



**Xuzhou Unit 3 Power Station**

**Performance Test Report**

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Stuttgart, 06.03.2020


## Test Report V 3128

covering

**Performance Test Measurements  
of 320 MW bituminous coal fired steam boiler Unit 3 at  
Xuzhou Power Station / China**

**Order-no. 4.48720**

  
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## 1 DEFINITION OF TASK

Between 9 and 11 of December 2019 Performance Tests were carried out on Unit 3 of Xuzhou Power Station in China. The Boiler Efficiency Tests were carried out according to EN 12952-15 at three (3) different loads to determine the efficiency of the unit after implementing the energy saving technologies. Furthermore, the supplied fuel mass flow was calculated acc. to chap. 6.3 of this document serving as input data for the calculation of the Unit Net Efficiency.

## 2 TEST RESULTS

The tests were carried out at 100 %, 75 % and 50 % THA-load with energy saving technologies (B) & (C). A summary of the main test results is presented in the table below. More detailed information is listed in enclosure 1 of chapter 8.

Test Loads		100%		75%		50%	
		1B	1C	2B	2C	3B	3C
Test No.							
Plant Configuration		with innov.	with innov.	with innov.	with innov.	with innov.	with innov.
Boiler Efficiency $\eta_B$	%	94,32	94,07	93,92	93,95	93,34	93,26
Supplied Fuel Mass Flow	kg/s	30,76	32,16	24,44	22,94	16,58	16,78
$P_{Gross}$	MW	320,8	319,6	233,1	243,0	160,7	162,4
$P_{Aux}$	MW	13,9	13,8	11,5	12,2	9,5	9,4
$P_{Net}$	MW	307,0	305,8	221,6	230,8	151,1	153,1
Net coal consumption rate	g/kWh	281,8	282,1	288,7	287,7	304,6	304,3
Unit Net Efficiency $\eta_{net}$	%	43,59	43,54	42,55	42,70	40,32	40,36

With all plant features in operation the boiler efficiency was between 93,26 % (50 %-THA) and 94,32 % (100 %-THA) and the Unit Net Efficiency between 40,32 % (50 %-THA) and 43,59 % (100 %-THA).

The Unit Net Efficiency is determined as:

$$\eta_{net} = \frac{P_{net}}{\dot{m}_{FO} H_{(N)}}$$

The Net Coal Consumption Rate was calculated acc. to the following formula:

$$NCCR = b_s = \frac{122,835}{\eta_{net}}$$

The boiler efficiency tests and calculations were carried out acc. to EN 12952-15 based on coal analysis from the client. The supplied fuel mass flow was calculated acc. to the formula given in chap. 6.3 of this document.

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