AEROVIDE

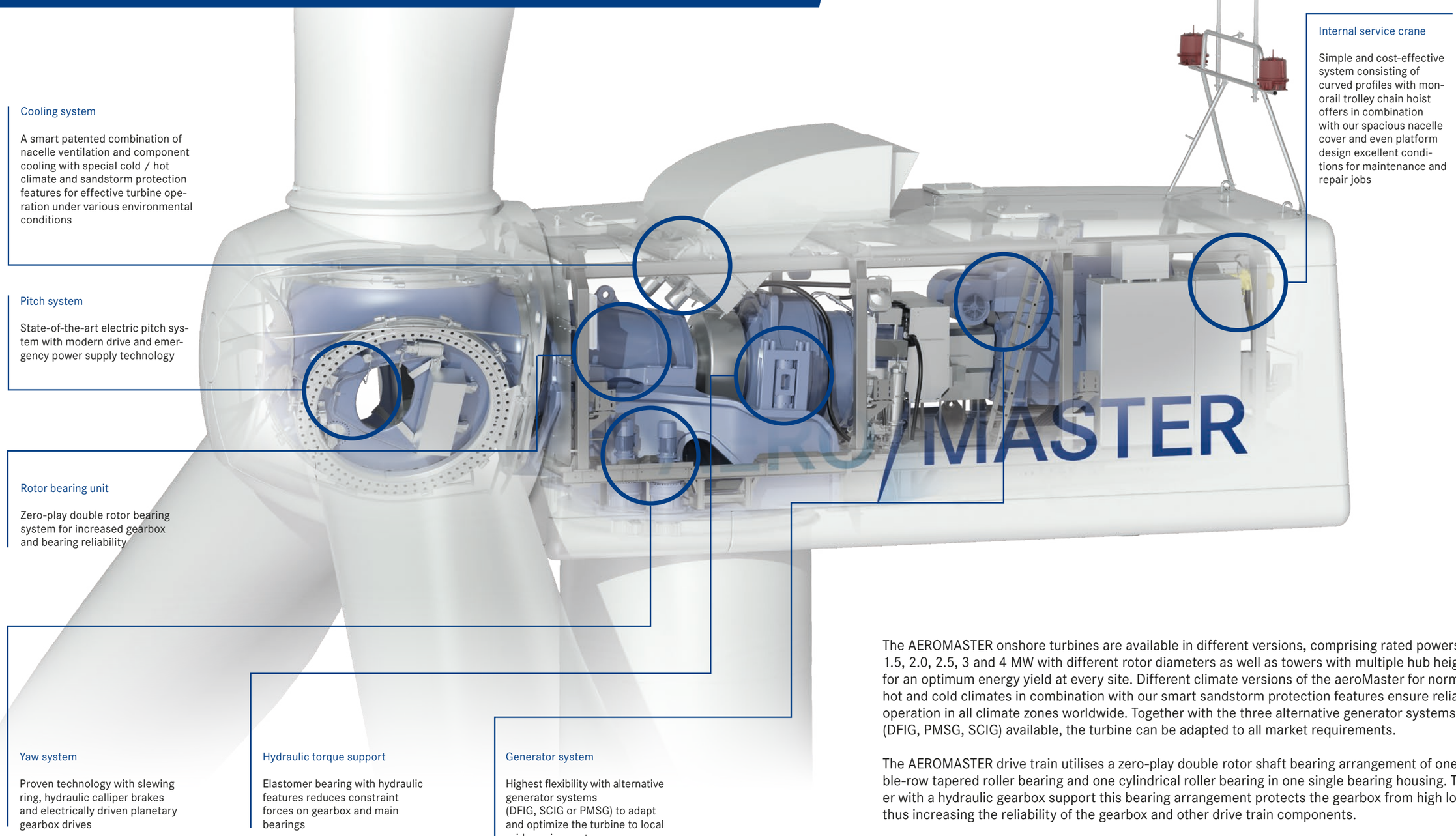
AERO**MASTER wind turbines**

Reliable, compact, flexible and economical

WE PROVIDE WIND TECHNOLOGY

AEROMASTER for onshore applications

Our reliable and flexible onshore turbine platform can be adapted to all market requirements and local series production.



Cooling system

A smart patented combination of nacelle ventilation and component cooling with special cold / hot climate and sandstorm protection features for effective turbine operation under various environmental conditions

Pitch system

State-of-the-art electric pitch system with modern drive and emergency power supply technology

Rotor bearing unit

Zero-play double rotor bearing system for increased gearbox and bearing reliability

Internal service crane

Simple and cost-effective system consisting of curved profiles with monorail trolley chain hoist offers in combination with our spacious nacelle cover and even platform design excellent conditions for maintenance and repair jobs

Yaw system

Proven technology with slewing ring, hydraulic calliper brakes and electrically driven planetary gearbox drives

Hydraulic torque support

Elastomer bearing with hydraulic features reduces constraint forces on gearbox and main bearings

Generator system

Highest flexibility with alternative generator systems (DFIG, SCIG or PMSG) to adapt and optimize the turbine to local grid requirements

The AEROMASTER onshore turbines are available in different versions, comprising rated powers of 1.5, 2.0, 2.5, 3 and 4 MW with different rotor diameters as well as towers with multiple hub heights for an optimum energy yield at every site. Different climate versions of the aeroMaster for normal, hot and cold climates in combination with our smart sandstorm protection features ensure reliable operation in all climate zones worldwide. Together with the three alternative generator systems (DFIG, PMSG, SCIG) available, the turbine can be adapted to all market requirements.

The AEROMASTER drive train utilises a zero-play double rotor shaft bearing arrangement of one double-row tapered roller bearing and one cylindrical roller bearing in one single bearing housing. Together with a hydraulic gearbox support this bearing arrangement protects the gearbox from high loads, thus increasing the reliability of the gearbox and other drive train components.

The AEROMASTER license offers customers a technology which can be adapted to all market requirements and operated under diverse environmental conditions worldwide. A fully developed supply chain with multiple sourcing for each component is available for all AEROMASTER turbines. For details on license conditions, please contact our head office in Rendsburg.

AEROMASTER for offshore application

The systematic further development of the proven AEROMASTER technology for offshore use, even more reliable, more efficient

AERO MASTER

Helicopter hoist platform

Platform designed according to common standards for safe personal and material hoisting. Optionally, a helicopter landing platform can be implemented.

Internal service crane

Single-girder bridge crane with electrical chain hoist and slewing jib hub crane for maximum crane access area offers in combination with our spacious nacelle cover and even platform design excellent conditions for offshore maintenance and repair jobs

Rotor bearing unit

Zero-play double rotor bearing system for increased gearbox and bearing reliability

Pitch system

State-of-the-art electric pitch system with modern drive and emergency power supply technology

Yaw system

Proven technology with slewing ring, hydraulic caliper brakes and electrically driven planetary gearbox drives

Nacelle cooling

Two redundant crossflow heat exchangers keep the nacelle temperature at an acceptable level and together with the nacelle sealing and dehumidification system ensure that components are protected from outside air impact

Converter system

Medium voltage IGCT or low voltage IGBT full converter depending on generator technology following the offshore turbine trend for greater reliability

Transformer

A dry-type air/water cooled transformer with high safety and high efficiency

Hydraulic torque support

Elastomer bearing with hydraulic features reduces constraint forces on gearbox and main bearings

Generator system

Highest flexibility with alternative generator systems (squirrel cage or permanent magnet) and different voltage levels optimized for offshore applications with lowest possible maintenance effort

Component cooling system

High-capacity water cooling system enables full-power operation up to 40°C

The design of the AEROMASTER 6 wind turbine typifies the know-how our engineers have accumulated from two successful development projects for 5 MW offshore wind turbines. This makes AEROVIDE the leading global player in the design and implementation of large offshore wind turbines.

Like with the onshore AEROMASTER models, emphasis in this AEROMASTER 6 was placed on reliability, cost effectiveness and high yields. The proven and reliable AEROMASTER drive train technology has also been adapted for the AEROMASTER 6 offshore turbine. The AEROMASTER 6 is available in different versions comprising two alternative electrical systems (squirrel cage or permanent magnet generator) with different voltage levels (low voltage or medium voltage) and two different rotor diameters ranging from 139 m to 163 m for an optimum energy yield in sites with different wind conditions.

Optimization for sites with high and mean wind speeds flowed into the design as well and makes operation cost-effective in all wind conditions. As a result, this opens up a far greater number of potential installation sites, making the AEROMASTER 6 optimally equipped also for future offshore markets.

Technical data

Main Data

	Rotor diameter	Blade type	Type class	Nominal power	Rated speed	Tilt angle	Cone angle
AM 1.5/77	77.1 m	ae 1.5-37.5	TC 2A+	1500 kW	18.5 rpm	4 °	3.5 °
AM 1.5/83	82.7 m	ae 1.5-40.3	TC 2A	1500 kW	17.4 rpm	4 °	3.5 °
AM 1.5/87	86.7 m	ae 1.5-42.3	TC 3A	1500 kW	17.6 rpm	4 °	3.5 °
AM 1.5/92	92.1 m	ae 1.5-45.0 Aeolon 45.3-F2 Sinoma 45.2 C	TC 3B	1500 kW	16.6 rpm	4 °	3.5 °
AM 2.5/103	102.9 m	ae 2.5-50.3	TC 1B / 2A	2500 kW	13.9 rpm	4 °	3.5 °
AM 2.5/110	109.7 m	ae 2.5-53.7 TMT 53.8	TC 3A	2500 kW	13.2 rpm	4 °	3.5 °
AM 2.5/118	118.3 m	ae 2.5-58.0	TC 3B	2500 kW	12.9 rpm	4 °	3.5 °
AM 2.0/120	120.0m	SR 120 Sinoma 59.5	TC 3B	2000 kW	13.3 rpm	5 °	4.5 °
AM 2.3/120	120.0 m	SR 120 Sinoma 59.5	TC 3A / 2B	2300 kW	11.5 rpm	5°	4.5°
AM 3.2/140	140.0 m	Sinoma 68.6	TC 2A	3200 kW	10.9 rpm	5°	5°
AM 3.0/145	145.0 m	ae 3.0-71.0	TC 3A	3000 kW	10.6 rpm	5 °	5 °
AM 4.5/126	126.4 m	ae 4.5-61.7	TC 1A	4500 kW	12.54 rpm	5 °	3.5 °
AM 4.0/140	140.4 m	ae 4.0-68.7	TC 2B/3A	4000 kW	11.3 rpm	5 °	3.5 °
AM 4.3/136	136.0 m	LM 66.5 P	TC 2A	4300 kW	11.3 rpm	5 °	4.5°
AM 4.3/147	147.0 m	LM 71.8 P2	TC 3B	4300 kW	10.0 rpm	5°	4.5°
AM 4.3/151	151.0 m	ae 4.3-74.0	TC S	4300 kW	10.0 rpm	5°	4.5°
AM 6.0/139	139.0 m	ae5.0-68.0	TC 1B	6000 kW	11.75 rpm	5°	3.5°
AM 6.0/154	154.0 m	Sinoma 75	TC 2B	6000 kW	11.17 rpm	5°	3.5°
AM 5.7/163	163.0 m	ae6.0-79.5	TC 3B	5700 kW	11.55 rpm	5°	3.5°

Generator / Inverter

Operation Data

Masses

	Generator concept	Converter voltage	Frequency	Cut-out wind speed	Climate conditions	Rotor	Nacelle
AM 1.5/77	DFIG/PMSG	690 V	50 Hz	25 m/s	NC/CC	31.0 to	61.5 to *
AM 1.5/83	DFIG/PMSG	690 V	50 Hz	25 m/s	NC/CC	31.5 to	61.5 to *
AM 1.5/87	DFIG/PMSG	690 V	50 Hz	25 m/s	NC/CC	32.4 to	61.5 to *
AM 1.5/92	DFIG	690 V	50 Hz	22 m/s	NC/CC	35.0 to	61.5 to *
AM 2.5/103	DFIG/PMSG	690 V	50/60 Hz	25 m/s	NC/CC	55.7 to	93.2 to *
AM 2.5/110	DFIG	690 V	50 Hz	22 m/s	NC/CC	55.8 to	93.2 to *
AM 2.5/118	DFIG/PMSG	690 V	50/60 Hz	20 m/s	NC	56.7 to	93.2 to *
AM 2.0/120	DFIG	690 V	50 Hz	22 m/s	NC/CC	54.1 to	86.5 to *
AM 2.3/120	DFIG	690 V	50 Hz	22 m/s	NC/CC	54.1 to	89.5 to *
AM 3.2/140	DFIG/PMSG	690 V	50/60 Hz	25 m/s	NC/CC	105 to	133 to *
AM 3.0/145	DFIG/PMSG	690 V	50/60 Hz	25 m/s	NC/CC	103 to	133 to *
AM 4.5/126	DFIG/PMSG	690 V	50/60 Hz	25 m/s	HC/NC	110 to	167 to **
AM 4.0/140	DFIG/PMSG/SCIG	690 V	50/60 Hz	25 m/s	HC/NC	117 to	167 to **
AM 4.3/136	DFIG/PMSG/SCIG	690 V	50/60 Hz	25 m/s	NC	116 to	167 to **
AM 4.3/147	DFIG/PMSG/SCIG	690 V	50/60 Hz	22 m/s	NC	127 to	167 to **
AM 4.3/151	DFIG/PMSG/SCIG	690 V	50/60 Hz	22 m/s	NC	125 to	167 to **
AM 6.0/139	ASG/PMSG	690/3300 V	50/60 Hz	25 m/s	NC	135 to	290 to **
AM 6.0/154	ASG/PMSG	690/3300 V	50/60 Hz	25 m/s	NC	142 to	290 to **
AM 5.7/163	ASG/PMSG	690/3300 V	50/60 Hz	22 m/s	NC	145 to	290 to **

* without transformer/inverter
** including transformer/inverter

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