The AS 7 wire rope hoist



08.2021

Partner of Experts

STAHL CraneSystems®

The AS 7 wire rope hoist

The AS 7 wire rope hoist programme is worldwide the innovative classic in lifting and crane technology. Users, crane manufacturers and system manufacturers appreciate the modular system based on field-proven, low-maintenance components. Series manufacture of the standard components brings economic advantages for you. And this combined with the precise manufacture of off-standard components makes the AS 7 wire rope hoist a widely acknowledged top quality product.

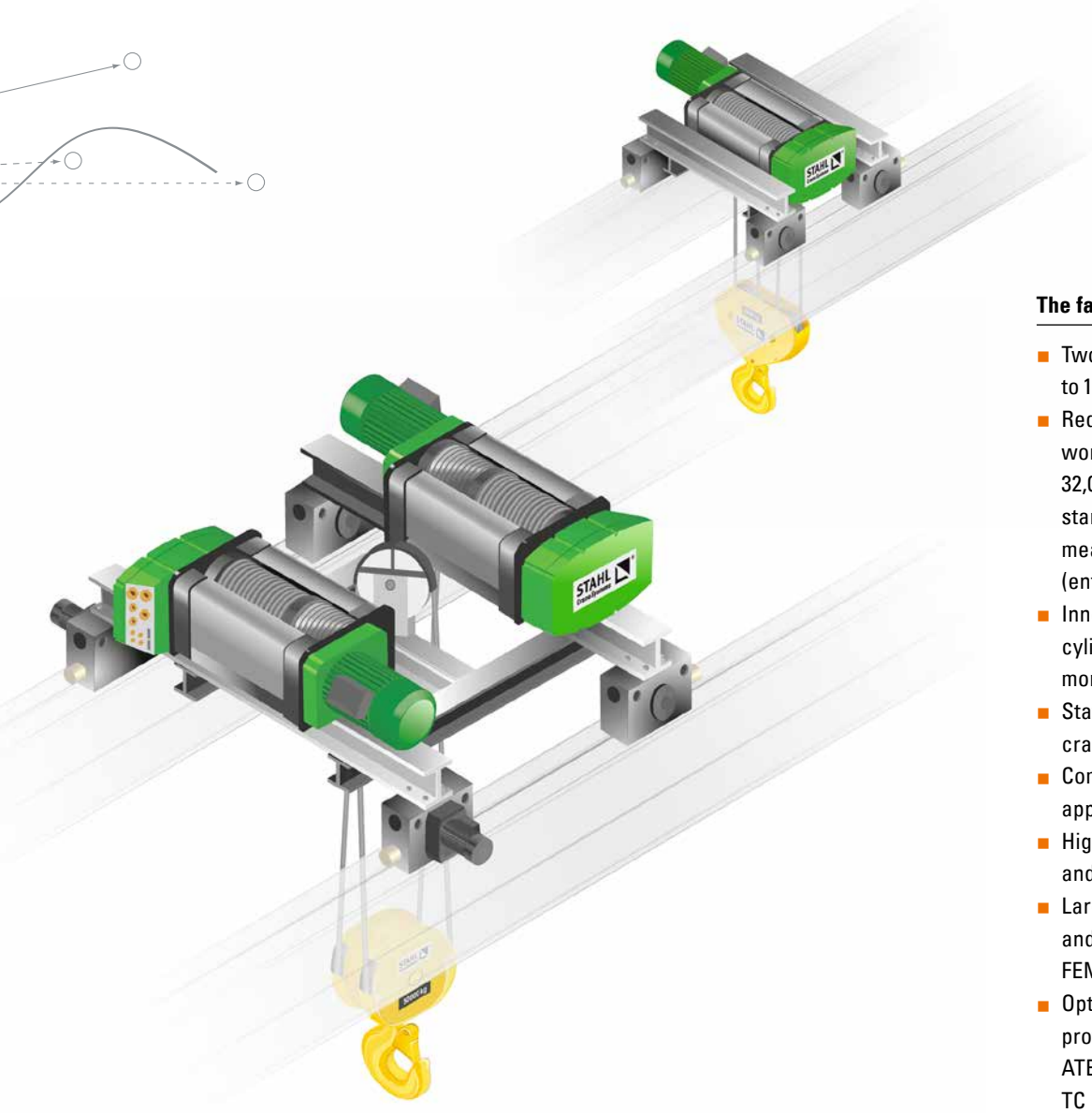
The modular system permits practically unlimited combinations of the sub-assemblies to produce your individual solutions. The AS 7 series from STAHL CraneSystems is available in two designs for the upper load capacity range up to 125,000 kg. The wire rope hoists can be used with double rail crabs on double girder overhead travelling cranes or as stationary hoisting or towing equipment with different angles of installation and rope lead-offs. The narrow construction is particularly advantageous in systems building. The motor, gearbox and rope drum are arranged one behind the other. This central gear concept allows high performance and loads. The ASR 7 wire rope hoist is the reduced version of the tried-and-tested AS 7 wire rope hoist. It is designed for a safe working load range from 20,000 kg to 32,000 kg and closes the gap between efficient use of the SH wire rope hoist programme and the AS 7 wire rope hoist programme.

The revised design as twin hoist opens up the same areas of application as the AS 7 wire rope hoist, but with higher load capacity, greater lifting height and faster hoisting speed as standard. An important safety feature of the AS 7 twin wire rope hoist is the precise load positioning. As the rope of the twin hoist runs simultaneously in opposite directions, the load is raised or lowered without any sideways motion of the hook.

Various off-standard designs are available for use in particular conditions. Even in explosive atmospheres you do not have to manage without the AS 7 wire rope hoist. Wire rope hoists in the AS 7 series can be designed to meet the requirements for Zones 1, 2, 21 or 22 in accordance with ATEX/IECEx and Class I Division 2 in accordance with NEC and CEC. Versions that comply with the standards of the organisations INMETRO and TC RU are also available. It is not without reason that we are one of the market leaders in explosion-proof hoisting technology and crane components.



These AS 7 wire rope hoists are equipped with maintenance platforms to make maintenance work safe. The ramshorn hooks of the bottom hook blocks can be electrically rotated ensuring precise handling.



The facts

- Two designs for load capacities up to 125,000 kg
- Reduced-size ASR 7 for a safe working load range from 20,000 kg to 32,000 kg, with larger height of lift, standard with exact load measurement at the rope anchorage (entry-level model)
- Innovative drive technology with cylindrical rotor motor with monodisc spring-loaded brake
- Stationary version or double rail crab for systems and crane building
- Compact construction and low approach dimensions
- Higher load capacity, hoisting speed and lifting height as twin hoist
- Largely maintenance-free, low wear and long service life according to FEM/ISO standards
- Optionally available in explosion-protected design in compliance with ATEX/IECEx, NEC, CEC, INMETRO and TC RU certifications

Wire rope hoists ASF from STAHL CraneSystems® with Magnetek®: Best-in-class performance. Industry-leading control.



STAHL CraneSystems' ASF wire rope hoists will in future be equipped with frequency inverters from Magnetek as standard. They combine STAHL CraneSystems' signature performance and reliability with Magnetek's industry-leading design features and control capabilities.

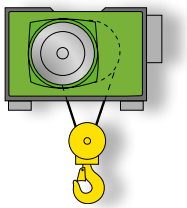
Every AS 7 wire rope hoist can be equipped with Magnetek inverters, providing a unique, intelligent option for lifting tasks. Magnetek is known throughout the industry for user-friendly controls and extensive, integrated safety features. With inverters from Magnetek, the hoist always remains operational and provides the precision and accuracy needed for all lifting tasks.

The wire rope hoist is also available with Magnetek radio remote controls, the latest electronics with light, ergonomic design and ease of use. No matter whether you prefer a control with buttons or a joystick version, our radio remote controls from Magnetek can be individually adapted to practically any application.

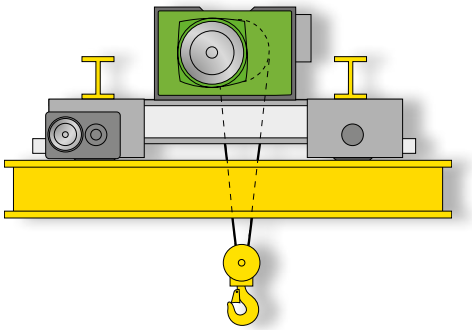
STAHL CraneSystems and Magnetek together offer intelligent technology for all lifting and positioning work. This ensures greater safety for the operator and less stress on structural, mechanical and control components.

The models and trolley options

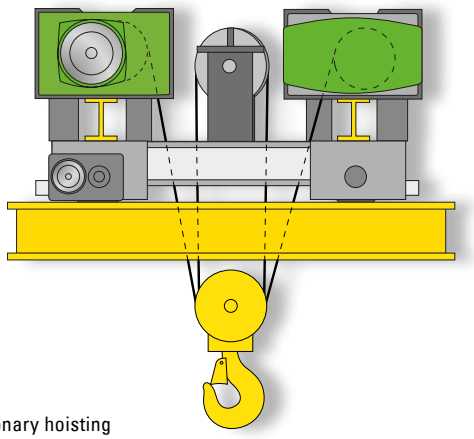
Various models and trolley variants for the AS 7 and ASR 7 wire rope hoists open up numerous possibilities of use. Individually tailored to your specific requirements as stationary hoisting or towing equipment, for use with a double rail crab, or for systems manufacture. The crabs are equipped with two travel speeds as standard. But in this too we are receptive to your requirements. Other speeds are available as options. Our wire rope hoists are known worldwide for their flexible and versatile use. A compact construction and extremely short approach dimensions help to make optimum use of a factory hall.



Stationary model
The AS 7 wire rope hoist can be used as stationary hoisting or towing equipment, for example in systems manufacture. Depending on the application, the rope lead-off angle, the hoist mounting and the mounting position of the hoist motor can be varied.

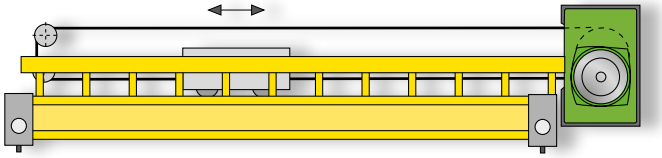


OE double rail crab
The OE double rail crab is intended for use on double girder overhead travelling cranes. The extremely compact construction makes very low approach and headroom dimensions possible and the available space can thus be used to the full. The double rail crab is available with various track gauges for the whole load capacity range.

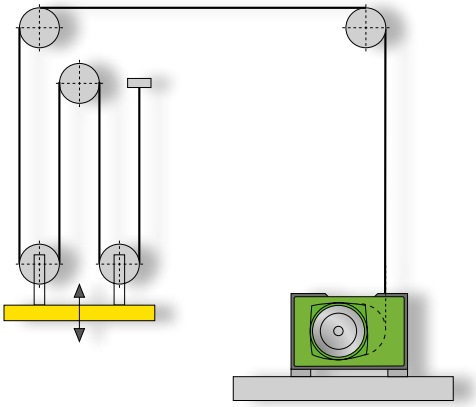


Twin hoist
The AS 7 ZW wire rope hoist can also be used as stationary hoisting equipment or with the OE double rail crab.

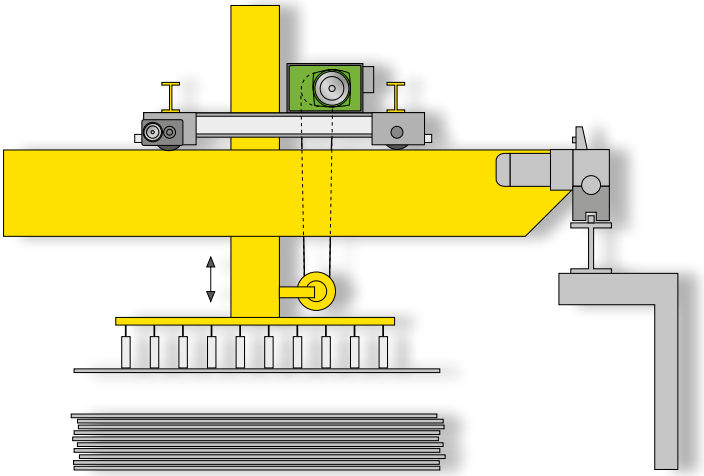
Application examples



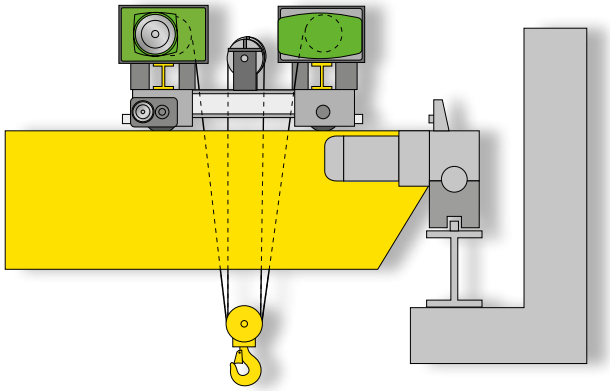
The AS 7 wire rope hoist used as horizontal towing equipment in systems manufacture.



The frequency controlled AS 7 wire rope hoist used bolted to the floor as vertical towing equipment in systems manufacture.



The AS 7 wire rope hoist with guided load pick-up.



The AS 7 ZW wire rope hoist is mainly used with a double rail crab on double girder overhead travelling cranes.

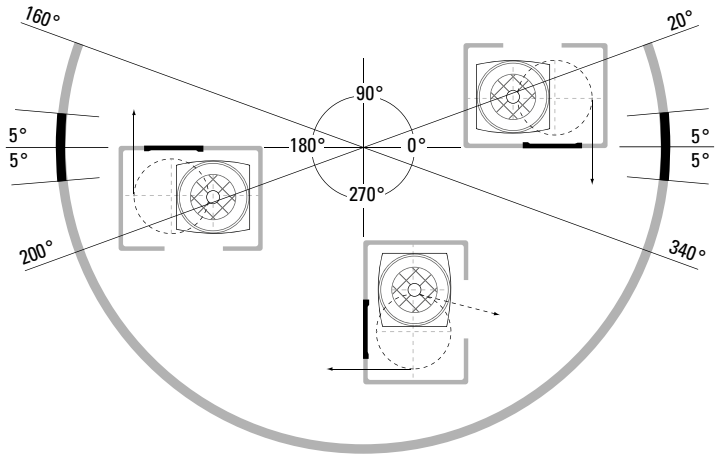
■ Standard

Type	Load capacity up to [kg]	Standard reeving	Reeving for true vertical lift	Stationary	OE double rail crab
ASR 7	32,000	4/1	–	■	■
AS 7	45,000	–	10/2-1	■	■
	50,000	2/1, 4/1	2/2, 4/2, 8/2	■	■
	80,000	6/1	–	■	■
AS 7 ZW	125,000	–	ZW 4/2-1, ZW 6/2-1, ZW 8/2-1, ZW 10/2-1	■	■

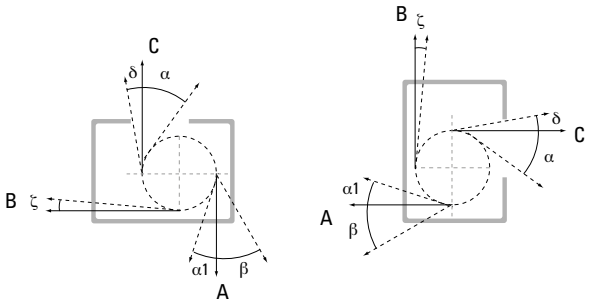
You call the shots. Whatever you want to move, the AS 7 wire rope hoist will follow. As stationary lifting or towing equipment with different angles of installation and rope lead-offs it moves factory doors and storage and retrieval machines or can be used as a traversing hoist with more than one rope lead-off, for example in long goods storage technology. Its outstanding flexibility is appreciated and acknowledged by systems manufacturers.

Other reevings to those shown in our examples can be implemented on request. Please let us know.

Angle of installation
The AS 7 wire rope hoist can be mounted in various angle ranges. For rope drives with bottom hook block the wire rope hoist must always be installed with its longitudinal axis horizontal.



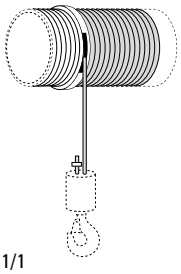
Rope lead-off angle
Various rope lead-off angles are made possible by rotating the rope guide on the rope drum and setting the wire rope hoist up accordingly. The rope guide is adusted to suit the rope lead-off angle.

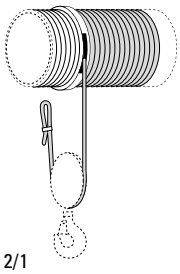


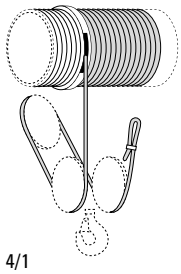
Standard		Turning of the rope guide		
A		B	C (on request)	
α1 (18°)	β (30°)	ζ (3°–10°)	α (72°)	δ (10°)

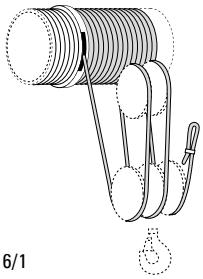
Single-grooved rope drum
The model with single-grooved rope drum is used for stationary hoisting or towing equipment or combined with a double rail crab.

Standard reeving


1/1

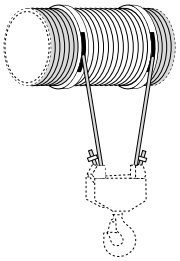

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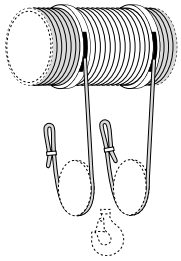

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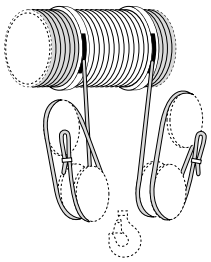

6/1

Double-grooved rope drum
If true vertical lift is required, we recommend this model with double-grooved rope drum (right-/left-hand thread). This version can be used both in stationary form and with a double rail crab.

Reeving for true vertical lift

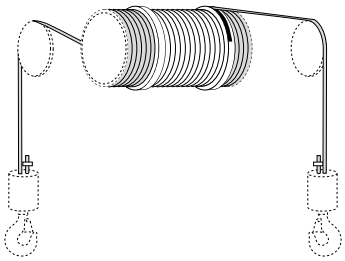

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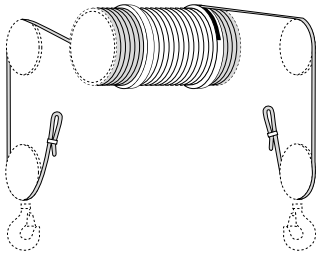

4/2-1


8/2-1

Double-grooved rope drum
The model with double-grooved rope drum (right-/left-hand thread) is used for many lifting and towing tasks where the load must be picked up at more than one point and true vertical lift is required

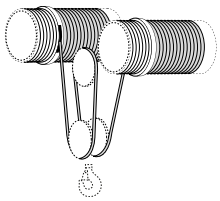
Reeving for multiple load pick-up points

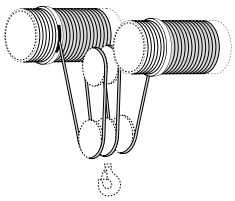

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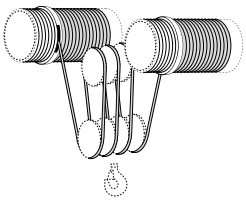

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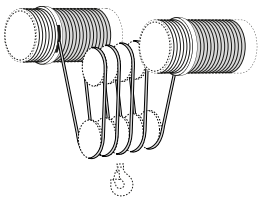
Twin hoist
Independent of the grooving of the rope drum, stable guiding of the hook and precise positioning of the load are guaranteed.

Reeving for true vertical lift


ZW 4/2-1


ZW 6/2-1


ZW 8/2-1


ZW 10/2-1

The technology

It's reassuring to know what convincing technology is concealed in the AS 7 wire rope hoist. The largely maintenance-free components of the modular wire rope hoist are optimally matched to each other. They guarantee continuous productivity, high efficiency and long service life. One of the most important characteristics of this wire rope hoist is the arrangement of motor, gear and drum on one axis. It is particularly suitable for systems manufacture and can be used in restricted spaces.

1 Rope and rope guide



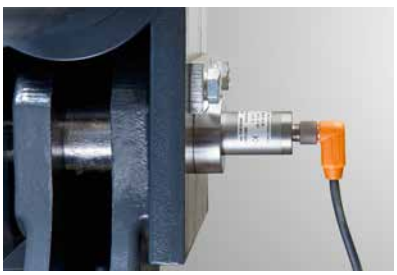
- Highly flexible special rope with long service life
- Field-proven enclosed rope guide in spheroidal graphite cast iron has no temperature limitations
- The GJS material (previously designated GGG 40) is suitable for highest and lowest temperature ranges
- 360° rope tensioner, avoiding the formation of slack rope

2 Paint



- Standard paint treatment as per RAL 6018 yellow-green and RAL 7021 greyish black
- High-quality primer and top coats for standard applications
- Off-standard paint treatment for outdoor use or corrosive ambient conditions
- Shade as per customer's requirement

3 Overload cut-off



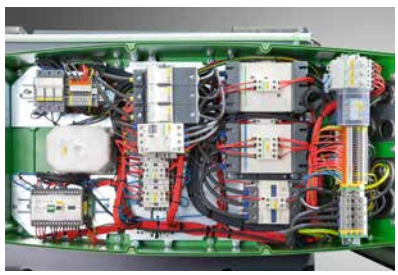
- Permanent electronic monitoring of the suspended loads
- Limitation of the maximum load by load measurement at the rope anchorage possible in the case of multiple reeving

4 Hoist gear

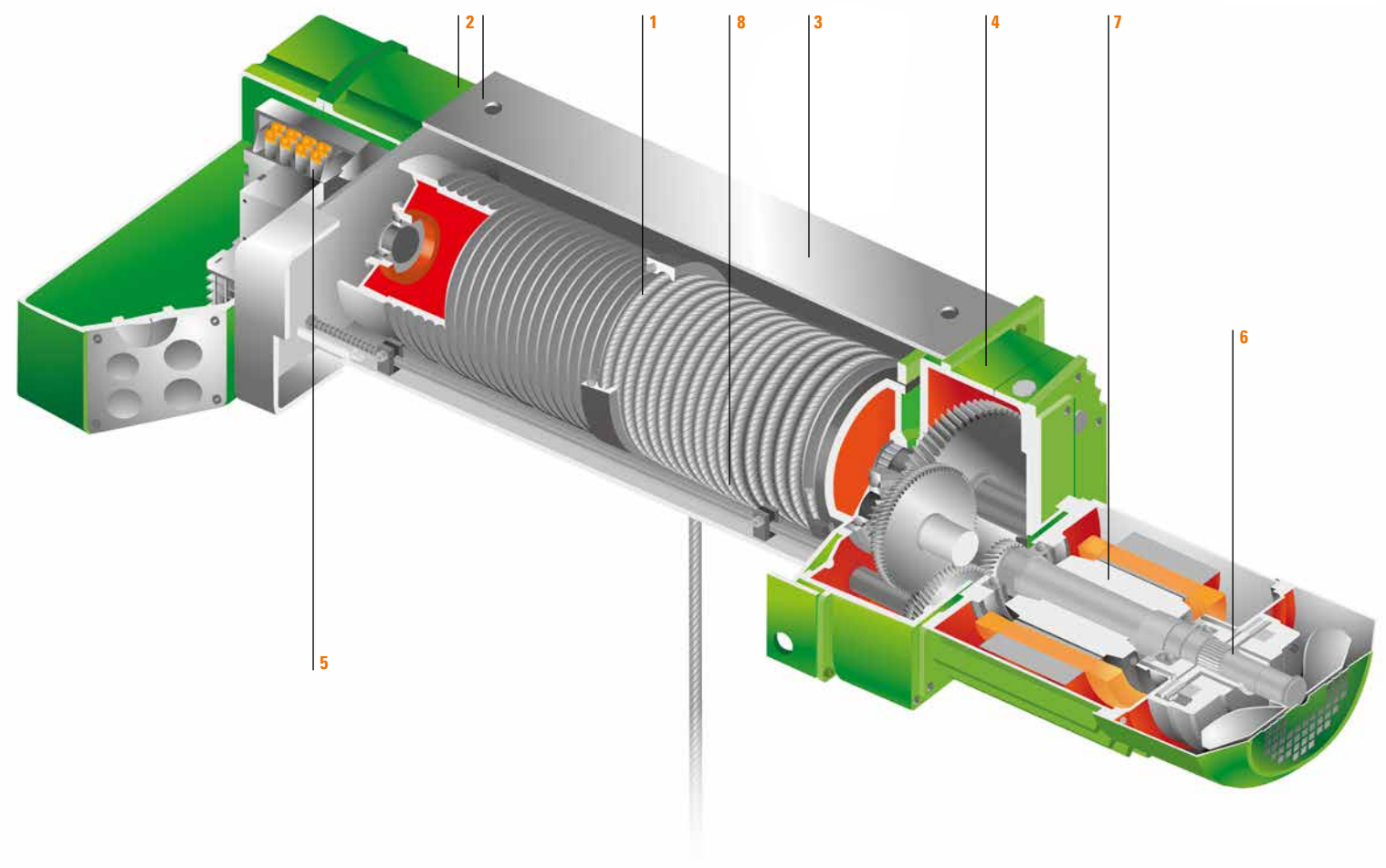


- All gear steps with lifetime lubrication in oil bath
- Minimal noise development thanks to modern technology

5 SLE/SMC control and motor management



- Condition monitoring as standard
- Inching operation is suppressed thus reducing stress
- All common control voltages available
- High degree of safety thanks to overdimensioned contactors
- Monitoring of the temperature of the hoist motor and travel motor



6 Brake



- Low-maintenance, asbestos-free brake needs no adjustment
- Long service life thanks to oversized brake
- Brake easily accessible for inspection from outside
- Motor management ensures low wear
- IP65 protection, IP66 optional

7 Motor



- Special-purpose motor for hoisting applications
- Classification according to FEM/ISO standards, high-duty-cycle and switching operation frequency motor
- IP55 protection, IP66 optional, thermal class F
- Motor outside rope drum, highly efficient motor cooling, maintenance-friendly
- Temperature control by PTC thermistors

8 Rope drive



- Optimised ratio of drum to sheave diameter ensures low wear on rope
- Flexible and long-lived wire rope
- Wear-resistant return sheaves, fine machining provides rope-friendly grooves in rope drum
- Drum easily accessible for rope replacement
- Robust bottom hook block with low headroom in spite of large dimensioning of hook

The options

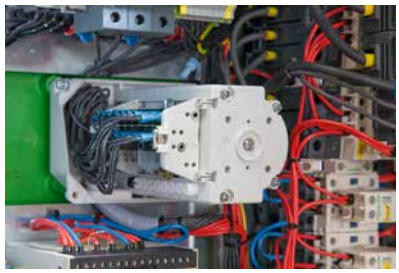
There's always room for improvement. Although it is first-class in the standard version, you have the option of making your AS 7 wire rope hoist even safer, more cost-effective, more convenient with numerous mechanical, electrical and electronic features. As a welcome side-effect, the service life of the wire rope hoists is prolonged. The extensions to the programme boost the productivity of the wire rope hoist and adapt it to your individual requirements. Here we show you a few examples of supplementary equipment and options. If you need further detailed information, please pay a visit to our website at www.stahlcranes.com, or contact us directly.

Control pendant



- Robust control pendant with EMERGENCY STOP palm button and control cable
- All switching elements for hoist, cross, and long travel are 2-step
- IP65 protection
- Additional buttons, such as horn activation, can be easily fitted

Emergency hoist limit switch (gear limit switch)



- In standard version, the hoist is equipped with a gear limit switch for top and bottom hook position and an operational limit switch for top hook position
- As an option, up to eight switching elements can be fitted to the switch. This permits for example further stopping positions and operational limiting in bottom hook position.

SMC Multicontroller



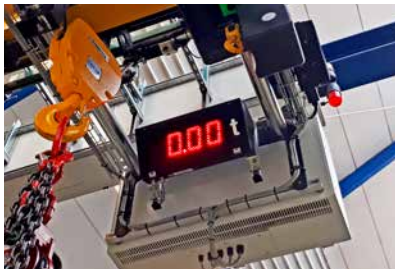
- Continuous load monitoring by overload cut-off even if hoist is idling
- Overload protection with ALC automatic load control
- Load spectrum memory for load-related operating time summation
- Operating data registration, e.g. operating hours, load spectrum, motor switching operations and load cycles
- Data exchange with PC possible

Travel limit switch



- Travel limit switch on crab available as option
- Limiting for both directions of travel
- Switchover from »fast/slow« (predisconnect)
- Switch contacts designed for control current
- IP66 protection

Load display



- Four- or six-digit, 7-segment SLD load display, large format, luminous red
- Available with various interfaces including CAN
- Choice of 100 or 150 mm digit height
- Can be combined with the overload sensor in the wedge end clamp and the optionally available SMC multicontroller. Additional fixtures or load attachment devices are not required; the headroom of the hoist remains unchanged.

Signal transmitters



- Visual and acoustic signal transmitters such as horn and flashing light can be mounted on crabs
- The signal transmitters can be activated by a button on the control pendant

Manual release of hoist brake



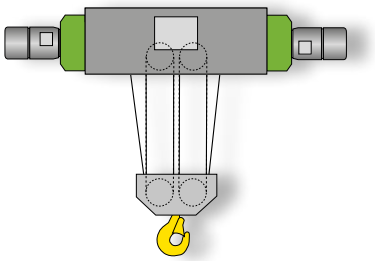
- The brake release device permits the hoist brake to be released manually and thus the load to be lowered during a power cut
- As an option, every hoist can be equipped with this equipment to supplement the standard brake

Rope drum brake



- Redundant brake system provides increased safety
- Intercept and holding brake, prevents the load falling even if the gear should break
- Control is effected with a centrifugal switch or safety PLC

TDC Twin Drive Concept



- Prevents sagging of the load even when the gearbox fails
- Permanent brake, drive and load monitoring
- Two synchronously controlled hoist motors with manually releasable brakes for emergency lowering
- Robust, completely encapsulated system
- Up to 60 % higher load capacities when transporting non-molten metals

The radio remote control options

Our extensive portfolio of Magnetek-brand radio remote controls can be customised to meet the needs of almost any application. Our rugged pushbutton and joystick controllers provide equipment operators with better positioning for job visibility, safety, data feedback, and extended machine life. From traditional units to our most sophisticated systems, our product portfolio provides total radio control when combined with a variety of receivers. Magnetek radios are compliant with EN ISO 13849-1 PL d and are optionally available in explosion-protected design in compliance with ATEX/IECEx. Radios for tandem cranes are designed to EN 15011.

Flex Wave™



The Flex Wave offers secure and dependable communications, innovative performance, and advanced features that enhance safety and efficiency for your lifting and positioning applications. Transmitters are ergonomic and lightweight to provide comfort to operators and are constructed of industrial-strength nylon and fiberglass composite materials for long-lasting operation.

- Channel scanning schemes for anti-interference
- Zero G to prevent unintended equipment motion
- IP66 rating for indoor or outdoor environments
- Options for added protection and flexibility, such as a rubber boot or vinyl cover

Flex VUE®



The Flex VUE includes a high-resolution, built-in colour display that keeps operators informed of system status and diagnostics at all times to maintain effective system functionality. With diagnostic information available at your fingertips, you can address issues more quickly, plan maintenance, and ultimately reduce downtime.

- Quick configuration to get you up and running fast
- Adjustable speed control for precise control of machine movement
- Nylon housing that withstands shock, water, heat, and harsh environments
- Compact and lightweight design to prevent operator fatigue

MLTX2™



The MLTX2 is one of the most lightweight bellybox transmitters available today, designed to enhance operator comfort. Choose from a variety of levers, joysticks, and toggle switches to customise to your exact needs.

- Access code system for peace-of-mind, as the signal only operates the intended equipment
- Synthesised frequency generation to enhance reliable operation
- IP66 rating to withstand harsh, industrial environments
- Available with ATEX and IECEx approvals for Zone 0, Zone 1, and Zone 2 applications:
  · ATEX Approval: II 1 G Ex ia IIC T3/T4 Ga
  · IECEx Approval: Ex ia IIC T3/T4 Ga
- Optional graphic display and two-way feedback to keep you informed of system status at all times

		Standard	Optional
Ambient temperature		–20 °C to +40 °C	–40 °C to +80 °C
Protection to IEC/EN 60529		IP55	IP66
Paint	Colour	Black-grey/yellow-green RAL 7021/6018	All other colours from RAL colour chart
	D.F.T.	60 µm to 80 µm	120 µm to 320 µm
	Finish/Powder coating	Polyurethane topcoat	Epoxy-resin base (240/320 µm)
Control pendants		–	Control pendant
			Radio remote control in joystick version with load display or pushbutton version with/without load display
Control		Crane manufacturers' control without transformer and without crane switch contactor	Complete control with transformer and crane switch contactor
			Hoist motor connection wired into motor terminal box
Hoist motor control		Pole-changing or frequency controlled, control range 2...100 %	Frequency controlled, control range 1...100 %
Travel motor control	50 Hz	5/20 m/min	2.5/10 m/min or 8/32 m/min
	60 Hz	6.3/25 m/min	3.2/12.5 m/min or 10/40 m/min
	50/60 Hz	2.5...25 m/min frequency controlled	4.0...40 m/min frequency controlled
Motor supply voltage	50 Hz	380–415 V	All voltages possible
	60 Hz	440–480 V	
Rope	to DIN EN 12385	Bright or galvanised	–
	Rope safety factor	Usually ≥ 4.0	Off-standard ropes and higher rope safety factor
Rope drive		Bottom hook block, rope return sheaves, rope suspension and wire rope with 1/1, 2/2-1, 2/1, 4/1, 4/2-1, 6/1, 8/2-1, 10/2-1, 2/2-2, 4/2-2, ZW 4/2-1, ZW 6/2-1, ZW 8/2-1, ZW 10/2-1 reevings	Ramshorn hook
			Additional bottom hook blocks and/or return sheaves, off-standard reevings
Limit switches	Emergency hoist limit switch (gear limit switch)	For top and bottom hook position and operational limit switch for top hook position	With additional switching elements for further stopping positions of hook
	Travel limit switch	–	For up to four switching functions – pre- and end limiting in both directions of travel, trolley distance protection
Overload cut-off		SLE	SMC
	Signal transmitter	–	Horn, flashing light
	Visualisation	–	SLD large-format load display, display in radio transmitter, readable on PC
	Data exchange	–	RS 232, RS 485, CAN
Temperature control of travel motors		PTC thermistors including tripping device	–
Mechanical safety devices		Anti-derail device	Wheel arrester, anti lift-off
		Buffers on all trolleys	Runway endstops
Hoist brake		Electromagnetic disk brake with asbestos-free brake linings	Manual release of brakes or drive redundancy with Twin Drive Concept
			Rope drum brake
			Brake release monitoring
			Wear monitoring

The variable frequency drives

When it comes to intelligent lifting, Magnetek IMPULSE® drives continuously monitor many environmental and functional components of a hoist, such as motor temperature, end of travel and slow down limits, brake functionality, motor speed, and more. Variable frequency drives maintain safe functional thresholds, which decreases mechanical fatigue and increases reliability and uptime.

For hoist motion, the IMPULSE®·VG+ Series 4 drive provides reliable, user-friendly controls and industry-leading features to keep you working safely. IMPULSE·VG+ is available for monorail, double-girder, and base-mount hoists. The easy-to-use keypad provides five lines of 16 characters each and includes soft keys and upgraded parameter selection. The display makes navigation and reading diagnostics even easier.

For trolley motion, the IMPULSE®·G+ Mini drive allows for expanded speed adjustments, improved load control, high duty cycles, and increased crane life. The IMPULSE·G+ Mini's size permits the use of smaller control enclosures, reducing the overall cost of an installation. Hardware and software are designed and extensively tested specifically for the operating conditions seen in overhead material handling applications. IMPULSE·G+ Mini is available for traverse motions for monorail and double-girder hoists. It is also available for long travel on cranes.

The facts

- Programming various drive parameters
- Parameter backup (store and copy)
- Monitoring functions of the drive
- Reading of alpha-numeric fault diagnostic instructions
- Remote monitoring

IMPULSE·VG+ standard and optional features

	Encoder feedback IMPULSE drives continuously monitor motor speed and load to ensure optimal performance and safe load control	**Phase loss detection** Detects if incoming power phase is lost and maintains a safe state of the load
	Slack rope detection Provides annunciation of slack cable condition to operators	**Slip compensation** Automatically compensates for motor slip
	Brake check at stop Tests that brakes can safely hold a load at the end of a run and the motor will maintain control of the load in case of brake failure	**Torque proving at start** Determines if the motor can safely control a load before opening the brake to provide additional safety
	Dynamic braking Dynamically decelerates motors without the use of brakes. Brakes would only be used for parking and emergency braking, reducing brake lining wear and tear	**Safe torque off** Provides redundant hardware safety circuit that guarantees motor and brake power are removed when an E-STOP switch or safety controller opens drive input
	Hook height measurement Incremental encoder signal determines hook height from a calibrated position	**Micro-Speed™** Allows operators to scale motor speed, which is useful for load positioning
	Short circuit protection Detects if a motor has a short circuit and can prevent additional failure of the control system	

IMPULSE·G+ Mini standard and optional features

	Safe operating windows™ Reduce the possibility of programming unsafe parameters	**Quick stop™** Reduces the possibility of crane collision
	Motor thermal overload protection Reduces the possibility of motor damage	**Auto tuning** Non-rotational auto tuning for performance-demanding applications
	Micro-Speed™ Allows operators to scale motor speed, which is useful for load positioning	**Safe torque off** Provides redundant hardware safety circuit that guarantees motor and brake power are removed when an E-STOP switch or safety controller opens drive input
	Sway control Greatly reduces the amount of unwanted sway when moving a load	**Safety** EN 61800-5-2, EN 61508, SIL2 Hardware Base Block Circuit

IMPULSE·VG+



IMPULSE·G+ Mini



The engineering

Engineering means innovation and individuality. Constantly redefining the lifting and transporting of loads for complex requirements even in explosive areas is a job for our experts. Drawing on one of the widest product ranges of standard components, they regularly develop modern, individual off-standard and customised solutions. Hardly any other manufacturer of lifting and crane technology can offer you this diversity of precisely designed top quality customised solutions with maximum cost-effectiveness.

The AS 7 wire rope hoist programme forms the basis for a wide variety of solutions. Compact construction, low headroom, double-grooved rope drums, frequency-controlled drives, TDC Twin Drive Concept. Numerous trolleys are optionally available for all wire rope hoists. Different angles of installation and rope lead-offs are ideal for flexible use not only in systems building. Customised system solutions, individually adapted to your precise requirements, are our forte. The experience and knowledge gained from over 140 years of crane technology give us the flexibility to develop and produce the optimum solution for your project in short time. On request, all off-standard wire rope hoists and customised solutions are available in explosion-protected design for Zone 1, Zone 2, Zone 21 and Zone 22.

The facts

- Perfectly matched to your project
- Every hoist is the result of over 140 years of experience and expertise
- Cost-effective thanks to modular system
- Technically mature thanks to the use of field-proven standard components
- High quality and reliability ensured by in-house production
- All customised solutions are available as an option in explosion-protected design complying with ATEX and IECEx







Example 1 **Two crane bridges, four wire rope hoists and a special controller**

To modernise the crane systems in a factory for the production of electric motors, old concrete crane runways are being reinforced to a load capacity of 32 tonnes and the two existing crane systems equipped with four AS 7 wire rope hoists with a lifting capacity of 32 tonnes each. The cranes are used to transport the completely assembled motors in the hall and also between halls. The different load capacities of the hall and optimal use of the production area place high demands on the control equipment for the crane systems.

The four wire rope hoists are equipped with redundant bolt load cells to monitor the hoisted loads as well as a fail-safe position measuring system for the trolleys and fail-safe data transmission between the cranes. The control equipment registers the position data and the distance between the two cranes as well as the current load on each of the four AS 7 wire rope hoists. Hoisting and travel movements are permitted or blocked in dependence on all measured data. In this way two cranes can work a small distance apart in the same crane runway field as long as their total payload does not exceed 32 tonnes. If the two cranes are located a small distance apart to the left and right of one of the hall supports, the controller allows both cranes to pick up the full payload. The controller allows tandem operation of the two travel carriages. Tandem operation of the two cranes, by contrast, is not permitted.

The system has been classified by the German TÜV technical inspection authority in Category 3 according to DIN EN 954 and in Performance Level Pl d according to DIN EN ISO 13849-1.

The facts

- Crane and crab distance protection Performance Level Pl d
- Fail-safe position measuring system for crane trolleys
- Fail-safe data transmission between the cranes
- SMC evaluation device and two-channel SCC safety shut-off device





Example 2 **ASF 7 wire rope hoist in systems manufacture of a high bay warehouse**

STAHL CraneSystems' engineers developed an overall concept in a high bay warehouse for the storage and retrieval of stacks of concrete weighing up to 50 t. During storage, the spreader beam of the storage and retrieval machine is raised. After it has reached the required level, a rail-bound carriage moves into the storage box and picks up or sets down precast concrete sections. The four frequency controlled AS 7 wire rope hoists working in synch are mounted on the base of the storage and retrieval machine. Each is designed for a load capacity of 21.5 t and they raise the telescopic platform at up to 15 m/min with four falls of 25 mm diameter rope. These are high flexibility off-standard ropes with a rope safety factor of 10:1.

The wire rope hoists are driven by high-powered 36 kW frequency controlled motors. This inverter technology enables the speed to be regulated steplessly and precisely, the maximum speed being optimised dependent on the suspended load.

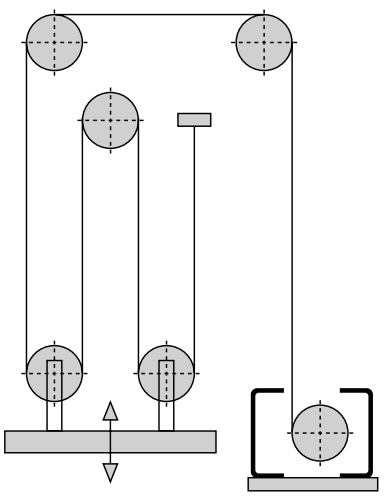
The smooth starting of the motors avoids impact forces; supporting structure, ropes and rope sheaves are protected from damage. Forced ventilation mounted on the motors permits a duty cycle of 80 % DC and ensures that the motors do not overheat even in continuous operation.

As the outdoor high-bay warehouse is exposed to all weather conditions, the SPC control is mounted in a climate-controlled panel box. This control regulates the synchronisation of the hoists and prevents operating errors and accidents.

The facts

- Storage and retrieval machine weighing 110 t with four synchronised frequency controlled AS 7 wire rope hoists
- Track gauge: 14.1 m, height: 15 m, length: 13.5 m, load capacity: 50 t
- Hoisting speed max. 15 m/min
- Travel speed max. 90 m/min
- SFD frequency inverters
- SPC control
- High ISO classification according to FEM/ISO standards





Example 3 **Two ASF 7 wire rope hoists and ingenious rope tightening**

A grab crane works in a cooling hall for cast steel moulds for safe and quick picking up and loading of the steel cylinders. The gripper is lifted and lowered in the hot, dusty hall by two frequency-controlled ASF 7 wire rope hoists mounted on a double rail crab.

STAHL CraneSystems developed a solution for use of this gripper that is gentle on the rope and rope drum. There is a rope tightening contrivance at a fixed distance underneath the wire rope hoists passing the rope over several sheaves. Thanks to the inclined ropes, it keeps the load still during travel and has a stabilising effect even in the event of slightly asynchronous run or if one of the hoists stops.

The hoists with a factory classification of ISO M7 according to FEM/ISO standards are equipped with four-pole motors for variable speed control, encoders and external ventilation. To obtain optimal conditions for the suspension ropes, the rope drums were individually designed and manufactured at STAHL CraneSystems. The BCC 2 system specifically developed to this end is used for brake monitoring. Should the brakes not be properly open on lifting, the SMC 22 service monitoring system switches the hoists off safely. The crane is operated by radio control.

The facts

- Two ASF 7 wire rope hoists
- Individually manufactured rope drums
- High duty cycle of 80 % DC
- High hoist classification ISO M7 according to FEM/ISO standards
- SMC 22 service monitoring system
- BCC 2 brake monitoring system
- Low-stress and low-wear hoisting movements thanks to intelligent rope reeving
- Use of standard components





The explosion-protected AS 7 Ex wire rope hoist

STAHL CraneSystems is known internationally as a specialist and world market leader in explosion-protection technology.The safety of people and machines in areas subject to gas and dust explosion hazards is our top priority. Here we make no compromises. As a developer of numerous innovations in this field, we have significantly influenced crane technology for these applications. Our expertise is underlined by experience and knowledge from many decades, our own fundamental research and development, and approvals from the Federal Physico-Technical Institute (PTB) and other test institutes. Hoisting technology from STAHL CraneSystems ranks among the safest technology on the market in the chemical, petrochemical and pharmaceutical industries, the food processing industry, power supply, shipbuilding, and the offshore and natural gas liquefaction industries (LNG).

Without exception, the AS 7 Ex wire rope hoist programme is based on the modular AS 7 wire rope hoist programme. All components of the explosion-protected hoists come from our own production, from motor and brake to controls and control pendant. For this ensures the complete, high-quality explosion protection on which users, crane manufacturers and system manufacturers all over the world have relied for decades. The strict ATEX directives and IECEx regulations on mechanical and electrical explosion protection are of course met.

The facts

- International specialist for explosion-protected technology
- All equipment available in explosion-protected design
- AS 7 Ex is based on the AS 7 wire rope hoist
- Design and manufacturing processes are certified to ATEX/IECEx standards. Certifications for NEC and CEC for exporting markets are also available
- The world's first complete and comprehensive wire rope hoist portfolio for Zone 1, Zone 2, Zone 21 and Zone 22 and Class I Division 2. See table below

➔ For more information, visit www.stahlcranes.com or contact us for a copy of our brochure »Expertise in explosion protection«

Use	Category	Protects against	Explosion protection class
Zone 1	Ex II 2 G	Gas	Ex db eb IIB T4 Gb or Ex db eb IIC T4 Gb
Zone 2	Ex II 3 G	Gas	Ex db eb ec IIB T3 (T4) Gc or Ex db eb ec IIC T3 (T4) Gc
Zone 21	Ex II 2 D	Dust	Ex tb IIIC T120 °C Db
Zone 22	Ex II 3 D	Dust	Ex tc IIIC T120 °C Dc
Class I, Div 2	–	Gas	Class I, Zone 1, AEx db eb IIC T4 Gb Class I, Division 2, Groups A, B, C, D, T4



Explosion-protected wire rope hoists in twin design with auxiliary hoist facilitate compressor maintenance in a hydrogen liquefaction plant.

The AS 7 wire rope hoist in action

Experts in all countries immediately recognise hoist and crane components from STAHL CraneSystems. For the AS 7 wire rope hoist is in action all around the world in the most diverse variants and solutions. Innovative, thought through down to the most minor detail and manufactured with greatest care, the AS 7 wire rope hoist continues to conquer new areas of application. It thus proves its well above average flexibility and cost-effectiveness. STAHL CraneSystems is represented on all continents by subsidiaries, sales and crane manufacturing partners.



1



2



3



4

1 The double girder overhead travelling crane with a span of 24 m is equipped with an AS 7 wire rope hoist with a lifting capacity of 5 t. Two load ropes ensure stable and low-swing operation of the bulk grab. The crane, whose crane and crab travel drives are equipped with frequency inverters, is controlled from a central control point.

2 This double girder overhead travelling crane with two AS 7 wire rope hoists is installed on a deep-sea vessel. The hoists each have a lifting capacity of 20 t. This system was equipped with a rack-and-pinion gear and painted with a special coating to make it seaworthy.

3 Double girder overhead travelling crane with three AS 7 wire rope hoists for reel handling and for maintenance work. Two synchronised wire rope hoists remove a 22 t reel of paper from the paper machine every 30 minutes. The hoist with a lifting capacity of 30 t is mounted in the middle of the double girder overhead travelling crane for maintenance work. The integrated electronic load aggregation device ensures that a maximum of 30 t is lifted.

4 The double girder overhead travelling crane with an AS 7 ZW wire rope hoist can lift loads of up to 100 t. Due to the hall statics, the maximum permissible load varies from hall section to hall section. A special crane controller with Performance Level PI d controls safe operation of the crane with the help of permanent evaluation of the load.

5 A double girder overhead travelling crane, equipped with AS 7 wire rope hoists as twin hoist, is used to transport castings weighing up to 100 t. Due to same-side, opposed rope guidance of the twin hoist, the load is lifted and lowered without lateral travel of the hook and can be positioned exactly.

6 A double girder overhead travelling crane with two AS 7 wire rope hoists works in a hydroelectric power plant to open the sluice gates when necessary. The covered hoists are mounted on double rail crabs and have a lifting capacity of 40 t each.



5



6



1



2



3



4



5



6

1 Two double girder overhead travelling cranes are used in a repair workshop for dismantling and assembly of mining machinery. The hoists are equipped with electronic load indicator and load monitoring for increased safety and reliability.

2 Double girder overhead travelling cranes with AS 7 wire rope hoists with lifting capacities of 41 t and 60 t are used in one of Norway's biggest power stations in Bergen. The frequency-controlled hoists are used for maintenance work.

3 Three bridge cranes with two identical AS 7 wire rope hoists each are equipped with stepless drives. Each of the AS 7 wire rope hoists is designed for a load capacity of 40 t. The ramshorn hooks of the bottom hook blocks can be electrically rotated so that the loads can be handled precisely. The catwalks make inspection and maintenance work easier. A comprehensive condition monitoring package is part of the maintenance concept.

4 A double girder overhead travelling crane with an AS 7 wire rope hoist is used in a sheet metal cutting plant. The hoist is equipped with a motor-controlled rotational hook and an adjustable magnetic lifting beam.

5 A manufacturer of CNC machine tools needed 86 cranes for its new production halls. Altogether, 15 wire rope hoists of the type AS 7 and 105 wire rope hoists from the SH series are used in the factory, partly as combination of main and auxiliary hoist.

6 A total of 29 cranes, among them two double girder overhead travelling cranes with a lifting capacity of 150 t and a tandem function, work in an Arabian factory. Wire rope hoists of the type AS 7 and SH are used as hoists. All of the cranes have a programming facility for sway control.

The industry-leading service and training

STAHL CraneSystems is committed to quality, right down to the smallest detail. Developed with care by our engineers and experts, our products are manufactured with care to the highest levels of performance and reliability. This high level of quality not only applies to the products we design, but also to the service we provide to our customers around the world.

Our global sales team works exclusively with capable, professional crane manufacturing partners to provide you with industry-leading service and training. When you purchase a full crane system or STAHL CraneSystems components, you can expect optimum support from our partners. Whether you need a consultation, installation of a new system, system testing, maintenance, modernisation, spare parts, or training, we are here, together with our crane building partners, to provide you with streamlined, expert support anywhere around the globe.





Spare parts – available around the clock

Our own subsidiaries and numerous partners around the world ensure a reliable supply of spare parts and expert assistance in your area. Even decades after a series has been discontinued, spare parts are available all over the world around the clock.

Training courses

We are dedicated to safety. With training courses, webinars, and online safety tools and information, we keep our regional crane manufacturing partners and end users educated on how to best use and service our products. This information covers all of our main product lines, providing practical and theoretical knowledge relevant to individual products and full crane systems.

For training materials or information on our full training offering, visit www.stahlcranes.com/en/support

Factory service centre – on duty around the world

To help support our customers, our factory service center is available to provide assistance and expertise to field technicians as well as crane and systems manufacturers – anytime, anywhere. With modern diagnostic tools and condition monitoring systems, we are here to support your service and maintenance needs. We will help ensure your system and operators stay safe. You can rely on us.

To reach our factory service center, contact customer.service@stahlcranes.com

MarketingPortal plus – our online support

At mpplus.stahlcranes.com you can view or download the information you need quickly and conveniently, including brochures, product information, technical documents, illustrations, and much more.







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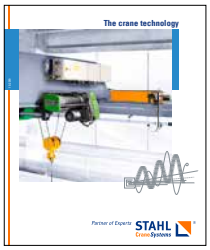
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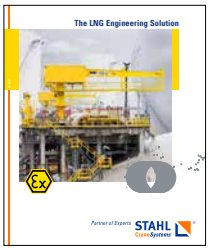












Presented by

STAHL CraneSystems GmbH
Daimlerstr. 6, 74653 Künzelsau, Germany
Tel +49 7940 128-0, Fax +49 7940 55665
marketing.scs@stahlcranes.com
www.stahlcranes.com

COLUMBUS McKINNON CORPORATION

MEMBERS OF COLUMBUS MCKINNON

STAHL CraneSystems MAGNETEK

All specifications and illustrations are non-binding.
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Printed in Germany 990 066 0 EN-GB-08.21

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