

# GEV HP 1 MW

TECHNICAL  
DESCRIPTION



## TURBINE CONCEPT

- Rated Power ..... **1000 kW**
- Rotor diameter ..... 62 m (203')
- Class (IEC 61 400-1) ..... III A
- Blades ..... 2 blades - upwind
- Gearbox ..... 3-stage planetary
- Hub height ..... 70 m (230')
- Hub ..... Delta 3 teetering hub
- Generator ..... Asynchronous
- Tower ..... Tubular - 6 sections of 11.8 m
- Yaw ..... Active yaw
- Output Voltage ..... 690 V
- Output Frequency ..... 50 Hz and 60 Hz
- Active & Reactive power control ..... Variable speed / Full scale drive / Electrical pitch

## PACKING & INSTALLATION

- Nacelle weight ..... 71 t
- Tower weight ..... 78 t
- Packing ..... All in 40' containers + blades (1 load)
- Concrete ..... 95 m<sup>3</sup> (124 cu.yd)
- Erection ..... 90 t crane  
Verlift<sup>®</sup> + Birdlike<sup>®</sup> : self erecting system

## OPERATION

- Cut in speed ..... 3 m/s
- Cut out speed ..... 25 m/s
- Max wind speed
  - Operation ..... 37.5 m/s (10 min avg.)
  - Survival ..... 52.5 m/s (3 s gust)
  - Survival ..... 86 m/s (3 s gust)
- Temperature
  - Operation ..... -10°C to 40°C (14°F to 104°F)
  - Survival ..... -20°C (-4°F)

## SCADA

Monitoring, remote diagnosis and maintenance, power control.

## POWER CURVE

Wind speed (m/s) d=1.225kg/m <sup>3</sup>	Power (kW) 62m blades
4	30
5	73
6	140
7	228
8	362
9	515
10	700
11	850
12	930
13	969
14	990
15	1000
16	1000
17	1000
18	1000
19	1000
20	1000
21	1000
22	1000
23	1000
24	1000
25	1000

## AEP - ANNUAL ENERGY PRODUCTION

Hub height wind speed (m/s)	Annual gross production (MWh/year)
4	645
4.5	944
5	1290
5.5	1669
6	2065
6.5	2466
7	2862
7.5	3243
8	3604
8.5	3942
9	4252
9.5	4532
10	4782
10.5	4999
11	5184

Weibull k=2 ; d=1.225 kg/m<sup>3</sup>

## CERTIFICATION

- GERMANISCHER LLOYD

## OPTIONAL SERVICES

- Embedded power storage and wind prediction.