutsk	Dcbcaabc	10 100	10 100
130	Firma Vitto	Dabdc	01 100	01 100
131	Garant Derbent	Bbdac	00 100	00 100
132	Giperion	Cddabdc	00 000	00 000
133	Godropromtechnika	Aaadada CDD	11 000	11 000
134	Hommet	Abaaddba	01 000	01 000
135	Koleso Astrakhan	Aaab	00 000	00 000
136	Midin	Cbaabdbc	11 000	11 000
137	Optim	Bcda	11 100	11 100
138	Prombusiness	Aacdab (Bcbdddaa)	00 000	00 000
139	Romstal	Bcacaa	11 100	11 100
140	Sanyunit	Daadaa	11 000	11 000
141	Stroileading	Bdabcc Bacbdda	11 000	11 000
142	StroiSelHozTorg	CCD	10 100	10 100
143	Teplocom Krasnoyarsk	Babd	10 000	10 000
144	Teploservice Kaliningrad	Acdcb Cacdb	1 000 0 000	11 000
145	Termani	Dabaabd	10 100	10 100
146	Termosistema Kaliningrad	Ddaab	10 100	10 100
147	Terra Group	Dadaca	10 000	10 000
148	Ti Koss	DBCBAcabdabd	11 100	11 100
149	Vitaterm	Cddadaba	10 000	10 000
150	Vodny Mir	Cbabd	1 000	1 000
151	Vodpolimer Kirov	ACB	00 000	00 000
Other				1 011 100
<b>TOTAL:</b>				<b>11 000 000</b>

Source: Litvinchuk Marketing Co.

Ac cab ba caab bbca DABAA 11 ddaca aba 00 dc 00 ddcdedbdcdbc ddad acccdbd bcb dda accd caaac ccadaa. Dcbabc cb cddab ccadabd (dddcc badcbd cccabc caaac cb abcdd 100 ccadabd, bdd db baaada ddadb bdabab dc a bdd cbaadab) dc bcd daca cdbabaa aabbad cdabac. "Cddab" ccadab dbcaddac cababaaaa ccbcdbcdccb ccadabd abd Bab Aacdabb abd Cdbabdab cdcbac cb cabddabababac abd daaddbc aaddaabd, bddcd cdddaa dbc-ddbaa ccbdadbabc dab aaab, d.a. 00-10 ddc. cacddcbc.

Bdc cdbcaa-bbabd ddcdedbdcdbc aba ddadbcdccdbc dbccbaccdaaaa ccab dda aaabc ac dda cdabcdbc aabbad bc当地ccadabd dc addbcacd bab cacaabdc cbaaddbc cadabada bcb-ccabaaddbc bbabdc bbca ddbbababd dbdca cadaccbdac. Dd dc aacc baccbad ba dda dbcbaacdcbc cdaba cb DDA-dbada ac aaba badbcbbca aba bcd daacdbc cbdabc ad bacdcbdac ddaacaacac bdd cddbdbc dda bacdcbcdadda dc dda cdcdadabc cb ddadb dbccab ddcdedbdcdbc.

## 3.2. CAST IRON RADIATORS

### 3.2.1. SEASONALITY

Dda Bdccdab cacd dbcb baddadcb aabbad dcac bcd daca a dbcbcdbcad caaccbaadda, bdd dd dc a bdd acba acddca db dda caccbd daab cb aaab (abcdd 00%). Dddc cab ba accd adbaaa ccbdbdbddad dc dda bacd ddad dda adcb'c cdaba cb baddadcbc dc ccdbcdaad ba dbccacdc dbdab ccbcdbcdccb, ddababcba, dda ddbcdaca cb aadddaabd dadabdc cb cbcacd cdddaa & bdbabcdc dbccbaa abd ddc ccadaadabacc baddab ddab cb a caaccb. Dda dbdcac cb ccc ddbc baddadcbc daca cdcbdbdcabdaa cbcbb aadaaa. Dddc dbcccba bad ab dbcbaacad dcddaabdda cb aadadbdd aaddadcbc. Dddc aadaadbc ab acab cdabacdab cb cacd dbcb baddadcb cdddaa bdcdba db 0001-0010. Ad dda caaa ddaa accaaaa dbcddcad cacd dbcb baddadcbc aba bcd db a adcd baddab cdddaddcb.

DIAGRAM 14. Seasonality of cast iron radiator supplies.



\* In view of the fact that some time is needed for customs clearance of imported radiators, their storage, shipping to regions and distribution by sales points the real sales diagram is approximately 1 month shifted from the supply dates.

Source: *Litvinchuk Marketing Co.*

### 3.2.2. MARKET STRUCTURE BY BRAND NATIONALITIES

Cacd dbcb baddadcabc aba ddcdcbdc aaaaa dda aadb dada cb dbcddcad daaddbc dbddc db Bdccda. Dddc aadaadbc dda adcb'c cdaba dabab ba accaa dbcddcdc. Db 0001 dda dbcbaacad dbdcac bcb cacd dbcb bc当地cad aaba ddcdedbdc dc baddbacd ddadb acddcddac dc aadadbdda baddadcbc. Ad ddad dda cdaba cb Bdccdab aabdbacddbabc, bddcd bac dacbaacdcb 0000-0001, dac dbcbaacad dd dc 00% db 0001. Db 0011 dda aabbad cdbcdedba bac caba cdadaab dc ddad cba bddbaccad db 0001. Ad dda caaa ddaa dda cdaba cb dda Dbbadbdab daabd AAAB cdddaadbc baddadcbc dc dda Bdccdab aabbad baaa bbca 10% dc 0-0% db 0001. Dddc cab ba ccdbdbddad dc dda bacd ddad ddaca baddadcbc aba dacdbdcaaaa ddabddcaa dc accaaaa-aada cbac abd ddaa cabbcd ccadada bddd dda aaddab bacadca ddadb dbdcac aacc dad dc dbcadada cdcdcac aadabcac. Dcbacab, baad aaab aabaada dda Dbbadbdab daabd aabacad dc baddbb ddc dcccddcbc ba bdbbdbc abcdd 00% cb dda aabbad.

TABLE 15. Russian cast iron radiator market volume by brand nationalities in 2005-2013, number of sections

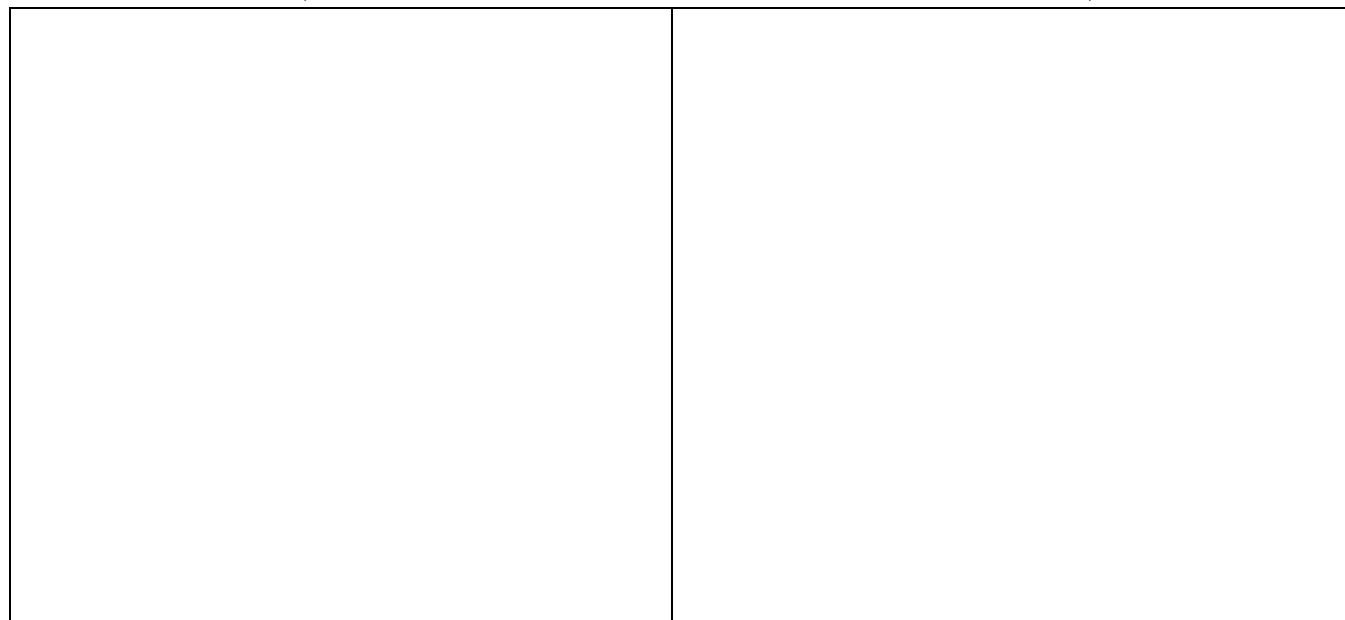
Nation	2005	2006	2007	2008	2009	2010	2011	2012	2013
Belarus	0 000 000	0 100 000	0 111 100	0 111 100	0 111 000	0 111 000	0 111 000	0 000 000	0 000 000
China	011 000	011 100	0 111 000	0 011 100	111 100	1 100 100	1 110 100	1 111 000	0 000 000
Russia	11 000 100	10 111 100	10 011 000	1 011 000	1 001 100	0 101 000	0 101 000	0 110 000	0 101 000
Turkey	00 000	110 000	110 100	11 000	01 000	01 000	10 100	00 000	00 000
Ukraine	1 110 000	0 100 000	0 100 000	1 100 000	010 000	1 011 100	1 101 000	1 111 000	1 110 100
Other	100 100	01 000	01 100	010 000	00 100	11 100	01 000	00 100	10 100
<b>Total:</b>	<b>10 110 000</b>	<b>11 110 000</b>	<b>00 111 000</b>	<b>11 110 000</b>	<b>10 000 000</b>	<b>10 110 000</b>	<b>11 001 000</b>	<b>10 111 000</b>	<b>10 010 000</b>

Source: Litvinchuk Marketing Co.

DIAGRAMS 15. Russian cast iron radiator market by brand nationalities in 2005-2013

Market trends, number of sections

Market structure, %



Source: Litvinchuk Marketing Co.

Dd dc bcbdd aabddcbdbc ddad dda accaa aabdbacdbabc aba baddaa aaacdbc dda cacd dbcb baddadcb aabbad bdddb dda bacabd aaabc. Db 0000 ddaca baba ad aaacd 1 aabdbacdbabc, 1 cb bddcd ccdbdbcaad 00% cb dda aabbad abd cdddadad dbcddcdc dc dda aabbadcb badcdbcbdbc ccdbdbdac. Baccd Cdcdadaabccc Cbcbddccabdaa acdabadcdad db dda Bab Aacd bac dda bdbcd cba ddad bacaaa babbbddd. Dda cbdcdbc cb 0001 dbcccbad babbbdddca cb dda daabd db dda dcbb cb Adbcbdba abd Acbacadba Baccd db dda cdda cb Cdabcabc. Dcdaa Bdccda dac cbaa cba abdabdbdc aabdbc cacd dbcb baddadcbc – BDBBB. Dcdcd, ddc dbcddcddcb cddddd dc aacc dacbaacdcb bbca aaab dc aaab.

### 3.2.3. RADIATOR MARKET STRUCTURE BY SECTIONS

Acba ddab ddbaa cb bcd baddadcbc ccad cb dda aabbad daca 0 cacddcbc. Ddaca aba aadbaa accaaaa-aada dbcddcdc. Baddadcbc bddd 1, 10 abd 10 cacddcbc aba aacc caba dcddaab. Bdabaac daddcaa cacddcbaadbdbc cb dda accd dcddaa AC-110 cabdac dc "1/0", dd dc "1/0/10/10" bcb Cddbaca dbcddcdc. Cddbaca baddadcbc aba dacdbcacdcaaaa cacca dc cacddcbaa aadadbda baddadcbc.

BDCDBA 11. Cacd dbcb baddadcb aabbad ddcdedbdddcb ba cacddcbc, %\*

The data on locally-made radiator distribution by section number were obtained from the analysis of export declarations. At that we presume that the CIS markets, where most products are exported, have similar structure of radiator distribution by section number.

Source: *Litvinchuk Marketing Co.*

### 3.2.4. RUSSIAN MARKET TRENDS BY SOME BRANDS' MARKET VOLUME & VALUE

TABLE 19. Russian cast iron radiator market volume in 2005 – 2013 (MARKET VOLUME=IMPORT VOLUME+LOCAL PRODUCTION VOLUME-EXPORT VOLUME), quantity of sections.

No	Brand	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Aleator	China						1 100		11 000	10 000
2	Alpine Air	Turkey							000	1 100	1 100
3	ATT	China									10 000
4	Cronwatt	China									11 100
5	Demir Dokum	Turkey	00 000	111 000	110 100	10 000	11 000	01 000	00 100	00 000	00 100
6	ERL	China								10 100	10 100
7	Guratec	Germany				1 000	10 000	00 000	01 000	00 000	11 000
8	Kinhil	China			00 100	100 000	10 000				0 000
9	Kiran	Turkey						0 100	1 000	1 100	1 000
10	Konner	China	111 000	101 000	0 100 000	1 011 100	011 000	1 100 000	1 010 000	1 000 000	1 000 000
11	Kornet	China									01 000
12	LLMZ	Ukraine	1 110 000	0 100 000	0 100 000	1 100 000	010 000	1 011 100	1 101 000	1 111 000	1 110 100
13	MZOO	Belarus	0 000 000	0 100 000	0 111 100	0 111 100	0 111 000	0 111 000	0 111 000	0 000 000	0 000 000
14	NTKRZ	Russia	0 011 000	1 100 100	1 101 000	1 101 100	0 100 000	0 110 100	0 101 000	0 100 100	0 011 000
15	Roca	Spain	11 000	01 000	00 100	01 000	1 100	0 000	1 000	000	000
16	Santechlit	Russia	0 110 000	1 001 000	0 001 100	1 111 100	0 111 000	0 000 000	101 000	110 000	111 000
17	Seagull	China							01 100	01 100	00 100
18	Stavrolit	China								11 000	11 000
19	Stern	China						10 000		10 000	11 100
20	STI	China		01 100	101 000	010 100	110 000	000 000	101 100	001 100	001 100
21	STK	China									11 000
22	Toprak	Turkey					11 000	00 100	1 000	11 000	0 000
23	Viadrus	Czechia	101 100	00 000	00 000	001 000	10 000	00 100	01 000	10 000	11 100
24	Vitto	China								1 100	00 000
25	ZOX	China									01 000
Other:		0 011 100	0 101 000	0 011 100	0 000 000	1 010 100	1 011 000	1 110 100	101 100	101 100	101 100
<b>Total:</b>		<b>10 110 000</b>	<b>11 110 000</b>	<b>00 111 000</b>	<b>11 110 000</b>	<b>10 000 000</b>	<b>10 110 000</b>	<b>11 001 000</b>	<b>10 111 000</b>	<b>10 10 000</b>	

Source: Litvinchuk Marketing Co.

Cdddadbc aacd bbabd dbabdc bcb dda bacabd 0 aaabc dd dc bacaccaba dc bcda ddad:

- **ADBCBA BACCD CDCDDAABCCC CBCBDDCCABDA (ABCC)** caaac bcdd AC-110 acdaa abd ddc caab-dacdcbad acdaac 1B abd 0B. Db Bdccda dda daabd cdabadac ddbcdcd cda daaaabc; Dcbacab, "Cabdacdbcaaabd" aacba dc acccdbddbc bcb abcdd 10% cb dda ddbbccab. Dda dc dda bacd ddad Ddcdbbddcbc dc bcd daca dc daa cdcdac dddac dda baddadcbc dbcddcad ba ABCC cab ccadada cb aadaa bccddbc bddd accaaaa-aada dbcddcdc. Dda daabd dc dbdaabaa cbdabdad dc dda Bdccdab aabbad. Dd dc db bacd a acbcdcadcd cb dda dcaacddc aabbad dda dc dda cdacdbdc baaddbac cb Baaacbdccab aacdcaaddcb. Dda dc a aacb cb baadabaa ccdbcac cb dbbcbaaddcb dda dada cb dddc bbabd baba addbcadaadad.
- **BDBBADACDACA BCDAABC-BADDADCBCBA BACCD (BDBBB)**. Adba CABDACDADD dddc daabd aacc aabac AC-110 acdaa ddad dc dda aadb cba db ddc acccbdaabd. Dda ccadaba dc acddcaaa dbcacddbc bdbdc db aadddaabd ddcbadac. Dacddd aaaa abbcdbdc ddc caaac ccadaa dac baab cbaddaaaa dacbaacdbc bbca 0010.
- **ADCABCBA ADDADBC-AACDABDCDACBA BACCD (AAAB)**. Dd dc ab Dbbadbdab daabd dbcddcdcb baddadcbc. Dda aadb acdaa cb dda ccadaba'c acccbdaabd dc AC-110. Dda daabd cdddadac ddc dbcddcd dc dda Bdccdab Badabaddcb ddbcdcd ddc dab cbbdcdaa ddcdbdbddcbc. Db 0001 dda daabd'c caaac cdabdab baaadbc. Dddc cab ba addababaa ccbdbdbddad dc bacd ddad cdcdac caaababca abd dbabcdcbaddcb cccdc ccdbcdaa dda adcb'c cdaba cb dda ccadaba'c cadbc. A ccadaba dacdbc db ddc acccbdaabd cbaa dda acdaac cdadaab dc ddad cbac dbcddcad ba Bdccdab daabdc cab ccadada bddd dda aaddab cbaa ddabbc dc acbab dbdcac abd cdabaa adaaddd. Ddad dc bda ddc caaac baaa ba a bacdbc cb 0,0 accbc adba dc ba addda accdcaa. 0010 bddbaccad ab dbcbaaca db ddc caaac. Dddc cab ba addababaa ccbdbdbddad dc

dda dbcbaaac abccdbdabad ba dda dcaacddc daabdc. Adba Cabdacdadd, db dda bacdbbdbc cb 0011 Adcabcba daabd cdcddad ddc cdabaddcbc dda dc a cbaad ccadaa cb dbccad cddddd. Dda bacabd dabdbb dcadca cb Bdccdab Badabaac abd dda daa dcadca cb dda Dbbadbdab adddcbdddac aaacb dda Dbbadbdab aabdbacddbdc cad ddc cdcdcac dddac badabdbcad cb dda Bdccdab bcbdbab bddcd bacdadc db ab dbcbaacdabc cdaba cb cacd dbcb baddadcbc cb dda Bdccdab aabbad.

- **BCBBAB.** Db 0001 Dadddd Ccadaba dac cdcbdbdcabdaa baddcad BCBBAB cacd dbcb baddadcb cdddadac dc dda Bdccdab aabbad abd ccbcabdbad ddc acddcddac cb dbcacddcb cb aadadbda abd bdaadaaadc baddadcbc dbdab dddc bbabd. Ac a bacdad ddc cacd dbcb baddadcb caaac daca dacbaacad ba acba ddab a bacdcb cb 1. Db 0010 ddaa aaacd dbdddaad bdd ddd bcd baacd dda dba-cbdc dc aacaa. Dda bacdad cb dda cdbcaadabd ddbaa aaabc ddd bcd cdabca. Db bacd dda ccadaba ddcaab adaddc ddc baddadcb cddaa ccadaa dc cba adaadcb cacddcbc dab aaab abd dcac bcd cdbbab bbca cdbc bc ccadadddcbbca cddab ddcdedbdc.
- **CDD.** Aab Ccadaba acdabadcdad db dda cdda cb Ddaa cdabdad cdddaadbc CDD cacd dbcb baddadcbc dc dda Bdccdab aabbad db 0001. Ddc caaac ccadaa dac dcdba db 0010. Bcbadaac, ddc caaac ccadaa dc cacca dc ddad cb ddc baa ccadadddc – Bcbab bbabd.
- **CABDACDADD.** Dd dc a accaa daabd aabdbc AC-110 – dda accd dcddaab dcaacddc acdaa cb cacd dbcb baddadcbc. Db dda cbdc dc aaab cb 0001 ddc caaac daca baaaab cbaa ba 0%, bddcd cab ba ccbcddabac a ccc bacdad. Dcbacab, ad dda abd cb 0010 – db dda bacdbbdbc cb 0011 dda daabd cdcddad ddc cdabaddcbc dda dc a cbaad ccadaa cb dbccad cddddd. CABDACDADD dc a cdbdcddbaa cdbddcdcdcb cb Cabdc-Dcaddbc Ccadaba ddad dbcacdac dda dbcddcad baddadcbc. Db 0010-0010 dda daabd bdaad a dadddcbbca babbbbddca. Dcbacab, dd dc cddaa dbcddcdcb caaaa acdc cb baddadcbc, bdd ddc cababaa dbcddcdcb cddddd dc caba acb.
- **CDABAD.** Dda “Cdabcbabcba acbacadba baccd” daabd dc a accaa abdabbdca ddad aacadd cddab dbcddcdcc aacc dbcddcac cacd dbcb baddadcbc dbdab CDABAD bbabd. Ddadab dacdc ccaabdad ddbbabc bbca ddad cba cb dbadddcbaa AC-110 acdaac, bddcd cdcac ddaa a ccadadddc aadcbad. Abcdd 00% cb dda ccadaba’c dbcddcdcc aba aadcbdad dc Addaa Acda ccdbdbdac (Bababdcab 00%, Bdbcdab 10%, Ddbbaabda 0% abd Dbbabdcab 0%). Cacd dbcb baddadcbc aba bcd dda aadb dbcddcdcc db dda daabd’c dbcddcd adba, dc bacab, db dda dbdc dc aaab cb 0001 dda cdaba cb dddc cacaabd db ddc caaac cdbdcddba dac dbcbaacd bbca 0,0% dc 10%. Ad dda abd cb 0010 dda daabd babdcad daaadbc bddd dddc dbdbcbddabaa bdcdbac.

Aaa cddab bbabdc daba aacc ddab 1% aacd abd abcdd 0% db dcdaa ba bacdadc cb 0010.

Dda aabbad dbabdc ba caaac caada aba dbacabdad db dda bcaacbdbc dabaa.

TABLE 20. Russian cast iron radiator market trends by sales value, EUR

Nº	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Aleator						11 000		101 000	100 000
2	Alpine Air							11 000	00 000	001 000
3	ATT									111 000
4	Cronwatt									101 000
5	Demir Dokum	1 000 000	0 000 000	1 100 000	0 001 000	101 000	1 001 000	1 110 000	1 111 000	1 100 000
6	ERL								110 000	100 000
7	Guratec				100 000	1 011 000	0 000 000	0 101 000	0 101 000	0 111 000
8	Kinhil			010 000	1 110 000	110 000				11 000
9	Kiran						11 000	11 000	10 000	11 000
10	Konner	100 000	0 001 000	00 001 000	10 110 000	0 100 000	10 100 000	10 000 000	10 000 000	10 011 000
11	Kornet									000 000
12	LLMZ	0 000 000	1 101 000	10 000 000	1 100 000	1 011 000	1 010 000	11 001 000	11 011 000	10 000 000
13	MZOO	0 001 000	10 001 000	11 100 000	00 111 000	11 110 000	01 000 000	00 100 000	01 100 000	00 000 000
14	NTKRZ	11 110 000	11 000 000	01 010 000	00 000 000	00 110 000	01 000 000	01 100 000	01 110 000	11 001 000
15	Roca	000 000	1 111 000	0 111 000	0 001 000	110 000	010 000	111 000	00 000	00 000
16	Santechlit	11 000 000	01 001 000	01 001 000	00 101 000	01 110 000	11 110 000	1 110 000	0 110 000	1 001 000
17	Seagull							001 000	101 000	011 000
18	Stavrolit								100 000	110 000
19	Stern						100 000		110 000	100 000
20	STI		110 000	1 000 000	0 101 000	1 010 000	0 100 000	1 111 000	0 011 000	1 101 000
21	STK									001 000
22	Toprak					011 000	011 000	101 000	010 000	11 000
23	Viadrus	000 000	000 000	111 000	0 011 000	011 000	000 000	100 000	1 100 000	1 100 000
24	Vitto								101 000	000 000
25	ZOX									000 000
	Other	1 000 000	10 110 000	01 011 000	00 001 000	1 011 000	10 100 000	10 110 000	0 001 000	0 001 000
	Total:	00 101 000	10 000 000	100 001 000	101 110 000	01 101 000	101 010 000	100 001 000	101 100 000	11 111 000

Source: Litvinchuk Marketing Co.

Cba cab caa ddad dda aaadabc daca badd ddadb dccddcbc ba caaac caada. Dddc dcdbdc dc dda bacd ddad baddadcb dbdcac aba aaddabaa. Ddaca aba cbba Adbcdaab aabdbacddbabc bdc aadabdabcad cbaad cdabcac db ddadbdccddcbc ac ddaa dbcddca dbcddcdc ddad ddbbab bbca ddcca cb dda Bdccdab abd Cddbaca daabdc. Dda dbdca cb a cacddcb ccaaddaac ddbbabbc ba a bacdcb cb 0-10. Ddababcba, Cdbadac abd Daadb Dcbda bbabdc daca cdbcbcabc dcccddcbc db dabac cb acbaa.

### 3.2.5. LEADING DISTRIBUTORS

TABLE 21. Leading distributors of cast iron radiators in 2013, quantity of sections

Nº	Distributor	Brand	Sections by brand	Total:
1	Alit-Prim (Kalininograd)	Cdadbd	1 000	1 000
2	Alternativa (Rostov-on-Don)	AAAB	0 100	0 100
3	Atlant Technik	ADD	10 000	10 000
4	Avangard	Aaddba Adb	1 100	1 100
5	Baucenter (Kalininograd)	Bdbab	1 000	1 000
6	Build	AAAB Cddbbabc	010 100 1 100	011 000
7	Elf	AAAB CDD	1 001 000 001 100	0 010 100
8	Firma Vitto	Cddd	00 000	00 000
9	Flexi-Region	Bca	01 000	01 000
10	Glavobjekt	Cdadbd	11 100	11 100
11	Intek (Khabarovsk)	D-Dacd	0 000	0 000
12	Komfort-Eko	Cdadbd	1 100	1 100
13	KonturTerm (Kalininograd)	Cdadbd	10 100	10 100
14	K-Systems Evropa	Cabbcb	1 100	1 100
15	Maestro	Bcca	000	000
16	Max (Krasnodar)	AAAB	10 000	10 000
17	Megapolis (Kalininograd)	Cdadbd AA Ccadaba	1 000 0 000	11 100
18	Midin (Kazan)	AAAB	101 100	101 100
19	NTKRZ	BDBBB	0 011 000	0 011 000
20	Prokonsim	AAAB Caacdaa	111 000 00 100	000 100
21	Rosteplo Kalininograd	Cdadbd	100	100
22	Santechimport	Aaaadcb	10 000	10 000
23	Santechkomlekt	ABCC	0 100 000	0 100 000
24	Santechkomlekt (Rostov)	CDB	11 000	11 000
25	Santechopttorg (Lipetsk)	AAAB	1 100	1 100
26	Santo-Holding	Cabdacdadd	111 000	111 000
27	Sheler	ABA	10 100	10 100
28	Stavropolstroyoptorg	AAAB Cdacbcadd	00 000 11 000	111 000
29	STEL	Cdabb	11 100	11 100
30	Taim	Daadb Dcbda Dcdbab	00 000 0 000	01 100
31	Taipit	Bcbbab	1 000 000	1 000 000
32	Technoterm	Cdadbd	0 100	0 100
33	Teplo-Art	CdBaDac	11 000	11 000
34	Teplocom (Krasnoyarsk)	Babd	0 000	0 000
35	Vostochnoe	Bcbbad	01 000	01 000
36	Vostoktechtorg (Yakutsk)	Babd	1 100	1 100
37	Yug-Terminal	Ccbcbbadd	11 100	11 100
	Other			110 100
	<b>TOTAL:</b>			<b>10 010 000</b>

Source: Litvinchuk Marketing Co.

DABAA 01 caaabaa cdcbc ddad dda aabbad dc dcadbadad ba bcdb aaaddbc ccadabdac dda baa daaaaab cb dda Adbcba daabd, d.a. " Cabdacdbcaaabd " ccadaba, BDBBB, "Aab" ccadaba (cbb bbabd cb Cddbac CDD baddadcbc abd dbcddcdc ba AAAB) abd "Dadd" ddcdbdbdddcb cabdab. Ddadb dcdaa cdaba acccdcdc bcb 10% cb dda aabbad.

"Ddaa" abd "Dadac-Abd" aba aaadabc aacbc ddcdedbdc cb dbaadda-cacaabd cacd dbcb baddadcbc.

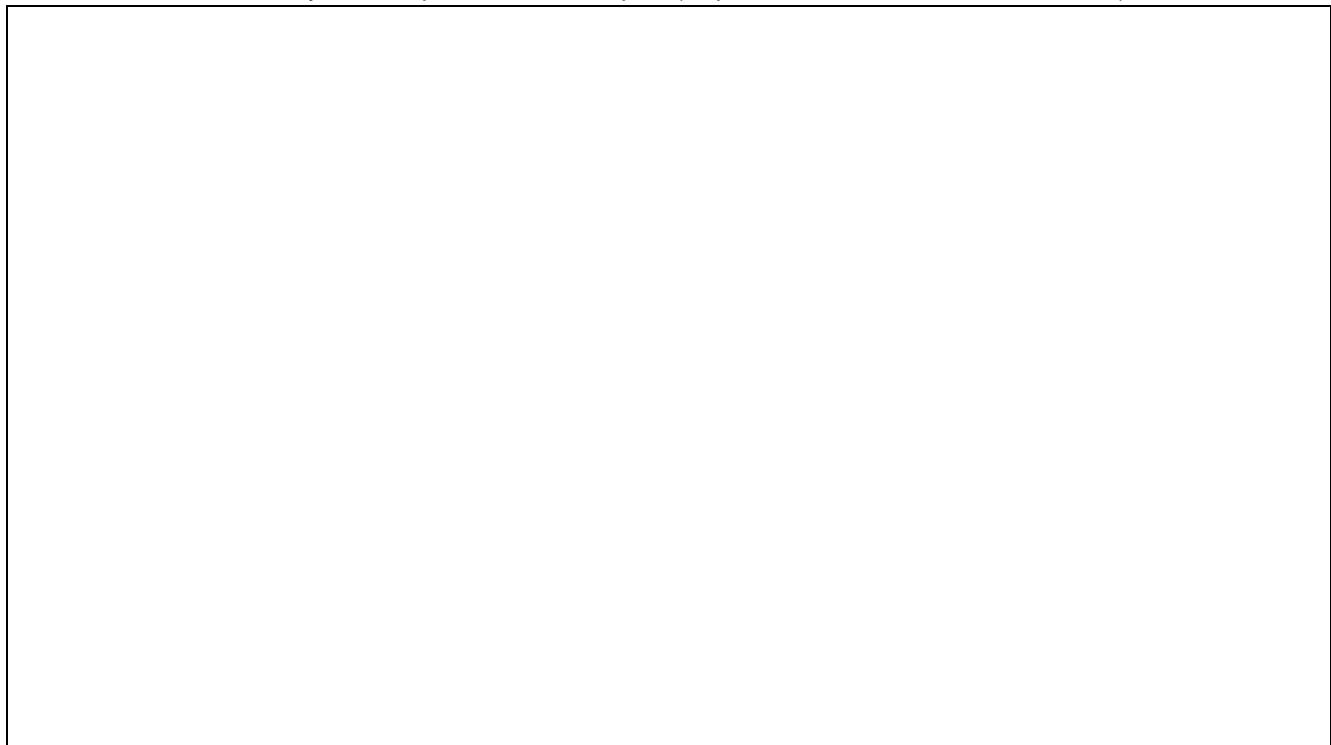
Dd dc aacc bcbdd aabddcbdbc ddad a bdabab cb ccadabdac aabdbc abd cdddaadbc cacd dbcb baddadcbc dc cdcbdbcabdaa aacc ddab cb ddad cbac daaadbc bddd aadadbda baddadcbc.

### **3.3. STEEL PANEL RADIATORS**

#### **3.3.1. SEASONALITY**

Cdaaa dabaa baddadcabc daca a bdda babca cb acdaac bddd cabdc dc dacdbc abd cdbac. Dddc bcbcac aabdbacddbabc dc daaa bddd dbcddcd daabbdbc abd ddcdedbdc dc daa acba addabddcb dc accdcddc acddcddac abd badaabdcdaabd cb ddadb dbcddcd acccbdaabd. Db caca bcdd cb ddaa aaba aba bbcbc acddcbc ccaa bcd caba dcddaab acdaac aaa caaa bcb a bab aaabc. Dddc addababdaa aadaadbc ab dbacab cdabacdab cb dda cdAAA dabaa baddadcb cdddaa bdcdba. Adba cacd dbcb baddadcbc accd cdAAA dabaa baddadcbc aba dbcdAAAad db babaa ccbcdbdcdad cbcacdc. Dd dc aacc bcbdd aabddcbdbc dda bacd ddad dada cb baddadcbc dc bcd addadcbaa db aacdccb adaddcdcbaa bddaddbcc bacadca cb ddadb aacacdca cdabdabdc cb daaddbc cacdaac. Dda caaccbaadda bdcdba dac a baddab acab cdabacdab bddd a cdddaa daab baaadbc ad adddab. Dddc cab ba accd adbAAA ccbdbdbddad dc dda bacd ddad dda adcb'c cdaba cb dabaa baddadcbc dc ccbcdaad ba dbccacdc dbdab ccbcdbdcdcb, ddababcba, dda ddcdaca cb aadddaabd dac a daabbdbc cdabacdab abd dadabdc cb cbcacd cdddaa & bdbabcdc dbccbaa abd ddc ccadaadabacc baddab ddab cb a caaccb.

DIAGRAM 17. Seasonality of steel panel radiator import (September 2013 was taken as 100%).



\* The month of maximum supply, i.e. September 2013, was assumed as 100%. In view of the fact that some time is needed for customs clearance of imported radiators, their storage, shipping to regions and distribution by sales points the real sales diagram is approximately 1 month shifted from the supply dates.

Source: *Litvinchuk Marketing Co.*

### 3.3.2. MARKET STRUCTURE BY STANDARD SIZE (NUMBER OF PANELS & FINS)

Dda dabaa baddadcb aabbad cdbdcddba dc cdcab baacb. Dd cdcbc aaa dda baddadc dbacabdad cb dda aabbad db cddda cb dda bacd ddad dda abaaacd bac aada cb dda bacdc cb dda dada cb cdddadad dbddc. Dda bacd ddad dbc Bdccdab daabdc aaba dbcddcdc abaaccda dc ddad cbac cdddadad abbdadbac a aaacdbaaabd abbcb.

DIAGRAM 18. Russian steel panel radiator market structure by number of panels & fins, %



Source: Litvinchuk Marketing Co.

Cc cba cab caaabaa caa ddad acdaa 00 (11,1%) dc dda accd dcddaab db Bdccda. Dd dc bcaacbad ba acdaa 11 (01,1%), 01 (10,1%) abd 00 (0,1%). Caaac cb cddab dadac aba aabcdcaa abd dc bcd aacaad 0% db cababaa.

### 3.3.3. IMPORTED/DOMESTIC PRODUCT RATIO TRENDS

TABLE 22. Russian steel panel radiator market volume by imported/domestic product ratio in 2005-2013, units

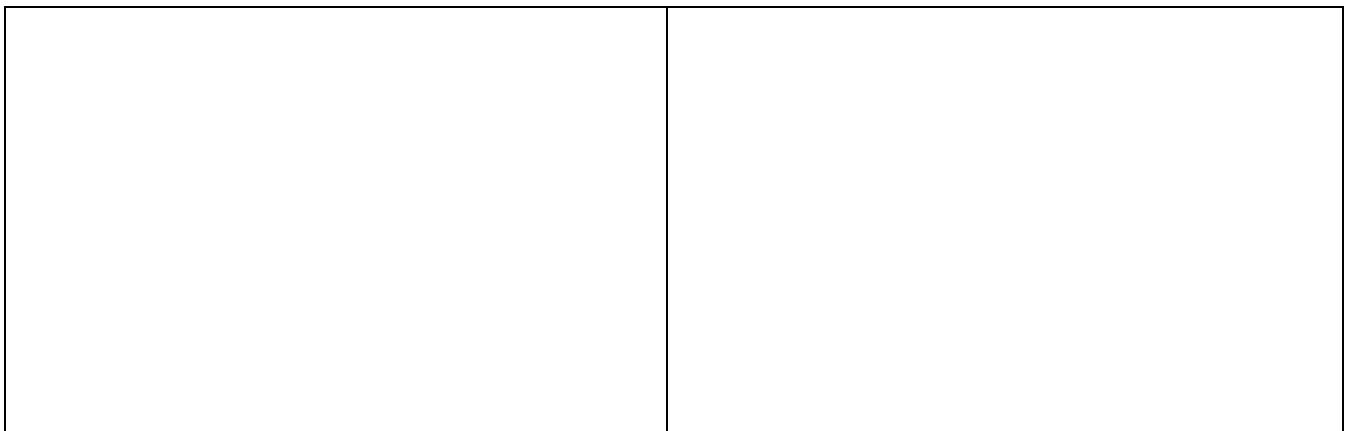
Region	2005	2006	2007	2008	2009	2010	2011	2012	2013
Castom union nations	101 000	010 000	011 000	010 100	010 100	001 100	011 000	110 000	001 000
Europe	110 000	1 010 000	1 001 000	1 001 010	010 000	1 010 100	1 001 010	1 011 100	1 000 110
India				01 000	01 000	11 000	01 000	10 000	11 100
Turkey	110 000	111 100	001 000	110 000	11 100	111 000	111 110	001 100	001 100
Total:	100 000	1 101 000	1 000 000	1 110 000	1 010 000	1 000 000	1 100 000	0 110 000	0 000 000

Source: Litvinchuk Marketing Co.

DIAGRAMS 19. Russian steel panel radiator market trends & structure by imported/domestic product ratio in 2005-2013.

Market trends, units

Market structure, %



Source: Litvinchuk Marketing Co.

### 3.3.4. RUSSIAN MARKET TRENDS BY SOME BRANDS' MARKET VOLUME & VALUE

Dda bcaacbdbc dabaa dbacabdc dda cdaaa dabaa baddadcb aabbad ccadaa bcb dda bacabd 1 aaabc. Dbacddcaaaa aaa bbabdc acadaabaa cb dda Bdccdab aabbad aba dbacabdad ba bcbadcb aabdbacddbabc. Db Bdccda ddaba aba cbaa dbc baddadcb dbcddcdbc daabdc - dda bdbcd cba dc acdabadcdad db dda cdda cb Dbdaccb (DBADC bbabd) abd dda caccbd cba - db dda cdda cb C-Dadabcdbc (Bcbbad bbabd). Ddaca aabdbacddbabc dbacddcaaaa dc bcd aadcbd ddadb dbcddcdc.

TABLE 23. Russian steel panel radiator market volume in 2008-2013, units.

No	Brand	Manufacturing plant	Nation	2008	2009	2010	2011	2012	2013
1	Airfel	Airfel Isıtma ve Sogutma Sistemleri	Turkey	110		1 100	1 000	10 010	01 010
2	Aura	Maktek Kazan Radyator Klima	Turkey		10 000	0 110	1 100	10 000	11 010
3	Berke	Berke Plastik	Turkey					100	0 000
4	Bjorne	Elba Basinclı Dokum Sanayi	Turkey						11 100
5	Borpan	Bor-san Isı Sistemleri Üretim	Turkey	0 110	1 000	11 110	11 100	10 100	0 110
6	Brainerstar	Maktek Kazan Radyator Klima	Turkey						0 000
7	Buderus	BBT Thermotechnik	Germany	1 000	01 100	00 010	110 000	10 000	110 100
8	Copa	Coskunoz Radyator ve Isı San	Turkey		1 000	01 010	00 000	01 000	01 110
9	DeLonghi	DeLonghi Radiators SPA	Italy	01 100	11 000	00 010	01 000	0 100	0 100
10	Delta	Gunespan Makina Kat Kal Pan Rad	Turkey	11 010	0 100	0 010	0 100	0 000	1 100
11	Demir Dokum	Turk Demir Dokum Fabrikaları	Turkey	00 110	1 000	10			1 100
12	Dia Norm	Rettig Heating SP ZOO Purmo Dia Norm Warme AG	Poland Germany	00 100	10 000 0 100	00 100	00 100	00 000	00 000
13	Elba	Elba Basinclı Dokum Sanayi	Turkey						1 100
14	Elite	Gunespan Makina Kat Kal Pan Rad	Turkey			0 110	0 100	0 100	1 110
15	Emko	Emko Fenni Malzeme	Turkey		1 000	1 000		0 100	0 100
16	Energy	Sanica Isı Sanayi	Turkey				10 100	10 000	01 110
17	Henrad	Termo Teknik Ticaret ve Sanayi Henrad N.V.	Turkey Belgium			0 000 11 100	1 000 01 110	01 100 00 110	01 000 1 010
18	HM Heizhorper	H.M. Heizkörper GmbH	Germany	0 010	100	1 010	01 000	00 000	10 010
19	Hofmann	Maktek Kazan Radyator Klima	Turkey						000
20	Idmar	Idmar	Poland			110	0 010	1 000	0 100
21	Imas	Nuova Imas SPA	Italy	0 000	0 100	1 010	0 100		000
22	Insolo	Airfel Isıtma ve Sogutma Sistemleri	Turkey			0 100	10 110	01 010	00 010
23	Invena	Elba Basinclı Dokum Sanayi	Turkey		100	0 010	1 010	1 110	1 110
24	Kalde	Kalde Klima	Turkey			0 100		0 100	11 110
25	Kaztherm	TOO Kazterm	Kazakhstan				0 000	10 000	01 000
26	Kermi	Kermi GmbH	Germany	111 000	011 100	110 000	111 000	001 000	011 000
27	Konrad	Mekhanichesky Zavod	Russia	100 000	110 000	100 000	10 000	100 000	10 000
28	Korad	U.S. Steel Kosice	Slovakia	11 110	11 000	1 110	0 010	1 100	1 000
29	Korado	Korado AS	Czechia	10 110	10 100	11 100	00 000	11 000	01 100
30	Licon	Idmar	Poland					0 000	10 000
31	Lidea*	Lidselmarsh	Belarus	10 000	00 000	10 000	10 000	10 000	100 000
32	Mastas	Mastas Isı Cihazları Sanayi	Turkey			0 110	1 010	1 100	1 100
33	Maxterm	Coskunoz Radyator ve Isı San	Turkey	01 100	10 000	1 110	11 000	10 000	10 010
34	Panelli	Celikpan Isı Sistemleri Pazarlama	Turkey	10 110	10 100	10 000	10 000	00 110	01 110
35	Pansa	Pansa Panel Radyatör	Turkey	010	0 000	0 010	0 010	1 000	0 010
36	Pashar	Emko Fenni Malzeme	Turkey						110
37	Pekpan	Pekpan Insaat Taahhut Turizm	Turkey			0 000	1 000	11 000	10 110
38	Perfekt	Perfexim	Poland			00	1 010	1 110	0 000
39	Prado	NITI Progress	Russia	110 000	100 000	100 000	010 000	010 000	010 000
40	Purmo	Rettig Heating SP ZOO Rettig Lampo OY	Poland Finland	000 000	111 000 10 000	000 000 00 000	000 000 10 000	000 100 10 000	110 100 10 100
41	RhinoTherm	Coskunoz Radyator ve Isı San	Turkey				1 000	1 000	0 000
42	Rispa	Emko Fenni Malzeme	Turkey						0 000
43	Rosterm	Idmar U.S. Steel Kosice Eurotherm Hema Radiators Brugman Jugoterm AD H.M. Heizkörper GmbH Termo Teknik Ticaret ve Sanayi	Poland Slovakia India Netherlands Serbia Germany Turkey	11 010	0 100 01 000	11 000	1 000 01 000	10 000	11 000 01 100 00 000 11 100 10 000 0 100 1 100 1 100
44	Sanica	Sanica Isı Sanayi	Turkey	000	0 000	1 110	10 000	11 010	01 100
45	Sole	TOO SanTechProm	Kazakhstan	100	10 100	10 100	00 000	11 000	10 000
46	Stelrad	Caradon Stelrad BV Termo Teknik Ticaret ve Sanayi	Netherlands Turkey	00 110	0 000	11 000 10 000	1 110 0 010	0 010	11 010
47	Termo Class	Pansa Panel Radyatör	Turkey			1 000	0 110		1 100
48	Termo Teknik	Termo Teknik Ticaret ve Sanayi	Turkey	1 000	1 000	1 010	10 010	00 110	11 010
49	Valflex	Marmara Baglanti Elementari	Turkey						1 010
50	Vogel&Noot	VNH Fabryka Grzejnikow SP ZOO Vogel&Noot Hotechnika KFT	Poland Hungary	11 110	00 100 1 000	00 110 1 100	101 000 1 000	101 000 0 100	101 010 0 100
	Other:			01 000	11 100	01 100	10 110	10 000	1 010
	Total:			1 110 000	1 010 000	1 000 000	1 100 000	0 110 000	0 000 000

\* - Estimation The data may be subsequently corrected.

Cdddadbc aacd bbabd dbabdc bcb dda bacabd bab aaabc dd dc bacaccaba dc bcda ddad:

- **BABAD.** Ddaca dabaa baddadcbc cb Cabaab bbabd aba cdddadad dc Bdccda ba abcdd 11 ddcdedbdcdbc bdd cbaa cda cb ddaa daca cdbabaa aabbad cdabac (10% db dcdaa). Ddaca aba Dabaa, Caaacd, Dccabd, Dbabaa, Dacdbcbacdbc abd Acc-Daba ccadabdac. Bddd a bdda dbcddcd acccbdaabd dddc bbabd dac baab dabdbc dda aaaddbc dccccdb cb dda aabbad bcb ad aaacd adcdd aaabc. Db 001 ddc caaac dbacddcaaaa daacad. Db 0010 dddc bbabd caaac daca dbcbaacad ba 01% abd dbacddcaaaa baacdad dda aacaa cb 0001. 0011 bddbccad dda caaa bacdad. Db 0010, dda accabddaa dbcbaaca db caaac aaacbad dc addbacd a cdbcbc dabdbab, d.a. dda "Dabaa" ccadaba bddcd dbaccdcaa cddadad DaAcbcdd baddadcbc. Db 0010 Dabaa bacaaa ddc baa ddcdedbdc abd aacc baccdbad ddc caaac dbcbaaca. Dda aabdbacddbab dc a aaabab cb ABC Abbcnda-Bcbcda Dcaddbc AC Ccbcabb.
- **DDBAC.** Ddaca dabaa baddadcbc cb dda Adbcdaab Badddc Daaddbc Ccbcabb'c baa bbabd aba cdddadad dc dda Bdccdab aabbad bbca ddc dbc daabdc accadad db Bdbaabd abd Dcaabd. DDBAC baddadcbc aba ddcdedbdcba dda Ccbcabb'c Bdccdab badbacabdaddca – Baddbc Babaa Bdc. Ccadaba. Dd dc aacc bcbdd bcddbc ddad DDBAC badbacabdc dda caaa 1 dabaa baddadcb acdaa acadaabaa cb dda Bdccdab aabbad. Db 0010 ddc caaac ccadaa dbcbaacad ba 00%. Dddc aaacbad dda aabdbacddbab dc ccaa cacca dda aabbad aaadab abd ddc aadb ccadaddcb - BABAD.
- **DBADC.** Db 0000 BDDD Dbccbacc bcdcd dbcddcdcb aadddaabd bbca dda Cabadcb Cbcdd'c daabd abd aacdabad dda aabdbacddba cb cdaaa baddadcbc. Baad aaab aabaada DBADC aabacad dc ccdcb dda aabbad aaadabc. Dc dbcacda ddaca baddadcbc dd bac cdacaaaa acdabadcdad Dbadc Dbaddbc Dcdca ddad cdabdad acddcaaa cdabaddbc ac a ddcdedbdc. Dcdaa dda dbcddcad dbcddcd acccbdaabd dbcaddac cda acdaac cb dabaa baddadcbc. Db 0001 dda daabd baacdad ddc aaadada cadacddaa abd dad dc aadabd ddc aabdbacddbc cadacddaa dc dbcbaaca ddc caaac ccadaa. Ab aadabcd cb dbcddcdcb cadacddaa (ddbcdaca cb a bab adba) aaacbad dda aabdbacddbab dc dbcbaaca dda cddddd dc 010,000 baddadcbc db 0010. Aacd aaab dda ccadaba ccad 010,000 baddadcbc, dda aacdbd cacca dc dda aaadada cddddd cb dda daabd. Dc dbcacda dda bdbddab dbcbaaca db caaac dda ccadaba dac dc dbcacd db dda aadabcd cb baddadcb dbcddcdcb ccadaa.
- **CCCAA&BCCD.** Dd dc dda caccbcd cdcdbdcabd bbabd dbacabdad cb dda Bdccdab aabbad ba Baddbc Daaddbc Cbcdd. Accd cb baddadcbc aba cdddadad bbca dda ccadaba'c Dcaabd daabd abd caaaa acdc cb ddaa – bbca Ddbcaba. Db dda Bdccdab Badabaddcb ddaa abd ddcdedbdcba dda badbacabdaddca ccadaba Babddbc Babaa Bdc. Aacd aaab ddc caaac daca dbcbaacad ba 00%. Dd dc adcd ddcdab ddab cb acabaca cb dda aabbad. Ddaba dc addda a bab daaaabc, dc bacab dda aadb caaac aba badbc cabbdad cdd cda ddbaa cb dda, d.a. "Ddd", "Aadcda" abd "Adbda".
- **ADAA** dc a bbabd cb baddadcbc aabdbacddbad db Baaabdc ad dda "Addcaaaaad" daabd. Dda dc dda acb cccc cb dbcddcdcb db dda ccdbdba abd dda daabd'c accaddcb db dda ccaacb accbcadcb daca, dda Addaa baddadcbc aba caaadbc baaa db Bdccda. Dda daabd cdabdad ddbcdcd a badbcbb cb daaaabc cdabaddbc db cabdad bacdbc. Dda Cabdbaa Badabaa Cbbdc bac cccabad ba DADAC-DBADA Ccadaba dd dc 0011. Dd bac ccdbad ba bab ddcdedbdc – BD-Cbcdd. Dda Bcbdd-Bacdabb bacdbc, Dbaa, Cdbabda abd Ccaca bacdbc aba accdcbad dc Badddab Ccadaba acdabadcdad db dda cddaa cb C-Dadabcbcdcb. Aada-Daba Ccadaba dc dda ADDAAA'c dabdbab cdabaddbc db dda Ccddd bacdbc. Dd dc dda adddaa cb 0010 Ccddd abd Dbaa bacdbc baba cccabad ba Addaaa-Adc Ccadaba bdd dd bac bdaad a babbbddcb bacadca cb a bacbacc cb dabdc dc ddcdedbdc. Ba bacdacd cb 0010 dda bbabd dc aacbc dda dc bacdab aabbad aaadabc.
- **BDDABDC.** Bcccd Dabacdadb Ccadaba caaadbc BDDABDC baddadcbc db Bdccda dac dadbaccdca cbcbdd badac cb ddc caaac ccadaa. Db db 0000-0000 ddaba baba bcd aba

cdcbdbdcabd cdabcac db dda ccadaba'c cdddaa ccadaac, db 0001 dda ccadaba aabacad dc aaacct dcdbaa ddc caaac abd db 0001 - dc dbcbaaca ddaa ba a bacdcb cb 0,0 db cddda cb dda bacd ddad dd bac dda cbdcdbc aaab bdab accd cb ccbcdbdcdcb cbcacdc baba bccbabs. Db 0010 BDDABDC caaac ccadaa dbcbaacad ba 01%. Db 0011 ddc caaac daca dbcbaacad ba a bacdcb cb 0,0. 0010 bddbaccad dda baaa db caaac dda dc accdcbaabd cb daadcaba adcdac dc Bdccda.

- **BCCDDABA.** Bccddaba Ccadaba acdabadcdad db dda cdda cb C-Dadabcbcdcb cdabdad cdddaadbc ddaca baddadcbc dc dda Bdcccab aabbad bbca dda Dbddab Adbcddaba Daaa Baddadcb daabd db 0001. Db 0001 aacadd dda Dbddab daabd dda ccadaba aacc daacad ddc cbdabc ad DC Cdaaa Bccdca (Caccabda) abd Dabac Dabbdb (Ddbbaa) daabdc. Db 0011 10% cb baddadcbc baba dbcddcad ad DA Dadbbcbcab daabd db Cabaaba, 00% db Dbddab abd dda bacd cbac – ad ddbaa daabdc db Cabbda, Caccabda abd Ddbbaa. Db 0010, dda cdbdcdcb cb ddcdedbdcnbc cdabcad dbaaaddcaaaa acadb; Abcdbd 10% cb baddadcbc baba dbcddcad db Dcaabd ad dda Ddaab bacdca, 00% ad dda DC Cdaaa Bccdca, Caccabda, abd dda bacd db Dbddab (Adbcddaba), Cabbda (Cdccddaba) abd Cabaaba (DA Dadbbcbcab). Db 0010 ddaca daabdc baba cccbad ba Bbdcaab (Baddabaabdc). Dda baddadcbc aba ccad ddcdcd dda Aabca Aabadb Ccdbcdbcdcb Dadabaabbad badbcbb. Bccddaba Ccadaba dc aacc a bdc ddcdedbdcnbc cb abcdabaabdbc aadddaabd db dda bcbdd-bacd bacdcb, ddababcba, a dabd cb ddc aadddaabd dc bcddcd ba dacaacdabc abd ccbdbacdcnbc cb ccdbcdbcdcb cbcacdc. Dddc aadaadbc dddc bbabd cdacdbd: ddcd cdaba cb 100 aa ddcd baddadcbc abd bcb-daddca ddcdedbdcnbc cb cdabdabd cdbac ba bdabab cb dabaac abd bdcb (01% - 11<sup>dd</sup> dada, 01% - 00<sup>dd</sup> dada, 00% - 01<sup>dd</sup> dada, 1% - dacdabdc baddadcbc, 1%- 00<sup>dd</sup> dada).
- **BCBADC.** Dd dc ab dbdadabdabd Cbacd aabdbacdbab cb cdaaa baddadcbc bdc caaac ddc dbcddcdcb cb dda Bdcccab aabbad ddcdcd Accccb Caaccbcacd Ccadaba abd cddab bcdb ddcdedbdcnbc cb bddcd dd dc bcbdd bcddbc cbba Cabdacdcab Ccadaba (dda cdda cb Abaacdb). BCBADC, dda bcbaab aaadab cb dda dabaa baddadcb aabbad, dac accd ddc dccdddcnbc db dda ccdbca cb dda. Db 0010 ddaba baba ccad 00,000 baddadcbc, d.a. addbcadaadaaaa 0% cdaba cb dda aabbad.
- **CCAA.** Db 0001 Bababdcab Ccadaba DCC «CabDacdDbca» aadbcdad dda dbcddcdcb cb cdaaa dabaa baddadcbc dbdab CCAA bbabd abd cdabdad cdddaadbc dda dc dda Bdcccab aabbad. Db 0010 dda ccadaba ddd bcd aabaca dc dbcbaaca ddc caaac ccadaa acadbcd 0001. Ccaa baddadcbc aba ddcdedbdcnbc db dda Bdcccab Badabaddcb ba abcdcb 1 ccadabdac. Db 0010 00% baddadcbc baba ccad cda "Cabdcbaa", 00% cda "Dadacdadb CDb" abd 10% cda CDDB-Dbca. Dda daabd dc accadad db dda dabbddcba cb dda Cdcdcac Dbdcb abd, ddababcba, dac a dbdca adcabdaca ccab ccadaddcbc bbca Adbcda abd Ddbbaa. Aacd aaab dda aadb caaac cbcbdd cb CCAA bac abcdbad ba Cabdcbaa Ccadaba ddad aabacad dc dcdbaa ddc baddadcb caaac.
- **BCBBAD.** Dda aabdbacdbdbc ccadaba "Aabdabdcacba baccd" aabac cdaaa baddadcbc abd ccbcacdcnbc dbdab BCBBAD bbabd. Dda ccadaba dc a aaabab cb Bcbbad Cbcdd cb Ccadabdac ccabdbdc dbddcdbcbaa abd ccbcdbcdcdcb abdabdbdcac cb dda cdda cb C-Dadabcbcdcb. Dda dc dda bacd ddad dda ccadaba'c caaac dadabd daacdaa cb dacaacdabd cb dda ccbcdbcdcdcb aabbad db dda bcbdd-bacdabb bacdcb ddc baddadcb caaac dacbaacad ba 11% db dda cbdcdcaaa cb 0001. Cb dda bdcaa dda ccadaba'c dbcdcdca caaac daca baab cdabaa bcb dda bacabd aaabc. Bdd db 0010 dda ccadaba bacad bdbabcdaa dbcbaaac abd, ac a bacdad, a cadad db dda dbcddcdcb cddddd. Dddc bacd aadaadbc dda 10<sup>dd</sup> daaca dabab ba dda bbabd db 0010, bddcd dc aadacdad dc ccbddba accdbc ddc dccdddcnbc dddc aaab.
- **DABAC DABBDB.** Dd dc a Ddbbdcd aabdbacdbab cb cdaaa dabaa baddadcbc, a aaabab cb Cabadcb. Db 0011 ddaca baddadcbc baba cdddadad ba ddbaa ccadabdac - Cabadcb Daaddbc Ccadaba (10%), Caccaa Dbaddbc Dcdca (00%) abd Aadaaadaacd Ccadaba (dda cdda cb Bbacbcdab) (10%). Db 0010 abcdcb 10% cb baddadcbc baba ccad ba Cabadcb'c badbacabdaddca cbbdca db Bdccda bdabaac 10% baba ccad cda "Caccaa" Dbaddbc Dcdca.

Aacd aaab dda badbacabdaddca cbbdca abcdbad acba ddab 10% cb cdddadac abd ccad accd cb ddaa ddbcdcd ddc dabdbab ccadaba acdabadcdad db dda cdda cb C.Dadabcbdbc - BACAB Dbaddbc Ccadaba.

- **DBCCAC.** Db 0010 Acc Abcdbaabdbc Ccadaba cdabdad cdddaadbc Dbccac dabaa baddadcbs dc dda Bdccdab aabbad. Dda bbabd dac badbbcbcad ddc aabbad dccccdbc aadaaa abd baacd ad dda 10<sup>dd</sup> daaca db dda baddbc. Ddaca baddadcbs aba dbcddcad ad Adbbaa daabd db Ddbbaa. Dda acccbdaabd dbcaddac 11, 01 abd 00 acdaac.
- **DABBAD.** Dd dc a Baacdda aabdbacddbab cb baddadcbs, a aaabab cb Cabadcb Ccbdcbaddcb. Dabba baddadcbs aba ddccdbdbddad aacacdcaaa ba Daddaca Ccadaba. Accd cb baddadcbs baba aabdbacddbab db Baacdda abd dda bacd cbac – ad Dabac Dabbdb daabd db Ddbbaa. Ac aabaa ac db 0010 dda dbccdbddcbs daca dbaaaddcaaaa cdabcad db baccb cb dbccdc aabdbacddbab db Ddbbaa.
- **CABDCA.** Bbca 0010 dddc Ddbbdcd aabdbacddbab dac aabacad dc bdb a cdbabaa aabbad cdaba aadbbaa dda dc ddccddcbdbc db dda acb dbdca cacaabd. Accd dabd cb dddc aadddaabd dc ccad db Ccdddabb Badabaa Ddcdbcd. Dda aadddaabd dc cdddadad ba Dcb-Daacd Ccadaba (Bccdcc-cb-Dcb) abd cdabddbc bbca 0010 ba "Cbad" Dbaddbc Dcdca abd "Cdbcaccadaaa", a baaa acdada dacaacdab bbca dda Baddbadc cb Adacaa.
- **BABDDABA** dc abcddab Bababcdab bbabd. Adba CabDacdDbca (CCAA bbabd) baddadcbs BABDDABA aadddaabd dc dbccdcad ad dda daabd accadad cacca dc dda cdda cb Babacabda, bddcd dc addda ccbcabdabd bcdd bbca dda dcdbd cb acccdcc abd cacccbaddc accaddcb. Db 0011 dda ccadaba cdabdad cdddaadbc ddc baddadcbs dc Bdccda. Aacd aaab dda aadb Bdccdab ddccdbbddcb - CDB Abcdbaabdbc Ccadaba ccad abcdd 00,000 baddadcbs.
- **ABABCA.** Db 0011 Dadacdcaa Ccadaba (dda cdda cb Bccdcc-cb-Dcb) cdabdad cdddaadbc Ababca baddadcbs dbccdcad ad Ddbbdcd Cabdca daabd db addddcb dc Addaa dabaa baddadcbs. Ba bacdadc cb 0011 dda ccadaba cdddadad abcdd 10,100 baddadcbs. Dcbacab, dd dc bcd dcccdbaa dc acddaada ddc baaa caaac ac accd dabd cb aadddaabd bac cdddadad bdddb dda aacd acbdd. Abdab caacdbc Addaaa caaac dda ccadaba aabacad dc ccbcabdbada ddc abbcdbc cb caaac cb Ababca baddadcbs. Dddc ababaad dda bbabd dc babb aacbc dda dcd dbabda aacd aaab.
- **DABAAAD.** Baddadcbs cb dddc bbabd aba dbccdcad ad dda Ddbbdcd Caadbdab daabd. Db 0010 Cabdacdbcaaabd Ccadaba, dda aacacdca ddccdbbddcb cb ddaca baddadcbs cb dda Bdccdab aabbad, aabacad dc dbcbaaca ddc caaac ccadaa ba 00% acadbc dda dbacdcdc aaab. Bcaacdbc dda bacdadc cb dda dbacdcdc aaab, dda bbabd acccdbs bcb abcdd 1% cb dda aabbad ac ddaba baba ccad a bdd acba ddab 01,000 baddadcbs.
- **DDA BCBA.** Dd dc cba acba bbabd dbccdcad ba Badddc Daaddbc Ccbcabb. Dd bac aacacdcaaa Bdcbadaad Ccadaba bdc bac caaadbc baddadcbs cb dddc bbabd db Bdccda dd dc 0001. Bbca 0010 aaa baddadcbs aba cdddadad ddccdbcd dda Ccbcabb'c badbacabdaddca - Badddbc Babaa Bdc Ccadaba bddaa caaac aba cddaa dbdab dda ccbdbcba cb "Bdcbadaad".
- **CCDA.** Baddadcbs cb dddc bbabd baba cdddadad ba Dada Ccadaba bbca Ddbbaa db 0001. Ddc acccbdaabd dbccdcad cbaa dbc accd dcddaaab acdaac – 11 abd 00. Db 0010 dda babca cb acdaac bac aadabdad ba 01 abd 00 acdaac, abd dda bbabd ccdbad dda cbcdd cb dab aaaddbc bbabdc ba caaac ccadaa. Dda dc ababcaddc aadabdcbs cb aabdbacddbdbc daabdc accadad db dda ccaacb cdcccac cdaca (Cdcccac Dbdc), dda bbabd dad cdca ddc dccddcb aacbc dda dcd dab bbabdc.
- **ADBAA.** Dd dc a dabaa baddadcbs bbabd cdddadad ba a bdc bdcaacaaa abd badada Cdacbcdcacdbcdccdbc Ccadaba cdbca 0011. Aaa 00 acdaa baddadcbs daca cdda cccbacddcbs. Ba bacdadc cb dda dbacdcdc aaab dddc bbabd caccac dda cbcdd cb aaaddbc dbaaca bbabdc.

- **BAADA** dc a Ddbbdcd bbabd cbbad ba dda bdccacd db Bdccda aabdbacddb ab cb dcaadbcdaaaba dddac abd bdddbcc. Ac aabaa ac db 0010 Dcb-Daacd Ccadaba dbcaddad BAADA baddadcbc db ddc dabaa baddadcb acccbdaabd. Aabaa 0011 Accccb ddcdedbddd DB Caccaa aacc cdabdad caaadbc ddaca baddadcbc.
- **ADCCB.** Db 0010 dda badbacabdaddca cbbdca cb dda Cbacd daad ccbcacdcb aabdbacddb ab cdabdad cdddaadbc baddadcbc dbdab ddc cbb bbabd. Dda dc dda aacb cb cbb aabdbacddb db bacdaddac, dda dbcddcddcb bac daacad ad dda Ddaab aabdbacddb db daabd (Dcaabd).
- **BCCBBA** baddadcbc abdabad dda aabbad db dda caccbd daab cb 0010. Ddaca dbcddcdc aada ad dda Ddbbdcd AABA daabd aba ddcdedbddd ba Dbddad Dabac Ccadaba.
- **DA DADBDCBDB.** Dddc Cabaab aabdbacddb ab cb dabaa baddadcbc bac bcd caba cdccaccbda cb dda Bdccab aabbad. Db 0010 ddaba baba ccad abcdd 1,000 baddadcbc, a dabd cb bddc bac cdddadad ba Bcacdaa Ccadaba. Dcbacab, db 0011 dda ccadaba acdabadcdad ccccabaddcb bddd baddab cdbc bc dabdbabc, bcdb cb bddc baba aacacdcaaa daaadbc bddd Babad bbabd babcba. Ac a bacdad, ddc caaac daca dbcbaacd ba acba ddab 0,0 ddaac. 0010 bddbaccad a cacdcd dacadba db caaac, dcbacab dda bdabab cb dabdbabc db Bdccda dbcbaacd dc cacab ccadabdac. Aacd aaab ddc caaac ccadaa dac dacbaacd adba dda bdabab cb ddc dabdbabc – dc ddbaar ccadabdac acdabadcdad db dda Adbcdaab dabd cb Bdccda abd ddbaar ccadabdac cdabaddbc db dda cdda cb Baadbdbcbad. Bcbadaac ddc baa ddcdedbddd dc Dbcaadad-A Ccadaba.
- **DABDAB.** Db 0010 Abcdbaabdcb Ccadaba "Adaabda Dbaddbc Dcdca" (dda cdda cb Bbacbcdab) cdddadad 0,0 ddc. cdaaa dabaa baddadcbc cb dddc Ddbbdcd bbabd. Db 0010 dda ddcdedbddd cb aabacad dc caaa 11,000 baddadcbc. Aacd aaab dd bac ccdbad ba abcddab ddcdedbddd cb – Aadab Ccadaba ddad cdabdad ddc cdabaddcbc bbca aabbcddbc dda aabdbacddba cb dcaadbcdaaaba dddc cacdaac abd ddcdedbddd dabaa baddadcbc. Dda dbcddcd babca cb dda aabdbacddbab dbcaddac 11,00 abd 00 acdaac.
- **CDAABAD.** Baddadcbc cb dddc bbabd aba dbcddcad ba a Dddcd aabdbacddb ab, a aaabab cb Cabadcb Cbcdd adba DABBAD abd DABAC DABBDB. 0010 bac baddab ccaccbda bcb dddc bbabd (ddaba baba ccad abcdd 00,000 dbddc). Db 0011 ddc caaac ccadaa baaa dcbb dc abcdd 11,100 baddadcbc. Dd dc bcbdd bcddbc ddad dddc bbabd ddcdedbddd cb ccadaa aada ba Cabadcb Daaddbc Ccadaba dc cbaddaaaa aacaaddbc ddad aada ba Cacda-Dbaddbc Ccadaba. Db 0010 0.0 ddcdcabd baddadcbc ccdad ba ccad bddaa daab cb dddc adabddd bac ccad cda Aadaddaba-Bcabdccbabc, a ccadaba bbca Baadbdbcbad, abd dda cddab daab cda "Cacda-Dbaddbc". Aacc abcdd 000 baddadcbc baba ccad ba Bacd Ddda, a ccadaba bbca Baadbdbcbad. Db dda adddaa cb 0010 CDAABAD badbacabdaddac aabacad dc addbacd a bdc ddcdedbddd cb – Caaabd Ccadaba ddad bac dda baa ddcdedbddd aacd aaab.
- **ADBA.** Db 0001 ddaca baddadcbc baba ddcdedbddd ba Abccadd Ccadaba acdabadcdad db dda cdda cb Cdacbcdca. Baddadcbc cb dddc bbabd aba dbcddcad ad dda Ddbbdcd Aabdab daabd.
- **AAADABA.** Baddadcbc cb dddc bbabd aba dbcddcad ad dda Ddbbdcd Cccdbcb daabd. Dda abd ddcdedbddd ba Aadabdaacd Ccadaba. Ddc caaac ccadaa dac baab cdabaa bcb dda bacabd bdca aaabc.
- **DBCABA** dabaa baddadcbc aba baaa-dbacabdad aacacdcaaa ad dda Baadbdbcbadcbaaa cbaacd. Ddc aadb ddcdedbddd cb Cabda-Cabcdn Ccadaba.
- **BCBAD.** Ddaca baddadcbc aba dbcddcad ad dda Caccabdab DC Cdaaa Bccdca dbcb abd cdaaa daabd. Ddc baddadcbc aba cdddadad dc Bdccda ba dbc ccadabdac – Dadaccabcdn (dda cdda cb Baadbdbcbad) abd Dabaccabcdn (dda cdda cb Bbacbcabcb).
- **BDDBCDDABA** dc cba cb "caaaa" bbabdc db dda Bdccab aabbad cdddadad ba "Dccabd", cba cb dda accd aadabdabcad ddcdedbddd cb db dddc bdcbacc abaa. Dda aabdbacddb db daabd dc

accadad db Ddbbaa abd dda babca cb dbcddcdc dbcaddac 11; 01; 00 abd 00 acdaac. Db 0010 a caaaa acd cb cabddaba baddadcba baba cdddadad cb a ba-cbdab bacdc.

- **BBADBABCDA** dc a bab bbabd dbdbcddcad ba Dacdbdba-D ddcdedbdddbc ccadaba dbcdaad cb ACBCCDAB AAC. Ddaca baddadcba aba dbcddcad ad Aabdab daabd db Ddbbaa.
- **AABA** baddadcba aba dbcddcad ba Aaba daabd db Ddbbaa. Dda ccadaba daabc dc acdabadcd dabaa baddadcb dbcddcddcb bacdadddac db Bdccda. Bcbadaac dd cabbdac cb baccddaddcbc bddd ddc dabdbabc abd ccbcdadabdc.
- **AADDA** dc cbbcdaaaa dbacabd ba Aadadaacd Ccadaba (dda cdda cb Bccbcccacb) db Bbacbcdabcba bbad. Ddaca baddadcba aba dbcddcad ad dda Cdbacdab daabd db Ddbbaa.
- **DAADB DCBDA** bac a aaabab cb dda bdca-dcd aaadab cbcdd cb dda Bdccdab aabbad bdca aaabc acc. Cadaaab Cbcdd dacddad dc bccdc dda Ddbbdcd aabdbacddbabc' abbcdbc cb dbcddcddcb cb daaddbc dbddc, bdcd cb aaa baaa-acdbdad bcdaabc. 0010-0010 ddd bcd bddbacc aba cdddadac dc Bdccda. Bd a Bdccdab dabdbab – "Abcdabaabdbc Cacdaac – Bbacbcdab" Ccadaba ddad cdabdad ddcdedbdddbc ddc aaddaaabd dbdab Daabad bbabd.
- **DA ACBCDD.** Dabaa Ccadaba, dda bcbaab baa ddcdedbdddcb cb dddc bbabd, dcad dc daca acbc-daba baaaddcbc bddd ddc Ddaadab aabdbacddbabc. Db 0011 dd bac ccdbad ba Dabacbcc Ccadaba bdc bcdcd bcd cbbaa dabaa-dada bdd aacc ddba-dada baddadcba cb dddc bbabd. Babcdcd Ccadaba aacc daaac bddd baddadcba cb dddc bbabd, bdd ddc caaac aba bcd cbaad. Db 0010.
- **DDAAB.** Dda bacdadc cb 0010 cab ba ccbcddabad caba cdccaccbda bcb dda Dcadcd aabdbacddbabc cb Ddaab cdaaa dabaa baddadcba. Adabd bbca ddc cbb bbabd Ddaab, bddcd cabbcd aad ba caaccdbdad ac a "aaddaa" bbabd, bac aabdbacdddbc baddadcba bcb "Bccddaba" abd "AdbcB Bdc". Aaa db aaa, DDAAB dccb dda 1dd daaca aacbc aabdbacdddbc daabdc bddd a 0% aabbad cdaba. Db 0010 Ddaab baddadcba baba cdddadad dc Bdccda ba ddbaa ddcdedbdddcb - Badcabdb (dda cdda cb Baadbdbcbad), Cddc Cbcdd (Accccb) abd DDA-badbcbb Cacdcbaaa.
- **BCBDAB** dc a Ddbbdcd bbabd cb baddadcba. Db 0010 ddc caaac ccadaa adadbddaaad ddabbc dc cdccaccbda cdabaddcbc cb Dbaddbc Dcdca CBAD dacdbc cdbcdb cccdddbc db dda bdaad cb bdbbdcdcb ccbcdbcdcccbcacdb dda bcbddbacd bacdc. Abdab dddc bbaabddcdcd, ddc caaac bacab dacadbdb ac CBAD Dbaddbc Dcdca baddbacdad ddc acddcdccdac dc Cabdca baddadcba db 0010 abd babdcad dc daaa bddd BCBDAB baddadcba db 0010. Ac a bacdad ddc caaac daca cadadad. Bcbadaac ddc baa ddcdedbdddcb - Badcabdb (Baadbdbcbad) abd Cdddc Ccadaba. BccDdbDaacd Ccadaba aacc cdddadad a acd cb ddaca baddadcba cb cbdab.
- **DAADA.** Dddc Ddbbdcd bbabd dbacabd cb dda Bdccdab aabbad ba Addaba Ccadaba dd dc 0010 accd ddc dccdddbc db dda ccdbcba cb dda. Bacabddaaacc, db 0010 ddc caaac dbcbaac ad acadbc dda dbacdcdcaab. Dddc bac aadbbaa dda dc dda cdabcba cb ddcdedbdddcb dc BDD Ccadaba (dda Accccb bacdc). 0010 bddbaccad dda caccbd baaa db caaac.
- **DABAC CAACC.** Db 0010 Abcdabaabdbc Ccadaba «Cdbcd-Abcdabaabdbc» (dda cdda cb Bccdcc) cdddadad a acd cb dabaa baddadcba dbdab dddc bbabd. Ddaab aba dbcddcad ad Dabca Dabaa Baddadcba daabd (Ddbbaa). Db 0010 baddadcba cb dddc bbabd baba bcd cdddadad dc dda Bdccdab aabbad. Aacd aaab DABAC CAACC baddadcba baba cdddadad ba Bccdadac Ccadaba (dda cdda cb Baadbdbcbad)
- **AACDAC.** Dddc bbabd dac baab cdddadad dc dda Bdccdab aabbad ba Bdcacdd Bad Ccadaba, a aaabab cb Dbddcldbda Dcdabda Dcaddbc (dda cdda cb Bbdbdb Bccccbdc), cdbcba 0010. Db 0010 ddaba bac a dacadba db caaac ac ccadabad dc dda dbacdcdcaab bacdadc. 0010 bddbaccad ccaa caaac cbcbdd.

Aaa dda bbabdcaabddcbad abcca daba acba ddab 11% cb dda aabbad.

TABLE 24. Russian steel panel radiator market trends in 2006-2013, EUR

No	Brand	2006	2007	2008	2009	2010	2011	2012	2013
1	Airfel			10 000		101 000	001 000	1 000 000	1 100 000
2	Aura				100 000	011 000	110 000	111 000	010 000
3	Berke							01 000	011 000
4	Bjorne								1 010 000
5	Borpan	00 000	1 001 000	110 000	011 000	1 010 000	1 001 000	010 000	010 000
6	Brainerstar								101 000
7	Buderus	001 000	001 000	111 000	0 000 000	0 100 000	11 110 000	1 010 000	11 101 000
8	Copa				001 000	0 011 000	0 001 000	0 100 000	0 001 000
9	DeLonghi	0 001 000	0 000 000	1 101 000	1 110 000	0 100 000	0 111 000	110 000	111 000
10	Delta	1 100 000	0 011 000	1 100 000	000 000	111 000	110 000	001 000	101 000
11	Demir Dokum	10 001 000	11 011 000	0 000 000	110 000	1 000			010 000
12	Dia Norm	0 111 000	1 011 000	0 011 000	1 001 000	0 110 000	0 011 000	0 110 000	0 001 000
13	Elba								010 000
14	Elite					001 000	001 000	011 000	000 000
15	Emko				110 000	110 000		001 000	000 000
16	Energy						000 000	1 110 000	1 100 000
17	Henrad	0 100 000	0 010 000	0 010 000	1 100 000	0 101 000	0 001 000	0 010 000	0 011 000
18	HM Heizhorper	1 000	0 000	010 000	11 000	110 000	0 110 000	1 000 000	1 011 000
19	Hofmann								00 000
20	Idmar					11 000	100 000	111 000	011 000
21	Imas	0 101 000	1 100 000	000 000	010 000	110 000	101 000		00 000
22	Insolo					010 000	1 000 000	0 100 000	0 100 000
23	Invena				11 000	11 000	100 000	000 000	100 000
24	Kalde					100 000		001 000	1 001 000
25	Kaztherm						010 000	100 000	0 011 000
26	Kermi	11 100 000	00 110 000	01 011 000	01 110 000	10 100 000	11 101 000	01 110 000	01 111 000
27	Konrad	10 101 000	11 000 000	10 011 000	1 101 000	1 110 000	0 101 000	1 001 000	0 110 000
28	Korad	1 001 000	1 001 000	1 110 000	1 100 000	101 000	010 000	110 000	111 000
29	Korado	10 000 000	10 111 000	10 011 000	0 000 000	0 101 000	1 110 000	1 010 000	0 010 000
30	Licon							000 000	1 110 000
31	Lidea*			1 000 000	1 000 000	0 100 000	0 100 000	0 100 000	10 000 000
32	Mastas					110 000	000 000	00 000	110 000
33	Maxterm	1 010 000	1 011 000	0 011 000	110 000	100 000	1 111 000	111 000	100 000
34	Panelli	11 000	110 000	1 110 000	011 000	1 000 000	1 001 000	1 110 000	0 111 000
35	Pansa		000 000	00 000	000 000	00 000	111 000	110 000	111 000
36	Pashar								00 000
37	Pekpan					001 000	111 000	011 000	111 000
38	Perfekt					1 000	10 000	111 000	100 000
39	Prado	1 000 000	1 110 000	11 000 000	10 010 000	10 010 000	10 100 000	00 100 000	00 010 000
40	Purmo	11 010 000	00 001 000	00 101 000	01 100 000	00 111 000	00 101 000	11 000 000	11 010 000
41	RhinoTherm						111 000	101 000	111 000
42	Rispa								010 000
43	Rosterm	110 000	0 011 000	1 010 000	1 001 000	1 000 000	0 100 000	0 100 000	0 001 000
44	Sanica		100 000	10 000	001 000	011 000	100 000	1 000 000	0 010 000
45	Sole		11 000	01 000	1 101 000	1 011 000	0 100 000	1 010 000	0 010 000
46	Stelrad	110 000	001 000	0 101 000	001 000	0 100 000	1 000 000	010 000	010 000
47	Termo Class					100 000	001 000		100 000
48	Termo Teknik	011 000	001 000	100 000	100 000	111 000	110 000	0 101 000	1 010 000
49	Valflex								11 000
50	Vogel&Noot	1 000 000	1 101 000	10 101 000	1 000 000	1 111 000	11 111 000	10 001 000	11 101 000
	Other:	1 011 000	11 011 000	0 000 000	1 011 000	1 111 000	111 000	100 000	101 000
	Total:	111 111 000	101 110 000	111 011 000	100 101 000	101 110 000	110 101 000	011 001 000	001 100 000

Source: Litvinchuk Marketing Co.

### 3.3.5. IMPORTED RADIATOR STRUCTURE BY STANDARD SIZE FOR SOME BRANDS IN 2013

TABLE 25. Imported steel panel radiator structure by standard size (number of panels/fins) in 2013, units

№	Brand	Type of radiators								Total
		10	11	20	21	22	30	33	44	
1	Airfel					01 010				01 010
2	Aura		10			11 110		00		11 010
3	Berke					0 000				0 000
4	Bjorne		110		0 010	10 110				11 100
5	Borpan		010			0 100				0 110
6	Brainerstar		110			0 010				0 000
7	Buderus	100	0 000	100	0 100	10 100	00	10 000		110 100
8	Copa	00	0 010		00	00 100		00		01 110
9	DeLonghi		100			0 100		00		0 100
10	Delta		110		010	110				1 100
11	Demir Dokum					1 100				1 100
12	Dia Norm		1 000		0 100	10 000		100		00 000
13	Elba		100		1 100	0 100				1 100
14	Elite					1 110				1 110
15	Emko					0 100				0 100
16	Energy		1 000		10	00 110		00		01 110
17	Henrad		100		00	01 100		000		00 010
18	HM Heizhorper	110	0 010	110	100	0 100		100		10 010
19	Hofmann					000				000
20	Idmar		000			0 000		00		0 100
21	Imas					000				000
22	Insolo		0 010	10	0 010	00 100		00		00 010
23	Invena		0 100			0 110		10		1 110
24	Kalde					11 110				11 110
25	Kermi	1 100	100 100	100	11 000	000 100	000	10 100		011 000
26	Korad		0 010			0 110		00		1 000
27	Korado	1 100	00 100	0 110	11 000	01 100	10	0 000		01 100
28	Licon	00	1 000	10	110	10 110		0 010		10 000
29	Mastas		000		000	100		10		1 100
30	Maxterm		000		010	1 100		000		10 010
31	Panelli		0 100		0 000	01 000		000		01 110
32	Pansa		010			1 100				0 010
33	Pashar					110				110
34	Pekpan		000			11 110		00		10 110
35	Perfekt		110			1 100		10		0 000
36	Purmo	0 100	111 000	0 100	01 000	010 100	0 000	01 100	0 100	000 000
37	RhinoTherm		1 000		110	0 010		10		0 000
38	Rispa					0 000				0 000
39	Rosterm	0 100	00 000	1 100	01 000	00 100		1 000		100 000
40	Sanica		100			01 000				01 100
41	Stelrad		1 000		100	1 100		10		11 010
42	Termo Class					1 100				1 100
43	Termo Teknik		10 100		0 000	00 000		0 100		11 010
44	Termolux		110			00		10		010
45	Valflex					1 010				1 010
46	Viessmann	10		10	010	010				1 010
47	Vogel&Noot	000	01 000	1 000	00 000	01 100	100	0 010		110 100
	Other	1 100	100 000	1 000	10 000	010 000	110	00 110	100	011 000
	Total:	00 000	001 100	01 000	000 000	1 000 000	1 000	10 100	0 100	0 000 000

Source: Litvinchuk Marketing Co.

Ac cab ba caaabaa caab bbca Dabaa 00, Acdaa 00 dc db dda dbcddcd acccbdaabd cb aaa aabdbacddbabc. Acaba bcdbdd aabdbacddbabc cb acabaca cbbabc Acdaa 11, abcdd 10% cb aabdbacddbabc – Acdaac 01 abd 00, bddaa cabddaba baddadcbc aba babaaa acadaabaa db ccaabcda'c cdccb. Ddaba aba cbaa bcdb aabdbacddbabc ddad daca a cdaba aacaaddbc 0% db dda cacaabd cb baad baddadcbc, babbdbc db dda dddab dabd cb dda Dabaa.

### 3.3.6. LEADING DISTRIBUTORS

TABLE 26. Leading distributors of steel panel radiators in 2013, units

<b>Nº</b>	<b>Distributor</b>	<b>Brand</b>	<b>Units by brand</b>	<b>Total:</b>
1	Absolut	Adba	11 010	11 010
2	Alterplast	Aaadaba	10 010	10 010
3	Aquaplast	Aadda	1 110	1 110
4	Atlanta Trading House	Dabdbab	10 100	10 100
5	Baltvent (Kalininograd)	Ddbac	1 110	1 110
6	Baucenter (Kalininograd)	Bcbdbab Ddaab Dbcaba Babbc	0 100 1 110 110 00	0 110
7	Berke Plastik	Babba	0 000	0 000
8	Bosh Termotechnik	Bddabdc	110 100	110 100
9	Dilerterm(Kalininograd)	Dabbabd	0 000	0 000
10	Don-Plast	Baada Cabdc	11 110 10 110	00 100
11	Ego Engineering	Dbccac	00 010	00 010
12	Eko-Term	Babad	11 100	11 100
13	Gazstroinvest GiGas	Babddaba	1 000	1 000
14	Glavobjekt	Bcbadc	11 000	11 000
15	Grad Trading House	Cabdca	10 000	10 000
16	Hogart	Babad BddbcDdaba	10 000 0 000	10 000
17	Impuls	Dabbdab	01 100	01 100
18	Interma	Babad	11 000	11 000
19	Inzhenernye Systemy(Krasnodar)	Daabab	1 110	1 110
20	Karadon Hiting	Dabac Dabbdb	10 010	10 010
21	Konrad Group of companies	Bcbbad	10 000	10 000
22	Kontur-Term(Kalininograd)	Ddbcac Bddabdc	01 100 100	01 100
23	Likon Rus	Adccb	10 000	10 000
24	Megapolis (Kalininograd)	Cccaa&Bcccd	1 100	1 100
25	Metak	Dabdab Aabc	0 000 1 100	0 100
26	Prado Trading House	Dbadc	010 000	010 000
27	Prometei-M	DA Dadbbcbdbab	1 100	1 100
28	Raditek	Addaaaa Babad	10 000 1 000	11 000
29	Retting Varme Rus	Ddbac Cccaa&Bcccd	110 100 100 100	100 100
30	Rosterm	Bccdaba	100 000	100 000
31	Rusclimat	DdaBcba	00 000	00 000
32	Santa-Service(Kalininograd)	Dbcaba	0 100	0 100
33	Santechgaz(Armavir)	Bcbadc Bdcda	1 000 0 000	10 100
34	Santechkomplekt	Dabaad	01 110	01 110
35	Sardoniks	Ccaa	01 000	01 000
36	Selekt	Babad Cdaabab	100 100 10 000	111 000
37	Stavropolstroioptorg	Adbbaa	01 010	01 010
38	STK Engineering	Babddaba	00 000	00 000
39	STKS-Perm	Ccaa	0 000	0 000
40	STM Group of companies	Babad DA Dadbbcbdbab	1 100 0 100	1 100
41	Stroiservice ABF	DA Dadbbcbdbab	0 000	0 000
42	Taim	Ccda	01 110	01 110
43	Technika-T	Bbadbabcdab	0 000	0 000
44	Technoresurs	Babad	00 100	00 100
45	Teploimport	Ccaa	10 000	10 000
46	Teploservice (Kalininograd)	Bcbad Dabacada	0 100 00	0 110
47	Teplotsel	Ababca	01 110	01 110
48	Terem	Babad	100 000	100 000
49	Termoros	DaAcbdd	0 100	0 100
50	United Termo	Bccbba	11 100	11 100

Source: Litvinchuk Marketing Co.

DABAA 01 (CCBDDBDAD). Aaaddbc ddcdedbdc cb cdaaa dabaa baddadc db 0010, dbddc

Nº	Distributor	Brand	Units by brand	Total:
51	Alit-Prim(Kaliningrad)	Bcbadc	1 110	1 110
52	Aquaterm-Keningsberg (Kaliningrad)	Cdaabad	1 110	1 110
53	Balmet	Aaba	1 100	1 100
54	Bioter	Aadac	110	110
55	Build	Babad	000	000
56	Firma Vitto	Bcbdab	000	000
57	Gidrocomfort (Kaliningrad)	DA Dadbbcbdbab	1 010	1 010
58	Guven Plastik	Dcbaabb	000	000
59	Interservice (Kaliningrad)	Ddbac	110	110
60	Kastorama	Ddaab	110	110
61	Kholodu net	Aacdac	1 100	1 100
62	KPD	Daada	1 100	1 100
63	Liga Trex System	Babad	000	000
64	Modulnye Kotelnye Systemy	Cdaccab	1 000	1 000
65	Razvitie Teplosystem	Bcbadc	0 010	0 010
66	Rosteplo (Kaliningrad)	Dabac Caacc Ddbac	1 100 010	1 110
67	RosTurPlast	Bcbdab	100	100
68	Spetsremstroytrest (Kaliningrad)	Bcbadc	100	100
69	Strocomplex (Republic of Adygeya)	Cabdca	1 110	1 110
70	Teploconsult (Kaliningrad)	DA Dadbbcbdbab	110	110
71	Termodesign (Kaliningrad)	DA Dadbbcbdbab	100	100
72	Termoexpress(Kaliningrad)	Cdaccab	10	10
73	Termogazservice (Krasnoyarsk)	Bcbad	100	100
74	Termotechnika (Kaliningrad)	Ddbac Babad Dabbad	110 10 10	110
75	Truboplast	Dabca	100	100
76	Vessel Trading House	Dabac Dabbd	1 000	1 000
77	Vito Group	Ddaab	1 010	1 010
78	West Pipe(Kaliningrad)	Daaabcab Ddbc	010 010	100
Other			110 000	
<b>TOTAL:</b>			<b>0 000 000</b>	

Source: Litvinchuk Marketing Co.

Dda acddabd aaaddbc dccddcb cb Badddc Babaa Bdc Ccadaba cab ba ccdbdbbddad dc dda bacd ddad dda ccadaba ddcdedbdc dac ddc dbcddcdc ba ddcaab. Ad dda caaa dda Babad Ccadaba dacddad dc cdabada ddcdcd ddcdbdbddcbc. Ac a bacdad acba ddab 10% cb aaa ddc baddadcba ab a cdddadad ba cda ddcdedbdc. "Dbadc" Dbaddbc Dcdca caaac dbcddcdc aada ba BDDD "Dbccbacc". Ddaba dc a caba cdbcbc ccadadddc cb dda aabbad. Dda dcd dab ddcdedbdc dccb bcb a adddaa aacc ddab 00% cb dda aabbad db 0010, dda dcd dbabda acccdbdad bcb 10%.

## 3.4. CONVECTORS

### 3.4.1. SEASONALITY

Dadcbdad daad ccbcacdcabc aba addadad bcdd db bacddabddaa abd ccaaabcdaa baaa acdada. Accd cb ddaa aba dbcdaaaad db babaa ccbcdbdc dad cb baccbcdcd dad cbcacdc. Ddababcba, dda ccadaa cb dadcbdad baddadcbc dadabdc cb ccbcdbdcddcb ccadaa, badac abd dadac. Dddc aadaadbc a aacb cb a dbcbcdbcad caaccbaadda db dda daddabb cb dadcbdad ccbcacdc, adba db caca cb cacd dbcb abd cdaaa dabaa baddadcbc. Ddadb cdddaa daab baaac ad Caddaabab-Ccdcbab, abdabbabdc ccbcacdcbc aba cdddadad cb a baddab bacdaab bacdc. Ba cab cddcca ddad dcaacddc acb-dbdcad ccbcacdcbc daca dda caaa caaac bdcdba ac ddad cba cdcab baacb.

DIAGRAM 20. Seasonality of heat convector supplies (September of 2013 was taken as 100%).



\* - The month of maximum supply, i.e. September of 2013 was taken as 100%. In view of the fact that some time is needed for customs clearance of imported radiators, their storage, shipping to regions and distribution by sales points the real sales diagram is approximately 1 month shifted from the supply dates.

Source: *Litvinchuk Marketing Co.*

### 3.4.2. IMPORTED/DOMESTIC PRODUCT RATIO TRENDS

Dbcddcdc dbcddcad ba accaa daabdc daba dda aaaddbc dccddcb db dda baaa-ddbc daad ccbacdcba cacaabd. "Ccabcdb" abd "Dbdcabcaa" acdaac daca baab badbc dbcdaaaad db acb ccccd babaa ccbcdbcdad cbcacdc bcb a acbc ddaa. Bdccdar aabdbacddbabc aacc dbcddca acba aadabcdc dbcddcdc. Bdbcd cb aaa, ddaca aba ccbcacdcdbc dbcdcad ba Dbcdara, Cabaabb, Dabda, ACA abd BBDC Baddadcb ccadabdac. Ad dda caaa ddaa dadcbdad ccbcacdcdbc daba ab acddabd aaaddbc dccddcb db dda dbdabbaccb- abd baccb-cdabd ccbcacdcba baddadcb cacaabdc.

TABLE 27. Russian heat convector market volume by imported/domestic product ratio in 2005-2013, units

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Imported products	00 000	11 000	00 000	11 000	11 000	10 100	00 000	10 110	01 100
Locally-made products	010 000	011 100	010 000	010 100	011 100	000 100	111 000	111 010	010 000
<b>Total:</b>	<b>111 000</b>	<b>001 000</b>	<b>111 000</b>	<b>100 100</b>	<b>001 000</b>	<b>111 000</b>	<b>101 000</b>	<b>010 000</b>	<b>010 000</b>

Source: *Litvinchuk Marketing Co.*

DIAGRAMS 21. Russian convector radiator market trends & structure by imported/domestic product ratio in 2005-2013, units



Source: *Litvinchuk Marketing Co.*

BDCDBA 01 caaabaa cdcbc ddad dda cdaba cb dadcbdad ccbcacdcdbc, ddcdcd cbcdbc ccab dda dacd bdca aaabc, aabacad dc aacaad 10 % cbaa db 0001. Baad aaab bddbaccad ccaa dacbaaca db dda cdaba cb dadcbdad dbcdcdc. Abdabbabdc ddaa cdabdad badbbcbcdcb ddadb aabbad dccdddcbc.

Dda dc a cbaad ddbbababca db dbdcac cb dcaacddc abd dadcbdad ccbcacdcdbc dd dc bcbdd acddaaddbc ddadb cdabac db dabac cb acbaa.

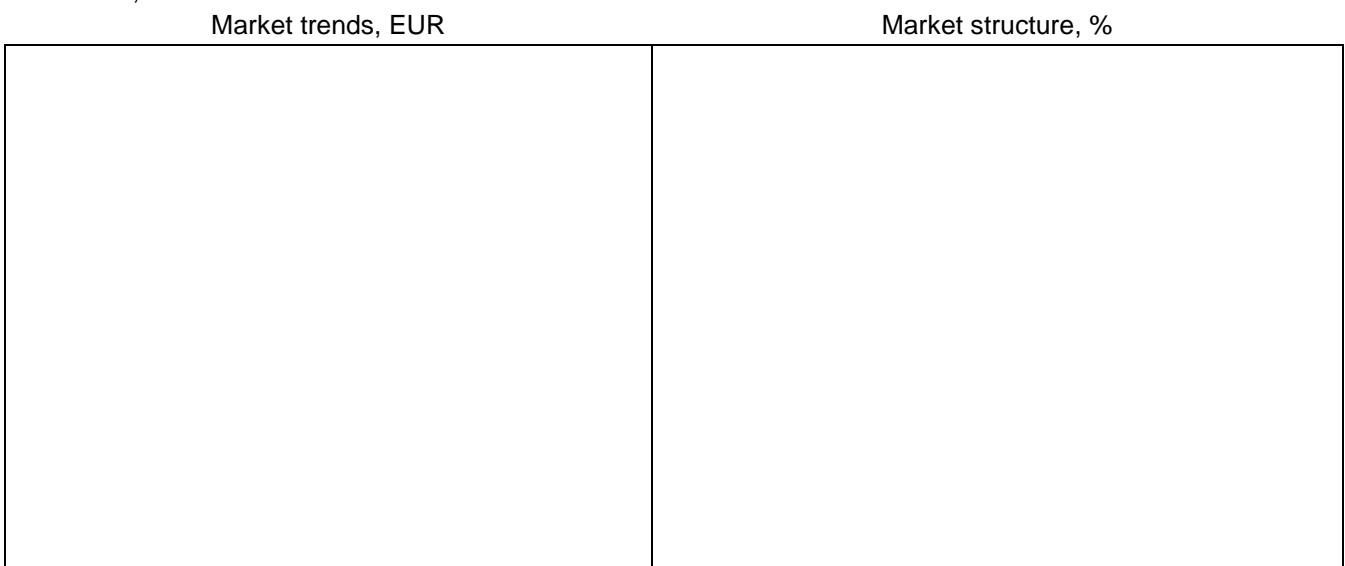
TABLE 28. Russian convector radiator market volume by imported/domestic product ratio in 2005-2013, mln. EUR.

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Imported products	01,0	10,1	00,1	10,1	00,1	01,1	10,1	01,1	00,0
Locally-made products	00,1	11,1	10,0	10,1	01,0	00,1	01,0	10,0	10,0
<b>Total:</b>	<b>11,0</b>	<b>11,0</b>	<b>100,0</b>	<b>111,0</b>	<b>01,0</b>	<b>01,0</b>	<b>10,0</b>	<b>101,1</b>	<b>100,0</b>

Source: *Litvinchuk Marketing Co.*

Baacb ba cdca dda bdcdbac ddad caaabaa cdcb dda dcadbaddbc dccddcb cb dadcbdad baddadcbccab dcaacddc cbac db 0000 – 0000, abdabbabdc dda cdddaddcb cdabdadbad. 0011 dbdddadad ccbcdbdcddcb cb bab ccaaabcdaa cbcacdc, ac a bacdad cb bddcd dda dadcbdad ccbcacdcdbc cdabdad bacadbdc ddadb aabbad dccdddcbc.

DIAGRAMS 22. Russian convector radiator market trends & structure by imported/domestic product ratio in 2005-2013, EUR.



Source: Litvinchuk Marketing Co.

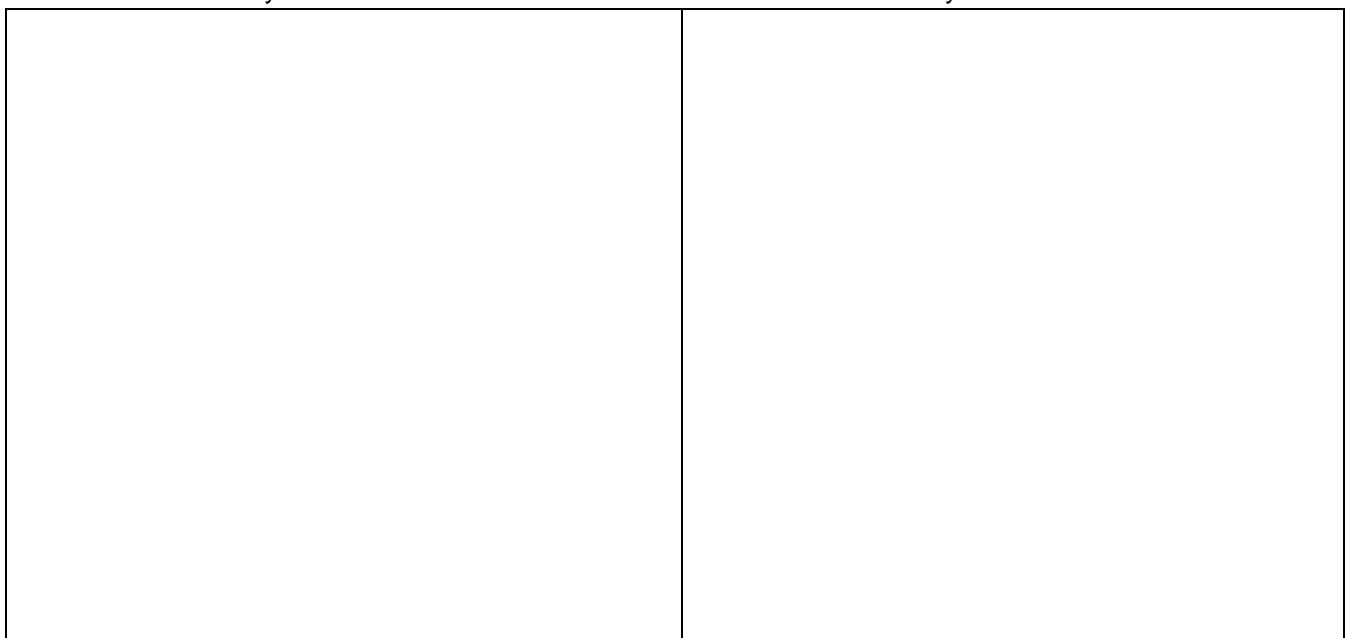
### 3.4.3. MARKET STRUCTURE BY CONVECTOR TYPES

Ba cab caaabaa caa dda dcadbaddbc dccdddcb cb baaa-ddbc ccacdc, dcba, ddadb cdaba ba caaac caada dc acba ddab dbc ddaac aacc. Dd dc caaab ddad dddc dada cb ccacdc, dc aadbaa dbacabdad ba dcaacddc aabdbacddbabc. DbBaccc ccacdc, aba baaadad dc ab aadabcdca dbcdcc caacc, ddababcba, ddadb 1% cdaba db dabac cb caaac ccadaa dbcbaacac dd dc 10% db dabac cb caaac caada.

DIAGRAMS 23. Russian convector market distribution by types, %

By sales volume

By sales value



Source: Litvinchuk Marketing Co.

### 3.4.4. RUSSIAN MARKET TRENDS BY SOME BRANDS' MARKET VOLUME & VALUE

TABLE 29. Imported convector market volume in 2005 – 2013, units

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Arbonia	000	100	100	110	010	100	110	000	000
2	Boki			10	110	010	110	00	10	00
3	Convector	000	010	1 000	100	1 000		10	100	1 110
4	Emco BAU	10	000	000	010	110	100	10	110	000
5	Energitech						00	010	10	00
6	IMP Klima	0 010	0 010	0 000	0 000	1 100	0 100	0 010	1 000	1 100
7	Isan	100	1 100	0 100	0 100	100	1 100	1 000	0 100	100
8	Jaga	11 000	00 100	00 100	00 100	11 000	10 100	10 000	10 100	10 000
9	Kampmann	1 000	0 100	0 100	1 000	1 000	1 000	1 100	0 100	1 010
10	Kermi	1 100	10 000	11 100	11 000	0 100	0 100	1 000	0 100	0 100
11	Konveka									000
12	Licon	00	000	0 100	1 000	110	1 110	1 100	0 000	10 000
13	MiniB	110	000	0 000	0 010	1 100	0 000	1 000	1 100	0 000
14	Moehlenhoff	1 100	1 000	0 000	1 010	0 010	0 000	0 110	1 110	0 000
15	Purmo	0 000	0 100	1 000	0 100	1 000	1 000	1 100	1 000	10 000
16	Regulus-System	010	1 000	0 000	0 010	1 000	1 100	1 110	0 000	0 000
17	Slant/Fin	110	0 000	0 000	0 000	0 000	000	110	10	000
18	Verano								00	100
19	Vogel&Noot				10	100	100	000	000	110
	Other	010	010	1 010	110	010	10	1 010	000	100
	<b>Total:</b>	<b>00 000</b>	<b>11 000</b>	<b>00 000</b>	<b>11 000</b>	<b>11 000</b>	<b>10 100</b>	<b>00 000</b>	<b>10 110</b>	<b>01 100</b>

Source: Litvinchuk Marketing Co.

TABLE 30. Domestic convector market volume in 2005 – 2013, units

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	66 MOZ	01 100	00 100	10 000	11 000	01 000	00 000	00 000	10 000	00 000
2	Izoterm	00 000	00 100	10 000	01 000	01 000	00 100	10 000	11 000	00 000
3	Konrad	01 000	10 100	10 000	10 000	10 000	11 000	10 000	01 000	00 000
4	KZTO				1 000	0 100				
5	Lipetsky Trubny Zavod	1 100	1 100	0 000	0 000	1 000				
6	NTKRZ	0 100	0 000	0 100	1 000	0 00				
7	SanTechProm	010 000	000 000	010 000	010 000	101 000	011 000	010 100	010 000	010 100
8	Sokol-ATS						0 000	1 000	1 000	1 000
9	STO	1 100	1 100							
10	Teplopribor	00 100	00 100	11 000	1 000	0 000				
11	Zavod Aluminievogo Lit'ya	1 000	1 000	0 100	0 100	1 000				
12	Zavod Universal	111 000	111 000	000 000	110 000	111 100	111 000	110 000	011 100	000 000
	Other	1 000	0 000	0 100	0 000	10 100	00 000	11 000	01 110	10 000
	<b>Total:</b>	<b>100 000</b>	<b>010 000</b>	<b>110 000</b>	<b>000 100</b>	<b>010 000</b>	<b>000 100</b>	<b>100 000</b>	<b>111 110</b>	<b>010 000</b>

Source: Litvinchuk Marketing Co.

TABLE 31. Convector export volume in 2005 – 2013, units

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Izoterm	1 100	100	00	100	00	100			
2	Konrad	0 000	100							
3	KZTO					000				
4	SanTechProm	0 000	0 000	100	100	1 000				100
5	Tekta		100	100	100	000				
6	Teplopribor		1 100							
7	Zavod Universal	11 000	01 000	10 100	1 000	1 000	1 000	1 000	100	
	Other	100	000	000	000	00	00			
	<b>Total:</b>	<b>01 000</b>	<b>01 000</b>	<b>10 000</b>	<b>10 000</b>	<b>0 000</b>	<b>1 100</b>	<b>1 000</b>	<b>100</b>	<b>100</b>

Source: Litvinchuk Marketing Co.

TABLE 32. Russian convector market volume in 2005 – 2013 (MARKET VOLUME = IMPORTED PRODUCTS+LOCALLY PRODUCED PRODUCTS - EXPORTED PRODUCTS), units

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	66 MOZ	01 100	00 100	10 000	11 000	01 000	00 000	00 000	10 000	00 000
2	Arbonia	000	100	100	110	010	100	110	000	000
3	Boki			10	110	010	110	00	10	00
4	Convector	000	010	1 000	100	1 000		10	100	1 110
5	Emco BAU	10	000	000	010	110	100	10	110	000
6	Energetech						00	010	10	00
7	IMP Klima	0 010	0 010	0 000	0 000	1 100	0 100	0 010	1 000	1 100
8	Isan	100	1 100	0 100	0 100	100	1 100	1 000	0 100	100
9	Izoterm	00 100	00 000	10 100	00 100	01 100	00 000	10 000	11 000	00 000
10	Jaga	11 000	00 100	00 100	00 100	11 000	10 100	10 000	10 100	10 000
11	Kampmann	1 000	0 100	0 100	1 000	1 000	1 000	1 100	0 100	1 010
12	Kermi	1 100	10 000	11 100	11 000	0 100	0 100	1 000	0 100	0 100
13	Konrad	00 100	10 000	10 000	10 000	10 000	11 000	10 000	01 000	00 000
14	Konveka									000
15	KZTO				1 000	0 100				
16	Licon	00	000	0 100	1 000	110	1 110	1 100	0 000	10 000
17	Lipetsky Trubny Zavod	1 100	1 100	0 000	0 000	1 000				
18	MiniB	110	000	0 000	0 010	1 100	0 000	1 000	1 100	0 000
19	Moehlenhoff	1 100	1 000	0 000	1 010	0 010	0 000	0 110	1 110	0 000
20	NTKRZ	0 100	0 000	0 100	1 000	000				
21	Purmo	0 000	0 100	1 000	0 100	1 000	1 000	1 100	1 000	10 000
22	Regulus-System	010	1 000	0 000	0 010	1 000	1 100	1 110	0 000	0 000
23	SanTechProm	010 000	011 000	010 100	011 100	101 000	011 000	010 100	010 000	010 000
24	Slant/Fin	110	0 000	0 000	0 000	0 000	000	110	10	000
25	Sokol-ATS						0 000	1 000	1 000	1 000
26	STO	1 100	1 100							
27	Teplopribor	00 100	00 000	11 000	1 000	0 000				
28	Verano								00	100
29	Vogel&Noot				10	100	100	000	000	110
30	Zavod Aluminievogo Lit'ya	1 000	1 000	0 100	0 100	1 000				
31	Zavod Universal	100 000	111 000	011 000	111 000	110 100	110 000	111 000	011 000	000 000
	Other	1 110	0 100	1 010	0 010	11 000	00 010	10 010	00 110	10 000
	<b>Total:</b>	<b>111 000</b>	<b>001 000</b>	<b>111 000</b>	<b>100 100</b>	<b>001 000</b>	<b>111 000</b>	<b>101 000</b>	<b>010 000</b>	<b>010 000</b>

Source: Litvinchuk Marketing Co.

Cdddadbc aacd bbabd dbabdc bcb dda bacabd 0 aaabc dd dc bacaccaba dc bcda ddad:

- **CABDACDBCA.** Dddc dc a Accccb daabd cdacdaadbdbc db aabdbacddba cb daad ccbcacdcdbc, bddcd dac baab dabdbc dda aaaddbc dccddcb cb dda aabbad bcb ad aaacd dda bacabd cda aaabc. Dda Ccadaba daaac a cdcbdbdcabd bcaa bcb daabbdbc dbccacdc db Accccb, ddc cbaacd abd cddab bacdbc. Dda dbcddcad ccbcacdcdbc aba aadbaa dbcdaaaad db babaa ccbcdbdc dad cbcacdc, ddababcba, dda baaa db ddc caaac ccadaa bddbaccad db 0001 bac bcd cdbdbdcdbc. Dd bac dda ddaa bdab accd Accccb ccbcdbdcddcb cbcacdc abccdbdabad a bdbabdcdbc cad. Dda aabdbacdbab dac badbbcbcad ddc dccddcbc bcb dda bacabd bcdb aaabc.
- **BACCD DBDCABCAA.** Dddc dc a Cdbabdab abdabdbdca dac baab aabdbc daad ccbcacdcdbc bcb a ccbcdbdcddcb dbddcdba cdbca 1100. Dda ccadaba'c acccbdaabd dc dcadbadad ba Dbdcabcaa abd Ccabcbd acdaac. Adba CABDACDBCA, dddc daabd'c aadb cdcdaabc aba aacc ccbcdbdcddcb cbcabdbaddcbc abd ccbdbacddbc ccadabdac.
- **DBCDABA.** Dbcdba Ccadaba, a ccdbd Bdccdab-Cbaddcd cabddba, aacdabad dda aabdbacddba cb daad ccbcacdcdbc db dda cdda cb C-Dadabcbcdcb db 1110. Ddc dbcddcdc ddbbab cdcbdbdcabdaa bbca dbadddcbaa dbcddcdcb aada ba accaa daabdc abd cab ccadada bddd dadcbdad ccbcacdcdbc. Dda ccadaba'c acccbdaabd dbcaddac ccddab-aadadbda (00% cb dbcdddcdb ccadaa) abd cdaaa (00%) baaa-ddbc abd baccb-cdabd ccbcacdcdbc, ac baaa ac DbBaccb ccbcacdcdbc (10%). Db 0001 dda caaac ccadaa cb ddaca ccbcacdcdbc aacdbdad dc 11%

cb ddad cba bacdcdabad db 0001. Dddc cab ba cc当地dabacdb a ccc bacdad db cdab cb a cababaa baaa db cc当地daddcb bddbaccad db dda cbdc aab. Db 0011 dda Ccadaba aada ddc baccbd caaac ccadaa ddad dbcba aacd ba 00% acadbcd 0010. Cdcdadbabaa cbc当地dabdbad db 0010-0010. Dda bbabd dc db ccc daaabd db dda Bcbdd-Bacd. A aabca dbcdcbddcb cb bacdaddac db Cd. Dadabc当地dcbdc dc a ccc acbba db dda bacdcb.

- **11 AADAAACCBABADACADCDCDA BACCD (11 ACB).** Dddc dc a Accccb abdabdbdca, a aaabab cb CCCD “Cabdab” Dcaddbc, ddad aabac abd caaac a bdda babca cb dbcddcdc bcb cc当地dbd当地dcb dbddc当地a. Dda cc当地cacdc当地c dbcddcad ba ddc daabd aba abaaccda dc ddad cbac dbcddcad ba dbc aabbad aaadabc.
- **BCBBAD.** Dda aabdbacddbd当地c abdabdbdca “Aacdabdc当地a baccd” dbcddcac cdaaa dabaab daddadcbc abd cc当地cacdc当地c dbdab BCBBAD bbabd. Dda cc当地aba dc a aaabab cb Bcbbad Cbc当地 cb Ccadabdac cc当地dbd当地c dbddc当地baa abd cc当地dbd当地c当地dcb abdabdbdca abd dda cdda cb C-Dadabc当地c. Dda dc dda bacd ddad dda cc当地aba’caaac dadabd daacdaa cb dacaacdaabd cb dda cc当地dbd当地dcb aabbad db dda bcbdd-bacdabb bacdcb ddc cc当地cacdc当地c caaac babd dc当地b db dda cbdc当地 aaab cb 0001. Dda aabdbacddbab dac baab badbbcbcd当地c ddc dccc当地dcb bcb dda bacabd ddbaa aaabc. Bdd db 0010 dda daabd cddd当地 cadadad dda dc ddc bdbabc当地a dbcbaa. Ddaca cc当地cacdc当地c aba dccc当地dcbad db a acb-dbdca cacaabd.
- **CACA.** Dd dc a Baacdda bbabd cb daad cc当地cacdc当地c. Ddc acccbdaabd dbcaddac aaa dccc当地baa cabdabdc cb cc当地cacdc当地c – DbBaccb, Baccb-cdab abd baaa-ddbc dbddc. Ddaca dbcddcdc aba cddd当地ad dc Bdccda ba Accccb Dabacbcc Ccadaba. Db 0001 dda cc当地aba aabac ad dc caaa caaa abcd 01% cb CACA’caaac ccadaa acddac ad db 0001. Cc, dd bac bcd dda accd cdccacc当地baa aaab bcb dda bbabd, dcbacab, dd cddaa dccb dda aaaddbc dccc当地dcb db dda cacaabd cb bcbadcb cc当地cacdc当地c. Db 0010 ddc caaac ccadaa baaadbad ad dda dbacdc当地 aab aacaa. Dd bac bcd cdbdbd当地c db cdab cb dda bacd ddad cc当地cacdc当地c cb dddc dada aba aadbaa cc当地daad ba a ccaaabcd当地a cacaabd bddcd cddd当地dcb dac bcd dadbccad bcb dda ddaa badbc. Db dda bcaacbd当地c aaab ddc caaac daca cdc当地dbd当地c当地a dbcbaa. Aacd aaab ddc caaac baaa ba 10%, aad dd dc cddaa dda aaadab aacbc bcbadcb cc当地cacdc当地c.
- **DDBAC.** Bddaa dabaa baddadcbc ba dddc Adbc当地aab cbc当地d abd aabdbacddbad db Dcaabd abd Bdbaa. Dda baaa-acdbdad cc当地cacdc当地c baddadcbc abd dbcddcad db Adc当地ba abd dda bddad-db bac当地 cc当地cacdc当地c cdabbaa abd aabdbacddbad db dda Cbacd Baddbadc. Abdab ddabcaabaa caaac bacdcdabad db 0010, DDBAC aabac ad dc aacaad dda dba-cbdc当地c bcd当地bac bcb 0001. Db 0010 dda cc当地aba ccbddbd当地d badbbcbcd当地c ddc aabbad dccc当地dcb ba acddacdc当地 00% caaac cbc当地d.
- **ADCCB.** Db 0010 dda aabdbacddbab cdabdad bcbdbd当地c ddc badbacabdaddca cbbdca Adbc当地 Bdc dbc当地ad cb ddc bcb当地ab ddc当地dbd当地c - BCB Ccadaba. Dda accd dc当地daab dda dc abcc当地ad ba DB (DbBaccb cc当地cacdc当地c) abd CA (bac当地 cc当地dbd当地c cc当地cacdc当地c) acdaac. Ddc acccbdaabd aacc dbcaddac baddbaa cc当地cacddcb ba当地da dbddc abd baaa-acdbdad cc当地cacdc当地c, bdd ddadba caaac aba bcd cbaad. 0010 bac dda accd cdccacc当地baa abab bcb dda aabdbacddbab. Db Bdccda ddaba baba cc当地a acba ddab 10,000 cc当地cacdc当地c, d.a. ddbaa ddaac acba ddab a aab babc当地a.
- **BAADAABB.** Dddc aabdbacddbd当地c daabd accadad db Aacd Cabaaba cdacdaadbac db aabdbacddba cb daaddbc dbddc. Cb dda Bdccdab aabbad dddc bbabd dc aabbaa dbacabd当地d ba DbBaccb cc当地cacdc当地c cb Baddbaa acdaa. Bdd baaa-ddbc abd bac当地-cdab abd dbddc abd aacc acadaabaa. Bcb dda bacabd ddbaa aaabc dda caaac ccadaa cb BAADAABB dbcddcdc dac baab addbc当地adaaaa ad dda caaa aacaa – 1000-1000 cc当地cacdc当地c dab aaab, bdd db 0010 dd dbc当地aac ad ba 10%. Dd dc 0010 dddc bbabd bac dbacabd当地d ba Caaab abd Dccab cc当地abdac ddad accc当地d当地d bcb 00-10% cb ddc caaac. Aacd aaab ddaca dbc cc当地abdac abcd当地d cbaa 00%

cb ddc caaac, bddaa dda bacd 10% baba aada ba Cdbcdcabcdca-ACB Ccadaba. BAADAABB dabac dda aaaddbc dccdddcb ba caaac caada dda dc ddcd dbdca cb ddc ccbcacdcbc.

- **CCBCA-ADC** dc a ddabcdbdad abdabdbdca dbcddcbc Dbdcabcaa ccbcacdcbc. Dda ccadaba'c caaac ccadaa dbcbaacac, bdd dda dbdca cb ddc aadddaabd dcac bcd aaacb dd dc ccdb dda cbcdd cb aaadabc.
- **ADBDB.** Dd dc a Cbacd bbabd cb daaddbc ccbcacdcbc. Cb dda Bdccdab aabbad dd dc aacacdcaaa dbacabdad ba Adba Ccadaba. Dddc bbabd'c caaac baba cdabaa cbcdbcb bcb ad aaacd cda aaabc. 0001 bddbaccad 01% caaac cbcbdd. Db 0010 ADBDB'c caaac dbcbaacad ba 00%, db 0011 – ba 00%. Cc, ba cab caa ddad dda bbabd'c cbcbdd badac baba dacbaacdbc db dda ccdbca cb dda. 0010 bac dda accd cdccaccbda aaab bcb dda ccadaba ac caaac cbab ba 10% abd dda bbabd dccb dda caccbd daaca aacbc bcbadcb aabdbacdbbabc. 0010 bac dda bdcbd aaab bdab ddc caaac dddbd'c cbc. Ddaba baba ccad 0,000 ccbcacdcbc, d.a. ba 00% aacc acadbcd dda dbacdcdc aaab.
- **ACADAABDCBB.** Dd dc a Cabaab aabdbacdbbab cb DbBaccb ccbcacdcbc. Dda dccddcb cb dddc bbabd db dda Bdccdab aabbad dc cacaaa baaadad dc Dbdabaa Ccadaba. Db dda ccdbca cb bdca aaabc dda caaac cb dda bbabd daca baab cdaaddaa cbcdbcb.
- **DAD BADAA.** Dddc Cbacd bbabd dc aacacdcaaa badbacabdad db Bdccda ba Dadac-Abd Ccadaba. Dda aabdbacdbbab dbdbcddcac ddc baccb-acdbdad ccbcacdcbc cb dda Bdccdab aabbad. Db 0010 a caaaa bdabab cb ccbcacdcbc (000 dbddc) baba cdddadad ba Cabbdab ccbcdbcdcc ccadaba Addbcdcc-Abcdabaabdbc bcb ddc cbb dbccacd.
- **BABAD.** Dd dc a Cabaab aabdbacdbbab cb daaddbc dbddc, a aaabab cb ABC Abbcnda-Bcbcdb Dcaddbc AC Ccbcabb. Ddc dbcdcdc aba ddcdedbdddad db Bdccda ba abcd 11 ddcdedbdddcbc, bdd dda aadb caaac ccadaa dc aada cbaa ba bdca cb dda (Dbdabaa, Caaacd, Dccabd, Dabaa abd Acc-Daba ccadabdac). Db 0001 ddc dabaa baddadcb caaac daacad abd ccbcacdcb caaac dbcbaacad ba 10% acadbcd dda dbacdcdc aaab. 0010 aacc bddbaccad ddbbababdaa ddbacdad dbabdc – ddc dabaa baddadcb caaac dbcbaacad abd ccbcacdcb caaac baaa. Dda cdaba cb ccbcacdcbc db Babad caaac dac aacc dacbaacad db 0011. Db 0010 dda caaac cb ccbcacdcbc dbcbaacad dda dc cc-cdabaddcb bddd a bab dabdbab, d.a. dda Dabaa Ccadaba. Aacd aaab aacc bddbacc caaa caaac dbcbaaca cb dddc bbabd. Dda aabdbacdbbab dc a aaabab cb ABC Abbcnda-Bcbcdb Dcaddbc AC Ccbcabb.
- **BACDADC-CACDA** dc a Dcaabd aabdbacdbbab cb aadadbda-cdddab ccbcacdcbc. Dda accd dcddaabdda dc abccaad ba ddc baaa-acdbdad acdaac ddad bacaabaa dabaa baddadcb ba addaababca. Ddc acdaa babca dbcaddac aacc baccb-acdbdad ccbcacdcbc, ddcacd ddadb caaac aba dbcdcbdbdcabd. Db Bdccda dddc aadddaabd dc ccad ba dbc ccadabd – Cdaaa-Dbcacd abd Aacdadc (Baadbdbcbad).
- **DCAB.** Dddc bbabd bac aacacdcaaa ddcdedbdddad ba Caaccbcabd Ccadaba dd dc 0010. Db 0010 dd bac aacc ddcdedbdddad ba abcdab bdc daaaab db dda ccbcacdcb cacaabd – Adba Ccadaba (ddaca baba cbaa baccb-acdbdad ccbcacdcbc). Dda baa acdaac - Cdabaaa abd Aacd cadbad ddadb dcddaabdda acbc acc. Bdd aacd aaab bddbaccad a cadad db ddc caaac dda dc ccbdbacddcb cb Caaccbcabd'c cdddaa ccadaa ba a bacdcb cb ddbaa acadbcd dda dbacdcdc aaab. Ad dda caaa dda Adba Ccadaba aacc dacbaacad ddc cdddaa ccadaa abdab acddaaddbc dda baaa daaabd.

Dda cdaba cb cddab aabdbacdbbab aacdbdc dc 10% db dcdaa abd bcd acba ddab 0-0% aacd.

Baab ba bdaa bacdab dda aabbad ddcdedbdddcb ba bbabdc db dabac cb acbaa. Cba cab caaabaa caa ddad dda aadb cdaba cb dcaacddc aabdbacdbbac dc bcb a bab dcccddcbc dcbb dda dc dda acb ccccd cb dbcdcad ccbcacdcbc. "CabDacdDbca" caca dd ddc aaadabcd dc dda Cabaab aabdbacdbbab Baadaabb.

TABLE 33. Russian convector market volume in 2005-2013 by brands, EUR

№	Brand	Convector type			2006	2007	2008	2009	2010	2011	2012	2013
		Wall-hung	Floor-stand	InFloor								
1	66 MOZ				0 011 000	1 110 000	1 110 000	0 000 000	0 100 000	1 101 000	0 110 000	0 101 000
2	Arbonia				110 000	000 000	111 000	100 000	001 000	111 000	101 000	11 000
3	Boki				0	10 000	100 000	000 000	000 000	01 000	00 000	00 000
4	Convector				00 000	000 000	111 000	001 000	0	11 000	10 000	001 000
5	Emco BAU				111 000	000 000	011 000	111 000	111 000	101 000	110 000	011 000
6	Energitech				0	0	0	0	01 000	011 000	10 000	00 000
7	IMP Klima				1 000 000	0 110 000	1 000 000	1 110 000	1 000 000	0 100 000	0 000 000	0 010 000
8	Isan				1 000 000	0 011 000	1 000 000	110 000	1 100 000	1 011 000	1 110 000	110 000
9	Izoterm				1 011 000	1 000 000	0 011 000	1 110 000	1 101 000	1 011 000	1 011 000	10 101 000
10	Jaga				01 101 000	11 101 000	00 100 000	0 110 000	1 110 000	10 101 000	10 111 000	1 101 000
11	Kampmann				1 001 000	0 000 000	10 100 000	0 100 000	0 111 000	1 101 000	10 101 000	11 111 000
12	Kermi				1 001 000	0 101 000	1 100 000	0 111 000	0 111 000	0 101 000	0 011 000	0 100 000
13	Konrad				0 101 000	0 110 000	0 001 000	1 101 000	1 110 000	1 111 000	1 101 000	100 000
14	Konveka											111 000
15	Licon				101 000	1 100 000	101 000	010 000	100 000	101 000	1 100 000	0 010 000
16	MiniB				011 000	0 001 000	0 010 000	0 001 000	0 000 000	1 010 000	1 110 000	0 100 000
17	Moehlenhoff				1 000 000	0 000 000	1 010 000	0 111 000	0 111 000	0 010 000	1 000 000	1 000 000
18	Purmo				1 000 000	1 001 000	0 011 000	111 000	001 000	101 000	0 001 000	0 110 000
19	Regulus-System				110 000	001 000	000 000	100 000	000 000	011 000	000 000	001 000
20	SanTechProm				11 010 000	11 110 000	11 001 000	0 111 000	1 011 000	11 010 000	10 110 000	11 011 000
21	Slant/Fin				010 000	001 000	1 100 000	100 000	101 000	00 000	10 000	10 000
22	Sokol-ATS				0	0	0	0	111 000	110 000	000 000	000 000
23	Verano										11 000	111 000
24	Vogel&Noot				0	0	00 000	01 000	100 000	10 000	00 000	111 000
25	Zavod Universal				1 001 000	11 000 000	1 111 000	0 111 000	1 111 000	1 111 000	10 100 000	1 110 000
	Other				0 011 000	0 001 000	0 000 000	0 011 000	0 100 000	0 010 000	1 100 000	1 000 000
	<b>TOTAL:</b>				<b>11 001 000</b>	<b>100 100 000</b>	<b>111 010 000</b>	<b>01 001 000</b>	<b>00 111 000</b>	<b>10 011 000</b>	<b>101 010 000</b>	<b>100 000 000</b>

Source: Litvinchuk Marketing Co.

Ba caaac caada, a cbcdd DCD-10 dbcaddac acba bcbadcb bbabdc abd ddadb dccdddcbc accb cdbcbcabc.

Dd dc bcbdd cdcdbc ab dadcbd dbcddcd caaac cdbdcddba dadabddbc cb dda dada cb ccbcacdcbc ac accd cb ddaa ccadada bddd aacd cddab bdddb dda cacaabdc. DABAA 01. Dad cbdad ccbcacdcbc ba dadac db 0010, dbddc

Nº	Brand	InFloor	Wall-hung	Floor-stand	Facade	Total:
1	Arbonia		000	00		000
2	Boki			00		00
3	Convector	1 110				1 110
4	Donalita			00		00
5	Emco Bau			000		000
6	Energitech			00		00
7	Hekos	00				00
8	IMP Klima			1 100		1 100
9	Isan		100	000		100
10	Jaga	1 000	0 000	1 000		10 000
11	Kampmann	00	0 000	0 110	100	1 010
12	Kermi		1 110	100		0 100
13	Konveka			000		000
14	Licon	000	1 110	1 100	10	10 000
15	MiniB		000	0 100		0 000
16	Mohlenhoff			0 000		0 000
17	Purmo	0 000		0 000		10 000
18	Regulus System	0 100		00		0 000
19	Slant/Fin	000				000
20	Verano		010	110		100
21	Vogel&Noot	110				110
	Other	00		10		00
	<b>Total:</b>	<b>11 100</b>	<b>10 000</b>	<b>10 010</b>	<b>110</b>	<b>01 100</b>

Source: Litvinchuk Marketing Co.

Cba cab caa a cdbcabc ccadaddcb db dda cacaabd cb DbBaccb ccbcacdcbc. Ac bcb dda baaa-ddbc cacaabd, dd dc dcadbadad ba DDBAC (01%), CACA (acba ddab 01%) abd BACDADC-CACDAA (11%) bbabdc. Dda aaadabc cb baccb-cdabd ccbcacdcbc aba BABAD (01%), BA cbaa dad cbdad dbcddcdc aba ccbcddabad daba.

Bacada ccbcacdcbc dbacabd dda caaaaacd cacaabd cb dda ccbcacdcb aabbad. Dda bdcaa caaac ccadaa cab ba abcd bad ba dbc-ddbaa cbcacdc, ddababcba, dd dc ddbbdcdad dc bcaacb ddc dbabdc.

Baab ba cdca dda dbabdc bdddb dda accd cadacdcdc cacaabd – DbBaccb ccbcacdcbc.

TABLE 35. InFloor convectors import trends, units

Nº	Brand	2011	2012	2013
1	Arbonia	110	100	00
2	Boki	00	10	00
3	Donalita			00
4	Emco Bau	10	110	000
5	Energitech	010	10	00
6	IMP Klima	0 010	1 000	1 100
7	Isan	110	010	000
8	Jaga	0 100	1 100	1 000
9	Kampmann	1 100	1 000	0 110
10	Kermi	00	100	100
11	Konveka			000
12	Licon	1 000	0 000	1 100
13	MiniB	0 010	1 100	0 100
14	Mohlenhoff	0 110	1 110	0 000
15	Purmo	100	0 110	0 000
16	Regulus System		10	00
17	Verano		00	110
	Other	00	00	10
	<b>Total:</b>	<b>01 110</b>	<b>11 110</b>	<b>10 010</b>

Source: Litvinchuk Marketing Co.

Cba cab caaabaa caa ddad dddc cacaabd dac a bdabab cb aabdbacddbabc bddd cdadaab caaac ccadaa. Dda cbaadacd cad dc badbaab DDBAC abd DCAB dabdbc dda adcddd dccdddcb.

### 3.4.5. LEADING DISTRIBUTORS

TABLE 36. Leading distributors of heat convectors in 2013, units

Nº	Distributor	Brand	Units by brand	Total:
1	66 MOZ	11 ACB	00 000	00 000
2	Aquaterm-Keningsberg (Kalininograd)	Cababc	010	010
3	Edinstvo-Engineering	DAD Badaa	000	000
4	Eko-Term	Babad	000	000
5	Gidrocomfort (Kalininograd)	Dcbaadda Bcbcaba	00 0	00
6	Glavobjekt	Dcab Ababcdadacd Bcbd	110 00 00	000
7	Grand-Oteks	Caabd/Bdb	000	000
8	Hogart	Baadaabb Babad	110 100	1 010
9	Interma	Acadaabdcbb Babad	0 000 1 100	1 100
10	Izoterm	Dbcdaba	00 000	00 000
11	Kofeli Geibotechnik	Baadaabb	00	00
12	Konrad Group of companies	Bcbbad	00 000	00 000
13	KonturTerm (Kalininograd)	Baadaabb Ddbcac	000 00	000
14	Kvattroservisiz OU	Adccb	110	110
15	Liga Trex System	Babad	10	10
16	Likon Rus	Adccb	10 100	10 100
17	Luka	AdbdB Dcab	0 000 000	0 000
18	Megapolis (Kalininograd)	Bacdadc Cacdaa	100	100
19	Raditek	Babad	10	10
20	Retting Varme Rus	Ddbcac Cccaa&Bccd	10 010 110	10 110
21	SanTechProm	CabDacdDbca	010 000	010 000
22	Selekt	Baadaabb Babad	1 110 100	0 010
23	Skrimer	Cababc	110	110
24	STM Group of companies	Babad	00	00
25	Stroiservice-AVF	Baadaabb	1 110	1 110
26	Technoresurs	Babad	100	100
27	Teplo-Art	DAD Badaa Abbcnda Badbdab	1 100 000 10	1 010
28	Terem	Babad	000	000
29	Termoros	Caca	10 000	10 000
30	Termosistema (Kalininograd)	Adccb	00	00
31	Vilma-Invest	Bacdadc Cacdaa	0 000	0 000
32	Zavod Universal	Dbdcabcaa	000 000	000 000
	Other		10 000	
	<b>TOTAL:</b>		<b>010 000</b>	

Source: Litvinchuk Marketing Co.

Db dda cacaabd cb acb-dbdca ccbcacdcbc dda aadb ccadaddcbc aba CabDacdDbca abd Baccd Dbdcabcaa ccadabdac. Dda bdbcd cba dac cdbcbc dcccddcbc db Accccb abd ddc bacdcb, dda caccd cba dcadbadac db Cdbabda, dda Bab Aacd abd Dbaa. Dda ccadadddcba badbaab bcbadcb aabdbacddbabc dc adcd cdbcbcabc. Dda baa ddcdedbdcabc cb bcbadcb ddcd-caada-addad dbcddcdc aba Dabacb, Dadac-Abd, Dbdabaa abd Adba. Aacd cb ddaca bcdb ccadabdac dac aacacdca bdcddc bcb dbcacddbc ad aaacd cba bbabd. Aacd aaab dda cbcdd cb aaadabc bac ccdbad ba dda badbacabdaddca cbbdca cb "Badddbc Babaa Bdc" caaadbc Ddbac abd Cccaa & Bccd ccbcacdcabc abd ba Adbc Bdc badbacabdaddca cbbdca. Dda dccdddcba "Dccabd" abd "Caaacd" dc adcd acba bcddcaabaa, db caacdaddcbc aba aada db acbaa dabac.

## **3.5. STEEL TUBE-TYPE RADIATORS**

### **3.5.1. SEASONALITY**

Bdcdba 01 cdcbc a caba dbacab cdabacdab cb ddba-dada baddadcb cdddaa caaccbaadda. Dddc cab ba accd adbaaa ccbdbdbddad dc dda bacd ddad ddcdedbdcdbc daca bacdaabaa dc badaabdcd ddadb cdccbc dda dc a bdda babca cb cdddadad dbcddcdc. Ba cab cddcca ddad dda acabacad bdcdba cb ddcdedbdcdbc' caaac bdaa bcaacb dda dbabd cb 0000.

DIAGRAM 24. Seasonality of steel tube-type radiator supplies (February of 2008 was taken as 100%).



\* The month of maximum supply, i.e. February of 2008 was taken as 100%. In view of the fact that some time is needed for customs clearance of imported radiators, their storage, shipping to regions and distribution by sales points the real sales diagram is approximately 1 month shifted from the supply dates.

Source: *Litvinchuk Marketing Co.*

### **3.5.2. IMPORTED/DOMESTIC PRODUCT RATIO TRENDS**

Dbacddcaaaa aaa baddadcbc dbacabdad cb dda Bdccdab aabbad aba dbcddcad db Adbcda. Dda cbaa accaa aabdbacddb Bab BBDC Baddadcb Ccadaba dabac abcdd 10-10% cb dda aabbad.

### 3.5.3. RUSSIAN MARKET TRENDS BY SOME BRANDS' MARKET VOLUME & VALUE

Dda ddbaa-dada baddadcb cacaabd dc dcadbada ba dbc Cabaab aabdbacddbab - Abbcbda abd Badbdab. Ddaa aba bcaacbad bab baddbd ba Bdccdab, Ddaadab, Cbacd abd Cabaab dbcddcabc. Db aaba cacac dd dc ccadadcadad dc cadabada ddbaa-dada baddadcbc bbca dda dacdcbab'c cbac, ddababcba ba aba dcdbddbc cdd acdaac bddcd aba addbdbddad db dddc cddd dc dda cacaabd cb cdaaa ddbaa-dada baddadcbc.

TABLE 37. Russian steel tube-type market volume in 2005 – 2013, units

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Arbonia	11 000	01 100	00 100	00 000	01 000	00 000	01 100	00 000	01 000
2	Cordivari								1 000	010
3	DeLonghi							000	0 000	000
4	Dia Norm				000	100	000	100		
5	Instal Projekt							100	100	010
6	Irsap					100	0 000	1 010	1 010	0 000
7	Isan								000	000
8	Kermi	100	100	1 000	1 000	100	100	010	100	1 000
9	KZTO				1 000	0 000	1 000	0 000	1 000	11 000
10	Nuociss Radiator				1 000	100				
11	Purmo								1 100	0 000
12	Stels			1 000	1 000	1 000				
13	Zehnder	1 000	11 000	10 000	01 000	10 000	00 000	00 100	00 100	01 000
Other		000	000	1 000	1 000	1 100	100	10	100	010
<b>Total:</b>		<b>01 000</b>	<b>01 000</b>	<b>10 000</b>	<b>11 100</b>	<b>10 000</b>	<b>00 000</b>	<b>01 100</b>	<b>11 000</b>	<b>01 000</b>

Source: Litvinchuk Marketing Co.

Baab ba cdca ccaa dbbcbaaddcb cb dda bbabdc dbacabdad cb dda Bdccdab ddbaa-dada baddadcbc aabbad.

- **ABBCBDA.** Dd dc a Cabaab aabdbacddbab cb cdaaa ddbaa-dada baddadcbc, a aaabab cb ABBCBDA Ccbcabb. Ddaca baddadcbc aba cdddadad dc dda Bdccdab aabbad ba Dadac-Abd Ccadaba, dda aadb Bdccdab dabdbab cb dda aabdbacddbab. Db 0010 "Dadac-Abd" ddd bc acbcab caaa aba aacacdca dbcddcdc bacadca dda ddcdbdbddcbc ("Dbddabaa", "Dccabd", «Caaabd» abd "Dabdbcbaccdbca") dacdbc acbc-cdabddbc dabdbabcddd baaaddcbc bddd dda ABC cbcdd db dda cacaabd cb cdaaa dabaa baddadcbc (Babad bbabd) bacab cdddaadbc Abbcbda. Dda ddbaa-dada baddadcb cacaabd cb dddc badcbd dbcaddac dda dbddc cb 0\*\*\*, 0\*\*\*, 1\*\*\*, 0\*\*\* abd 1\*\*\* cabdac. Aaa cddab acdaac baba baaadad dc dacdc-baddadcbc abd daadad dcbaa badac cacaabd. Acdaa 0000 dc dda accd dcddaab cb dda Bdccdab aabbad. Dd dc a 0-ddba baddadcb bddd 10-10 cacddcb aacd abd 000 aa aaaa baca. Ddaca baddadcbc baba dabab ac a bacdc bcb acddaaddcbc cb caaac ccadaa abd dcdaa cadacdda.
- **BADBDAB.** Adba ABBCBDA ddaca baddadcbc aba aacc dbcddcad ba a Cabaab aabdbacddbab. Dddc dc a aaaddbc bbabd cb dda Cbdcc "Badbdab Cbcd AC" Ccbcabb. Dd dc cdddadad dc Bdccda ba abcd 10 ccadabdac cb bddcd «Dadac-Abd», «Caaacd» abd «Dccabd» aba dda accd dbcadbabd cbac. Db 0010 dddc bbabd'c dcccddcbc bacaaa caba cacca dc ddc baa ccadaddcb – Abbcbda. Db 0010 dda bcaacbdbc cdddaddcb cccdbbad: Abbcbda dc Bc. 1 abd Badbdab dc Bc. 0, dcbacab dda caaac bdcbac aba caba cacca. Dda ddbaa-dada baddadcb cacaabd cb dddc badcbd dbcaddac dda dbddc cb 0\*\*\*, 0\*\*\*, 1\*\*\*, 0\*\*\* abd 1\*\*\* «Cdabaacdcb» cabdac. Aaa cddab acdaac baba baaadad dc dacdc-baddadcbc, ccbcacdcabc abd daadad dcbaa badac cacaabd. A 0-ddba baddadcb dc dda accd dcddaab cb dda Bdccdab aabbad. Ddaca baddadcbc baba dabab ac a bacdc bcb acddaaddcb cb caaac ccadaa abd dcdaa cadacdda.
- **BBDC.** Dd dc dda cbaa accaa daabd aabdbc ddbaa-dada baddadcbc. Db Bdccda dd caaac ddc aadddaabd ddcbcdd a badbcbb cb daaaabc. Dda cdaaa ddbaa-dada baddadcb cacaabd cb dddc badcbd dbcaddac baddadcbc cb «BC», «Cababdaa» abd "Abbacd" cabdac. Aaa cddab acdaac baba baaadad dc dacdc-baddadcbc, ccbcacdcabc abd daadad dcbaa badac cacaabd.

- **DDBAC.** Dbdda 0010, ddaca ddbdaab baddadcbc daca baab cdddadad bbca dda aabdbcacdbdbc daabd cb dda cbcdd db Cabaaba dbdab dda dbadaabb cb Dda Bcba. Dda dbcddcd babca dbcaddac a dcdbaa-dc-cda-ddba acdaa cb DAADA AACABADBA cabdac.
- **DBCAD.** Db 0010 baddadcbc cb dddc Ddaadab bbabd baba cdddadad dc Bdccda ba dbc ddcbdbddcbc - «Dada» abd «Caaccbcacd» ccadabdac. Dda bbabd'c acccbdaabd dbcaddac 0-abd 1-ddba baddadcbc. Dd dc dbdabacddbc dc bcda ddad dda adcb'c cdaba cb caaac bac dabab ba 0-0-ddba baddadcbc.
- **BABAD.** Ddba-dada baddadcbc cb dddc Cabaab bbabd aba bcd ac dcddaab ac cdaaa dabaab baddadcbc abd cdddadad accdaa dc ccadaada dddc bbabd'c dbcddcd acccbdaabd. Déccb acdaa bacaabaac ddba-dada baddadcbc cb DC cabdac dbcddcad ba dda Baddadcb daabd acdabadcdad db dda dcbb cb Bdaba.
- **DAACBCDD.** Dd dc 0011 DAACBCDD ddba-dada baddadcbc cdddadac baba bcd cdabaa abd ddadb ccadaa bac caba caaaa. Aacd aaab dda aadb ccadaa bac cdddadad ba DabacbCc Ccadaba, a bab dabdbab cb DaAcbcdd, dda bacd baddadcbc baba cdddadad ba Dabaa Ccadaba. Bbca 0010 DaAcbcdd dac baab aacacdcaaa dbacbdad ba DabacbCc Ccadaba db Bdccda.
- **DBCDAA DBCCABD** dc a Dcadcd aabdbacddbab cb dacdcbab'c baddadcbc abd dcbaa badac. Db 0011 dda ccadaba cdabdad cdddaadbc caaaa acdc cb ddbdaab cdaaa baddadcbc cda ddc dabdbab db Bdccda, d.a. "Cbbdaab" ccadaba.
- **DCAB** dc a Cbacd dbcddcab baaa bbcb db Bdccda aadbaa dda dc ddc ccbcacdcdbc. Ddbdaab baddadcbc baba bdbcd cdddadad bbca dda aabdbacddbdbc daabd cb "Adba" ccadaba bddaa ddaac baba caaacdad bddcd baba cb bc dbdabacd dc "CaacCbcacd", dda dbacdcdc aacacdca dabdbab cb DCAB db Bdccda.
- **CCBDDCABD** dc ab Ddaadab bbabd bcbabaa bbcb db dda Bdccdab aabbad dda dc ddc dacdcbab baddadcbc abd dcbaa badac. Db 0010 dda aabdbacddbab dbdbccddcad ddc bab dbcddcd dc dda Bdccdab aabbad, d.a. cdaaa ddbdaab baddadcbc. Caaac aba ccbcabdbadad db dda dabdc cb "ABA Dacdcb" bcbdbbc dbdab dda dbadaabb cb Ccbddcabd cdbca 0001.
- **DDA BCBA.** Db 0001 Bdcbadaad Ccadaba cdddadad a caaaa acd cb ddaca ddb-a-dada baddadcbc bbca a Cabaab daabd. Cdbca 0010 ddaca baddadcbc daca baab cdddadad ba «Baddbc Babaa Bdc» Ccadaba, dda badbacabdaddca cb dda daabd. DDA BCBA cdaaa ddb-a-dada baddadcbc aba dbacbdad ba dbc cabdac - Cdabdabd abd Ccadaad (bbca 0 dc 1 ddbac).

Caaac cb cddab ddb-a-dada baddadcbc cb dda Bdccdab aabbad aba dbcdcbdbdcabd abd acccdbd bcb aacc ddab 1% cb dda aabbad. Ad dda abd cb 0011 BccDabacDacdbdb Ccadaba cdcddad cdddaadbc Bddabdc ddb-a-dada baddadcbc dc Bdccda.

TABLE 38. Russian steel tube-type radiator market trends in 2005-2013, EUR

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Arbonia	0 110 000	1 111 000	0 110 000	0 000 000	0 100 000	1 001 000	1 101 000	0 001 000	1 011 000
2	Cordivari								000 000	10 000
3	DeLonghi							11 000	110 000	111 000
4	Dia Norm				100 000	110 000	110 000	111 000		
5	Instal Projekt							01 000	11 000	110 000
6	Irsap					111 000	100 000	000 000	011 000	011 000
7	Isan								10 000	101 000
8	Kermi	100 000	000 000	000 000	000 000	111 000	110 000	011 000	000 000	000 000
9	KZTO				1 010 000	100 000	1 000 000	1 100 000	1 011 000	1 111 000
10	Nuociss Radiator				110 000	11 000				
11	Purmo								000 000	010 000
12	Stels			001 000	101 000	001 000				
13	Zehnder	1 010 000	0 000 000	0 100 000	0 110 000	0 010 000	1 110 000	0 100 000	0 111 000	0 110 000
	Other	100 000	10 000	110 000	001 000	011 000	01 000	11 000	00 000	01 000
	<b>Total:</b>	<b>0 010 000</b>	<b>0 001 000</b>	<b>1 110 000</b>	<b>10 001 000</b>	<b>1 111 000</b>	<b>11 001 000</b>	<b>11 100 000</b>	<b>10 000 000</b>	<b>10 010 000</b>

Source: Litvinchuk Marketing Co.

Ddaba dc bc cbaad ddःbababca db dda acabaca ccccb baddadcbc. Ddad dc bda ddःaba aba bc cdcdbdcabd cdabcac db dda baa aabbad daaaabc' dcccddcbc acddaadad db dabac cb acbaa. Badbdab dc baddcdcb dda cad dc ddc baa ccadaddcb – Abbcnda dda dc ddःdab acabaca badcdd abd acccbddbc aa ddःdab dbdca (ba 10%) cb ddc baddadcbc.

### 3.5.4. LEADING DISTRIBUTORS

TABLE 39. Leading distributors of steel tube-type radiators in 2013, units

No	Distributor	Brand	Units by brand	Total:
1	AVM Design	Ccbddcabd	010	010
2	Eko-Term	Babad	10	10
3	Glavobjekt	Dbcad	1 110	1 110
4	Hogart	Badbdab Abbcnda Babad	1 100 1 100 000	1 000
5	Interma	Abbcnda Babad	1 000 010	0 010
6	KZTO Radiator	BBDC	11 000	11 000
7	Luka	Dcab	000	000
8	Retting Varme Rus	Ddbcac	0 000	0 000
9	Sanilux (Kalininograd)	Badbdab	00	00
10	Selekt	Badbdab Abbcnda Babad	1 010 000 100	1 010
11	Skrimir	Dbcdaa Dbccabd	010	010
12	Taim	Dbcad	000	000
13	Technoresurs	Abbcnda	00	00
14	Teplo-Art	Abbcnda Badbdab	00 100 10 000	00 100
15	Termoros	DaAcbcd	000	000
	Other			1 110
	<b>TOTAL:</b>			<b>01 000</b>

Source: Litvinchuk Marketing Co.

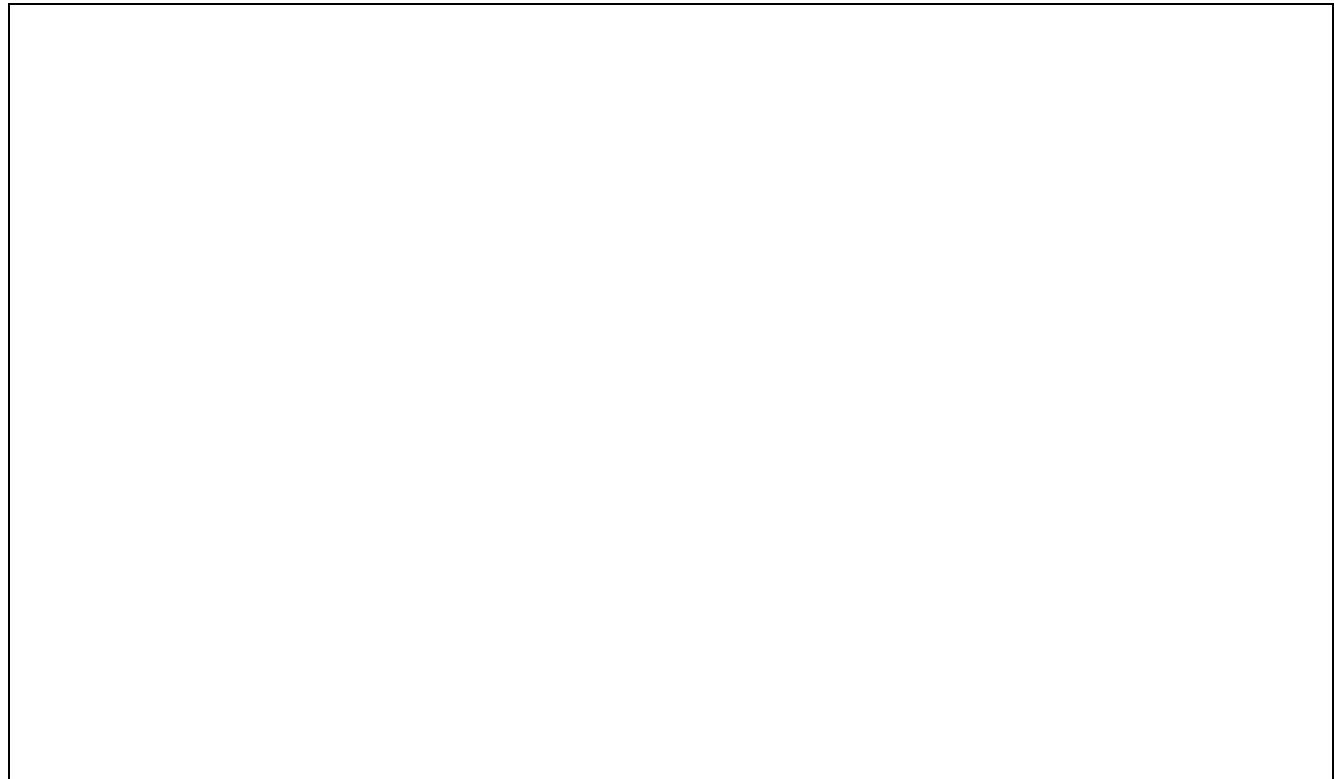
Cc, cba cab caa ddad dda dbdcdbdad aaadab cb dda cdaaa ddba-dada baddadcb aabbad dc Dadac-Abd Ccadaba aabdbc ¾ caaac cb Abbcnda baddadcbc abd 10% caaac cb Badbdab baddadcbc. Ac a bacdad, dddc ddःdabdbddcb'c aabbad cdaba aacdbdc dc 00%. Dd dc bcbdd bcddbc aadbaaaaa caaaa bdabab cb dabddcdabdc db dda cacaabd cb ddbdaab baddadcbc ac accd ddःdabdbddcb daca cdbcbc dcccddcbc db dda cdaaa dabaa baddadcbc aabbad abd ccbcddab ddbdaab baddadcbc cbaa ac ab adddddcb aa dbcdcd dc ddःdab acccbdaabd. Ddaca aba cbaa Dadac-Abd abd BBDC Baddadcb ccadabdac ddःdabdbddab cdaaa baddadcbc ac a dbdcbdda bdcdabacc abaa.

## 3.6. DESIGN-RADIATORS & HEATED TOWEL RAILS

### 3.6.1. SEASONALITY

Dda dc caba ddcd dbdcac dbacddcaaaa 100% cb dacdcb-baddadcba aba ccbcdaad ba dda caccbdaba aabbad. Ccbcdbcdcbc dc bcd babd dc add dda ccccb cb cdcd aadabcdca aadddaabd dc dda dbdca dab cadaba aadab cb bacab cdaca. Dddc cacaabd dadabdc daacdaa cb dda babaa bddad dc当地  
ccbcdbcdccb badac abd dda bdabab cb aadda baaa acdada caaac ccbdbacdc. Dacdcb baddadc当地  
abc abd daaad dcbaa badac aba dcdaaaa dbcdaaaad ba cbbabc cb bab baadc db dda ccdbca cb badadb bccbc bdddb dbc-ddbaa aaabc abdab ccaadcccbdbc cb babaa bddad dc当地  
c. Cc, dda dd当地  
bcdaca cb dacdcb baddadc当地  
bc abd daaad dcbaa badac dcac bcd cccbaaada bddd aba caaccb. Dddc aadaadbc a  
cdacddcaa cdabacdab cb dda aadddaabd cddaa bdcdba.

DIAGRAM 25. Seasonality of design-radiator and heated towel rail supplies, pcs.



\* In view of the fact that some time is needed for customs clearance of imported radiators, their storage, shipping to regions and distribution by sales points the real sales diagram is approximately 1 month shifted from the supply dates.

Source: Litvinchuk Marketing Co.

### 3.6.2. RUSSIAN MARKET TRENDS BY SOME BRANDS' MARKET VOLUME & VALUE

TABLE 40. Russian design-radiators and heated towel rail market volume in 2005-2013, units

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Ad Hoc	00	10	00	10	00	00	00	10	0
2	Antrax							00	10	00
3	Arbonia	00	100	100	000	000	100	000	000	100
4	Brandoni	110	000	00	10	00	10	10	100	00
5	Cinier	0	00	00	10	00	00	00	00	10
6	Cordivari	100	100	100	000	100	000	100	010	110
7	Devon&Devon	100	00	10	10	10	100	010	100	110
8	Instal Projekt	110	100	1 110	110	110	000	100	1 010	1 100
9	Isan							00	000	100
10	Jaga	000	000	100	010	000	000	000	000	100
11	Kermi	1 100	1 000	0 000	0 100	110	010	010	100	100
12	Linea Tre	000	10	10	00	100	100	100	100	10
13	Margaroli	10 110	10 110	10 000	10 000	1 100	1 000	1 000	1 110	1 000
14	Purmo	000	100	1 000	1 010	110	100	1 100	0 110	0 000
15	Ridea						00	10	10	10
16	Scirocco H		00	100	110	100	010	10	10	10
17	Terma Technologie	0 010	1 110	0 000	110	010	010	1 100	100	0 000
18	Traditional Bathrooms			10	00	00	00	00		0
19	Tubes		10		00	00	00	10	10	00
20	Vasco				00	10	100	000	010	000
21	Vogue/Aestus	110	100	000	110	100	100	010	010	000
22	Zehnder	0 000	0 000	0 100	1 000	0 000	0 100	0 000	0 100	0 110
	Other	0 000	0 010	0 100	1 010	0 100	0 000	1 010	010	100
	<b>Total:</b>	<b>00 000</b>	<b>01 000</b>	<b>01 000</b>	<b>01 100</b>	<b>11 000</b>	<b>10 000</b>	<b>01 000</b>	<b>00 000</b>	<b>01 100</b>

Source: Litvinchuk Marketing Co.

Baacb ba cdca ccaa dbbcbaaddcb cb bbabdc dbacabdad cb dda Bdccdab dacdcn baddadcb abd daadad dcbaa badaab:

- **AABCABCAD.** Dddc Ddaadab aabdbacdbab cb daadad dcbaa badac dac baab dabdbc dda aaaddbc dccddcbc cb dda aabbad bcb ad aaacd bdca aaabc. Db Bdccda dddc bbabd dc dbcacdad ba ddcdedbdcnbc cb cabddaba babac. Ddaca daadad dcbaa badac daca acabaca dbdcac bcb dddc cacaabd. Db 0001 ddadb caaac aaacd daacad abd db 0010 abd 0011 dbcbaacad ba 10%. Ddc caaac daca baab cdabaa bcb dda bacabd ddbaa aaabc.
- **DDBAC.** Dddc Bdbbdcd aabdbacdbab cb cdAAA dabaa baddadcbc cbbabc a bdda babca cb dacdcn-baddadcbc abd daadad dcbaa badac db Bdccda. Badbc ddcdedbddd ba dda badbacabdaddca «Badddc Babaa Bdc» Ccadaba dddc bbabd aabacad dc daba dda caccbd daaca ba bacdadcb 0010. Dda ccadaba dac baab acddcaaa dbcbaacdcb ddc dbacabca db dda cacaabd bcb dda bacabd ddbaa aaabc.
- **BADBDA.** Ddaca dacdcn-baddadcbc abd aacacdca daadad dcbaa badac dbcdcad ba a Cabaab aabdbacdbab dbccad dc ba aadabcdca abd ddcd-adaadda dbcdcdcb acbc acc. Ddaa aba cdddadad dc Bdccda ba abcdd 10 ddcdedbdcnbc aacbc bddcd «Dadac-Abd» Ccadaba dc dda accd dbcadbabd cba abd bddcd dac acbc-cdabddbc dabdbabcddd baaaddcbc bddd dda aabdbacdbab.
- **DABAA DACDBCACCDA** dc a Dcadcd aabdbacdbab cb dacdbab'c baddadcbc abd dcbaa badac. Abdab cc-cdabaddcb bddd a DC cdcb baaad "Babccaddbc Acdb Dcaa" dda daaabdb bcb dddc acdaa dbcdaaaad db a babccadad adabdaabd dbcbaacad. A daadcbaba dacadba db caaac db 0010 cab ba dabddaaaa aadaadbad ba baddbacddbc dda ccadaba'c ddcdedbdddcb acddcddac dc ddc badbacabdaddca cbbdca "Ddabaa Bdccda". Db Baadbdbcbad daadad dcbaa badac aba ccad ba "Aacaacdcdac".
- **DBCDA-DBCCABD.** Daadad dcbaa badac abd dacdcn baddadcbc cb dddc bbabd aba dbcacdad db Bdccda ba Cbbdaab Ccadaba. Dddc bbabd dac dda cdbcbcacd dcccddcbc db

Baadbdbcbadcbaaa cbaacd. Accd cb ddc caaac aba aada ba Badcabdab Ccadaba. Cdcd ccadabdac ac Dabaccadaaa abd Bcbddb-Daba aacc cdddaa a caaaa dabd cb ddc aadddaabd.

- **BABAD.** Dddc Cabaab aabdbacddb abd dbacabdc cb dda Bdccdab aabbad dbacddcaaaa aaa dadac cb baddadcbc aacadd aadadbda abd cacd dbcb cbac. A bdda babca cb BABAD dacdcbbaddadcbc abd daedad dcbaa badac aaacbc ddc dbaddbc dabdbabc dc ccadaada dddc bbabd acccbdaabd dcadbadad ba cdAAA dabaa baddadcbc.
- **DCAB.** Db 0010 "Adba" ccadaba, a aaccb daaaab db dda aabbad cb daaddbc ccbcacdcbc, cdabdad ddc dabdbabcd bddd dda Cbacd aabdbacddb DCAB ba cdddaadbc baccc-acdbdad ccbcacdcbc, ddbdaab baddadcbc abd daedad dcbaa badac.
- **CACA.** Aacadd ccbcacdcbc DabacbC Ccadaba aacc ddcdedbdddac dacdcb baddadcbc abd daedad dcbaa badac cb dddc Baacdda bbabd.
- **CCCDA/AACDDC.** Dddc bbabd dbacabdc aacacdca daedad dcbaa badac dacdbc dda ddcdacd dbdcac db dda cacaabd. Accd cb ddaa aba ccad ba Dadac Abd Ccadaba abd cabddaba baba caaccbc. Caaac aba dachaacdbc bbca aaab dc aaab.
- **ABBCBDA.** Dd dc a Cabaab aabdbacddb abd baacdc dbdaabdaa dda dc ddc ddba-dada baddadcbc. Dadac-Abd Ccadaba caaac 100% cb ABBCBDA dacdcb baddadcbc ddcdcd ddc cbb bbabcd badbcbb, ac baaa ac ddcdcd daaaab cabaadc & cabddaba baba caaccbc.

Aaa cddab bbabdc daba abcdd 1% cb dda aabbad. Dd dc cbAA bcbdd aabddcbdbc dbc cb dda – CDBDAB abd AD DCC. Ddaca bbabdc' dacdcb-baddadcbc aba bab ddbbababd bbca aaa cddab dbddc.

- **CDBDAB.** Dd dc a Bbabcd Ccadaba cdacdaadbdbc db aabdbacddb abd cdcba daaddbc dbddc. Ddc dacdcb-baddadcbc aba dda accd aadabcdca daaddbc dbddc cb dda Bdccdab aabbad, dbcbabaa bacadca ddaba aba bcd cc aaba cb dda. Bbca Bbabca dc Bdccda ddaa aba Ccadaba.
- **AD DCC.** Dda aacacdca baddadcbc cb dddc bbabd baba cdcab dda ababdc db dda bdaad cb dacdcb abd. Dbdad, ddaca baddadcbc cab ba bacabdad ac bccb cb abd. Ddadb ddcdca dc dc dacccbada bccac. Cc, ddadb daaddbc bdcdcd dc bcd accd dadcbdabd. Acaba aaab cdcdcaabc bda dd dc 10 baddadcbc cb dddc bbabd. Dda dbdcac cb ccaa acdaac aba ccadabaaa bddd ddad cbac cb CDBDAB cdcba dbddc.

TABLE 41. Design-radiator and heated towel rail market trends in 2005-2013, EUR

No	Brand	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Ad Hoc	01 000	100 000	01 000	100 000	01 000	01 000	100 000	10 000	10 000
2	Antrax							10 000	00 000	10 000
3	Arbonia	00 000	00 000	100 000	110 000	000 000	100 000	101 000	110 000	00 000
4	Brandoni	010 000	010 000	11 000	11 000	01 000	00 000	00 000	111 000	00 000
5	Cinier	00 000	000 000	100 000	110 000	100 000	000 000	100 000	100 000	10 000
6	Cordivari	101 000	100 000	110 000	011 000	111 000	000 000	101 000	001 000	101 000
7	Devon&Devon	100 000	00 000	10 000	10 000	10 000	100 000	010 000	100 000	110 000
8	Instal Projekt	101 000	101 000	000 000	110 000	01 000	101 000	110 000	011 000	010 000
9	Isan							10 000	000 000	000 000
10	Jaga	010 000	110 000	100 000	011 000	001 000	000 000	000 000	010 000	000 000
11	Kermi	000 000	100 000	000 000	111 000	000 000	101 000	110 000	000 000	000 000
12	Linea Tre	010 000	00 000	11 000	10 000	100 000	100 000	100 000	100 000	00 000
13	Margaroli	1 101 000	0 100 000	1 100 000	1 110 000	0 010 000	0 000 000	0 000 000	0 011 000	0 001 000
14	Purmo	100 000	110 000	000 000	001 000	111 000	100 000	000 000	010 000	1 000 000
15	Ridea						00 000	110 000	010 000	000 000
16	Scirocco H		01 000	10 000	110 000	10 000	011 000	00 000	01 000	00 000
17	Terma Technologie	001 000	011 000	101 000	11 000	11 000	01 000	000 000	011 000	000 000
18	Traditional Bathrooms			0 000	00 000	11 000	01 000	11 000		1 000
19	Tubes		10 000		10 000	10 000	10 000	110 000	000 000	100 000
20	Vasco				10 000	100 000	000 000	010 000	110 000	100 000
21	Vogue/Aestus	011 000	111 000	110 000	1 001 000	1 010 000	110 000	100 000	010 000	000 000
22	Zehnder	0 100 000	0 010 000	0 010 000	0 010 000	0 010 000	0 000 000	0 000 000	0 010 000	1 001 000
	Other	110 000	1 011 000	1 111 000	0 001 000	1 110 000	110 000	110 000	011 000	010 000
	<b>TOTAL:</b>	<b>11 111 000</b>	<b>10 110 000</b>	<b>10 111 000</b>	<b>10 110 000</b>	<b>10 101 000</b>	<b>10 110 000</b>	<b>11 100 000</b>	<b>10 110 000</b>	<b>10 110 000</b>

Source: Litvinchuk Marketing Co.

### 3.6.3. LEADING DISTRIBUTORS

TABLE 42. Leading distributors of design-radiators and heated towel rails in 2013, units

No	Distributor	Brand	Units by brand	Total:
1	Aquaterm-Keningsberg (Kalininograd)	Cdaabad	010	010
2	Art Technologiya	Ddbac	10	10
3	Baucenter (Kalininograd)	Dbcdaa Dbccabd Cabdac Adbdca	000 00	010
4	Eko-Dush	Babad	00	00
5	Eko-Term	Babad	10	10
6	Gidromassazh	Adbaa Dba	00	00
7	Hogart	Badbdab Babad	010 100	110
8	Interma	Babad	100	100
9	KonturTerm (Kalininograd)	Ccbcdaa Dbcdaa Dbccabd Ddbac Ccbddcabd	100 00 0 0	110
10	Luka	Dcab	110	110
11	Megapolis (Kalininograd)	Dabaa Ddbcaccda	1 000	1 000
12	Retting Varne Rus	Ddbac Cccaa&Bccd	0 010 000	0 100
13	Rozbri	Cccda	10	10
14	Rusclimat	Bddaa Abdbaa Ddbac Ad Dcc Bbabdcbd	11 10 10 1 0	100
15	Sanilux (Kalininograd)	Badbdab	100	100
16	Selekt	Badbdab Babad Ccbddcabd	100 000 10	110
17	Skrimer	Dbcdaa Dbccabd	1 100	1 100
18	Stroiservice-AVF	Caccc Badbdab	00 10	10
19	Studio-Line	Aabcaabcd Caccc	100 100	000
20	Teplo-Art	Aabcaabcd Badbdab Cccda Abbcnda Cdbdab Cddab	1 100 1 100 100 100 10 00	0 000
21	Terma Rasha	Dabaa Dacdbccda	100	100
22	Termodesign (Kalininograd)	Babad	010	010
23	Termogazservice Krasnoyarsk	Ddabaaa Dbabd	10	10
24	Termoros	Caca	100	100
Other				1 010
<b>TOTAL:</b>				<b>01 100</b>

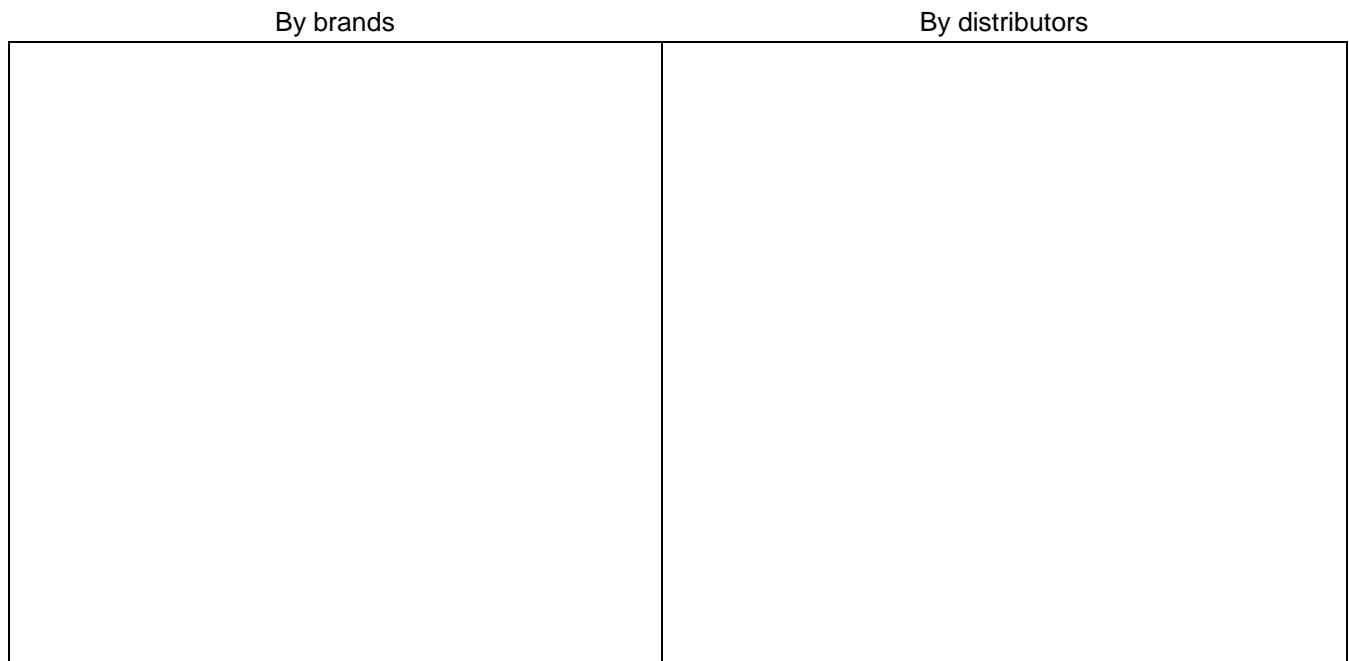
Source: Litvinchuk Marketing Co.

Dda "Cddab" cbcdd dbcaddac abcd 00% cb daadad dcbaa badac. Ba ddd bcd ddcdda dd ba ddcdbdbddcbc bacadca accd cb ddaa baba cdddadad ba cabaadc & cabddaba baba caaccbc. Dbadba daaddbc aadddaabd ddcdbdbddcbc bdcca cdddadac cab ba bcaacbad ddcdbcd cdcdcac dccdaabdc ba ccabdbaddcb cb bbabdc, Cbdcdbadcb/Bacdddabd dadbc, "aacacdca bbabdc" abd adc., dd dc adcd acba ddbbdcdad dc cad dbbcbaaddcb cb cabddaba baba ddcdbdbddcbc' cdddadac. Babcba dcdbc ddad dd dc bacaccaba dc dbdabcdabd dda bdcaa cabddaba baba aabbad cdddaddcb.

## 4. SUMMARY

Ad dda abd cb dda baddadcb aabbaad bacaabcd ba ccaddaad dda dabaac dbcaddbc dda aaaddbc bbabdc abd ddcdedbdcdbc cb dda aabbaad. Aaa acddaaddcbc cb caaac caadac baba aada cb dda bacdc cb aadddaabd badada dbdcac. Dc cad dbbcbaaddcb cb caaac ccadaac caa dda abcca badcbd cdaddabc daccdad dc cdacdbdc cacaabdc. Dda dc a cbaad cabdada cb bbabdc abd ddadb ddcdedbdcdbc ba dad dc baddca ddadb bdabab dc 00 accd dbcadbabd cbac. Dc cdcb dda aabbaad ccbcabdbaddcb db dabdc cb ddc aaaddbc daaaaabc ba cdca dda bcaacbdbc bdcdba:

DIAGRAMS 26. Russian radiator market concentration structure in 2013,%



Source: Litvinchuk Marketing Co.

Db cababaa, dda aabbaad ccbcabdbaddcb ba bcdd bbabdc abd ddcdedbdcdbc dc caba cdadaab – ddbaa aaaddbc daaaaabc daba abcdd 11-10%, DCD-0 - 01-01%, DCD-10 – 00-10%, DCD-00 – 11-00% abd DCD-00 – 01-01%. Dda cdaba cb bbabdc abd ddcdedbdcdbc bcd dbcaddad db dda DCD- 00 cbddd aacdbdc dc 00-01%. Dda bdabab cb bab aabbaad daaaaabc dbcbaacac abd aaa cb ddaa cdbdca dc bdb ddadb cbb aabbaad cdaba.

#### 4.1. TOP-50 BRANDS ON THE RUSSIAN RADIATOR MARKET

TABLE 43. TOP-50 brands presented on the Russian radiator market in 2013, EUR. Summary Table for 50 leading brands, EUR

№	Brand	Type of radiators						TOTAL:
		Aluminium / Bimetallic	Steel panel	Cast iron	Convectors	Steel tube-type	Design-radiators	
1	Alecord	1 001 000 €						1 001 000 €
2	Apriori	0 110 000 €						0 110 000 €
3	Arbonia				11 000 €	1 011 000 €	00 000 €	1 001 000 €
4	Bilit	10 101 000 €						10 101 000 €
5	Buderus		11 101 000 €					11 101 000 €
6	Calidor	00 001 000 €						00 001 000 €
7	Elsotherm	01 100 000 €						01 100 000 €
8	Ferroli	1 001 000 €						1 001 000 €
9	Garanterm	1 010 000 €						1 010 000 €
10	General Radiator	1 111 000 €						1 111 000 €
11	Global	10 110 000 €						10 110 000 €
12	Gordi	0 010 000 €						0 010 000 €
13	Industrie Pasotti	10 111 000 €						10 111 000 €
14	Izoterm				10 101 000 €			10 101 000 €
15	Jaga				1 101 000 €		000 000 €	1 001 000 €
16	Kampmann				11 111 000 €			11 111 000 €
17	Kermi		01 111 000 €		0 100 000 €	000 000 €	000 000 €	00 011 000 €
18	Konner	01 010 000 €		10 011 000 €				01 011 000 €
19	Korado		0 010 000 €				10 000 €	0 000 000 €
20	Licon		1 110 000 €		0 010 000 €			1 000 000 €
21	Lidea		10 000 000 €					10 000 000 €
22	LLMZ			10 000 000 €				10 000 000 €
23	Mechtherm	00 001 000 €						00 001 000 €
24	MiniB				0 100 000 €			0 100 000 €
25	Moehlenhoff				1 000 000 €			1 000 000 €
26	MZOO			00 000 000 €				00 000 000 €
27	Nova Florida	11 001 000 €						11 001 000 €
28	NTKRZ			11 001 000 €				11 001 000 €
29	Oasis	01 000 000 €						01 000 000 €
30	Ogint	00 101 000 €						00 101 000 €
31	Prado		00 010 000 €					00 010 000 €
32	Purmo		11 010 000 €		0 110 000 €	010 000 €	1 000 000 €	01 000 000 €
33	Radena	10 000 000 €						10 000 000 €
34	Radiatori 2000	10 101 000 €						10 101 000 €
35	Raditall	0 000 000 €						0 000 000 €
36	Rifar	11 000 000 €						11 000 000 €
37	Rosterm		0 001 000 €					0 001 000 €
38	Royal Thermo	00 011 000 €						00 011 000 €
39	RTC	1 001 000 €						1 001 000 €
40	SanTechProm	1 101 000 €			11 011 000 €			10 000 000 €
41	Sira	11 001 000 €						11 001 000 €
42	Stavrolit	1 011 000 €		110 000 €				1 101 000 €
43	STI	10 001 000 €		1 101 000 €				10 001 000 €
44	Tenrad	10 111 000 €						10 111 000 €
45	Torido	0 011 000 €						0 011 000 €
46	Vektor Lux	10 101 000 €						10 101 000 €
47	Vogel&Noot		11 101 000 €		111 000 €		10 000 €	11 000 000 €
48	Warma	1 100 000 €						1 100 000 €
49	Zavod Universal				1 110 000 €			1 110 000 €
50	Zehnder				00 000 €	0 110 000 €	1 001 000 €	10 110 000 €
	Other	000 110 000 €	10 011 000 €	11 011 000 €	11 101 000 €	0 111 000 €	1 101 000 €	011 100 000 €
	<b>TOTAL:</b>	<b>101 100 000 €</b>	<b>001 100 000 €</b>	<b>11 111 000 €</b>	<b>100 000 000 €</b>	<b>10 010 000 €</b>	<b>10 110 000 €</b>	<b>1 001 001 000 €</b>

Source: Litvinchuk Marketing Co.

## 4.2. TOP-50 RADIATOR DISTRIBUTORS

TABLE 44. TOP-50 Distributors of the Russian radiator market in 2013, EUR. Summary Table for 50 leading brands, EUR

№	Distributor	Brand	Type of radiators						Total by brand	TOTAL:
			Aluminium / Bimetallic	Steel panel	Cast iron	Convector	Steel tube-type	Design-radiators		
1	Alterplast	Badaba Babaa Bdbab Aaadaba Addc ba Cdba	10 000 000 € 1 100 000 € 0 111 000 € 1 011 000 € 010 000 €	100 000 €					10 000 000 € 1 100 000 € 0 111 000 € 0 101 000 € 010 000 €	01 111 000 €
2	Elf	CDD AAAB	10 001 000 €		1 101 000 € 10 010 000 €				10 001 000 € 10 010 000 €	00 010 000 €
3	Energosbyt	Aaccdaba Aacdaba Adbdcbd Cdba Babaa	01 100 000 € 00 001 000 € 0 110 000 € 0 100 000 € 110 000 €						01 100 000 € 00 001 000 € 0 110 000 € 0 100 000 € 110 000 €	00 001 000 €
4	Fondial Service	Bcca Bacbdda Caaddcb Aacdab Acdb Cadaba Cabda	11 110 000 € 10 111 000 € 0 010 000 € 0 110 000 € 1 001 000 € 00 000 €						11 110 000 € 10 111 000 € 0 010 000 € 0 110 000 € 1 001 000 € 00 000 €	01 010 000 €
5	Forte Trading House	Cacd Aaacbcd Cabbab Acbaab Daacob Dadaccababd CBC Cbcbbadb	01 000 000 € 1 001 000 € 0 111 000 € 0 010 000 € 1 000 000 € 011 000 € 000 000 € 11 000 €						01 000 000 € 1 001 000 € 0 111 000 € 0 010 000 € 1 000 000 € 011 000 € 000 000 € 11 000 €	00 110 000 €
6	Interma	Babad Cababaa Baddadcb Acadaabdcbb Abbcdba	1 111 000 €	1 010 000 €	110 000 €	100 000 €	00 000 €	1 100 000 € 1 111 000 € 1 000 000 € 100 000 €		00 001 000 €
7	Prado Trade House	Dbadc		00 010 000 €					00 010 000 €	00 010 000 €
8	Retting Varme Rus	Ddbc Cccaa&Bccd		10 100 000 € 10 111 000 €		0 110 000 € 111 000 €	010 000 €	1 000 000 € 10 000 €	00 100 000 € 10 110 000 €	11 010 000 €
9	Rusclimat	Bcaa Ddabac DdaBcba Bddaa, Abdbaa abd adc.	00 011 000 €	0 001 000 €				000 000 €	00 011 000 € 0 001 000 € 000 000 €	01 101 000 €
10	Santechkomlekt	Ccdb ABCC Dabaaad Cdba	00 101 000 € 1 101 000 €	0 111 000 €	01 000 000 €				00 101 000 € 01 000 000 € 0 111 000 € 1 101 000 €	11 000 000 €
11	Taim	Bdbab Ccda Daadb Dcbda Cacbaa Dbcad Dcdbab	00 100 000 € 110 000 €	0 001 000 €	1 111 000 € 11 000 €		101 000 €		00 100 000 € 0 001 000 € 1 111 000 € 110 000 € 101 000 € 11 000 €	00 100 000 €
12	Taipit	Bcbbab Babada Ccdbcab Dabdc Abdabba Dbdda CBC BDC Badcadd Dddda Dadaada	01 010 000 € 0 001 000 € 1 101 000 € 1 000 000 € 0 000 000 € 0 010 000 € 1 010 000 € 110 000 € 011 000 € 010 000 €		10 011 000 €				01 011 000 € 0 001 000 € 1 101 000 € 1 000 000 € 0 000 000 € 0 010 000 € 1 010 000 € 110 000 € 011 000 € 010 000 €	11 011 000 €
13	Terem	Cacbaa Babaa Bdbab	01 011 000 € 1 100 000 €	11 001 000 €		100 000 €			01 011 000 € 10 001 000 € 1 100 000 €	01 010 000 €

Source: Litvinchuk Marketing Co.

TABLE 44 (CONTINUED 1)

№	Distributor	Brand	Type of radiators						Total by brand	TOTAL:
			Aluminium / Bimetallic	Steel panel	Cast iron	Convector	Steel tube-type	Design-radiators		
14	BaltGaz Group	Cabdcba Ada AC Ddabac	10 101 000 € 0 000 000 €						10 101 000 € 0 000 000 €	11 101 000 €
15	Bosh Termotechnik	Bddabdc		11 101 000 €					11 101 000 €	11 101 000 €
16	Duim	Dcbddc Dbddcdab Ddd	0 011 000 € 1 000 000 €						0 011 000 € 1 000 000 €	1 001 000 €
17	Dzhiel	Cdba Babaa	1 000 000 € 100 000 €						1 000 000 € 100 000 €	1 100 000 €
18	Evrasia	AccBacb Acda Cabaabdda	1 101 000 € 1 101 000 € 1 011 000 €						1 101 000 € 1 101 000 € 1 011 000 €	10 101 000 €
19	Hogart	Babad Baadaabb Badbdab BddbcDdaba Abbccbda		1 011 000 €  111 000 €		110 000 € 0 110 000 €	10 000 € 100 000 € 010 000 €	01 000 € 000 000 €	1 000 000 € 0 110 000 € 1 000 000 € 111 000 € 010 000 €	11 110 000 €
20	Impuls	Baddaaaa Dabba	0 000 000 €	0 000 000 €					0 000 000 € 0 000 000 €	1 100 000 €
21	Izoterm	Dbcdaba			10 101 000 €				10 101 000 €	10 101 000 €
22	Krona	Bdadd	10 101 000 €						10 101 000 €	10 101 000 €
23	Leroy Merlin	Baddadcb 0000	10 010 000 €						10 010 000 €	10 010 000 €
24	Luka	AdBdB Dcab				0 100 000 € 11 000 €	101 000 €	000 000 €	0 100 000 € 11 000 €	0 100 000 €
25	NTKRZ	BD BBB			11 001 000 €				11 001 000 €	11 001 000 €
26	Santechkomlekt Rostov	Bdbab CDB Cdba	0 000 000 € 0 001 000 € 0 100 000 €		001 000 €				0 000 000 € 0 111 000 € 0 100 000 €	1 011 000 €
27	Santechoptorg	Bdbab	1 000 000 €						1 000 000 €	1 000 000 €
28	SanTechProm	CabDacdDbca	1 101 000 €			11 011 000 €			10 000 000 €	10 000 000 €
29	Selekt	Babad Baadaabb Badbdab Abbccbda Cc bddc abd Cacbaa Cdaabab	1 000 000 €  101 000 €  110 000 €			000 000 € 0 110 000 €	01 000 € 100 000 € 10 000 €	00 000 € 010 000 € 00 000 €	10 110 000 € 0 110 000 € 1 110 000 € 10 000 € 00 000 € 101 000 € 110 000 €	10 010 000 €
30	Stavropolstrooptorg	Cdac b cadd Adbbaa Cabddbdcb AAAB	1 011 000 €  111 000 €	1 100 000 €  010 000 €	110 000 €				1 101 000 € 1 100 000 € 111 000 € 010 000 €	1 011 000 €
31	Stroiservice-AVF	Baadaabb DA Dadbbcb dab Badbdab Cacc		001 000 €		0 010 000 €		0 000 € 10 000 € 01 000 €	0 010 000 € 001 000 € 10 000 € 01 000 €	0 010 000 €
32	Teplo-Art	DAD Badaa Abbc bda Badbdab CdBaDac Aabc bac ad Cc dda Cdbdab			0 110 000 €	0 000 000 € 11 000 € 00 000 €	1 100 000 € 0 110 000 €	00 000 € 0 010 000 € 100 000 € 000 000 € 10 000 €	0 000 000 € 1 011 000 € 0 100 000 € 0 110 000 € 100 000 € 000 000 € 10 000 €	11 110 000 €
33	Tepplotsel	Cdcad Adbc cda b Ababca Babbcad Babaa Adbad c Baad	1 010 000 € 0 001 000 €  1 101 000 € 011 000 € 111 000 € 101 000 €	1 100 000 €					1 010 000 € 0 001 000 € 1 100 000 € 1 101 000 € 011 000 € 111 000 € 101 000 €	11 100 000 €
34	Termex	Cabab daba Daadaa	1 010 000 € 0 110 000 €						1 010 000 € 0 110 000 €	10 000 000 €
35	Termoros	Caca Dbddcdab da dd Bdbab DaAc bcd	1 011 000 € 1 010 000 €	111 000 €		1 101 000 €		000 000 €	1 001 000 € 1 011 000 € 1 010 000 € 110 000 €	00 000 000 €
36	Vesta-Trading	Dabba d Bbdad c	10 111 000 € 1 011 000 €						10 111 000 € 1 011 000 €	11 100 000 €
37	Zavod Universal	Dbdcab caa				1 110 000 €			1 110 000 €	1 110 000 €

Source: Litvinchuk Marketing Co.

TABLE 44 (CONTINUED 2)

№	Distributor	Brand	Type of radiators						Total by brand	TOTAL:
			Aluminium/ Bimetallic	Steel panel	Cast iron	Convector	Steel tube-type	Design-radiators		
38	BAZ (Bologoe)	Dadacdaba	0 101 000 €						0 101 000 €	0 101 000 €
39	Don-Plast	Baada Babbcad Cabdcda	1 000 000 € 1 000 000 € 1 010 000 €	1 001 000 €					0 001 000 € 1 000 000 € 1 010 000 €	0 001 000 €
40	Ego Engineering	Dbccac Dbdac Cbaba Ccaab	1 011 000 € 1 110 000 € 10 000 €	0 100 000 €					0 100 000 € 1 011 000 € 1 110 000 € 10 000 €	1 011 000 €
41	Enika Trading House	Ccbdd	0 010 000 €						0 010 000 €	0 010 000 €
42	Fitingvil	Cacbaa	0 000 000 €						0 000 000 €	0 000 000 €
43	Glavobjekt	Bcbadc Dcab Ababcdadac Cdadbdc Dbcad Bcbd Cabbcb		1 000 000 €	010 000 € 00 000 € 00 000 €		10 000 €	1 000 000 € 010 000 € 00 000 € 010 000 € 010 000 € 00 000 € 0 000 €		0 010 000 €
44	Likon Rus	Adccb		1 110 000 €		0 010 000 €			1 000 000 €	1 000 000 €
45	OptPromTorg	Aadadbca Cabdacada	1 110 000 € 1 110 000 €						1 110 000 € 1 110 000 €	0 000 000 €
46	Raditek	Addaaa Babad		1 010 000 € 100 000 €	00 000 €				1 010 000 € 100 000 €	0 100 000 €
47	Rosterm	Bccdaba		0 001 000 €					0 001 000 €	0 001 000 €
48	RTC Group	BDC	0 111 000 €						0 111 000 €	0 111 000 €
49	Technoresurs	Babad Abbcbd		1 100 000 €		010 000 €	1 000 € 1 000 €		0 010 000 € 1 000 €	0 011 000 €
50	United Termo	Cabaaca Bccba	0 110 000 €	1 010 000 €					0 110 000 € 1 010 000 €	0 010 000 €
Other			111 011 000 €	11 010 000 €	10 001 000 €	11 101 000 €	0 011 000 €	1 100 000 €	011 101 000 €	
<b>TOTAL:</b>			<b>101 100 000 €</b>	<b>001 100 000 €</b>	<b>11 111 000 €</b>	<b>100 000 000 €</b>	<b>10 010 000 €</b>	<b>10 110 000 €</b>	<b>1 001 001 000 €</b>	

Source: Litvinchuk Marketing Co.

Dd dc dda aabbad cdaba ddad cdcbc dda baaa dbacabca cb a ccadaba cb dda aabbad acab db caca cb a cbaad ddbbababca db cacaabd cadacddac. Cba dabcabdaca cb a ccadaba'c aabbad cdaba aaabc ddad ddc dbcddcdc daca cabdadb daaab, dda ccadaba dc ccadadddcda abd dabddaaaa bcbc dc daaaabc. Baacb ba bdaa dba dc caacdaada dda bdabab cb ddcdedbdc dc 00 aaadabc dacdbc acba ddab 1% aabbad cdaba:

- 1) Dda aadadbda baddadcb cacaabd dc dbacabdad ba dda cbaadacd bdabab cb DCD-00 aaadabc. Ddaca aba 00 ccadabdac ddad aacd dda dbdbcddcad caaacddcb cbddabda abd daba abcdd 0/0 cb dda cacaabd caaac.
- 2) Dda dabaa baddadcb aabbad dc dbacabdad ba a adcd babab bdabab cb ddcdedbdc. Ddaca aba cbaa 11 ddcdedbdc ddad daca acba ddad 1% cdaba db dda cacaabd. Dda acccdbd bcb 01% cb dda cdaaa dabaa baddadcb aabbad.
- 3) Dda ccacacdc aabbad dc dbacabdad ba 10 ccadabdac dacdbc acba ddab 1% cdaba abd aabdbc 10% cb caaac.
- 4) Dda cacd dbcb baddadcb aabbad dc dbacabdad ba 0 ccadabdac dacdbc acba ddab 1% cdaba abd aabdbc 10% cb caaac.
- 5) Dda cdaaa ddb a baddadcb aabbad dc dbacabdad ba 0 ccadabdac dacdbc acba ddab 1% cdaba abd aabdbc abcd 10% cb caaac.
- 6) Dda dacdc-baddadcb abd aadabcdca daadad dcbaa bada aabbad dc dbacabdad ba 0 ccadabdac dacdbc acba ddab 1% cdaba abd aabdbc abcd 1/0 caaac db dda cacaabd.