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Vestas V80 Builtyear 2004

2 pcs. Vestas V80 in very good condition with new gearboxes.

Transformer station	Inclusive
Power control	Pitch
Pieces	2
Model	Vestas V80
Built year	2004
Available	In Stock
Hub height (m)	60m
Nominel effect	2000kW
Rotor diameter (m)	80m
Voltage/grid frequency	20000V/50Hz

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Technical Specifications/Main Components

History of this Document

Changes in this document:

Rev. no.:	Date:	Description of change
1	2002-01-17	(adapting the document for V80 1,8 MW) Section 2.3: 60Hz added. 215 bar changed to 200 bar. "Weight with oil cooler - 525 kg (1.8MW)" added. Section 4: 50/60Hz types added. Section 5.1: 117 l/min changed to 100 l/min. Section 5.4: "HDU 15/25 PM-690V (60Hz)" added. Section 5.2, 5.6, 5.7 and 5.9 specified for L&S and Hansen gearboxes. Section 5.5: 60Hz type added. Section 6.3: 800 and ø108 changed to 950 and ø109. Section 8: New types added. Updating of section 8. Section 10: New types added. Updating of section 10.
2	2005-03-11	Section 1: "thread" added to "Stainless steel inserts" To "Colour" "custom-designed" has been added Section 2.3: Pressure, brake system: 50Hz and 60 Hz added Section 9.1: Weight for ABB generator changed Leroy Somer removed; Table added Section 10.1: V80 VRCC added; Table added Section 13.1: FT sensor added Drawing 950645 updated to revision 2 Drawing 950646 updated to revision 1

Related Documentation

Item no.	Title
947905	V80 1,8/2,0MW, Klasse II, Tekniske specifikationer for hovedkomponenter

Contents .....Page

1. Rotor

1.1 Blade

Manufacturer:	Vestas
Type no.:	VESTAS 39 m
Material:	Glass fibre reinforced epoxy (blade shells) Glass fibre reinforced epoxy (blade spar) Stainless steel thread inserts (root attachment)
Surface:	Epoxy gelcoat
Colour:	RAL 9010, RAL 7035 and custom-designed
Overall length:	39 m
Max. Chord:	3357 mm
Weight:	6500 kg

1.2 Blade Bearing

Manufacturer:	ROLLIX/ HOESCH ROETHE ERDE
Type:	Double row, 4 point contact ball bearing
Lubrication:	Grease: Aeroshell 14
Dimension:	ø2120/ ø1700 x 192 mm
Weight:	1475 kg

1.3 Nose Cone

Manufacturer:	Vestas
Form:	Length 4.14 m, diameter 3.46 m.
Material:	Glass fibre reinforced polyester coated with polyester gelcoat
Weight:	Approx. 600 kg

1.4 Blade Hub

Manufacturer:	Vestas
Material:	EN-GJSF400-18U-LT-D
Weight:	8463 kg

2. Pitch System

2.1 Hydraulic Cylinder

Manufacturer:	LJM
Type:	021 VD 125/80 x 760 – 808-g-T
Dimension:	305 x 178 x 1352 mm

2.2 Linear Transducer in Cylinder

Manufacturer:	Balluff
Type:	BTL5-A11-M0800-B-SA56-S32

2.3 Hydraulic Power Unit

Manufacturer:	PMC Technology
Pump motor:	18,5 kW, 690 V, 50/60 Hz, and 4 poles
Proportional valve:	NG10
Pump flow:	46,2 - 49 l/min - 50 Hz
	40,8 - 44,9 l/min - 60 Hz
Pressure, pitch system:	180 - 200 bar
Pressure, pitch system, return:	Min. 6 bar
Pressure, brake system:	50Hz: 40 bar
	60Hz: 34 bar
Size of oil reservoir:	300 l (gross volume)
Oil quantity (system):	320 l
Weight (without oil)	475 kg
Weight with oil cooler	525 kg (1.8 MW)

2.4 Hydraulic Block on Cylinder

Manufacturer:	PMC Technology

2.5 Plain Bearing on Cylinder

Manufacturer:	SKF
Type:	PWM 809060
Dimension:	ø90/ ø60 x 40 mm

2.6 Spherical Plain Bearing on Cylinder Rod

Manufacturer:	SKF
Type:	GE100TG 3A-2RS
Dimension:	ø150/ ø100 x 70 mm

3. Main Shaft Arrangement

3.1 Main Shaft

Manufacturer:	Vestas
Material:	42CrMo4 / V / EN 10083
Size:	ø630/ flange ø1500/ length 2690 mm
Weight:	6078 kg

3.2 Front Main Bearing (nearest to the rotor)

Manufacturer:	SKF/FAG/Koyo
Type:	230/630 CA/W33
Dimension:	ø920 mm/ ø630 mm x 212 mm
Weight:	485 kg

3.3 Rear Main Bearing (furthest from the rotor)

Manufacturer:	SKF/FAG/Koyo
Type:	24188 CA/W33
Dimension:	ø720 mm/ ø440 mm x 280 mm
Weight: 460 kg	

3.4 Front Main Bearing Seal

Manufacturer:	Seal Pool
Type:	ø660/ ø700 x 20 mm GVP

3.5 Rear Main Bearing Seal

Manufacturer:	Seal Pool
Type:	ø500/ ø540 x 20 mm CB

3.6 Hydraulic Cylinder for Rotor Locking

Manufacturer:	LJM
Type:	SNH30 FD 63/30x60-360-G
Dimension:	ø169 x 625 mm

3.7 Manuel Hydraulic Pump for Rotor Locking

Manufacturer:	LJM
Type:	HANSA TMP/GLDE20/I
Dimension:	100 x 290 x 700 mm

4. Main Gearbox Arrangement

4.1 Gearbox

Manufacturer:	Lohmann & Stolterfoht
Type:	GPV 440
Shaft displacement:	948 mm (horizontal)
Total length:	2689 mm
Weight:	14500 kg
Ratio	50 Hz: 1:100,845
Ratio:	60 Hz: 1:121,28

Manufacturer:	Lohmann & Stolterfoht
Type:	GPV 441
Shaft displacement:	948 mm (horizontal)
Total length:	2689 mm
Weight:	14500 kg
Ratio:	50 Hz: 1:100,33 (Onshore)
Ratio:	60 Hz: 1:120,099

Manufacturer:	Hansen Transmissions
Type:	EH802N21 (Onshore)
Shaft displacement:	948 mm (horizontal)
Total length:	2689 mm

Weight:	14000 kg
Ratio:	60 Hz: 1:120,515
Ratio:	60 Hz: 1:111,36
Ratio:	50 Hz: 1:101,02 (Onshore)

4.2 Shrink Disc

Manufacturer:	Stüwe
Type:	HSD 530-23
Dimension:	ø980/ ø530 x 338 mm
Weight:	1200 kg
Manufacturer:	Ovako
Type:	OKCK 530
Dimension:	ø950/ ø530 x 364 mm
Weight:	1225 kg

4.3 Torque Arm Rubber Spring

Manufacturer:	EFFBE-Werk
Type:	Elastomer spring/ Urelast 90 h.A
Dimension:	ø200/ ø44 x 40 mm

4.4 Brake Calibre

Manufacturer:	BREMBO	STILFRENI
Type:	PZ.I.4420.2802.10	PR771401000
		PR771301000
Piston diameter:	ø75 mm	
Weight:	16 kg	
Max. pressure:	150 bar	

4.5 Brake Pad

Manufacturer:	Micke
Type:	MPM 030

4.6 Transmission Shaft

Manufacturer:	Vestas
Size:	ø480 x 410 mm
Weight:	15 kg

5. Gearbox Oil System

5.1 Electrical Pump

Manufacturer:	Settima
Type:	GR45 210 SMT 16B-2.2 kW-690 V (50 Hz) GR45 180 SMT 16B-2.2 kW-690 V (60 Hz)
Capacity:	100l/min. (50/60 Hz).
Pressure:	Max. 15 bar

5.2 Shaft Driven Pump

Lohmann & Stolterfoht.

Manufacturer:	Rickmeier
Type:	R 4.5/45 FL-Z-UNI-SO
Capacity:	65 l/min. at 1500 RPM
Pressure:	Max. 8 bar

Hansen Transmissions.

Manufacturer:	SHW
Type:	SHW40
Capacity:	45 l/min. at 1500 RPM
Pressure:	Max. 15 bar

5.3 Oil Filter

Manufacturer:	Mahle
Type:	HC35 SM-X 1511
Filtration:	10 µm ABS.

5.4 Off-line Filter

Manufacturer:	C.C. Jensen
Type:	HDU 15/25 PM - 1x230 V (50 Hz) HDU 15/25 PU - 690 V (60 HZ)
Filtration:	3 µm

5.5 Oil Coolers

Manufacturer:	Nissen Cooler
Size:	502 x 620 mm, fan ø456 mm 10 blades 25°, type 3HL
Fan motors 50 Hz:	90S B14, 2 pole 1,5 kW/ 690 V
Fan motors 60 Hz:	90L B14, 2 pole 3,0 kW/ 690 V

5.6 Oil Heating Elements

Lohmann & Stolterfoht.

Manufacturer:	Helios
Connection:	2” BSPP
Size:	2 x 980 W + 1 x 650 W

Hansen Transmissions.

Manufacturer:	Helios
Connection:	2” BSPP
Size:	1 x 1500 W + 1 x 750 W

5.7 Oil Level Switch

Lohmann & Stolterfoht.

Manufacturer:	Barksdale
Type:	UNS 1000-MS/T2-ST1
Voltage:	Voltage: 24 V DC

Hansen Transmissions.

Manufacturer:	KOBOLT
Type:	320-NBA1000
Voltage:	Voltage: 24 V DC

5.8 Oil Sump Temperature Sensor

Manufacturer:	Danfoss
Type:	MBT 5250

5.9 Bearing Temperature Sensor

Lohmann & Stolterfoht.

Manufacturer:	Bühler
Type:	TF-M-PT 100-VAL

Hansen Transmissions.

Manufacturer:	SENSYCON GmbH
Type:	WM60F

6. Rotating Transference

6.1 Rotating Trafo

Manufacturer:	Weier
Type:	ETK160
Dimension:	ø360 x 405 mm
Weight: 147 kg	

6.2 Rotating ARC-net

Manufacturer:	Vestas
Dimension:	ø280 mm

6.3 Rotating Hydraulic Union

Manufacturer:	Deublin
Type:	9110-950
Dimension:	ø109 x 203 mm

7. Machinery Foundation

7.1 Main beam (left & right)

Manufacturer:	Vestas
Material:	EN-GJSF400-18U-LT-D / EN 1560
Size:	4590 x 1200 x 1280 mm each
Weight:	4526 kg each

7.2 Generator Foundation

Manufacturer:	Vestas
Material:	S 355 J2H (EN 10025)
Size:	3560 x 2300 x 660 mm
Weight:	2500 kg

8. Yaw System

8.1 Yaw Ring

Manufacturer	Niebuhr Tandhjulsfabrik + Hoesch Rothe Erde
Material:	34CrNiMo 6 / V / 42CrMo 4 / V (EN 10083)
Normal module:	16
Number of teeth:	143
Tooth width:	96 mm
Weight:	767 kg

8.2 Yaw Gear

Before 01.10.01

Manufacturer:	Bonfiglioli/Transmittal	SOM
Type:	709T2M	PG1802
Type Worm gear:	W110	MNRV110
Ratio/Planetary stages:	1:28	1:22,1
Ratio/Worm gear:	1:40	1:50
Ratio total:	1:112	1:1105
Electric motor spec.:	2.2 kW/6 pole/690 V	
Weight:	190 kg	

After.01.10.01

Manufacturer:	Bonfiglioli/Transmittal	SOM	Brevini
Type:	709T3M	PG1603	RPR3140
Type Worm gear:	W75	MNRV075	FRS85
Ratio/Planetary stages:	1: 110,17	1:149,5	1:131,8
Ratio/Worm gear:	1:10	1:7,5	1:8,5
Ratio total:	1:1101,7	1:1121	1:1119,9
Electric motor spec.:	2.2 kW/6 pole/690 V		
Weight:	190 kg		

8.3 Yaw Gear Pinion

Before 01.10.01

Manufacturer:	Bonfiglioli/SOM
Material:	18NiCrMo5 (UNI 8550)
Normal module:	16
Number of teeth:	11
Tooth width:	100 mm
Weight:	Included in yaw gear weight

After 01.10.01: All yaw gears are delivered with integrated pinion.

8.4 Yawing Plain Bearings

Manufacturer:	Vestas
Material:	PETP

9. Generator

9.1 Generator

Manufacturer:	ABB
Type:	AMK 500L4A BAYH
Poles:	4
Building size:	500
Degree of protection:	IP55
Insulation class:	H
Weight cooler:	430 kg
Weight generator:	5700 kg
Bearing drive end (DE):	6330M C3
Bearing non-drive end (NDE):	6330M C3

Manufacturer:	WEIER
Type:	DVSG500/4Msp
Poles:	4
Building size:	500
Degree of protection:	IP54
Insulation class:	F/H
Weight cooler:	650 kg
Weight generator:	5500 kg
Bearing drive end (DE):	6330M C4
Bearing non-drive end (NDE):	6330M C4

For both bearings the following applies:
Level of insulation: 1000 V DC
Max. radial run-out inner ring: 15 μm radial
10 μm axial

	V80 VCS 50Hz	V80 VCS 60Hz	V80 VRCC 60Hz
Generator supplier	ABB / Weier	ABB	ABB

10. Trafo Arrangement

10.1 Trafo

Standard: IEC 60076-11 2004
Manufacturer: SIEMENS/SGB/ABB/FRANCE TRANSFO
Type: CAST-RESIN
Rated power: 2100 kVA
Rated HV: 6-34.5 kV
Highest equipment voltage: 36 kV (U_m)
Highest power frequency withstand voltage (IEC): 70 kV
Highest impulse withstand voltage (IEC): 170 kV
HV tap changer: ±2x2.5%
Rated LV: 0.48/0.69 kV
Max. size: 2100 x 920 x 2150 mm
Max. weight: 5500 kg

Standard: IEC 60076-11 2004
Manufacturer: SIEMENS
Type: CAST-RESIN
Rated power: 1850 kVA
Rated HV: 6-34.5 kV
Highest equipment voltage: 36 kV (U_m)
Highest power frequency withstand voltage (IEC): 70 kV
Highest impulse withstand voltage (IEC): 170 kV
HV tap changer: ±2x2.5%
Rated LV: 0.69 kV
Max. size: 2100 x 920 x 2150 mm
Max. weight: 5500 kg

	V80 VCS	V80 VRCC
Trafo supplier	SIEMENS/SGB/ABB/FRANCE TRANSFO	SIEMENS

11. Crane

11.1 Service Crane

Manufacturer:	ABB
Type:	B 4.2 500/1-12 690V, BAU-LIFTKET
Lifting capacity (max.):	800 kg
Lifting speed:	12 m/min.

11.2 Component Crane (not included)

Manufacturer:	Secalt/Tractel
Type:	T 1000 P, 690V,Tirak
Lifting capacity:	6400 kg
Lifting speed:	4.5/18 m/min.
Length of wire:	500 m

12. Machine Cover

12.1 Cover Parts

Manufacturer:	Vestas
Material:	Reinforced glass fibre

12.2 Cover Support

Manufacturer:	Vestas
Vibration dampers:	IKAS Novibra RA 800 EMB

13. Wind Sensor

13.1 FT Sensor/Ultrasonic Sensor

Manufacturer:	FT Technologies Ltd
Type:	FT702LT
Size:	ø50 x 160 mm
Weight:	0.3 kg

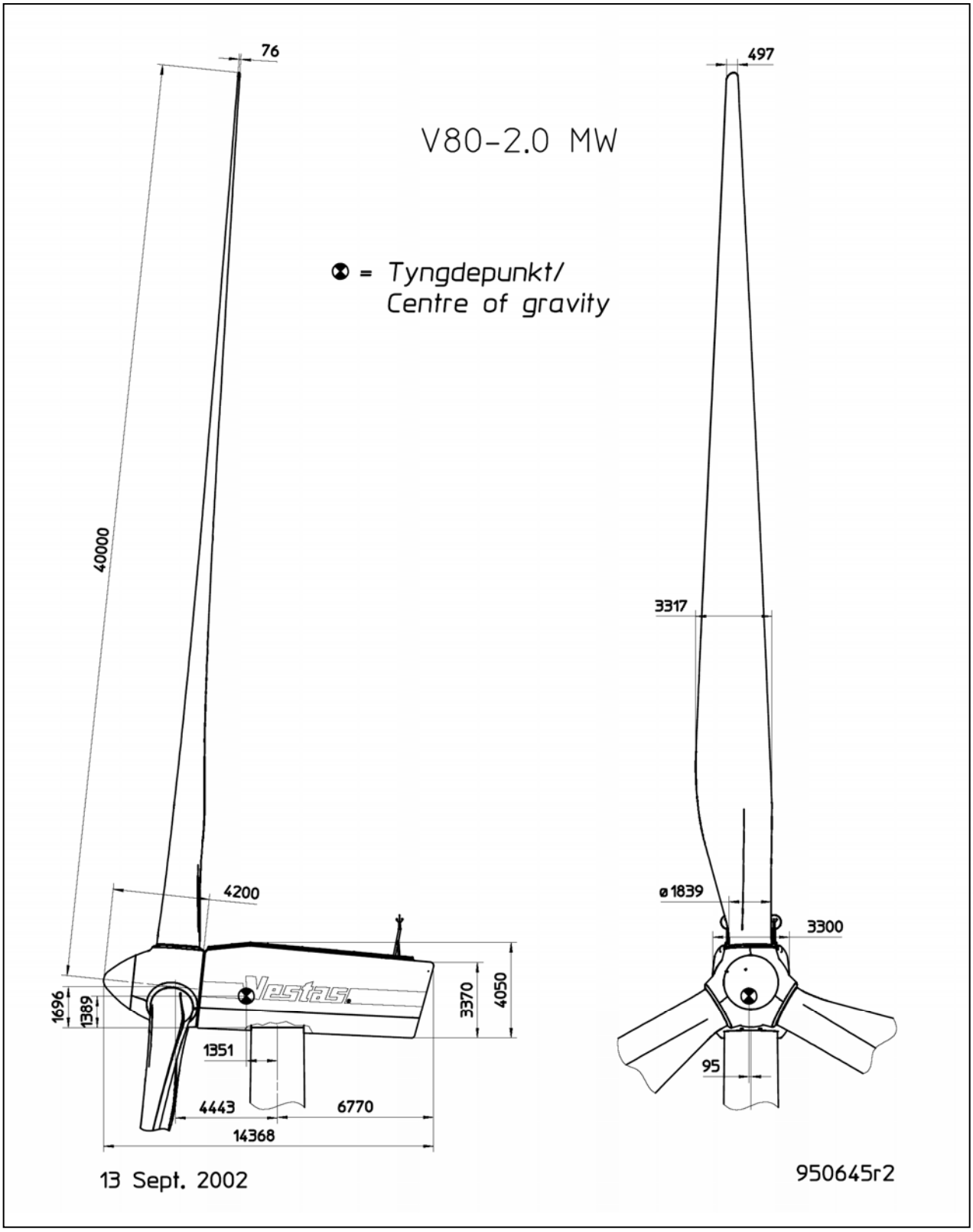
Manufacturer:	Vestas
Type:	VUS2D 2.0
Size:	ø70/ ø275 x 422 mm
Weight:	2.5 kg

14. Tubular Tower

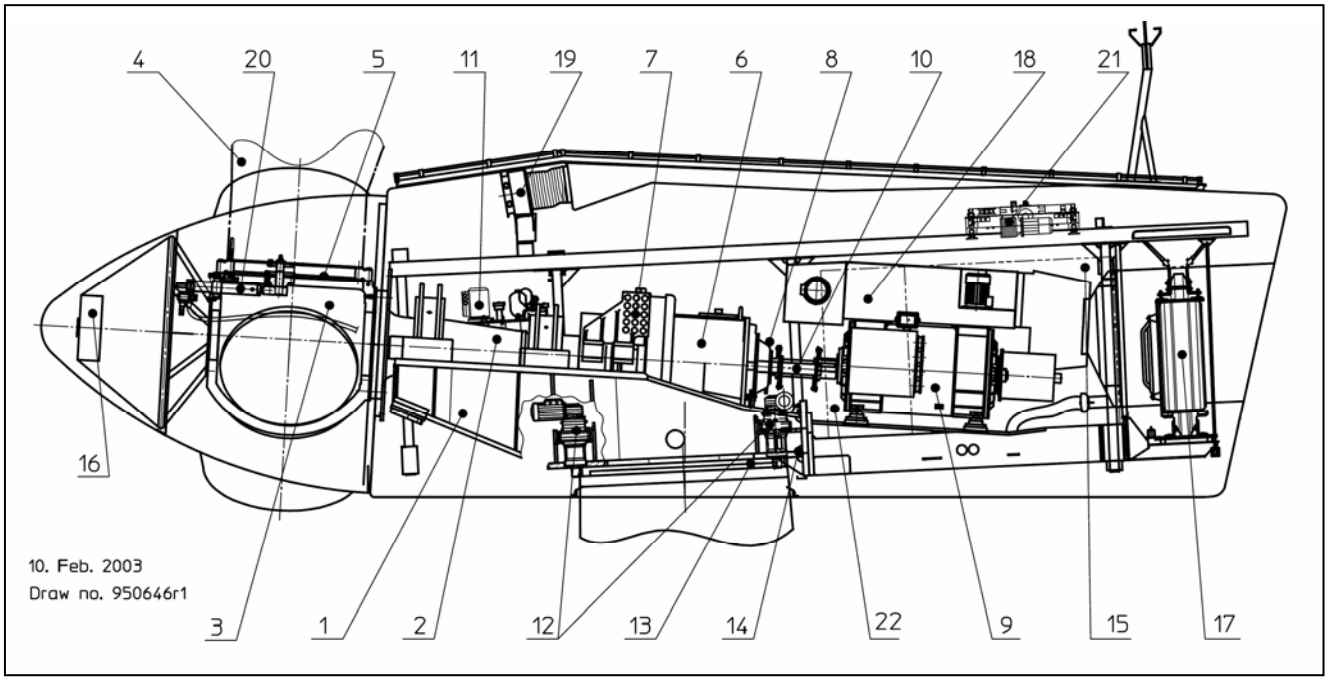
Manufacturer:	Vestas
Material:	S235 J0/JR
Heights:	60 m, 67 m, 78 m, 100 m
Top diameter:	2.3 m
Bottom diameter:	4.0 m

15. Dimension Drawings

15.1 Nacelle Cover and Blade, Overall Dimensions



15.2 Nacelle, Side View



Please disregard the position numbers.

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