

# Xyron Technologies Ltd

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## Main Data

|                |                             |                |                |  |
|----------------|-----------------------------|----------------|----------------|--|
| Model          | EX-55/60-1000               | EX-55/71-1000  | EX-55/112-1000 |  |
| Rotor diameter | 55m                         | 55m            | 55m            |  |
| Hub Height     | 60 m                        | 71 m           | 112m           |  |
| Rated power    | 1000 kW                     | 1000 kW        | 1000 kW        |  |
| Drive Train    | Direct Drive (Gearless)     |                |                | Removes expensive maintenance of gearbox |
| Control Pitch  | 3 independent pitch control |                |                | made by Xyron                            |
| Operation Mode | Variable Speed              | Variable Speed | Variable Speed |  |
| Design Life    | 20 years                    | 20 years       | 20 years       |  |
| IEC Wind Class | IIB                         | IIB /IIIA      | IIB /IIIA      |  |

## Generator-Convertor System

|                  |  |                    |                    |   |
|------------------|--|--------------------|--------------------|---|
| Generator        | Permanent magnet Synchronous Generator (PMSG)        |                    |                    | Made by Xyron   |
| Protection Class | IP54 Totally Enclosed within Nacelle                 |                    |                    |   |
| Nominal Voltage  | 690 V  | 690 V              | 690 V              |   |
| Frequency        | 50 Hz/ 60 Hz   | 50 Hz/ 60 Hz       | 50 Hz/ 60 Hz       | Programmable  |
| Power Factor     | Unity +/- 5%   | Unity +/- 5%       | Unity +/- 5%       | No need to additional power factor correction devices on grid |
| Rated Power      | 1150 kW  | 1150 kW            | 1150 kW            |   |
| RPM RANGE        | 14-30 RPM  | 14-30 RPM          | 14-30 RPM          |   |
| Cooling System   | Forced Air Cooling                                   | Forced Air Cooling | Forced Air Cooling |   |
| Convertor        | System Full Power Convertor System, IGBT- 4 Quadrant |                    |                    |   |

## Operation Data (Based on 10 min average wind speed)

|                     |  |        |        |  |
|---------------------|--|--------|--------|--|
| Cut-in wind speed   | 3 m/s  | 3 m/s  | 3 m/s  |  |
| Cut-out wind speed  | 24 m/s   | 24 m/s | 24 m/s |  |
| Rated wind speed    | 12 m/s   | 12 m/s | 12 m/s |  |
| Survival wind speed | 59.5 m/s (3sec gusts) or 42.5 m/s (10 min avg) |        |        |  |

## Yaw System

|            |                                    |            |            |  |
|------------|------------------------------------|------------|------------|--|
| Type       | Active Yaw                         | Active Yaw | Active Yaw |  |
| Yaw Drives | 3 motors with planetary gear boxes |            |            |  |
| Yaw Breaks | Hydraulic caliper Brakes           |            |            |  |

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## Rotor

|                |                                 |                        |                        |                              |
|----------------|---------------------------------|------------------------|------------------------|------------------------------|
| Swept Area     | 2375.82 m <sup>2</sup>          | 2375.82 m <sup>2</sup> | 2375.82 m <sup>2</sup> |                              |
| No of Blades   | 3                               | 3                      | 3                      |                              |
| Blade Length   | 26.5 m                          | 26.5 m                 | 26.5 m                 | Made by Xyron<br>Using VARIM |
| Blade Material | FRP-Epoxy                       | FRP-Epoxy              | FRP-Epoxy              |                              |
| Tilt Angle     | 2.5 deg                         | 2.5 deg                | 2.5 deg                |                              |
| Cone Angle     | 2.5 deg                         | 2.5 deg                | 2.5 deg                |                              |
| Brake          | 3 Independent Aerodynamic Brake |                        |                        |                              |

## Tower

|              |            |            |            |               |
|--------------|------------|------------|------------|---------------|
| Tower Height | 58 m       | 69 m       | 110 m      |               |
| Type         | Conical    | Conical    | Conical    |               |
| Segment      | 3          | 3          | 5          |               |
| Material     | S355 Steel | S355 Steel | S355 Steel | Made by Xyron |
|              |            |            |            |               |

## Main control System

|                        |                        |                        |                        |               |
|------------------------|------------------------|------------------------|------------------------|---------------|
| Controller             | PLC Control            | PLC Control            | PLC Control            | Made by Xyron |
| SCADA                  | available              | Available              | Available              |               |
| Earth Quake protection | Yes                    | Yes                    | Yes                    |               |
| Control Panel          | Nacelle and Tower Base | Nacelle and Tower Base | Nacelle and Tower Base | Made by Xyron |

## Ambient operating conditions

|                     |              |                                   |  |
|---------------------|--------------|-----------------------------------|--|
|                     | Cold Climate | Hot Climate                       |  |
| Operating Condition | -10 deg C    | 40 deg C (50 deg C with derating) |  |
| Survival            | -30 deg C    | ----                              |  |

## Other Components made by Xyron:

- I. Nacelle
- II. Nacelle Cover
- III. Nose Cone