

FOR IMMEDIATE SALE

Former CHOREN Biomass Gasification Refinery

FREIBERG GERMANY

*Unprecedented Selection of Newer
Equipment-Some Never Installed*



State of the Art Plant Decommissioned in 2011



For additional information call Eric Spirtas
314-780-3742 • Niagaraworldwide.com

Former CHOREN Biomass Gasification Refinery

FREIBERG GERMANY

Private treaty sale of a B2L (biomass-to-liquid) facility to be sold in individual process steps. The factory was established by CHOREN Industries GmbH in Freiberg, Germany. The Carbo-V treatment was used to carbonize biomass to further processing it to ultrapure synthetic gas. By Fischer-Tropsch synthesis it was finally processed to BtL fuel.

The seven acre plant was decommissioned in 2011. Faith Asset Management Germany GmbH & Co. KG (FAM Germany), in conjunction with Niagara Worldwidethe purchased the plant and equipment. Much of the equipment is less than 2 years old, some was never installed and is brand new, is being liquidated and sold at a deep discount.



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**Huge
Quantity
of Newer
Equipment**

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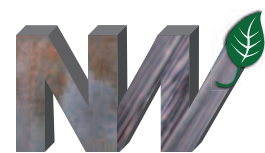
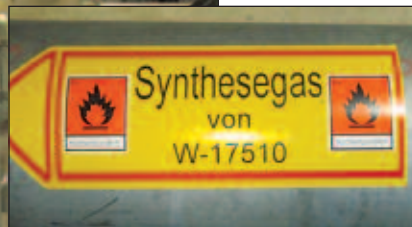
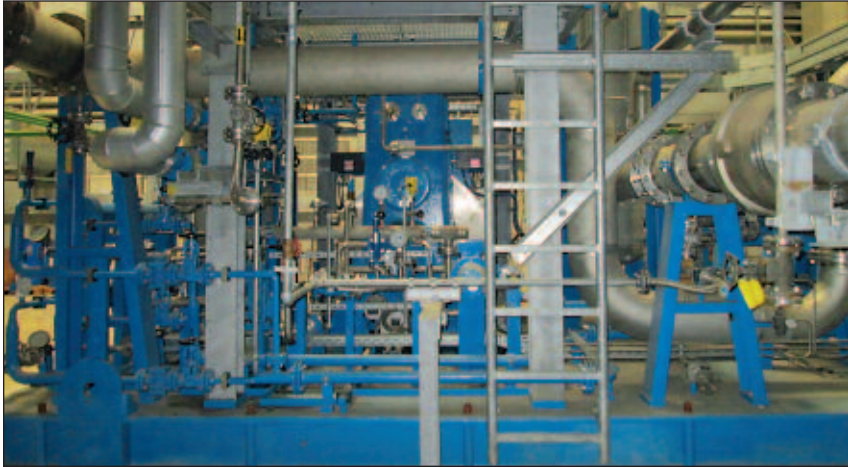
Gasification Compressors

Neumann & Esser 1TZS130-200 Piston Compressor delivery rate 3,579 - 6,880 kg/h intake pressure approx. 28 bar rotation speed 588 rpm stroke 150 mm compressor rating: 404 kW. Mfg.Year: 2007

Neumann & Esser 11ES 130-240 Piston Compressor delivery rate 7,803- 18,359 Nm³/h intake pressure approx. 51 bar rotation speed 588 rpm stroke 150 mm compressor rating: 189 kW. Mfg.Year: 2006

Neumann & Esser 1TZS130-370 Piston Compressor delivery rate 15,660 Nm³/h intake pressure approx. 23 - 83 bar rotation speed 588 rpm stroke 150 mm compressor rating: 260 kW. Mfg.Year: 2006

Neumann & Esser 2TES30-210/125 Piston Compressor delivery rate 171 Nm³/h intake pressure approx. 0.4 bar rotation speed 640 rpm stroke 110 mm compressor rating: 11 kW. Mfg.Year: 2006



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Gasification Compressors

Neumann & Esser 1TES30 – 117 Piston Compressor delivery rate 3265 Nm³/h intake pressure approx. 63 bar outtake pressure approx. 79 bar engine speed 1,490 rpm compressor speed 588 rpm stroke 110 mm compressor rating: 37 kW cylinder diameter 117 mm approx. dimensions 3300 x 2740 x 3175mm approx. weight 7,000 kg. Mfg.Year: 2006

Neumann & Esser 1TES30 – 117 Piston Compressor delivery rate 3265 Nm³/h intake pressure approx. 63 bar outtake pressure approx. 79 bar engine speed 1,490 rpm compressor speed 588 rpm stroke 110 mm compressor rating: 37 kW cylinder diameter 117 mm approx. dimensions 3300 x 2740 x 3175mm approx. weight 7,000 kg. Mfg.Year: 2006



Neumann & Esser 1TES63 – 175 Piston Compressor delivery rate 500 - 1545 kg/h intake pressure approx. 8 bar outtake pressure approx. 32 bar compressor speed 588 rpm stroke 150 mm compressor rating: 70 kW approx. dimensions 4700 x 2640 x 3510mm approx. weight 10,000 kg. Mfg. Year: 2006

Neumann & Esser 1TES63 – 175 Piston Compressor delivery rate 500 - 1545 kg/h intake pressure approx. 8 bar outtake pressure approx. 32 bar compressor speed 588 rpm stroke 150 mm compressor rating: 70 kW approx. dimensions 4700 x 2640 x 3510mm approx. weight 10,000 kg. Mfg. Year: 2006



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Gasification Compressors

Neumann & Esser V20180 / V20500

Temperiergerät Neumann & Esser V20180 / V20500 compressors delivery rate (output) 14 m³/h delivery height 19,88 m efficiency rate 56,8% pump speed 2,860 rpm wheel diameter 140,0 mm max. operating pressure 16 bar output pressure 3 bar EX-proof: ATEX II 2G T4 conform including: - 2x KSB S 032-125.1 S10 rotary pumps - 2x Funke CP404-6-2weg water chiller - Zilmet Zilflex Hydro ETM 60 membrane compensation reservoir approx. dimensions 3550x2450x1790mm approx. weight 3,000kg. Mfg.Year: 2007

EQUIPMENT DETAILS
For V20180
[Download Here](#)

EQUIPMENT DETAILS
For V20500
[Download Here](#)



Neumann & Esser V23000 / V20300 A/B

Temperiergerät Neumann & Esser V23000 + V20300 A/B compressors delivery rate (output) 5m³/h delivery height 19,88m efficiency rate 33,1% pump speed 2,835 rpm wheel diameter 133,0 mm max. operating pressure 16 bar output pressure 3 bar EX-proof: ATEX II 3G T4 conform including: - 2x KSB S 032-125.1 S10 rotary pumps - 2x Funke CP404-6-2 water chiller - Zilmet Zilflex Hydro E18 membrane compensation reservoir approx. dimensions 3300x2100x1745mm approx. weight 3,000kg. Mfg.Year: 2007



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Gasification System

Kaeser DSD 238 T Rotary Screw Compressor T-version with refrigerant type dryer capacity 132 kW output capacity: -23,80 m³/min at 7,5 bar - 19,92 m³/min at 10 bar - 14,80 m³/min at 13 bar including: - 2x Kaeser FE-221D air filter -Kaeser Aquamat CF 38 condensate treatment approx. dimensions 3300x1730x2040cm approx. weight 4to. Mfg.Year: 2010

Kaeser CSD 102 T SFC Rotary Screw Compressor SFC-version with Sigma frequency control capacity 55 kW output capacity: - 2.33 - 9.90 m³/min at 7,5 bar - 1.87 - 8.95 m³/min at 10 bar - 1.40 - 7.30 m³/min at 13 bar max. pressure 15 bar approx. working hours: 20,908h additional options: K1, air chiller K3, air chiller filter approx. dimensions 2200x1050x1900cm approx. weight 1.7to. Mfg.Year: 2005



Kaeser BSD 72 T Rotary Screw Compressor capacity 37 kW output capacity: - 7.00 m³/min at 7,5 bar - 5.60 m³/min at 10 bar - 4.40 m³/min at 13 bar max. pressure 15 bar approx. working hours: 14,506h additional options: K1, air chiller K3, air chiller filter approx. dimensions 2010x1005x1700cm approx. weight 1.3to. Mfg.Year: 2005



EQUIPMENT DETAILS
For Kaeser Compressors
[Download Here](#)

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Gasification System

Kaeser BSD 72 T Rotary Screw Compressor
capacity 37 kW output capacity: - 7.00
m³/min at 7,5 bar - 5.60 m³/min at 10
bar - 4.40 m³/min at 13 bar max. pressure
15 bar approx. working hours: 14,534h
additional options: K1, air chiller K3, air chiller
filter approx. dimensions 2010x1005x1700cm
approx. weight 1.3to. Mfg.Year: 2005



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Synthesis Compressors

Aerzner V17100 Synthesegasverdichter three-staged, oil-free compression step I: delivery rate 6,280 m³/h intake pressure 3.3 bar outtake pressure 14.3 bar intake temperature 45 °C outtake temperature 112 °C main rotor rpm 5,760 rpm drive capacity 1,666 kW step II: delivery rate 1,474 m³/h intake pressure 14.0 bar outtake pressure 25.5 bar intake temperature 45 °C outtake temperature 112 °C main rotor rpm 11,160 rpm clutch capacity 607 kW step III: delivery rate 826 m³/h intake pressure 25.0 bar outtake pressure 33.0 bar intake temperature 45 °C outtake temperature 79 °C main rotor rpm 12,481 rpm clutch capacity 311 kW



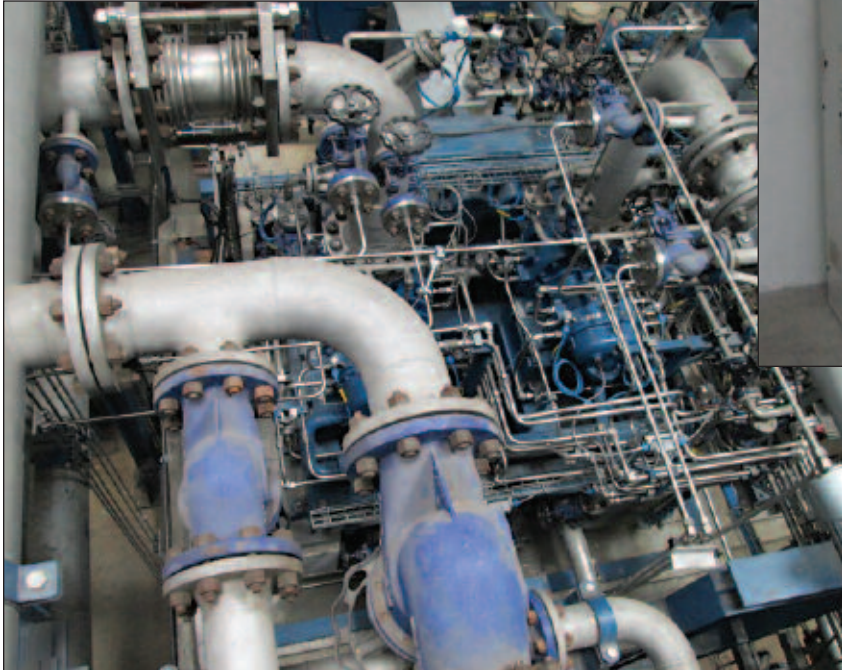
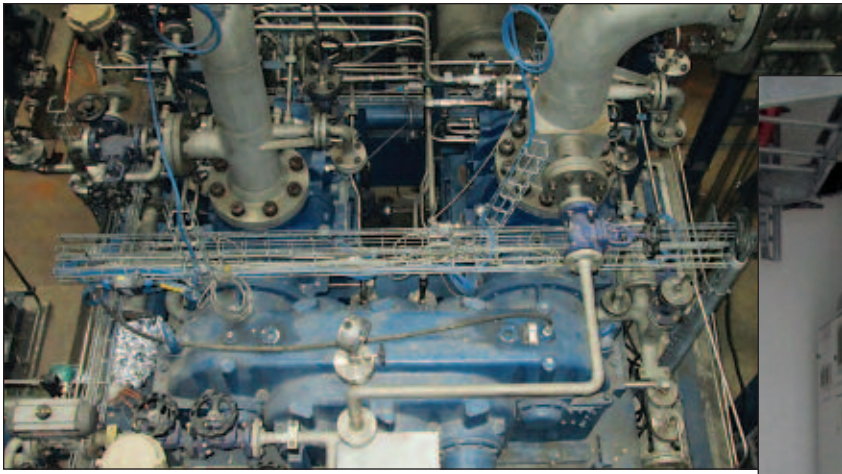
Aerzner Maschinenfabrik GmbH
 D-31855 Aerzen; Tel.: 05154/810
 Made in Germany

Type	VP 17100/100	Weight	
Serial N°	1000000001	n _{rot} rpm	2950
Order N°	1000000001/00	Q ₁ m ³ /min	253,16
n _{int} rpm	5760/5761	p ₁ bar (a)	3,30
P _{total} kW	1666	p ₂ bar (a)	13,30
Yr. of const.	2007		



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Synthesis Compressors



Ansaldo Sistemi Industriali S.p.A.

IBC VARIABLE FREQUENCY THREE-PHASE INDUCTION MOTOR
 60034-1 Type - serial number

kW - r.p.m. - Hz - cos φ

Stator: V - A - Conn.

Speed range:

WR² - kg·m² - Wdg. ins. cl. - Amb. temp.

IP - Mass - kg - Duty

D.O.L. starting NO

WATER INLET TEMPERATURE
 CONSTANT TORQUE

Ansaldo Sistemi Industriali S.p.A.

CE 0722 II 2 G Ex p

MACHINE TYPE - SERIAL NUMBER

INTERNAL FREE VOLUME

PROTECTIVE GAS TYPE

PROTECTIVE GAS INLET TEMPERATURE PURGING

INLET MINIMUM PRESSURE

OUTLET MINIMUM PROTECTIVE GAS FLOW

MINIMUM TIME PRESSURIZING

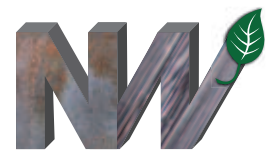
INLET PRESSURE

INLET MINIMUM PROTECTIVE GAS FLOW

MINIMUM PERMISSIBLE OVERPRESSURE

MAXIMUM PERMISSIBLE OVERPRESSURE

CERTIF. ATEX



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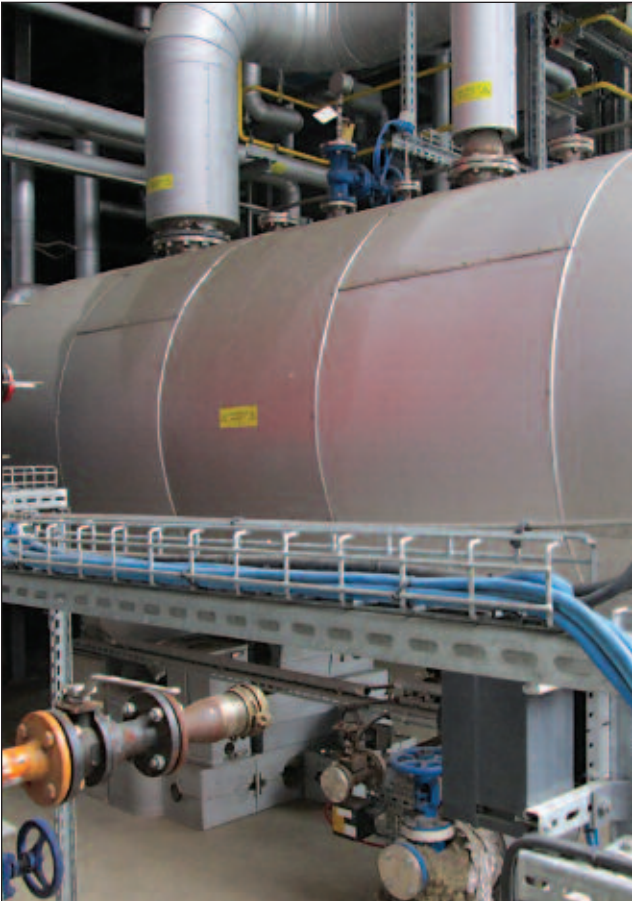
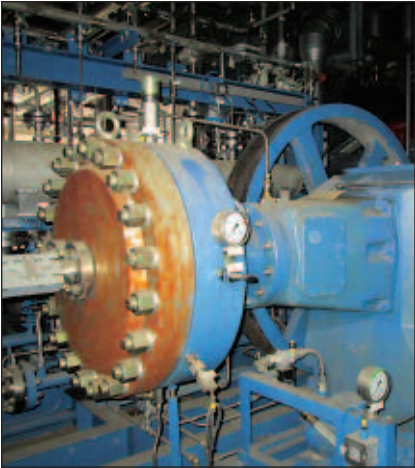
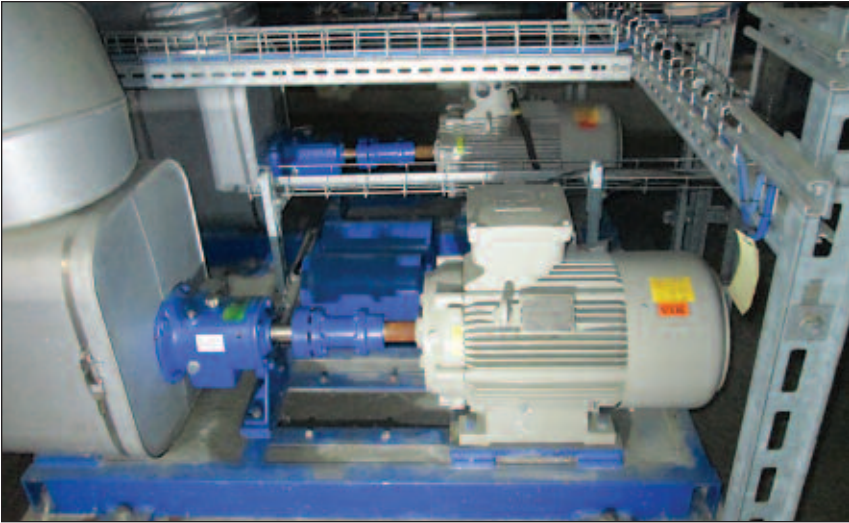
Synthesis System

Omnical SDH-ÜE6.0-50 Besicherungskessel for thermal recovery of excess process gas steam capacity 5,7 t/24h operating pressure approx. 43 bar (max. approx. 50 bar) operating temperature approx. 450°C (max. 477°C) water content 7,1 m³ feed water temperature 103°C including: natural gas heater omnical Ecobloc EQS/EA exhaust gas exchanger omnical Omnibloc DDHS/ZDHS/DDHT/ZDHT large water kettle for steam generation combustion plant suitable for fuel or natural gas operation. Mfg.Year: 2007

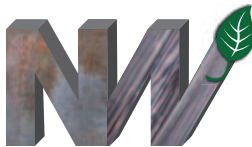


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Synthesis System



 KOMPRESSOREN GmbH	
Baujahr	2006
Typ	VP7-55-14RS C
Fabrikationsnummer	SK 5690/1
Ident-Nr.	1GKD030 AK001
Medium	CO2
Liefermenge	max. 345 Nm ³ /h
Saugdruck	1-1,2 bar (a)
Enddruck	14 bar (a)
Motorleistung	55 kW
ACHTUNG! ARBEITEN NUR AM VOLLIG DRUCKLOSEN KOMPRESSOR DURCHFÜHREN	
Taglich: Ölstand prüfen, weitere Empfehlungen siehe Bedienanleitung	



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Turbine and Boiler

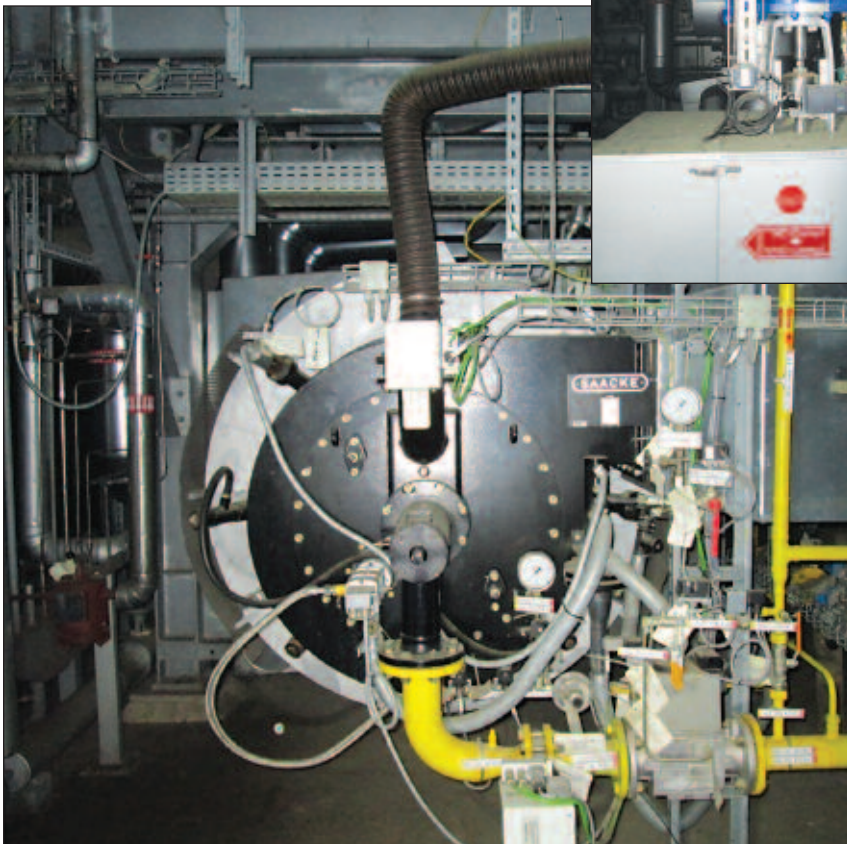
Siemens / Kühnle, Kopp & Kausch

Steam Turbine Unit / Generator three-staged generator to convert excess steam to electricity installation: 2 upstream steam turbines = generator = 1 downstream steam turbine - 6 kV, 50Hz, IP54 generator - upstream turbine 1 (HD): backpressure turbine nominal rpm 1,500 coupling capacity 993 - 1292kW intake temperature 247.3 - 330°C intake pressure 38 - 42 bar outtake temperature 199 - 258°C outtake pressure 13.5 - 15.2 bar - upstream turbine 2 (MD): backpressure turbine nominal rpm 1,500 coupling capacity included in upstream turbine 1 & downstream turbine intake temperature 197 - 220°C intake pressure 14.6 - 15.5 bar outtake temperature 139 - 182°C outtake pressure 3.5 - 4.1 bar - downstream turbine (ND): backpressure turbine nominal rpm 1,500 coupling capacity 237 - 1565kW intake temperature approx. 139°C intake pressure 3.3 - 3.6 bar outtake temperature approx. 62°C outtake pressure approx. 0.22 bar. Mfg.Year: 2006



Hemworthy AC DAD 13878 - 2 Condenser Plant air-cooled turbine exhaust steam condensing plant system consisting of: -air cooled condensator (W-06830) nominal steam capacity 17,450 kg/h (31,500 kg/h including bypass) nominal heat capacity 10,869 kW main materials St. 38.8 I, St 37.0 - (2) Scirocco Howden 14 KLF 4 ventilators capacity 119 m3/s (each) speed 228 rpm installed engine power 45kW (each) - (2) radiator condenser steam capacity

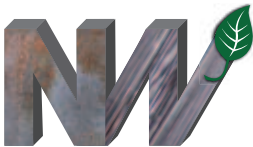
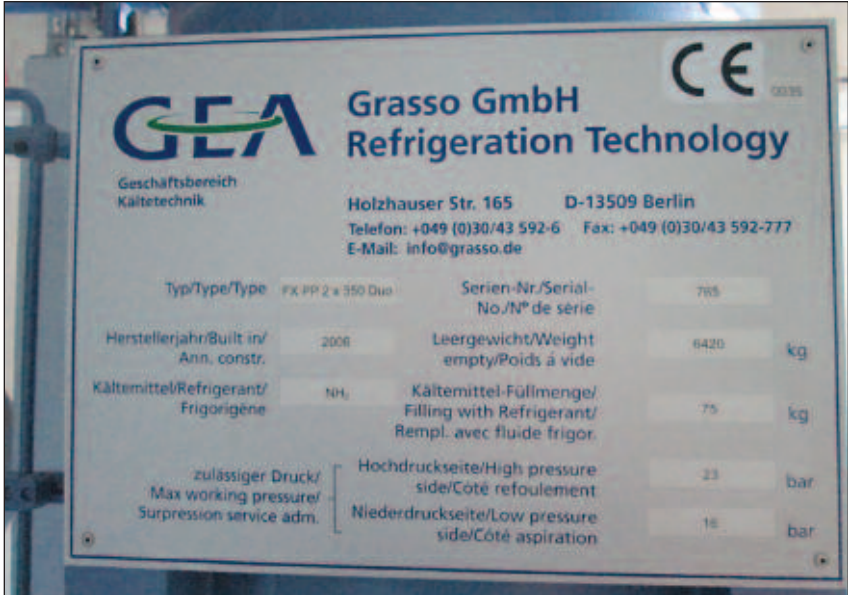
108 / 53 kg/h steam temperature 121 / 159 °C heat capacity 73 / 35 kW mainly made of St 35.8, 1.4571, 1.4541 - (3) Körting steam jet pumps (DVP DN 65 / DVP DN 25 / DVP DN 50) motive steam pressure 15 bar (each) motive steam temperature 218 / 218 / 198-218 °C - (2) SIHI MSL 065 condensate pumps capacity 40 m3/h speed 1,450 rpm Siemens M 160 / B3 engines, 15kW - ARI DN65 PN16 three-way control valve capacity 40 m3/h pressured air max. 10 bar - Siemens Simatic OP 170B control



For additional information call Eric Spirtas 314-780-3742

Cold Water System

GEA FX PP 2 x 350 Duo Water Chiller including (2) parallel 350 Duo screw compressors, individually lockable G-5 compressor refrigerant: ammonia exit temperature approx. -6°C max. operating pressure 23 bar refrigerant filling volume 11.9 m³/h refrigerant medium R717 weight approx. 5,000kg. Mfg.Year: 2006



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Power Unit and Generators

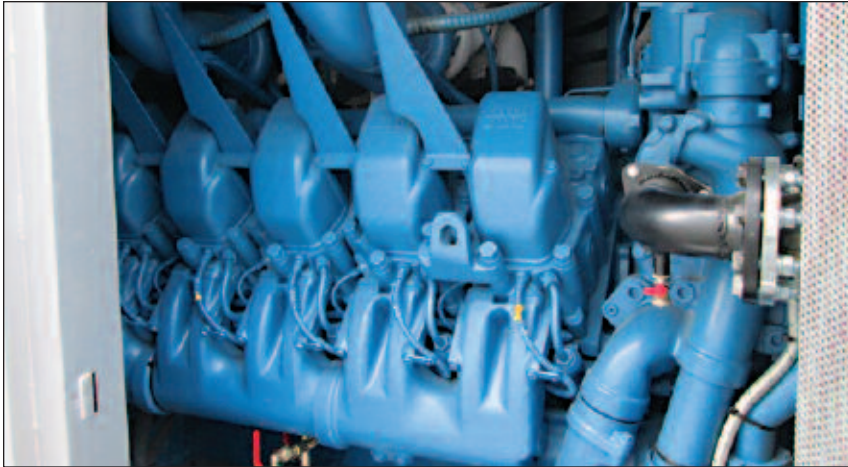
Aggretech MTU1400 Emergency Power Supply with MTU MTU1400 diesel engine (SN 0070401) electrical output: 1,400 kW rotation speed: 1,500 rpm 50Hz power factor: 0,8 cos phi in 40" container. Mfg.Year: 2007


Aggretech V340NC20 Emergency Power Supply with Volvo Penta TAD 941GE diesel engine (SN 7009170891) ACG 0350-4-400 generator (SN 071620) electrical output: 325 kW speed: 1,500 rpm 50Hz power factor: 0,8 - 1,0 cos phi in 20" container year of manufacture 2008/2009. Mfg.Year: 2009

Siemens Geafol 4GB6464-3DY Power Transformer rated output: 2,500kW rated current: 72.2 A 50 Hz 400 V IP00 insulation class F approx. weight 4.9 to. Mfg.Year: 2007

Siemens Geafol 4GB6464-3DY Power Transformer rated output: 2,500kW rated current: 72.2 A 50 Hz 400 V IP00 insulation class F approx. weight 4.9 to. Mfg.Year: 2007

Trafomec TMEC-3500 Power Transformer rated output: 3,500kW rated current: 284 A (low voltage) / 101,2 A (high voltage) 50 Hz IP00 insulation class F approx. weight 11.2 to was used with the compressor EU206609. Mfg.Year: 2007



AGGRETECH AG 

DIESELSTROMAGGREGATE - DIESEL GENSETS

Typ/Type	: MTU1400	Seriennr./Serialno.	: 0070401
Leistung/Output	: 1400 kVA	Drehzahl/Speed	: 1500 min-1 / rpm
Spannung/Voltage	: 231/400 V	Frequenz/Frequency	: 50 Hz
Cos-phi/Powerfact.	: 0,8 cos phi	Baujahr/Manufacturing	: 2007
Strom/Current	: 2028 A		

AGGRETECH AG • Werk 2 • Rotthofer Str. 8 • 94099 Ruhstorf
 Tel: +49-(0)8531-9782-0 • Fax: 9782-1510 • www.aggretech.de • Made in Germany

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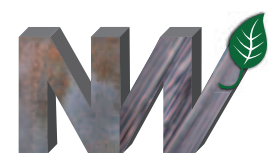


Power Unit and Generators

Siemens Geafol 4GB6764-9DZ Power Transformer rated output: 5,000kW rated current: 144.3 A 50 Hz 400 V IP00 insulation class F approx. weight 9.7 to was in use with the steam turbine. Mfg.Year: 2007

Siemens Geafol 4GB6564-9DZ Power Transformer rated output: 3,150kW rated current: 90.9 A 50 Hz 400 V IP00 insulation class F approx. weight 6.3 to. Mfg.Year: 2007

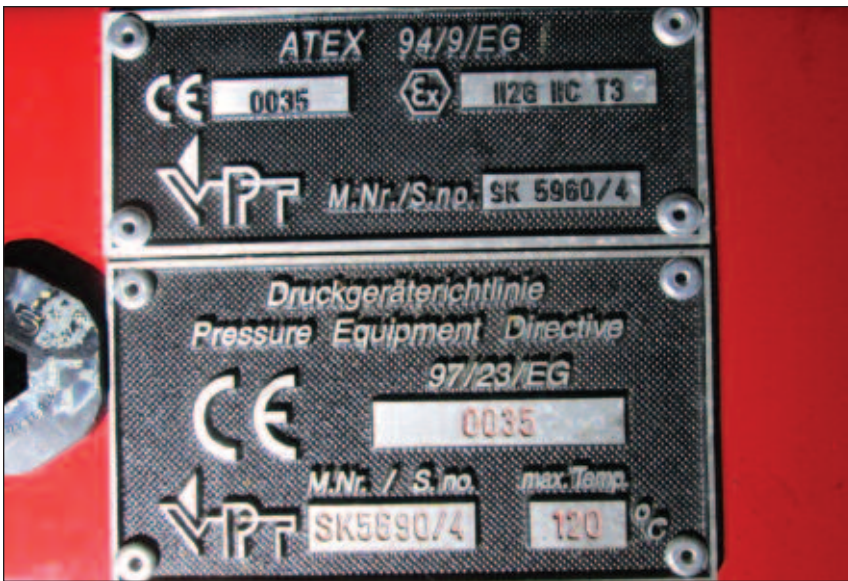
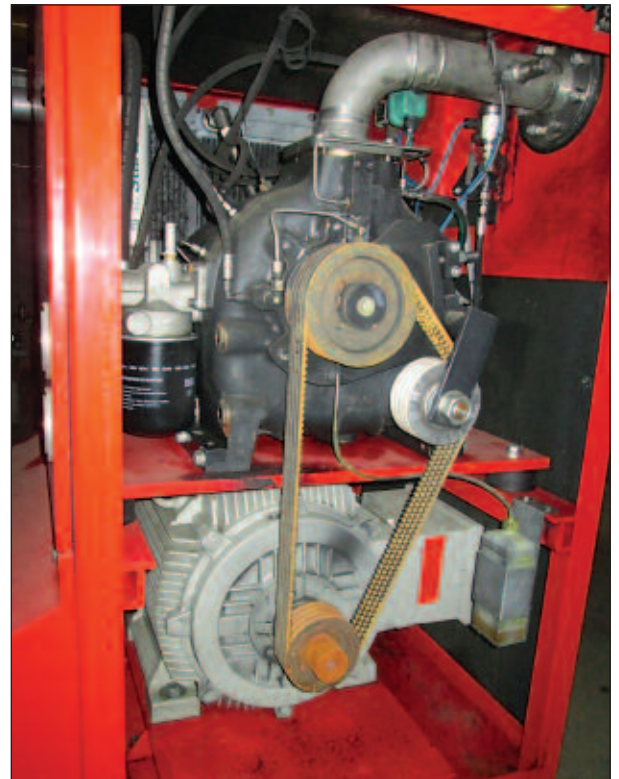
Siemens Geafol 4GB6564-9DZ Power Transformer rated output: 2,000kW rated current: 57.7 A 50 Hz 400 V IP00 insulation class F approx. weight 4.93 to. Mfg.Year: 2007



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CO² Compressors



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Holzhauser FH-VD Fire Pump

Holzhauser / KSB FH-VD 1086-07-EL

Fire Pump Unit Holzhausen HIF 9-MTL diesel engine: - output: 221 kW – nominal speed: 1,900 rpm - 24 VDC Holzhausen / KSB Etanorm MX 150-400 pump unit: - capacity: 10,000 l/min - nominal pump height: 90,7 m - nominal speed: 1,900 rpm - working hours: approx. 90h including: - exhaust silencer - exhaust fan – fuel tank volume: 350l - 2 starter batteries, 55 Ah Minimax deluge valve unit: - in container - 8x FSX-DN100 valves, max. pressure 16 bar - FMZ 5000 control unit has to be dismantled professionally, installed pipes are not included. Mfg.Year: 2008



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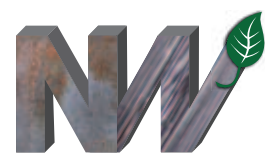
Diesel Loading System

Tank Farm Ground based gas loading terminal to load fluids to road tanker
MFX_4 control terminal (Ex) CMS-16-03V-FG compact meter skid tank farm includes: 2x 100 m³ storage tank for flammable fluids 3x 50 m³ storage tank for flammable fluids 1x 500 m³ flat bottom tank for Ethanol, made of St 37 / St 52, double floor version, leakage control magnetic rotary pump, 5m³/h, 10 bar magnetic rotary pump, 50m³/h, 10 bar magnetic rotary pump, 60m³/h, 10 bar 2x immersion pump, 25m³/h, 6 bar 2x immersion pump, 25m³/h, 10 bar further related pumps included. Mfg.Year: 2006



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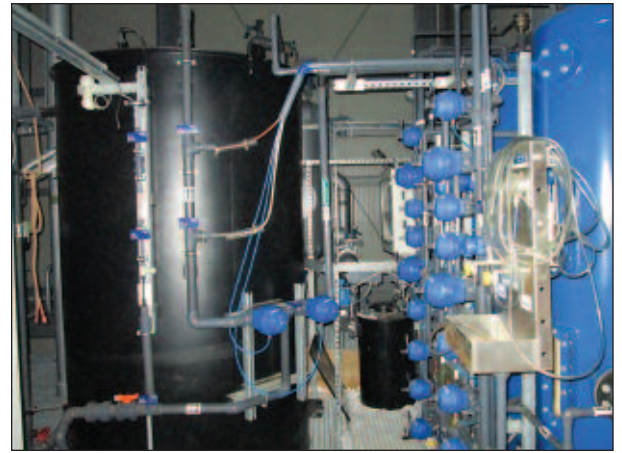
PSA Anlage System



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Water Treatment System

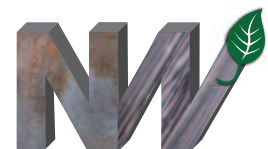


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Waste Water Treatment System

Gütling / Led Italia TC 60000 Waste Water Treatment / Überdruckverdampfer designed to boil water-based fluids to 1. re-use the basic media 2. reduce the waste weight and disposal costs operating temperature approx. 90°C 50 Hz, 400V (3F) power: 230kW max. condensate generation approx. 2,500 l/h or 60,000 l/24h heat exchanger high / low pressure evaporator including defoaming functionality dosable additives (ph value manipulation, corrosion inhibition, incrustification inhibition) Siemens Simatic control pressure vaporizer. Mfg.Year: 2006



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Wood Preparation

Stela BT 1/6200-12 Drying Plant / Trocknungsanlage belt drying plant designed for wood chips drying capacity (from 35% to 10% degree of humidity): approx. 4.485 kg/h built-in sprinkler system belt with integrated wet cleaning exhaust fan vent stack with sound absorber, approx. height 22m

Nautilus Test Unit Wooden Chips Delivery Characteristics further details available on request



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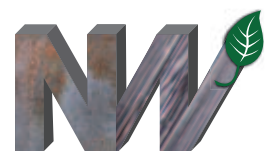
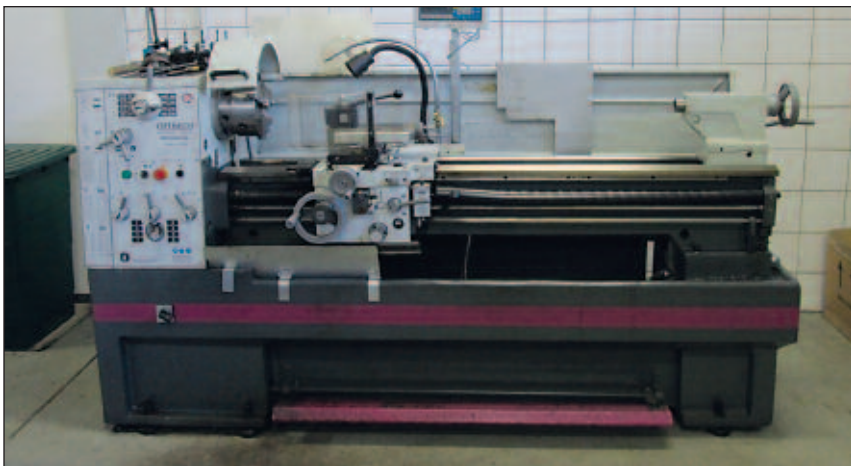


Misc. Large Equipment

Liebherr L506 Wheel Loader equipped with pallet fork fixture max. capacity 1,730 kg permitted front axle load 3,2 to permitted rear axle load 3,2 to engine power 40 kW max. speed 20 km/h working hours approx. 8083 (read-off). Mfg.Year: 1995



EQUIPMENT DETAILS
For Wood Prep. System
[Download Here](#)



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Former CHOREN Industries Biomass Gasification Refinery Freiberg Germany

The CHOREN Gasification Refinery is a complete plant liquidation. All equipment, infrastructure and real estate will be sold, either as a complete plant or as separate parts. ***Much of the equipment is less than 2 years old and will be sold at a great discount.***

CHOREN FREIBERG PLANT LOCATION



“Only the best equipment was installed at CHOREN’S Advanced Technology Gasification Plant. The plant was shut down in 2011 with some of the equipment never being installed and still in brand new condition” said Eric Spirtas President at Niagara Worldwide.



**EQUIPMENT INCLUDES
BUT IS NOT LIMITED TO:
Aggretech, MTU, Aerzen,
Siemens Geafol, KSB
Pumps, Elektrotechnik,
Automatisierung, Kaeser
CSD, Holzauer, Gutling,
LED, Grasso, Bauer**

Niagara Worldwide is headquartered in Niagara, Wisconsin and with executive offices located in St Louis (Creve Coeur), Missouri and Manalapan, New Jersey, Niagara Worldwide is a nationally recognized, innovative firm.

- Facility Operations and Manufacturing
- Property Re-Development/Structure Reuse
- Asset Liquidation and Private Sales
- Equipment Acquisition
- Construction Services; Engineering, Construction, Demolition, Remediation, Rigging, Installation
- Security Installation and Enhancement
- Utility Procurement and Distribution



**For additional information equipment specifications or plant details at Choren Industries Gasification Plant call Eric Spirtas
314-780-3742
Niagaraworldwide.com**