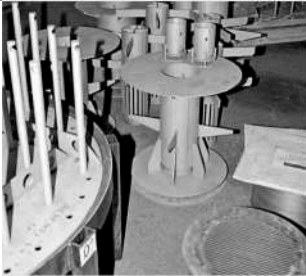


# EQUIPMENT FOR PETROCHEMICAL PLANTS AND OIL REFINERIES



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# R E F E R E N C E

## Catalytic Reforming Reactor Internals

No.	Customer	Unit	Quantity				Catalyst	Year of Supply
			Central Pipe	Scallops	Covers	Upper Distributors		
1	Ufaneftehim	L-35-11/300	-	60	-	-	U	1994
2	Ufaneftehim	L-35-11/300	-	36	-	-	U	1995
3	Lukoil, Kstovo	LCh-35-11/600	1	-	-	-	U	
4	Refinery, Turkmenbashi	L-35-11/300	5	145	5	5	U	1996
5	Ufaneftehim	L-35-11/300	1	28	1	1	U	
6	Saratov Refinery	LCh-35-11/600	1	60	1	1	Olkat	1997
7	Novoufimsk Refinery*	L-35-11/1000	1*+2	130	-	2	F	
8	Lukoil, Kstovo**	L-35-11/300	5	156	5	5	U	1998
9	Angarsk Refinery	L-35-11/1000	3	10	2	2	Olkat	
10	Chimkentnefteorgsintez	LK-6U/1000	3	112	3	-	U	
11	Lukoil, Kstovo	LCh-35-11/600	1	-	-	-	U	1999
12	Kuibyshev Refinery	L-35-11/300	4	112	4	4	U	
13	Orsknefteorgsintez	L-35-11/300	3	84	3	3	U	2000
14	Slavneft-YANOS	LG-35-11/300	4	97	4	4	U	
15	Saratov Refinery	LCh-35-11/600	-	24	-	-	Olkat	
16	Lukoil, Kstovo	L-35-5	3	84	3	3	Russian	2001
17	Achinsk Refinery	LK-6U/1000	2	65	2	2	REF-23	
18	Slavneft-YANOS	LG-35-11/300	4	122	4	4	U	
19	Novoufimsk Refinery*	L-35-11/1000	1*	-	-	-	F	2002
20	Achinsk Refinery	LK-6U/1000	1	48	1	1	REF-23	
21	Kuibyshev Refinery	L-35-11/300	-	78	-	-	U	
22	PO KINEF	LCh-35-11/600	2	76	2	2	TNK-23B	
23	Moscow Refinery	LCh-35-11/1000	3	113	3	3	U	2003
24	Novoufimsk Refinery	L-35-11/1000 (R-205N)	-	36	-	-	A	
25	Saratov Refinery	LCh-35-11/600	-	36	-	-	RB	
26	Lukoil, Perm**	LCh-35-11/600	4	128	4	4	U	
27	Refinery, Mozyr	LK-6U №1	3	124	3	3	C	
28	Syzran Refinery	LG-35-11/300	3	78	3	3	A	2004
29	Kuibyshev Refinery	L-35-11/1000	1	-	-	-	U	
30	Refinery, Nadvirna	LG-35-11/300	3	83	3	3	U	
31	Novoufimsk Refinery*	L-35-11/1000	1*	5	-	-	A	

No.	Customer	Unit	Quantity				Catalyst	Year of Supply
			Central Pipe	Scallops	Covers	Upper Distributors		
32	PO KINEF	L-35-11/600	2	66	2	2	REF-23	2005
33	Lukoil, Perm	L-35-11/300	2	52	2	2	U	
34	Ryazan Refinery***	LCh-35-11/600	1+3*	140	1	1	PR-50, PR-71	
35	Ryazan Refinery**	L-35-6	4	112	4	4	REF-23	
36	Ryazan Refinery	L-35-11/300	4	101	4	4	PR-50, PR-51	
37	Angarsk Refinery	L-35-11/1000	-	111	3	-	Olkat	
38	Angarsk Refinery	L-35-11/1000	2	-	-	-	Olkat	
39	Pavlodar Petrochemical Plant	L-35-11/1000	3	122	3	3	A	
40	Syzran Refinery	L-35-11/300	3	98	3	3	A	
41	Novoufimsk Refinery	L-35-11/1000	1	-	-	-	A	
42	Atyrau Refinery	LG-35-11/300-95	4	108	4	4	U	
43	Novoufimsk Refinery	«Jeksa» (1000)	1	-	-	-	A	
44	Saratov Refinery***	L-35-11/300	3*	93	3	3	PR-71	
45	Lukoil, Ukhta	LG-35-11/300-95	1	27	1	-	U	
46	Kuibyshev Refinery	L-35-11/1000	-	50	-	-	U	
47	Ryazan Refinery	LCh-35-11/600	2	-	-	-	PR-71	2007
48	Novoufimsk Refinery	L-35-11/1000 (R-205N)	-	15	-	-	A	
49	Moscow Refinery	L-35-11/300	3	78	3	3	U	
50	Slavneft-YANOS	L-35-11/300	-	37	-	-	U	
51	Slavneft-YANOS	LG-35-11/300	-	32	-	-	U	
52	Lukoil, Kstovo	LF-35-21/1000	-	11	-	-	R-274	
53	Lukoil, Ukhta*	LG-35-11/300-95	1	25	-	1	AP-64	
54	PO KINEF	LCh-35-11/1000	3	112	3	3	U	
55	Ukratnafta**	LCh-35-11/600	4	125	4	4	U	
56	Salavatnefteorgsintez	L-35-11/1000	-	45	-	-	RG-682	
57	Ryazan Refinery**	LG-5/8-300Б	3	85	3	3	R-125	
58	Novoufimsk Refinery	L-35-11/1000 (R-202)	1	27	1	1	U	
59	Kuibyshev Refinery	L-35-11/1000	3	120	3	3	U	2009
60	Ukratnaft	L-35-11/300	3	80	3	3	U	
61	Slavneft-YANOS	L-35-11/300	-	34	-	-	U	
62	Ryazan Refinery**	LCh-35-11/600	3	99	3	3	R-125	
63	Orsknefteorgsintez	LG-35-11/300-95	-	8	-	-	U	2010

No.	Customer	Unit	Quantity				Catalyst	Year of Supply
			Central Pipe	Scallops	Covers	Upper Distributors		
64	Achinsk Refinery	LK-6U/1000	3	112	3	3	R-98	
65	Komsomolsk Refinery	L-35-11/450к	2	68	2	2	PR-9	
66	Ryazan Refinery**	L-35/6-300	4	96	4	4	REF-123, AP-15	
67	Novokuibyshevsk Refinery	L-35-6	6	150	6	6	RG-682	
68	Lukoil, Kstovo	LF-35-21/1000	-	16	-	-	R-274	
69	Chimkentnefteorgsintez	LK-6U/1000	-	112	-	-	R-98	
70	Novokuibyshevsk Refinery	L-35-5	3	83	3	3	RB-35UK	2011
71	Gas Processing Plant, Astrakhan	L-35-11/1000	2	84	2	2	RG-682	2011
72	Saratov Refinery**	LCh-35-11/600	2	55	2	2	R-98	
73	Ryazan Refinery**	L-35-5/300	3	81	3	3	PK-P1	
74	Saratov Refinery	LCh-35-11/600 (R-604N)	1	40	2	2	R-98	
75	Saratov Refinery	L-35-11/300 (R-4N)	1	40	1	1	R-98	
76	Novoufimsk Refinery	L-35-11/1000	1	116	2	-	U	
77	Ufa Refinery	L-35-5	1	25	-	1	R-98	2012
78	Ryazan Refinery**	LCh-35-11/600	2	39	1	1	R-125	
79	Ryazan Refinery**	LG-35/8-300Б	-	15	-	-	R-125	
80	Achinsk Refinery	LK-6y/1000	-	10	-	-	R-98	
81	Gas Processing Plant, Astrakhan	L-35-11/1000	1	27	1	1	RG-682	
82	Angarsk Refinery	L-35-11/1000	1	111	3	1	RB-33U/44U	
83	GAZPROM, Neftehim, Salavat	L-35/6	6	150	6	6	PR-81	
84	PO KINEF	LCh-35-11/600	2	50	2	2	PR-81	2013
85	Novoufimsk Refinery	GEXA (1000)	-		1	-	A	
86	Slavneft-YANOS	L-35-11/300	1	38	-	-	U	
87	Atyrau Refinery	LG-35-11/300-95	-	12	-		U	
88	Slavneft-YANOS	LG-35-11/300	-	58	-	-	U	2014
89	Slavneft-YANOS	LG-35-11/300	1	38	-	-	U	

**Project's Features:** \*- feeding through central pipe; \*\*- with inside lining replacement; \*\*\* - feeding through central pipe and replacement of inside lining.

## Hydrotreating Reactor Internals

No.	Customer	Design Developer	Unit	General Unit Design: quantity of blocks, number of reactors in a block	Process Description	Feed	Feed Capacity, thousand ton per year (for a block or a section)	Catalyst, company	Catalyst Inter bed Number	Sulfur Content, ppm	Year of Supply
								General Project			
1	Novoufimsk Refinery	REEFING	Jeksa	1 block, 1 reactor	Hydrotreating	Diesel Oil	1750		2	50	1997
2	Angarsk Refinery	REEFING	L-35-11/1000	1 block, 1 reactor	Preliminary Hydrotreating	Gasoline Fraction	1000		1		1998
3	Syzran Refinery	Shell	L-24/8C	1 block, 1 reactor	Mild Hydrocracking	Vacuum Gas Oil	500	<u>Criterion</u> Shell	2	500	2001
4	Kuibyshevsk Refinery	Shell	L-24/6	1 block, 1 reactor	Mild Hydrocracking	Vacuum Gas Oil	500	<u>Criterion</u> Shell	2	500	
5	Slavneft-YANOS	Shell	L-24/6	2 blocks, 1 reactor in each block	Hydrotreating	Virgin Diesel Oil	1000	<u>Criterion</u> Shell	1	350	2002
6	Lokoil-Volgogradneftepererabotka	Chevron	KM/3	1 block, 1 reactor	Isodewaxing	Mineral Oil		Chevron	2		
7	Khabarovsk Refinery	Shell	L35-11/300	1 block, 1 reactor	Isomerization	Gasoline Fraction C5-C6	135	<u>Sud Chemie</u> Shell	2	7,2	2003
8	Ufaneftehim	REEFING	L-24-5	2 blocks, 3 reactors in each block	Hydrotreating	Vacuum Gas Oil	750	1st block-Haldor Topsoe 2nd block-Promkataliz Catachem	1	500	2004
9	Slavneft-YANOS	REEFING	L-24/6	2 blocks, 1 reactor in each block	Hydrotreating	Virgin Diesel Oil	1000	GRACE	1	50...20	
10	Salavatnefteorgsintez	REEFING	ГО-4	1 block, 1 reactor	Hydrotreating	Virgin Gasoline Fraction + Thermal Cracking Gasoline	2000	<u>Promkataliz</u> Catachem	2	1...0,5	2005
11	Mozyr Refinery	REEFING	LK-6U №1	1 block, 1 reactor	Hydroconversion	Vacuum Gas Oil	1500	<u>GRACE</u> Axens	1	800	
12	TAIF	REEFING		1 block, 1 reactor	Hydrotreating	Kerosene Fraction	750	Criterion	1	10	
13	Salavatnefteorgsintez	REEFING	L-16-1	1 block, 2 reactors	Hydrotreating	Heavy Gasoline Fraction	250	<u>Promkataliz</u> Catachem	1	400	2006
14	Ryazan Refinery	REEFING	LCh-24/7	1 block, 3 reactors	Hydrotreating	Diesel Oil	950	<u>Promkataliz</u> Catachem	2	350	
15	Ryazan Refinery	REEFING	LCh-24/6	1 block, 3 reactors	Hydrotreating	1.Virgin Deisel Fraction+Gas Oil 2.Kerosene Fraction	1000	<u>Promkataliz</u> Catachem	1	50	
16	Ryazan Refinery	REEFING	LCh-24/6	2 blocks, 3 reactors in each block	Hydrotreating	1.Virgin Deisel Fraction. 2. Light Gas Oil	1000	<u>Promkataliz</u> Catachem	1	50	
17	Achinsk Refinery	REEFING	LK-6UC	2 blocks, 1 reactor in each block	Hydrotreating	Diesel Oil	2000	<u>Sud Chemie</u> Shell	1	50	
18	Slavneft-YANOS	REEFING	L-24/6	2 blocks, 1 reactor in each block	Hydrotreating	Heavy Gasoline Fraction	1000	GRACE	1	10	2006
19	TAIF	REEFING		1 block, 2 reactors	Hydrotreating	Virgin Diesel Oil	250	<u>Promkataliz</u> Catachem	2	400	
19	Ufaneftehim	REEFING	L-24/7	2 blocks, 2 reactors in each block	Hydrotreating	Virgin Diesel Oil	750	Haldor Topsoe	1	50	2007

No.	Customer	Design Developer	Unit	General Unit Design: quantity of blocks, number of reactors in a block	Process Description	Feed	Feed Capacity, thousand ton per year (for a block or a section)	Catalyst, company	Catalyst Inter bed Number	Sulfur Content, ppm	Year of Supply
								General Project			
20	Ufa Refinery	REEFING	L-24/7	2 blocks, 4 reactors in each block	Hydrotreating	Virgin Diesel Oil	3000	GRACE Axens	1	10	
21	Saratov Refinery	REEFING	L-24/6	2 blocks, 2 reactors in each block	Hydrotreating	Diesel Oil	1000	Promkataliz Catachem	1	50	
22	Novoufimsk Refinery	REEFING	L-24/7	1 block, 2 reactors	Hydrotreating	Diesel Oil	650	GRACE Axens	1	10	
23	PO KINEF	REEFING	L-35-11/300	1 block, 1 reactor	Preliminary Hydrotreating	Gasoline Fraction	300	Promkataliz Catachem	1		
24	Salavatnefteorgsintez	REEFING	L-16-1	1 block, 2 reactors	Hydrotreating	Vacuum Gas Oil	950	Promkataliz Catachem	1	350	
25	Omsk Refinery	REEFING	L-24/7	4 reactors	Hydrotreating	Diesel Oil	700	Exxon Mobil	1	50	
26	Permnefteorgsintez	REEFING	L-24/7	2 reactors	Hydrotreating	Diesel Oil	1000	Haldor Topsoe	1	40	
27	Volgogradneftemash	REEFING	L-24-10/2000	3 reactors	Hydrotreating	Diesel Oil	2000	Axens	1	50	
28	Ufa Refinery	REEFING	Изориформинг	4 reactors	Isomerization	Gasoline Fraction	500	Neftehim Research and Production Enterprise	1		
29	Ufa Refinery	REEFING	G-43-107M/10	2 reactor	Hydrotreating	Vacuum Gas Oil		Haldor Topsoe	1		2008
30	NORSI	REEFING		2 reactors	Hydrotreating	Vacuum Gas Oil		Axens	2		
31	Ukrtatnafta	REEFING	LK-6U	1 reactor	Hydrotreating	Gasoline Fraction	1000	UOP	1		
32	Ukrtatnafta	REEFING	LCh-35-11/600	1 reactor	Hydrotreating	Gasoline Fraction	600	UOP	1		
33	Slavneft-YANOS	REEFING	Isomalk-2	3 reactors	Isomerization	Gasoline Fraction		Neftehim Research and Production Enterprise	1		
34	Ryazan Refinery	REEFING	L-24/6	2 reactors	Hydrotreating	Diesel Oil	2000	ART/NHP	1	10...50	
35	Novoufimsk Refinery	REEFING	LCh-24/7	1 reactor	Hydrotreating	Diesel Oil	650	GRACE/Axens	1	10	
36	Slavneft-YANOS	REEFING	H <sub>2</sub> Production Unit	6 reactors	H <sub>2</sub> Production			Foster Wheeler	1		
37	Novoufimsk Refinery	REEFING	"Jeksa"	1 reactor	Hydrotreating	Diesel Oil	2000	Axens	1	50	
38	Mozyr Refinery	REEFING	LK-6UN#2	1 reactor	Hydrotreating	Kerosene Stock	1400	Criterion	1	10	2009
39	Permnefteorgsintez	REEFING	L-26-6	2 reactors	Hydrotreating	Diesel Oil	600	Criterion	1	10	
40	Syzran Refinery	REEFING	PGI-DIG/280	13 vessels	Isomerization	Gasoline Fraction		Axens	1	500	
41	Ukrtatnafta	REEFING	L-35-11/300	1 reactor	Hydrotreating	Gasoline Fraction	300	UOP	1		
42	Angarsk Petrochemical Complex	REEFING	L-35-11/1000	1 reactor	Hydrotreating	Gasoline Fraction	1000		1		2009
43	Omsk Refinery	REEFING	L-24/6	4 reactors	Hydrotreating	Diesel Oil		Albemarle Angarsk	1		
44	Ufaneftehim	REEFING	L-24/5	2 reactors	Hydrotreating	Vacuum Gas Oil			1		
45	Hyundai Oil Bank	REEFING	MR-E17-01	1 reactor	Hydrotreating	Diesel Oil		SHELL	4		2010
46	Achinsk Refinery OWC	REEFING	LK-6Us	1 reactor	Hydrotreating	Gasoline Fraction	1000		1		
46	Private Joint Stock Company "LINIK"	REEFING	LCh-24-2000	1 reactor	Hydrotreating	Gasoline Fraction	2000		1		

No.	Customer	Design Developer	Unit	General Unit Design: quantity of blocks, number of reactors in a block	Process Description	Feed	Feed Capacity, thousand ton per year (for a block or a section)	Catalyst, company	Catalyst Inter bed Number	Sulfur Content, ppm	Year of Supply
								General Project			
47	Volgogradneftemash	REEFING		2 reactors	Hydrotreating	Diesel Oil	3000	Axens - Lukoil - NizhegorodNIIIn efteproekt	4		2011
48	Private Joint Stock Company "LINIK"	REEFING		3 reactors	Tert-Amyl Methyl Ether Production			Axens	1		
49	Private Joint Stock Company "LINIK"	REEFING		4 reactors	Hydrotreating	Gasoline Fraction		Axens	1		
50	Novokuibyshevsk Refinery	REEFING	L-35/11-300	1 reactor	Hydrotreating	Gasoline Fraction	300		1		
51	Achinsk Refinery OWC	REEFING		1 reactor	Hydrotreating	Kerosene Stock	300		1		
52	Novokuibyshevsk Refinery	REEFING	35-8	1 reactor	Hydrotreating	Gasoline Fraction			1		
53	Kuibyshevsk Refinery	REEFING	L-35-11/1000	1 reactor	Hydrotreating	Gasoline Fraction	1000		1		
54	Kuibyshevsk Refinery	REEFING	Isomerozation Unit PGI-DIG/280-K	13 vessels	Isomerization	Gasoline Fraction		Axens	1		
55	Novokuibyshevsk Refinery	REEFING	Isomerozation Unit PGI-DIG /280-NK	13 vessels	Isomerization	Gasoline Fraction		Axens	1		
56	Saratov Refinery	REEFING	Hydrotreating Unit	4 reactors	Hydrotreating	Diesel Oil			2		
57	Saratov Refinery	REEFING	Isomerozation Unit	3 reactors	Hydrotreating and Isomerization				1		
58	Ryazan Refining Company	REEFING	LCh-24/7	2 reactors	Hydrotreating	Diesel Oil		Haldor Topsoe	2		
59	Ryazan Refining Company	Lengiproneft ehim	Isomerozation Units	3 reactors	Hydrotreating and Isomerization	Pentane-Hexane Fraction		DS-20, SI-2V Neftechim	1		
60	Kuibyshev Refinery	PMP	Methyl-Tret-Butyl-Ether Production Unit	3 reactors	Methyl-Tret-Butyl-Ether Production	Butane-Butylene Fraction		KIF, KU-2FPP PMP	3		2012
61	Lukoil-Ukhtaneftepererabotka Ltd.	REEFING	GDS-850	1 reactor	Hydrodewaxing	Diesel Oil		Süd-Chemie PMP	1		
62	Lukoil-Permnefteorgsintez Ltd.	REEFING	L 24-6 PKT	1 reactor	Hydrotreating	Diesel Oil			1		
63	OJSC Izhorsk Refineries	OAO Izhorskiye Zavody	-	-	-	-	-	-	-	-	
64	Lukoil-Permnefteorgsintez Ltd.	REEFING	L 24-6 PKT	1 reactor	Hydrotreating	Diesel Oil			1		
65	Novokuibyshevsk Refinery	REEFING	L 24-300/2	1 reactor	Hydrotreating	Gasoline Fractions			1		
66	Syzran Refinery	REEFING	LCh 35/11-600	1 reactor	Hydrotreating	Gasoline Fractions			1		
67	OJSC NAFTAN	REEFING	Hydrotreating-2 L-24/7	2 reactors	Hydrotreating	Diesel Oil		ALBEMARLE	3	10	2013
68	Gazpromneftehim Salavat Ltd.	PMP	Isomerization Unit PGI-434	7 vessels	Hydrotreating and isomerization	Pentane-Hexane Fraction		Axens			

No.	Customer	Design Developer	Unit	General Unit Design: quantity of blocks, number of reactors in a block	Process Description	Feed	Feed Capacity, thousand ton per year (for a block or a section)	Catalyst, company	Catalyst Inter bed Number	Sulfur Content, ppm	Year of Supply
								General Project			
69	OJSC Orsknefteorgsintez Ltd.	CJSC Neftechimproject	Isomerization Unit	3 reactors	Hydrotreating and isomerization	Gasoline Fractions					2013
70	Mashzavod LLP, Chernovcy, Omsk Refinery	REEFING	Unit L-35/11-1000	2 reactors	Hydrotreating	Gasoline Fractions					
71	LUKOIL-Permnefteorgsintez Ltd.	REEFING	Unit LG-24-7 PKT	2 reactors	Hydrotreating	Diesel Oil					
72	LUKOIL-Nizhegorod-nefteorgsintez Ltd.	REEFING	Cleaner Unit AVT-6	1 reactor	Hydrotreating	Kerosene Fractions		CJSC Neftechimproject			2014
73	OJSC Slavneft-YANOS	OJSC VNIINEFTEMASH	AVT-4	1 reactor	Hydrotreating	Gasoline Fractions					



## Column Enthalpy Exchanger Internals

Customer	Unit/Column	Scope of Supply	Year of Supply
Ryazan Refining Company	K-10 Water Flash Column of Reforming Unit L-35-6/300	42 trays with support elements	2010
Ryazan Refining Company	K-14 Atmospheric-and-Vacuum Column of Reforming Unit L-35-6/300	11 trays with support elements	2010
Ryazan Refining Company	K-7 Stabilizer of Reforming Unit L-35-11/300	38 trays with support elements	2011
Saratov Refinery	K-10 Column	Mending kit	2011
Ufa Refinery	DA-201 Hydrodesulfurization Column	Liquid chute distributors, regular packing, collective trays	2012
Ufa Refinery	DA-217 H2S Stripper	Fixed valves trays	2012
Ufa Refinery	DA-217 Gasoline Stabilizer	Fixed valves trays	2012
CJSC Promcatalyz, Ryazan	AD-1/2 Absorbers	Internals Set	2012
OJSC Kurganhimash	Chloride Absorber	Bottom Basket	2012
Angarsk Petrochemical Company	Vessel E-102, MTBE Unit	Coalescer	2013
Angarsk Petrochemical Company	Vessel E-103, MTBE Unit	Coalescer	2013
Angarsk Petrochemical Company	Vessel E-202, MTBE Unit	Coalescer	2013
Angarsk Petrochemical Company	Vessel E-301, MTBE Unit	Coalescer	2013
Angarsk Petrochemical Company	Column K-201, MTBE Unit	Coalescer + Internals Set	2013
Angarsk Petrochemical Company	Column K-202, MTBE Unit	Internals Set	2013
Angarsk Petrochemical Company	Column K-203, MTBE Unit	Internals Set	2013
Angarsk Petrochemical Company	Column K-204, MTBE Unit	Internals Set	2013
Angarsk Petrochemical Company	Column K-205, MTBE Unit	Internals Set	2013
Angarsk Petrochemical Company	Column K-301, MTBE Unit	Internals Set	2013
Ryazan Refining Company	K-5/6 Absorbers	Grids Set	2013
Angarsk Petrochemical Company	Columns K-105, K-217, K-307, K-401	Vortex Breaker	2014

## Equipment for Liquids Separation

Customer	Assignment	Quantity	Year of Supply
Novoufimsk Refinery	Coalescing Filter	1	1999
Ufa Refinery Novoufimsk Refinery	Dropping Liquid Baffle	11	2000
Mozyr Refinery	Dropping Liquid Baffle	9	2007
Mozyr Refinery	Dropping Liquid Baffle	3	2008
NORSI	Dropping Liquid Baffle	3	2009
Permnefteorgsintez	Dropping Liquid Baffle	1	2009
Achinsk Refinery	Dropping Liquid Baffle	1	2009
Mozyr Refinery	Dropping Liquid Baffle	1	2010
Slavneft-YANOS	Dropping Liquid Baffle	2	2011
Komsomolsk Refinery	Dropping Liquid Baffle	7	2012

## Filters for Liquid Purification

Customer	Assignment	Quantity	Year of Supply
Odessa Refinery	Virgin Gasolin Treatment Filter	2	2007
Odessa Refinery	Diesel Oil Treatment Filter	2	2007
Angarsk Refinery	F-102/1 Feed Treatment Filter	2	2007
Atyrau Refinery	Filterelements for 20-Z-004A/B, 11-Z-001A/B Filters	160	2007
Aliter-Aksi	Gas Fuel Treatment Filter	4	2008
Aliter-Aksi	Fuel Oil Treatment Filter	2	2008
Slavneft-YANOS	Feed Treatment Filter	4	2008
Slavneft-YANOS	Filterelements	3	2008
TATNEFT	Filter's Baskets	52	2009
UTS-Tuimazyhimmash	Filterelements	12	2009
Permnefteorgsintez	Filterelements for 10-FD-201 Filter	8	2009
TATNEFT	Filter's Baskets	8	2010
Achinsk Refinery	Gas Fuel Treatment Filter	2	2010
«NGT» Ltd, Ufa	Filterelements for Filters	24	2010
«Dekanter» Ltd	Filterelements for Filtration Unit	12	2011
Syzran refinery	Flushing Oil Filters	1	2011
Syzran refinery	Power Gas and Liquid Fuel Filters	348	2011
Moscow Refinery	Fuel Oil Treatment Filter	2	2011
TATNEFT	Filter's Baskets for Filters	6	2012
OOO «NPF «SPT»	Fuel Gas Treatment Filter	2	2012
ZAO EPARM	Fuel Gas Treatment Filter Fuel Oil Treatment Filter	2 2	2012 2012
Achinsk Refinery	Fuel Gas Treatment Filter	2	2012
ОАО Angarsk Petrochemical Company	Feed Filter Resin Filter	2 2	2012
CJSC IC Technochim	Filterbaskets	4	2012
LUKOIL-VNP Ltd.	Filters	11	2012
OJSC Salavat NHRS	Gasoline Filter	2	2012
Viklon-TM Ltd.	Filterelements	19	2013
CJSC RNPk	Vapour Filter	2	2013
CJSC Antipinsk Refinery	Feed Filter	4	2013
LUKOIL-VNP Ltd.	Filters	7	2013
TATNEFT	Filter Baskets for Filters	26	2014

## Filters for Pakinox Heat Exchangers

Customer	Unit	Quantity	Year of Supply
Novoufimsk Refinery	L-35-11/1000	1	1997
Angarsk Refinery	L-35-11/1000	1	1999
Slavneft-YANOS	LG-35-11/300	1 slotted	2000
Slavneft-YANOS	LG-35-11/300	1 slotted	2001
PO KINEF	LCh-35-11/600	1 slotted	2002
Syzran Refinery	LCh-35-11/600	4* slotted 2 slotted	2003
Tuapse Refinery	L-35-11/300	3* slotted 1 slotted	2003
Lukoil, Volgograd	L-35-8/300Б	2** slotted	2003
Lukoil, Ukhta	LG-35-11/300-95	2** slotted	2004
Odessa Refinery	LG-35-11/300	2** slotted	2004
Permnefteorgsintez	L-35-11/600	1 slotted	2004
Permnefteorgsintez	L-35-11/300	1 slotted	2004
Refinery, Mozyr	LK-6U	1 slotted	2004
Lukoil, Volgograd	KGPN	2** 4 slotted	2004
Lukoil, Volgograd	PR-22-35-11/1000	2** slotted	2005
Lukoil, Volgograd	L-35-8/300Б	2 slotted	2005
Angarsk Refinery	L-35-11/1000	2** slotted	2006
Chimkentnefteorgsintez	LK-6U	1 slotted	2006
Lukoil, Ukhta	LG-35-11/300-95	2* slotted	2008
Lukoil, Volgograd	PR-22-35-11/1000	1	2009
Khabarovsk Refinery	LG-35-11/300-95	2**	2009
ОАО Angarsk Petrochemical Company	L-35-11/1000	2** slotted	2012

)\* - with frame for installation into main pumping station pipelines

)\*\* - with frame for installation into hydrogenation product pipelines