

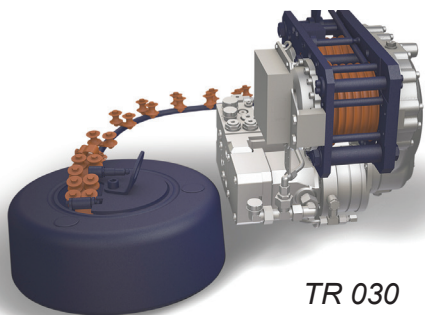
Increased performance in the ROTZLER universe:

The unique operating principle of the TREIBMATIC / 7



UPGRADE

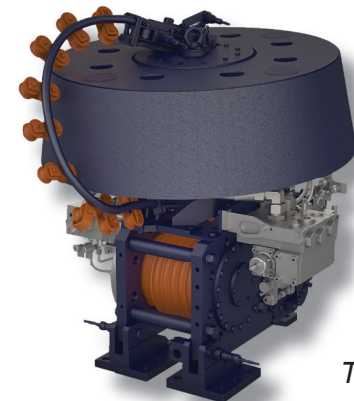
Premium quality for premium recovery solutions TREIBMATIC TR 030, TR 080, TR 200, TR 350



TR 030



TR 080



TR 200

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1. Why TREIBMATIC?

Premium quality for premium recovery solutions



TREIBMATIC TR 030 TR 080 TR 200/200kN TR 200/250kN TR 350 winches

Premium quality for premium recovery solutions

The global success of the ROTZLER TREIBMATIC hydraulic winches has many good reasons.

With the highest safety standards provided for heavy duty pulling applications, such as recovery and self-recovery, ROTZLER TREIBMATIC is the reliable solution for OEMs and users all over the world.

ROTZLER's unique TREIBMATIC concept offers key benefits for the OEM and user in comparison to conventional drum winches. OEMs constantly face the challenge of integrating more equipment whilst optimising weight. The modular and space-saving TREIBMATIC design is the perfect solution for all applications, where maximum performance with the smallest possible space and weight claim are required. This is why our international customers depend on ROTZLER TREIBMATIC winches.

ROTZLER TREIBMATIC winches ensure safety, flexibility, reliability and performance on the state-of-the art technology level.

ROTZLER TREIBMATIC Product description

The ROTZLER TREIBMATIC hydraulic winches consist of a special twin capstan pulling unit with a separate rope storage container and a precise digital control system. The unique TREIBMATIC design results in less rope wear and therefore less costs whilst providing increased safety.

The powerful yet compact twin capstan winch module ensures that the maximum rated pulling force and speed are available along the entire rope length, unlike typical drum winch designs where the pulling force decreases per rope layer. The twin capstan design also eliminates rope crushing and the typical spooling problems associated with drum winches and requires no extra spooling devices or extra space along the rope path when installed in a vehicle. The two grooved drums ensure optimised rope life by preventing any contact between the rope windings. The unique rope storage system feeds the rope from the winch module without tension into a special storage drum, preventing the coils and layers of rope from being crushed and without the need for a separate drive system. This system not only reduces rope wear to a minimum but also ensures the maximum installation flexibility. The availability of different storage drum sizes enables more flexibility regarding various rope lengths.

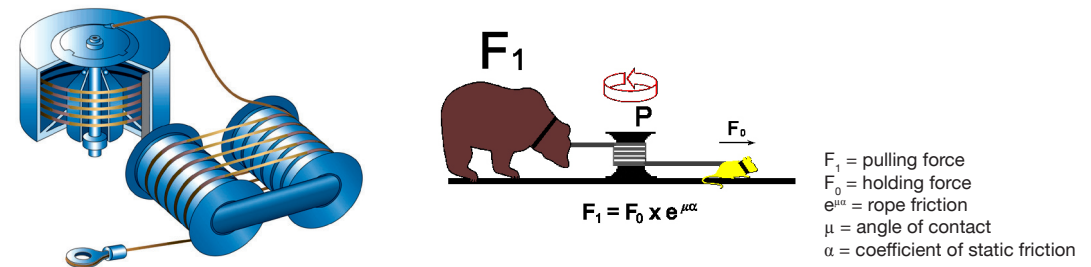
Both modules can be installed separately from each other which gives a high flexibility during the installation and meets the space claim requirements on most vehicles without any problems.

A multi-disc static brake coupled with a dynamic load holding brake ensures safe and reliable working in all pulling applications including self recovery on slopes or recovery of other vehicles on slopes.

The digital operation system provides optimum operator support by combining precise, responsive winch control with self monitoring safety functions and visual user support direct at the hand held control unit.

Due to its low operating costs and extremely long service life, the TREIBMATIC winch is also a highly cost-effective choice.

The TREIBMATIC Concept



ROTZLER TREIBMATIC – The applications

ROTZLER TREIBMATIC winches have been developed for the use in military applications. As a result, the products can be found in a large variety of different applications from recovery trucks to heavy armored vehicles.

The ROTZLER TREIBMATIC can be found all over the world in countries such as Canada, the United States of America, Korea, Singapore, Malaysia, India, Thailand, Australia, Oman, Italy, Switzerland, Austria, England, Spain, France, Germany and many others.

1. Why TREIBMATIC?

Premium quality for premium recovery solutions



TREIBMATIC TR 030 TR 080 TR 200/200kN TR 200/250kN TR 350 winches

ROTZLER TREIBMATIC – The winch models

The TREIBMATIC series is available with the following pulling forces:

Winch model	Pulling force	Typical applications
• TR 030	70 kN	• self recovery of 4 x 4 and 6 x 6-vehicles • recovery of passenger cars and light trucks
• TR 080	110 kN	• self recovery of 6 x 6 and 8 x 8-vehicles
• TR 200	250 kN	• recovery of medium wheeled vehicles
• TR 200	300 kN	• recovery of medium tracked vehicles
• TR 350	400 kN	• recovery of heavy tracked vehicles

The table above is only a guideline. ROTZLER will be pleased to review specific project details and recommend the most suitable solution.

Standard features for superior requirements

The ROTZLER TREIBMATIC winches consists of:

- Efficient gearbox with hardened and ground teeth
- Storage drum to house the rope
- Grooved, hardened capstan drums
- Hydraulically released holding brake to securely hold the nominal load
- High-performance hydraulic motors
- Load and high speed mode, providing two speed options
- Counterbalance valve for controlled lowering of the load
- Digital electronics, enabling precise, highly-responsive winch control
- End-of-rope monitor, providing timely electronic warning

ROTZLER TREIBMATIC vs. drum winch

For highly integrated and demanding vehicle concepts, the ROTZLER TREIBMATIC winches provide vehicle designers and body builders with the full advantages of its modular design:

- small space claim
- separate components (winch, storage drum)
- no rope spooling angles required
- no rope spooling device required
- low operating weight
- constant pulling force allows installation design to be dimensioned precisely

Additional benefits by using the TREIBMATIC instead of drum winches are approved by thousands of winch operators all over the world:

- easy and safe operation
- constant pulling force
- constant rope speed
- no rope spooling problems
- no tension required during rewinding of rope
- short setup time

1. Why TREIBMATIC?

Premium quality for premium recovery solutions



TREIBMATIC TR 030 TR 080 TR 200/200kN TR 200/250kN TR 350 winches

Good reasons for the OEM



Highest safety standards



Modular components (winch, storage drum)



Space-saving in-vehicle integration

Flexible, quick and easy installation

Customer-specific systems



Weight-optimized



Digital operation system

In service all over the world

Complete range of options and accessories



Reliable quality, assured by Rotzler's unique test center



Extensive range of winches with maximum pulling forces from 50 kN to 350 kN



Complies with european and international safety standards

Good reasons for the user



Constant pulling force along the entire rope length



Fast rope speed



No rope spooling problems



Extended rope life due to storage without tension

No tension required during rewinding of rope



Short setup time



Easy and safe operation by visual user guidance support via LCD display



Full function remote control option



Operating unit with integrated emergency stop

Self-monitoring functions ensure maximum safety



Long service life and low maintenance



Complies with european and international safety standards

Application Examples



General technical description

Winch:

- high quality planetary gear reduction (TR 030 - spur gear), with hardened and ground gears
- grooved, hardened capstans
- aluminum structure for low operating weight
- hydraulically released spring applied holding brake to safely hold the rated load
- high quality hydraulic motor for improved performance
- counterbalance valve to safely control paying out of the loaded rope
- 2 speed performance for TR 080, TR 200 (optional for TR 030)
electronic, hydraulically controlled load modes give maximum performance. In the high speed mode a reduced load can be pulled. When the load increases beyond the maximum in this mode the winch automatically changes modes to slow speed, where the rated load can be pulled. The change of modes from fast to slow does not require to stop the recovery process and can be controlled both automatically and manually. Changing from slow to fast is done manually only and is only possible when the winch is not operated.
- horse power control option (TR 200, TR 350, others upon request):
maximum performance based on the hydraulic power installed in the vehicle is the result of this versatile feature. The electronic / hydraulic control system automatically adjusts the displacement of the hydraulic motor depending on the load on the winch rope. Starting at the minimum winch speed at full load up to the maximum winch speed possible, the winch offers higher rope speed with decreasing loads. Typically the duration of recovery tasks can be reduced since the full load is very often only required on the first few meters of the recovery operation. After that the load required to pull the casualty decreases which allows operating at higher rope speeds.

Digital electronic control system:

- The winch is equipped with an electronic / hydraulic proportional winch control as standard. This allows a very sensitive control of the load. The winch is operated by means of a remote control, which also indicates the operating condition of the winch. An illuminated LCD-display shows which functions are activated and their current operational status. The control system constantly monitors the winch, allowing the operator to fully concentrate on the recovery operation. In addition an emergency-stop button is provided to shut off power in critical situations.
- Rope end sensor
Usually the operator must stop paying out rope once the colored rope end mark is visible. As this takes the operators attention away from the actual recovery task or other winch work, there is a chance that it might not be seen. The rope end sensor indicates that the maximum rope length is paid out and sends a signal to the electronics. As a result the winch is stopped and consequently only paying-in is possible.
- Radio remote control (optional)
This is the most convenient way to operate a winch. The radio remote transmitter which is attached to a belt, worn around the waist, is connected to the standard operating unit. The receiver is connected directly to the winch control box. This system retains all of the original functions and reduces risk of operator error.

Storage drum:

- various storage drums sizes for different rope lengths are available.
The unique storage drum is powered only by the rope being pushed into the drum. The rope is stored without tension in the drum, resulting in extended rope life. To securely hold the storage drum while the vehicle is driving, a hydraulically released, spring applied holding brake is fitted to the storage drum. The rope end sensor is part of the storage drum assembly.
- powered storage drums for extremely long rope lengths can be provided upon request

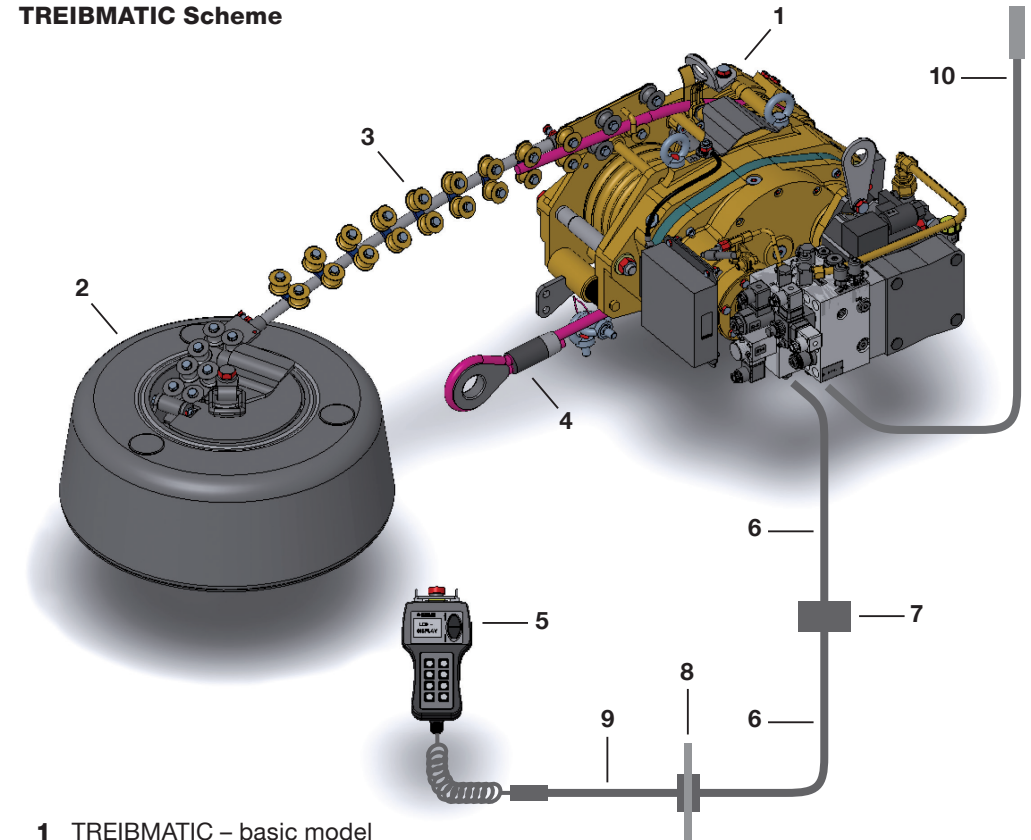
Designated use

The use as determined is moving (pulling and lowering) loads adhering to the ground up to an inclination of 45° as specified for each winch type and under the attention of the given installation regulations as well as of the safety notes. Passenger transport, towing work, hoisting work or any other use with TREIBMATIC winches is prohibited. The use as determined also includes the related equipment manufacturer's recommendations regarding installation, operation and maintenance.

Theoretical using time

TREIBMATIC winch type	TR 030 / 080 / 200 (200 kN) / 350	TR 200 (250 kN)
class of operating time	T1	T0
theoretical service life (years)	13.3 ... 6.4	13.3 6.6
average daily running time (h)	0.12 - 0.25	< 0.12
calculated total running time (h)	400	200
load spectrum	L1	L1
protection type	IP67	IP 67

TREIBMATIC Scheme



- 1 TREIBMATIC – basic model
- 2 Storage drum
- 3 Rope guidance through roller path
- 4 Rope
- 5 Remote control
- 6 Umbilical cord
- 7 Cable connector for umbilical cord
- 8 Bulkhead cable connector
- 9 Extension cable for remote control
- 10 Power supply cable

Ambient conditions

Temperature range

The ROTZLER TREIBMATIC winches are designed for operation in a temperature range/ ambient temperature of -40 °C up to +63 °C and can be stored by a temperature of -40 up to + 63°C. Please contact Rotzler regarding applications involving extreme temperatures, vibrations, jerks, sand, dust, sea water or any other extreme environmental conditions.

Fluids

Gear oil specification

Before delivery standard ROTZLER TREIBMATIC winches were filled with Renolin CLPF 320 Super gear oil. Recommended gear oil for alternative filling and during oil change: SAE 75 W90 - API-GL5.

Specification	SAE 75W-90
mil. spec.	API- GL 5
specific weight at 15° C	0,90 g/ml
viscosity at 40° C	92 mm ² /s
viscosity at 100° C	11 mm ² /s
pour-point	-27°C
flash point	+240°C

Lubricating grease

For all standard applications, commercially available multi-purpose grease can be used.

Hydraulic oil (not supplied by ROTZLER)

The integrated hydraulic components are designed for the use with hydraulic oil on mineral oil basis according to DIN 51525.

Operating viscosity range and limits

The viscosity of the hydraulic fluid should be chosen in correspondence with a consideration to the ambient temperature and the viscosity requirements of the pumps and motors.

Optimum viscosity range

$vis_{opt} = 25 - 45 \text{ mm}^2/\text{s (cSt)}$.

Limiting viscosity range (cSt).

$vis_{min/max} = 10 \text{ mm}^2/\text{s (cSt)} - 1000 \text{ mm}^2/\text{s}$

Maximum starting viscosity

$vis_{start} = 1600 \text{ mm}^2/\text{s (cSt)}$. *)

Maximum permissible leakage oil temperature

$T_{max} = +90^\circ \text{ C}$

*) Warm-up phase required. Please contact ROTZLER for details

Recommended hydraulic oil / fields of application

H-LP 22 : for Nordic conditions
 H-LP 32 or 46 : for Central and Southern Europe conditions
 H-LP 68 or 100 : for tropical conditions

NATO OIL H-540 : universal use
 NATO OIL H-544 : universal use
 NATO OIL H-515 : universal use

Hydraulic oil temperature

At normal operation of the winch system hydraulic oil temperatures should be between + 30° C and + 60° C. If the oil temperature is too low respectively too high, the sealing rings will loose their sealing characteristics and the durability of the hydraulic oil will be reduced.

Winch Performance Data*

Max. load	70 kN
Nominal load in low gear	58 kN
Nominal load in high gear	12 kN
Nominal rope speed low gear	10 m/min
Nominal rope speed high gear	27 m/min
Weight (winch, approx.)	103 kg
Weight (winch, rope, st. drum, approx.)	175 / 179 / 201 kg

Dimensions**

Winch length approx.	520 mm
Winch height approx.	440 mm
Winch width approx.	405 mm

Hydraulic System*

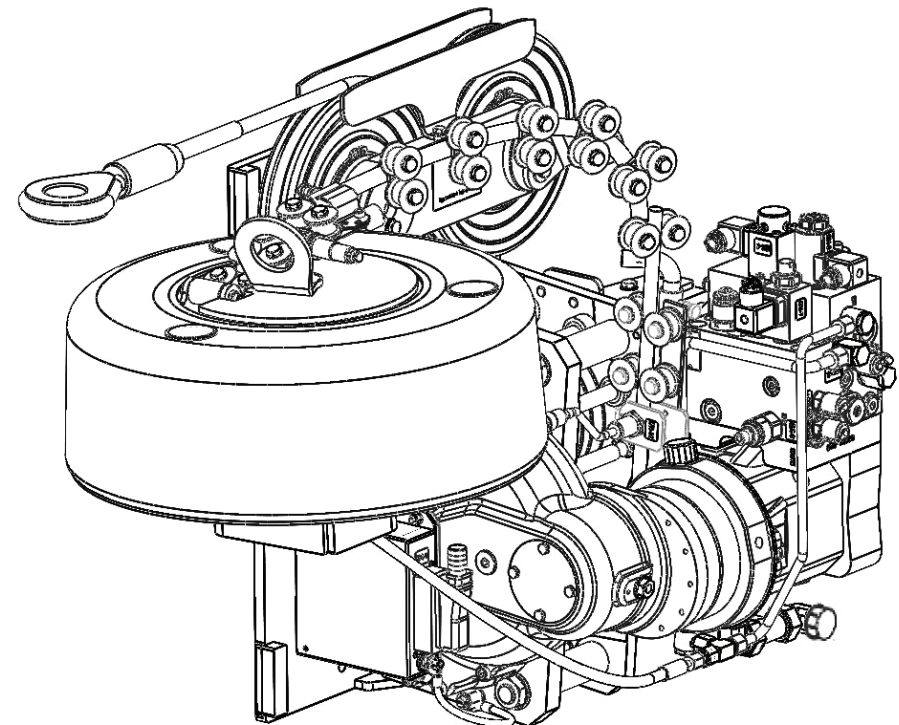
Max. oil pressure***	240 bar
Max. volume flow***	50 l/min
Min. volume flow	8 l/min

Electrical system

Rated voltage	24 V DC
Fuse	7,5 A

Rope / Storage drum

Rope diameter	13 mm
Total rope length****	60 / 65 / 90 m
approx. usable length	90 %
Rope weight	50 / 54 / 75 kg
Drum weight	22 / 22 / 23 kg
Drum diameter	470 / 470 / 520 mm
Drum height	265 / 265 / 265 mm



* All data is based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi).
All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

** Dimensions vary according to customer specific design.

*** Peak pressure at winch start-up.

A separate drain line direct from the winch to the tank is required.

The winch can be supplied in two versions: for installation with a constant pump or a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

Winch Performance Data*

Max. load	110 kN
Nominal load in low gear	91 kN
Nominal load in high gear	20 kN
Nominal rope speed low gear	8 m/min
Nominal rope speed high gear	27 m/min
Weight (winch, approx.)	140 kg
Weight (winch, rope, st. drum, approx.)	233 / 242 / 281 kg

Dimensions**

Winch length approx.	515 mm
Winch height approx.	318 mm
Winch width approx.	580 mm

Hydraulic System*

Max. oil pressure***	240 bar
Max. volume flow***	60 l/min
Min. volume flow	10 l/min

Electrical system

Rated voltage	24 V DC
Fuse	7,5 A

* All data is based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi).
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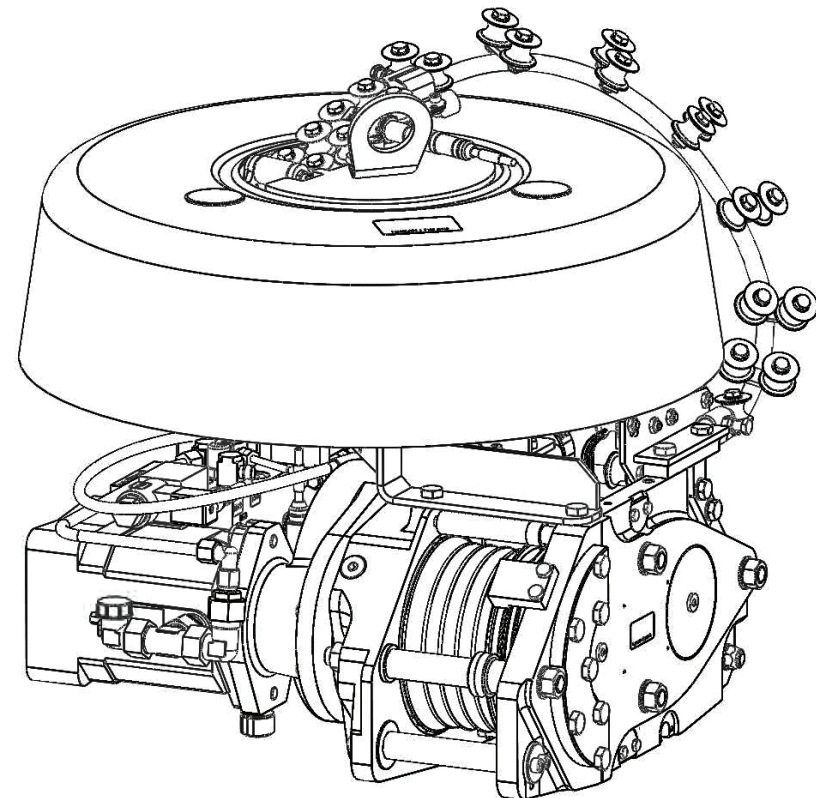
A separate drain line direct from the winch to the tank is required.

The winch can be supplied in two versions: for installation with a constant pump or a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

Rope / Storage Drum

Rope diameter	16 mm
Total rope length****	60 / 70 / 90 m
approx. usable length	90 %
Rope weight	70 / 75 / 110 kg
Drum weight	23 / 27 / 31 kg
Drum diameter	520 / 570 / 650 mm
Drum height	265 / 265 / 265 mm



Winch Performance Data*

Max. load	250 kN
Nominal load in low gear	208 kN
Nominal load in high gear	50 kN
Nominal rope speed low gear	13 m/min
Nominal rope speed high gear	38 m/min
Weight (winch, approx.)	535 kg
Weight (winch, rope, st. drum, approx.)	845 / 896 / 1042 / 1090 / 1118 kg

Dimensions**

Winch length approx.	740 mm
Winch height approx.	630 mm
Winch width approx.	990 mm

Hydraulic System*

Max. oil pressure***	350 bar
Max. volume flow***	150 l/min
Min. volume flow	15 l/min

Electrical system

Rated voltage	24 V DC
Fuse	7,5 A

* All data are based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi). All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

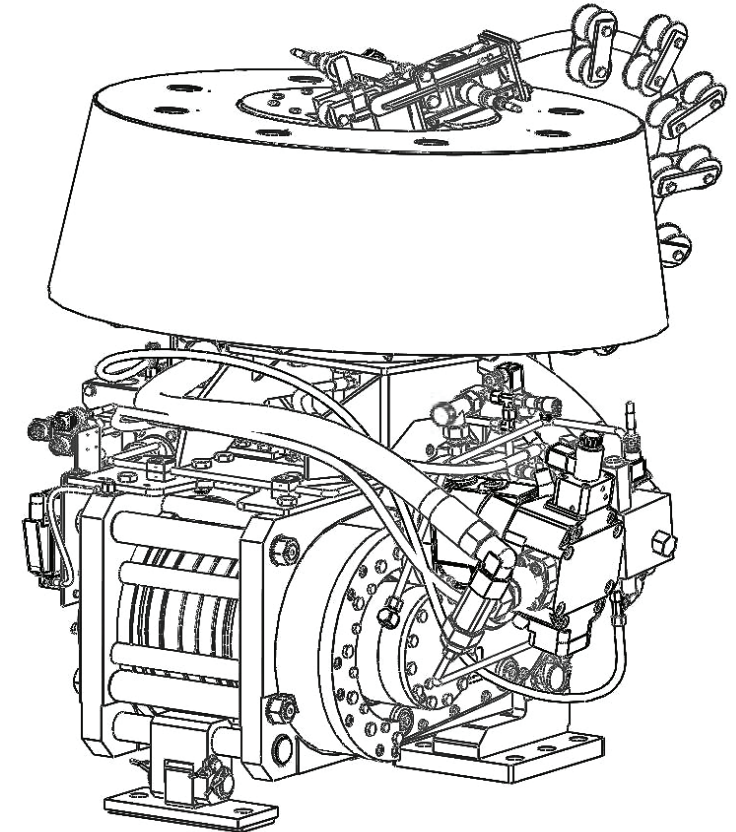
** Dimensions vary according to customer specific design

*** Peak pressure at winch start-up.
A separate drain line direct from the winch to the tank is required.
The winch can be supplied for installation with a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

Rope / Storage Drum

Rope diameter	24 mm
Total rope length****	75 / 90 / 110 / 120 / 130 m
approx. usable length	90 %
Rope weight	220 / 266 / 315 / 360 / 385 kg
Drum weight	90 / 95 / 115 / 135 kg
Drum diameter	700 / 800 / 900 / 1000 / 1000 mm
Drum height (max.)	505 / 505 / 505 / 505 / 505 mm



Winch Performance Data*

Max. load	300 kN
Nominal load in low gear	250 kN
Nominal load in high gear	55 kN
Nominal rope speed low gear	12 m/min
Nominal rope speed high gear	35 m/min
Weight (winch, approx.)	550 kg
Weight (winch, rope, st. drum, approx.)	840 / 895 / 995 / 1048 kg

Dimensions**

Winch length approx.	740 mm
Winch height approx.	630 mm
Winch width approx.	990 mm

Hydraulic System*

Max. oil pressure***	330 bar
Max. volume flow***	170 l/min
Min. volume flow	20 l/min

Electrical system

Rated voltage	24 V DC
Fuse	7,5 A

* All data are based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi). All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

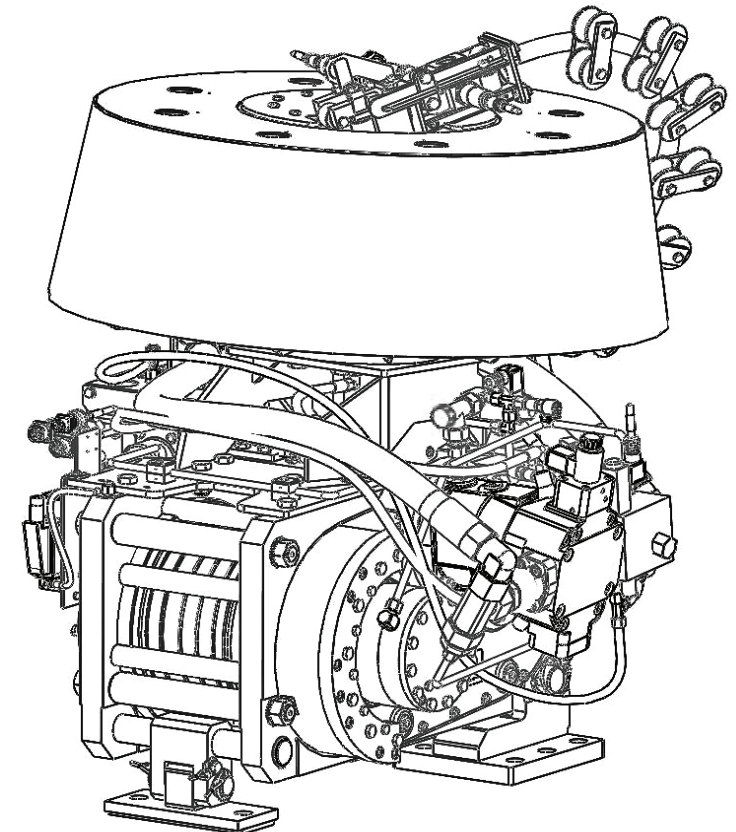
** Dimensions vary according to customer specific design

*** Peak pressure at winch start-up.
A separate drain line direct from the winch to the tank is required.
The winch can be supplied for installation with a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

Rope / Storage Drum

Rope diameter	26 mm
Total rope length****	60 / 75 / 100 / 110 m
approx. usable length	90%
Rope weight	210 / 260 / 340 / 370 kg
Drum weight	90 / 95 / 115 / 135 kg
Drum diameter	700 / 800 / 900 / 1000 mm
Drum height (max.)	505 / 505 / 505 / 505 mm



Winch

Performance data*

Max. load	400 kN
Nominal load in low gear	350 kN
Nominal load in high gear	35 kN
Nominal rope speed low gear	10 m/min
Nominal rope speed high gear	80 m/min
Weight (winch, approx.)	1.150 kg
Weight (winch, rope, st. drum, approx.)	1.960 / 2.180 kg

Dimensions**

Winch length approx.	1.055 mm
Winch height approx.	680 mm
Winch width approx.	1.090 mm

Hydraulic System*

Max. oil pressure***	350 bar
Max. volume flow***	200 l/min
Min. volume flow	20 l/min

Electrical system

Rated voltage	24 V DC
Fuse	8 A

* All data is based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi).
All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

** Dimensions vary according to customer specific design.

*** Peak pressure at winch start-up.

A separate drain line direct from the winch to the tank is required.

The winch can be supplied in two versions: for installation with a constant pump or a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

Rope / Storage Drum

Rope diameter	33 mm
Total rope length****	120 / 160 m
approx. usable length	90 %
Rope weight	670 / 890 kg
Drum weight	140 / 140 kg
Drum diameter	1.150 / 1.150 mm
Drum height	590 / 590 mm

