

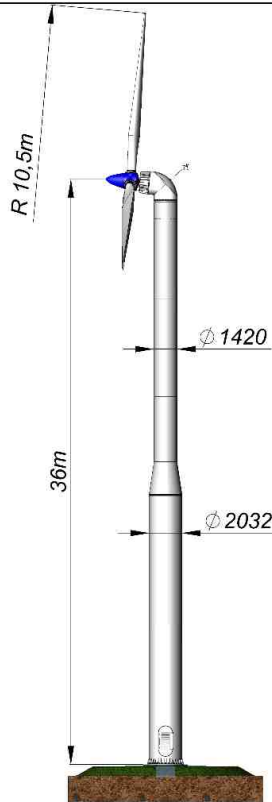
# ZEFIR D21-P70-T36

For the schools,  
cultural centers...



# ZEFIR D21-P70-T36

## TECHNICAL SPECIFICATION



### MAIN PARAMETERS

Rotor diameter	21m
Rated power	70kW
Rated wind speed	10.0m/s
Start wind speed	3.0m/s $\uparrow$ i 15.0m/s $\downarrow$ (10 min. avg.)
Cut-out wind speed	2.0m/s $\downarrow$ i 20.0m/s $\uparrow$ (10 min. avg.)
Hub height	36m
Wind class	II (EN61400-2:2014)

### ROTOR

Type	Upwind with active pitch control
Rotational speed range	15÷62rpm
Rotational direction	Clockwise
Blade material	Fiberglass reinforced with resin
Number of blades	3

### GENERATOR

Type	PMG
Rated power	77kW
Rated rpm	50rpm
Drive system	Direct drive

### YAW SYSTEM

Type	Active with gear-motor drive
Yaw bearing	Slide bearing with annular wheel
Additional function	Cable twisting control

V (m/s)	Pe (kW)	Ea (kWh)
0	0,00	
1	0,00	
2	0,24	
3	1,70	19239
4	4,61	53720
5	9,34	104705
6	17,10	164052
7	27,65	222905
8	40,75	275487
9	58,21	
10	70,00	
11	70,00	
12	70,00	
13	70,00	
14	70,00	
15	70,00	
16	70,00	
17	70,00	
18	70,00	
19	70,00	
20	70,00	



### DIMENSIONS AND WEIGHT

Steel tower diameter	Ø2032mm	Steel tower diameter at the top	Ø1420mm
Tower height	34.4m	Tower weight	15,64T,
Nacelle WxLxH	1420x4280x2050 mm	Nacelle weight	6040kG (without blades)
Number of segments	2	Access to the nacelle	Internal ladder
Rotor blade length	9.6m	Rotor blade weight	280kG
Control box AxBxH	800x300x1200mm	Control box weight	90kG
Inverter AxBxH	800x800x1700mm	Inverter weight	500kG

### SAFETY SYSTEM

### CONTROL SYSTEM

Power limitation	Automatic pitch control system	Type	ZEFIR dedicated $\mu$ P control system
Braking system	Disc brake clamp on the main shaft	Location	In the base of the tower
Safety system concept	"Fail-safe" philosophy design	Remote monitoring	ZEFIR SCADA