SGT5-4000F Power Plant 298 MW Power Plant for sale – NEW

Location Germany - everything still packed in crates

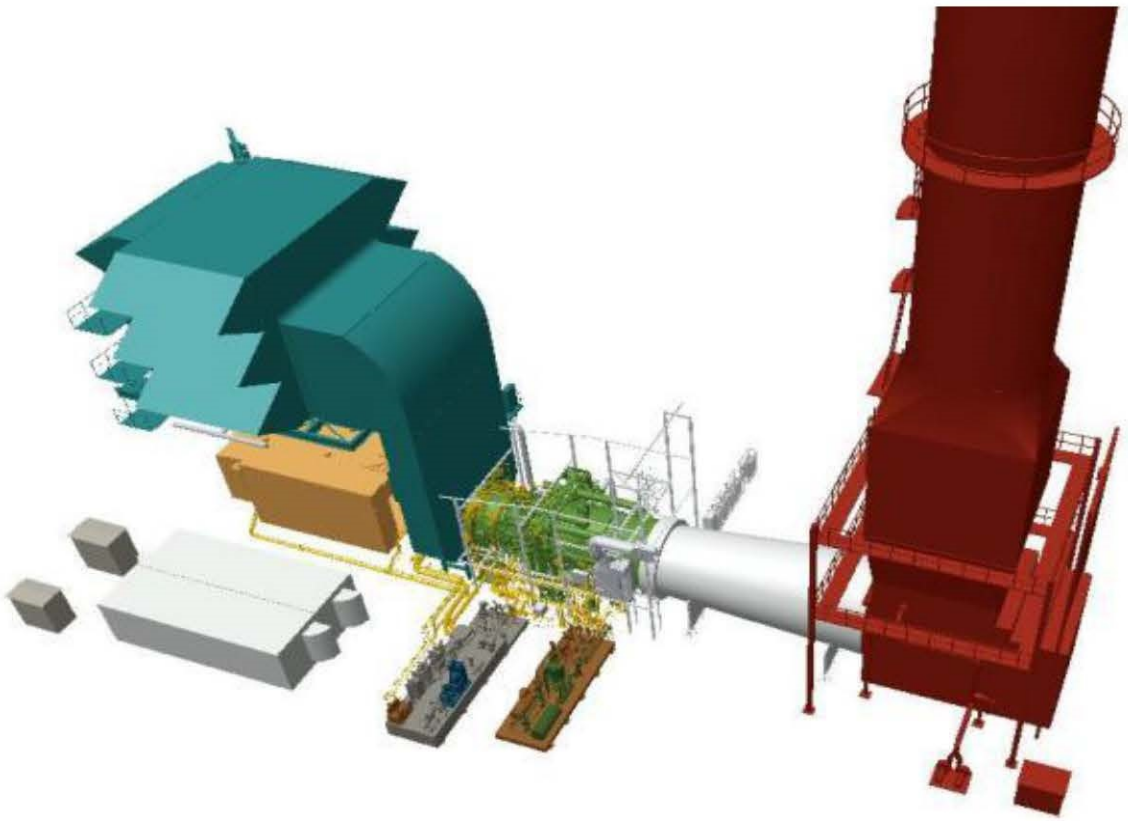

Figure: Arrangement of Gas Turbine Package SGT5-PAC 4000F

The figure shows a typical arrangement of the gas turbine package SGT5-PAC 4000F for operation with natural gas as main fuel and distillate fuel oil as secondary fuel.
The view is for explanation only and not binding regarding offered scope of supply and for execution. Regarding considered scope of supply, kindly refer to section "Scope of Supply and Services, Terminal Points" within this offer, which shall prevail in case of difference.
The power plant is new! It has not been used yet and is still in its packaging.

Location: Germany everything still packed in crates

Price ex-works in Germany: **EUR 49.9 million**

Scope of Supply

General

The offered scope of supply comprises the delivery of two (2) SGT5-PAC 4000F, including two (2) SGT5-4000F gas turbines, two (2) SGen5-1200A generators and associated auxiliary equipment based on the technical description and comments issued in Siemens technical offer.
The scope of supply is completely described in this section. Any hints on equipment, numbers of components etc. given in other sections are not binding even if the wording suggests something different.

Gas Turbine Package

Gas Turbine	**Quantity**
Gas turbine type SGT5-4000F Number of offered gas turbines	2
Each core gas turbine mainly comprising:	
▪ Ring combustor	1
▪ Turbine 1	
▪ Compressor	1
▪ Bearings	2
Loose supplied gas turbine parts, mainly comprising:	
▪ Burners	1 set per gas turbine
▪ Intermediate shaft	1 per gas turbine
▪ Gas turbine instrumentation and actuation	1 set per gas turbine
▪ Gas turbine insulation	1 set per gas turbine
▪ Shaft turning gear 1 per gas turbine	

Gas Turbine Auxiliaries	**Quantity**
Base Module, comprising the auxiliary packages for	1 per gas turbine
▪ Fuel gas and ignition gas within separate compartment	
▪ Lube oil with plate type heat exchanger 2x100%	
▪ Hydraulic oil supply for valves and actuators	
▪ Hydraulic clearance optimization	
Natural Gas Flow Metering for Performance Test (loose supply only)	1 per plant
Natural Gas Draining System	1 per gas turbine
Dual Fuel Module, comprising the auxiliary packages for	1 per gas turbine
▪ Fuel oil (with 2x100% fuel oil pumps)	
▪ Purge water	
▪ NOx (with 2x100% NOx water pumps)	
Sealing Air Supply System	1 per gas turbine
Advanced Compressor Cleaning System, including piping connection to cleaning water nozzle system	1 per plant (common for both GTs)

Gas Turbine Systems **Quantity**

Air Intake System 1 per gas turbine

- Filter system with pulse filter stage
- Inlet air filter house including weather hood, bird screen, weather louvre, interna! support structure, instrumentation, lighting, power sockets, access ladders, platforms and doors
- Interconnecting duct work with expansion joint, manhole, damper and silencer
- Anti-Icing System
- Electrical hoist for maintenance (250kg)
- Dehumidifier for gas turbine standstill
- Nozzle system for compressor cleaning inside air inlet plenum

Exhaust Gas System 1 per gas turbine

- Exhaust gas diffuser
- Compensator between gas turbine and exhaust gas diffuser

Gas Turbine Control System

Control System Type SPPA-T3000

Turbine Controller 1 per gas turbine

- Redundant automation processor for closed-loop control functions 1/0 modules, as per 1/0

Turbine Failsafe Protection and Trip System 1 per gas turbine

- Failsafe system for protection and trip functions
- Turbine Function Group Automatic and Operational Protection System
- Redundant automation processor for open-loop control functions, sequence control functions and operational protection function 1/0 modules, as per 1/0

L&C Cables 1 set

- Turbine related special instrument cables at turbine and on skids (from sensor to junction box)
- Turbine related special control cables (flame monitoring cable)

Application Server 1

- Redundant server for operating, monitoring, engineering function

Turbine Operating / Monitoring / Engineering System 1 per gas turbine

- Operator terminal with 2x 24" LCD monitor, keyboard and mouse ▪ Printer, DIN A4 colour laser

Turbine Network Bus System 1 set

- SPPA-T3000 bus system with necessary network components
- Fiber optic bus cable to plant central control room, maximum length 300m

Signal Interface with Plant Distributed Control System 1 set

- Terminal points for hardwired signal exchange

- Maximum number of signals per turbine package 30
- Terminal point for bus signal exchange (with OPC)
- Maximum number of signals per turbine package 500

WIN_ TS Diagnostic System 1 set

- WIN_ TS analysis system hardware + peripherals
- Software module for gas turbine special condition monitoring
- Vibration analysis

Quantity

Gas Turbine Electrical Equipment

Power Control Center (UBA01 / UBA02) 2 per gas turbine

AC Power Supply System

- - Low voltage switchgear, AC MCC (BFE / BME) DC 2 per gas turbine

Power Supply System

- OC voltage distribution (BUB / BUC) 2 per gas turbine
- Battery (BTA) 1 per gas turbine
- Battery charger (BTL) 2 per gas turbine
- DC/DC converter (BUK) 2 per gas turbine

Gas Detection and Fire Protection System **Quantity**

Gas Detection System 1 per gas turbine

- Gas detectors, horns and beacons, control unit
- Covering following areas:
  Gas turbine Enclosure
  Fuel gas skid

Fire Detection System for Gas Turbine Unit 1 per gas turbine

- Fire detection and control system with local panel
- Covering following areas:
  Gas turbine enclosure and fuel gas skid annex Base Module
  Power Control Center
  Dual Fuel Module
  Generator Bearings

Fire Extinguishing System 1 per gas turbine

- Battery of high pressure bottles far CO_2 and direction valve station
- Piping system from bottle rack / storage system to spray nozzles inside the enclosure incl. supports
- Covering following areas: Gas Turbine Enclosure
  Fuel Gas Skid Enclosure
  PCCs

Noise Protection Measures	**Quantity**
Noise Enclosure for Gas Turbine	1 per gas turbine

- Structural steel, with corrosion protection
- Noise abatement panels, galvanized
- Interna! service platforms and ladders, galvanized
- Doors with safety windows
- Interna! lighting, including emergency lighting

Ventilation System for Gas Turbine Enclosure

- Air intake openings with protective grills, dampers and silencer
- Air handling unit, equipped with back draft dampers, fans including mechanical redundancy, and silencers

Generator	**Quantity**
Generator type	SGen5-1200A
Number of offered generators	2

Core generator, each mainly comprising:

▪ **Stator,** consisting of	
Base frame	1
Stator core, made up of dynamo sheet segments, stacked and pressed together with insulated non-magnetic through bolts	
Stator winding, three-phase, double layer type, made up from transposed solid strands with MICALASTIC® post-impregnation	
▪ **Rotor,** consisting of	
Shaft from one piece forging; rotor winding made up of silver alloyed low oxygen copper conductors with radial cooling	1
Rotor retaining rings; one piece construction, made up of nonmagnetic steel, which is not susceptible to stress corrosion cracking and is shrunk onto the rotor body	2
Single-flow axial fans arranged on the rotor shaft for circulation of the cooling medium	2
Steel slip rings arranged on generator shaft	2
▪ **Bearings,** consisting of	
Sliding contact bearings with jacking oil device; insulated towards ground, designed for externa! bearing lube and jacking oil supply (turbine scope)	2
▪ **Thermocouples** (Type K)	
Triplex TC embedded in metal of each generator bearing	1
▪ **Resistance Temperature Detectors** (Platinum, 100 ohms at O ºC)	
Slot RTDs embedded in armature windings acc. IEC 60034-3	6
Duplex RTDs in the generator warm air cooler inlet	1
Duplex RTDs in the generator cold air cooler outlet	2+2

Further equipment:

▪ Cooler cover, consisting of	
Sound proof cover, attached to generator cover	1
Cooler elements, air-to-water (25% each)	4
Liquid level detectors	1
▪ Stator sound proof enclosure	1
▪ Bushings suitable for mounting current transformers	6
▪ All instruments wired to plugs or junction boxes	
▪ Rotor grounding brushes	1 set
▪ Provision for vibration monitoring at bearings	1 set
▪ Space heater	1 set
▪ Special tools for rotor removal, installation, erection and maintenance, one per site per style	
▪ Anchor bolts and nuts	1 set
▪ Levelling plates and primary bearing plates	1 set

Generator Electrical Equipment	**Quantity.**
Generator Equipment for Gas Turbine Generator	per generator
Generator neutral tie enclosure	1
Generator current transformers, line side	3 x 3 cores
Generator current transformers, neutral side	3 x 3 cores
Generator neutral earthing cubicle (BAB11)	1
Protection Equipment far Gas Turbine Generator	per generator
Generator protection (CHA)	1 set
Generator synchronization (CHA)	1 set
Starting Frequency Converter (SFC) far Gas Turbine Generator (CJT) Line side and machine side B6C converter bridge DC link between line side and machine side converter Overvoltag protection on line side and machine side Speed control Compressor washing function Boiler purge function (for 10 minutes)	1 per generator
Static Excitation Equipment (SEE) far Gas Turbine Generator (CJN) Fully controlled converter bridge type B6C Equipment for rapid de-excitation DC side overvoltage protection 2 channels, each with automatic and manual mode Power system stabilizer	1 per generator
Transformer far Gas Turbine Generator	
SFC transformer with metal enclosure (MBJ)	1 per generator
SEE transformer with metal enclosure (MKC)	1 per generator


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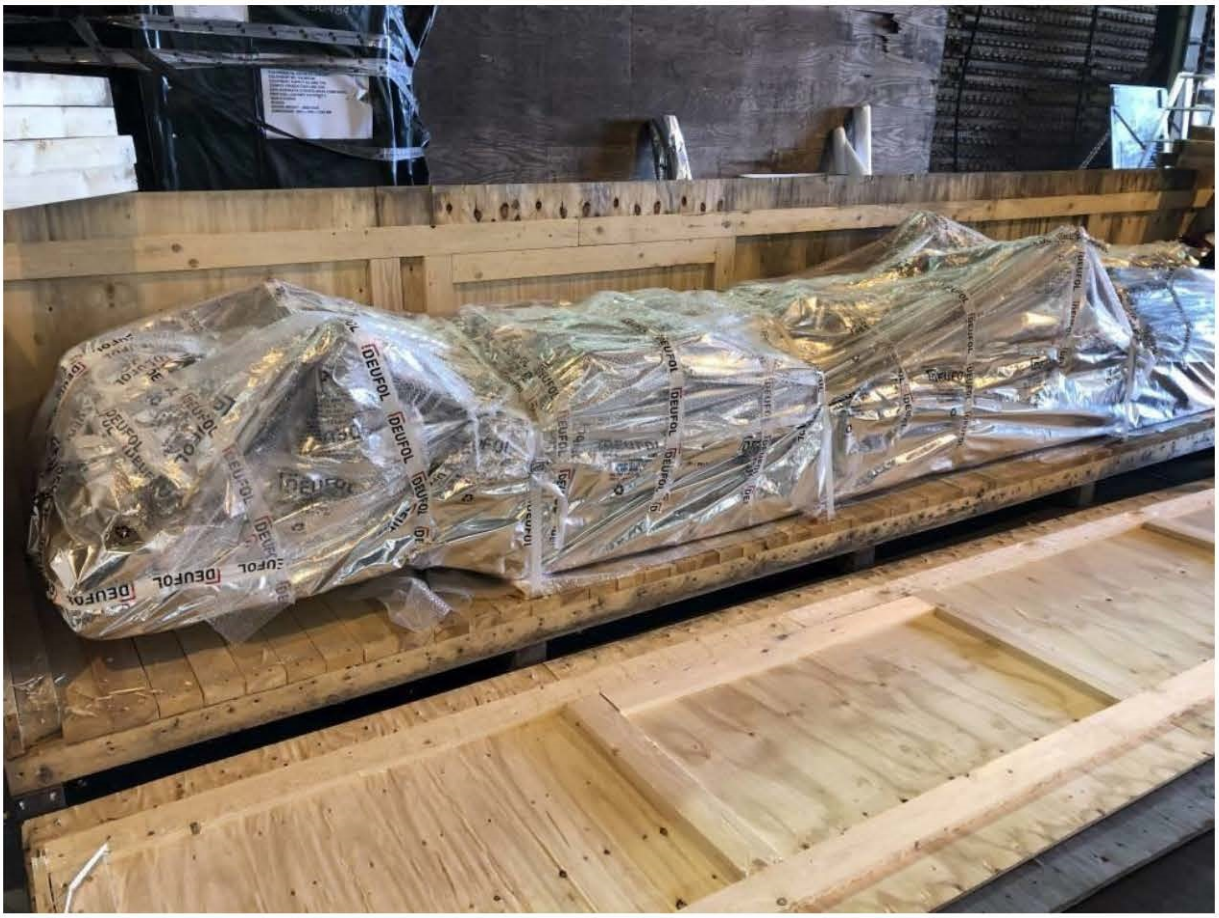
Unit 23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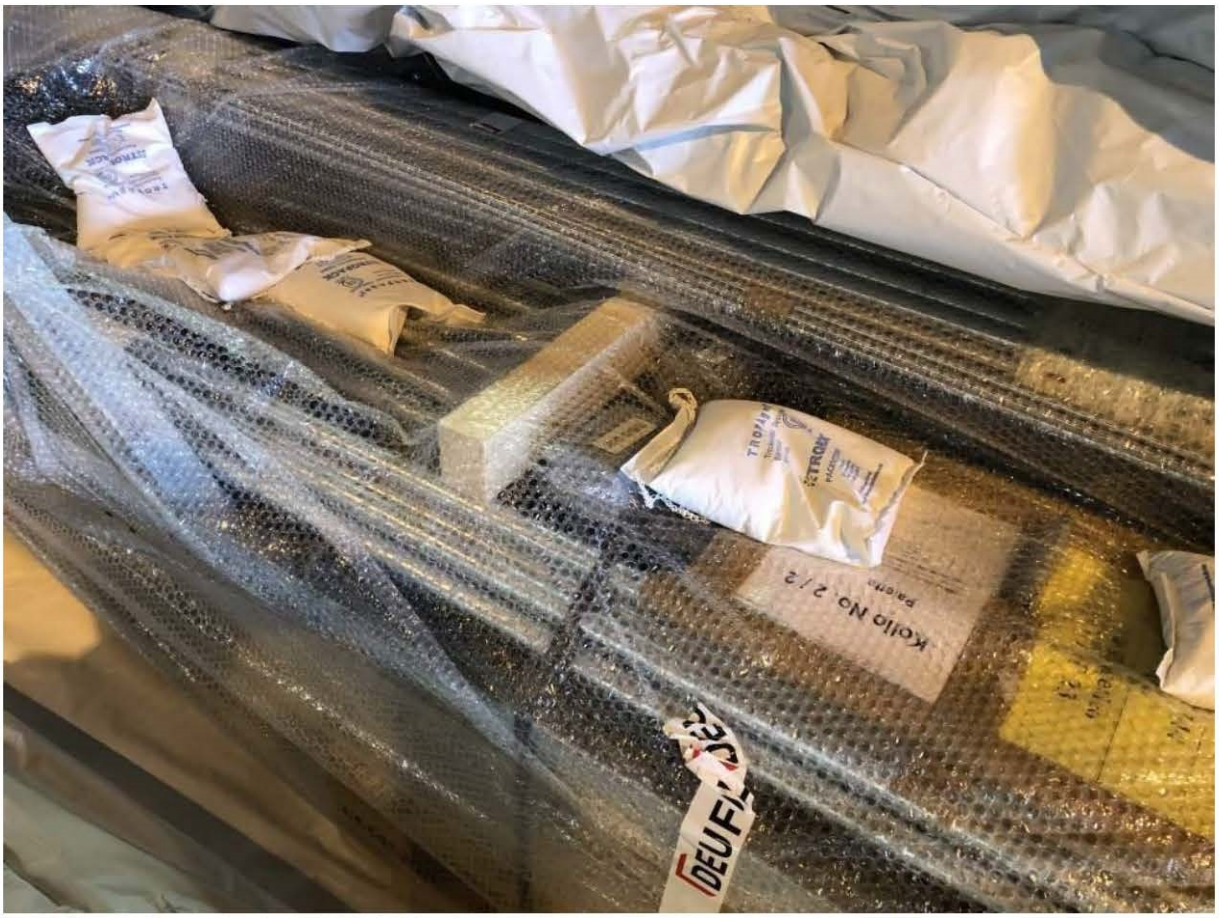
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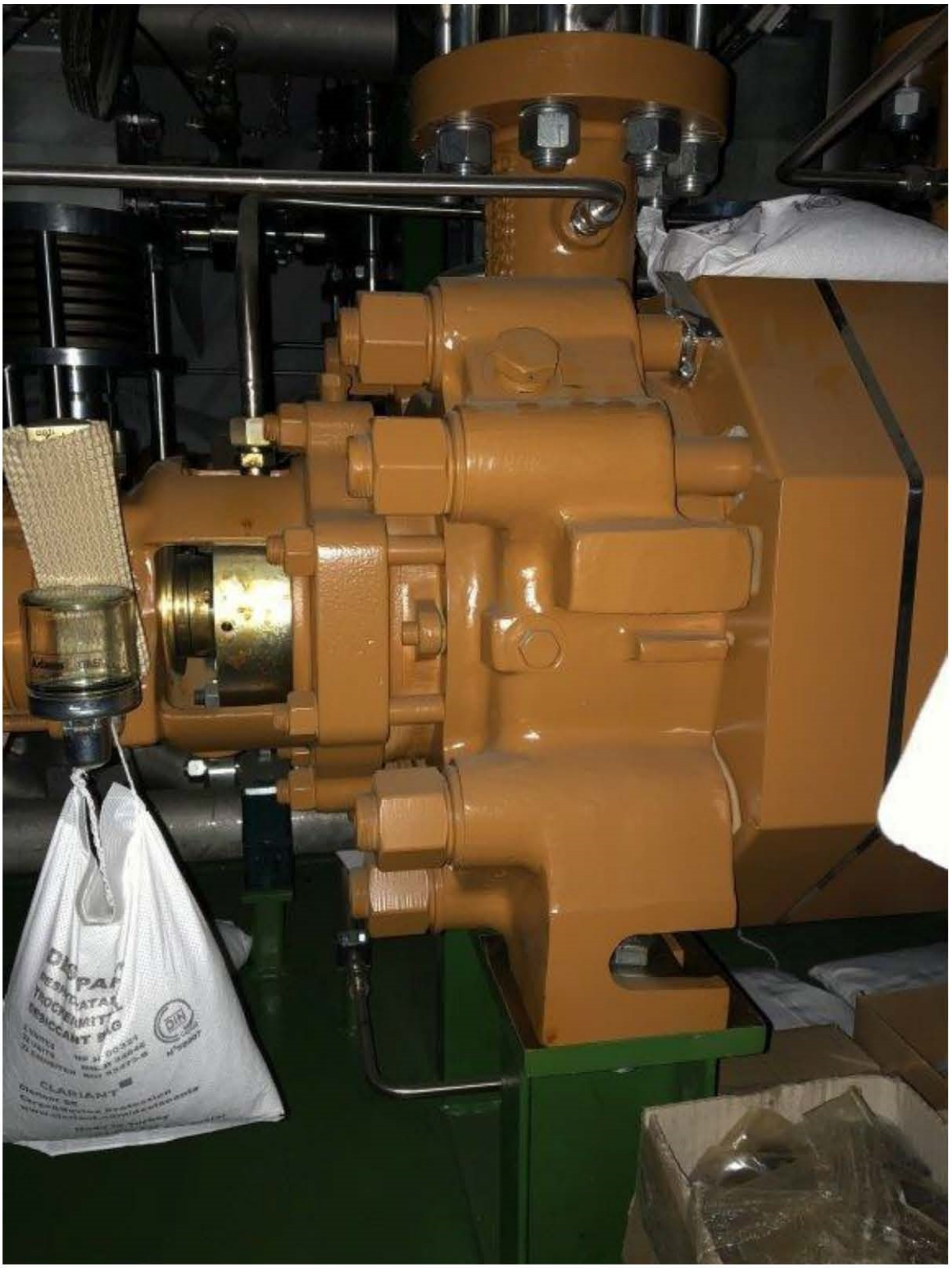
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