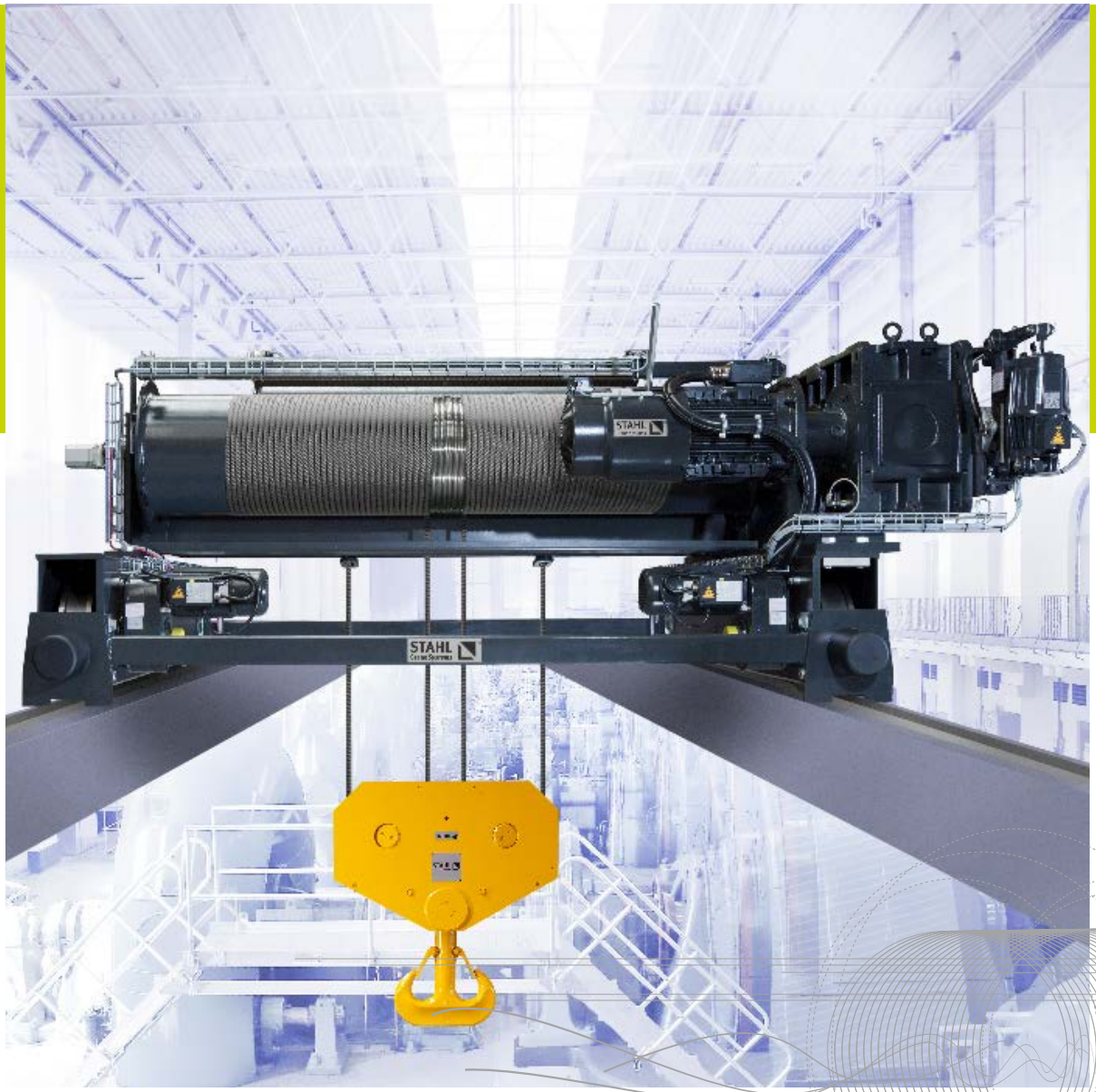
The SHW 8 winch



10.2019

Partner of Experts

STAHL CraneSystems

The SHW 8 winch

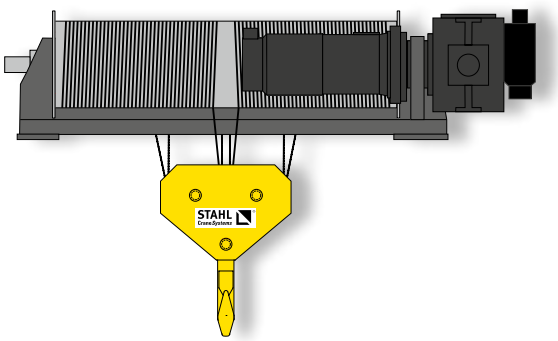
The SHW 8 winch program is based on the tried-and-tested SH wire rope hoist program and is designed for the high-load bracket up to 250,000 kg. Its strong hoist motors and robust, low-maintenance design make it ideal for tough everyday use. To enable a variety of different economical solutions, there are three motors up to 38 kW with two speeds in a ratio of 1:6 available for the SHW 8 winch. For higher ease of use, there are six hoist motors with up to 200 kW and stepless speed control available. All travel drives are equipped as standard with soft start. On request, the SHW 8 winch can come with high-performance frequency inverters or with individually adapted speeds.

Various models and trolley variants for the SHW 8 winch open up numerous possibilities of use. Individually adapted to your specific requirements as stationary hoisting or towing equipment, for use with trolley or for systems building.

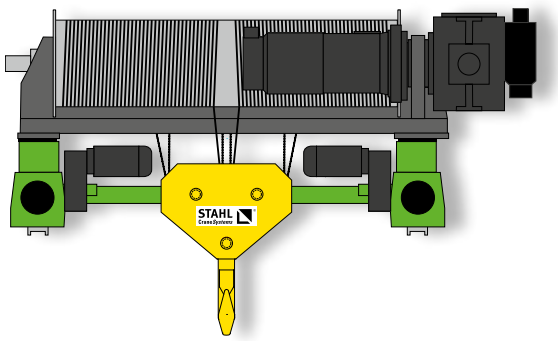
The winch programme is also available in explosion-proof design for Zone 1, Zone 2, Zone 21 or Zone 22.

The facts

- Series components of the SH series proven thousands of times over
- Modular design
- 3 hoist motors up to 38 kW with two speeds in a ratio of 1:6
- 6 hoist motors up to 200 kW and stepless speed control
- All travel drives with soft start
- Overload cut-off device is already pre-set during manufacture
- Compact headroom thanks to innovative design of the rope drive



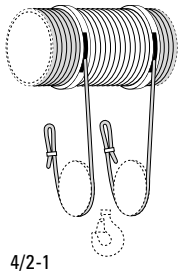
Stationary
The SHW 8 winch can be used as stationary hoisting or towing equipment, for example in systems building. Depending on the application, the rope lead-off angle, the attachment of the hoist and the end position of the hoist motor can be varied.



OE double rail crab
The OE double rail crab is intended for use on double girder overhead travelling cranes. Its extremely compact construction makes very low approach and headroom dimensions possible, thus enabling full use of the available space. The double rail crab is available with various track gauges for the complete load capacity range and automatically compensates for any unevenness of the cross travel runway.

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 trolleys.

Reeving without lateral hook movement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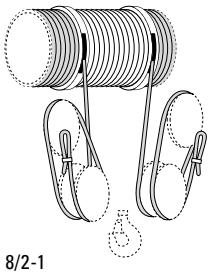
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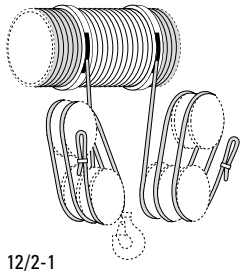
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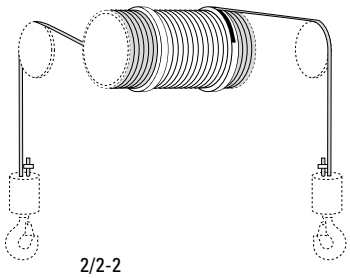
Double-grooved rope drum
The design with double-grooved rope drum (right/left-hand thread) is used for many lifting and towing tasks where a multipoint load attachment is required and no lateral hook movement during lifting and lowering is desired.

Optional reeving with multipoint load attachment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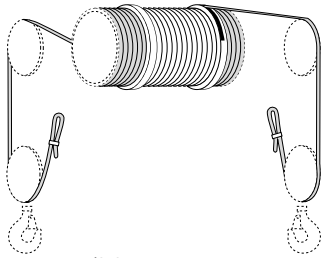
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■ Standard
□ Option

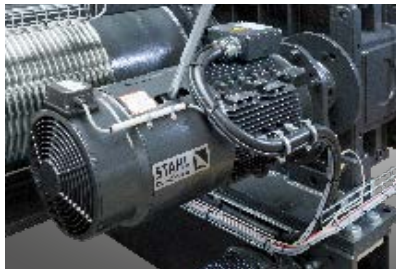
S.W.L. to* [kg]	Reeving	Stationary	OE double rail crab
25,000	4/2-1	■	■
32,000	4/2-1	■	■
40,000	4/2-1	■	■
50,000	8/2-1	■	■
63,000	8/2-1, 12/2-1	■	■
80,000	8/2-1, 12/2-1	■	■
100,000	12/2-1	■	■
125,000	12/2-1	■	■
160,000	12/2-1	■	■

*S.W.L. up to 250,000 kg with reeving of 16/2-1 available on request.

The technology

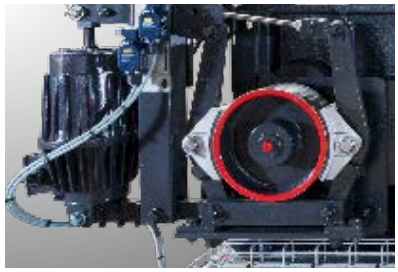
It is a reassuring feeling to know what convincing technology is inside every SHW 8 winch. The largely maintenance-free components of the modular winch from proven series components are matched to each other optimally. They guarantee constant performance, high efficiency and long service life. Flexible drive technology, the high-performance gear unit with versatile ratios and standard safety components or many additional options increase safety at the workplace.

1 Hoist motor



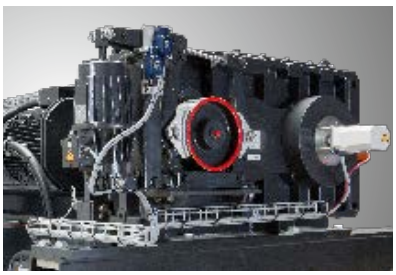
- Pole-changing or frequency-controlled three-phase motors
- Classification according to ISO, high duty cycle and high switching rate
- IP 55 protection, thermal class F
- Good motor cooling, maintenance-friendly
- Temperature control by thermistor

2 Brake



- Low-maintenance, asbestos-free double-shoe brake; no readjustment necessary
- Long service life thanks to over-dimensioned brake
- Brake easily accessible for inspection from outside
- Motor management ensures low wear
- IP 65 protection

3 Hoist gear



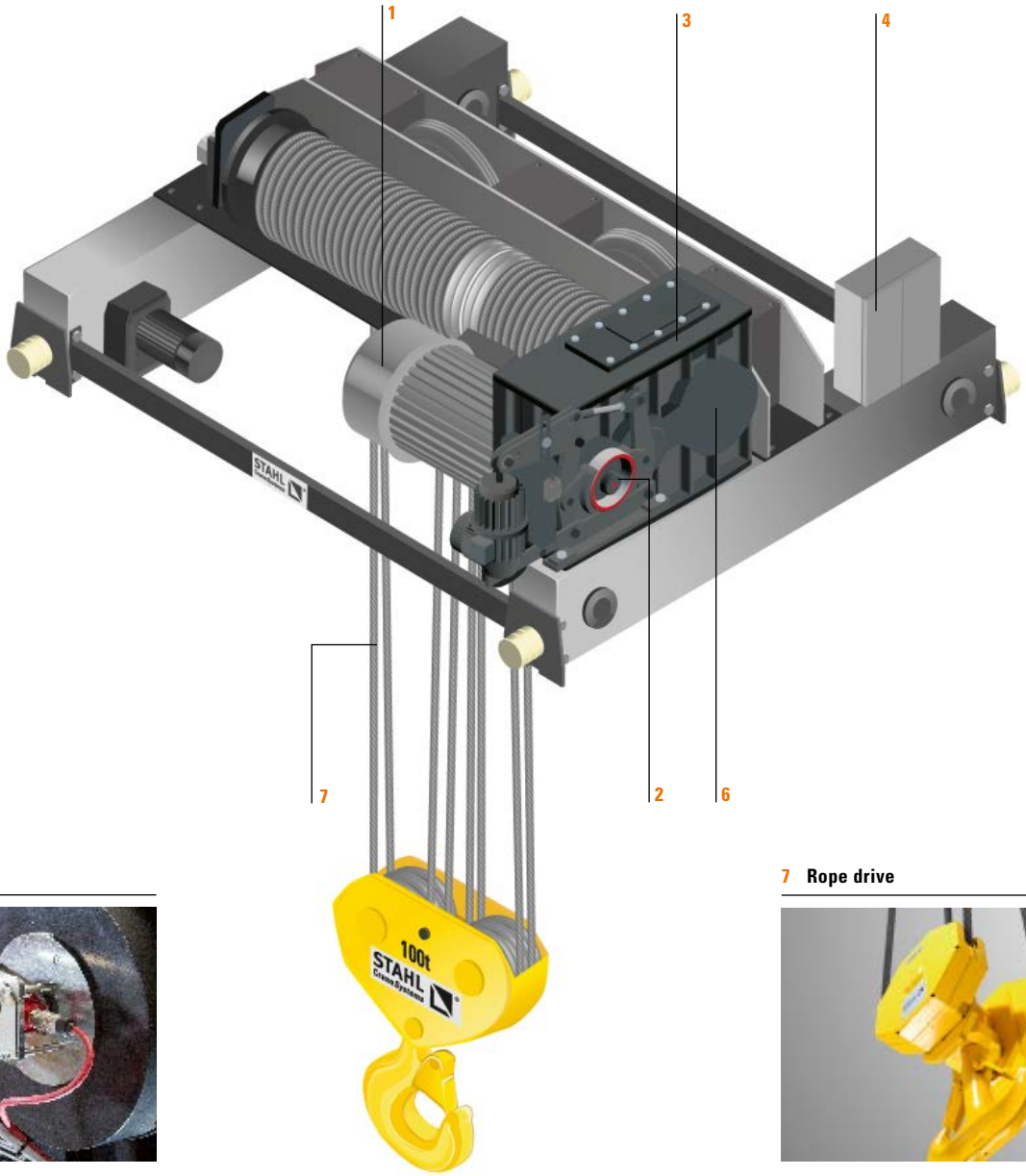
- Versatile gear ratios for individual speeds
- Long service life through oil lubrication, with minimum maintenance
- Hardened and ground gears

4 Control and motor management

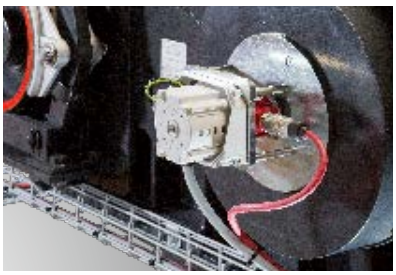
- Condition monitoring as standard
- Load reduction by suppression of jog mode
- All common control voltages available
- High degree of safety thanks to over-dimensioned contactors
- Monitoring of the motor temperature of the hoist motor and travel motor

5 Overload cut-off device

- Permanent electronic monitoring of the suspended loads
- Limitation of the maximum load by load measurement at the rope anchorage in the case of multiple reeving or at the gearbox
- Pre-set overload cut-off device at the rotatably mounted gearbox or at the rope anchorage, depending on size



6 Gear-type limit switch



- Standard emergency hoist limit switch in highest and lowest hook position
- Switch can be equipped optionally with up to eight switching elements. This allows, for example, further holding positions and the operational limit stop in lowest hook position to be realised.

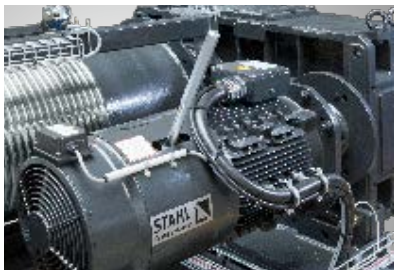
7 Rope drive

- Designed for high safety and long life
- Flexible, galvanised special rope with rope safety factor >4
- Standard version with 2 ropes, no lateral hook movement
- Wear-resistant return sheaves, rope-friendly rope drum grooves thanks to fine machining
- Robust hook block with low headroom in spites of large hook dimensions

The options

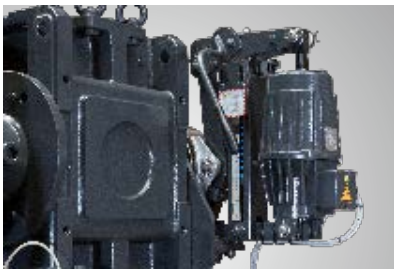
Although they are already first-class in their standard design, you have the possibility to make your SHW 8 winch even safer, more economical and more convenient with a range of mechanical, electrical and electronic options. With the add-ons, you improve the performance of the wire rope hoist and adapt it individually to your requirements.

Manual venting of the hoist brake



- The brake air device for manual release of the hoist brake and to lower the load in the event of a power failure.

Second hoist brake



- For hoist motors up to 63 kW and 50 Hz additional double-shoe brake according to DIN 15435 with external brake spring
- For hoist motors from 78 kW and 50 Hz, additional single-disc spring-loaded brake

Overwind protection

- Proximity switch at each drum end
- Prevention of rope climbing
- Automatic cut-off

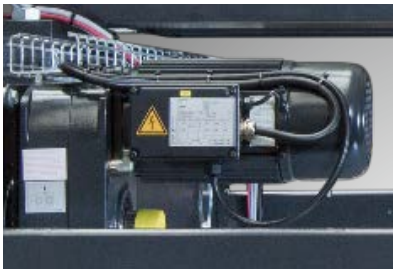
SMC multi-controller

- Permanent load monitoring even when the hoist is stationary
- Overload protection through ALC automatic load control
- Load spectrum recorder for load-related runtime summation
- Monitoring of the motor temperature of the hoist motor and travel motor
- Operating data acquisition, e.g. operating hours, load spectrum, motor switching operations and load cycles
- Data exchange with a PC possible

Frequency inverter for “lifting”

- Soft starting and braking
- Highly reduced load swing
- Fast, precise positioning of the load, hardly no corrective switching
- The reduced dynamic load prolongs the service life of the hoist motor and gearbox and protects the entire system.
- ESR function (Extended Speed Range) for higher lifting speeds with partial load
- Worldwide approvals for all frequency inverters
- Certified according to DIN ISO 9001

Frequency inverter for “cross/long travel movements”



- Implemented and installed in separate panel boxes
- Simple parametrisation and operation
- Standard speed range 1:10 optionally up to 1:30
- PLC-compatible to higher-level systems (optional)
- All common international mains voltages are covered

		Standard	Options
Ambient temperature		–20 °C to +40 °C	–40 °C to +80 °C
Protection according to IEC/EN 60529		IP 55	IP 66
Coating	Colour	Black grey RAL 7021	In all other colours according to RAL chart
	Coat thickness	80 µm	120 µm to 320 µm
	Finish	Polyurethane top coat	Epoxy resin basis (240/320 µm)
Control units		–	Control unit with/without load display
			Radio remote control unit in pushbutton or joystick version
Controls		Hoist motor connection is wired in motor terminal box	Complete control with transformer and crane switch contactor
			Crane builder control without transformer and without crane switch contactor
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	Per DIN EN 12385	Bright or galvanised	–
	Safety factor	Usually ≥ 4.0	Special ropes and increased safety factor
Rope drive		Hook block, rope deflection, rope suspensions and wire rope with reevings 4/2-1, 8/2-1, 12/2-1 additionally 2/2-2, 4/2-2	Dual load hooks
			Additional hook blocks and/or return sheaves, reeving 16/2-1
Limit switches	Emergency hoist limit switches (rear-type limit switches)	For highest and lowest hook position and a hoist limit switch for highest hook position	With additional switching elements for further hook holding positions
	Travel limit switches	–	For up to four switching functions – Pre- and limit stops in both directions of travel, distancing
Overload cut-off		SLE evaluation device	SMC multi-controller
	Signallers	–	Horn, flashing light
	Visualisation	–	Large-format SLD load display, display in control unit, readable on PC
	Data exchange	–	RS 232, RS 485, CAN
Temperature control hoist/travel motor		Thermistor, including thermistor relay	–
Mechanical protection		–	Cover plates and heat shields Overwind protection
		Buffers on all trolleys	Runway end stops
Hoist brake		Single-disc spring-loaded brake with asbestos-free brake pads	Manual venting of the brakes, or drive redundancy through Twin Drive Concept
			Second hoist brake
			Air monitoring
			Wear monitoring

The Engineering

Engineering means innovation and individuality. It is the task of our experts to redefine the lifting and moving of loads for complex requirements time and again. They constantly develop modern, individual custom and off-standard solutions from one of the largest ranges of standard components available. Virtually no other manufacturer of hoisting and crane technology can offer this variety of precisely engineered special solutions with such quality and such efficiency.

The modular SHW winch programme forms the basis for a wide variety of solutions. Specific system solutions adapted individually and precisely to your requirements are our forte. The experience and knowledge gained from more than 140 years in crane technology gives us the flexibility to develop and produce the optimum solution for your project in a short time. On request, all off-standard winches and custom solutions are available in explosion-proof design for Zone 1, Zone 2, Zone 21 and Zone 22.

The facts

- Perfectly matched to your project
- More than 140 years of experience and know-how in every hoist
- Short development time
- Economical due to modular system
- Perfected through use of tried-and-tested standard components
- High quality and reliability thanks to in-house production
- All custom solutions optionally available in explosion-proof design according to ATEX and IECEx

Example 1 **Power station cranes with two SHW 8 winches**

Two power station cranes from STAHL CraneSystems, each with a lifting capacity of 80 tonnes, are used by an Icelandic energy company for installation and maintenance of 47.5 MW hydropower turbines. Working in tandem mode, which is realised via mechanical coupling of the cranes and trolleys, the cranes are able to lift the hydropower turbines with a total lifting capacity of 160 tonnes and transport them out of the shaft for maintenance work. The cranes have a span of 13.8 m and a lifting height of 27 m.
The SHW 8 winch from STAHL CraneSystems, which also has a lifting capacity of 80 tonnes, is used as main hoist. The cranes also have several auxiliary hoists. The hoists are mounted stationary on a compact, specially designed trolley for very short hook approach dimensions. The control equipment, overload protection, double brake, total load system and floodlights meet the high quality and reliability requirements of the crane system. High-quality frequency inverters, which are operated with a joystick controller, enable precise and smooth crane movements for precise placement of the turbines. All cables are flame-retardant and halogen-free. The trolleys and both sides of the crane bridge are equipped with maintenance platforms to allow technicians quick and safe access to the crane components.

The facts

- Power station cranes in tandem mode for safe working loads up to 160 tonnes
- Span 13.8 m
- Lifting height 27 m
- Frequency controlled SHW 8 winches with many safety-enhancing options

Example 2 **Dam winch for S.W.L. of 100 tonnes**

The Kishanganga hydroelectric power station in India lies more than 2,400 metres above sea level. A winch developed by STAHL CraneSystems engineers is used to lift and lower the 100 t sluice of the dammed Kishanganga River. The stationary SHW 8 winch with a load capacity of 2 x 60,000 kg is designed with two rope drums and a gearbox. For even distribution of the weight, the hoist is designed with a reeving of 2 x 12/2-1. The double symmetrical arrangement ensures absolute synchronisation of the two load hooks. In order to compensate tolerances between the components, the rope drums are flanged to the gearbox with special couplings. The gear motor is mounted vertically above one of the two rope drums. The hoist is equipped with an overload cut-off device for each of the two load hooks and placement of the load realised separately for each of the two hooks through slack rope cut-off. There are many additional components available for increased work safety. For example, both hook positions can be read on a display and the motor currents of the hoist motor are shown on ammeters. It is additionally protected by motor circuit-breakers and forced ventilation for 15-minute continuous operation with stopping control. Robust pole-changing technology enables operation when the mains voltage supply is unstable. In the event of a power failure, the hoist brake with integrated brake venting lowers the load with pauses. The SMC multicontroller determines the weight of the load continuously, and switches off the hoist movement immediately in the event of an overload. The multicontroller can also be used to record further data such as, for example, the load spectrum, the operating time, the full-load operating time and the motor switching operations and to read them out with the help of a PC.

The facts

- SHW 8 winch with lifting capacity of 2 x 60,000 kg
- For an ambient temperature of –25 °C to +40 °C
- Two rope drums with 2 x 12/2-1 reeving, length L4
- Lifting height of 21.5 m with rope length of 2 x 150 m
- Ropes implemented in 7-fold safety
- SMC multicontroller
- Motor circuit-breaker, brake venting, second safety brake, overload cut-off device, pole-changing technology, forced ventilation for continuous operation, heating
- Special weatherproof coating with polyurethane

Example 3 **Inspection crane in hydroelectric power station**

Due to extensive modernisation, a new crane system has been commissioned at a Swiss hydroelectric power station. An SHW 8 winch from STAHL CraneSystems with a lifting capacity of 85 tonnes and an additional auxiliary hoist, an SH wire rope hoist for a safe working load of 10 tonnes, work parallel to an existing winch. The two new hoists have a maximum lifting height of 40 metres. The system is operated with a special control system that enables particularly precise and fine control of the crane. The travelling and lifting speeds move in a range of a few millimetres per second. Initially the SHW 8 winch was used for assembly of the new hydroelectric power station and, until the end of the construction work, to deliver and remove building material to and from the excavation pit. Since the end of construction, the winch is used for inspection and overhaul work on the new 30 MW replacement turbine. During the short time in which the plant is disconnected from the grid and the heavy turbine is lifted, dismantled, inspected and finally reassembled, the lifting equipment must work perfectly and a replacement be available immediately in emergencies. This high availability is guaranteed by the hoisting and crane technology from STAHL CraneSystems.

The facts

- Crane system with one SHW 8 winch with a lifting capacity of 85 tonnes
- Special control for precise lifting and positioning
- Travel and lifting speeds of a few millimetres per second
- Highest availability through proven crane components

The explosion-proof winch SHW 8 Ex

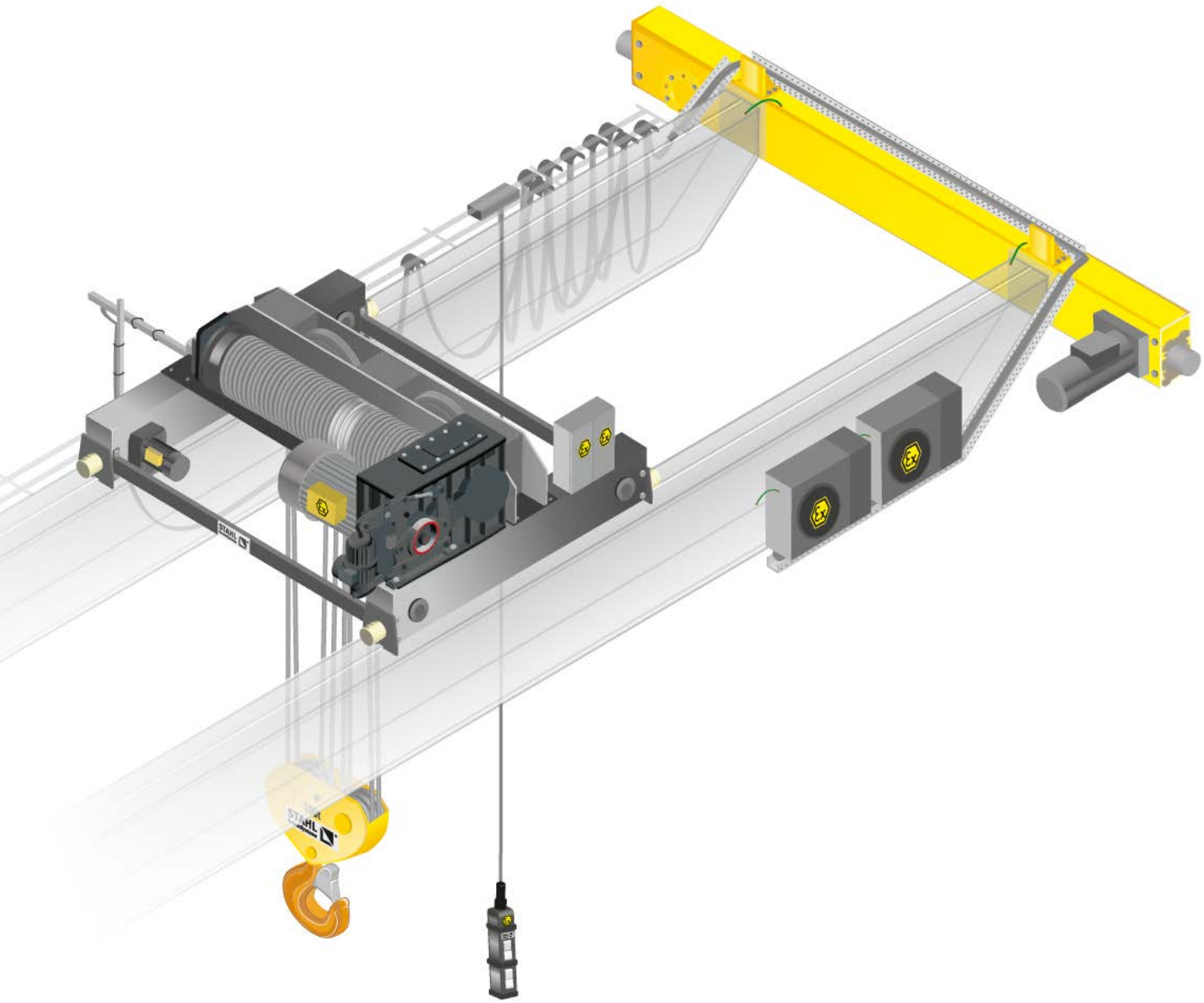
STAHL CraneSystems is known internationally as a specialist for explosion protection and considered one of the world market leaders in explosion protection technology. The safety of people and machines in potentially explosive gas and dust atmospheres is our top priority. We make no compromises here. As a developer of numerous innovations in this field, we have influenced the progress in crane technology perceptibly. Experience and know-how from many decades, our own fundamental research and development, approvals from the German national metrology institute PTB and other test institutes in many countries underline our expertise. Lifting technology from STAHL CraneSystems ranks among the safest technology available on the market for the chemical, petrochemical and pharmaceutical industries, the food processing industry as well as the power supply, shipbuilding, offshore and natural gas liquefaction (LNG) industries.

The SHW 8 Ex wire rope hoist programme is based without exception on the modular SH wire rope hoist range. All components of the explosion-proof winches – from motor and brake to controls and control pendant – are manufactured in-house. This ensures the complete, high-quality explosion protection on which users, crane manufacturers and system builders around the world have relied for decades. The strict ATEX directives and IECEx regulations for mechanical and electrical explosion protection are naturally fulfilled.

The facts

- International specialist for explosion protection technology
- The world's first complete, most extensive range of wire rope hoists for Zone 1, Zone 2, Zone 21 and Zone 22
- Based on the SH wire rope hoist
- All equipment available in explosion-proof design according to ATEX and IECEx

➔ You can find further information at www.stahlcranes.com or in our brochure "Expertise in explosion protection", which we will gladly send to you by post.



Use	Category	Protection against	Explosion protection class
Zone 1	Ex II 2 G	Gas	Ex de IIB T4 Gb or Ex de IIC T4 Gb
Zone 2	Ex II 3 G	Gas	Ex de nA IIB T3 (T4) Gc or Ex de nA IIC T3 (T4) Gc
Zone 21	Ex II 2 D	Dust	Ex tb IIIC T 120°C Db
Zone 22	Ex II 3 D	Dust	Ex tc IIIC T 120°C Dc

The support

Quality down to the smallest detail is the standard STAHL CraneSystems is committed to. Not only when it comes to crane technology, but also when it comes to support. You will find hoisting and crane technology from STAHL CraneSystems around the world. Developed by engineers and experts, and manufactured with the greatest care and in keeping with our renowned and trusted standard of quality. Many companies from around the world and various fields have opted for maximum safety and quality – for products from STAHL CraneSystems.

We rely exclusively on capable and professional crane manufacturers and system builders to distribute our products. From them you can expect optimum support when it comes to your individual crane system with components from STAHL CraneSystems. Consulting services and installation of new systems, system-orientated testing and maintenance, modernisation, spare parts supply and training courses. Together with our subsidiaries and partners, we offer you perfectly coordinated support all over the world.

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 constantly keep our regional crane manufacturing partners up to date with training courses, seminars and information material. And you too as end customer can profit directly from our expertise. We impart practical and theoretical knowledge in our own training centre or on your premises. The seminars on offer in the form of individual, basic and advanced courses cover all main product groups. However, we would also be pleased to develop a special programme for your individual specifications and requirements.

You can find our current seminar programme at www.stahlcranes.com/en/support

Factory service centre – on duty around the world

Our factory service centre is a service for our customers: wherever you are, we assist your crane or systems manufacturer and your technicians with our experience and expertise whenever needed. Modern diagnostic apparatus and condition monitoring systems stand by to support professional service and maintenance work. Not only you, but also your system are in safe hands. You can rely on us.

You can reach our factory service centre at customer.service@stahlcranes.com

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