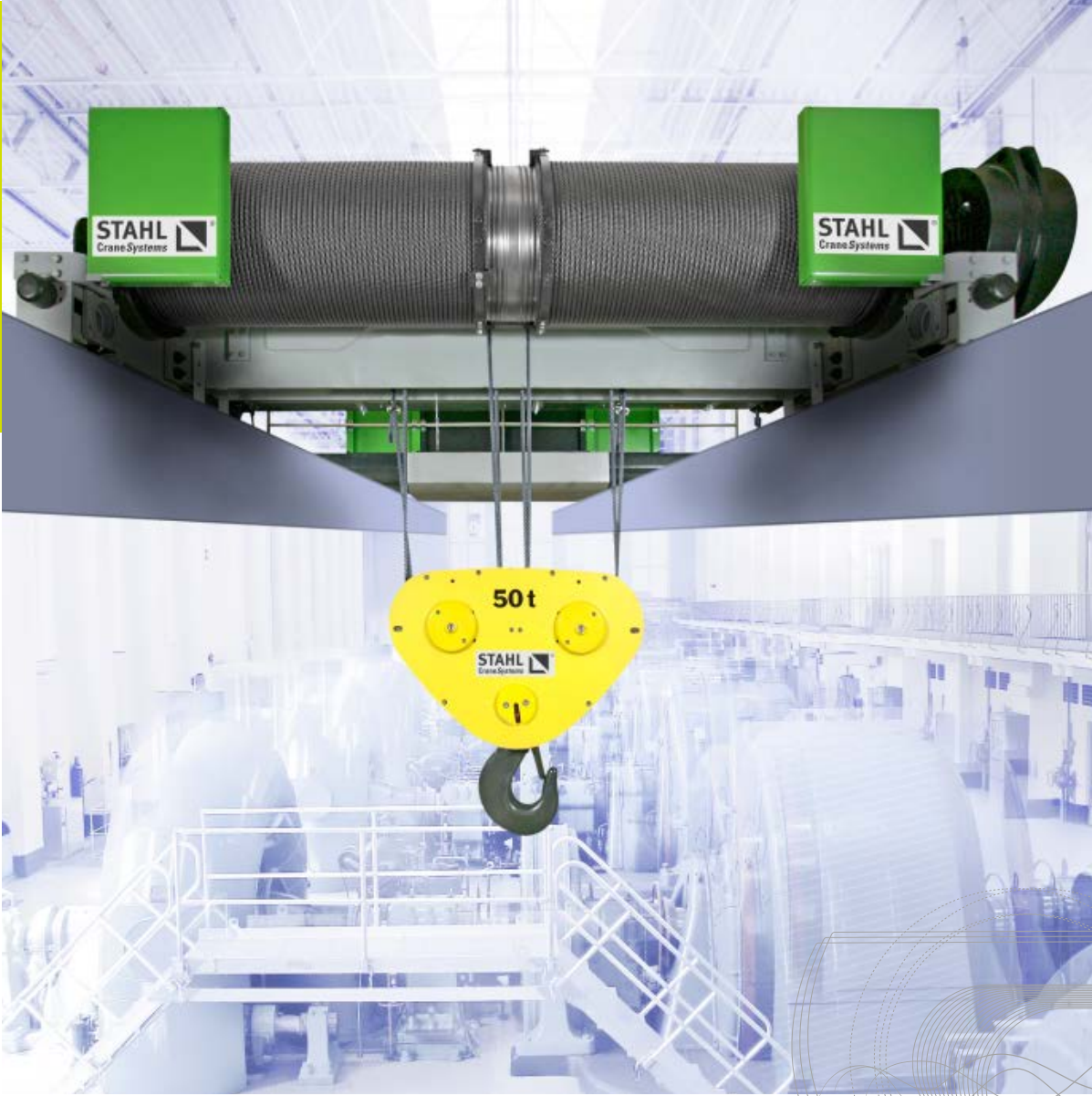


# The SW winch

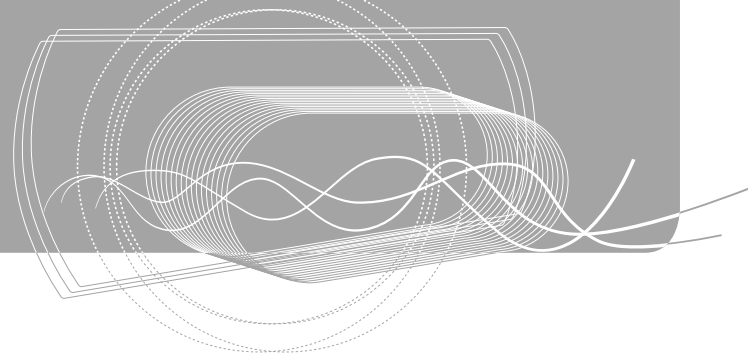


04.2015

Partner of Experts



# The SW winch



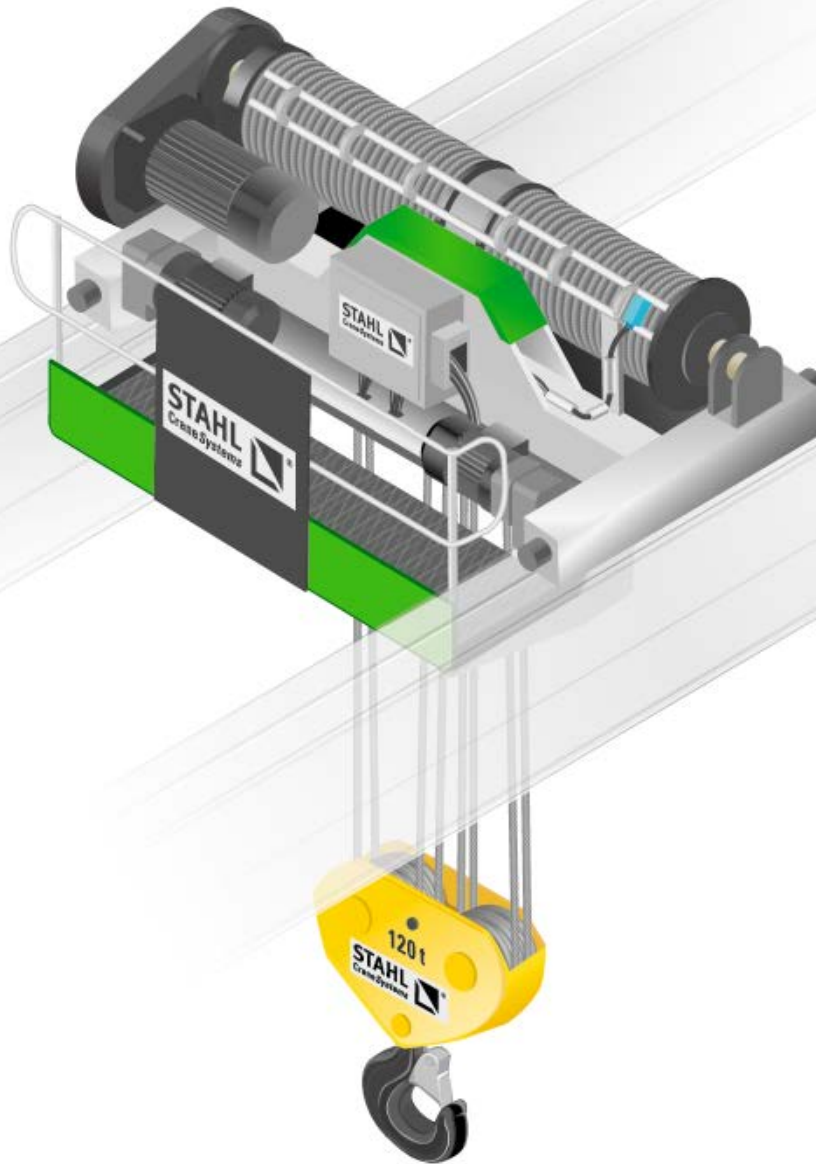
The SW winch from STAHL CraneSystems is a modular construction on the basis of cost-effective low-maintenance series components. It is designed for standard applications in the upper load capacity range and an intelligent alternative to the SHW 8 winch as regards price-performance ratio. The SW winch is excellently equipped in its basic version, and is even more flexible and adaptable in combination with additional components and features. Users and crane builders appreciate the compact and robust open construction with its easy access. The optimised deadweight relieves stress on the crane structure and the short wheelbase ensures optimum approach dimensions while at the same time distributing the wheel load evenly.

The SW winch is available in four frame sizes for the safe working load range from 10,000 kg to 250,000 kg. Common to all are specially designed rope lead-offs with angled return sheaves ensuring low wear and a longer service life for the rope drive. Frequency control and continuous temperature monitoring are standard features on hoist and travel motors. On request, visual or acoustic alarm functions are available to warn of an impending

programmed cut-off. This enables you to move the SW winch to a suitable position or to set down the load. A condition monitoring unit, the field-proven SMC Multicontroller from STAHL CraneSystems, is fitted as standard to permit fast error analysis and maintenance. As an option, the SW winch is supplied with the ESR function: the ›Extended Speed Range‹ permits up to double hoisting speed with partial load. This generally makes an additional auxiliary hoist superfluous.



The SW winch is available for safe working loads of up to 250,000 kg.



### **The facts**

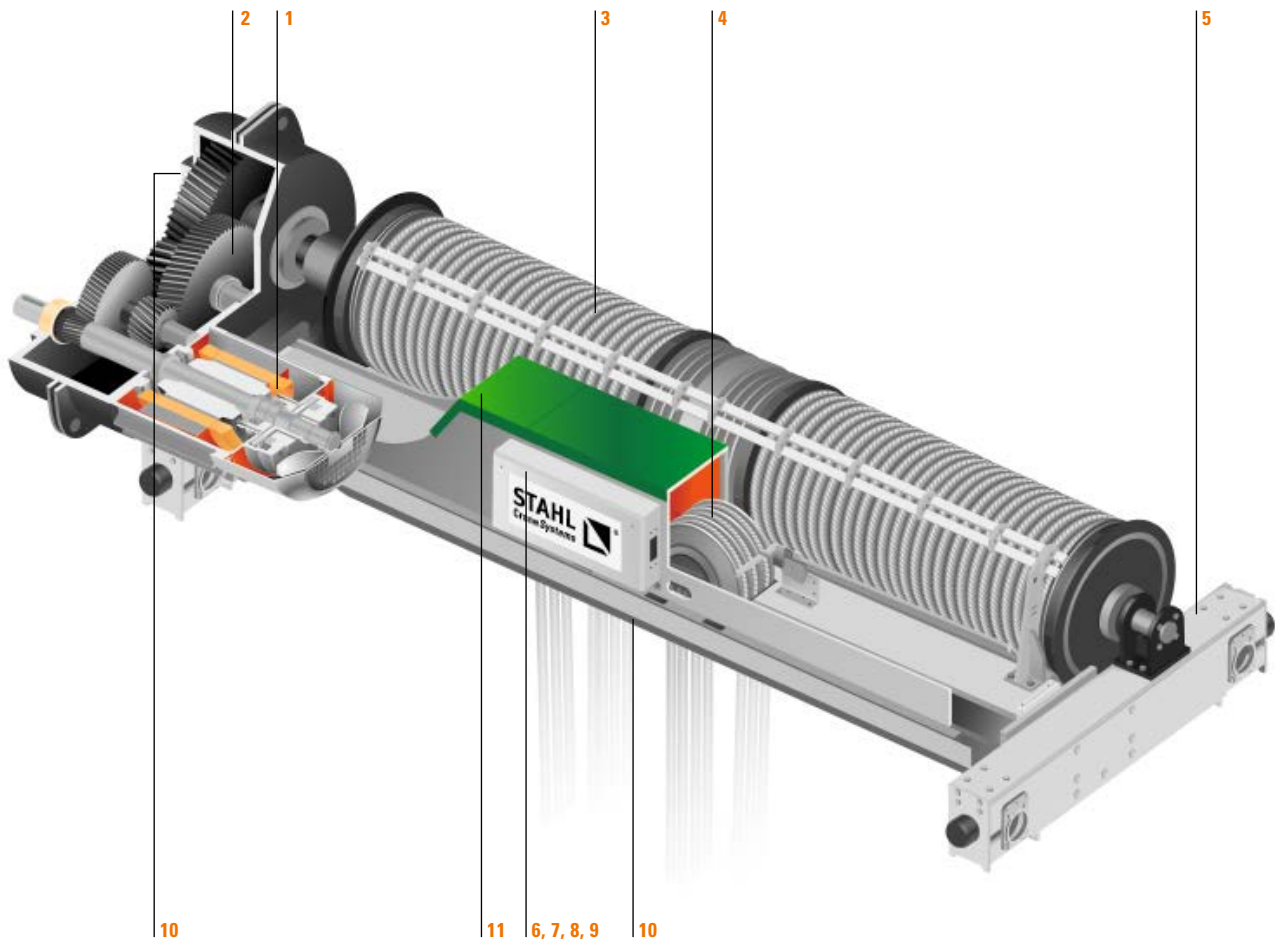
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- Standard winch with excellent price-performance ratio
- Four frame sizes: SW 06, SW 10, SW 16 and SW 25
- Safe working load 10,000 kg to 250,000 kg
- Five FEM classifications available
- Largely maintenance-free, low wear, long service life
- Compact construction and short approach dimensions
- Powerful frequency-controlled hoist motors for great lifting heights
- Supplied as standard with SMC condition monitoring
- Optimised rope drive with angled return sheaves
- Optionally available in ESR version (Extended Speed Range) permitting up to double hoisting speed with partial load.

# The technology

The SW winch makes many different applications accessible. It is designed for combination with a double rail crab to meet your individual requirements. Your production shop can be fully utilised thanks to its compact frame size and short approach dimensions. All crabs are frequency controlled and can be supplied for various speeds. In addition, the SW winch can be used as stationary lifting or towing equipment.

The functions and performance of STAHL CraneSystems' SW winch have been engineered down to the last detail. The largely maintenance-free components and subassemblies, produced in up-to-date series manufacture, are optimally coordinated. This modular design offers numerous variants combined with excellent performance and cost-effectiveness.



### 1 Winch motor



- Powerful frequency-controlled winch motor for great lifting heights
- Stepless hoist and travel speeds supplied as standard
- Motor-driven ventilation to prevent overheating (SW 06, SW 10, SW 25), forced ventilation (SW 16)
- Bi-metal temperature control for winch and travel motors with visual display
- IP 55 protection, insulation material class F/H
- High duty cycle

### 2 Winch gear



- Robust, long service life, low maintenance
- 3-step spur gear
- Gear limit switch with 4 switching points
- Extra hook block-activated limit switch for top hook position supplied as standard
- Oil lubrication, oil level indicator, automatic bleeding

### 3 Rope and rope guide



- Double-grooved rope drum for precise lifting motions and true vertical lift
- Load sensor to detect overload
- Two independent, flexible long-life ropes
- Rope overwind protection for 22 to 24 reevings
- Rope guides in spheroidal graphite cast iron for 25 to 28 reevings (optionally available for 22 to 24 reevings)
- Dual-channel load sensors as an option

### 4 Rope drive



- Wear-resistant return sheaves, rope drum grooves fine-machined to avoid wear on rope
- Rope sheaves in bottom hook block angled in relation to return sheaves
- Robust, low-headroom bottom hook block
- Optimised ratio of rope drum and return sheaves ensures low wear on rope
- Rope drum easily accessible for maintenance and rope replacement

### 5 Crab



- Double-rail crab
- Extremely compact construction for short approach and headroom dimensions
- Endcarriages from standard programme are used
- 6 wheels reduce wheel loads in the case of high safe working loads
- Flanged wheels on winch gear side, guide rollers are also available as an option
- Wheels without flanges on the opposite side
- Even distribution of wheel loads

### 6 Frequency inverter for lifting and travel lifting



- Lifting
- Closed loop technology for more accurate positioning
  - Reduced dynamic load increases service life of winch motor and winch gear
- Travel
- Open loop technology
  - Two travel drives for precise travel motions
  - Greatly reduced load swing

**7 SMC Multicontroller**



- Overload cut-off and continuous load measurement for lifting and lowering motions and with static load
- Load spectrum memory for load-dependent operating time summation
- Temperature monitoring of winch and travel motors
- Operating data collection, e.g. operating hours, load spectrum, motor switching operations and load cycles
- Motor management
- Data exchange with a PC is possible

**8 Control and motor management**



- Premounted switchgear cabinets with interior lighting, electrical socket and horn on the outside
- Fully equipped control, functional arrangement
- Frequency inverters for lifting and cross travel, condition monitoring, main contactor, control transformer
- Generously dimensioned to enable devices to be added individually
- IP 55 protection for contactors and transformers
- IP 21 protection for the brake resistance housing

**9 Electrics**



- Cables marked for safe installation and fast identification
- Maintenance-friendly, components are easy to replace
- Flexible towing arm for all power supplies, pivoted

**10 Hoist limit switch**

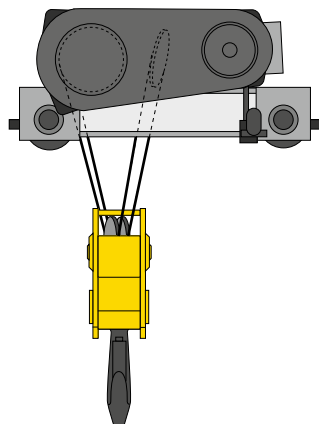


- 4-step emergency and operational winch limit switch
- Two switching elements for emergency stop
- Two switching elements for automatic operational cut-off in top and bottom hook position
- Standard limit switch for top hook position, activated by bottom hook block

**11 Paint system**

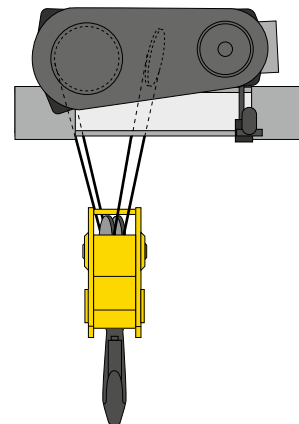


- Standard paint as per RAL 6018 yellow green and RAL 7021, 7035, 7040, black grey
- High-quality primer and top coats for standard applications



**Double-rail crab**

The extremely compact construction has low approach and headroom dimensions so that the available space can be fully utilised. The double-rail crab is available in various track gauges over the whole safe working load range.

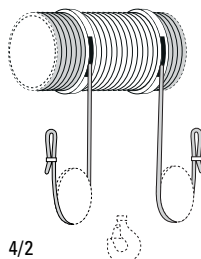


**Stationary**

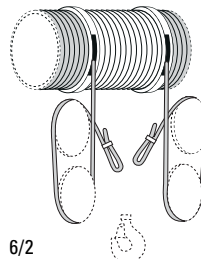
The SW winch can be used as stationary lifting or towing equipment, for example in systems building.

**Double-grooved rope drum**

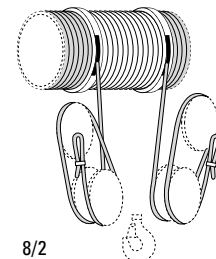
A double-grooved rope drum is used on the SW winch, there is no lateral movement of the hook when lifting and lowering the load (right-/left-hand groove).



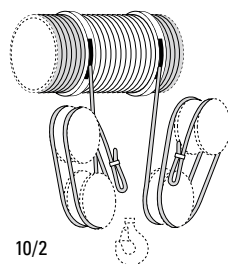
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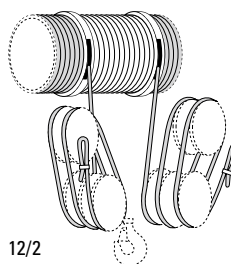
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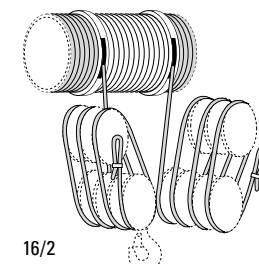
8/2



10/2



12/2



16/2

**Reeving for true vertical lift**

Type	S.W.L. up to [kg]	Reeving	ISO
SW 06	63,000	4/2, 6/2, 8/2, 10/2, 12/2, 16/2	M7, M6, M5, M4, M3
SW 10	100,000		
SW 16	160,000		
SW 25	250,000		M6, M5, M4, M3

# The options

## Travel limit switches



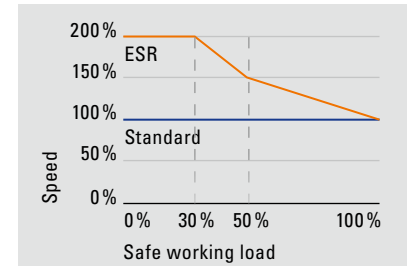
- IP 66 protection
- 4 switching functions: pre-switching and final limiting in both directions of travel
- Pre-switching from ›fast‹ to ›slow‹ before end of runway, cut-off at end of runway
- Electromechanical roller lever switches available as an alternative

## Radio remote control for crane and winch



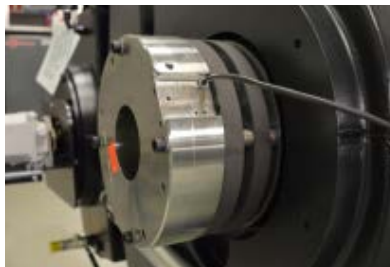
- Stepless joystick for crab/crane travel
- Band width 418–434 MHz, 869–914 MHz
- Approvals: CE, CSA, CCC
- IP 65 protection
- Temperature range: –20°C to +60°C
- Removable multi-function switch
- No starting sequence required
- Discharge time of Li-ion battery: 16 hours

## Extended speed range



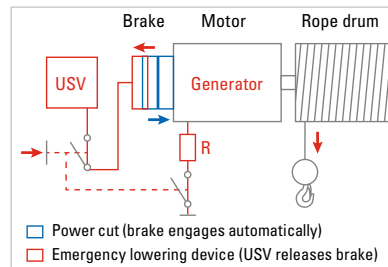
- Suitable for off-standard conditions
- Up to double lifting speed possible with partial load (up to 20% of maximum safe working load)
- Often makes an auxiliary hoist superfluous

## Second brake



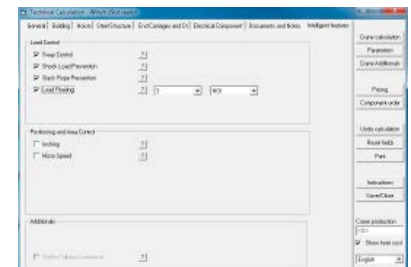
- Brake is mounted on gear on drive shaft opposite lifting motor
- Minimum double brake safety
- Is released simultaneously with first brake
- Braking takes place after a delay time to ensure normal braking speed and reduce wear

## Emergency lowering device



- Patented concept for lowering load during a power cut or if there is a technical defect in the frequency inverter. The brake is released by an emergency power supply and the winch motor used as generator.
- Resistance ›R‹ brakes the generator and converts the electric energy into heat. The load can then be lowered slowly.
- Emergency lowering device also functions if holding brake fails.

## Intelligent features



- Programmable displacement for lifting and travel motion in inching operation
- Microspeed for more accurate positioning
- Shock load damping by means of motor speed reduction
- Slack rope monitor
- Sway control for monitoring and reducing load swing



		Standard	Options
Ambient temperature		+5°C to +40°C	-20°C to +60°C Space heaters, ventilation, air conditioning
Protection to IEC/EN 60529		IP 55	IP 66
Paint	Colour	Black grey RAL 7021, 7035, 7040 Yellow green RAL 6018 Corrosivity category C2; EN ISO 12944	Off-standard paint in all other colours from RAL colour chart Corrosivity category C3, C4, C5
	D.F.T.	Primer 60 µm; total dry film thickness 120 µm or 100 µm for powder-coating	
Electronics		IEC	
Control pendant		Mobile control pendant	Various radio remote control devices (pushbutton/ joystick/mini joystick)
Control		Ready installed panel boxes	EMC filter
		Clear cable identification	Anti-sway control
		Towing arm for power supply	Radio remote control
			Stainless steel panel box
Air conditioning			Heating, ventilation, cooling
Winch motor control		Frequency controlled (closed loop)	ESR (extended speed range)
Travel motor control	SW 06, SW 10, SW 16	20 m/min frequency controlled (open loop)	Faster or slower speeds
	SW 25	16 m/min frequency controlled (open loop)	
Motor supply voltage	50 Hz	380 – 415 V	
	50 Hz	440 – 480 V	
Rope		FEM standard	CMAA standard
Bottom hook block		Single hook, rotating 360°	Ramshorn hook
			Load hook lockable in 90° steps
			Motorised load hook
			Power supply for load lifting equipment, spring-loaded/motor-driven cable drum
Rope guide	4/2-1, 8/2-1	Overwind protection (pressure roller)	Rope guide
	10/2-1, 12/2-1, 16/2-1	Rope guide	Off-standard rope lengths
			Slack rope monitor
Limit switches	Winch limit switch	4-step emergency and operational winch limit switch for top and bottom hook position Block-activated limit switch for top hook position	
	Travel limit switch	Mechanical 4-way travel limit switch	Electromechanical roller lever switch Photoelectronic collision protection
Overload cut-off		SMC Multicontroller (incl. load spectrum calculation, operating hours, full-load operating hours, switching operations etc.	
Overheating protection of motors		Bi-metal switch with visual display	Alarm function before cut-off
	SW 06, SW 10, SW 25 winch motor	Motor-driven ventilation	
	SW 16 winch motor	Forced ventilation	
Winch brake		Disc brake with double brake safety	Second brake
Crab	Wheel tread	Buffers on all crabs	Buffer extensions
		66, 86, 106, 126 mm	Other wheel treads
		Cast metal wheels	Hardened wheels
		Flanged wheels	Horizontal guide rollers
			Anti-derail device
			Rail sweeps
			Storm clamp
			Maintenance platform
			Central lubrication
			Collision protection
	Other track gauges		
	Protective and cover plates		
	Auxiliary hoist (SH wire rope hoist or AS wire rope hoist)		

## The support

Quality right down to the most minor detail is the standard STAHL CraneSystems is committed to. Not only in the field of crane technology, but also on the subject of support. You will find lifting and crane technology from STAHL CraneSystems all around the world. Developed by engineers and experts, manufactured with maximum care following our well-known standard of quality. All around the world, many companies from various fields have decided on maximum safety and quality, on products from STAHL CraneSystems.

When it comes to sales, we are committed exclusively to capable, professional crane manufacturing partners. You can expect optimum support from them when your individual crane system with components from STAHL CraneSystems is at stake. Consulting and erection of a new system, system-oriented testing and maintenance, modernisation, spare parts supply and training courses. Together with our subsidiaries and crane manufacturing partners we offer you perfectly coordinated support all over the world.





### **Spare parts – accessible right around the clock**

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



### **Training courses**

We constantly keep our regional crane manufacturing partners up to date with training courses, seminars and information material. You too 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 match a special programme to your individual specifications and requirements.

You will find our current seminar programme at [www.stahlcranes.com/en/support](http://www.stahlcranes.com/en/support)



### **Factory service centre – in action all over the world**

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

Your will find our online service at [www.web.stahlcranes.com](http://www.web.stahlcranes.com) and you can reach our factory service centre on [customer.service@stahlcranes.com](mailto:customer.service@stahlcranes.com)



# The SW winch in action

Experts from every country recognise hoists and crane components from STAHL CraneSystems at once, as the SW winch is in action all around the world in various versions and customised solutions. Innovative, engineered down to the most minor detail and manufactured with the greatest care, the SW winch is cost-effective, robust and flexible lifting equipment that is a popular choice for standard applications in the upper safe working load range. STAHL CraneSystems is represented on all continents by subsidiaries, sales and crane building partners.



1 Gas turbines weighing 318 tonnes must be manoeuvred sensitively and positioned with millimetre accuracy and without jolts. Double girder overhead travelling cranes with two SW winches from STAHL CraneSystems, each with 180,000 kg safe working load, are employed for this purpose. Frequency inverters as standard on all drives ensure smooth starting and braking.





3

3 An SW winch with 130,000 kg safe working load is subjected to a load test in Malaysia before being delivered to the customer.



4

4 An SW winch with a safe working load of 160,000 kg is used on a double girder overhead travelling crane for maintenance work on turbines in a power station in Panama.



5

5 An SW winch from STAHL CraneSystems is used for installation and maintenance work in a coal- and gas-fired power station on the Malaysian coast.



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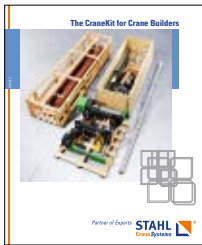
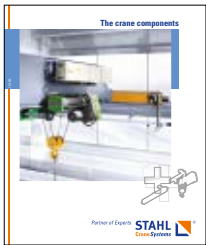
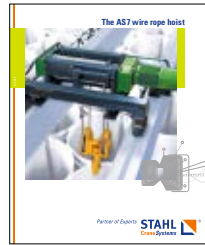
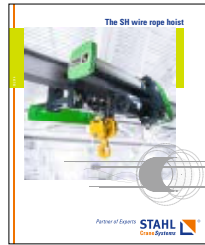
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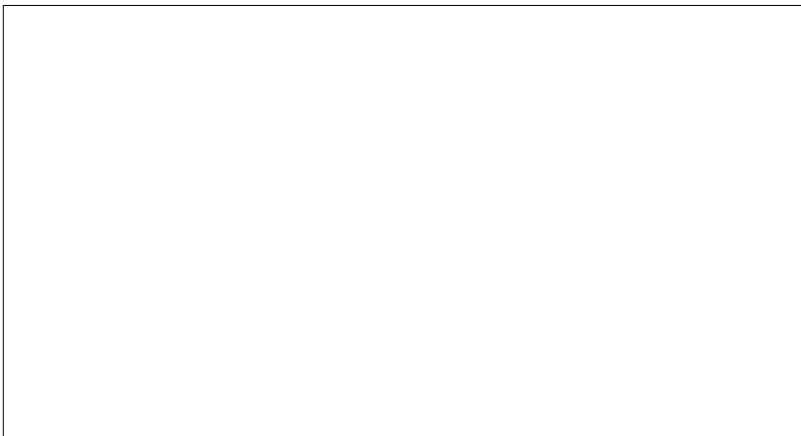
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