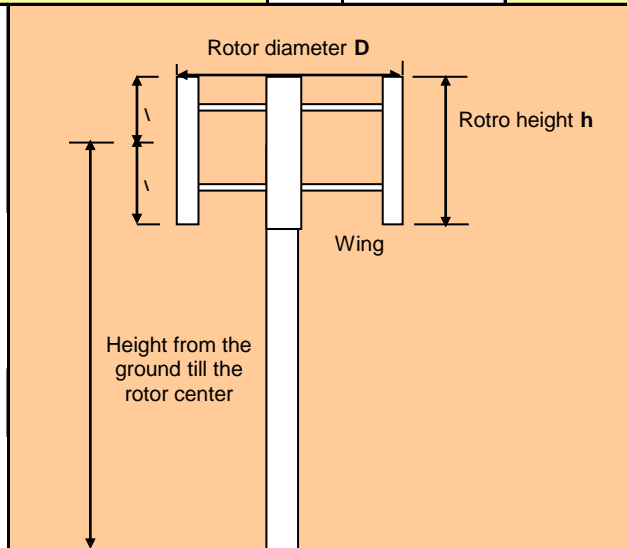




Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		MINI VERTICAL		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		750W		2	
Wind speed (m/s)	Cut-in	2-3m/s		3	3
	Nominal	14		4	8
	Cut-out	/		5	19
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	37
Axis		Vertical axis		7	65
Pale aerogeneratore	Number	3		8	102
	Material	iron, aluminium and fiberglass		9	155
Rotore diameter D (m)		1,5m		10	226
Rotor height h (m), for vertical axis wind turbines		1,5m		11	317
Autonomus start up		ca. 3m/s		12	433
Controlled power output		Power curve, mppt system		13	576
Rotation velocity (rpm)	Minimum	1		14	750
	Nominal	180		15	966
	Maximum	/		16	1068
Gearbox		absent		17	1140
Generator type		PMG - permanent magnet generator		18	1211
Noise level	Level (dBA)	ca. 43dB		19	
	At which wind speed (m/s)	10m/s		20	
	Distance from the generator (m)	20m		21	
Wind turbine support	Height H center from foundation (m)	Lowest	10,55m	Possible AEP	
		Usual	10,55m	Speed (m/s)	5,5
		Max	10,55m	Factor K	2
	Type	Self carrying structure	self carrying	kWh/year	560
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)	150kg		Factor K	2
	Weight of the carrying structure	385kg/10,9m		kWh/year	720
Platform		is needed		Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	1060
Installation manual language		English			

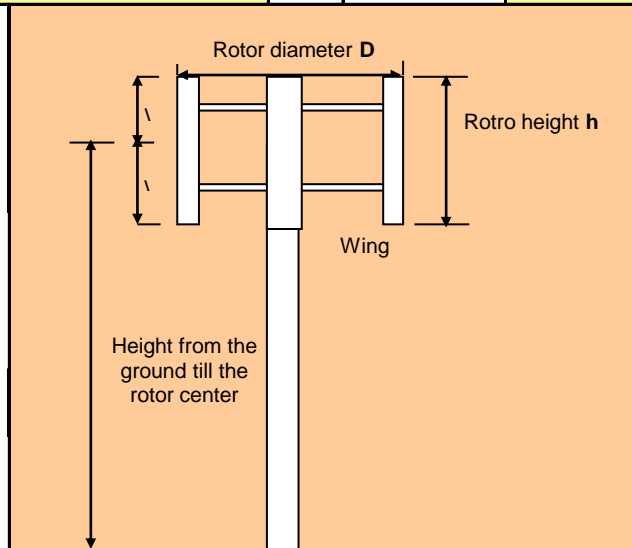


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		MAXI VISION		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		3KVA		2	
Wind speed (m/s)	Cut-in	2-3m/s		3	11
	Nominal	14		4	29
	Cut-out	/		5	70
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	136
Axis		Vertical axis		7	235
Pale aerogeneratore	Number	3		8	371
	Material	iron, aluminium and fiberglass		9	561
Rotore diameter D (m)		3,3m		10	821
Rotor height h (m), for vertical axis wind turbines		2,2m		11	1151
Autonomus start up		ca. 3m/s		12	1572
Controlled power output		Power curve, mppt system		13	2091
Rotation velocity (rpm)	Minimum	1		14	2722
	Nominal	120		15	3600
	Maximum	/		16	3600
Gearbox		absent		17	3600
Generator type		PMG - permanent magnet generator		18	3600
Noise level	Level (dBA)	ca. 43dB		19	
	At which wind speed (m/s)	10m/s		20	
	Distance from the generator (m)	20m		21	
Wind turbine support	Height H center from foundation (m)	Lowest	11,79m	Possible AEP	
		Usual	11,79m	Speed (m/s)	5,5
		Max	11,79m	Factor K	2
	Tipe	Self carrying structure	self carrying	kWh/year	2100
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)		620kg	Factor K	2
	Weight of the carrying structure		755kg/10,9m	kWh/year	2.800
	Platform		is needed	Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	4.500
Installation manual language		English			

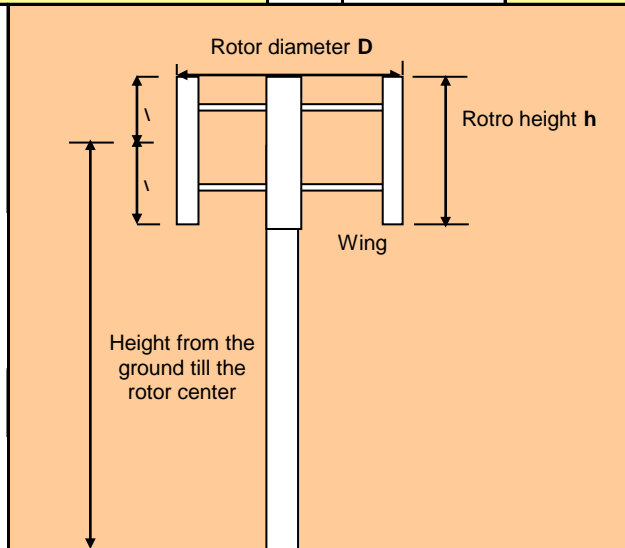


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		EASY VERTICAL HE		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		1KW		2	
Wind speed (m/s)	Cut-in	3-4m/s		3	0
	Nominal	12		4	27
	Cut-out	/		5	53
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	91
Axis		Vertical axis		7	144
Pale aerogeneratore	Number	3		8	217
	Material	iron, aluminium and fiberglass		9	318
Rotore diameter D (m)		1,9m		10	447
Rotor height h (m), for vertical axis wind turbines		1,8m		11	610
Autonomus start up		ca. 3m/s		12	911
Controlled power output		Power curve, mppt system		13	1155
Rotation velocity (rpm)	Minimum	1		14	1200
	Nominal	240		15	1200
	Maximum	/		16	1200
Gearbox		absent		17	1200
Generator type		PMG - permanent magnet generator		18	1200
Noise level	Level (dBA)	ca. 43dB		19	
	At which wind speed (m/s)	10m/s		20	
	Distance from the generator (m)	20m		21	
Wind turbine support	Height H center from foundation (m)	Lowest	10,80m	Possible AEP	
		Usual	10,80m	Speed (m/s)	5,5
		Max	10,80m	Factor K	2
	Type	Self carrying structure	self carrying	kWh/year	1.180
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)	145kg		Factor K	2
	Weight of the carrying structure	385kg/10,9m		kWh/year	1.500
Platform		is needed		Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	2.200
Installation manual language		English			

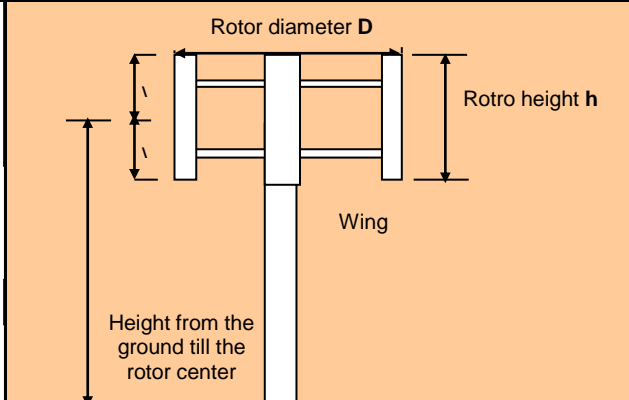


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP			
Model		SIMPLY VERTICAL		Power curve			
		1		Wind speed (m/s)	Power (W)		
Number of installed turbines, in how many countries		800 turbines in 34 countries		1			
Nominal power (KVA)		3KW		2			
Wind speed (m/s)	Cut-in	3-4m/s		3	22		
	Nominal	14		4	64		
	Cut-out	18		5	127		
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	224		
Axis		Vertical axis		7	362		
Pale aerogeneratore	Number	3		8	551		
	Material	iron, aluminium and fiberglass		9	799		
Rotore diameter D (m)		3,3m		10	1117		
Rotor height h (m), for vertical axis wind turbines		2m		11	1497		
Autonomus start up		ca. 3m/s		12	1957		
Controlled power output		Power curve, mppt system		13	2506		
Rotation velocity (rpm)	Minimum	1		14	3152		
	Nominal	144		15	3600		
	Maximum	216		16	3600		
Gearbox		absent		17	3600		
Generator type		PMG - permanent magnet generator		18	3600		
Noise level	Level (dBA)		ca. 43dB	19			
	At which wind speed (m/s)		10m/s	20			
	Distance from the generator (m)		20m	21			
Wind turbine support	Height H center from foundation (m)	Lowest	11,74m	Possible AEP			
		Usual	11,74m				
		Max	11,74m				
	Tipe	Self carrying structure	self carrying				
Lattice tower		on request					
Weights	Turbine (without mast)		620kg			Speed (m/s)	5,5
	Weight of the carrying structure		755kg/10,9m			Factor K	2
Platform		is needed				kWh/year	3300
Installation area		Urban / suburban				Speed (m/s)	6
Lifetime (years)		25 anni				Factor K	2
Installation manual language		English		kWh/year	4200		

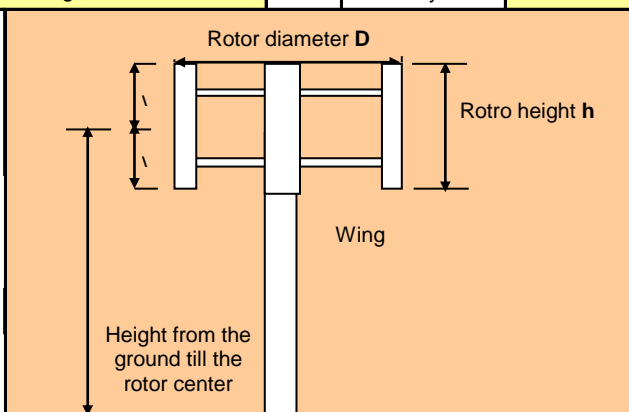


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		SIMPLY VERTICAL HE		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		3KW		2	
Wind speed (m/s)	Cut-in	3-4m/s		3	33
	Nominal	14		4	96
	Cut-out	18		5	191
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	336
Axis		Vertical axis		7	543
Pale aerogeneratore	Number	3		8	827
	Material	iron, aluminium and fiberglass		9	1199
Rotore diameter D (m)		3,3m		10	1676
Rotor height h (m), for vertical axis wind turbines		3m		11	2246
Autonomus start up		ca. 3m/s		12	2936
Controlled power output		Power curve, mppt system		13	3600
Rotation velocity (rpm)	Minimum	1		14	3600
	Nominal	138		15	3600
	Maximum	190		16	3600
Gearbox		absent		17	3600
Generator type		PMG - permanent magnet generator		18	3600
Noise level	Level (dBA)		ca. 43dB	19	
	At which wind speed (m/s)		10m/s	20	
	Distance from the generator (m)		20m	21	
Wind turbine support	Height H center from foundation (m)	Lowest	12,24m	Possible AEP	
		Usual	12,24m	Speed (m/s)	5,5
		Max	12,24m	Factor K	2
	Tipe	Self carrying structure	self carrying	kWh/year	4200
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)		660kg	Factor K	2
	Weight of the carrying structure		755kg/10,9m	kWh/year	5400
Platform		is needed		Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	8100
Installation manual language		English			

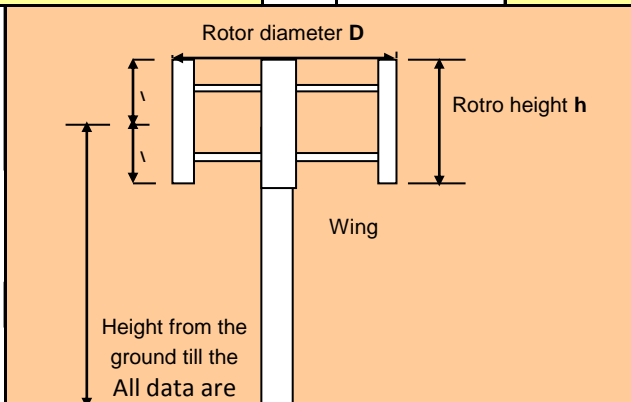


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		MAXI VERTICAL		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		6KW		2	
Wind speed (m/s)	Cut-in	3-4m/s		3	46
	Nominal	14		4	112
	Cut-out	18		5	224
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	394
Axis		Vertical axis		7	638
Pale aerogeneratore	Number	3		8	970
	Material	iron, aluminium and fiberglass		9	1407
Rotore diameter D (m)		4,7m		10	1965
Rotor height h (m), for vertical axis wind turbines		2,5m		11	2634
Autonomus start up		ca. 3m/s		12	3445
Controlled power output		Power curve, mppt system		13	4410
Rotation velocity (rpm)	Minimum	1		14	5547
	Nominal	100		15	6000
	Maximum	155		16	6000
Gearbox		absent		17	6000
Generator type		PMG - permanent magnet generator		18	6000
Noise level	Level (dBA)	ca. 43dB		19	
	At which wind speed (m/s)	10m/s		20	
	Distance from the generator (m)	20m		21	
Wind turbine support	Height H center from foundation (m)	Lowest	11,84m	Possible AEP	
		Usual	11,84m	Speed (m/s)	5,5
		Max	11,84m	Factor K	2
	Type	Self carrying structure	self carrying	kWh/year	5900
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)		960kg	Factor K	2
	Weight of the carrying structure		792kg/10,9m	kWh/year	7500
	Platform		is needed	Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	10800
Installation manual language		English			

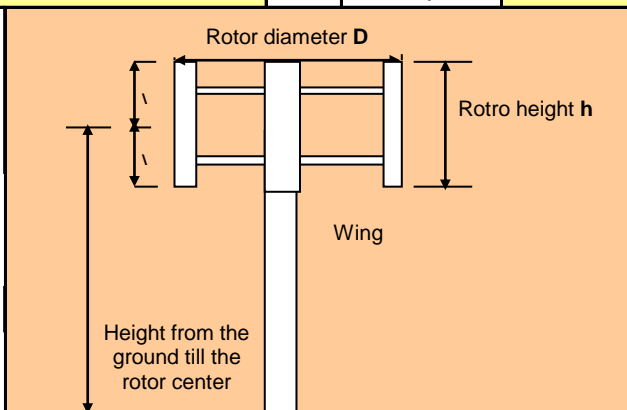


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		BIG STAR		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		20KW		2	
Wind speed (m/s)	Cut-in	3-4m/s		3	102
	Nominal	14		4	241
	Cut-out	18		5	500
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	1005
Axis		Vertical axis		7	1734
Pale aerogeneratore	Number	3		8	2796
	Material	iron and fiberglass		9	4276
Rotore diameter D (m)		8m		10	6068
Rotor height h (m), for vertical axis wind turbines		4,3		11	8346
Autonomus start up		ca. 3m/s		12	11360
Controlled power output		Power curve, mppt system		13	14894
Rotation velocity (rpm)	Minimum	1		14	19166
	Nominal	60		15	19990
	Maximum	90		16	19990
Gearbox		absent		17	19990
Generator type		PMG - permanent magnet generator		18	19990
Noise level	Level (dBA)		ca. 43dB	19	
	At which wind speed (m/s)		10m/s	20	
	Distance from the generator (m)		20m	21	
Wind turbine support	Height H center from foundation (m)	Lowest	19,53m	Possible AEP	
		Usual	19,53m	Speed (m/s)	5,5
		Max	19,53m	Factor K	2
	Tipe	Self carrying structure	self carrying	kWh/year	23700
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)		3500kg	Factor K	2
	Weight of the carrying structure		3150kg/18m	kWh/year	30000
Platform		is needed		Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	42000
Installation manual language		English			

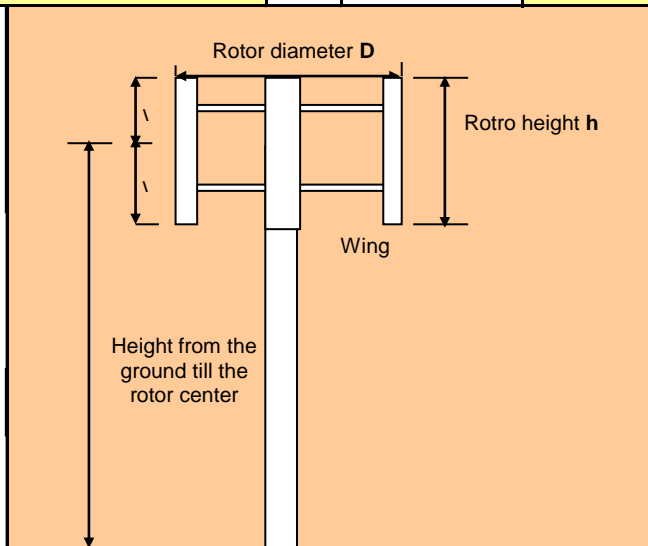
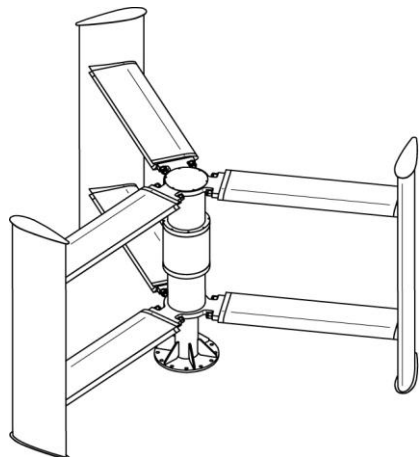


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Features Ropatec's small wind turbine vertical axis

Manufacturer		ROPATEC		data AEP	
Model		GIGA STAR		Power curve	
		1		Wind speed (m/s)	Power (W)
Number of installed turbines, in how many countries		800 turbines in 34 countries		1	
Nominal power (KVA)		25KW (max30kW)		2	
Wind speed (m/s)	Cut-in	3-4m/s		3	0
	Nominal	11,8		4	808
	Cut-out	20		5	1654
	Wind class IEC61400	class 3 (peaks of 53m/s)		6	3032
Axis		Vertical axis		7	5042
Pale aerogeneratore	Number	3		8	7526
	Material	iron, fiberglass and carbon fiber		9	10716
Rotore diameter D (m)		10m		10	14700
Rotor height h (m), for vertical axis wind turbines		8m		11	19566
Autonomus start up		No, through inverter ca. 3,5m/s		12	22483
Controlled power output		Power curve, mppt system		13	25517
Rotation velocity (rpm)	Minimum	1		14	28729
	Nominal	50		15	30000
	Maximum	90		16	30000
Gearbox		absent		17	30000
Generator type		PMG - permanent magnet generator		18	30000
Noise level	Level (dBA)	ca. 43dB		19	30000
	At which wind speed (m/s)	10m/s		20	30000
	Distance from the generator (m)	20m		21	
Wind turbine support	Height H center from foundation (m)	Lowest	15m	Possible AEP	
		Usual	24,75m	Speed (m/s)	5,5
		Max	24,75m	Factor K	2
	Type	Self carrying structure	self carrying	kWh/year	37400
Lattice tower		on request	Speed (m/s)	6	
Weights	Turbine (without mast)	2700kg		Factor K	2
	Weight of the carrying structure	3600kg/24m		kWh/year	47000
Platform		is needed		Speed (m/s)	7
Installation area		Urban / suburban		Factor K	2
Lifetime (years)		25 anni		kWh/year	66600
Installation manual language		English			



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