

INSPECTION CERTIFICATE

EN 10204-3.1

Name	Purchase order no.	LM order no.	
WIND POWER ENERGIA S/A	4900017644	102295	
Rotor blade type	Item number	Customer spec. no.	BOM version
LM 37.3 P2 IMPSA	072000-11	cs-00257/A3	/34224/B
Rotor blade no.	Matched with		
000175-37.3P2-43	000176-37.3P2-43	000178-37.3P2-43	
Rotor diameter	Gelcoat colour	Blade generation	
77,00 m	ral 7035	D	

Specification	Limits		Result	Unit
	Min	Max		
Weight of blade	5,422	5,758	5,712	kg
C of G distance from rootbase			11.51	m
Mass moment at rootbase	596	652	645	kNm
Balancing deviation at rotor hub (in blade set)		0.20	0.04	%
Blade root bolt hole position (alpha)	2.80	3.80	3.10	°
Flapwise tracking - relative			0	mm
Edgewise tracking - relative			-	mm

LM Wind Power Group, LM Wind Power do Brasil S.A. and any affiliates hereof provides no guarantee/warranty on the Blades and assumes no liability whatsoever for the Blades and the use hereof

Version 11

Commercial registration number:
Wells Fargo General Checking
Account: 091300010-6783541821
SWIFT code: WFBUS6S

LM Wind Power
7400 Scott Hamilton Road
Little Rock, AR 72209

Tel: +1 (501) 801-6300
Fax: +1 (501) 801-6380

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Comments:

4/5/2012



Sign. Brandon Harris
QA Department

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Rotor blade no.	Matched with		
000176-37.3P2-43	000175-37.3P2-43	000178-37.3P2-43	
Rotor diameter	Gelcoat colour	Blade generation	
77,00 m	ral 7035	D	

Specification	Limits		Result	Unit
	Min	Max		
Weight of blade	5,422	5,758	5,713	kg
C of G distance from rootbase			11.52	m
Mass moment at rootbase	596	652	645	kNm
Balancing deviation at rotor hub (in blade set)		0.20	0.00	%
Blade root bolt hole position (alpha)	2.80	3.80	3.30	°
Flapwise tracking - relative			0	mm
Edgewise tracking - relative			-	mm

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Rotor blade no.	Matched with		
000178-37.3P2-43	000175-37.3P2-43	000176-37.3P2-43	
Rotor diameter	Gelcoat colour	Blade generation	
77,00 m	ral 7035	D	

Specification	Limits		Result	Unit
	Min	Max		
Weight of blade	5,422	5,758	5,679	kg
C of G distance from rootbase			11.58	m
Mass moment at rootbase	596	652	645	kNm
Balancing deviation at rotor hub (in blade set)		0.20	0.14	%
Blade root bolt hole position (alpha)	2.80	3.80	3.20	°
Flapwise tracking - relative			0	mm
Edgewise tracking - relative			-	mm

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CONTROL FORM

Item ID / rev.:
CF-10027/19

Description:

WEIGHING NOTE

EngChange ID:
29988

LM part / process:

WEIGHING AROUND ROTOR HUB

LM parts / process no.:

Release date:

18-05-10

CUSTOMER SPECIFICATION	BLADE DATA	WEIGHING METHOD
No: CS-00257/B1	OC nr.: 0	Application of balancing material Liquid Balancing
Blade Type/Customer/Gen/Item nr.: LM 37.3 P2 IMPSA[D/072000-11]	Rotor Diameter: 77.00 m	Weighing distance: 28.300 m

WEIGHING DATA			
Distance chamber 1 from root	27.750 m	Distance chamber 2 from root	28.900 m
Max. Balancing Material	100.0 kg	Max Balancing Material	50.0 kg

Weighing Requirements	Tip Weight	Nom.	kg	Min.	kg	Max.	kg
	Blade Weight	Nom.	5590 kg	Min.	5422.3 kg	Max.	5757.7 kg
	Moment at Root End	Nom.	624 kNm	Min.	596 kNm	Max.	652 kNm
	Balance deviation					Max.	0.20 %

BLADE SET NUMBER	BLADE NO.		
59	175	176	178

INITIAL BLADE WEIGHING			
Tip Weight	kg	kg	kg
Initial Root End Weight (CTQ input)	3388.0 kg	3388.0 kg	3356.0 kg
Initial Tip End Weight (CTQ input)	2320.0 kg	2325.0 kg	2321.0 kg
Initial Blade Weight	5708.0 kg	5713.0 kg	5677.0 kg
Initial Moment at Rotor Hub	714 kNm	716 kNm	714 kNm
Balance Material in Root End	kg	kg	kg
Balancing material in chamber 1	3.3 kg	0.0 kg	2.1 kg
Balancing material in chamber 2	0.0 kg	0.0 kg	0.0 kg
Projected Total Blade Weight	5711.3 kg	5713.0 kg	5679.1 kg
Projected Moment at Root End	645 kNm	645 kNm	645 kNm

FINAL BLADE WEIGHING			
Final Root End Weight	3388.0 kg	3388.0 kg	3356.0 kg
Final Tip End Weight	2324.0 kg	2325.0 kg	2323.0 kg
Final Blade Weight	5712.0 kg	5713.0 kg	5679.0 kg
Final Moment at Rotor Hub	715 kNm	716 kNm	715 kNm
C.o.G distance	11.514 m	11.517 m	11.576 m
Balance Deviation	0.04 %	0.00 %	0.14 %

Geometry Requirements	Tip Chord	Alpha min.	2.80 °	Alpha max.	3.80 °
	Tracking	Max. Flap	0 mm	Max. Edge	mm

Tip chord	3.10 °	3.30 °	3.20 °	
Tracking	Absolute tracking flap	mm	mm	mm
	Flap relative	0 mm	0 mm	0 mm
	Absolute tracking edge	mm	mm	mm
	Edge relative	0 mm	0 mm	0 mm

Pivoting System Requirements			bar
Pressure	bar	bar	bar

Operator Name:	Thomas Erbach	Operator No.:	90135	Date/Owner:	4/5/2012
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