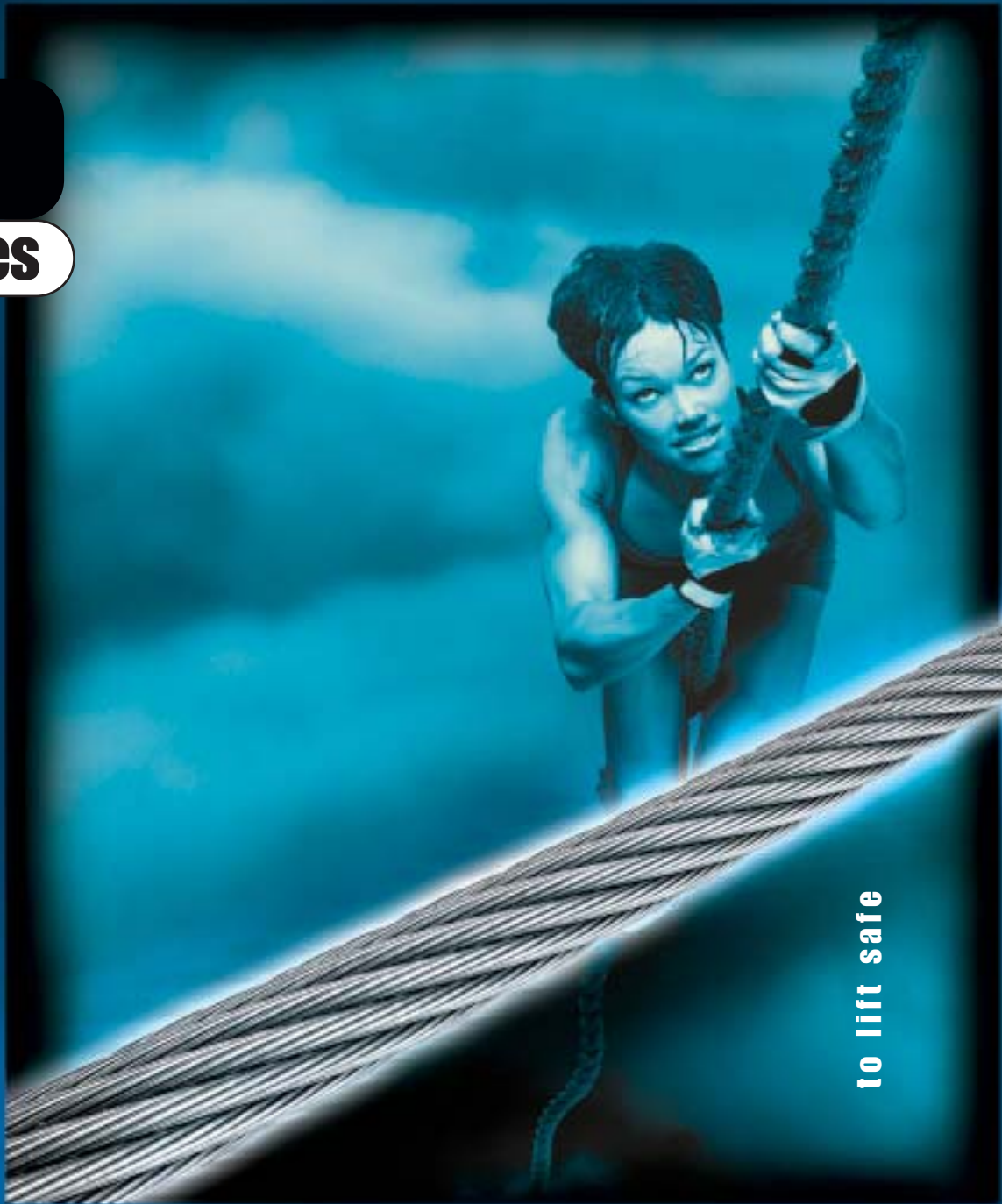electric wire rope hoist

DRH series

to lift safe

donati

ELECTRIC WIRE ROPE **DRH series, the most reliable and safe way of lifting** HOIST

It guarantees maximum safety in hoisting up to 40 000 kg. The competence and experience in design and production, the quality of components used, the high technology employed in the production of mechanical parts, in the finish and in surface treatments as well as the certified quality system UNI EN ISO 9001:2000 which regulates all the company's activity, allow DONATI SOLLEVAMENTI to offer a product in line with the most modern international regularity standards.

The DRH electric rope hoist ensures use in a wide range of situations, reliability over time and safety in all operative phases.

The special hydro-repellent finish, obtained by an electrostatic process, guarantees long life and consistency in performance even in particularly hostile environments.

The company offers a 3-year guarantee starting from the date of delivery, all at a reasonable price.

DONATI SOLLEVAMENTI S.R.L. INTRODUCES A NEW AND EVEN MORE EVOLVED RANGE OF **DRH** ELECTRIC WIRE ROPE HOISTS. SAFE, RELIABLE, COMPACT AND ECONOMICAL. THEY REPRESENT THE MOST MODERN AND ECONOMICAL MEANS OF LIFTING LOADS UP TO **40.000** KG, IN ABSOLUTE SAFETY.

donati

power and safety

at your disposal

power and safety at your disposal

ELECTRIC WIRE ROPE HOISTS AND TROLLEYS

The hoist combined with a trolley which runs on one or two beams also allows horizontal movements.
All lifting (raise and lower) and traverse (right and left) movements are activated electrically and can be activated via a fixed pendant, a radio-control system or infra red.

The range of the DRH series electric wire rope hoists has been developed in:
- **4 basic sizes**, DRH 1-2-3-4, to lift from 800 to 40.000 kg, including 1020 standard executions, in the FEM service group (ISO)
  1Am (M4) – 2m (M5) – 3m (M6).
- **with one lifting speed** made with a 4 pole motor:
  - 4 or 6 m/min. for 4 rope falls hoists
  - 8 or 12 m/min. for 2 rope falls hoists
- **with two speeds** made with a 4/12 pole motor:
  - 4/1,3 or 6/2 m/min. for 4 rope falls hoists
  - 8/2,6 or 12/4 m/min. for 2 rope falls hoists
- **with three speeds** made with a 4/12 pole motor, the micro speed is made by frequency control device
- **5 standard versions with a**: short (C), normal (N), long (L) or extra long (X1 and X2) drum lengths, for hook runs from 4 to 58 m.

ELECTRIC WIRE ROPE HOIST

Fixed configuration
This is the universal, basic configuration, with fixing eye-bolts that allow the DRH hoist fixing on a frame as a double girder trolley or in a suspended execution.

Configuration with monorail trolleys type DST/N/S
The DRH hoist is supplied in suspended execution with the normal headroom trolley or with the articulated one in case the unit has to run on curves. The trolley is electrically operated.

Configuration with monorail trolley type DST/R
In this configuration the DRH hoist is supplied in low headroom version for a maximum height of lift.

Configuration with double girder trolley type DRT
The DRH hoist can be fitted on the top of the double girder trolley frame or suspended. The trolley is electrically operated and run on two rails. This configuration allows to obtain the maximum height of lift.

The DRH series electric wire rope hoists and relative electric trolleys are made with modular components. This allows multiple normalised or special executions to be made quickly, economically but most importantly, safely.
To guarantee maximum use of the hook run and minimum overall dimensions of the hoist body, the base components (motor, reducer and rope drum) are assembled in a coaxial line, by way of high strength bolted connections. Every connection can be inspected and has self-locking safety nuts. This type of construction, equally as important for the efficiency as for the safety of the hoist, is possible thanks to the extremely compact gear motor unit.

The rope drum on the side opposite the gear motor, can be connected to a cycle counter, selectors, limit switches, encoders, safety brakes etc.
Furthermore, being perfectly symmetrical in the special execution with drum right and left grooved, allows two gear motors to be installed thereby doubling the lifting speed but keeping the same capacity with a true vertical lift. This is a particularly suitable option for executions with large hook runs.

The assembly process uses the most advanced technology and highly industrialised production processes to produce, by economies of scale, totally reliable and technically innovative machines.

Enclosure and insulation of electrical components
• Hoist and trolley motors:
IP55 protection – Class "F" insulation.
• IP23 hoist-motor brake.
• Limit switch: IP65 minimum protection.
Maximum insulation voltage 500 V
• Cables: CEI 20/22 II
Maximum insulation voltage 450/750 V

Electric power supply
• DRH electric rope hoists are designed to be supplied with alternate electric current with three-phase voltage:
400 V +/- 10% (Eurovoltage min. 360 V)
max. 440V) – 50 Hz, in accordance with IEC 38-1.

Working conditions
• Working temperature: minimum –10°C; maximum +40°C
• Maximum relative humidity: 80%
• Maximum altitude 1000 m above sea level
• The hoist must be installed in a well aired environment free of corrosive vapours (acidic vapours, saline mist, etc.)

Noise levels
• The noise level emitted by a fully loaded hoist is always less than 85 dB (A). However, the transmission of noise through metal structures and the reflection due a machine being located near a wall, are not included in the indicated value.
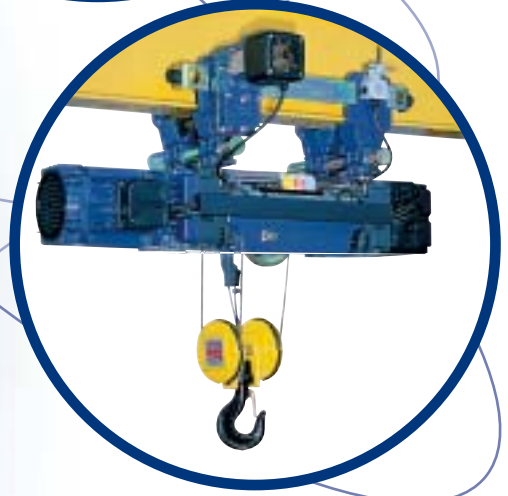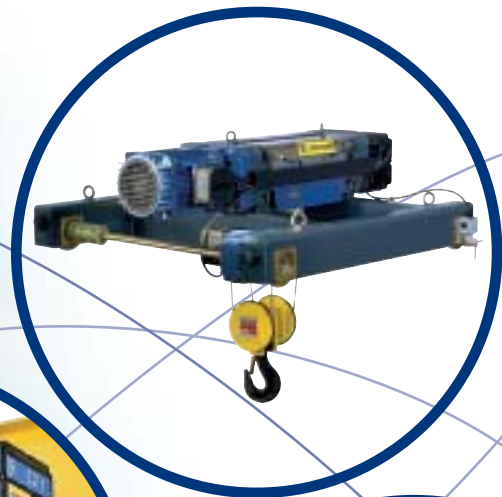
1. Electric motor for lifting
Asynchronous three-phase, self-braking with tapered motor. Minimum protection IP 55 – Class F insulation.
It has thermal probes for protection against overloading.

2. Hoist's brake
The brake's lining is asbestos free. The brake block, which has a fan that guarantees the cooling of the brake itself and of the motor, moves axially with the motor shaft and the braking function is activated automatically if the energy supply fails.
(RES. 1.2.6 – 4.1.1.6 c – Attachment I Machine Directive).

3. Joint
It's the connection between the self-braking motor and the reducer, allowing perfect axial sliding of the motor shaft.

4. Reducer (gearbox)
Coaxial, with three stages of reduction, with cylindrical gears made of thermally treated, highly resistant steel, helicoidal teeth. Dimensioned and made to withstand the phenomena of stress and wear for life in relation to the normal FEM service group.
(RES. 4.1.2.3 – Attachment I Machine Directive).
The whole machine is mounted on spherical bearings lubricated for life in an oil bath.

5. Drum
The drum in steel casing, is mechanically grooved, and supported by the flange of the reducer and by the equipment side flange, with hubs with rotating broached holes on permanently lubricated bearings. The rope drum is made in line with the ISO standard 4308-1 and UNI 9466 and the FEM rules 9.661/86 and the ratio of the diametral pitch of the same and the diameter of the wound rope is never < 20 (FEM 3m). The rope-drum support flanges have steel cylindrical pins in order to secure the components which suspend the hoist or which support it when set on machined seatings support the anchorage crossheads and the return pulley. The connection between the two flanges is made with bolted staybolts. A protective roof, made of shock-resistant transparent plastic, is fixed above the hoist.

6. Rope guide
It has a threaded ring made of spheroidal graphite cast iron and allows the rope to be wound well onto the drum.
[RES.4.1.2.4. – Attachment I Machine Directive].
The system automatically registers any play or wear which may occur. The rope guide includes sliding backlash arms made of brass, which, acting on the staybolts of the hoist, they function as raise and lower limit switches.

7. Raise and lower limit switch
It is a safety component which limits, in an emergency, the run of the hook in raise and lower.
[RES. 4.1.2.6. a – Attachment I Machine Directive]
There are two micro-switches which work according to the positive slow opening principle and act on the auxiliary circuit of the control device of the hoist's motor.

8. Pulley assembly
Utilised in versions with more than 2 rope falls, and supported by two pivots which allow it to be orientated depending on the vertical axis of the rope. The return pulley is made of carbon steel. The rim has been grooved mechanically and the sheave rotates on bearings which are permanently lubricated.

THE HOIST IN DETAIL
the design and assembling process
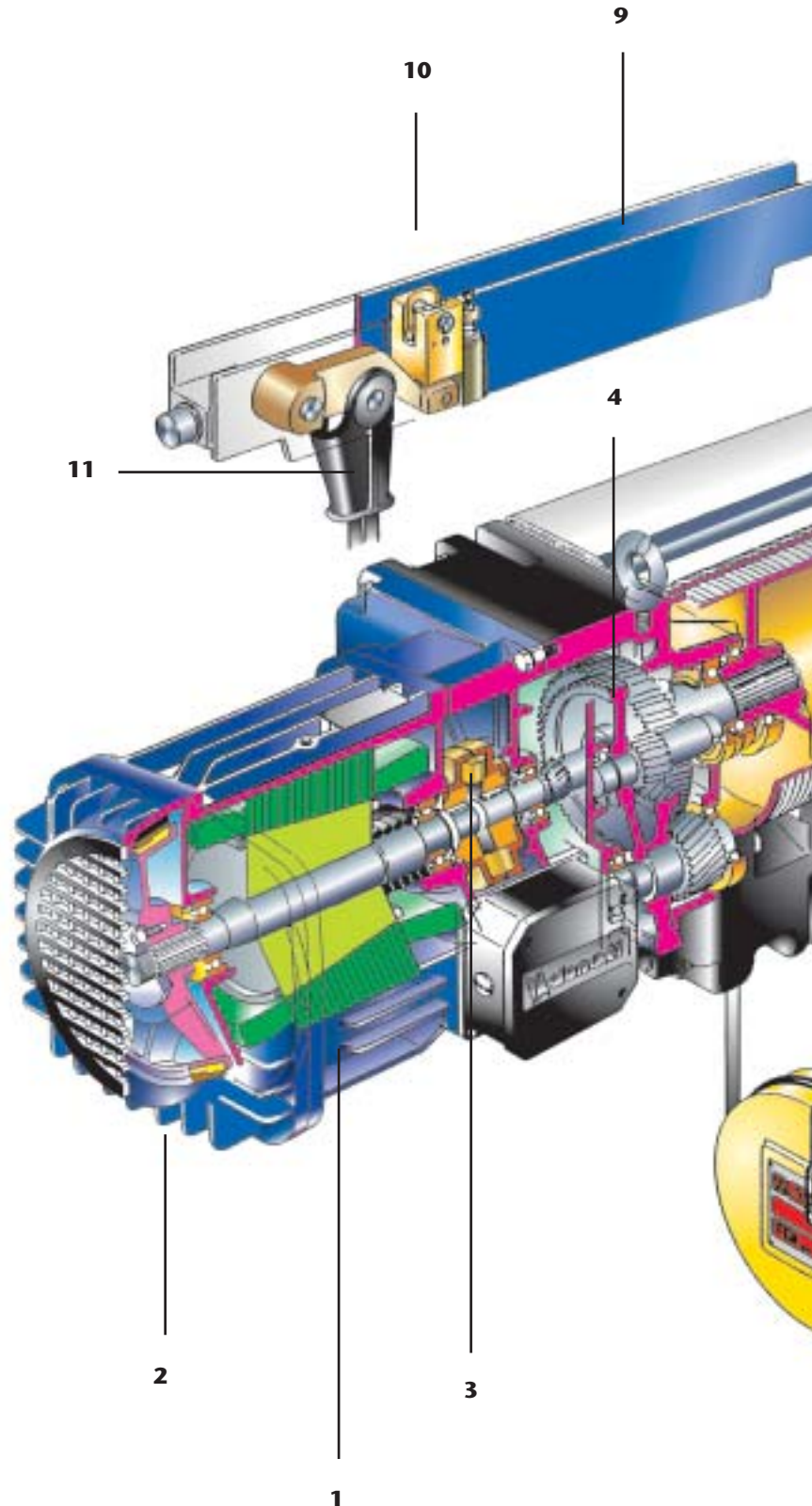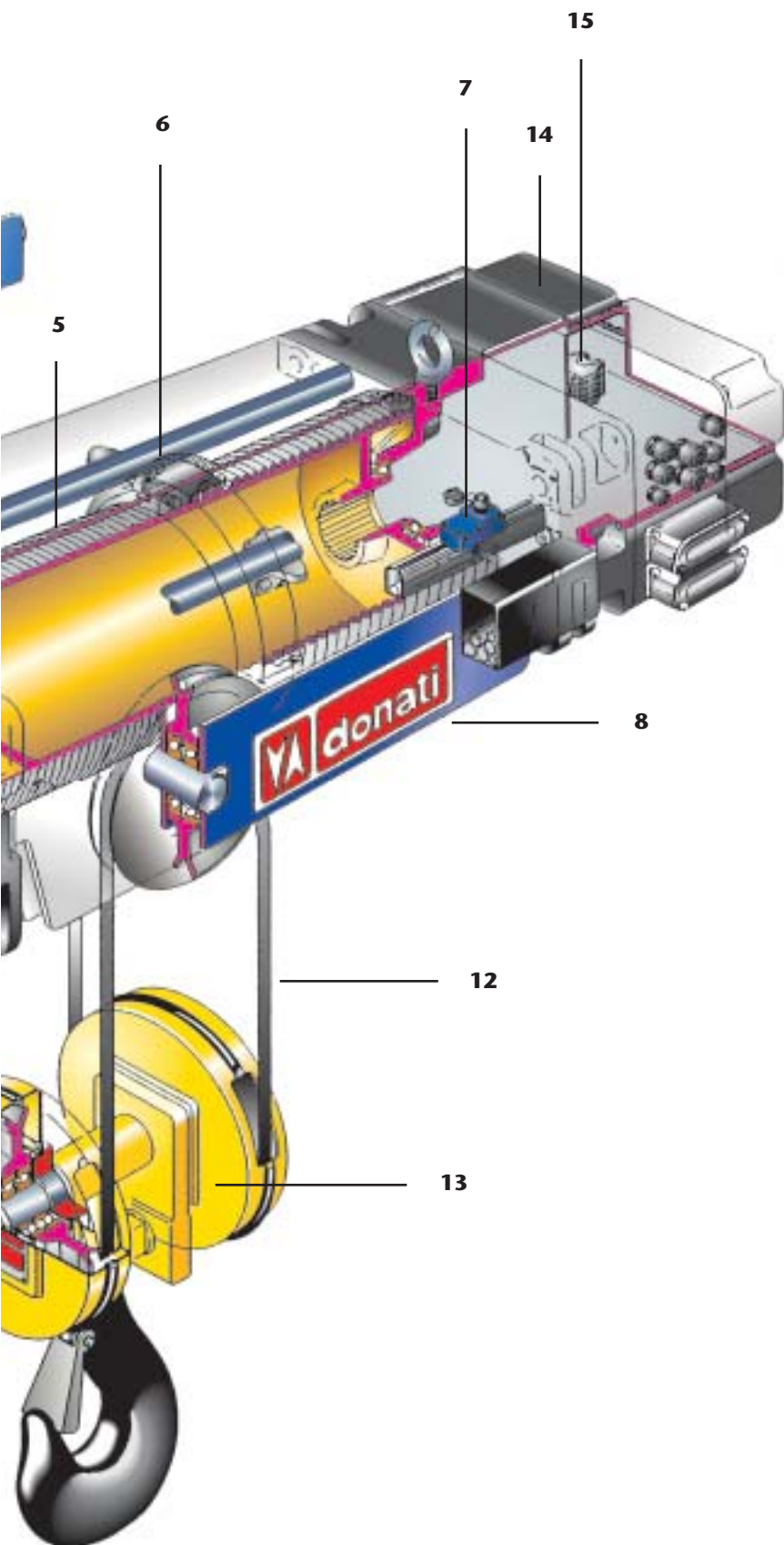
9. *Anchorage crosshead*
Utilised in standard versions, and supported by two pivots which allow it to be orientated depending on the vertical axis of the rope. The overload device is located between the plates of the transverse.

10. *Overload device*
All the DRH series electric rope hoists have an overload device with a threshold level micro-switch.
[RES. 4.2.1.4. – Attachment I Machine Directive].
The overload device constantly measures and checks the values of the load and the dynamic and inertial effects due to its movement. Whenever the set levels is exceeded the micro-switch of the device starts by opening the control circuit of the lifting-controls device.

11. *Wedge anchorage*
The anchorage is made of spheroidal graphite cast iron. The minimum coefficient for use conforms to the FEM rule 9.661/86. The rope is secured with a wedge which stops it from unwinding.

12. *Rope*
Made of flexible steel, highly resistant to strain and wear. The minimum coefficient of use has been chosen to conform to the ISO standard 4308-1. Non-twist ropes are used on DRH hoist with 2 falls and long (L) and extra long, 1st size (X1) drums, and on 2 and 4 fall hoists with extra long, 2nd size (X2) drums.

13. *Hook block and hook*
The return pulley is made of carbon steel and the rim has been grooved mechanically. It rotates on bearings which are permanently lubricated. The load hook is made of highly resistant drop-forged steel and is mounted on an swinging cross beam. It rotates on a thrust bearing and has a safety device to avoid unhooking.
[RES. 4.1.2.6 - Allegato I Direttiva Macchine].

14. *Frame for electrical connections*
Supplied on request. It has cable intake and allows the wiring of all the connections of the electrical equipment of the hoist and electric travel trolley, if present. The compartment for the electrical connections and/or any other low voltage control equipment, is closed with a shock resistant thermoplastic cover, IP 55 enclosure.

15. *Low voltage controls*
When the hoist is supplied complete with electric controls, the raise and lower and /or right and left functions of the trolley, are activated by electrical equipment which includes:
The transformer for control circuits.
• The main contactor and the contactors/reversing contactor for controlling the motors.
• The fuses for protection of the motors and transformer.
• The terminal board for the connections of auxiliary and power circuits.
The components are mounted on a hinged panel and fixed in a compartment located on the side opposite the motor. The controls are activated by a push-buttons-pannel, supplied in AC at low voltage, 48V. The push-buttons-pannel is ergonomically shaped, watertight and made of self-extinguishing, shock resistant, thermoplastic material. Its level of protection is IP 65.
The emergency stop [RES. 1.2.4 – Attachment I Machine Directive], is activated by voluntarily pushing the mushroom shaped button, which starts the control circuit [RES. 1.2.3 – Attachment I Machine Directive].
The push-buttons-pannel is connected to the electrical equipment by a multipolar electrical cable with break-resistant metallic cores.

TROLLEYS

**Monorail electric trolley,
types DST/N –S – R –
• Normal – Articulated – Reduced •**

They are usually composed of an idler wheel and a drive wheel assembly, both have two wheels made of machined pressed steel, and mounted on spherical bearings which are permanently lubricated. The wheels of the drive wheel assembly are opposing and have a crown gear wheel and are connected, in the normal (N) and reduced (R) versions, by a transmission bar. The articulated version (S) has a double motoreducer, both of which directly give the wheels the movement. The thermally treated plate wheels and cog wheels are protected by casings. The steel supporting plates have anti derailment and anti drop device [RES. 4.1.2.2 – Attachment I Machine Directive] and have rubber buffers. Traveling is assured by one or two self-braking motors. They have tapered motor, progressive start up and braking, one or two speeds and one or two reducers with gears with helicoidal teeth which are permanently lubricated in an oil bath.
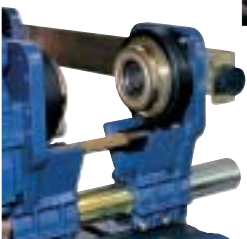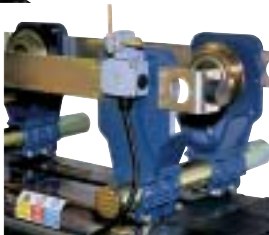
**Electric trolley
Normal monorail, standard headroom,
type DST/N**

In the normal version the trolley has supporting bars with circular cross-sections which support the hoist by a hinge-pin type suspension. The drive and idler plates can be adjusted along the bars in relation to the width of the running beam and are complete with brackets which have bolted joints. Both assemblies, drive and idler, are connected to each other with strengthening plates.

Electric trolley, monorail, reduced headroom, type DST/R

In the low headroom version the trolley has supporting bars with circular cross-sections which support the hoist in a set-down position. The drive and idler plates are sliding and can be adjusted along the bars, in relation to the width of the running beam, with brackets which have bolted joints. The trolley has a counterbalance on the supporting bar with a circular cross-section in order to balance the eccentric weight of the hoist.

Electric trolley, monorail, articulated, type DST/S

In the articulated version the trolley has supporting bars with circular cross-sections and brackets with hinged joints which support the hoist. The drive and idler plates are sliding and can be adjusted along the bars, in relation to the width of the running beam, with brackets which have bolted joints. Both drive wheel assemblies are opposing on the same bar and are independent from the two idler wheel assemblies.

Electric trolley, double girder, type DRT

The wheels, two of which are driven and two are idler, are supported by a steel crab frame. The wheels, pressed from carbon steel, rotate on permanently lubricated spherical bearings. The double girder trolley has devices to avoid derailment and anti drop [RES. 4.1.2.2 – Attachment I Machine Directive] and rubber buffers.

Activation of traverse is assured by a self-braking motor witht tapered motor, progressive start-up and braking, one or two speeds and one offset reducer with gears with helicoidal teeth which are permanently lubricated in an oil bath, which confer the movement to the drive wheels by a transmission bar.

The hoist can be fitted on the top of the trolley or can be suspended.

Traverse limit switches

On request all trolleys can be supplied complete with the limit switches [RES. 4.1.2.6 a – Attachment I Machine Directive].

Towing arm

A towing arm is available on request for all types of trolleys, adjustable in all directions, to connect the trolley/hoist to the electricity supply and to avoid breakage of the conductors.

Oscillating brackets for hoists mounted on a DST/N trolley.

Available on request to allow the hoist to oscillate with respect to the vertical axis of the running beam.

double girder trolley

QUALITY PRODUCTS OF A LEADER COMPANY

Donati range of products meets the demands of hoisting equipment for manufacturing industry applications, offering an incomparable relation between quality and price coupled with professional design.

The electric chain hoist DMK series with capacities up to 4000 Kg, the hand-push and powered slewing jib cranes, the electric wire rope hoist DRH series with capacities up to 40000 Kg, the suspended DSC channel profile systems and the wheel drive unit DGR, represent solutions for handling problems safely and economicaly.

Special versions for all products and also versions with CSA/US approval are available on request.

The constant care of DONATI SOLLEVAMENTI S.r.l. over the customer satisfaction is directed to establish a long-term relation, based on the mutual respect and trust, thanks to the flexibility and promptitude of the organization and to the direct and personal contact.

The after-sales service is organized in order to give prompt answers and solutions about spares-parts, service and warranties procedures.

Since 1930 DONATI SOLLEVAMENTI S.r.l. has become more and more succesfull in international markets for lifting equipment, due to our flexible, technological and design innovation.

The experience of many years of qualified presence in the market and the precise will to face the issues about safety and conformity to the rules without any compromises are a guarantee of safety and reliability.

The constant quality and reliability of all our products and services are granted from the certification of our internal quality insurance system, regulated since 1993, Donati organization, starting from the control of the materials and of the manufacturing process till the finished products.

DONATI SOLLEVAMENTI S.r.l offer a range of products in line with the most modern international regularity standards.

CERTIFICATES AND GUARANTEES

The on going and careful attention to quality by Donati Sollevamenti S.r.l seen, not only through our careful design, responsible choices and constant checks of materials, of all phases of production and of the finished product, but it also involves the whole organisation, through the quality control system which, since 1993, controls and checks the life of the whole company.

The integrity in the design and production of all Donati products would not be complete without the careful consideration of the international regulations referred to which give a guarantee of safety for the Client and user and acts as a passport for internationalisation and diffusion of our products throughout the world. In this light we recommend reading the recent CSA approval with extension ANSI/UL of the DRH rope hoists and relative accessories and translation trolleys made in special execution for the north American market.

The DRH series electric rope hoists and relative trolleys are designed and produced taking into consideration the "**Essential Requirements**" of **Safety in Attachment I of the Community Directive 98/37/CE ex 89/392 CEE and subsequent amendments 91/368/CEE, 93/44/CEE and 93/68/CEE**, denominated Machine Directive. Furthermore, the DRH series hoists and relative trolleys conform to the following Directives: **Low Voltage Directive (DBT) 73/23/CEE**.

Electromagnetic Compatibility Directive (EMC) 89/336/CEE.

Regulatory framework

The following are the main technical rules and regulations which were taken into consideration during the design and assembling of the DRH series electric rope hoists:

- EN 292 parts: 1a - 2a "Safety of the machinery".
- EN 60204 - 1: "Safety of the electrical equipment of the machines - General rules".
- EN 60204 - 32: "Safety of the electrical equipment of lifting machines".
- EN 60439 - 1: "Low voltage controls equipment.
- EN 60529: "IP enclosure".
- ISO 4301: "Classification of lifting equipment".
- ISO 4308 - 1: "Choice of ropes".
- UNI 7670: "Calculation of the mechanisms of the lifting equipments".
- UNI 9466: "Calculation of the drums".
- DIN 15401: "Choice of the lifting hooks".
- FEM1.001/87: "Calculation of the lifting equipments".
- FEM 9.511/87: "Classification of the mechanisms".
- FEM 9.661/86: "Choice of the drums, ropes and pulleys".
- FEM 9.761/93: "Overload devices".
- FEM 9.683/95: "Choice of the lifting and traverse motors".
- FEM 9.755/93: "Periods of safe work".
- FEM 9.941/95: "Control symbols".

Criteria and condition of use

- Correctly determine the operating limits of the hoist in order to ensure the correct functioning and the complete correspondence to the operating systems of the work for which it is intended.
- The FEM 9.511 rule allows the classification of hoists according to the conditions of use.
- The necessary parameters to determine the limits of use for electric wire rope hoists are the following:
  - **1) Actual lifting capacity**
  - **2) Stress level**
  - **3) Average duration of daily use**

1) Actual lifting capacity

- This is determined by the heaviest load to be lifted.

| ! | *The nominal   lifting capacity of the hoist must be ≥ the actual lifting capacity* | *Lifting capacity = kg* |

2) Stress level

- The stress level is determined considering the actual entity of the loads lifted and it is ascribable to one of the four spectrums of load shown below which determine the type of service.

| 1) Light | 2) Medium | 3) Heavy | 4) Very Heavy |

load (%) / time (%) charts

Hoists which rarely lift maximum loads but mainly reduced loads

Hoists which lift approximately the same number of maximum, medium and reduced loads

Hoists which frequently lift the maximum load but normally medium loads

Hoists which regularly lift loads approximately equal to the maximum load
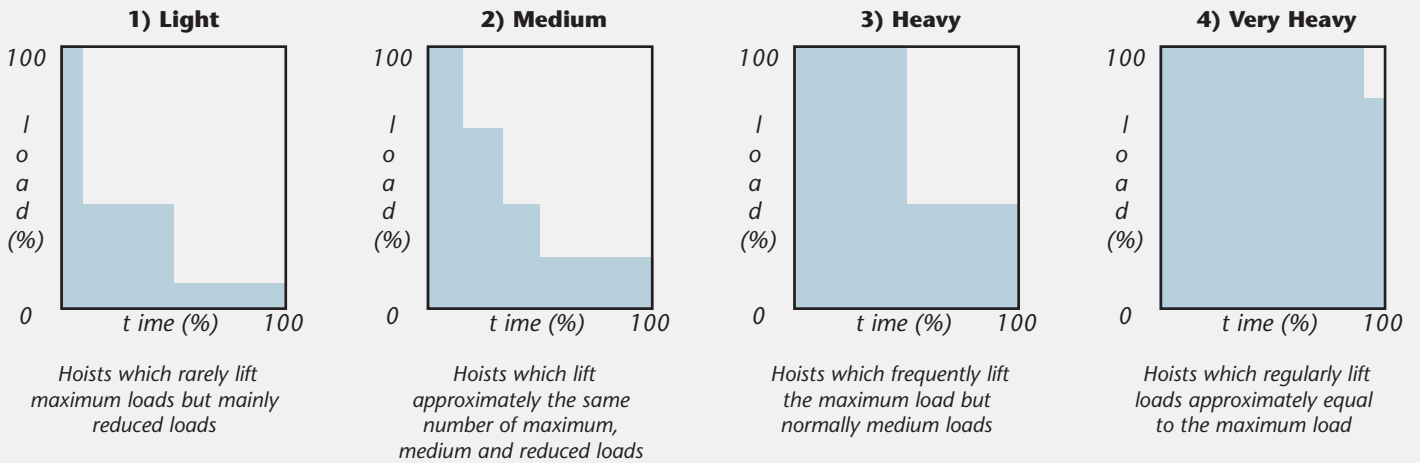
3) Average duration of daily use - Tm=Hours
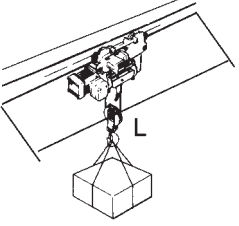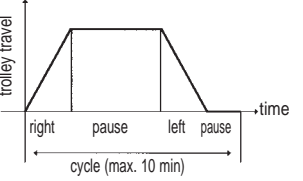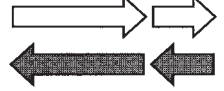
- For **lifting** operations the average duration of use is calculated in the following way:

$$Tm\ (hours) = AH\ \frac{Ce \times C/h \times Ti}{30 \times V}$$

Actual hook run AHR = m — **Ce = m** — *It is the average of the actual runs of the load*

Operative cycles C/h = N° cycles per hour — hook travel / time; ascent pause fall pause; cycle (max. 10 min) — **C/h = N° cycles for hour** — *It is the number of complete ascents and descents carried out in an hour*

Running time Rt = hours — **Ti = hours** — *Hoist running time in a whole day*

Lifting speed S = m/min. — **V = m/min.** — *It is the distance covered by the load in a minute*

- For **travel** operations the average duration of use is determined in the following way:

$$Tm \text{ (hours)} = \frac{Pm \times C/h \times Ti}{30 \times V}$$

Actual average run AAR (m) = L/2	Operative cycles C/h = N° cycles for hour	Running time Rt = ore	Travel speed S = m/min.

Pm (m) = L/2	**C/h = N° cycles for hour**	**Ti = hours**	**V = m/min.**

It is the average of the length L of the trolley running beam	*It is the number of complete runs (right/left) carried out in an hour*	*It is the running time of the trolley in a day*	*It is the distance covered by the trolley in a minute of continuous running*

Having determined the **stress level** and the **average duration of daily use** for lifting and/or travelling, using the following table the identification group of the relative mechanisms are classified and then, according to the **lifting capacity**, the type of hoist is determined.

Level of stress			**Average daily running time - Tm = Hours**					
1) Light Load			≤ 2	≤ 4	≤ 8	≤ 16	> 16	-
2) Medium Load			≤ 1	≤ 2	≤ 4	≤ 8	≤ 16	> 16
3) Heavy Load			≤ 0,5	≤ 1	≤ 2	≤ 4	≤ 8	≤ 16
4) Very Heavy Load			≤ 0,25	≤ 0,5	≤ 1	≤ 2	≤ 4	≤ 8
Service group of the mechanisms of lifting and translation	ISO 4301/88 FEM 9.511/86		**M3 1Bm**	**M4 1Am**	**M5 2m**	**M6 3m**	**M7 4m**	**M8 5m**
Intermittent use according to FEM standard 9.683/95	**Hoist**	Ratio of intermittence (RI%)	25	30	40	50	60	60
		N° Start-ups per hour (A/h)	150	180	240	300	360	360
		N° Cycles per hour (C/h)	25	30	40	50	60	60
	Trolley	Ration of intermittence (RI%)	20	25	30	40	50	60
		N° Start-ups per hour (A/h)	120	150	180	240	300	> 360
		N° Cycles per hour (C/h)	20	25	30	40	50	> 60
Two-speed double-polarity motors	N° Start-ups per hour (A/h)	Main speed	1/3 (33. 3 % of total N° of start-ups per hour)					
		Low speed	2/3 (66. 7 % of total N° of start-ups per hour)					
	Daily running time (Tm)	Main speed	2/3 (66. 7 % of the average daily running time)					
		Low speed	1/3 (33. 3 % of the average daily running time)					
Temporary use	Running time at main speed (min)		15	15	30	30	60	> 60
	Running time at low speed (min.)		2,5	3	3,5	4	5	6
	Maximum N° of start-ups per hour (A/h)		10	10	10	10	10	10

Example:
Calculation of the average daily running time (Tm) based on the following factors:
Capacity = 6300 kg; Level of stress = Medium load 2); Actual hook run (AHR) = 3 m; N° Hourly Cycles (C/h) = 10; Daily running time (Rt) = 8 h; Lifting speed (S) = 4 m/min. Performed with a hoist with 4 rope falls.

$$Tm \text{ (hours)} = \frac{Ce \times C/h \times Ti}{30 \times V} = \frac{3 \times 10 \times 8}{30 \times 4} = 2 h$$

In the table in section 2.2.7, in relation to the capacity (6300 kg), at a medium level of stress (2) and at an average daily running time (Tm = 2 h) it is possible to determine the rope hoist, with 4/1 falls of rope, which is:
FEM service group 1Am – Type DRH 24L1•M

!

- *The designation of the group of utilization of the wire rope hoist is shown on the label plate on the hoist (see paragraph3.5.3 - List of labelling plates)*
- *DONATI SOLLEVAMENTI S.r.l. guarantees the safe and lasting utilization only if the DRH electric wire rope hoist is used according to the corresponding parameters for the group of utilization foreseen.*

Identification of hoists and related trolleys

Configuration of ropes (single-grooved drum)			Configuration 4/1			Configuration 2/1		
Capacity kg	**Letter reducer**	**Letter capacity**	**DRH Type in relation to FEM group (ISO)**			**DRH Type in relation to FEM group (ISO)**		
			1Am (M4)	**2m** (M5)	**3m** (M6)	**1Am** (M4)	**2m** (M5)	**3m** (M6)
800	L	D				=>	=>	12L3•D
800	V	D				=>	=>	**12V3•D**
1000	L	E	=>	=>	14L3•E	=>	12L2•E	12L3•E
1000	V	E	=>	=>	14V3•E	=>	**12V2•E**	22V3•E
1250	L	F	=>	=>	14L3•F	12L1•F	=>	**12L3•F**
1250	V	F	=>	=>	14V3•F	**12V1•F**	22V2•F	**22V3•F**
1600	L	G	=>	=>	14L3•G	12L1•G	**12L2•G**	22L3•G
1600	V	G	=>	=>	**14V3•G**	=>	**22V2•G**	32V3•G
2000	L	H	=>	14L2•H	14L3•H	**12L1•H**	22L2•H	22L3•H
2000	V	H	=>	**14V2•H**	24V3•H	**22V1•H**	32V2•H	32V3•H
2500	L	I	14L1•I	=>	**14L3•I**	22L1•I	**22L2•I**	32L3•I
2500	V	I	**14V1•I**	24V2•I	**24V3•I**	=>	32V2•I	**32V3•I**
3200	L	J	14L1•J	**14L2•J**	24L3•J	**22L1•J**	32L2•J	32L3•J
3200	V	J	=>	**24V2•J**	34V3•J	=>	**32V2•J**	42V3•J
4000	L	K	**14L1•K**	24L2•K	24L3•K	32L1•K	32L2•K	**32L3•K**
4000	V	K	**24V1•K**	34V2•K	34V3•K	**32V1•K**	42V2•K	**42V3•K**
5000	L	L	24L1•L	**24L2•L**	34L3•L	32L1•L	**32L2•L**	42L3•L
5000	V	L	=>	34V2•L	**34V3•L**	=>	**42V2•L**	
6300	L	M	**24L1•M**	34L2•M	34L3•M	**32L1•M**	42L2•M	**42L3•M**
6300	V	M	=>	**34V2•M**	44V3•M	**42V1•M**		
8000	L	N	34L1•N	34L2•N	**34L3•N**	42L1•N	**42L2•N**	
8000	V	N	**34V1•N**	44V2•N	**44V3•N**			
10000	L	O	34L1•O	**34L2•O**	44L3•O	**42L1•O**		
10000	V	O	=>	**44V2•O•**				
12500	L	P	**34L1•P**	44L2•P	**44L3•P**			
12500	V	P	**44V1•P**					
16000	L	Q	44L1•Q	**44L2•Q**				
20000	L	R	**44L1•R**					

Size1 DRH	Size2 DRH	Size3 DRH	Size4 DRH

NOTE: The "Base" machines are bolded (es.: **24L2•L**); variant machines are in normal type (es.: 24L1•L)
=> Hoist available in the superior FEM (ISO) service group

Key and example of the identifying characteristics of the hoists and trolleys using codes

DRH Hoist

2 4 L 2 • L •

Size:
1 - 2 - 3 - 4

N° rope falls:
2 = 2 falls (2/1)
4 = 4 falls (4/1)

Type of reducer:
L= Slow
4 m/min a 4/1 falls
8 m/min a 2/1 falls
V= Fast
6 m/min a 4/1 falls
12 m/min a 2/1 falls

FEM group (ISO):
1 = 1 Am (M4)
2 = 2 m (M5)
3 = 3 m (M6)

Speed of hoist:
S =1 Speed
W =2 Speed

Capacity letter:
L = 5000 kg

Type of drum:
N = Normal
C = Short
L = Long
1 = Extra long - X1 (1a size)
2 = Extra long - X2 (2a size)
X = Special

DST Trolley

D S 1 N G

Configuration type Monorail

Size:
1 - 2 - 3 - 4

Version:
N = Normal
R = Low headroom
S = Articulated

Speed of trolley: m/min
E = 8
F = 10
G = 16
H = 20
D = 16/4
W = 20/5

DRT Trolley

D R 1 N G 0

Configuration type Double girder trolley

Size:
1 - 2 - 3

Gauge: mm
N = 1000 Normal
L = 1200 Large
X = Special

Trolley speed: m/min
E = 8
F = 10
G = 16
H = 20
D = 16/4
W = 20/5

Version:
0 = Hoist on top of trolley
S = suspended hoist

Characteristics and technical data

Capacity (kg)	FEM Group of the hoist	Life and service reducers/motors[1]	Type DRH	Speed at 50 Hz (m/min.)[2]		Motor power (kW)[3]		Lifting height (m) with rope drum[4][5][6]					Rope[5]		Type of trolley on the hoist	
				1 Speed	2 Speed	1 Speed	2 Speed	C	N	L	X1	X2	N° falls	Ø/Type (mm)	monorail DST - N/R	double girder DRT
800	3m	> 5m	12L3•D	8	8/2,6	1,25	1,25/0,45	8	12	24	34	45	2/1	7B (7B)	1	1
	3m	3m	**12V3•D**	12	12/4	2	2/0,65	8	12	24	34	45	2/1	7B (7B)	1	1
1000	3m	> 5m	14L3•E	4	4/1,3	0,8	0,8/0,3	4	6	9	14	19	4/1	7B (7B)	1	1
	3m	5m	14V3•E	6	6/2	1,25	1,25/0,45	4	6	9	14	19	4/1	7B (7B)	1	1
	2m	4m	12L2•E	8	8/2,6	1,6	1,6/0,55	8	12	24	34	45	2/1	7B (7B)	1	1
	3m	4m	12L3•E	8	8/2,6	1,6	1,6/0,55	8	12	24	34	45	2/1	7B (7B)	1	1
	2m	2m	**12V2•E**	12	12/4	2,5	2,5/0,85	8	12	24	34	45	2/1	7B (7B)	1	1
	3m	4m	22V3•E	12	12/4	2,5	2,5/0,85	10	14	26	34	43	2/1	8M (8B)	1	1
1250	3m	> 5m	14L3•F	4	4/1,3	1	1/0,35	4	6	9	14	19	4/1	7B (7B)	1	1
	3m	4m	14V3•F	6	6/2	1,25	1,25/0,45	4	6	9	14	19	4/1	7B (7B)	1	1
	1Am	3m	12L1•F	8	8/2,6	2	2/0,65	8	12	24	34	45	2/1	7B (7B)	1	1
	3m	3m	12L3•F	8	8/2,6	2	2/0,65	8	12	24	34	45	2/1	7M (7A)	1	1
	1Am	1Am	**12V1•F**	12	12/4	3	3/1	8	12	24	34	45	2/1	7B (7B)	1	1
	2m	3m	22V2•F	12	12/4	3	3/1	10	14	26	34	43	2/1	9B (9B)	1	1
	3m	3m	**22V3•F**	12	12/4	3	3/1	10	14	26	34	43	2/1	8M (8B)	1	1
1600	3m	5m	14L3•G	4	4/1,3	1,25	1,25/0,45	4	6	9	14	19	4/1	7B (7B)	1	1
	3m	3m	**14V3•G**	6	6/2	2	2/0,65	4	6	9	14	19	4/1	7B (7B)	1	1
	1Am	2m	12L1•G	8	8/2,6	2,5	2,5/0,85	8	12	24	34	45	2/1	7M (7A)	1	1
	2m	2m	12L2•G	8	8/2,6	2,5	2,5/0,85	8	12	24	34	45	2/1	7M (7A)	1	1
	3m	4m	22L3•G	8	8/2,6	2,5	2,5/0,85	10	14	26	34	43	2/1	8A (8A)	1	1
	2m	2m	**22V2•G**	12	12/4	4	4/1,3	10	14	26	34	43	2/1	9B (9B)	1	1
	3m	5m	32V3•G	12	12/4	4	4/1,3	10	14	28	37	47	2/1	12M (12A)	2 (8)	2
2000	2m	4m	14L2•H	4	4/1,3	1,6	1,6/0,55	4	6	9	14	19	4/1	7B (7B)	1	1
	3m	4m	14L3•H	4	4/1,3	1,6	1,6/0,55	4	6	9	14	19	4/1	7B (7B)	1	1
	2m	2m	**14V2•H**	6	6/2	2,5	2,5/0,85	4	6	9	14	19	4/1	7B (7B)	1	1
	3m	4m	24V3•H	6	6/2	2,5	2,5/0,85	5	7	10	14	18	4/1	8M (8B)	2	1
	1Am	1Am	**12L1•H**	8	8/2,6	3	3/1	8	12	24	34	45	2/1	7A (7A)	1	1
	2m	3m	22L2•H	8	8/2,6	3	3/1	10	14	26	34	43	2/1	9B (9B)	1	1
	3m	3m	**22L3•H**	8	8/2,6	3	3/1	10	14	-	-	-	2/1	8A	1	1
	1Am	1Am	**22V1•H**	12	12/4	5	5/1,7	10	14	26	34	43	2/1	9B (9B)	1	1
	2m	4m	32V2•H	12	12/4	5	5/1,7	10	14	28	37	47	2/1	13B (13B)	2 (8)	2
	3m	4m	32V3•H	12	12/4	5	5/1,7	10	14	28	37	47	2/1	12M (12A)	2 (8)	2
2500	1Am	3m	14L1•I	4	4/1,3	2	2/0,65	4	6	9	14	19	4/1	7B (7B)	1	1
	3m	3m	**14L3•I**	4	4/1,3	2	2/0,65	4	6	9	14	19	4/1	7M (7A)	1	1
	1Am	1Am	**14V1•I**	6	6/2	3	3/1	4	6	9	14	19	4/1	7B (7B)	1	1
	2m	3m	24V2•I	6	6/2	3	3/1	5	7	10	14	18	4/1	9B (9B)	2	1
	3m	3m	**24V3•I**	6	6/2	3	3/1	5	7	10	14	18	4/1	8M (8B)	2	1
	1Am	2m	22L1•I	8	8/2,6	4	4/1,3	10	14	26	34	43	2/1	9M (9A)	1	1
	2m	2m	22L2•I	8	8/2,6	4	4/1,3	10	14	26	34	43	2/1	9M (9A)	1	1
	3m	5m	32L3•I	8	8/2,6	4	4/1,3	10	14	28	37	47	2/1	12M (12B)	2 (8)	2
	2m	3m	32V2•I	12	12/4	6	6/2	10	14	28	37	47	2/1	13B (13B)	2 (8)	2
	3m	3m	**32V3•I**	12	12/4	6	6/2	10	14	28	37	47	2/1	12M (12A)	2 (8)	2
3200	1Am	2m	14L1•J	4	4/1,3	2,5	2,5/0,85	4	6	9	14	19	4/1	7M (7A)	1	1
	2m	2m	**14L2•J**	4	4/1,3	2,5	2,5/0,85	4	6	9	14	19	4/1	7M (7A)	1	1
	3m	4m	24L3•J	4	4/1,3	2,5	2,5/0,85	5	7	10	14	18	4/1	8A (8A)	2	1
	2m	2m	**24V2•J**	6	6/2	4	4/1,3	5	7	10	14	18	4/1	9B (9B)	2	1
	3m	5m	34V3•J	6	6/2	4	4/1,3	5	7	10	14	19	4/1	12M (12A)	2	2
	1Am	1Am	22L1•J	8	8/2,6	5	5/1,7	10	14	26	34	43	2/1	9A (9A)	1	1
	2m	4m	32L2•J	8	8/2,6	5	5/1,7	10	14	28	37	47	2/1	13B (13B)	2 (8)	2
	3m	4m	32L3•J	8	8/2,6	5	5/1,7	10	14	28	37	47	2/1	12M (12A)	2 (8)	2
	2m	2m	**32V2•J**	12	12/4	8	8/2,7	10	14	28	37	47	2/1	13B (13B)	2 (8)	2
	3m	4m	**42V3•J**	12	12/4	8	8/2,7	12	16	32	45	58	2/1	15M (15A)	3 (8)	3
4000	1Am	1Am	**14L1•K**	4	4/1,3	3	3/1	4	6	9	14	19	4/1	7A (7A)	1	1
	2m	3m	24L2•K	4	4/1,3	3	3/1	5	7	10	14	18	4/1	9B (9B)	2	1
	3m	3m	**24L3•K**	4	4/1,3	3	3/1	5	7	10	14	-	4/1	8A	2	1
	1Am	1Am	**24V1•K**	6	6/2	5	5/1,7	5	7	10	14	18	4/1	9B (9B)	2	1
	2m	4m	34V2•K	6	6/2	5	5/1,7	5	7	10	14	19	4/1	13B (13B)	2	2
	3m	4m	34V3•K	6	6/2	5	5/1,7	5	7	10	14	19	4/1	12M (12A)	2	2
	1Am	3m	32L1•K	8	8/2,6	6	6/2	10	14	28	37	47	2/1	13B (13B)	2 (8)	2
	2m	3m	32L2•K	8	8/2,6	6	6/2	10	14	28	37	47	2/1	13M (13B)	2 (8)	2
	3m	3m	**32L3•K**	8	8/2,6	6	6/2	10	14	28	37	47	2/1	12A (12A)	2 (8)	2
	1Am	1Am	**32V1•K**	12	12/4	10	10/3,3	10	14	28	37	47	2/1	13B (13B)	2 (8)	2
	2m	3m	42V2•K	12	12/4	10	10/3,3	12	16	32	45	58	2/1	16B (16B)	3 (8)	3
	3m	3m	**42V3•K**	12	12/4	10	10/3,3	12	16	32	45	58	2/1	15M (15A)	3 (8)	3

Capacity (kg)	FEM Group of the hoist	Life and service reducers/motors[1]	Type DRH	Speed at 50 Hz (m/min.)[2]		Motor power (kW)[3]		Lifting height (m) with rope drum[4][5][6]					Rope[5]		Type of trolley on the hoist	
				1 Speed	2 Speed	1 Speed	2 Speed	C	N	L	X1	X2	N° falls	Ø/Type (mm)	monorail DST - N/R	double girder DRT
5000	1Am	2m	24L1•L	4	4/1,3	4	4/1,3	5	7	10	14	18	4/1	9M (9A)	2	1
	2m	2m	24L2•L	4	4/1,3	4	4/1,3	5	7	10	14	18	4/1	9M (9A)	2	1
	3m	5m	34L3•L	4	4/1,3	4	4/1,3	5	7	10	14	19	4/1	12M (12A)	3	2
	2m	3m	34V2•L	6	6/2	6	6/2	5	7	10	14	19	4/1	13B (13B)	3	2
	3m	3m	34V3•L	6	6/2	6	6/2	5	7	10	14	19	4/1	12M (12A)	3	2
	1Am	2m	32L1•L	8	8/2,6	8	8/2,7	10	14	28	37	47	2/1	13M (13A)	2 (8)	2
	2m	2m	32L2•L	8	8/2,6	8	8/2,7	10	14	28	37	47	2/1	13M (13A)	2 (8)	2
	3m	4m	42L3•L	8	8/2,6	8	8/2,7	12	16	32	45	58	2/1	15M (15A)	3 (8)	3
	2m	2m	42V2•L	12	12/4	12	12/4	12	16	32	45	58	2/1	16B (16B)	3 (8)	3
6300	1Am	1Am	24L1•M	4	4/1,3	5	5/1,7	5	7	10	14	18	4/1	9A (9A)	2	1
	2m	4m	34L2•M	4	4/1,3	5	5/1,7	5	7	10	14	19	4/1	13B (13B)	3	2
	3m	4m	34L3•M	4	4/1,3	5	5/1,7	5	7	10	14	19	4/1	12M (12A)	3	2
	2m	2m	34V2•M	6	6/2	8	8/2,7	5	7	10	14	19	4/1	13B (13B)	3	2
	3m	4m	44V3•M	6	6/2	8	8/2,7	6	8	11	17	24	4/1	15M (15A)	4	3
	1Am	1Am	32L1•M	8	8/2,6	10	10/3,3	10	14	28	37	47	2/1	13A (13A)	2 (8)	2
	2m	3m	42L2•M	8	8/2,6	10	10/3,3	12	16	32	45	58	2/1	16B (16B)	3 (8)	3
	3m	3m	42L3•M	8	8/2,6	10	10/3,3	12	16	32	45	58	2/1	15A (15A)	3 (8)	3
	1Am	1Am	42V1•M	12	12/4	16	16/5,3	12	16	32	45	58	2/1	16B (16B)	3 (8)	3
8000	1Am	3m	34L1•N	4	4/1,3	6	6/2	5	7	10	14	19	4/1	13B (13B)	3	2
	2m	3m	34L2•N	4	4/1,3	6	6/2	5	7	10	14	19	4/1	13M (13B)	3	2
	3m	3m	34L3•N	4	4/1,3	6	6/2	5	7	10	14	19	4/1	12A (12A)	3	2
	1Am	1Am	34V1•N	6	6/2	10	10/3,3	5	7	10	14	19	4/1	13B (13B)	3	2
	2m	3m	44V2•N	6	6/2	10	10/3,3	6	8	11	17	24	4/1	16B (16B)	4	3
	3m	3m	44V3•N	6	6/2	10	10/3,3	6	8	11	17	24	4/1	15M (15A)	4	3
	1Am	2m	42L1•N	8	8/2,6	12	12/4	12	16	32	45	58	2/1	16M (16M)	3 (8)	3
	2m	2m	42L2•N	8	8/2,6	12	12/4	12	16	32	45	58	2/1	16M (16M)	3 (8)	3
10000	1Am	2m	34L1•O	4	4/1,3	8	8/2,7	5	7	10	14	19	4/1	13M (13A)	3	2
	2m	2m	34L2•O	4	4/1,3	8	8/2,7	5	7	10	14	19	4/1	13M (13A)	3	2
	3m	4m	44L3•O	4	4/1,3	8	8/2,7	6	8	11	17	24	4/1	15M (15A)	4	3
	2m	2m	44V2•O	6	6/2	12	12/4	6	8	11	17	24	4/1	16B (16B)	4	3
	1Am	1Am	42L1•O	8	8/2,6	16	16/5,3	12	16	32	45	58	2/1	16A (16A)	3 (8)	3
12500	1Am	1Am	34L1•P	4	4/1,3	10	10/3,3	5	7	10	14	19	4/1	13A (13A)	3	2
	2m	3m	44L2•P	4	4/1,3	10	10/3,3	6	8	11	17	24	4/1	16B (16B)	4	3
	3m	3m	44L3•P	4	4/1,3	10	10/3,3	6	8	11	17	24	4/1	15A (15A)	4	3
	1Am	1Am	44V1•P	6	6/2	16	16/5,3	6	8	11	17	24	4/1	16B (16B)	4	3
16000	1Am	2m	44L1•Q	4	4/1,3	12	12/4	6	8	11	17	24	4/1	16M (16M)	4	3
	2m	2m	44L2•Q	4	4/1,3	12	12/4	6	8	11	17	24	4/1	16M (16M)	4	3
20000	1Am	1Am	44L1•R	4	4/1,3	16	16/5,3	6	8	11	17	24	4/1	16A (16A)	4	3
25000	2m	2m	46L2•S	2,6	2,7/0,9	12	12/4	/	5	10	14	/	6/1	16A	/	3 (7)
32000	1Am	1Am	46L1•T	2,6	2,7/0,9	16	16/5,3	/	5	10	14	/	6/1	16A	/	3 (7)
40000	1Am	1Am	48L1•U	2	2/0,7	16	16/5,3	/	4	8	11	/	8/1	16A	/	4 (7)

Trolley data and motor power (maximums suppliable = kW) with one and two travel speeds

Electric travel trolley Type - Size		1 Speed: 8 or 10 m/min.[2]				1 Speed : 16 or 20 m/min.[2]				2 Speed: 16/4 or 20/5 m/min.[2]			
		Reducer ratio with speed m/min 8 / 10		Trolley motor Type 4 poles	Power kW	Reducer ratio with speed m/min 16 / 20		Trolley motor Type 2 poli	Power kW	Reducer ratio with speed m/min 16/4 / 20/5		Trolley motor Type 2/8 poles	Power kW
DST - N/R Monorail	1 - 2	↑1	↑2	71 - 4	0,2	↑1	↑2	71 - 2	0,37	↑1	↑2	71 - D	0,37/0,08
	3 - 4	↑1	↑2	80 - 4	0,3	↑1	↑2	80 - 2	0,55	↑1	↑2	80 - D	0,55/0,13
DRT double girder	1	↑1	↑2	71 - 4	0,2	↑1	↑2	71 - 2	0,37	↑1	↑2	71 - D	0,37/0,08
	2	↑1	↑2	80 - 4	0,3	↑1	↑2	80 - 2	0,55	↑1	↑2	80 - D	0,55/0,13
	3	↑1	↑2	90 - 4	0,5	↑1	↑2	90 - 2	0,9	↑1	↑2	90 - D	0,9/0,23
	4	↑1	↑2	90 - 4	0,5	↑1	↑2	90 - 2	0,9	↑1	↑2	90 - D	0,9/0,23

Breaking load of the ropes (minimum granted kN)

Hoist type →	DRH 1			DRH 2					DRH 3					DRH 4			
Ø Rope →	Ø 7 mm			Ø 8 mm		Ø 9 mm			Ø 12 mm		Ø 13 mm			Ø 15 mm		Ø 16 mm	
Strength classes →	B	M	A	M	A	B	M	A	M	A	B	M	A	M	A	B	M	A
Normal (kN)	30,4	42,1	48,1	42,0	65,6	53,1	69,6	74,6	121,7	138,7	102,0	142,5	163,4	189,7	219,2	176,9	215,9	236,0
Non rotating (kN)	35,3	=	48,8	46,1	60,5	58,4	=	76,6	=	136,2	121,8	=	159,8	=	212,7	184,4	242,1	255,0

NOTE: [1] This column indicates the FEM reference group for evaluation of normal conditions and/or the life span of the motoreducer only.
The classification of the whole hoist, in any case, is the one defined in the relative FEM service group shown in the adjacent column.
[2] The lifting and translation speeds and the power of the relative motors are related to a three-phase electrical supply with a frequency of 50 Hz.
In the case of a 60 Hz. supply the values need to be increased by 20%.
[3] The power (kW) indicated in the table is that which is usefully supplied by the motor in relation to the actual capacity and lifting speed.
[4] The drum N (standard) is available in stock, C (short) L (long) X1 and X2 are available on request.
[5] Hoists with 2 falls of rope (2/1), a long (L) and extra long rope drum size 1 (X1) and hoists with 2 and 4 falls of rope (2/1 e 4/1) and an extra long rope drum size 2 (X2) use anti-twist ropes. The type of anti-twist rope is shown in brackets.
[6] The extra long drums size 1 (X1) and size 2 (X2) are supplied without the protective roof.
[7] The trolley is made with two traverse motoreducer. Therefore the power values shown in the following table must be doubled.
[8] Minimun beam width for low head room trolley = 300 mm. Beams with smaller width need a special counterweight.

Overall dimensions - Weights - Reactions on the supports

S2 = I1 - S3 - S1

Series DRH electric wire rope hoists serie DRH with 2 and 4 falls of rope in fixed, standing and suspended configuration
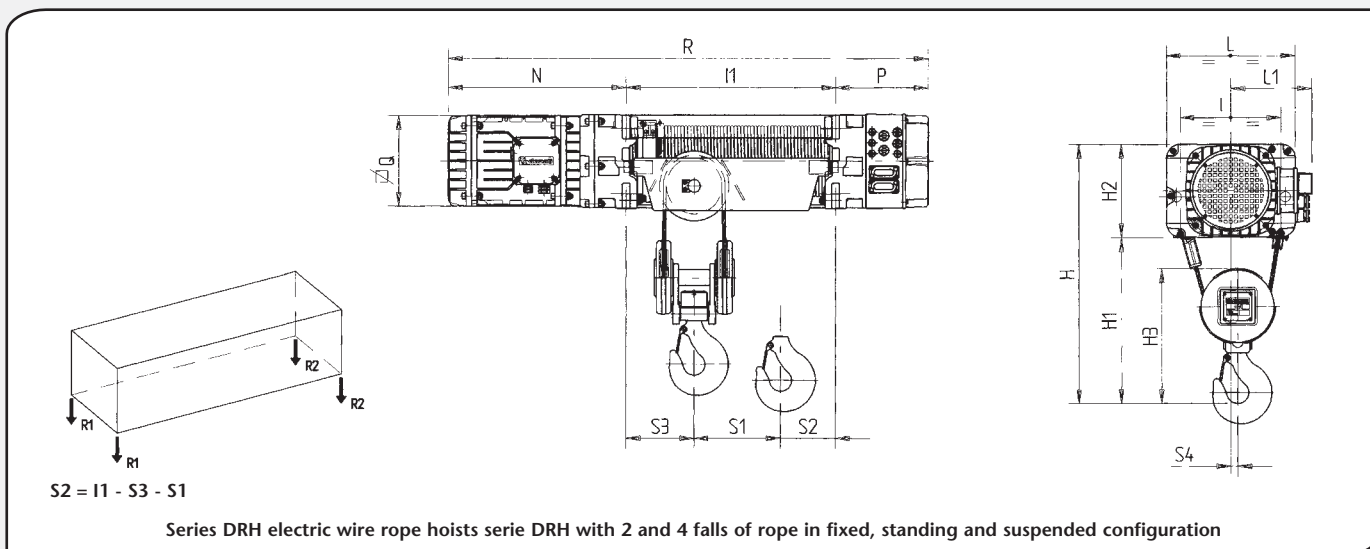
Falls of rope N°	DRH	Type of drum C-N-L	Hoist weight (kg)	Overall dimensions (mm)														
				H	H1	H2	H3	I	I1	L	L1	R	N	P	Q	S1	S3	S4
2/1	1	C	132	690	460	230	390	250	400	320	210	1135	480	255	225	125	95	28
		N	141	690	460	230	390	250	515	320	210	1250	480	255	225	185	95	28
		L	160	690	460	230	390	250	890	320	210	1625	480	255	225	275	95	28
	2	C	180	820	550	270	445	290	480	370	235	1275	525	270	260	160	100	30
		N	195	820	550	270	445	290	600	370	235	1395	525	270	260	220	100	30
		L	215	820	550	270	445	290	1000	370	235	1795	525	270	260	310	100	30
	3	C	460	1090	710	380	595	370	600	480	290	1510	705	205	300	195	130	40
		N	490	1090	710	380	595	370	740	480	290	1650	705	205	300	265	130	40
		L	565	1090	710	380	595	370	1260	480	290	2170	705	205	300	375	130	40
	4	C	855	1400	920	470	750	460	720	600	360	1795	855	220	340	220	170	45
		N	890	1400	920	470	750	460	860	600	360	1935	855	220	340	290	170	45
		L	1010	1400	920	470	750	460	1420	600	360	2495	855	220	340	400	170	45
4/1	1	C	140	650	420	230	345	250	400	320	210	1135	480	255	225	70	150	15
		N	150	650	420	230	345	250	515	320	210	1250	480	255	225	100	150	15
		L	170	650	420	230	345	250	890	320	210	1625	480	255	225	160	165	15
	2	C	195	750	480	270	390	290	480	370	235	1275	525	270	260	105	180	19
		N	205	750	480	270	390	290	600	370	235	1395	525	270	260	135	180	19
		L	235	750	480	270	390	290	1000	370	235	1795	525	270	260	210	200	19
	3	C	515	1020	640	380	540	370	600	480	290	1510	705	205	300	130	240	23
		N	540	1020	640	380	540	370	740	480	290	1650	705	205	300	160	240	23
		L	625	1020	640	380	540	370	1260	480	290	2170	705	205	300	240	270	23
	4	C	960	1320	850	470	700	460	720	600	360	1795	855	220	340	150	300	25
		N	1000	1320	850	470	700	460	860	600	360	1935	855	220	340	180	300	25
		L	1140	1320	850	470	700	460	1420	600	360	2495	855	220	340	220	300	25

Version with 2 falls of rope (2/1) Static reactions: R1; R2 = daN							
Hoist DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	800	345	117	373	97	410	69
	1000	425	141	455	115	500	79
	1250	521	170	557	138	611	93
	1600	654	212	699	171	768	111
	2000	806	260	863	207	946	133
2	1250	555	160	583	136	634	99
	1600	693	197	730	165	792	116
	2000	852	238	897	198	972	136
	2500	1050	290	1105	240	1197	161
	3200	1327	363	1396	299	1512	196
3	2500	1133	347	1193	302	1309	223
	3200	1407	423	1482	363	1623	259
	4000	1721	509	1812	433	1982	300
	5000	2112	618	2224	521	2430	352
	6300	2621	759	2760	635	3013	419
4	4000	1813	614	1901	543	2097	407
	5000	2195	732	2302	642	2536	468
	6300	2691	886	2823	771	3109	545
	8000	3341	1086	3505	939	3857	647
	10000	4104	1323	4308	1136	4736	768

Version with 4 falls of rope (4/1) Static reactions: R1; R2 = daN							
Hoist DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	1600	546	324	617	258	708	176
	2000	671	399	759	316	871	213
	2500	826	494	935	389	1074	260
	3200	1046	624	1184	491	1360	324
	4000	1296	774	1468	607	1686	398
2	2500	847	500	943	409	1078	289
	3200	1065	632	1188	514	1358	359
	4000	1315	782	1468	634	1678	439
	5000	1627	970	1818	784	2078	539
	6300	2034	1213	2273	979	2598	669
3	5000	1672	1086	1870	900	2172	640
	6300	2062	1346	2308	1112	2683	779
	8000	2572	1686	2882	1388	3351	961
	10000	3172	2086	3558	1712	4137	1175
	12500	3922	2586	4403	2117	5118	1444
4	8000	2654	1826	2938	1561	3535	1035
	10000	3237	2243	3589	1910	4324	1246
	12500	3966	2764	4403	2346	5310	1510
	16000	4987	3493	5543	2956	6690	1880
	20000	6154	4326	6845	3654	8268	2302

Fixing of the DRH wire rope hoists in suspended or set-down execution

Fixing in suspended execution:
Detail of the hole and the connection zone of the universal suspension/set-down eye bolt
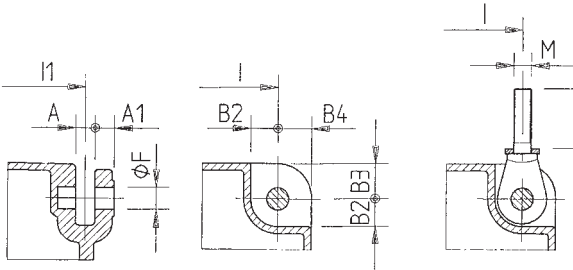
The universal suspension/set-down eye bolt is included in the supply

Fixing in set-down execution:
Detail of the support foot and the connection zone of the universal suspension/set-down eye bolt
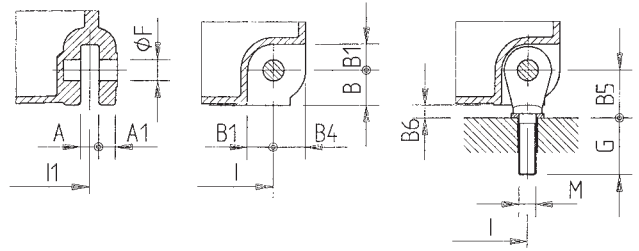
The universal suspension/set-down eye bolt is included in the supply

NOTE: **Fixing in set-down execution:**
- *Using the universal eyebolt, the headroom of the hoist (height H2 on page 18), in relation to the level of setting down of the hoist itself, must be increased by the "B6" dimension.*
- *The eyebolt supplied with double girder trolley complete with DRH hoist fitted on top of trolley is frame can be used exclusivelly in this application.*

| Rope falls N°	DRH	Overall dimensions (mm)											
		A	A1	B	B1	B2	B3	B4	B5	B6	ØF	M	G
	1	20	20	37	21	21	35	35	50	13	20	16x2	65
2/1	2	22	22	42	31	31	40	40	55	13	25	20x2,5	70
4/1	3	32	32	48	36	36	55	55	76	28	35	24x3	93
	4	42	42	60	38	46	70	70	89	29	45	30x3,5	108

DRH wire rope hoists with extra long drum (X) for high lifting height - Temporary service

The DRH electric wire rope hoists are fitted with electric motors designed for intermittent service, conforming with rule FEM 9.683/95.

In any cases, where it is necessary to extend the running time of the motor beyond the limits allowed by the ratio of intermittence of the lifting motor, as in the case of high hook runs, the running time of the movement can last as long as the allowed limit temperature for the motor is not exceeded. In these cases, instead of the intermittent service included, use in "temporary service" is required.

For this type of service the hoist must respect the running times for use foreseen for the related FEM group with a maximum number of times started-up not over ten (see table in paragraph 2.2.6). If DRH hoists must be used in temporary service, as well as high lifting height, in addition to the standard versions with drum C - N- L, two sizes of extra long drums (X): 1st size (X1) and 2nd size (X2), are available corresponding to other normalized versions as shown in the table.

DRH	Rope falls	DRH rope hoists with extra long rope drum (X) for high lifting height							
		Size 1 (X1)				Size 2 (X2)			
		Lifting height (m)	I1 (mm)	S1 (mm)	S3 (mm)	Lifting height (m)	I1 (mm)	S1 (mm)	S3 (mm)
1	2/1	34	1200	380	95	45	1530	490	95
	4/1	14	1200	230	165	19	1530	300	165
2	2/1	34	1260	400	100	43	1530	490	100
	4/1	14	1260	280	200	18	1530	350	200
3	2/1	37	1550	490	130	47	1940	620	130
	4/1	14	1550	280	270	19	1940	350	270
4	2/1	45	1850	580	170	58	2350	750	170
	4/1	17	1850	310	300	24	2350	410	300

Geometric position of the 4 falls hook-block

DRH electric hoists in the 4 rope falls version with a short (C) or normal (N) rope drum are made as shown in figure 1
DRH electric hoists in the 4 rope falls version with a long (L) or extra long (X) rope drum are made as shown in figure 2

Anchorage wedge

Hook block   Return sheave
Figure 1

Anchorage wedge

Hook block   Return sheave
Figure 2
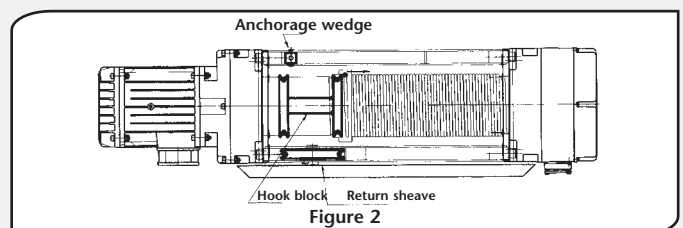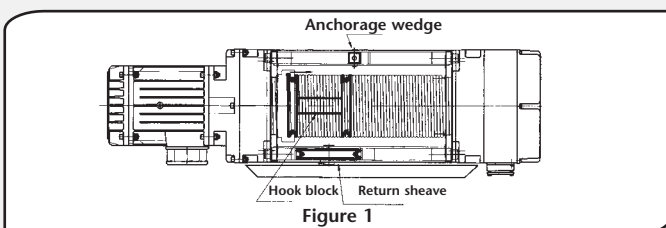
Single girder DST/N/S trolleys for DRH electric wire rope hoists -2 rope falls version (2/1) and 4 rope falls version (4/1)

For dimensions I1 - S1 - S2 - S3 see page 18

Configuration with normal trolley N
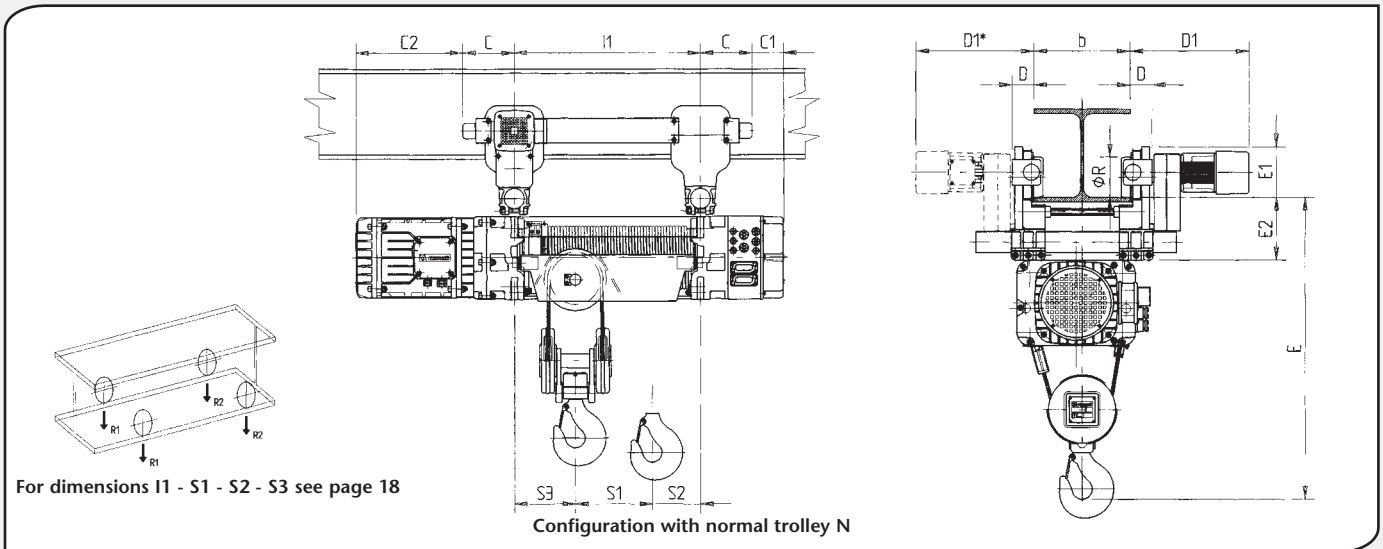
Falls of rope N°	DRH	Type of drum C-N-L	Trolley DST N/S	Weight DRH+DST (kg)	Overall dimensions (mm)									
					C	C1	C2	D	D1	E	E1	E2	E3	r. min.
2/1	1	C	1	222	175	80	305	62	370	870	150	180	960	1500
		N	1	231	175	80	305	62	370	870	150	180	960	1500
		L	1	250	175	80	305	62	370	870	150	180	960	1500
	2	C	1	270	175	95	350	62	370	1000	150	180	1090	1500
		N	1	280	175	95	350	62	370	1000	150	180	1090	1500
		L	1	305	175	95	350	62	370	1000	150	180	1090	1500
	3	C	2	595	195	10	510	68	375	1290	158	195	1400	1600
		N	2	625	195	10	510	68	375	1290	158	195	1400	1600
		L	2	700	195	10	510	68	375	1290	158	195	1400	1600
	4	C	3	1185	295	-75	560	90	395	1670	250	265	1840	1800
		N	3	1220	295	-75	560	90	395	1670	250	265	1840	1800
		L	3	1340	295	-75	560	90	395	1670	250	265	1840	1800
4/1	1	C	1	230	175	80	305	62	370	830	150	180	920	1500
		N	1	240	175	80	305	62	370	830	150	180	920	1500
		L	1	260	175	80	305	62	370	830	150	180	920	1500
	2	C	2	320	195	75	330	68	375	950	158	195	1060	1600
		N	2	330	195	75	330	68	375	950	158	195	1060	1600
		L	2	360	195	75	330	68	375	950	158	195	1060	1600
	3	C	3	835	295	-90	410	90	395	1290	250	265	1460	1600
		N	3	870	295	-90	410	90	395	1290	250	265	1460	1600
		L	3	945	295	-90	410	90	395	1290	250	265	1460	1600
	4	C	4	1480	355	-135	500	100	405	1620	310	305	1810	1800
		N	4	1520	355	-135	500	100	405	1620	310	305	1810	1800
		L	4	1660	355	-135	500	100	405	1620	310	305	1810	1800

| 2-rope-fall version (2/1)							
	Hoist	Static reactions: R1; R2 = daN					
DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	800	379	132	403	112	440	85
	1000	455	156	485	130	530	95
	1250	551	185	587	153	641	109
	1600	684	227	729	186	798	127
	2000	836	275	893	222	976	149
2	1250	585	175	613	150	663	114
	1600	723	212	760	179	821	131
	2000	882	253	927	212	1001	151
	2500	1080	305	1135	254	1226	176
	3200	1357	378	1426	313	1541	211
3	2500	1177	370	1238	324	1354	245
	3200	1451	446	1527	385	1668	281
	4000	1765	532	1857	455	2027	322
	5000	2156	641	2269	543	2475	374
	6300	2665	782	2805	657	3058	441
4	4000	1923	667	2011	598	2207	462
	5000	2305	787	2412	697	2646	523
	6300	2801	941	2933	826	3219	600
	8000	3451	1141	3615	994	3967	702
	10000	4214	1378	4418	1191	4846	823

4-rope-fall version (4/1)							
	Hoist	Static reactions: R1; R2 = daN					
DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	1600	576	338	647	273	738	192
	2000	701	413	789	331	901	229
	2500	856	508	965	404	1104	276
	3200	1076	638	1214	506	1390	340
	4000	1326	788	1498	622	1716	414
2	2500	888	521	985	430	1120	310
	3200	1106	653	1230	535	1400	380
	4000	1356	803	1510	655	1720	460
	5000	1668	991	1860	805	2120	560
	6300	2075	1234	2315	1000	2640	690
3	5000	1778	1140	1980	955	2279	694
	6300	2168	1400	2418	1167	2790	833
	8000	2678	1740	2992	1443	3458	1015
	10000	3278	2140	3668	1767	4244	1229
	12500	4028	2640	4513	2172	5225	1498
4	8000	2827	1912	3111	1649	3708	1122
	10000	3410	2329	3762	1998	4497	1333
	12500	4139	2850	4576	2434	5483	1597
	16000	5160	3579	5716	3044	6863	1966
	20000	6327	4412	7018	3742	8441	2388
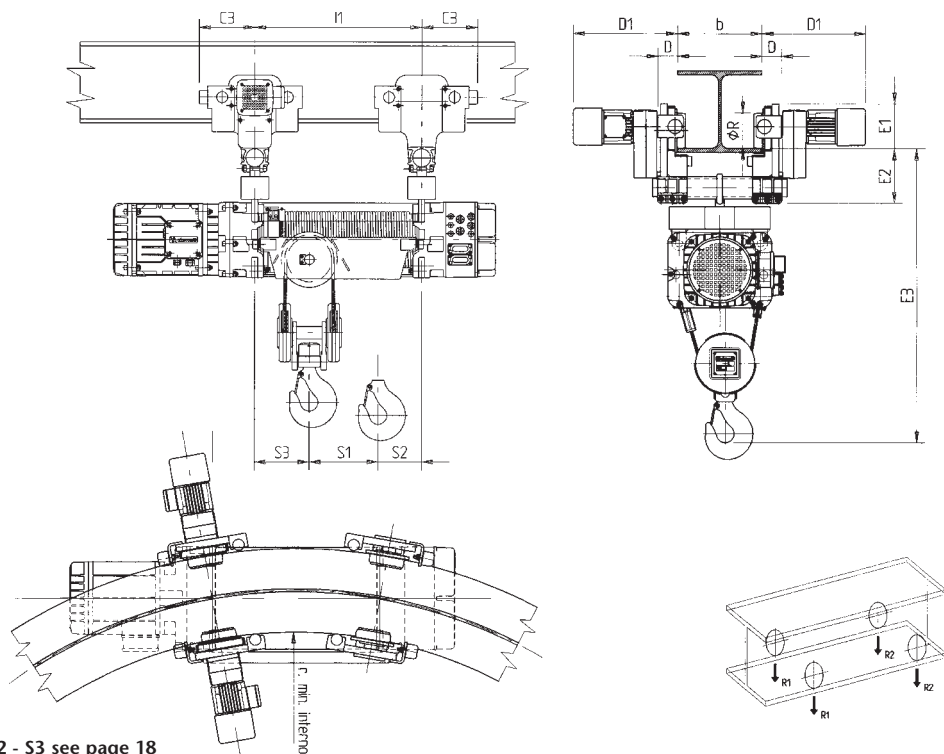
DST	C3
1	185
2	200
3	295
4	355

For dimensions I1 - S1 - S2 - S3 see page 18

Configurations with articulated trolley S
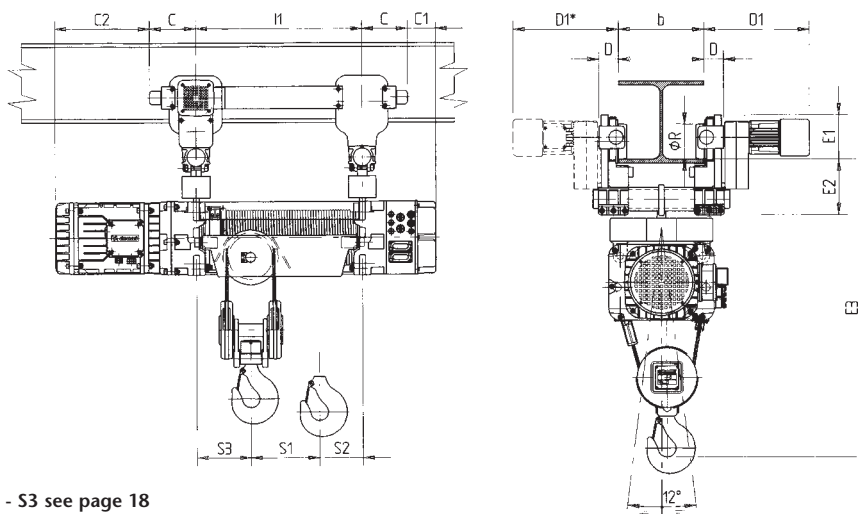
For dimensions I1 - S1 - S2 - S3 see page 18

Configurations with hoist in oscilating execution

Position of the DST wheels on the beam

DST N/S R	Ø R Ruota mm.	Dimensions mm			Thick max. mm.
		i	a	b	
DST 1	100	8	35	18	20
DST 2	125	12	35	29	23
DST 3	200	19	45	38	38
DST 4	250	22	50	43	43
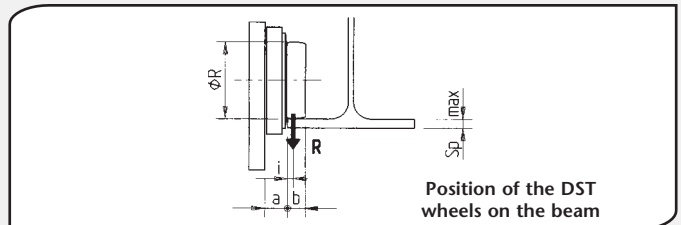
Position of the DST wheels on the beam

BEAMS WIDTH CHARACTERISTICS TABLE FOR DST TROLLEYS												
(mm)	DST1N	DST2N	DST3N	DST4N	DST1R	DST2R	DST3R	DST4R	DST1S/O	DST2S/O	DST3S/O	DST4S/O
Min beam width	90	119	135	170	90	119	135	170	100	135	165	210
Max thickness	20	23	38	43	20	23	38	43	20	23	38	43
Min radius	/	/	/	/	/	/	/	/	1500	1600	1600	1800

Minimum beam's width = minimum beam width needed
Maximum thickness= maximum allowed beam bottom flange thickness
Minimum radius = minimum internal radius required for curved beams
N= normal; R= low headroom; S= articulated; O= oscilating

Monorail DST/R trolleys for electric DRH wire rope hoists – 2 rope falls (2/1) and 4 rope falls versions (4/1)

For dimensions I1 - S1 - S2 - S3 see page 18

Configurations of low headroom trolley R
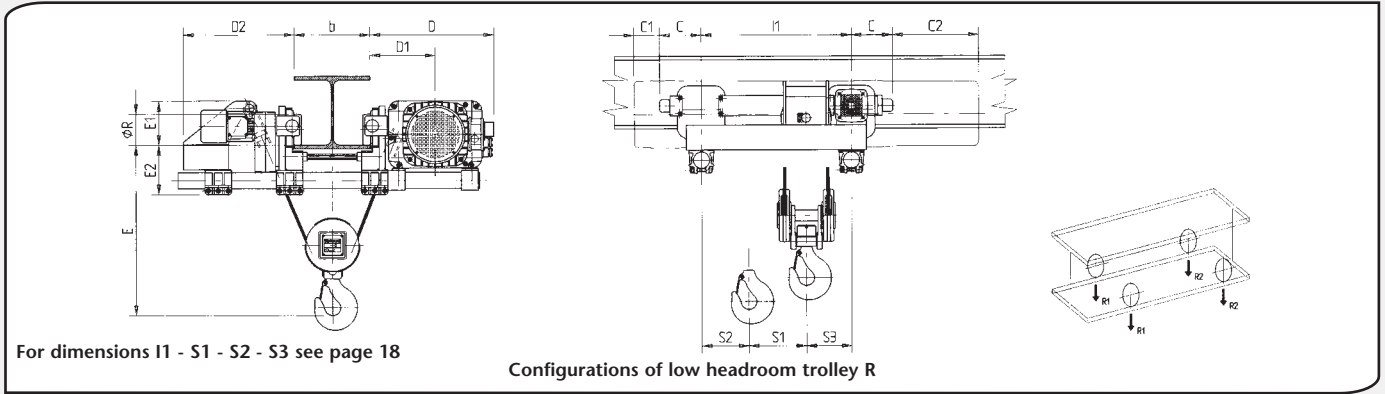
Rope falls N°	DRH	Type of drum C-N-L	Trolley DST/R	Weight DRH+DST (kg)	Overall dimensions (mm)								
					D	D1	D2	E1	E2	ØR	C	C1	C2
2/1	1	C	1	302	440	230	395	150	180	100	175	80	305
		N	1	311	440	230	395	150	180	100	175	80	305
		L	1	330	440	230	365	150	180	100	175	80	305
	2	C	1	395	490	255	450	180	180	100	175	95	350
		N	1	405	490	255	450	180	180	100	175	95	350
		L	1	430	490	255	420	180	180	100	175	95	350
	3	C	2	885	605	315	610	300	195	125	195	10	510
		N	2	915	605	315	610	300	195	125	195	10	510
		L	2	990	605	315	580	300	195	125	195	10	510
	4	C	3	1705	755	395	685	345	265	200	295	-75	560
		N	3	1755	755	395	685	345	265	200	295	-75	560
		L	3	1925	755	395	685	345	265	200	295	-75	560
4/1	1	C	1	310	440	230	395	150	180	100	175	80	305
		N	1	320	440	230	395	150	180	100	175	80	305
		L	1	340	440	230	365	150	180	100	175	80	305
	2	C	2	460	495	260	440	180	195	125	195	75	330
		N	2	470	495	260	440	180	195	125	195	75	330
		L	2	500	495	260	410	180	195	125	195	75	330
	3	C	3	1165	625	335	580	260	265	200	295	-90	410
		N	3	1190	625	335	580	260	265	200	295	-90	410
		L	3	1275	625	335	550	260	265	200	295	-90	410
	4	C	4	2075	765	405	650	345	305	250	355	-135	500
		N	4	2135	765	405	650	345	305	250	355	-135	500
		L	4	2345	765	405	650	345	305	250	355	-135	500

Rope Falls N°	Hook clearance E (mm) in relation to the width of the beam b (mm) and to the size of the DRH wire rope hoist															
	b = 180 mm				b = 220 mm				b = 300 mm				b = 400 mm			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2/1	630	640	680	830	670	680	680	830	770	780	780	880	890	900	900	1000
4/1	480	500	610	790	530	550	610	790	620	650	650	790	740	770	770	850

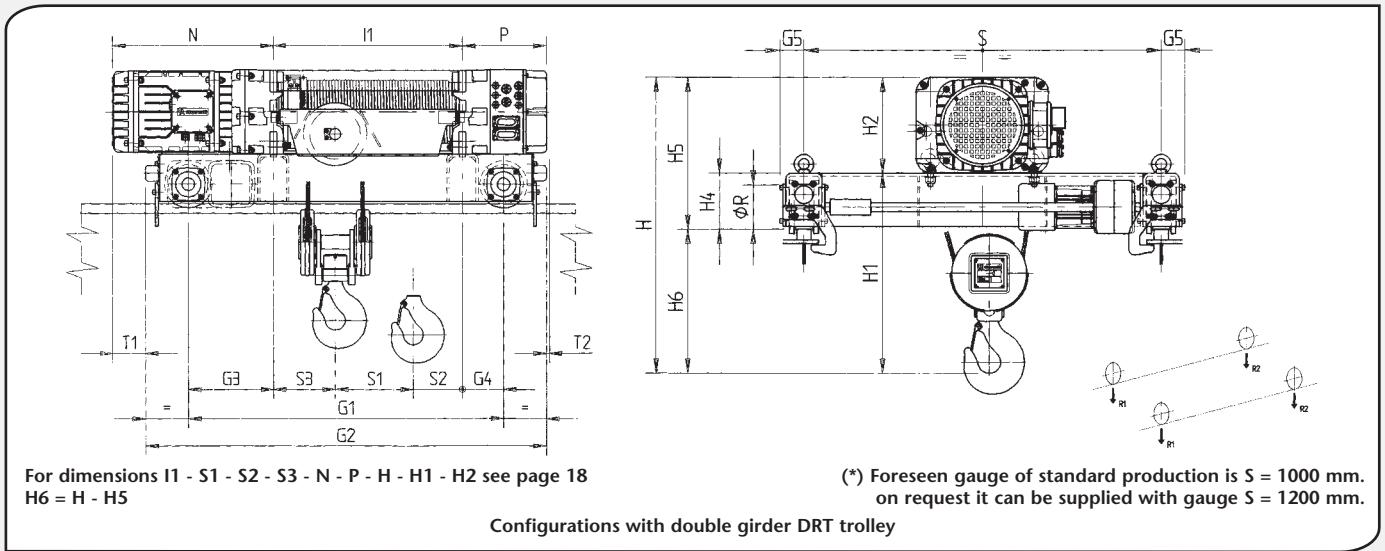| 2-rope-falls version (2/1)							
Hoist		Static reactions: R1; R2 = daN					
DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	800	405	145	430	126	467	98
	1000	481	169	512	144	557	108
	1250	577	198	614	167	668	122
	1600	710	240	755	200	825	140
	2000	862	288	919	236	1003	162
2	1250	627	196	655	172	705	135
	1600	764	233	802	200	863	152
	2000	923	274	969	234	1043	172
	2500	1121	322	1177	275	1268	197
	3200	1398	399	1468	334	1583	232
3	2500	1274	419	1335	372	1451	294
	3200	1548	495	1624	433	1765	330
	4000	1862	581	1954	503	2124	371
	5000	2253	690	2366	591	2572	423
	6300	2762	831	2902	705	3155	490
4	4000	2096	756	2190	687	2402	559
	5000	2478	874	2591	786	2841	620
	6300	2974	1028	3112	915	3414	697
	8000	3624	1228	3794	1083	4162	799
	10000	4387	1465	4597	1280	5042	920

4-rope-falls version (4/1)							
Hoist		Static reactions: R1; R2 = daN					
DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	1600	603	352	673	286	765	204
	2000	728	427	815	344	928	241
	2500	883	522	991	417	1131	288
	3200	1103	652	1240	519	1417	352
	4000	1353	802	1524	635	1743	426
2	2500	935	545	1031	453	1166	333
	3200	1153	677	1276	558	1446	403
	4000	1403	827	1556	678	1766	483
	5000	1715	1015	1906	828	2166	583
	6300	2122	1258	2361	1023	2686	713
3	5000	1888	1194	2086	1008	2389	748
	6300	2278	1444	2524	1220	2900	887
	8000	2788	1794	3098	1496	3568	1069
	10000	3388	2194	3774	1820	4354	1283
	12500	4138	2694	4619	2225	5335	1552
4	8000	3025	2011	3316	1750	3936	1235
	10000	3608	2428	3967	2099	4725	1446
	12500	4337	2949	4781	2535	5711	1710
	16000	5358	3678	5921	3145	7091	2080
	20000	6525	4517	7223	3843	8669	2502

DRT double girder trolleys for electric DRH wire rope hoists – 2 rope falls (2/1) and 4 rope falls versions (4/1)
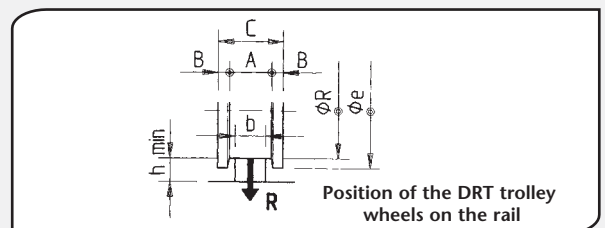

For dimensions I1 - S1 - S2 - S3 - N - P - H - H1 - H2 see page 18
H6 = H - H5

(*) Foreseen gauge of standard production is S = 1000 mm.
on request it can be supplied with gauge S = 1200 mm.

Configurations with double girder DRT trolley

Rope falls N°	DRH	Type of drum C-N-L	Trolley DRT	Weight DRH+DRT (kg)	Overall dimensions (mm)										
					G1	G2	G3	G4	G5	T1	T2	S (*)	ØR	H4	H5
2/1 4/1	1	C	1	310	1000	1250	470	130	67	115	0	1000	125	158	388
		N	1	320	1000	1250	355	130	67	0	0	1000	125	158	388
		L	1	370	1400	1650	380	130	67	25	0	1000	125	158	388
	2	C	1	365	1000	1250	390	130	67	0	15	1000	125	158	428
		N	1	375	1000	1250	270	130	67	130	15	1000	125	158	428
		L	1	435	1400	1650	270	130	67	130	15	1000	125	158	428
	3	C	2	780	1200	1520	440	160	82	105	-115	1000	160	200	580
		N	2	805	1200	1520	300	160	82	245	-115	1000	160	200	580
		L	2	925	1700	2020	280	160	82	265	-115	1000	160	200	580
	4	C	3	1355	1400	1800	490	190	97	165	-170	1000	200	240	710
		N	3	1395	1400	1800	350	190	97	165	-170	1000	200	240	710
		L	3	1600	2000	2400	390	190	97	265	-170	1000	200	240	710

2-rope-falls version (2/1) Static reactions: R1; R2 = daN							
Hoist		Drum C		Drum N		Drum L	
DRH	Capacity kg	R1	R2	R1	R2	R1	R2
1	800	274	276	323	232	384	196
	1000	318	332	378	277	451	229
	1250	372	403	447	333	533	272
	1600	448	502	543	412	649	331
	2000	535	615	653	502	780	400
2	1250	435	364	514	291	598	234
	1600	524	450	624	356	727	280
	2000	626	548	750	430	874	333
	2500	754	670	908	522	1058	399
	3200	932	842	1128	652	1315	492
3	2500	897	715	1053	574	1237	445
	3200	1081	881	1278	699	1502	530
	4000	1291	1071	1535	842	1806	626
	5000	1614	1308	1855	1022	2185	747
	6300	1894	1618	2273	1254	2678	904
4	4000	1473	1151	1685	957	1928	804
	5000	1738	1386	2000	1142	2288	944
	6300	2081	1694	2408	1384	2756	1126
	8000	2531	2094	2942	1700	3368	1364
	10000	3059	2566	3571	2071	4088	1644

4-rope-falls version (4/1) Static reactions: R1; R2 = daN							
Hoist		Drum C		Drum N		Drum L	
DRH	Capacity kg	R1	R2	R1	R2	R1	R2
1	1600	407	548	503	458	612	373
	2000	483	672	602	559	734	451
	2500	578	827	725	685	886	549
	3200	711	1044	898	862	1101	724
	4000	863	1292	1096	1064	1345	840
2	2500	659	773	813	624	975	492
	3200	809	973	1005	782	1208	609
	4000	981	1201	1225	962	1474	743
	5000	1196	1486	1500	1187	1806	911
	6300	1476	1856	1858	1480	2238	1130
3	5000	1343	1547	1645	1259	1999	963
	6300	1625	1915	2000	1552	2439	1173
	8000	1993	2397	2468	1934	3014	1448
	10000	2427	2963	3018	2384	3691	1771
	12500	2968	3672	3706	2946	4536	2176
4	8000	2195	2483	2608	2089	3153	1646
	10000	2630	3047	3144	2553	3808	1991
	12500	3175	3753	3813	3134	4627	2422
	16000	3938	4740	4751	3946	5773	3026
	20000	4810	5868	5822	4875	7083	3716

Dimensions of the DRT wheels and relevant rails

DRT	Ø R Wheel mm.	Dimensions mm						
		Wheel				Rail		
		A	B	C	Ø e	h min	b min	b max
DRT 1	125	50	15	80	150	30	30	40
DRT 2	160	55	19	93	190	30	30	45
DRT 3	200	60	20	100	230	30	40	50

Position of the DRT trolley wheels on the rail

DRT double girder trolleys for DRH wire rope hoist suspended execution - Version 2 rope falls and 4 rope falls
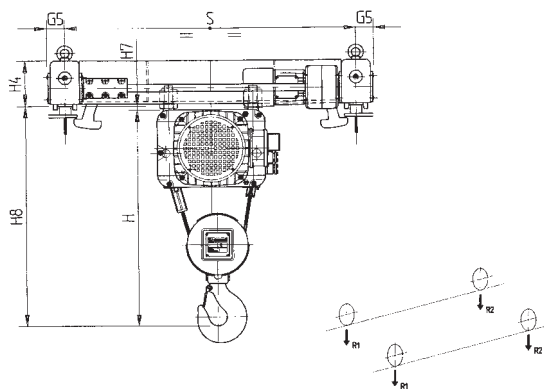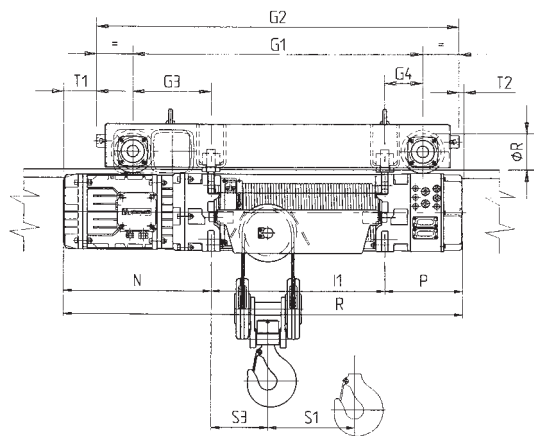
For dimensions I1 - S1 - S2 - S3 - N - P - H - H1 - H2 see page 18
H8 = H + H7

(*) The normal gauge for series production is S = 1000 mm
on request can be supplied with gauge S = 1200 mm

Configurations with double girder trolley DRT

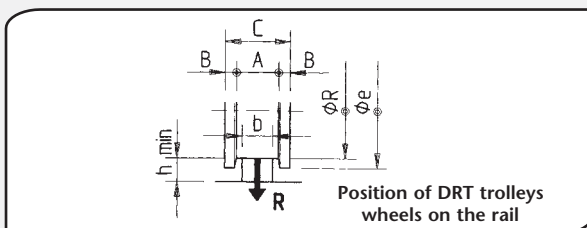| Falls of rope N°	DRH	Drum type C-N-L	Trolley DRT	Weight DRH+DRT (kg)	Overall dimensions (mm)										
					G1	G2	G3	G4	G5	T1	T2	S (*)	ØR	H4	H7
2/1 4/1	1	C	1	310	1000	1250	470	130	67	115	0	1000	125	158	15
		N	1	320	1000	1250	355	130	67	0	0	1000	125	158	15
		L	1	370	1400	1650	380	130	67	25	0	1000	125	158	15
	2	C	1	365	1000	1250	390	130	67	0	15	1000	125	158	15
		N	1	375	1000	1250	270	130	67	130	15	1000	125	158	15
		L	1	435	1400	1650	270	130	67	130	15	1000	125	158	15
	3	C	2	780	1200	1520	440	160	82	105	-115	1000	160	200	6
		N	2	805	1200	1520	300	160	82	245	-115	1000	160	200	6
		L	2	925	1700	2020	280	160	82	265	-115	1000	160	200	6
	4	C	3	1355	1400	1800	490	190	97	165	-170	1000	200	240	3
		N	3	1395	1400	1800	350	190	97	165	-170	1000	200	240	3
		L	3	1600	2000	2400	390	190	97	265	-170	1000	200	240	3

Version with 2 rope falls (2/1)							
Hoist		Static reactions: R1; R2 = daN					
DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	800	274	276	323	232	384	196
	1000	318	332	378	277	451	229
	1250	372	403	447	333	533	272
	1600	448	502	543	412	649	331
	2000	535	615	653	502	780	400
2	1250	435	364	514	291	598	234
	1600	524	450	624	356	727	280
	2000	626	548	750	430	874	333
	2500	754	670	908	522	1058	399
	3200	932	842	1128	652	1315	492
3	2500	897	715	1053	574	1237	445
	3200	1081	881	1278	699	1502	530
	4000	1291	1071	1535	842	1806	626
	5000	1614	1308	1855	1022	2185	747
	6300	1894	1618	2273	1254	2678	904
4	4000	1473	1151	1685	957	1928	804
	5000	1738	1386	2000	1142	2288	944
	6300	2081	1694	2408	1384	2756	1126
	8000	2531	2094	2942	1700	3368	1364
	10000	3059	2566	3571	2071	4088	1644

Version with 4 rope falls (4/1)							
Hoist		Static reactions: R1; R2 = daN					
DRH	Capacity kg	Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	1600	407	548	503	458	612	373
	2000	483	672	602	559	734	451
	2500	578	827	725	685	886	549
	3200	711	1044	898	862	1101	724
	4000	863	1292	1096	1064	1345	840
2	2500	659	773	813	624	975	492
	3200	809	973	1005	782	1208	609
	4000	981	1201	1225	962	1474	743
	5000	1196	1486	1500	1187	1806	1011
	6300	1476	1856	1858	1480	2238	1130
3	5000	1343	1547	1645	1259	1999	963
	6300	1625	1915	2000	1552	2429	1173
	8000	1993	2397	2468	1934	3014	1448
	10000	2427	2963	3018	2384	3691	1771
	12500	2968	3672	3706	2946	4536	2176
4	8000	2195	2483	2608	2089	3153	1646
	10000	2630	3047	3144	2553	3808	1991
	12500	3175	3753	3813	3134	4627	2422
	16000	3938	4740	4751	3946	5773	3026
	20000	4810	5868	5822	4875	7083	3716

DRT wheels dimensions and relevant rails

DRT	Ø R Wheel mm.	Dimensions mm						
		Wheel				Rail		
		A	B	C	Ø e	h min	b min	b max
DRT 1	125	50	15	80	150	30	30	40
DRT 2	160	55	19	93	190	30	30	45
DRT 3	200	60	20	100	230	30	40	50

Position of DRT trolleys wheels on the rail

DRT double girder trolley for DRH wire rope hoist in trasversal position with 2 rope falls (2/1) and 4 rope falls (4/1)
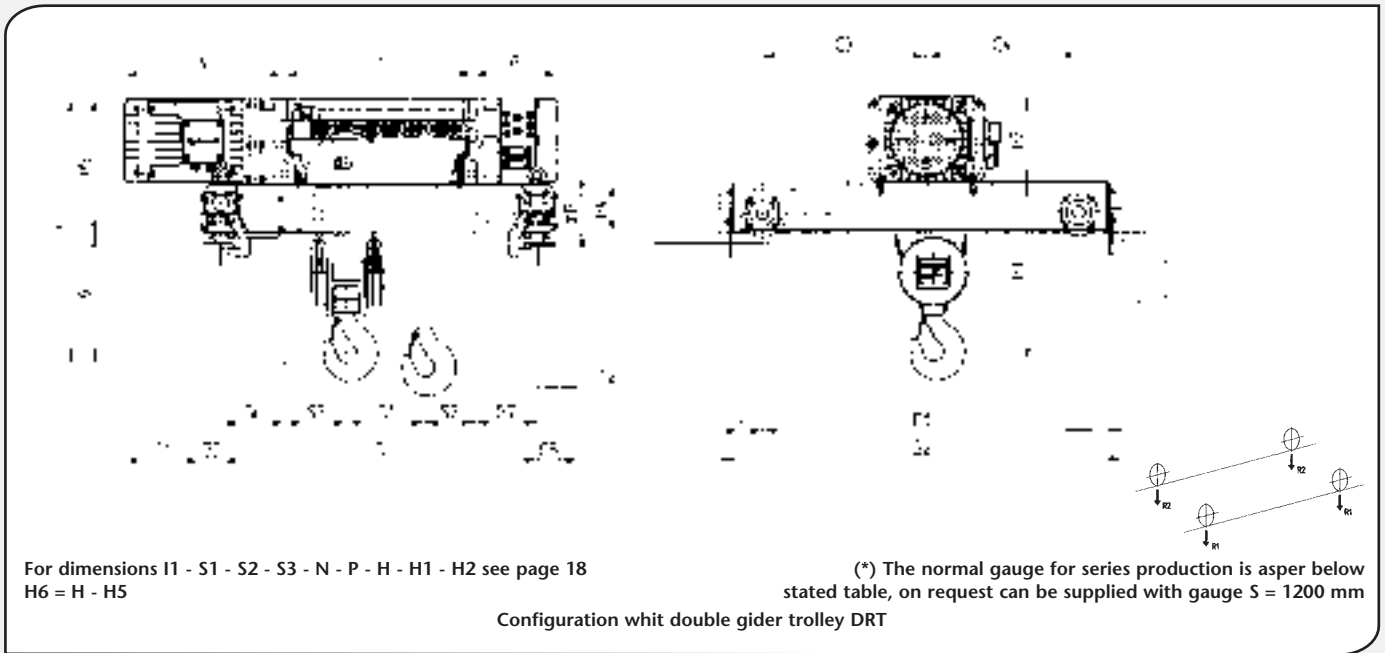
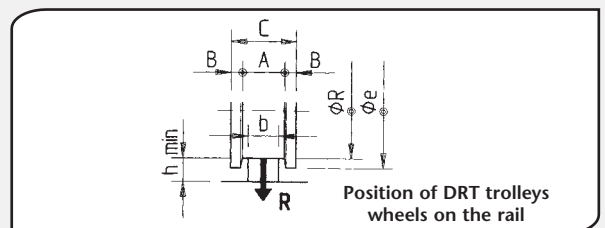For dimensions I1 - S1 - S2 - S3 - N - P - H - H1 - H2 see page 18
H6 = H - H5

(*) The normal gauge for series production is asper below stated table, on request can be supplied with gauge S = 1200 mm

Configuration whit double gider trolley DRT

Falls of rope N°	DRH	Drum type C-N-L	Trolley DRT	Weight DRH+DRT (kg)	Overall dimensions (mm)												
					G1	G2	G3	G4	G5	G6	G7	T1	T2	S (*)	ØR	H4	H5
2/1 4/1	1	C	1	330	1000	1270	520	480	67	300	300	113	-112	1000	125	158	388
		N	1	340	1000	1270	520	480	67	300	185	113	3	1000	125	158	388
		L	1	350	1000	1270	520	480	67	110	0	303	188	1000	125	158	388
	2	C	1	385	1000	1270	520	480	67	260	260	198	-57	1000	125	158	428
		N	1	395	1000	1270	520	480	67	200	200	258	3	1000	125	158	428
		L	1	405	1000	1270	520	480	67	200	0	258	203	1200	125	158	428
	3	C	2	815	1200	1520	600	600	82	200	200	423	-77	1000	160	200	580
		N	2	845	1200	1520	600	600	82	260	0	363	123	1000	160	200	580
		L	2	890	1200	1520	600	600	82	140	0	483	123	1400	160	200	580
	4	C	3	1380	1400	1790	720	680	97	280	0	478	123	1000	200	240	710
		N	3	1420	1400	1790	720	680	97	340	0	418	123	1200	200	240	710

Version with 2 rope falls (2/1)							
Hoist DRH	Capacity kg	Static reactions: R1; R2 = daN					
		Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	800	352	213	355	215	438	137
	1000	412	253	415	255	518	157
	1250	488	302	491	304	619	181
	1600	594	371	597	373	760	215
	2000	715	450	718	452	921	254
2	1250	528	290	538	285	698	130
	1600	640	352	652	346	855	148
	2000	768	425	782	416	1035	168
	2500	928	515	944	504	1261	192
	3200	1152	640	1172	625	1576	227
3	2500	1109	549	1195	478	1441	254
	3200	1344	664	1450	573	1762	283
	4000	1612	796	1742	681	2128	317
	5000	1947	961	2106	817	2586	359
	6300	2383	1175	2580	993	3181	414
4	4000	1570	1120	1864	846		
	5000	1848	1342	2211	999		
	6300	2208	1632	2663	1197		
	8000	2680	2010	3254	1456		
	10000	3235	2455	3949	1761		

Version with 4 rope falls (4/1)							
Hoist DRH	Capacity kg	Static reactions: R1; R2 = daN					
		Drum C		Drum N		Drum L	
		R1	R2	R1	R2	R1	R2
1	1600	550	415	553	417	704	271
	2000	660	505	663	507	851	324
	2500	798	617	801	619	1035	390
	3200	990	775	993	777	1292	483
	4000	1210	955	1213	957	1586	589
2	2500	828	615	845	603	1135	318
	3200	1024	769	1045	753	1415	388
	4000	1248	945	1273	925	1735	468
	5000	1528	1165	1558	1140	2135	568
	6300	1892	1451	1929	1419	2655	698
3	5000	1671	1237	1832	1091	2296	649
	6300	2035	1523	2235	1338	2816	779
	8000	2511	1897	2762	1661	3496	949
	10000	3071	2337	3082	2341	4296	1149
	12500	3771	2887	4157	2516	5296	1399
4	8000	2760	1930	2734	1976		
	10000	3335	2355	3299	2411		
	12500	4054	2886	4005	2955		
	16000	5060	3630	4994	3716		
	20000	6210	4480	6124	4586		

DRT wheels dimensions and relevant rails

DRT	Ø R Wheel mm.	Dimensions mm						
		Wheel				Rail		
		A	B	C	Ø e	h min	b min	b max
DRT 1	125	50	15	80	150	30	30	40
DRT 2	160	55	19	93	190	30	30	45
DRT 3	200	60	20	100	230	30	40	50

Position of DRT trolleys wheels on the rail

DRT double girder trolley for DRH wire rope hoist - Version with 6 rope falls (6/1) and 8 rope falls (8/1)

Configurations with double girder trolley DRT
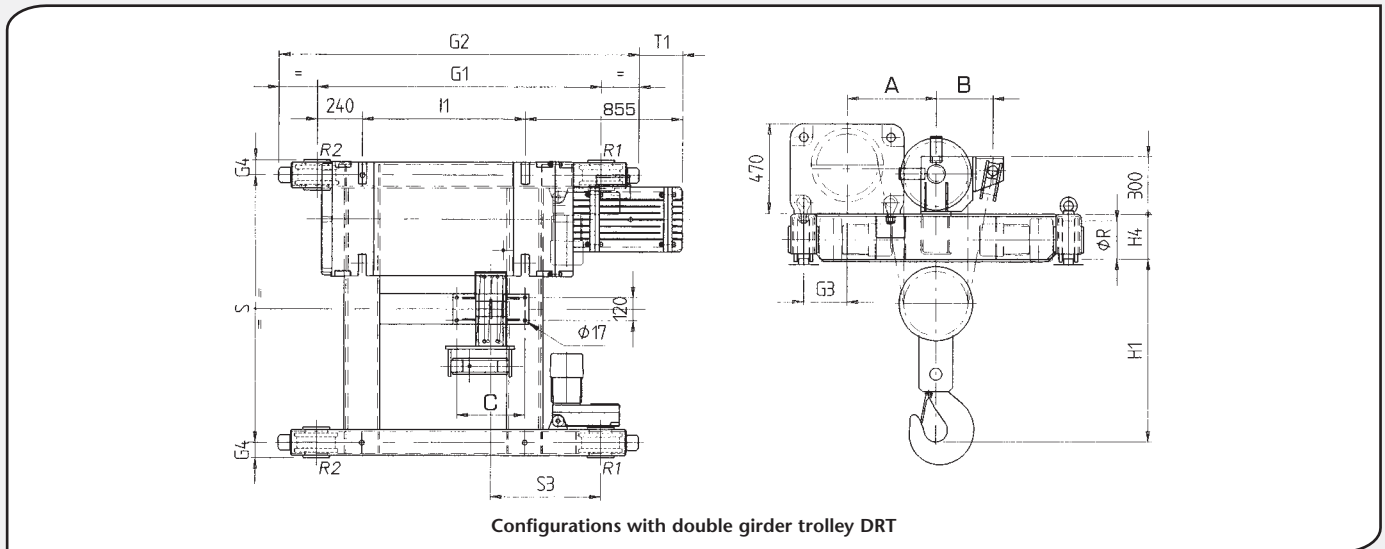
Falls of rope N°	DRH	Drum type N-L-X1	Trolley DRT	Weight DRH+DRT (kg)	Overall dimensions (mm)												
					G1	G2	G3	G4	S3	S	T1	H1	H4	ØR	A	B	C
6/1	4	N	3	1800	1500	1900	230	83	580	1400	255	960	235	200	470	300	360
		N	3	2100	1500	1900	650	83	580	2240	255	960	235	200	470	300	360
		N	3	2400	1500	1900	930	83	580	2800	255	960	235	200	470	300	360
6/1	4	L	3	2000	2070	2470	230	83	590	1400	245	960	235	200	470	300	360
		L	3	2300	2070	2470	650	83	590	2240	245	960	235	200	470	300	360
		L	3	2700	2070	2470	930	83	590	2800	245	960	235	200	470	300	360
6/1	4	X1	3	2250	2500	2900	230	83	590	1400	245	960	235	200	470	300	360
		X1	3	2500	2500	2900	650	83	590	2240	245	960	235	200	470	300	360
		X1	3	2800	2500	2900	930	83	590	2800	245	960	235	200	470	300	360
8/1	4	N	4	2000	1500	1950	230	90	688	1400	230	930	287	250	570	400	556
		N	4	2400	1500	1950	650	90	688	2240	230	930	287	250	570	400	556
		N	4	2600	1500	1950	930	90	688	2800	230	930	287	250	570	400	556
8/1	4	L	4	2300	2060	2510	230	90	708	1400	230	930	287	250	570	400	556
		L	4	2600	2060	2510	650	90	708	2240	230	930	287	250	570	400	556
		L	4	2800	2060	2510	930	90	708	2800	230	930	287	250	570	400	556
8/1	4	X1	4	2500	2500	2950	230	90	738	1400	220	930	287	250	570	400	556
		X1	4	2900	2500	2950	650	90	738	2240	220	930	287	250	570	400	556
		X1	4	3100	2500	2950	930	90	738	2800	220	930	287	250	570	400	556

Version with 6 rope falls (6/1)							
Hoist DRH 4		Static reactions: R1; R2 = daN					
DRT 3 S	Capacity kg	Drum N		Drum L		Drum X1	
		R1	R2	R1	R2	R1	R2
1400	25000	8250	5150	9600	3900	10250	3375
	32000	10400	6500	12100	4900	10950	4175
2240	25000	8350	5200	9700	3950	10350	3400
	32000	10500	6550	12200	4950	13050	4200
2800	25000	8450	5250	9800	4050	10400	3500
	32000	10600	6600	12300	5050	13100	4300

Version with 8 rope falls (8/1)							
Hoist DRH 4		Static reactions: R1; R2 = daN					
DRT 4 S	Capacity kg	Drum N		Drum L		Drum X1	
		R1	R2	R1	R2	R1	R2
1400	40000	11500	9500	13850	7300	14900	6350
2240	40000	11600	9600	13950	7350	15050	6400
2800	40000	11650	9650	14000	7400	15100	6450

DRT wheels dimensions and relevant rails

DRT	Ø R Wheel mm.	Dimensions mm						
		Wheel				Rail		
		A	B	C	Ø e	h min	b min	b max
DRT 3	200	60	20	100	230	30	40	50
DRT 4	250	70	20	110	280	40	50	60

Position of DRT trolley wheels on the rail
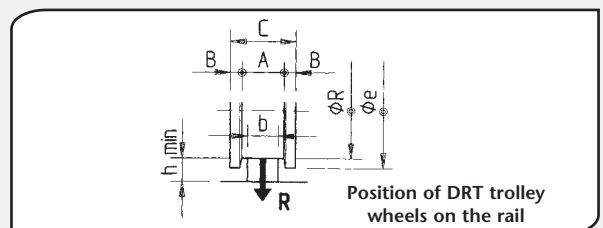
Characteristics of the motors, fuses and power cables

Hoist DRH	Motor Type	Poles	Group FEM	Power kW	COSφ	Ia - (A) 400V - 50Hz	In - (A) 400V - 50Hz	Power current fuse (A) 400V - 50Hz	Minimum section of power cables 400V - (ΔU20V) Φmm²	L =m
DRH 1	112K4RH1/2	4	1Am	3	0,75	40	8	16	2,5	≤ 30
			2m	2,5	0,7	40	7	16	2,5	≤ 30
			3m	2	0,68	40	6,5	16	2,5	≤ 30
	112K5RH1/2	4/12	1Am	3/1	0,72/0,5	38/13	8/6,6	16	2,5	≤ 30
			2m	2,5/0,86	0,66/0,47	38/13	7,5/6,5	16	2,5	≤ 30
			3m	2/0,65	0,65/0,42	38/13	7/6,5	16	2,5	≤ 30
DRH 2	132K4RH2/2	4	1Am	5	0,75	58	12	20	4	≤ 30
			2m	4	0,7	58	10	20	4	≤ 30
			3m	3	0,64	58	9	20	4	≤ 30
	132K5RH2/2	4/12	1Am	5/1,65	0,78/0,5	50/17	12/10	20	4	≤ 30
			2m	4/1,3	0,74/0,45	50/17	10/9,5	20	4	≤ 30
			3m	3/1	0,7/0,4	50/17	9/9,5	20	4	≤ 30
DRH 3	160K4RH3/2	4	1Am	10	0,8	110	22	32	6	≤ 30
			2m	8	0,75	110	19	32	6	≤ 30
			3m	6	0,72	110	17	32	6	≤ 30
	160K5RH3/2	4/12	1Am	10/3,3	0,77/0,46	100/20	24/18	32	6	≤ 30
			2m	8/2,6	0,74/0,4	100/20	19/16	32	6	≤ 30
			3m	6/2	0,7/0,36	100/20	18/16	32	6	≤ 30
DRH 4	180K4RH4/2	4	1Am	16	0,82	175	34	63	10	≤ 20
			2m	12,5	0,75	175	28	63	10	≤ 20
			3m	10	0,7	175	24	63	10	≤ 20
	180K5RH4/2	4/12	1Am	16/5,3	0,78/0,46	170/50	38/25	63	10	≤ 20
			2m	12,5/4	0,7/0,4	170/50	33/24	63	10	≤ 20
			3m	10/3,3	0,68/0,37	170/50	29/23	63	10	≤ 20

Trolley DST DRT	Motor Type	Poles	Group FEM	Power kW	COSφ	Ia - (A) 400V - 50Hz	In - (A) 400V - 50Hz
DST 1 DST 2 DRT 1	71C3ST1	2/8	1Am	0,37/0,08	0,7/0,55	5/2	1,3/1,2
			2m	0,3/0,07	0,6/0,52	5/2	1,2/1,2
			3m	0,24/0,05	0,5/0,48	5/2	1,1/1,2
	71C2ST1	2	1Am	0,37	0,75	6	1,1
			2m	0,3	0,7	6	1
			3m	0,24	0,65	6	0,9
	71C4ST1	4	1Am	0,2	0,5	4	1,1
			2m	0,15	0,42	4	1
			3m	0,12	0,40	4	0,9
DST 3 DST 4 DRT 2	80C3ST2	2/8	1Am	0,55/0,13	0,65/0,6	6/2,5	2,2/1,1
			2m	0,44/0,1	0,6/0,5	6/2,5	2,1/1
			3m	0,35/0,08	0,5/0,4	6/2,5	2/1
	80C2ST2	2	1Am	0,55	0,72	8	1,6
			2m	0,44	0,65	8	1,4
			3m	0,35	0,62	8	1,3
	80C4ST2	4	1Am	0,3	0,65	7	1,2
			2m	0,22	0,55	7	1,1
			3m	0,2	0,50	7	1,0
DRT 3	91K3ST3	2/8	1Am	0,9/0,23	0,8/0,5	10/3	2,4/1,5
			2m	0,7/0,16	0,7/0,4	10/3	2,2/1,4
			3m	0,55/0,13	0,66/0,37	10/3	2,1/1,4
	90C2ST3	2	1Am	0,9	0,68	11	2,7
			2m	0,7	0,6	11	2,5
			3m	0,55	0,56	11	2,4
	90C4ST3	4	1Am	0,45	0,55	7	1,6
			2m	0,37	0,5	7	1,5
			3m	0,3	0,45	7	1,4

Example calculation of a fall in tension DU, of the length and of the section of the power cable. (DU max 5%)

$$\Delta U = 1.73 \cdot L \cdot Ia \cdot \cos\varphi / X \cdot \Phi \quad [V]$$
$$L = \Delta U \cdot X \cdot \Phi / 1.73 \cdot \cos\varphi \cdot Ia \quad [m]$$
$$\Phi = 1.73 \cdot L \cdot Ia \cdot \cos\varphi / \Delta U \cdot X \quad [mm2]$$

Values in the formula:

ΔU	= Fall in tension	[V]
Ia	= Start-up current	[A]
L	= Length of cable	[m]
Φ	= Section of the cable	[mm2]
X	= Conductivity	Cu=57 m/Qmm
cosφ	= Power factor	

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