STAHL CraneSystems
By Columbus McKinnon



SXD/SXF WIRE ROPE HOIST

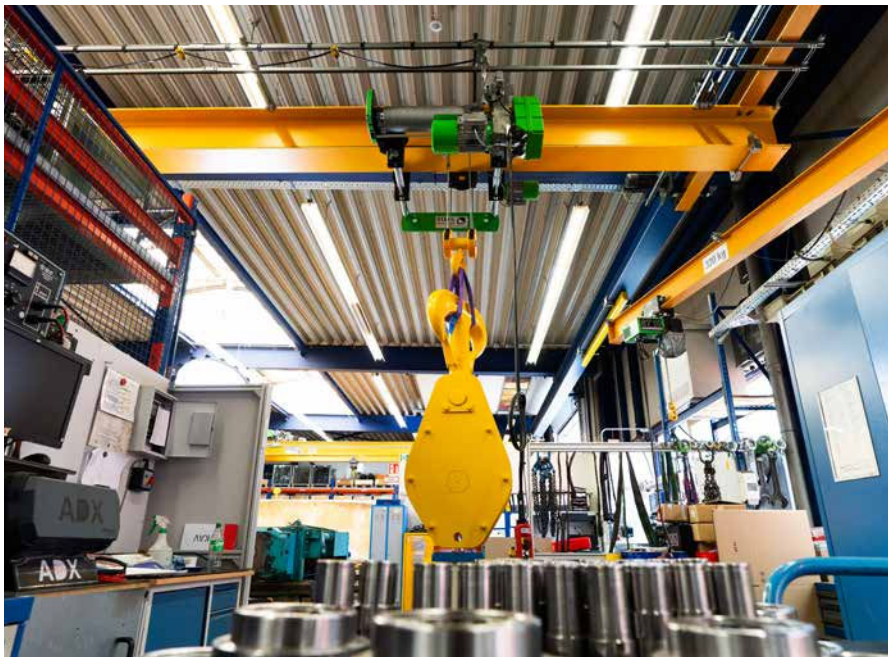
PROVEN TECHNOLOGY REDEFINED

SXD / SXF WIRE ROPE HOIST

The SXD wire rope hoist from STAHL CraneSystems provides a reliable and efficient lifting solution for standard applications, featuring robust technology and precise control. Thanks to its compact design, powerful safety functions and durable components, the pole-changing SXD wire rope hoist is a reliable lifting device for users, crane manufacturers and plant engineers.

The SXD wire rope hoist is the latest model from STAHL CraneSystems and is specially designed for lifting loads of up to 10,000 kg. It impresses with its intuitive operation and lower operating costs, without compromising on proven quality. The optimised frame design also makes installation, commissioning and maintenance much easier. The SXD (dual speed) wire rope hoist offers two powerful speeds for main and fine lifting thanks to pole-changing motors, reliable operation in standard applications. The SXF (frequency-controlled) wire rope hoist is available for infinitely variable speed control, smooth starting and precise positioning. With the intelligent Dynamic Lift System (DLS), the wire rope hoist adapts flexibly to any application, ensuring maximum efficiency and high comfort. Both models are as well available as customised CraneKits for overhead and bridge cranes.

The single-girder suspension crane with a SXD rope hoist is used for the safe and efficient transport of parts and components from the warehouse to production.





THE FACTS

- Load capacities from 2,000 to 10,000 kg
- Virtually maintenance-free, low wear, long service life
- Compact and weight-optimised design with reduced headroom
- Easy commissioning and maintenance
- Particularly smooth start-up and braking behaviour with frequency-controlled SXF wire rope hoists
- Also available as CraneKit

Type	Load capacity [kg] & Reeving		ISO (FEM 9.661) Rope drive	SXD ISO (FEM 9.511) Mechanism	SXD Hoisting speed	SXF ISO (FEM 9.511) Mechanism	SXF Hoisting speed with DLS* minimum – Rated load ... Ultra-Lift
SXD / SXF 4005	2,000	4/1	M6	M4/5	1.2/5 m/min | 50 Hz (1.5/6 m/min | 60 Hz)	M5	0.5 – 4.5 … 9 m/min
SXD / SXF 4006	2,500						0.5 – 4.2 … 9 m/min
SXD / SXF 4008	3,200		M5				0.5 – 3.9 … 9 m/min
SXD / SXF 4010	4,000						0.5 – 3.5 … 9 m/min
SXD / SXF 4012	5,000						0.5 – 3.0 … 9 m/min
SXD / SXF 5016	6,300	4/1	M6	M4/5	1.2/5 m/min | 50 Hz (1.5/6 m/min | 60 Hz)	M5	0.45 – 3.5 … 8.1 m/min
SXD / SXF 5020	8,000		M5				0.45 – 3.2 … 8.1 m/min
SXD / SXF 5025	10,000						0.45 – 3.0 … 8.1 m/min

*Hoisting speed, Dynamic Lift System with Advanced Ultra-Lift (up to 150 Hz or 300 %)

DESCRIPTION	SXD 4	SXF 4	SXD 5	SXF 5
Performance	4.8 | 5.8 kW	2.6 kW	8.7 | 10.4 kW	4.5 kW
Number of poles	2-pole	4-pole	2-pole	4-pole
Supply Voltage	50 Hz | 380 – 415 V 60 Hz | 440 – 480 V	50 Hz 380 – 415 V	50 Hz | 380 – 415 V 60 Hz | 440 – 480 V	50 Hz 380 – 415 V
Control Voltage	50 Hz | 48 VAC / 230 VAC 60 Hz | 120 VAC | OEM 48 VAC	50 Hz 48 / 230 VAC	50 Hz | 48 VAC / 230 VAC 60 Hz | 120 VAC | OEM 48 VAC	50 Hz 48 / 230 VAC
Motor type	8/2HM5-MG	4HM3-MG	8/2HM6-MG	4HM5-MG
Duty cycle	40 %	40 %	40 %	40 %
Bottom hook	H164-4	H164-4	H229-4	H229-4
Total weight with drum length L2H	340 kg	310 kg	595 kg	556 kg
Total weight with drum length L3H	370 kg	340 kg	665 kg	626 kg
Travel speed	4/16 m/min | 50 Hz (5/20 m/min | 60 Hz)	2.5 – 25 m/min	4/16 m/min | 50 Hz (5/20 m/min | 60 Hz)	2.5 – 25 m/min

*New classification

TECHNOLOGY & OPTIONS

The pole-changing SXD wire rope hoist features advanced, reliable technology. The low-maintenance components of the modular wire rope hoist pull are carefully coordinated to guarantee high performance and a long service life. The optional plug-and-play principle allows the electrical components to be quickly integrated and installed without specialised knowledge.

OPTIONAL TRAVEL LIMIT SWITCH

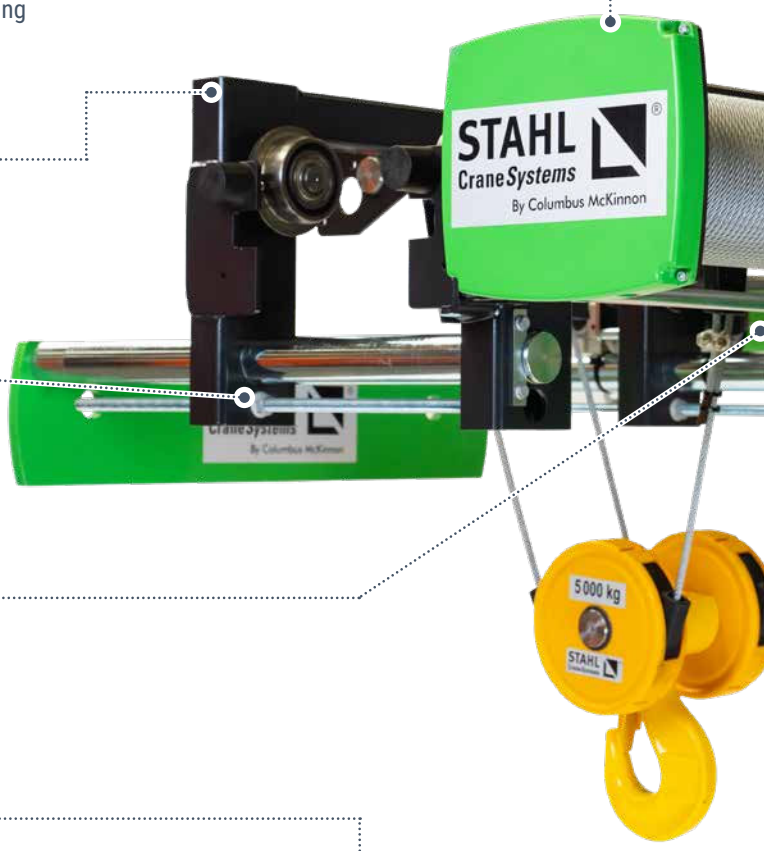
The direction of travel is limited in both directions by means of advance and end switches.

OVERLOAD PROTECTION

Permanent electronic monitoring of the attached loads and limitation of the maximum load are carried out by measuring at the rope fixing point.

MONORAIL TROLLEY

The KE-X monorail trolley is suitable for monorail systems and single-girder cranes. The extremely low height of the travelling mechanism allows for large hook paths even with low ceilings.



ADJUSTING NUTS

Easy accessibility facilitates installation, as the hoist can be mounted on the beam from below and the flange width can be adjusted directly.

WORM GEAR WITH BRAKE MOTOR

The worm gear for the travel motor ensures a particularly compact design and thus contributes to a further reduction in size.

MOTOR & BRAKE

The positioning of the brake motor outside the rope drum ensures easy heat dissipation. The low-maintenance brake with a long service life operates with low wear thanks to the motor management system and does not require readjustment.

ROPE DRUM

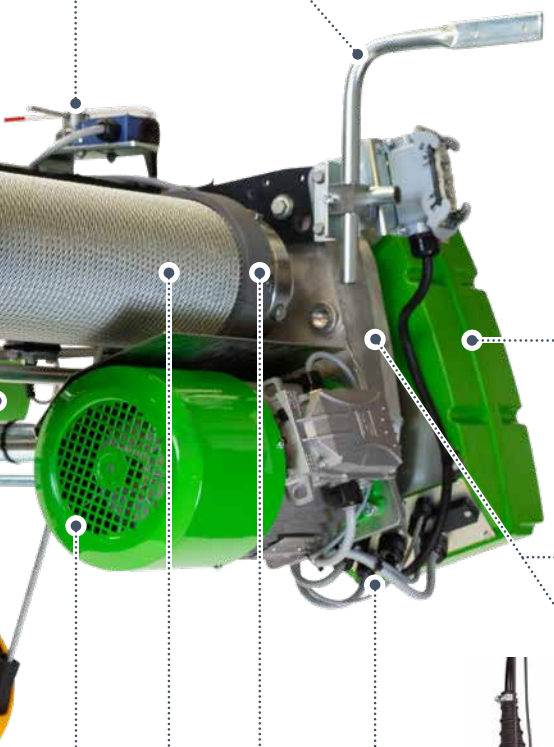
Easy maintenance is made possible by quick and direct access to the rope and rope guide.

OPTIONAL TOWING ARM

The towing arm can be mounted on either the right or left side of the chassis for greater user-friendliness, depending on the conditions and the power supply.

TEMPERATURE MONITORING

The protection system detects overheating at an early stage and protects the hoist and travel motor in all speed ranges.



LOAD MONITORING

Permanent electronic load monitoring and maximum load limitation via load detection at the rope anchor point enable safe control, even with multiple hooks.

CONTROL AND MOTOR MANAGEMENT SLE

The standard condition monitoring function reduces mechanical stress through suppression of jogging operation and generously dimensioned contactors together ensure long-lasting, safe and reliable control of the hoist.

EMERGENCY HOIST LIMIT SWITCH

The hoist is equipped as standard with a gear end switch for the highest and lowest hook positions and an operating end switch for the highest hook position.

GEAR VENT

The gear is equipped with a gear vent screw to equalise the pressure in the gear and prevent leaks.

MAINTENANCE-FREE GEARBOX

The gearbox is equipped with lifetime lubrication, which means that oil changes are not necessary.



OPTIONAL CONTROL DEVICES

Available with either a robust, cable-connected STH control device or with Magnetek radio controls in push-button or master switch versions.



DESIGN-OPTIMISED ROPE GUIDE

The plastic cable guide generates less friction and uses proven tension spring technology, which ensures that the cable sits securely in the drum groove.

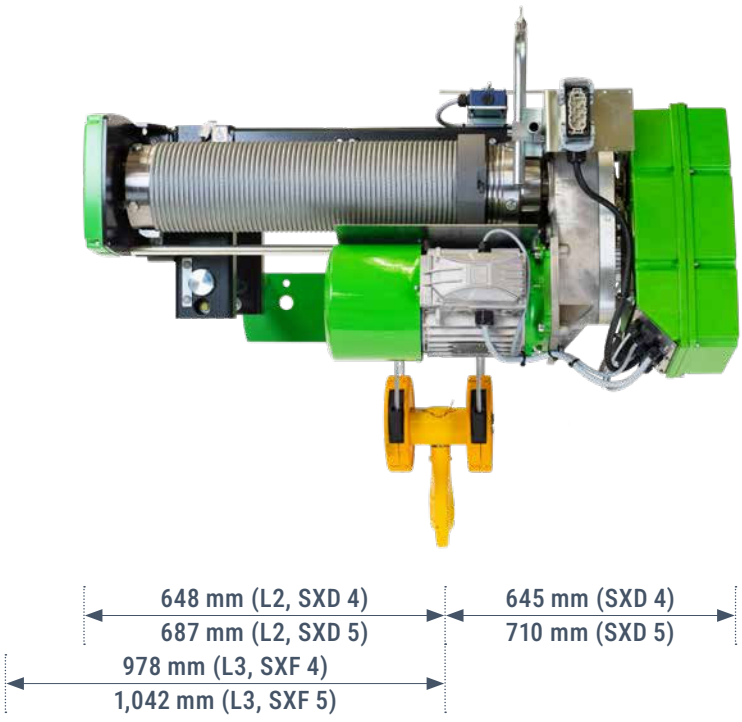
COMPACT DESIGN

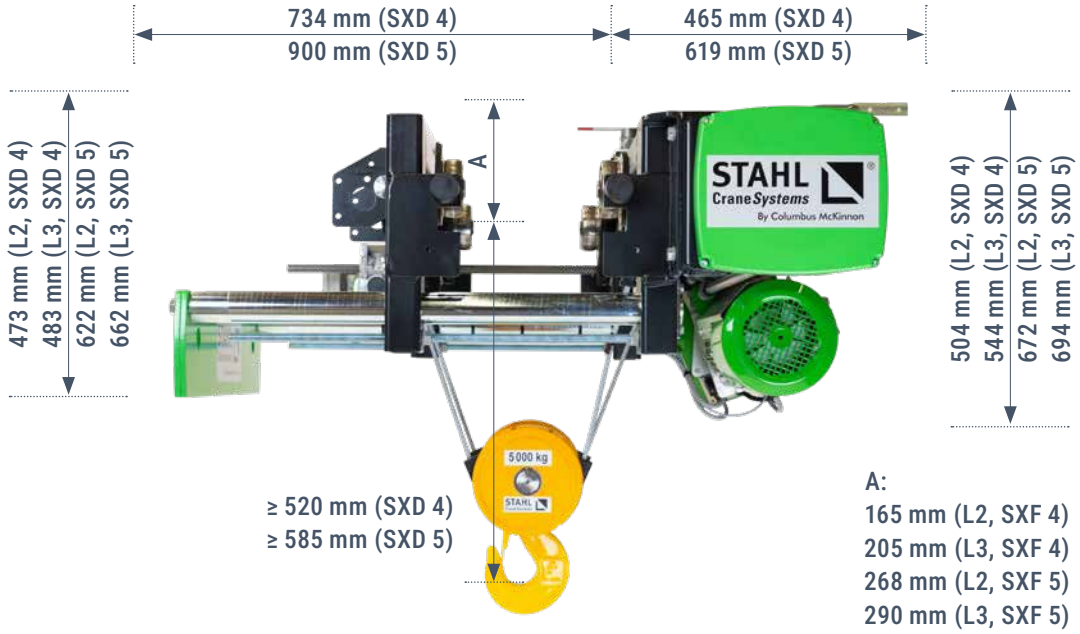
The pole-changing SXD wire rope hoist impresses with its optimised, slim design, which enables quick and easy installation. Its compact and lightweight construction makes optimum use of the available space. The optimised drive shaft with adjustable flange area also allows for easy adjustments directly on site. The user-friendly handling reduces training requirements to a minimum and ensures safe operation.

The SXD series of wire rope hoists sets new standards in terms of weight and size. Compared to previous models, the tare weight has been significantly reduced. For example, depending on the selected equipment, the trolley with a load capacity of 10,000 kg weighs only 595 kg, making it one of the lightest on the market. The optimised approach dimensions and the highest hook position enable efficient use of the lifting height and maximise the working area below the hoist. Depending on the model, the SXD wire rope hoist offers lifting heights of up to 7.5 m or 12 m. The design optimisations cover all industrial requirements. The uniform design of the trolley bolts facilitates both storage and adjustment of the flange width when assembling the crane. Instead of wear-prone counterpressure rollers, the SXD wire rope hoist uses a counterweight. The lightweight design of the gearbox reduces the required counterweight and thus the total weight of the hoist. The compact gearbox enables a narrow side profile and improved approach dimensions for the crane and hoist. The design meets the requirements of ASME, FEM and DIN ISO standards. In addition, the new travel drive with worm gear contributes significantly toward the reduction in size.

THE FACTS

- Quick and easy installation
- Compact and lightweight design
- User-friendly operation
- Optimal vertical hook availability
- Lifting height of 7.5 m or 12 m
- Minimal training required







DRIVE SHAFT

The optimised drive shaft of the SXD/SXF series simplifies commissioning and further offers high efficiency, flexibility and durability. The dual-sided drive evenly distributes power to both sides of the trolley. This ensures precise straight-line movement and reduces wear on travel wheels and steel structures, significantly increasing operational safety and extending the service life of the entire crane system.

Thanks to its uniform shaft length, which covers flange widths from 90 to 500 mm, there is no need for time-consuming individual adjustments on site. Subsequent modifications to the flange width can even be carried out by the user without replacing parts and with minimal effort. In addition, the drive shaft allows for easy on-site adjustment, with settings that can be made without special tools.

SAFETY FEATURES

The SXD wire rope hoist offers a range of advanced safety features that reduce wear and tear and increase versatility. These include, for example, a newly developed rope guide with protected deflection roller guide and finger protection, control and motor management, and integrated overload protection. These features increase safety and reduce maintenance requirements.



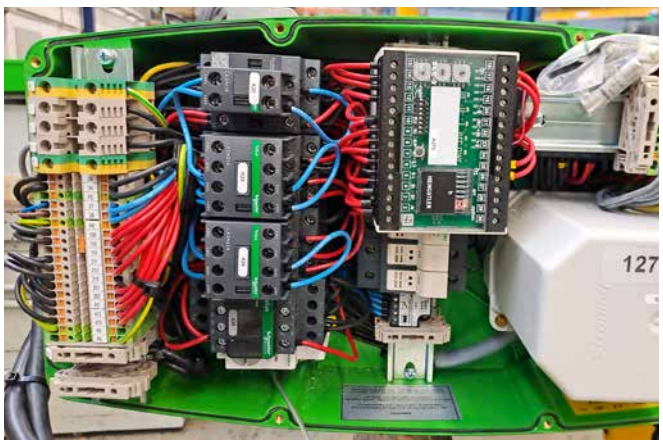
ROPE GUIDING ELEMENTS

The plastic rope guide reduces friction and protects the rope. The integrated tension spring reliably prevents overwind and ensures that the rope sits firmly in the drum groove. The 360° closed rope guide ring protects against external influences, it minimises contact with hard surfaces and reduces dust accumulation, while its simple attachment to the guide rail significantly reduces maintenance requirements.



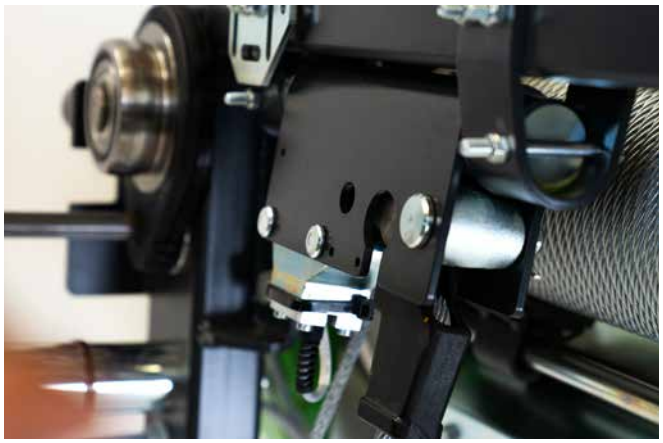
FINGER PROTECTION SYSTEM

The finger protection system combines maximum safety with optimised rope guidance. The specially developed guide elements reliably ensure that fingers cannot get caught in the hook block or the running rope. At the same time, the guide elements allow different rope angles and protect not only the rope itself from damage, but above all the hands of the operating personnel.



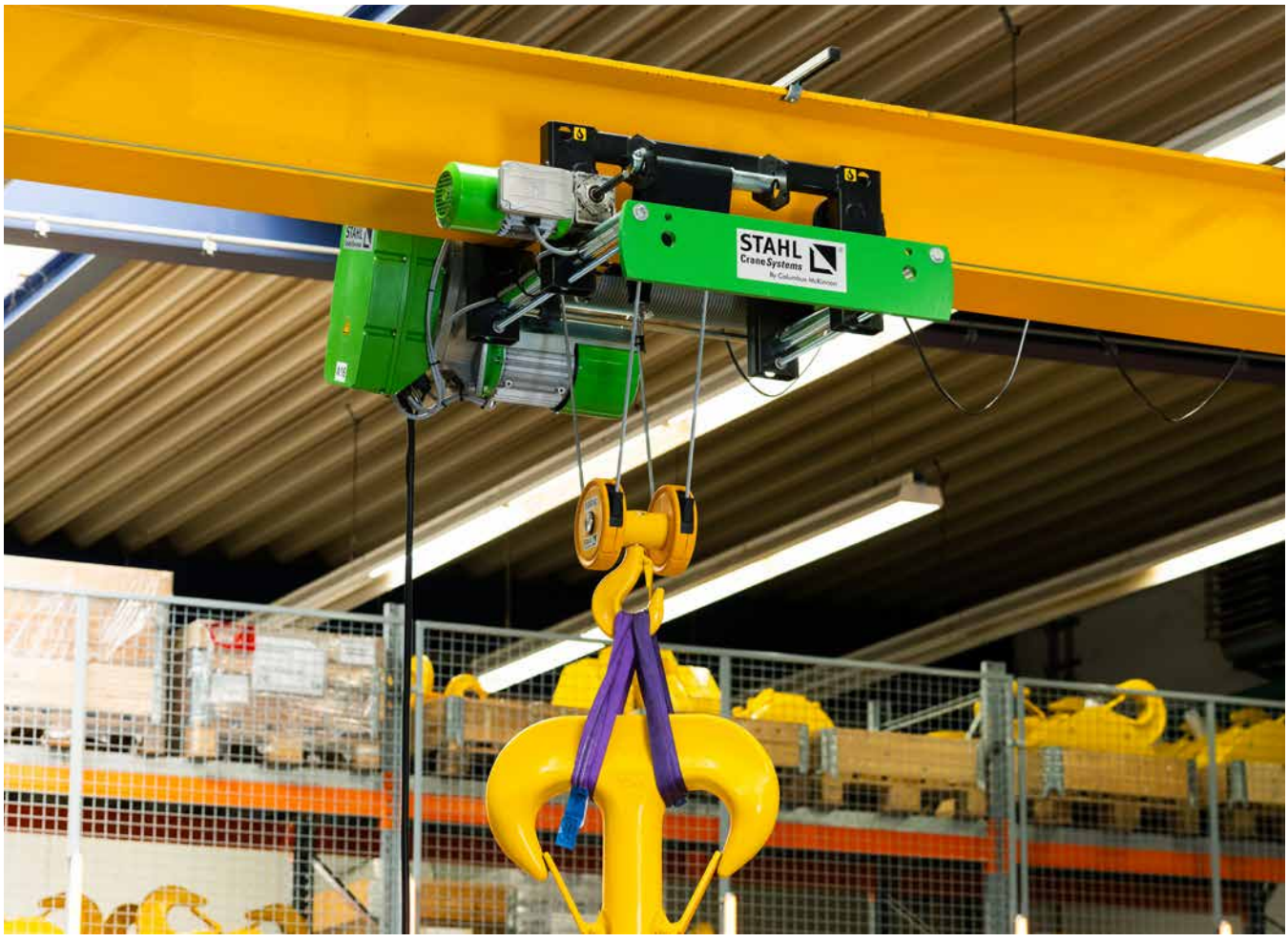
CONTROL & MOTOR MANAGEMENT SLE

In addition to a standard condition monitoring function, the reduced mechanical load due to the suppression of jogging operation contributes significantly to the protection of the components. This is complemented by generously dimensioned contactors, which ensure long-lasting, safe and reliable control of the hoist. This not only significantly reduces wear and tear but also increases the versatility of the wire rope hoist in the long term.



OVERLOAD PROTECTION

The integrated overload protection of the wire rope hoist enables permanent electronic monitoring of the attached load. The load is precisely measured at the rope anchorage point, ensuring that the permissible load capacity is not exceeded. The overload protection is factory-set to the respective load capacity of the hoist. The intelligent monitoring system protects the hoist and load while increasing safety in daily operation.



SXF FREQ-CONTROLLED WIRE ROPE HOIST

The frequency-controlled SXF wire rope hoist expands the SXD wire rope hoist series. The SXF wire rope hoist with integrated Magnetek frequency converter is particularly suitable for applications that require precise, smooth & efficient lifting. The Dynamic Lift System (DLS) continuously adjusts the lifting speed to the actual load weight.

The SXF wire rope hoist is based on the proven technology of the SXD wire rope hoist. The uniform design of the trolley bolts allows positioning within the external dimensions of the control cabinet and hoist. In addition, the lightweight design of the gearbox housing eliminates the need for counterweight, allowing the control cabinet to be integrated directly into the trolley frame. The compact gearbox has been optimised to enable a narrow side profile and improved approach dimensions for the crane and hoist. In addition, the SXF wire rope hoist has been enhanced with innovative control functions, including the Dynamic Lift System (DLS) and the SMC 4 Multicontroller. This enables continuous temperature and load monitoring, ensuring that the wire rope hoist always operates safely and effectively.

THE FACTS

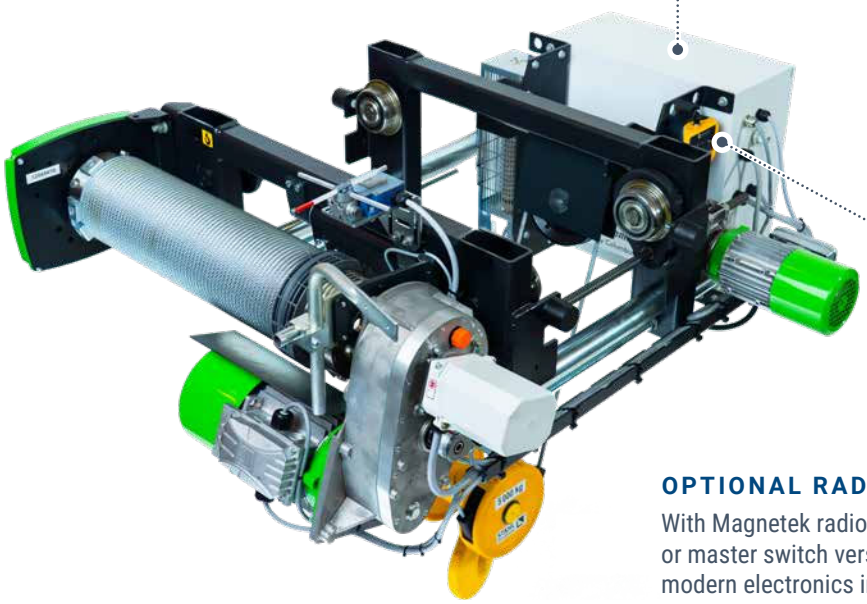
- Magnetek frequency converter for smooth and low-wear operation
- Continuous temperature, load and speed monitoring via Multicontroller SMC 4
- The DLS automatically and continuously adjusts the lifting speed to the actual load weight
- Advanced Ultra-Lift enables up to 150 Hz or 300 % of the nominal lifting speed at partial load

TEMPERATURE MONITORING

The SMC 4 Multicontroller offers a safety function for temperature monitoring, with lifting and travel motors equipped with temperature sensors as standard.

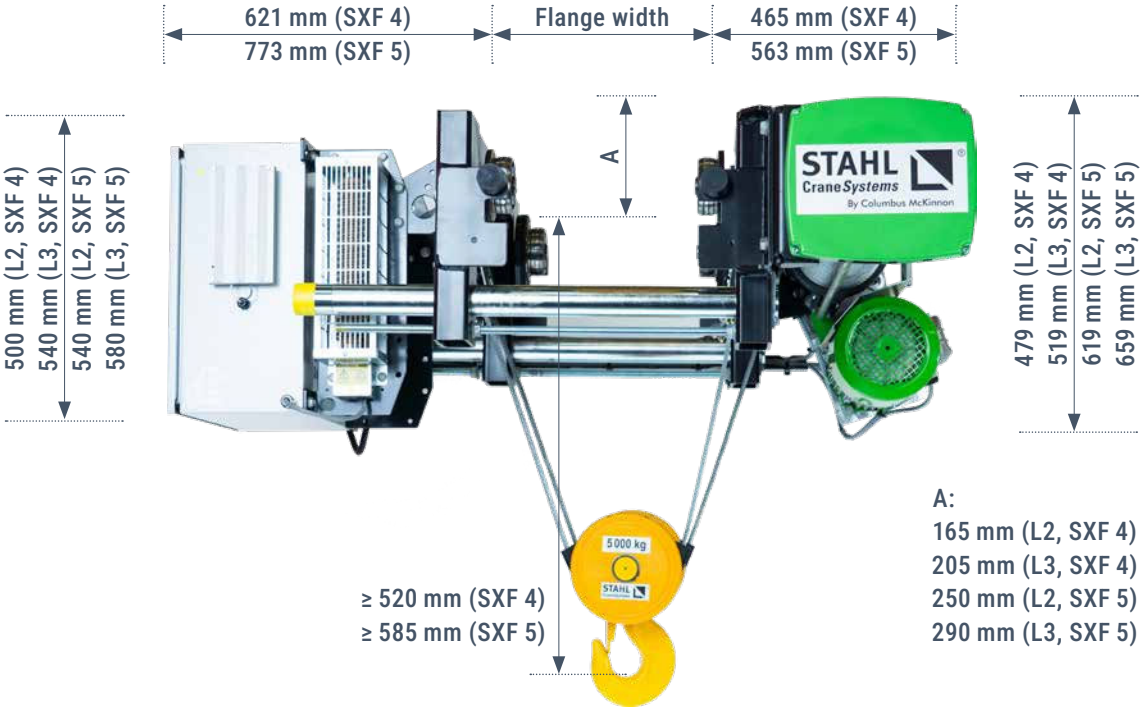
LOAD MONITORING

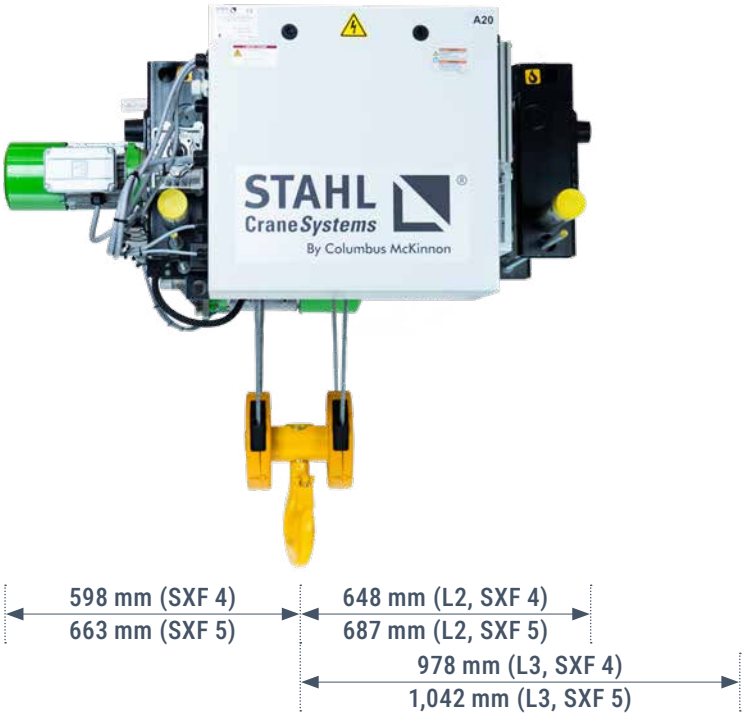
Continuous load monitoring is performed at performance level PL d. The SMC 4 Multicontroller permanently monitors the lifting speed and load capacity and uses this information to calculate all relevant parameters.



OPTIONAL RADIO REMOTE CONTROL

With Magnetek radio remote controls in push-button or master switch versions, the control system offers modern electronics in an ergonomic design.


621 mm (SXF 4)
773 mm (SXF 5)
Flange width
465 mm (SXF 4)
563 mm (SXF 5)
A
500 mm (L2, SXF 4)
540 mm (L3, SXF 4)
540 mm (L2, SXF 5)
580 mm (L3, SXF 5)
479 mm (L2, SXF 4)
519 mm (L3, SXF 4)
619 mm (L2, SXF 5)
659 mm (L3, SXF 5)
STAHL CraneSystems
By Columbus McKinnon
5 000 kg
≥ 520 mm (SXF 4)
≥ 585 mm (SXF 5)
A:
165 mm (L2, SXF 4)
205 mm (L3, SXF 4)
250 mm (L2, SXF 5)
290 mm (L3, SXF 5)


A20
STAHL CraneSystems
By Columbus McKinnon
598 mm (SXF 4)
663 mm (SXF 5)
648 mm (L2, SXF 4)
687 mm (L2, SXF 5)
978 mm (L3, SXF 4)
1,042 mm (L3, SXF 5)

DYNAMIC LIFT SYSTEM (DLS)

The SXF wire rope hoist boasts an impressive lifting speed, operating at part load at almost twice the industry standard. The Dynamic Lift System (DLS) with Advanced Ultra-Lift continuously and precisely adjusts the speed according to the actual load weight, enabling economical operation. At the same time, positioning accuracy increases, resulting in more precise and stable load handling and reduced mechanical stress.



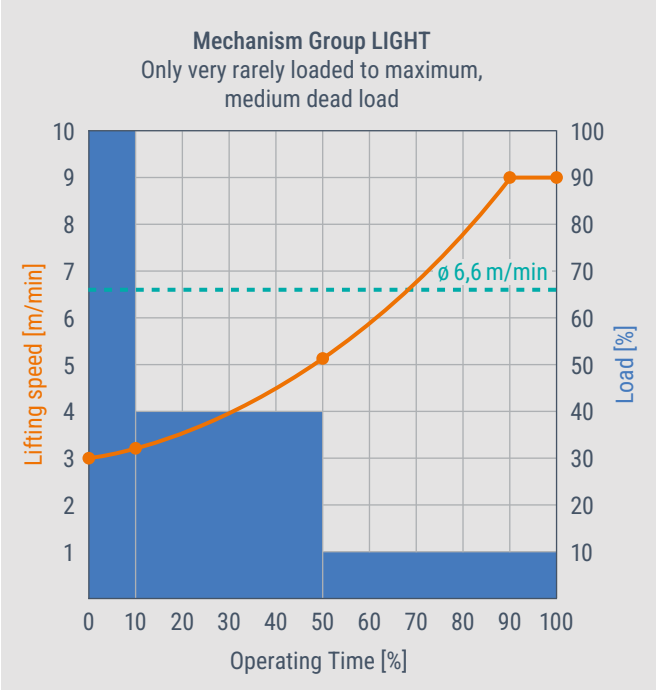
THE FACTS

- Stepless speed control via Magnetek frequency converter
- High lifting speed at partial load for time-saving movement of loads
- Energy savings through speed optimisation
- Integrated overload protection
- Additional safety functions with the SMC 4 Multicontroller

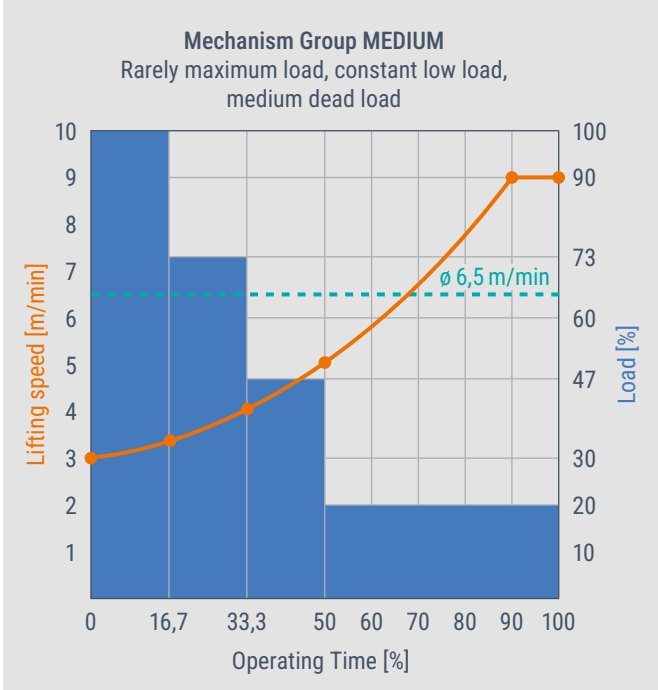
LOAD-DEPENDENT LIFTING SPEED

The Dynamic Lift System (DLS) dynamically and automatically adjusts the speed of the hoist to the actual load. Under partial load, the lifting speed is adjusted smoothly along a curve, enabling particularly precise and sensitive control. The integrated Advanced Ultra-Lift function allows lifting speeds of up to a maximum of 300 % of the nominal speed under partial load, ensuring maximum efficiency.

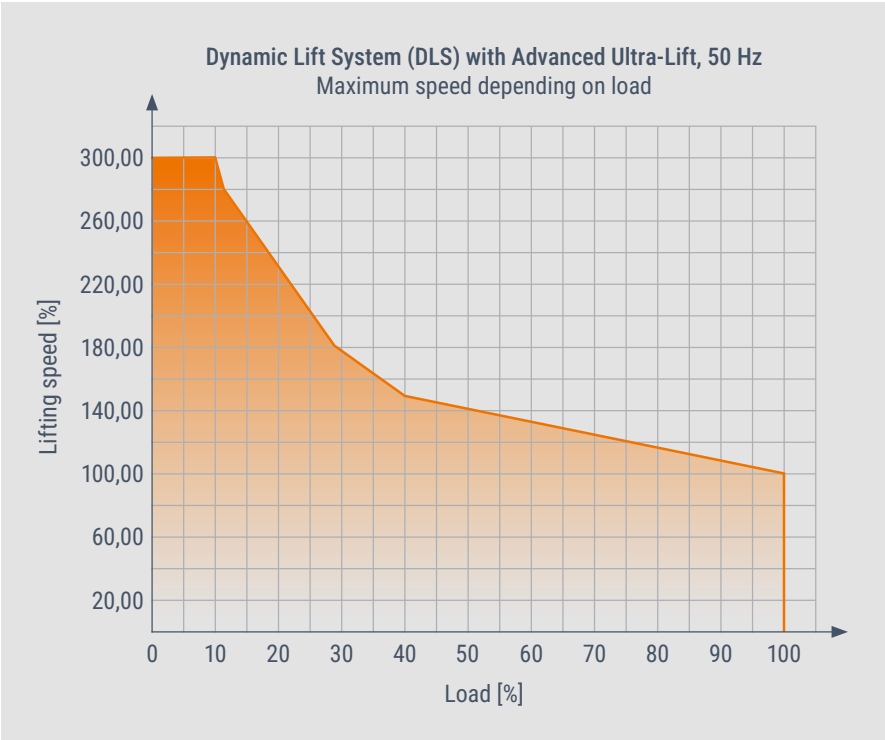
The integrated Magnetek variable frequency drive (VFD) ensures smooth and shock-free operation. Gentle start-up and braking processes reduce mechanical stress and minimise wear and tear, thereby extending the service life of components. For added safety, the SMC 4 Multicontroller continuously monitors all load and speed parameters to guarantee reliable and safe performance in a wide range of applications. The SXF wire rope hoist combines powerful, dynamic lifting technology with maximum safety, operating quickly when the situation allows and slowly when precision is required.



For light to medium loads according to ISO, the average lifting speed of 6.6 to 6.5 m/min across the entire load spectrum is significantly higher than that of pole-changing hoists, which typically operate at



4 to 5 m/min. Many lifting cycles are performed with low loads and therefore at high speeds over the entire operating time, resulting in productivity gains of up to 65 % compared to conventional hoists.



The lifting speed at part load has been increased by 60 – 80 % compared to the industry standard of 4 – 5 m/min. This increases productivity and efficiency, allowing users to work faster and move part loads in a more time-efficient manner.

ADDITIONAL SAFETY FEATURES

The SXF frequency-controlled wire rope hoist expands the proven safety features of the SXD series with additional intelligent functions. In addition to the newly developed rope guide, finger protection and integrated overload protection, the SXF wire rope hoist also features a continuously adjusting safety brake system and the SMC 4 Multicontroller.





FREQUENCY CONVERTER IMPULSE·G+ MINI

To enable intelligent lifting operations, Magnetek's IMPULSE® frequency converters continuously monitor all environmental and functional parameters of the hoist on the SXF wire rope hoist. These include motor temperature, travel limits, deceleration limits, braking function and motor speed. IMPULSE·G+ Mini frequency converters ensure that safe operating limits are maintained, which not only reduces material fatigue but also increases reliability and uptime. The frequency converter extends the speed settings, improves load control, increases the duty cycle and extends the service life of the crane. Both the hardware and software are specially designed for the operating conditions of overhead conveyor technology and have been extensively tested.

IMPULSE•G+ Mini Standard and Options	
AUTOTUNING The frequency converter offers static autotuning for demanding applications in dynamic production processes.	**SHORT-CIRCUIT PROTECTION** Detects when a short circuit is present in a motor, thus preventing further faults.
MOTOR PROTECTION AGAINST THERMAL OVERLOAD Reduces the possibility of motor damage.	**PHASE FAILURE DETECTION** The system detects a phase failure at the input and secures the load. All faults are logged in the integrated fault memory.
GENERATIVE BRAKING The speed of the motors is reduced generatively. Brakes are only used as holding brakes and for emergency braking. This reduces wear on the brake lining.	**SAFE TORQUE SHUT-OFF** A redundant hardware safety circuit ensures that the motor and brake supply are switched off when an EMERGENCY STOP switch or a safety control opens the digital signal input of the converter.
SAFE OPERATING WINDOWS™ Reduces the possibility of programming unsafe parameters.	**SAFETY** EN 61800-5-2, EN 61508, SIL2, hardware-supported block circuit



SAFETY BRAKE SYSTEM

The safety brake system combines continuous speed and load monitoring, adapting continuously and automatically to the conditions. An integrated rotary encoder precisely detects the direction of rotation and speed of the load. The SMC 4 Multi-controller ensures speed monitoring in accordance with EN standards and meets performance level PL c in accordance with DIN EN ISO 13849-1. All safety functions have been revised and optimised in accordance with EN 14492-2, EN 15011 and EN 13001-2. The brake system, fully integrated into the frequency converter, provides smooth, quiet operation. This reduces mechanical stress and extends the service life of the brake. The holding and safety brake only engages in the event of a power failure or emergency stop, ensuring that the hoist is safely shut down in unforeseen situations. As the brake isn't used during regular operation, wear on the brake pads is minimal.



SMC 4 MULTICONTROLLER

The SMC 4 Multicontroller is an electronic control and monitoring device for hoists with pole-changing motors or frequency-controlled drives. It also ensures continuous monitoring of the hoist's operational status. The ALC+ automatic load control system is used, for example, to prevent load peaks during lifting, with the response behaviour being adapted to the respective application via dynamic levels. Other safety functions of the SMC 4 include safe shut down in case of overload, braking and temperature monitoring, speed monitoring, motor management, shut down in case of slack rope, and communication via a serial Modbus interface. All operating data is recorded, evaluated and archived.

INTELLIGENT MOTION

Columbus McKinnon

Columbus McKinnon has a history of over 150 years and is a world leader in lifting and intelligent motion control technology. The innovative portfolio of high-quality brands, including STAHL CraneSystems, Magnetek, Pfaff-silberblau, Duff-Norton, Yale, Dorner, CM, montratec and Garvey addresses the needs of our customers by enhancing safety and promoting growth and efficiency. Experience, expertise and innovation combined with a deep understanding of user needs are the formula for success that has long underpinned our portfolio of hoists, material handling equipment and lifting accessories. Columbus McKinnon is a global organization headquartered in Charlotte, USA (North Carolina). Its global presence includes offices and manufacturing facilities in North America, Latin America, Europe, Africa and Asia.

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