

**WINDWORLD 150 28.0 !O!**

File C:\WindPRO Data\WTGs2.5\WINDWORLD 150 28.0 !O!.wtg

Company WINDWORLD  
 Type/Version  
 Rated power 150,0 kW  
 Secondary generator 0,0 kW  
 Rotor diameter 28,0 m  
 Tower Tubular  
 Grid connection 50 Hz  
 Origin country DK  
 Blade type LM 12  
 Generator type One generator  
 Rpm, rated power 31,5 rpm  
 Rpm, initial 0,0 rpm  
 Hub height(s) 31,2; 31,2; 41,3 m  
 Maximum blade width 0,00 m  
 Blade width for 90% radius 0,00 m  
 Valid No  
 Creator EMD  
 Created 1999-11-30 00:00  
 Edited 1999-11-30 00:00



**Power curve:** Fab 1.225 25.00 0.50  
 Source Fab

Source date	Creator	Created	Edited	Default	Stop windSpeed [m/s]	Air density [kg/m3]	Tip angle [°]	Power control	CT curve type
1899-12-30 00:00	EMD	1992-01-03 00:00	2000-11-15 14:21	No	25,0	1,225	0,5	Stall	Standard stall

**Power curve**

Wind speed [m/s]	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00	13,00	14,00	15,00	16,00
Power [kW]	0,00	0,50	5,10	15,40	32,10	54,30	80,00	106,30	130,90	151,00	164,20	168,60	163,40	154,90	145,40
Ce	0,000	0,049	0,211	0,327	0,394	0,420	0,414	0,387	0,347	0,301	0,252	0,203	0,158	0,122	0,094

Wind speed [m/s]	17,00	18,00	19,00	20,00	21,00
Power [kW]	136,50	133,90	134,00	135,20	137,00
Ce	0,074	0,061	0,052	0,045	0,039

**Ct curve**

Wind speed [m/s]	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00	13,00	14,00	15,00	16,00	17,00	18,00	19,00	20,00	21,00	22,00	23,00	24,00	25,00	26,00	27,00	28,00	29,00
Ct	0,10	0,10	0,10	0,80	0,82	0,85	0,82	0,78	0,74	0,68	0,62	0,55	0,49	0,43	0,38	0,32	0,28	0,25	0,21	0,20	0,19	0,17	0,16	0,15	0,14	0,13	0,12	0,11	0,10

**HP curve comparison**

Vmean [m/s]	5	6	7	8	9	10
HP value [MWh]	0	0	0	0	0	0
Fab 1.225 25.00 0.50 [MWh]	268	410	544	660	754	827
<b>Check value [%]</b>						

The table shows comparison between annual energy production calculated on basis of simplified "HP-curves" which assume that all WTG's performs quite similar - only specific power loading (kW/m<sup>2</sup>) and single/dual speed or stall/pitch decides the calculated values. Productions are without wake losses.  
 For further details, ask at the Danish Energy Agency for project report J.nr. 51171/00-0016 or see WindPRO manual chapter 3.5.2.  
 The method is refined in EMD report "20 Detailed Case Studies comparing Project Design Calculations and actual Energy Productions for Wind Energy Projects worldwide", jan 2003.  
 Use the table to evaluate if the given power curve is reasonable - if the check value are lower than -5%, the power curve probably is too optimistic due to uncertainty in power curve measurement.

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