

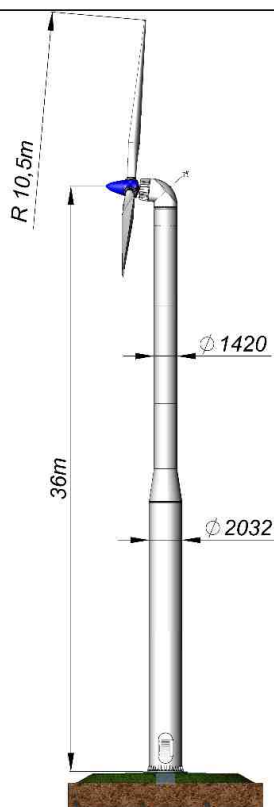
# ZEFIR D21-P50-T36

For the schools,  
cultural centers...



# ZEFIR D21-P50-T36

## TECHNICAL SPECIFICATION



### MAIN PARAMETERS

|                    |   |
|--------------------|---|
| Rotor diameter     | 21m   |
| Rated power        | 50kW  |
| Rated wind speed   | 8.9m/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 | 12÷50rpm                         |
| Rotational direction   | Clockwise                        |
| Blade material         | Fiberglass reinforced with resin |
| Number of blades       | 3                                |

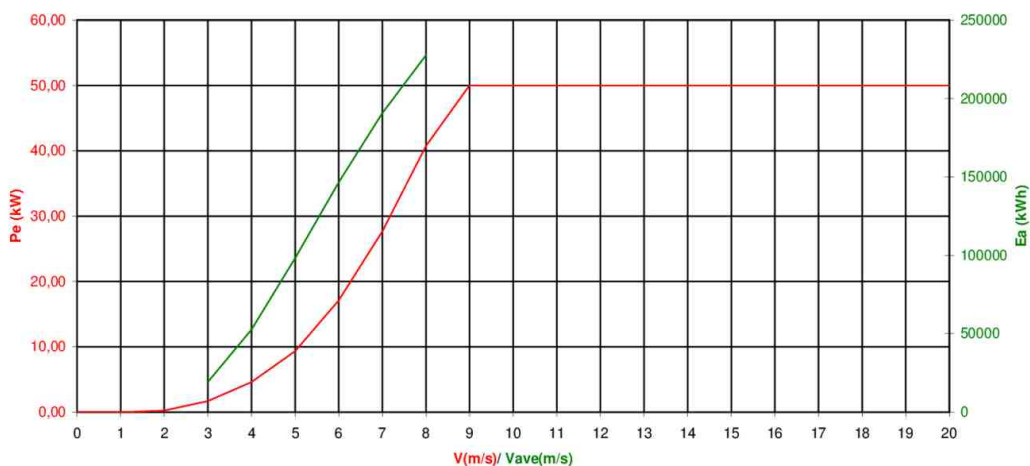
### GENERATOR

|              |              |
|--------------|--------------|
| Type         | PMG          |
| Rated power  | 55kW         |
| Rated rpm    | 43rpm        |
| 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    | 19219    |
| 4       | 4,61    | 52693    |
| 5       | 9,34    | 98262    |
| 6       | 17,10   | 146471   |
| 7       | 27,65   | 190677   |
| 8       | 40,75   | 227615   |
| 9       | 50,00   |          |
| 10      | 50,00   |          |
| 11      | 50,00   |          |
| 12      | 50,00   |          |
| 13      | 50,00   |          |
| 14      | 50,00   |          |
| 15      | 50,00   |          |
| 16      | 50,00   |          |
| 17      | 50,00   |          |
| 18      | 50,00   |          |
| 19      | 50,00   |          |
| 20      | 50,00   |          |



### DIMENSIONS AND WEIGHT

|                      |                   |                                 |                         |
|----------------------|-------------------|---------------------------------|-------------------------|
| Steel tower diameter | Ø2030mm           | Steel tower diameter at the top | Ø1420mm                 |
| Tower height         | 34.4m             | Tower weight                    | 15,64T,                 |
| Nacelle WxLxH        | 1420x4280x2050 mm | Nacelle weight                  | 5925kG (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                 | 450kG                   |

### 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                            |