

GENERAL DESCRIPTION

Type: Gas Power Plant



Location: Western Europe

This thermal power plant with a gas fired boiler and steam turbine is designed for dual use, i.e. solely for power generation at 155 MW_e net capacity or as combined heat and power (CHP) plant at 125 MW_e electrical capacity combined with 128 MW_{th} heat output capacity.

Backdating from the early 1970ies, the unit was retrofitted in 2010 to significantly extend the operating life span and to meet state of the art emission targets.

Depending on fuel supply and market conditions, this power plant can be operated as base load or medium load power producer as well as in thermal output mode driven by heat demand.

This gas power plant is offered as a complete unit. Due its compact design, the boiler may be relocated as well.

Offering

item / type	setup of a fully operational gas boiler, steam turbine-generator set (two operation modes possible: solely power generation mode or CHP mode)
typical usage	base load to medium load production
status	mothballed since 2015
availability for dismantling	now
sales prices	Euro 7 Mio. for all re-usable components
new build cost (for comparison)	Euro 150 Mio. (approx., for the entire plant)
new build time (for comparison)	2 years (approx.)

Key Figures

main fuel type	current supply: natural gas alternative supply: heavy fuel oil
electrical output	155 MW _e net capacity (approx.)
thermal output	128 MW _{th} (optional, if operated in CHP mode)
efficiency	42 % (if operated as power generation unit) 75% (if operated as CHP unit)
flue gas filter technology	denitrification, remaining output max 100 mg/m ³ NO _x exhaust gas volume 440,000 m ³ /h (at full capacity)
plant size	2,300 m ² (approx.)
year of commissioning / year of last retrofit	early 1970ies / 2010

Operating Figures

max. generation capacity	155 MW _e net (approx., at full load)
min. generation capacity	80 MW _e net (approx., at minimum load)
cold start time:	360 minutes (to reach max. capacity) 130 minutes (to start grid synchronization)
fuel quality	natural gas
fuel consumption at full load	45,000 m ³ /h
fuel consumption at min. load	12,000 m ³ /h
fuel storage capacity	(not included)
type of cooling	river water circulation
amount of cooling water	15,000 m ³ /h (at 10° C max. temperature increase)

Technical Figures of Main Components

This power unit for sale comprises a Benson type tower boiler with additional DeNO_x facility, a steam turbine, a generator, related transformers and selected components of the water / steam cycle.

boiler	MAN steam generator / Benson boiler 12 burners at 4 levels high pressure output 500 t/h steam, 530°C, 190 bar superheating output 330 t/h steam, 530°C, 45 bar operation under variable pressure range 75-195 bar possible including air inlet fan, 2 MW
steam turbine	3 stage condensing turbine, 7 tappings capacity 166 MW (approx., at full load) rated speed 3,000 rpm steam inlet pressure 180 bar at 530°C heat extraction pressure 3.4 bar at 135°C total operating hours 250,000 (approx.) total No. of starts 5,100 (approx.) last major revision 1982 / retrofit 2010
generator	AEG 221 MVA, cos phi 0.725 H ₂ cooling
water / steam cycle	amongst others: feed water pump, 530 t/h at 273 bar, 6 MW (approx.) 2 high pressure pre-heaters
transformers	215 MVA step up generator transformer 10 kV -> 110 kV 18 MVA step down auxiliary transformer 10.5 kV -> 6 kV
control and communication system	Siemens PCS7, S5, P7 Hartmann+Braun conronic P

Additional Information

spare parts	some smaller spare parts included
marketing fee	will be borne by the seller
dismantling of unit	costs shall be included in price quote

Disclaimer:

Although the statements and technical information contained herein are believed to be materially accurate, no representation or warranty is given as to the accuracy of any of the information provided.

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