

Combined Heat & Power Units

Turboden Combined Heat & Power (CHP) Units WITH SPLIT* - Standard Sizes and Typical Performances



		TD 6 CHP	TD 7 CHP	TD 10 CHP	TD 14 CHP	TD 18 CHP	TD 22 CHP Low Voltage	TD 22 CHP Medium Voltage	TD 28 CHP	TD 30 CHP
INPUT - THERMAL OIL										
Nominal temperature "HT" loop (in/out)	°C	312/252	312/252	310/250	310/250	312/252	309/249	312/252	310/250	310/250
Thermal power input "HT" loop	kW	3056	3572	4685	6130	8935	10975	11680	13250	15200
Nominal temperature "LT" loop (in/out)	°C	252/132	252/132	250/130	250/130	252/132	249/130	252/132	250/130	250/130
Thermal power input "LT" loop	kW	283	338	450	585	855	1045	1112	1310	1600
Overall thermal power input	kW	3339	3910	5135	6715	9790	12020	12792	14560	16800
Nominal temperature "HT" loop (in/out)	°F	594/486	594/486	590/482	590/482	594/486	588/480	594/486	590/482	590/482
Thermal power input "HT" loop	MMBtu/hr	10.43	12.19	15.99	20.92	30.49	37.45	39.85	45.21	51.86
Nominal temperature "LT" loop (in/out)	°F	486/270	486/270	482/266	482/266	486/270	480/266	486/270	482/266	482/266
Thermal power input "LT" loop	MMBtu/hr	0.96	1.15	1.54	2.00	2.92	3.57	3.79	4.47	5.46
Overall thermal power input	MMBtu/hr	11.06	13.02	17.52	22.91	33.41	41.01	43.65	50.31	57.42
OUTPUT - HOT WATER										
Hot water temperature (in/out)	°C	60/80	60/80	60/80	60/80	60/90	60/90	60/90	65/90	68/93
Thermal power to hot water circuit	kW	2689	3146	4095	5341	7843	9598	10211	11714	13636
Hot water temperature (in/out)	°F	140/176	140/176	140/176	140/176	140/194	140/194	140/194	149/194	154/199
Thermal power to hot water circuit	MMBtu/hr	9.18	10.73	13.97	18.22	26.76	32.75	34.84	36.97	46.53
PERFORMANCE										
Gross active electric power	kW	619	729	1000	1317	1862	2319	2476	2755	3066
Gross electric efficiency		18.5%	18.6%	19.5%	19.6%	19.0%	19.3%	19.4%	18.9%	18.2%
Captive power consumption	kW	32	40	51	62	87	98	109	150	175
Net active electric power	kW	587	689	949	1255	1775	2221	2367	2605	2891
Net electric efficiency		17.6%	17.6%	18.5%	18.7%	18.1%	18.5%	18.5%	17.9%	17.2%
Electric generator**		50Hz, 400V 60Hz, 480V	50Hz, 400V 60Hz, 480V	50Hz, 400V 60Hz, 480V	50Hz, 400V 60Hz, 480V	50Hz, 660V 60Hz, 4160V	50Hz, 660V 60Hz, 4160V	50Hz, 6kV 60Hz, 4160V	50Hz, 6kV 60Hz, 4160V	50Hz, 6kV 60Hz, 4160V
Plant size		Single Skid	Single Skid	Multiple Skid	Multiple Skid	Multiple Skid	Multiple Skid	Multiple Skid	Multiple Skid	Multiple Skid
Biomass consumption***	kg/h	1459	1709	2244	2935	4279	5253	5591	6364	7343
Typical delivery times (FCA)		9-11	9-11	9-11	9-11	9-11	9-11	9-11	11-13	11-13

* The Turboden split system allows maximisation of electric power production for a given biomass consumption.

** Induction or synchronous, medium voltage available upon request. If reduction gear is required, electric efficiency is reduced of about 1.5%.

*** Assuming a low heating value of biomass = 2,6 kWh/kg and boiler efficiency = 0,88. The thermal oil boiler is not included in the Turboden scope of supply.



Turboden
via Cernaia, 10
25124 Brescia, Italy
+39.030.3552.001
Fax: +39.030.3552.011
www.turboden.it



Pratt & Whitney
A United Technologies Company

Pratt & Whitney Power Systems
400 Main Street, M/S 191-13
East Hartford, CT 06108
1-866-769-3275
Outside USA: 1-860-565-0140
www.pw.utc.com