



Wind energy powers the economy

Demag solutions for the wind turbine industry

DEMAG

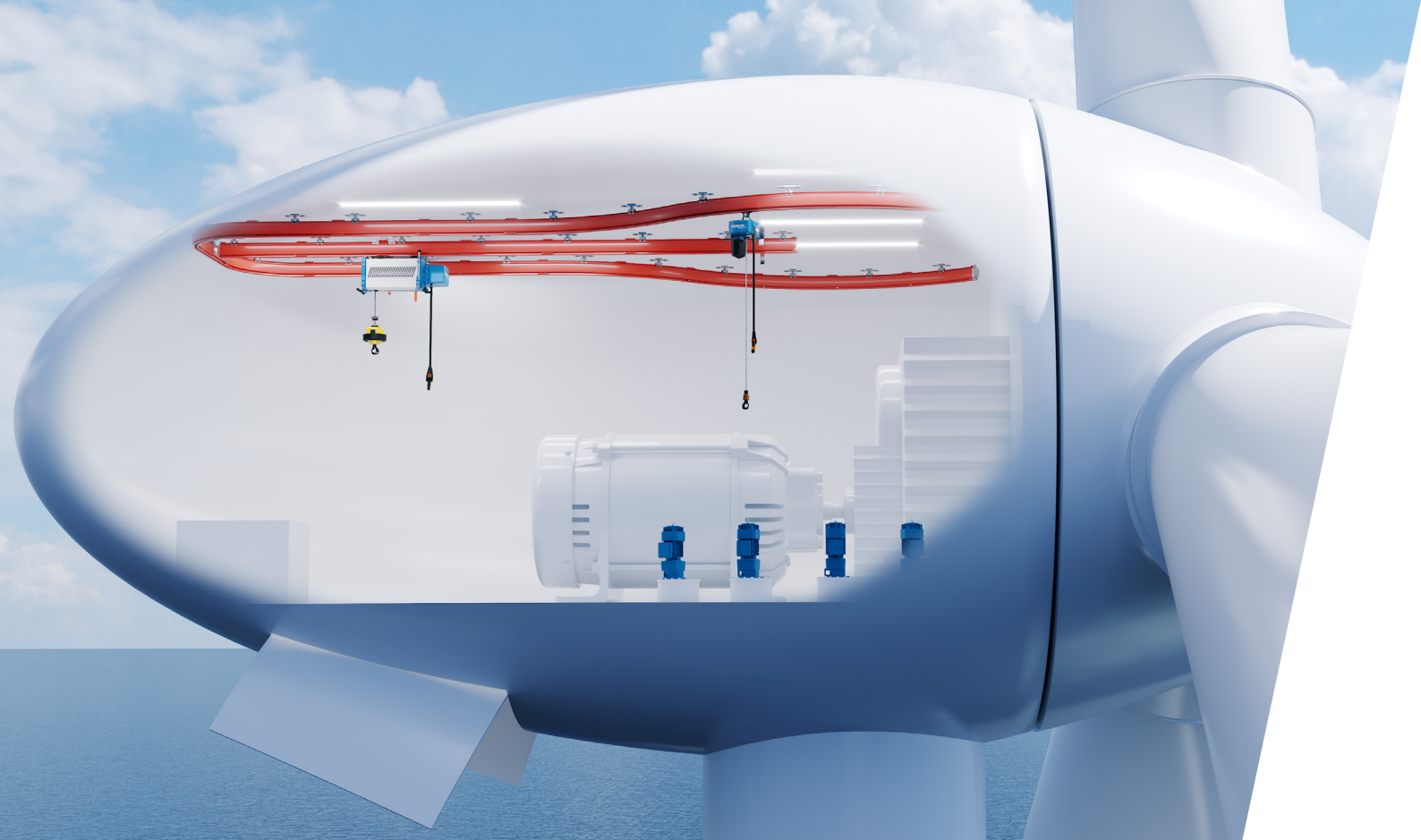




For swift service in wind turbine installations

When maintenance work needs to be carried out on wind turbines, the spare parts and tools have to be lifted on the outside up to the nacelle to heights of 100 metres or more. For onshore and offshore installations we offer cranes, rope and chain hoists that are specially designed to meet the needs of the wind power industry.

Demag hoists ensure fast, convenient and reliable service procedures and minimise the time required to transport material. They help to ensure that facility downtimes are cut to a minimum and to boost the efficiency of these installations. Many companies in the wind power industry also employ our technologies to manufacture their wind turbines.



Modular solutions for safe and reliable handling

Using our KBK system, we can meet your specific application requirements precisely, safely and efficiently.

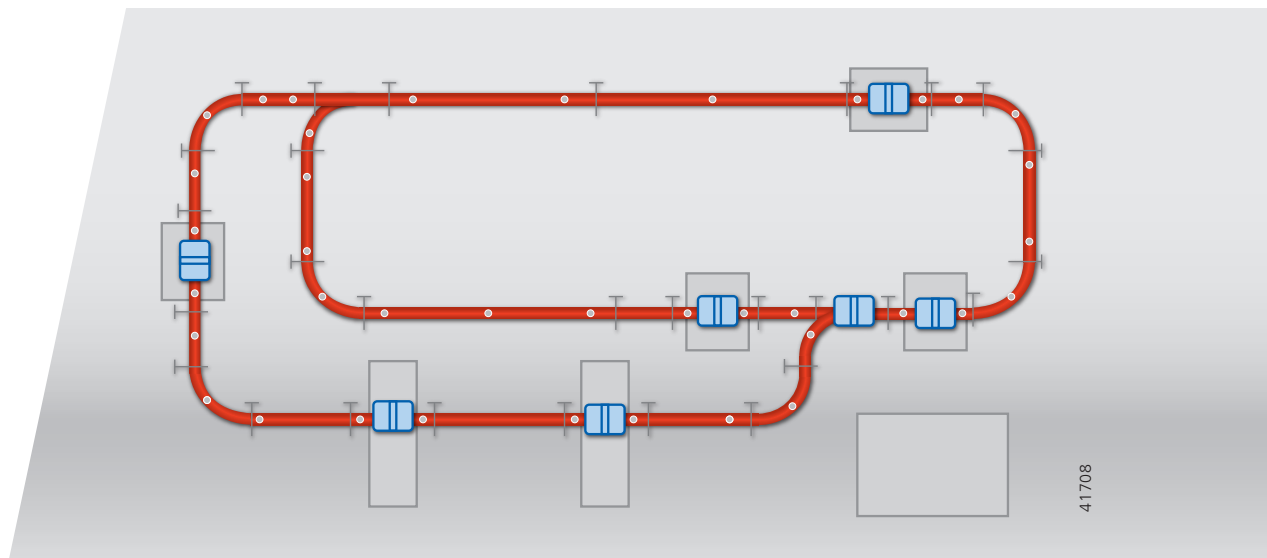
Our modular system – consisting of profile sections, trolleys and an extensive range of components – can be combined to create specific solutions. Thanks to the system's high flexibility, our KBK installations can be integrated direct into any wind nacelle. In connection with the hoists that have been specially developed for the wind turbine industry, Demag KBK provides a reliable logistics system for fast and safe transport in the nacelle.

- High level of safety thanks to tailored track layout, allowing individual stations in the nacelle to be served, as required
- Can be connected to all nacelle constructions
- Maximum strength for a low deadweight
- Rugged and low-maintenance system

Safe, ergonomic and precisely matched to your needs.

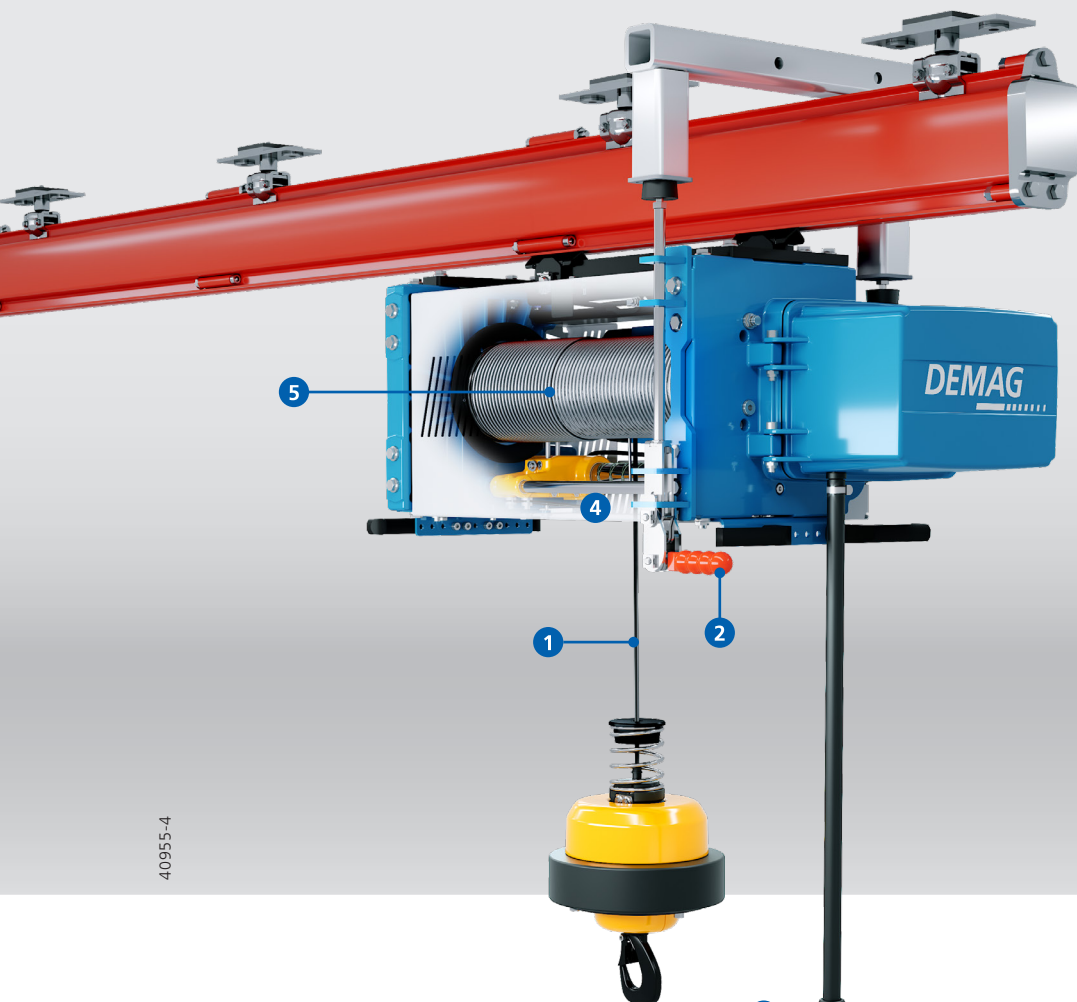
With our Demag KBK light crane system, logistics solutions can be configured to suit any wind turbine. This means that spare parts and tools can also be transported safely and positioned accurately within the nacelle:

- Profiles designed as straight and curved sections – this allows the track to be precisely matched to the geometry of the wind turbine and to internal transport tasks.
- The monorail track runs along the same radius as the azimuth motors. This allows these motors and gearboxes to be lifted without any inclined pull and thus without dangerous load sway.
- The KBK Ergo suspensions used to attach the rails to the nacelle absorb the movements of the wind turbine and the resulting forces in all directions and adapt to any deflection. In addition, the rubber element provides additional protection from impacts for the superstructure and the KBK installation.
- In addition to tough standard powder coating, the track sections and other components can be adapted to match specific environmental conditions, e.g. by hot-dip galvanizing and zinc-flake coating for corrosion protection (C3H or similar).
- Demag KBK includes many system components that can be used to meet customer-specific design needs:
 - Latching device at working positions prevents the hoist from moving, which can be caused by sudden movements of the nacelle.
 - Brackets for fittings
 - Internal power supply lines



Example of a complex solution with Demag KBK: closed-circuit monorail system

Compact with high lifting speeds – Demag DS10-Wind rope winch



40955-4

1 HOOK PATH

- The Demag DS10-Wind rope winch with hook paths of up to 180 m is a reliable hoist in wind turbines.

2 PARKING POSITION

- Locking devices for safe parking when not in use or at specific operating points
- Trolley can be secured against unintentional movement caused by motions of the wind turbine
- Additional compensation mechanism also for horizontal retention of the hoist unit

3 CONTROL SYSTEM

- Optimum handling thanks to compact, ergonomic control pendant and flexible control cable

4 LIMIT SWITCHES

- Reliable stop: operating limit switch for the highest hook position
- Compensation for rope elongation

5 ROPE GUIDE

- Rope wound in multiple layers – diamond screw spindle ensures that the rope is guided correctly
- The rope is carefully wound in up to four layers
- Extremely precise horizontal positioning of the rope along the drum
- A chain collector bag with increased space requirement is therefore not needed



CONVENIENT OPERATION

- Fast main lifting movement and precise positioning at creep speed
- Ergonomic and fatigue-free handling
- Compact dimensions due to low-headroom trolley design
- Unrestricted view of the working area thanks to large chain collector bag
- No damage to the inner or outer surface of the tower caused by lifting motions thanks to a protective sleeve on the hook assembly (optional)
- Simple movement on I-beam girders or in the KBK system for horizontal transport of loads within the nacelle
- Even more convenient movement thanks to optional handles
- Cyclic duration factor up to 100% enables efficient operation even at large lifting heights
- Slipping clutch for overload protection



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HIGH SAFETY STANDARD

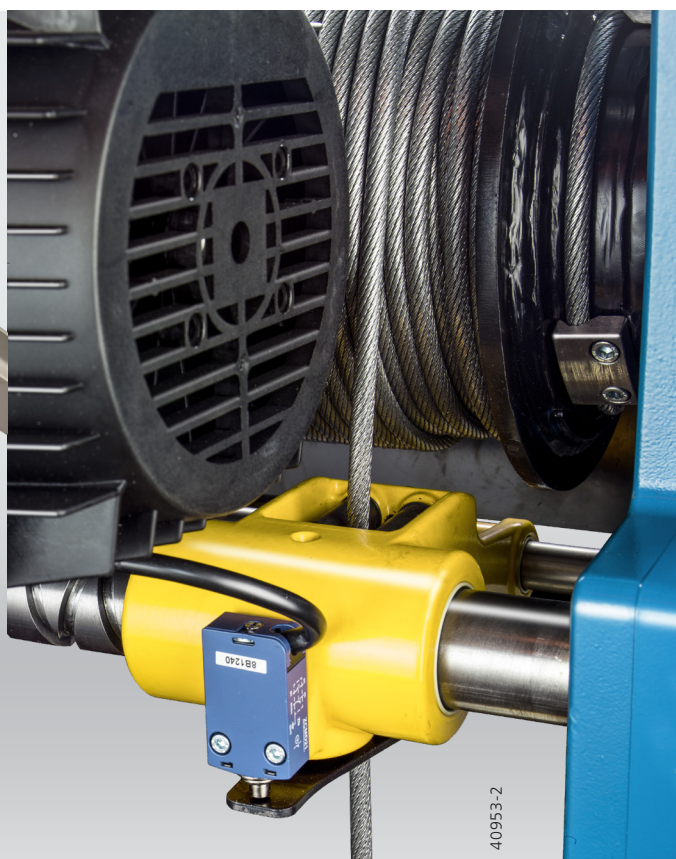
- The load is safely held in every operating situation: brake/clutch system prevents the load from dipping
- Greater safety thanks to the operating limit switch for the top hook position and a geared limit switch for the bottom hook position
- The high lifting speed is switched off below the nacelle to protect the nacelle housing from damage
- Improved safety when lifting loads: the high lifting speed is always switched off between the fast-to-slow and final limit switches.
- Safe switching and operation due to 48 V contactor control
- Protective cover: enclosed rope drum on rope winches operating within arm's reach
- If power fails during a lifting/lowering operation: the load can be slowly lowered by means of optional manual brake release
- Aluminium housing parts with scratch-resistant powder coating, which also offers corrosion protection up to C3H in the standard version
- Brake and control unit clearly arranged and directly accessible under the electric equipment cover
- Corrosion-protected brake under electric equipment cover (both with IP 55 protection)

FOR HARSH CLIMATES

- Reliable operation from -20 °C to +45 °C without any reduction in the duty factor, up to 60 °C and higher possible
- Cold-climate design
- Installation sites at high altitudes
- Equipment for offshore applications

DS10-WIND: TECHNICAL DATA

Load capacity [kg]	Reeving	Lifting speed at 50 Hz [m/min]	Max. weight for hook path	
			130 m [kg]	180 m [kg]
500	1/1	12.0 / 3.0	165	192
		20.0 / 5.0		
		25.0 / 6.25		
		40.0 / 10.0		
		48.0 / 8.0		
630		12.0 / 3.0		
		20.0 / 5.0		
		25.0 / 6.25		
800		40.0 / 6.6		
		12.0 / 3.0		
		20.0 / 5.0		
		25.0 / 6.25		
1,000		12.0 / 3.0		
		20.0 / 5.0		
	25.0 / 4.16			



Compact design even with 180 m hook path. Multilayer technology ensures precise rope winding in up to four layers



41807-9

Quickly installed and easy to maintain: DC-Wind chain hoist

The DC-Wind chain hoist: proven worldwide for wind turbine maintenance and service. With its reliable lifting capacity, it cuts maintenance and downtimes to a minimum – making a decisive contribution to high availability and efficient operation.

FEATURES:

- Convenient operation
- High safety standard
- Easy transport of loads weighing up to 1,200 kg
- Hook paths up to 180 m
- Variable attachment to profile-section girders, slewing jib or crane

DC-WIND TECHNICAL DATA

Load capacity [kg]	Chain hoist type	Lifting speed [m/min]
125	DC-Wind 5	24
250		16
350	DC-Wind 10	24
500		18
800		18
1,000	DC-Wind 15	16
1,200		16
1,000	DC-Wind 16/25	24

Hook paths up to 180 m. Other types on request.

HIGH SAFETY STANDARD

- Safe and reliable load handling thanks to its monitored brake/coupling system and its corrosion-protected brake featuring IP 55 protection
- Safety-related functions satisfy at least Performance Level c and Category 2 (EN ISO 13849-1)
- Improved safety due to operating limit switches for the highest and lowest hook positions
- Low-voltage control pendant thanks to 24 V contactor control system

CONVENIENT OPERATION

- Fast main lifting speed
- Precise positioning at creep lifting speed
- Low-sway load handling thanks to smooth cross-travel starting and braking motions
- No damage to the inner or outer surface of the tower caused by lifting motions thanks to an optional protective sleeve on the hook assembly
- Continuous and efficient operation also at large lifting heights thanks to motors with 100% cyclic duty factor
- Trolley can be simply locked with a handle
- Ergonomic control pendants

FAST INSTALLATION AND SIMPLE HANDLING

- Simple commissioning and ease of service thanks to Plug & Lift connections
- Long product service life and extremely low wear due to electric braking and slip monitoring of the slipping clutch
- Gearbox and slipping clutch maintenance-free for up to 10 years

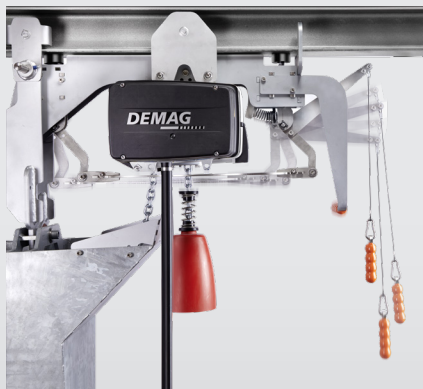
CAN BE MATCHED TO CUSTOMER REQUIREMENTS

- Specification to suit individual needs, e.g. lifting height and chain collector design
- Optimised design for different climate zones:
 - Offshore applications
 - Cold-climate versions
 - Installation sites at high altitude



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The low-headroom design offers special benefits in the often restricted space available in the nacelle



41807-5

Lever with single-hand operation to lock the trolley



41807-14

Sheet-metal chain collector boxes for long chains and/or special requirements



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