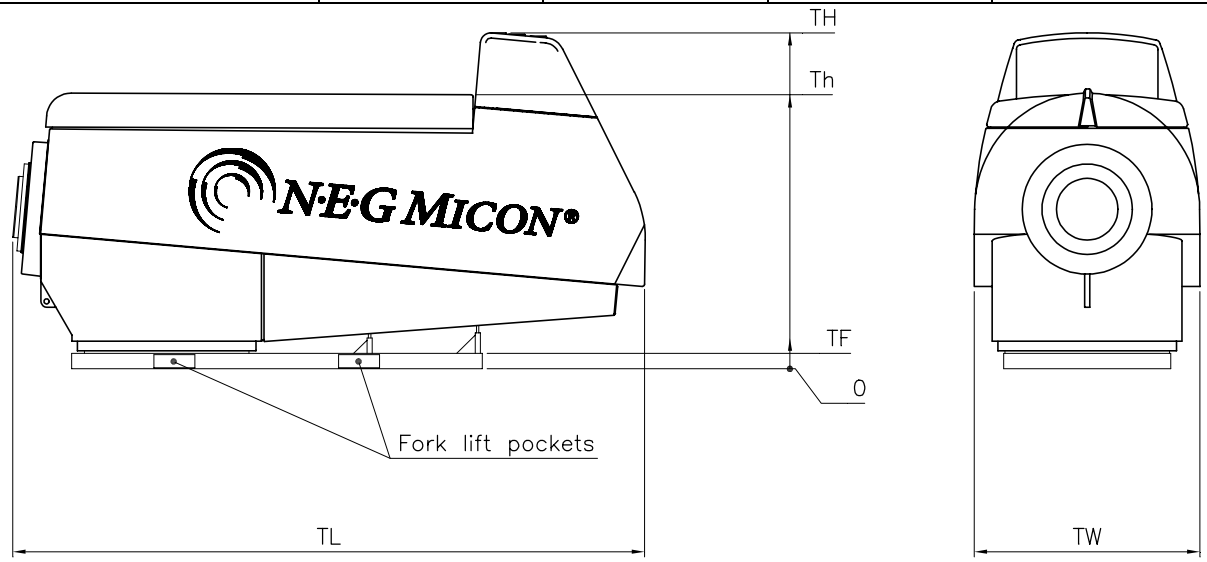


Weights, Dimensions & Transport Guidelines

NM 750/48

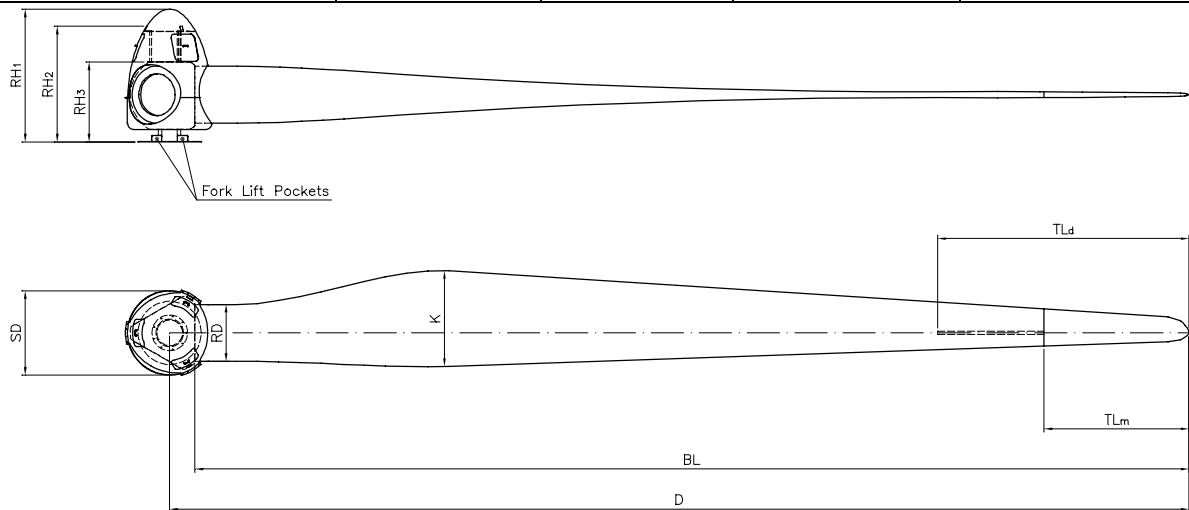
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TIC 247'002 GB

1 Nacelle Weights & Dimension				
Component	Length [m]	Height [m]	Width [m]	Weight [ton]
Main Shaft	2.1	1.2	1.2	2.3
Gear box	1.7	1.8	1.9	5.5
Generator	1.8	1.2	1.4	3.2
Machine Base Frame	6.2	1.4	2.2	5.5
				
Transport and Crane Guidelines				
	Length [m]	Height [m]	Width [m]	Weight [ton]
Nacelle incl. cooler	TL=6.2		TW=2.2	20 22 (IEC 1+)
Nacelle incl. cooler and transportation stand	TL=6.2	TH=3.3	TW=2.2	21 23 (IEC 1+)
Nacelle without cooler incl. transportation stand	TL=6.2	Th=2.7	TW=2.2	20.9 22.9 (IEC 1+)
Transportation stand		TF=0.15		1
Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
Typically used Crane	Dependent on tower			

2 Rotor Weight & Dimensions

Component	Weight [ton]	Length [m]	Diameter [m]	Max Chord [m]
Hub		RH3=		
Hub incl. console		RH2=	SD=	
Hub incl. spinner	3	RH1=3.0	SD=	
Blade – LM	3.4	BL=23.5	RD=1.34 (root)	K=2.25
LM-blade center of gravity distance from root base		7.5		
Blade tip – LM	0.12	TLm=3.5 TLd=		
Blade – AL	3	BL=23.5		K=2.38
AL-blade center of gravity distance from root base				
Blade tip – AL		TLm= TLd=		



Transport and Crane Guidelines

	Diameter [m]	Height [m]	Weight [ton]
Rotor – LM	2xD=48	3.0	14
Rotor – AL	2xD=48	3.0	13
Typical Transport Specification	4m wide road, 15m access radius, 12T axle load		
Typically used Crane	Dependent on tower		

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3 Tower Weight & Dimensions					
		Weight [ton]	Length [m]	Maximum diameter [m]	Minimum diameter [m]
Tower HH 45m Edged rk0/IEC II (Item No. 1835500)					
	Top section				
	Bottom section				
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane				
Tower HH 45m Round rk0/IEC II (Item No. 23130-001)					
	Top section	14.8	26.12	2.545	1.680
	Bottom section	22.6	17.48	3.350	2.545
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	One 180 tonnes hydraulic mobile main crane with 48.9 meters boom length and a 72 tonnes/meter lorry help crane (or a 50 tonnes hydraulic mobile help crane).			
Tower HH 45m IEC II (Item No. 23138-001 / 23136-001)					
	Top section	8.0	14.6	2.145	1.680
	Middle section	10.5	11.7	2.545	2.145
	Bottom section	24.0	17.5	3.350	2.545
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	See specification above for: Tower HH 45m (Item No. 23130-001)			
Tower HH 45m Round IEC II (Item No. 23127-001)					
	Top section	14.8		2.545	1.680
	Bottom section	22.9		3.350	2.545
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	See specification above for: Tower HH 45m (Item No. 23130-001)			
Tower HH 45m Round NL<6.2m/s (Item No. 23137-001)					
	Top section	14.8	26.1	2.545	1.680
	Bottom section	22.6	17.5	3.350	2.545
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	See specification above for: Tower HH 45m (Item No. 23130-001)			
Tower HH 50m Round rk0/IEC II (Item No. 23131-001)					
	Top section	16	26.12	2.545	1.680
	Bottom section	29.9	22.48	3.350	2.545
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	One 200 tonnes hydraulic mobile main crane with 53 meters boom length and a 72 tonnes/meter lorry help crane (or a 50 tonnes hydraulic mobile help crane).			

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3 Tower Weight & Dimensions					
		Weight [ton]	Length [m]	Maximum diameter [m]	Minimum diameter [m]
Tower HH 50m Edged NL<6.7m/s (Item No. 23124-000)					
	Top section				
	Bottom section				
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	See specification above for: Tower HH 45m (Item No. 23131-001)			
Tower HH 50m Edged rk0/IEC II (Item No. 1841500)					
	Top section				
	Bottom section				
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane				
Tower HH 55m Round rk0/IEC II (Item No. 23132-001)					
	Top section	16.0	26.12	2.545	1.680
	Bottom section	37	27.48	3.342	2.545
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	One 250 tonnes hydraulic mobile main crane with 60 meters boom length and a 72 tonnes/meter lorry help crane (or a 50 tonnes hydraulic mobile help crane).			
Tower HH 55m Edged NL<6.7m/s (Item No. 23122-001)					
	Top section				
	Bottom section				
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	See specification above for: Tower HH 45m (Item No. 23132-001)			
Tower HH 55m Edged IEC IIB (Item No. 23103-000)					
	Top section				
	Middle section				
	Bottom section				
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	One 250 tonnes hydraulic mobile main crane with 60 meters boom length and a 72 tonnes/meter lorry help crane (or a 50 tonnes hydraulic mobile help crane).			
Tower HH 55m Edged rk0/IEC II (Item No. 23104-001)					
	Top section	18	26.6	2.500	
	Bottom section	30	27	3.000	2.500
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	See specification above for: Tower HH 45m (Item No. 23132-001)			

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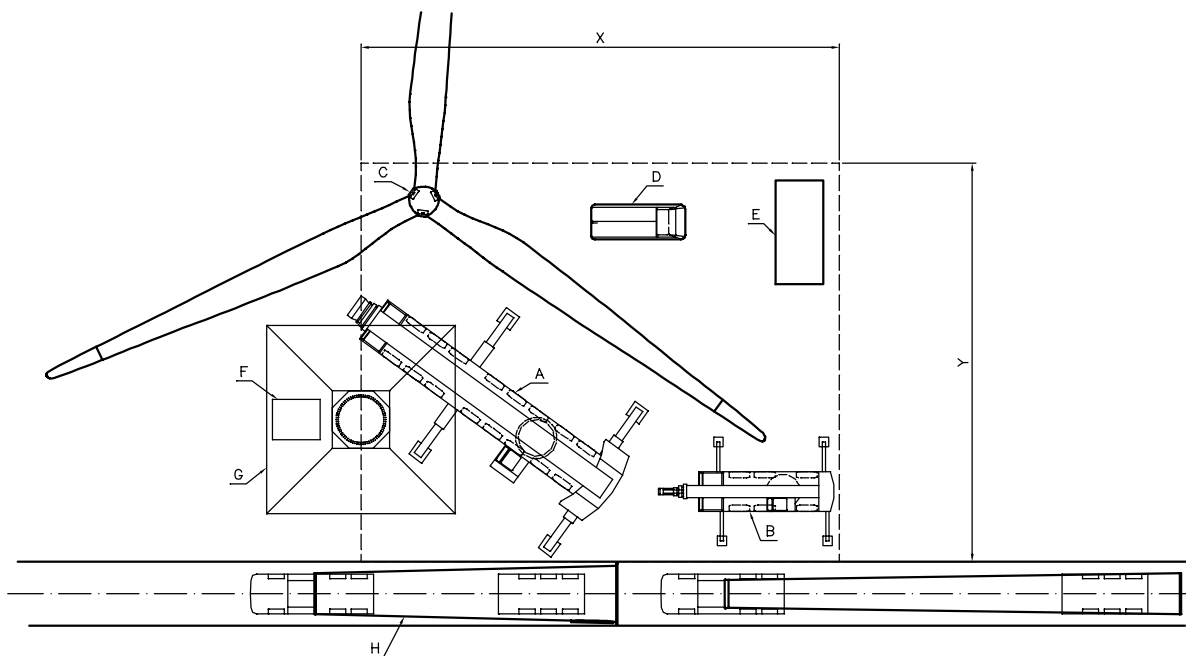
3 Tower Weight & Dimensions					
		Weight [ton]	Length [m]	Maximum diameter [m]	Minimum diameter [m]
Tower HH 60m Round NL<8.5m/s (Item No. 23112-001)					
	Top section	27.0			
	Bottom section	49.9			
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane				
Tower HH 60m Round wzIII (Item No. 23109-001)					
	Top section	27.0	28.6	2.433	1.680
	Bottom section	46.2	28.4	3.565	2.433
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	One 350 tonnes hydraulic mobile main crane with 50 meters boom length and 16 meters boom extension and a 72 tonnes/meter lorry help crane (or a 50 tonnes hydraulic mobile help crane).			
Tower HH 68.4m Round NL<8.5m/s (23110-001)					
	Top section				
	Middle section				
	Bottom section				
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane				
Tower HH 70m Round wzIII (23110-001)					
	Top section	23	28.6	2.433	1.680
	Middle section	23	19.3	2.969	2.433
	Bottom section	31	19.1	3.842	2.969
	Typical Transport Specification	4m wide road, 15m access radius, 12T axle load			
	Typical used crane	One 350 tonnes hydraulic mobile main crane with 30 meters boom length and 44 meters luffing fly jibs and a 72 tonnes/meter lorry help crane (or a 50 tonnes hydraulic mobile help crane).			

4 Trafo in Tower				
	Weight [ton]	Width [m]	Height [m]	Depth [m]
	4	2	2	1.2

5 Sketch of Site Plan

Following parameters and lengths are to be settled between the Project Manager and the Crane operator before installation starts:

Minimum Site Soil Compaction (kN/m)	A: Main crane
Length (X) and width (Y) of site area	B: Help crane
Minimum road width	C: Rotor
Minimum turn radius	D: Nacelle
Distance between main crane and tower sections	E: Container
Distance between main crane and foundation	F: Trafo
Distance between main crane and rotor	G: Foundation
Distance between main crane and nacelle	H: Tower sections



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