

IBN

Industry Burners Novy

EXTRACT OF REFERENCE LIST

of

Low NOx and Ultra Low NOx Burners

Customer (Final Customer) : **Esso Refinery, Karlsruhe**
Year built : **1990**
Number of units : **36 units , 270° C preheated air**
Type of Burner : **Low NOx Gas – Forced Air Burner**
Capacity : **2,7 MW**
Obtained NOx-Value : **62 mg / NOx, with steam**
103 mg / NOx without steam at a H2 portion
of approx. 30% and 250° C preheated air

Customer (Final Customer) : **Holborn Refinery, Hamburg**
Year built : **1991**
Number of units : **16 units**
Type of Burner : **Low NOx Gas – Forced Air Burner**
Capacity : **5,5 MW**
Obtained NOx-Value : **93 mg / NOx without steam at a H2 portion**
of approx. 60% and cold air

Customer (Final Customer) : **Esso Refinery, Karlsruhe**
Year built : **1993**
Number of units : **153 units total**
Type of Burner : **66 ea. Low NOx Gas – Forced Air Burner**
87 ea. Low NOx natural draught Burner
Capacity : **1 MW – 5 MW**
Obtained NOx-Value : **36 mg NOx – 100 mg NOx**

Customer (Final Customer) : **Esso Refinery, Ingolstadt**
Year built : **1993**
Number of units : **6 units**
Type of Burner : **Low NOx Gas – Natural draught Burner**
Capacity : **3,5 MW**
Obtained NOx-Value : **68 mg / NOx, at a H2 portion of 30% and cold air**

Customer (Final Customer) : **Esso Refinery, Karlsruhe**
Year built : **1993**
Number of units : **12 units**
Type of Burner : **Low NOx Gas – Boiler Burner**
Capacity : **13,25 MW**
Obtained NOx-Value : **120 mg / NOX with steam at a H2 portion**
Of 30% and 350°C preheated air

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Customer (Final Customer) : Esso Refinery, Ingolstadt
Year built : 1993
Number of units : 3 units
Type of Burner : Low NOx Gas Natural draught Burner
Capacity : 2,6 MW
Obtained NOx-Value : 70 mg / NOx, at a H2 portion of 30% and cold air

Customer (Final Customer) : PCK Schwedt
Year built : 1994
Number of units : 21 units
Type of Burner : Combination Burners modified to gas firing
Capacity : 3 MW
Obtained NOx-Value : appr. 100 mg / NOx

Customer (Final Customer) : Erdölchemie Dormagen
Year built : 1994
Number of units : 4 units
Type of Burner : Ultra Low NOx Gas – Natural draught Burner
Capacity : 1,75 MW
Obtained NOx-Value : 33 mg / NOx at 20% H2 portion

Customer (Final Customer) : PCK Schwedt
Year built : 1994
Number of units : 18 units
Type of Burner : Combination Burners modified to gas firing
Capacity : 3,5 MW
Obtained NOx-Value : appr. 100 mg NOx

Customer (Final Customer) : OMW
Year built : 1995
Number of units : 30 units
Type of Burner : Ultra Low NOx Gas – Forced Air Burner
Capacity : 2,5 MW, combustion air 350°C
Obtained NOx-Value : 38 mg / NOx

Customer (Final Customer) : OMW
Year built : 1995
Number of units : 9 units
Type of Burner : Ultra Low NOx Gas – Natural draught Burner
Capacity : 3,5 MW
Obtained NOx-Value : 47 mg / NOx

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Customer (Final Customer) : ESSO Karlsruhe
Year built : 1995
Number of units : 4 units , air preheated to 320°C
Type of Burner : Ultra Low NOx Gas – Forced Air Burner
Capacity : 4,65 MW
Obtained NOx-Value : 40 mg NOx

Customer (Final Customer) : Stork Comprimo SKL (PCK Schwedt)
Year built : 1996
Number of units : 7 units
Type of Burner : Low NOx Gas – Natural draught Burner
Capacity : 3,24 MW + 4,71 MW
Obtained NOx-Value : 47 mg NOx

Customer (Final Customer) : Custodis (PCK Schwedt)
Year built : 1996
Number of units : 1 unit
Type of Burner : LOW NOx Gas – Natural draught Burner
Capacity : 2,5 MW
Obtained NOx-Value : 62 mg NOx

Customer (Final Customer) : Stork Comprimo SKL (MOL AG Hungaria)
Year built : 1996
Number of units : 1 unit
Type of Burner : LOW NOx Gas – Forced Air Burner
Capacity : 4,25 MW
Obtained NOx-Value : 76 mg NOx

Customer (Final Customer) : Holborn Refinery, Hamburg
Year built : 1997
Number of units : 7 units
Type of Burner : Ultra Low NOx forced draft burner
Capacity : 0,85 – 4,32 MW
Obtained NOx-Value : 38 – 57 mg NOx

Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 1997
Number of units : 9 units
Type of Burner : Ultra Low NOx natural draft burner
Capacity : 2,5 MW
Obtained NOx-Value : 42 mg NOx

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Customer (Final Customer) : PCK Schwedt
Year built : 1997
Number of units : 1 unit
Type of Burner : Air preheater with burner
Capacity : 2,15 MW
Emissions : not of interests

Customer (Final Customer) : SKW Piesteritz
Year built : 1994
Number of units : 262 units
Type of Burner : Low NOx Gas Natural draught Ceiling Burner
Capacity : 1 MW
Obtained NOx-Value : 90 mg / NOx

Customer (Final Customer) : PCK Schwedt
Year built : 1994
Number of units : 22 units , air preheated 360°C
Type of Burner : Ultra Low NOx Gas – Forced Air Ceiling Burner
Capacity : 0,8 – 1,5 MW
Obtained NOx-Value : 106 mg NOx

Customer (Final Customer) : SKW Piesteritz
Year built : 1996
Number of units : 262 units
Type of Burner : Low NOx Gas – Natural draught Ceiling Burner
Capacity : 1 MW
Obtained NOx-Value : 90 mg NOx

Customer (Final Customer) : UHDE (Uhde ABU QIR III)
Year built : 1996
Number of units : 109 units , air preheated 250°C
Type of Burner : Low NOx side wall & down firing draft burner
Capacity : 0,8 – 1,54 MW
Obtained NOx-Value : 123 mg NOx

Customer (Final Customer) : MKTI (Lebedinsk)
Year built : 1997
Number of units : 5 Units , air preheated 440°C
Type of Burner : Low NOx combination burner forced draft
Capacity : 5,8 MW
Obtained NOx-Value : 164 mg NOx

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Customer (Final Customer) : MKTI (Lebedinsk)
Year built : 1997
Number of units : 120 Units , air preheated 440°C
Type of Burner : Low NOx bottom and side wall natural draft burner
Capacity : 0,78 MW
Obtained NOx-Value : 164 mg NOx

Customer (Final Customer) : Lurgi AG (Trinidad)
Year built : 1997
Number of units : 40 Units , air preheated 390°C
Type of Burner : Low NOx down firing forced draft burners
Capacity : 1,6 MW - 2,42 MW
Obtained NOx-Value : 78 mg NOx

Customer (Final Customer) : Stork Comprimo / MOL Hungary
Year built : 1998
Number of units : 1
Type of Burner : Low NOx short flame bottom burner
Capacity : 25 MW
Obtained NOx-Value : 96 mg NOx

Customer (Final Customer) : Stork Comprimo / MOL Hungary
Year built : 1999
Number of units : 1
Type of Burner : Low NOx short flame bottom burner
Capacity : 8,5 MW
Obtained NOx-Value : 98 mg NOx

Customer (Final Customer) : Holborn Refinery, Hamburg
Year built : 2000
Number of units : 10 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 2,5 MW
Obtained NOx-Value : 99 mg NOx

Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 2000
Number of units : 4 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 2,167 MW
Obtained NOx-Value : 96 mg NOx

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Customer (Final Customer) : SAACKE - EEG
Year built : 2000
Number of units : 3 units
Type of Burner : Low NOx forced draft burner
Capacity : 0,25 MW
Obtained NOx-Value : 48 mg NOx

Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 2001
Number of units : 10 units
Type of Burner : Low NOx natural draft burner
Capacity : 2,06 MW
Obtained NOx-Value : 97 mg NOx

Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 2001
Number of units : 3 units
Type of Burner : Low NOx natural draft burner
Capacity : 4,01 MW
Obtained NOx-Value : 98 mg NOx

Customer (Final Customer) : JACOBS ENGINEERING
Year built : 2001
Number of units : 3
Type of Burner : Low NOx natural draft injektor burner
Capacity : 3,3 MW
Obtained NOx-Value : 87 mg NOx

Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 2001
Number of units : 3 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 2,13 MW
Obtained NOx-Value : 120 mg NOx

Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 2001
Number of units : 8 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 4,8 MW, combustion air 250°C
Obtained NOx-Value : 156 mg NOx

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Customer (Final Customer) : MIRO Raffinerie Karlsruhe
Year built : 2002
Number of units : 10 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 2,5 MW
Obtained NOx-Value : 106 mg NOx

Customer (Final Customer) : SAACKE - EEG
Year built : 2002
Number of units : 3 units
Type of Burner : Low NOx forced draft burner
Capacity : 0,25 MW
Obtained NOx-Value : 48 mg NOx

Customer (Final Customer) : LINDE
Year built : 2003
Number of units : 3 units
Type of Burner : Natural draft burner, standard
Capacity : 2,57 MW
Obtained NOx-Value :

Customer (Final Customer) : PCK SCHWEDT / EDELEANU
Year built : 2003
Number of units : 3 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 2,7 MW
Obtained NOx-Value : 86 mg NOx

Customer (Final Customer) : ALSTOM / LINDE
Year built : 2003
Number of units : 1 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 1,9 MW
Obtained NOx-Value :

Customer (Final Customer) : DUSLO Sala
Year built : 2006
Number of units : 105 units, air preheated 318°C
Type of Burner : Low NOx down firing forced draft burners
Capacity : 1,05 - 1,55 MW
Obtained NOx-Value : 100 mg NOx

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Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2007
Number of units	:	20 Units , air preheated 440°C
Type of Burner	:	Low NOx down firing forced draft burners
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	UHDE (Uhde ABU QIR III)
Year built	:	2007
Number of units	:	20 units , air preheated 250°C
Type of Burner	:	Low NOx side wall & down firing draft burner
Capacity	:	1,54 MW
Obtained NOx-Value	:	123 mg NOx
Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2008
Number of units	:	20 Units , air preheated 440°C
Type of Burner	:	Low NOx side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	UHDE (Uhde ABU QIR III)
Year built	:	2008
Number of units	:	20 units , air preheated 250°C
Type of Burner	:	Low NOx side wall & down firing draft burner
Capacity	:	0,8 MW
Obtained NOx-Value	:	123 mg NOx
Customer (Final Customer)	:	DUSLO Sala
Year built	:	2008
Number of units	:	2 units, air preheated 318°C
Type of Burner	:	Boiler Burner forced draft burners
Capacity	:	17,5 MW
Obtained NOx-Value	:	300 mg NOx
Customer (Final Customer)	:	Holborn Refinery, Hamburg
Year built	:	2008
Number of units	:	20 units
Type of Burner	:	Low NOx Gas – Forced Air Burner
Capacity	:	7,0 MW
Obtained NOx-Value	:	80 mg / NOx and cold air

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Customer (Final Customer) : Holborn Refinery, Hamburg
Year built : 2008
Number of units : 16 units
Type of Burner : Low NOx short flame bottom burner
Capacity : 2,5 – 4.7 MW
Obtained NOx-Value : 99 mg NOx

Customer (Final Customer) : PARAMO Pardubice
Year built : 2008
Number of units : 4 units
Type of Burner : Oil Burner, natural draft
Capacity : 2,5 MW
Obtained NOx-Value : <450 mg NOx

Customer (Final Customer) : DUSLO Sala
Year built : 2009
Number of units : 4 units, air preheated 318°C
Type of Burner : Boiler Burner forced draft burners
Capacity : 10,5 MW
Obtained NOx-Value : 280 mg NOx

Customer (Final Customer) : NAFTAN Novopolock
Year built : 2009
Number of units : 20 units, natural draft
Type of Burner : Low NOx Buner Gas / Oil
Capacity : 1,0 MW
Obtained NOx-Value : <200 mg NOx gas, <350 mg NOx Oil

Customer (Final Customer) : NAFTAN Novopolock
Year built : 2009
Number of units : 30 units, forced draft burners
Type of Burner : Low NOx Buner Gas / Oil
Capacity : 1,6 MW
Obtained NOx-Value : <200 mg NOx gas, <450 mg NOx Oil

Customer (Final Customer) : NAFTAN Novopolock
Year built : 2009
Number of units : 14 units, forced draft burners
Type of Burner : Low NOx Buner Oil
Capacity : 0,73 MW
Obtained NOx-Value : <450 mg NOx Oil

Customer (Final Customer) : DUSLO Sala
Year built : 2010
Number of units : 1 units, air preheated 318°C
Type of Burner : Boiler Burner forced draft burners
Capacity : 17,5 MW
Obtained NOx-Value : 300 mg NOx

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Customer (Final Customer)	:	PARAMO Pardubice
Year built	:	2010
Number of units	:	4 units
Type of Burner	:	Oil Burner, natural draft
Capacity	:	2,5 MW
Obtained NOx-Value	:	<450 mg NOx
Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2010
Number of units	:	10 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	NAFTAN Novopolock
Year built	:	2010
Number of units	:	30 units, natural draft burner
Type of Burner	:	Low NOx Buner Gas / Oil
Capacity	:	1,6 MW
Obtained NOx-Value	:	<200 mg NOx gas, <450 mg NOx Oil
Customer (Final Customer)	:	NAFTAN Novopolock
Year built	:	2011
Number of units	:	23 units, natural draft burner
Type of Burner	:	Low NOx Buner Gas / Oil
Capacity	:	1.2 - 1,8 MW
Obtained NOx-Value	:	<200 mg NOx gas, <450 mg NOx Oil
Customer (Final Customer)	:	DUSLO Sala
Year built	:	2011
Number of units	:	6 units, air preheated 318°C
Type of Burner	:	Low NOx down firing forced draft burners
Capacity	:	1,05 - 1,55 MW
Obtained NOx-Value	:	80 mg NOx
Customer (Final Customer)	:	PARAMO Pardubice
Year built	:	2011
Number of units	:	4 units
Type of Burner	:	Oil Burner, natural draft
Capacity	:	2,5 MW
Obtained NOx-Value	:	<450 mg NOx
Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2011
Number of units	:	8 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx

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EXTRACT OF REFERENCE LIST of Low NOx and Ultra Low NOx Burners

Customer (Final Customer)	:	DUSLO Sala
Year built	:	2012
Number of units	:	32 units, air preheated 318°C
Type of Burner	:	Low NOx down firing forced draft burners
Capacity	:	1,05 - 1,55 MW
Obtained NOx-Value	:	80 mg NOx
Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2012
Number of units	:	10 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	NAFTAN Novopolock
Year built	:	2013
Number of units	:	20 units, natural draft burner
Type of Burner	:	Low NOx Buner Gas / Oil
Capacity	:	1,8 MW
Obtained NOx-Value	:	<200 mg NOx gas, <450 mg NOx Oil
Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2013
Number of units	:	8 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	NAFTAN Novopolock
Year built	:	2013
Number of units	:	24 units, natural draft burner
Type of Burner	:	Low NOx Buner Gas / Oil
Capacity	:	1.2 - 1,6 MW
Obtained NOx-Value	:	<200 mg NOx gas, <450 mg NOx Oil
Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2014
Number of units	:	8 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx

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Customer (Final Customer)	:	MKTI (Lebedinsk)
Year built	:	2015
Number of units	:	6 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	Holborn Refinery, Hamburg
Year built	:	2016
Number of units	:	2 units
Type of Burner	:	Low NOx Gas – Forced Air Burner
Capacity	:	7,0 MW
Obtained NOx-Value	:	60 mg / NOx and preheated air 100°C
Customer (Final Customer)	:	Holborn Refinery, Hamburg
Year built	:	2017
Number of units	:	18 units
Type of Burner	:	Low NOx Gas – Forced Air Burner
Capacity	:	7,0 MW
Obtained NOx-Value	:	60 mg / NOx and preheated air 100°C
Customer (Final Customer)	:	Metaloinvest Lebedinsk Russia
Year built	:	2018
Number of units	:	10 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	Metaloinvest Lebedinsk Russia
Year built	:	2019
Number of units	:	10 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	Metaloinvest LebedinskRussia
Year built	:	2020
Number of units	:	4 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx
Customer (Final Customer)	:	Metaloinvest Lebedinsk Russia
Year built	:	2021
Number of units	:	10 Units , air preheated 440°C
Type of Burner	:	Low NOx bottom and side wall natural draft burner
Capacity	:	0,78 MW
Obtained NOx-Value	:	164 mg NOx

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