

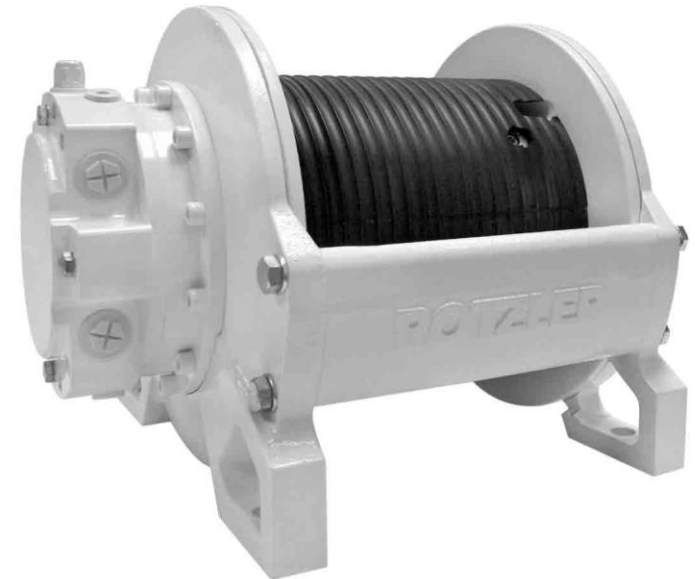
ROTZLER TITAN TH 1 – TH 5 winches

ROTZLER TITAN TC 1 – TC 5 winches

ROTZLER hoisting accessories



- Compact dimensions and light weight
- Quick and simple installation
- Flexibility to cater for many different applications
- Long product service life and low maintenance
- Complete range of accessories
- Reliable quality, assured by Rotzler's unique test center
- Extensive range of winches with hoisting forces of 10 kN to 57 kN



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2. General Descriptions

Designated use

The Rotzler TITAN winches belong to the group of hoisting winches. The use as determined is hoisting and lowering of loads as specified for each winch type and under the attention of the given installation regulations as well as of the safety notes. Any other use is prohibited. Passenger transport with a. m. winches is prohibited. The use as determined also includes the related equipment manufacturer's recommendations regarding installation, operation and maintenance.

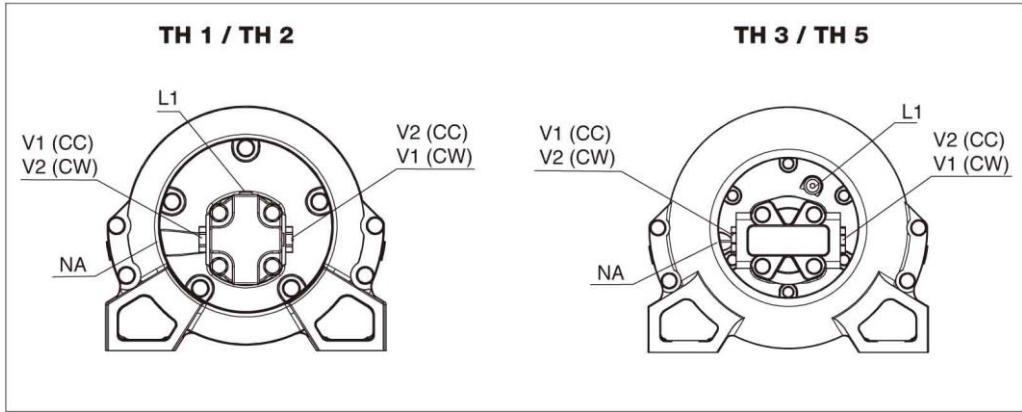
No structural modifications or changes may be done on the unit. Only original spare parts of ROTZLER may be used. The operator has the duty to observe the instructions given in the operating manual and maintenance manual.

Theoretical using time

Drive group	M3
class of operating time:	T3
theoretical using time (years):	12,8 - 6,4
at an average, daily operat. time (h):	0,5 - 1,0
calc. total operating time (h):	1600
load spectrum:	L2
hours of full line pull (h):	400

3. Specifications

Connections TH



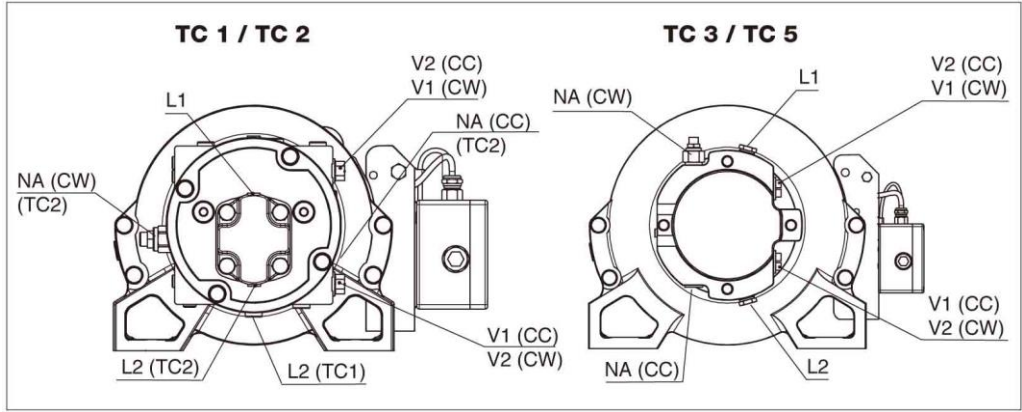
Connections / max. permissible pressures

Note:
V1 = return oil connection for direction „ROPE IN“
V2 = pressure oil connection for direction „ROPE IN“
L1 = case drain connection
You can find the permissible values for the maximum return flow pressure (pYmax) in the bottom chart.

	TH 1	TH 2	TH 3	TH 5
V1 / V2	7/8" – 14	1 5/16" – 12	1 5/8" – 12	1 5/8" – 12
NA (ext. brake release port)*	7/16" – 20	7/16" – 20	7/16" – 20	7/16" – 20
L1 case drain connection	7/16" – 20	7/16" – 20	3/4" – 16	3/4" – 16

* optional

Connections TC



Connections / max. permissible pressures

Note:
V1 = return oil connection for direction „ROPE IN“
V2 = pressure oil connection for direction „ROPE IN“
L1 / L2 = case drain connection
You can find the permissible values for the maximum pressure values in the bottom chart.

	TC 1	TC 2 / TC 2L	TC 3	TC 5
V1 / V2	G 1/2"	G 3/4"	G 1" - 11 / BSPP	G 1" - 11 / BSPP
NA (ext. brake release port)*	-	G 1/4"	G 1/4" - 19 / BSPP	G 1/4" - 19 / BSPP
L1	7/16 – 20	G 1/4"	G 1/2" - 14 / BSPP	G 1/2" - 14 / BSPP
L2	G 1/4"	G 1/4"	G 1/2" - 14 / BSPP	G 1/2" - 14 / BSPP

* optional

3. Specifications

Ambient conditions

Temperature range

The ROTZLER TITAN winches are designed for operation in a temperature range/ambient temperature of -30 °C up to +60 °C. Please contact Rotzler regarding extreme temperatures, vibrations, jerks, sand, dust, sea water or any other extreme environmental conditions.

Fluids

Gear oil specification

Before delivery the ROTZLER TITAN hoisting winches were filled with a usual gear oil (SAE80W-90-API-GL5)

Specification	SAE 80W-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

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

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. The optimal operating viscosity recommended by us is visopt. = 50 mm²/s (cSt).

Viscosity limits

The following viscosity limits apply: vismin. > 10 mm²/s (cSt) short term at a max. permissible leakage oil temperature of Tmax. = +90° C. vismax. < 1000 mm²/s (cSt) short term on cold start.

Recommended hydraulic oil / fields of application

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

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 lose their sealing characteristics. Further the durability of the hydraulic oil will be reduced, in case the oil temperature of + 60° C is exceeded. vismax < 1000 mm²/s (cSt) short term on cold start.

4. Performance Data, Dimensions, Order Codes

Motor

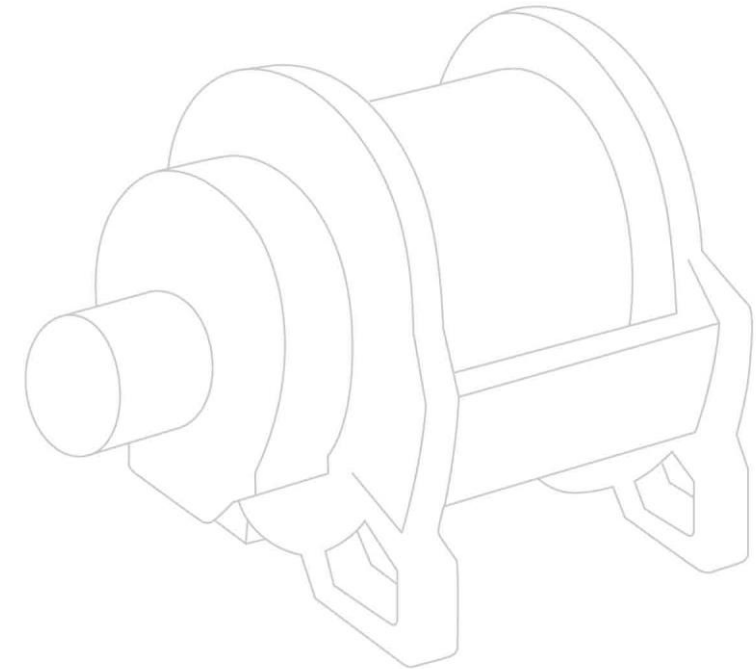
	motor G010		motor G016		motor G019	
maximum pressure	4000 psi	275 bar*	2600 psi	175 bar*	2100 psi	150 bar*
maximum return flow pressure	300 psi	20 bar	300 psi	20 bar	300 psi	20 bar
maximum back pressure	75 psi	5 bar	75 psi	5 bar	75 psi	5 bar
maximum case drain pressure	300 psi	20 bar	300 psi	20 bar	300 psi	20 bar
maximum oil flow	6.5 USGPM	25 l/min	11 USGPM	39 l/min	13 USGPM	46 l/min
minimum oil flow	1.6 USGPM	6 l/min	2.6 USGPM	10 l/min	2.6 USGPM	10 l/min
weight (drum 153)	126 lbs	57 kg	126 lbs	57 kg	126 lbs	57 kg

*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

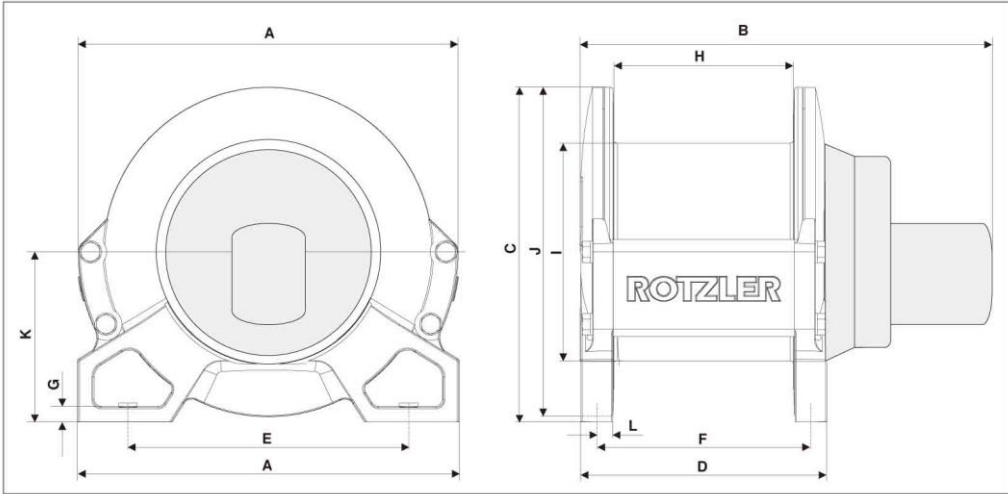
DRUM options		standard drum				
rope diameter range		3/16" - 3/8" / 5 - 9 mm				
imperial data based on rope diameter		5/16"				
metric data based on rope diameter		8 mm				
rope layer		1	2	3	4	5
max. hoisting force	lbs	2300	2000	1900	1700	1600
	kN	10	9	8.5	7.5	7
max. rope speed	ft/min	125	135	148	158	167
	m/min	38	41	45	48	51
accumulated rope storage	ft	34	72	112	155	200
	m	10	21	33	45	58

DRUM groove options		standard drum			
rope diameter		8 mm			
rope layer		1	2	3	4
max. hoisting force	lbs	2200	1900	1700	1700
	kN	9.5	8.5	8	7.5
max. rope speed	ft/min	131	141	154	164
	m/min	40	43	47	50
accumulated rope storage	ft	33	72	112	154
	m	10	22	34	47

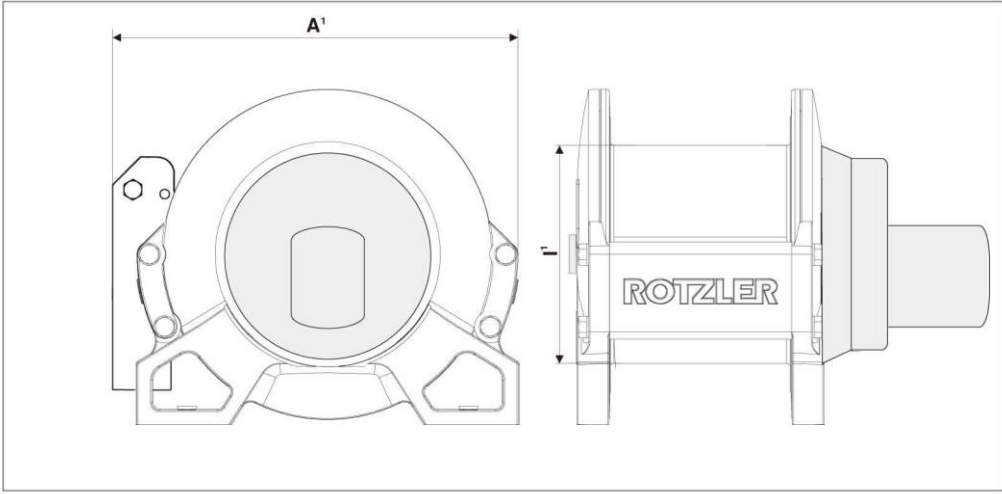


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor G010 / standard drum	A	A ¹	B	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	12.6	13.46	15.5	11.0	8.5	9.0	7.2	0.5	6.0	7.0	7.4	10.6	5.6	0.6
dimensions metric (max.) – mm	320	342	400	280	215	230	184	12.7	153	178	187.8	270	141	15.5
motor G016 / standard drum	A	A ¹	B	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	12.4	13.46	16.1	11.0	8.5	9.0	7.2	0.5	6.0	7.0	7.4	10.6	5.6	0.6
dimensions metric (max.) – mm	320	342	410	280	215	230	184	12.7	153	178	187.8	270	141	15.5
motor G019 / standard drum	A	A ¹	B	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	12.6	13.46	16.3	11.0	8.5	9.0	7.2	0.5	6.0	7.0	7.4	10.6	5.6	0.6
dimensions metric (max.) – mm	320	342	415	280	215	230	184	12.7	153	178	187.8	270	141	15.5

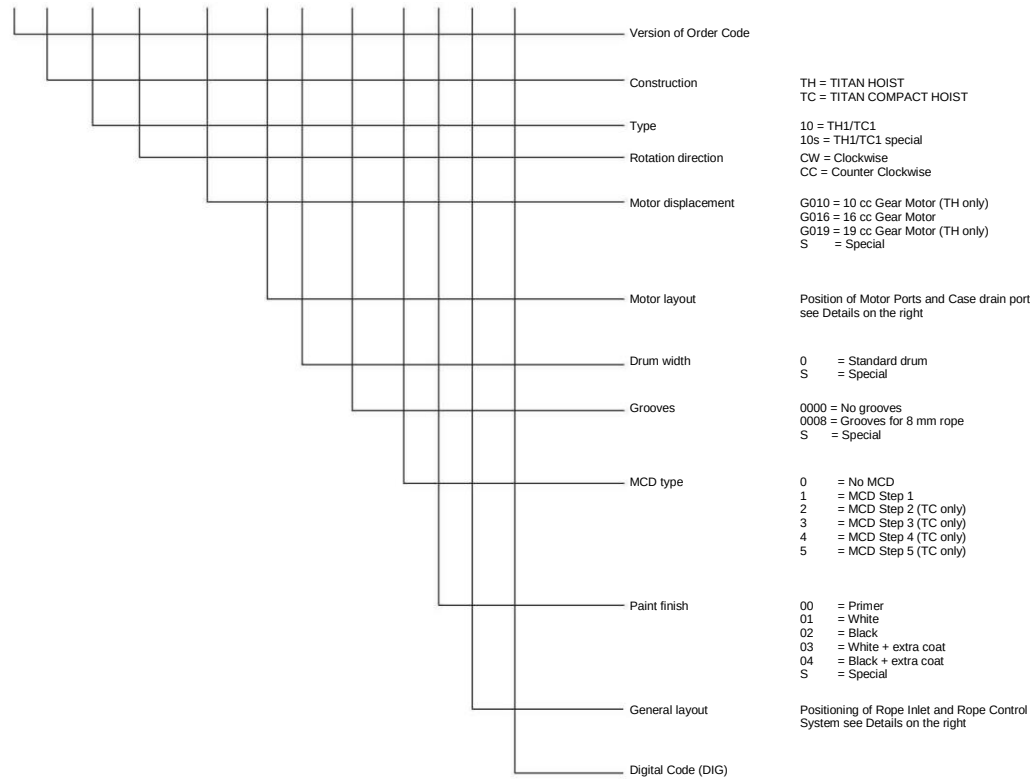
A¹ = with MCD 1 / pressure roller
I¹ = with grooves

4. Performance Data, Dimensions, Order Codes

TITAN TH 1 TH 2 TH 3 TH 5 TC 1 TC 2 TC 3 TC 5 winches

Order code

2.TH.10.CC.G016.00.0.0000.0.00.0.DIG



Binary Code	parameter
1	0 Without Counterbalance Valve
	1 With Counterbalance Valve (TC only)
2	0 Standard fasteners
	1 Stainless fasteners
4	0 Without Pressure Roller
	1 With Pressure Roller
8	0 Without External Brake Release
	1 With External Brake Release (TC)
16	0 Without External Brake Release
	1 With External Brake Release (TH)
32	0 With gear oil
	1 Without gear oil
...	...

General Layout

0 = No Roller / No MCD

1 = CC, Rope underwound

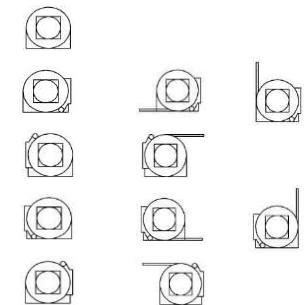
2 = CC, Rope overwound

3 = CW, Rope underwound

4 = CW, Rope overwound

Without rope

With rope

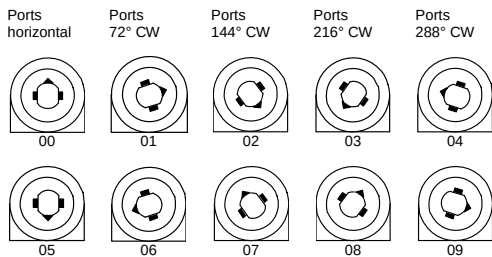


Motor Layout

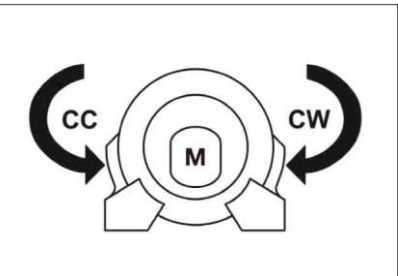
TITAN TH

End Cover standard

End Cover rotated



■ Motorports ▲ Case drain ports



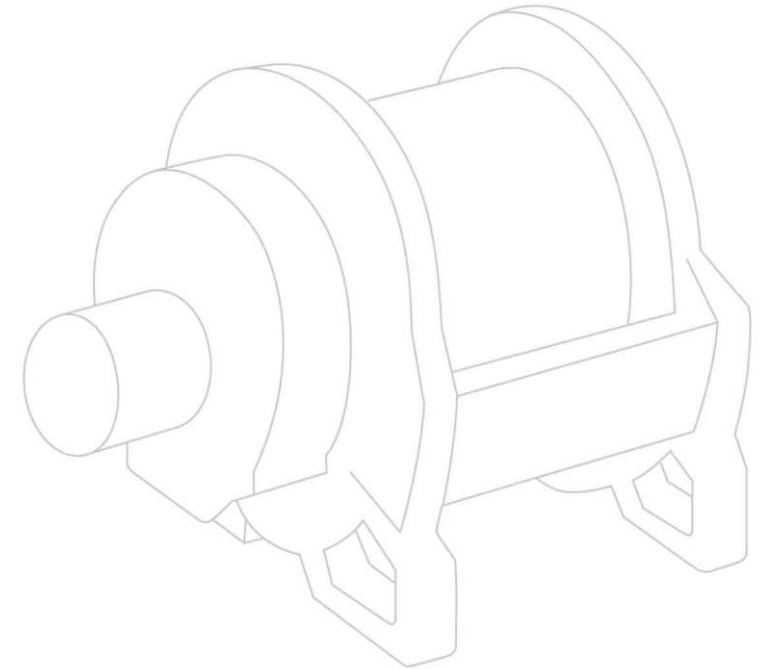
cc = counter clockwise
cw = clockwise
M = motor

4. Performance Data, Dimensions, Order Codes

Motor

	motor G019		motor G031	
maximum pressure	4000 psi	275 bar**	2600 psi	170 bar*
maximum return flow pressure	300 psi	20 bar	300 psi	20 bar
maximum back pressure	75 psi	5 bar	75 psi	5 bar
maximum case drain pressure	300 psi	20 bar	300 psi	20 bar
maximum oil flow	14 USGPM	51 l/min	22 USGPM	83 l/min
minimum oil flow	4 USGPM	12 l/min	6 USGPM	20 l/min
weight (drum 180)	170 lbs	77 kg	170 lbs	77 kg

*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.



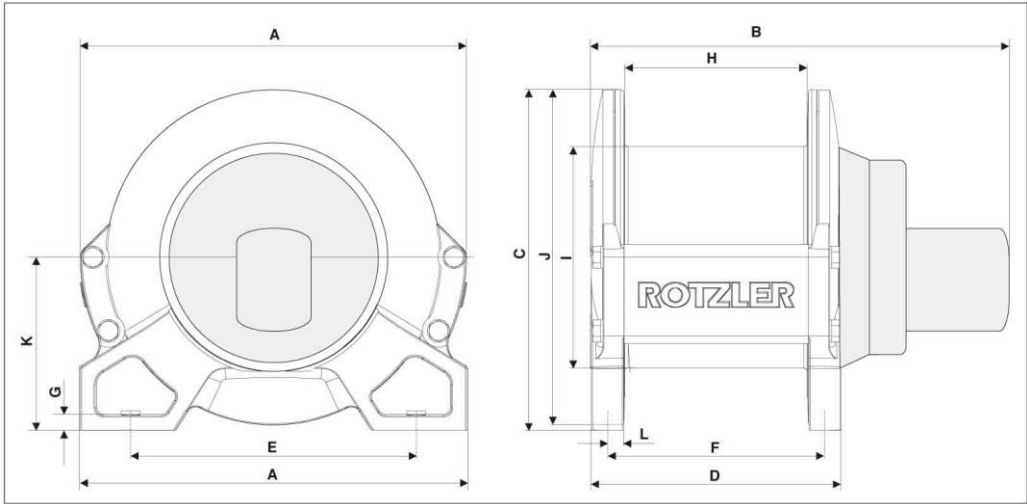
Drum

DRUM options		standard drum					
rope diameter range		1/4" - 1/2" / 6 - 12 mm					
imperial data based on rope diameter		3/8"					
metric data based on rope diameter		10 mm					
rope layer		1	2	3	4	5	
max. hoisting force	lbs	4500	4100	3700	3500	3200	
	kN	20	18	16.5	15	14	
max. rope speed	ft/min	132	144	157	169	182	
	m/min	40	44	48	52	56	
accumulated rope storage	ft	37	77	120	166	215	
	m	10	21	34	47	61	

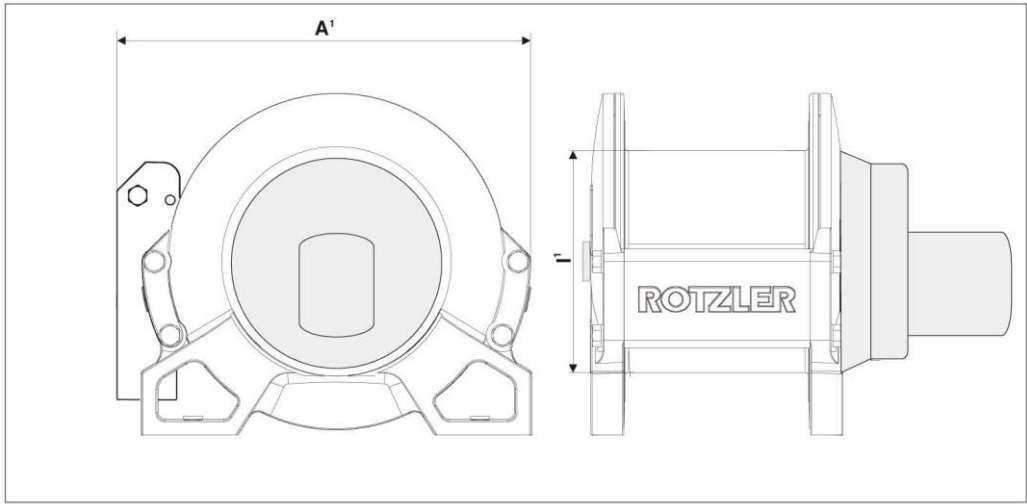
DRUM groove options		standard drum				
rope diameter		10 mm				
rope layer		1	2	3	4	
max. hoisting force	lbs	4300	3900	3600	3300	
	kN	19	17	16	14.5	
max. rope speed	ft/min	138	151	164	177	
	m/min	42	46	50	54	
accumulated rope storage	ft	33	72	114	160	
	m	10	22	35	49	

4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor G019 / standard drum	A	A¹	B	C	D	E	F	G	H	I	I¹	J	K	L
dimensions imperial (max.) – inches	13.8	15.0	17.7	11.8	10.1	9.8	8.6	0.6	7.1	7.5	7.7	11.5	6.0	0.7
dimensions metric (max.) – mm	350	380	450	300	256	248	219	14	180	190.5	200.5	292	152	17.6
motor G031 / standard drum	A	A¹	B	C	D	E	F	G	H	I	I¹	J	K	N
dimensions imperial (max.) – inches	13.8	15.0	18.5	11.8	10.1	9.8	8.6	0.6	7.1	7.5	7.9	11.5	6.0	0.7
dimensions metric (max.) – mm	350	380	470	300	256	248	219	14	180	190.5	200.5	292	152	17.6

A¹ = with MCD 1 / pressure roller

I¹ = with grooves

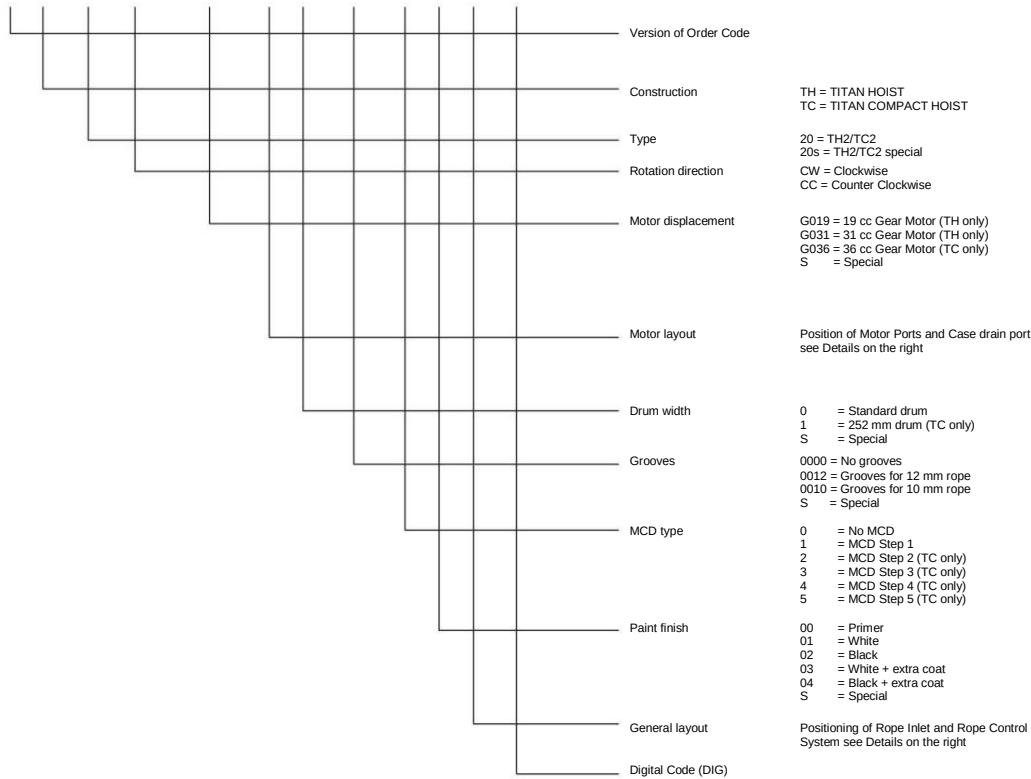
ROTZLER TITAN Hoisting winches – Technical product information
07.15 Technical data are subject to change without notice.

4. Performance Data, Dimensions, Order Codes

TITAN TH 1 TH 2 TH 3 TH 5 TC 1 TC 2 TC 3 TC 5 winches

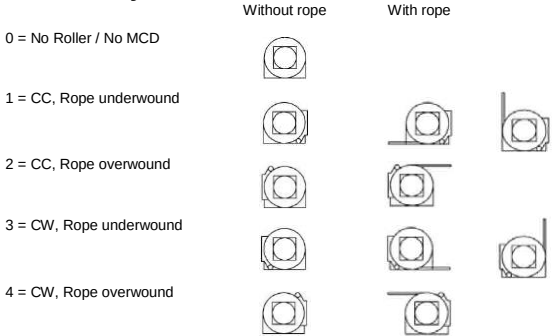
Order code

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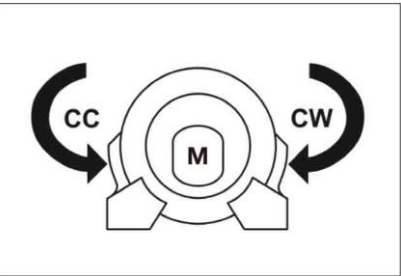
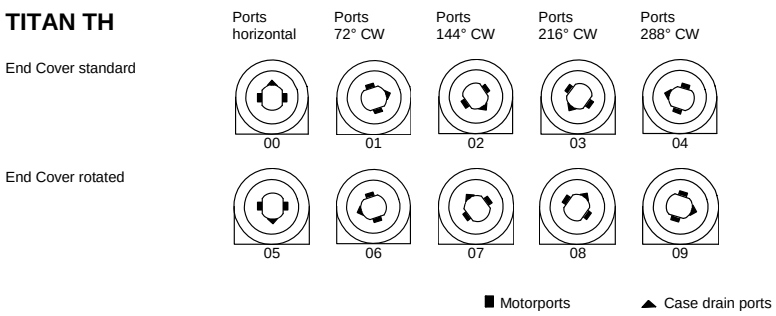


Binary Code	parameter
1	0 Without Counterbalance Valve
	1 With Counterbalance Valve (TC only)
2	0 Standard fasteners
	1 Stainless fasteners
4	0 Without Pressure Roller
	1 With Pressure Roller
8	0 Without External Brake Release
	1 With External Brake Release (TC)
16	0 Without External Brake Release
	1 With External Brake Release (TH)
32	0 With gear oil
	1 Without gear oil
...	...

General Layout



Motor Layout



4. Performance Data, Dimensions, Order Codes

Motor

motor G057

maximum pressure	3300 psi	225 bar*
maximum return flow pressure	200 psi	14 bar
maximum back pressure	60 psi	4 bar
maximum case drain pressure	200 psi	14 bar
maximum oil flow	40 USGPM	150 l/min
minimum oil flow	6 USGPM	20 l/min
weight (drum 230)	400 lbs	181 kg

*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

DRUM options

standard drum

rope diameter range	3/8" - 5/8" / 10 - 16 mm				
imperial data based on rope diameter	9/16"				
metric data based on rope diameter	14 mm				
rope layer		1	2	3	4
max. hoisting force	lbs	9200	8400	7700	7100
	kN	41	37	34	32
max. rope speed	ft/min	144	158	172	186
	m/min	44	48	52	56
accumulated rope storage	ft	45	95	148	206
	m	14	29	46	63

DRUM groove options

standard drum grooved

rope diameter	14 mm			
rope layer		1	2	3
max. hoisting force	lbs	8700	8000	7400
	kN	39	35	33
max. rope speed	ft/min	152	166	179
	m/min	46	50	54
accumulated rope storage	ft	47	99	154
	m	14	30	47

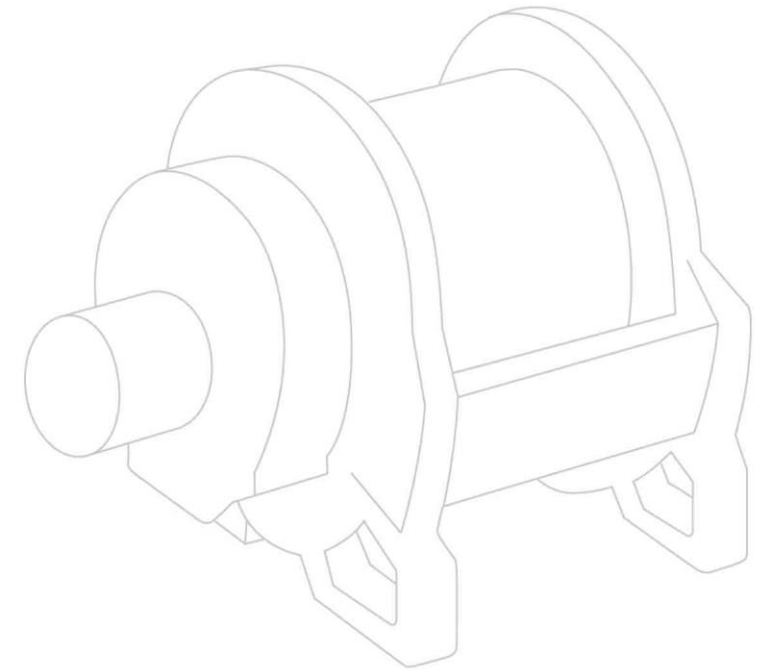
drum 309

drum 309 grooved

standard drum grooved

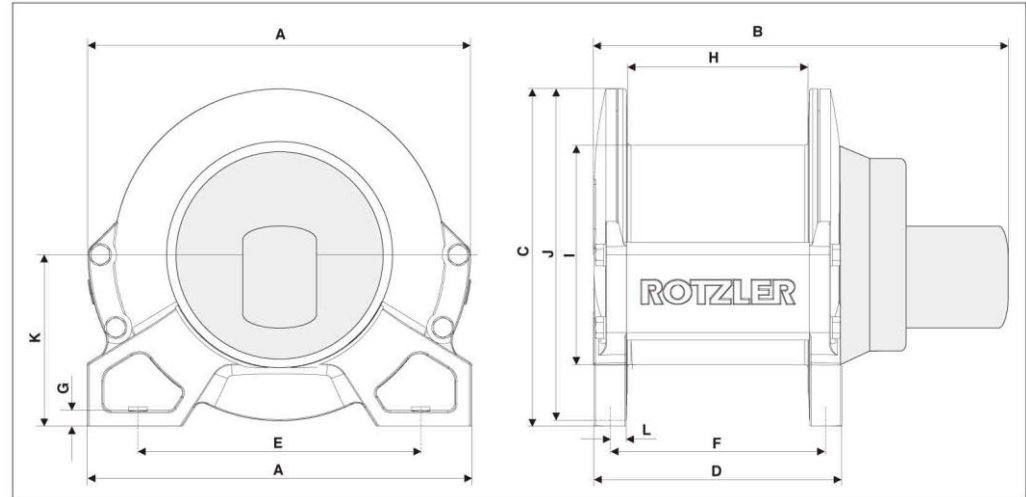
drum 309 grooved

*Rope increased minimum breaking force

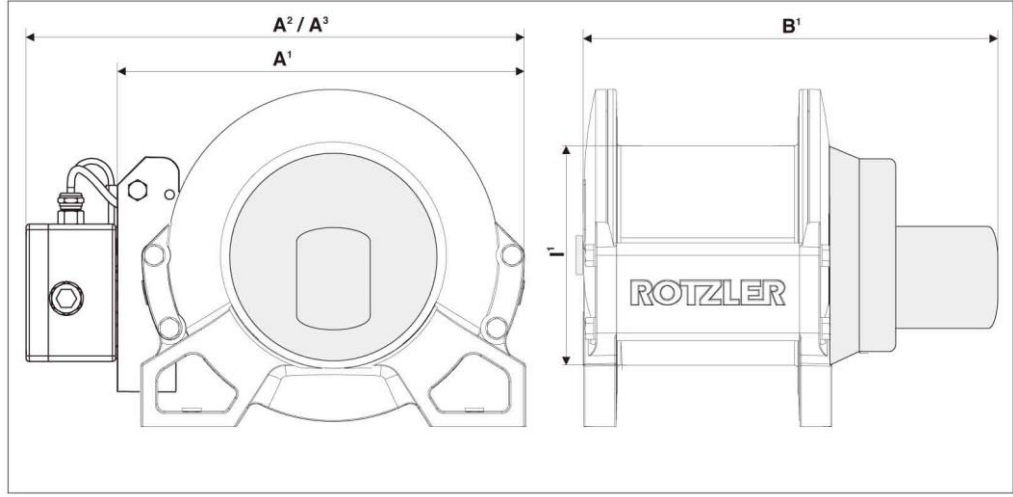


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor G057 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.5	20.4	23.5	22.6	20.7	21.1	17.0	12.7	14.2	10.8	0.8	9.0	11	11.6	16.7	8.6	0.8
dimensions metric (max.) – mm	495	517	597	575	526	536	433	323	360.7	275.3	20.4	228.5	279.4	295.4	423.4	218	20.3

motor G057 / 309 drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.5	20.4	23.5	22.6	20.7	21.1	17.0	12.7	14.2	10.8	0.8	9.0	11	11.6	16.7	8.6	0.8
dimensions metric (max.) – mm	495	517	597	575	526	536	433	323	360.7	275.3	20.4	228.5	279.4	295.4	423.4	218	20.3

A¹ = with MCD 1 / pressure roller
A² = with MCD step 2, 3
A³ = with MCD step 4, 5
B¹ = with MCD step 2, 3, 4 or 5
I¹ = with grooves

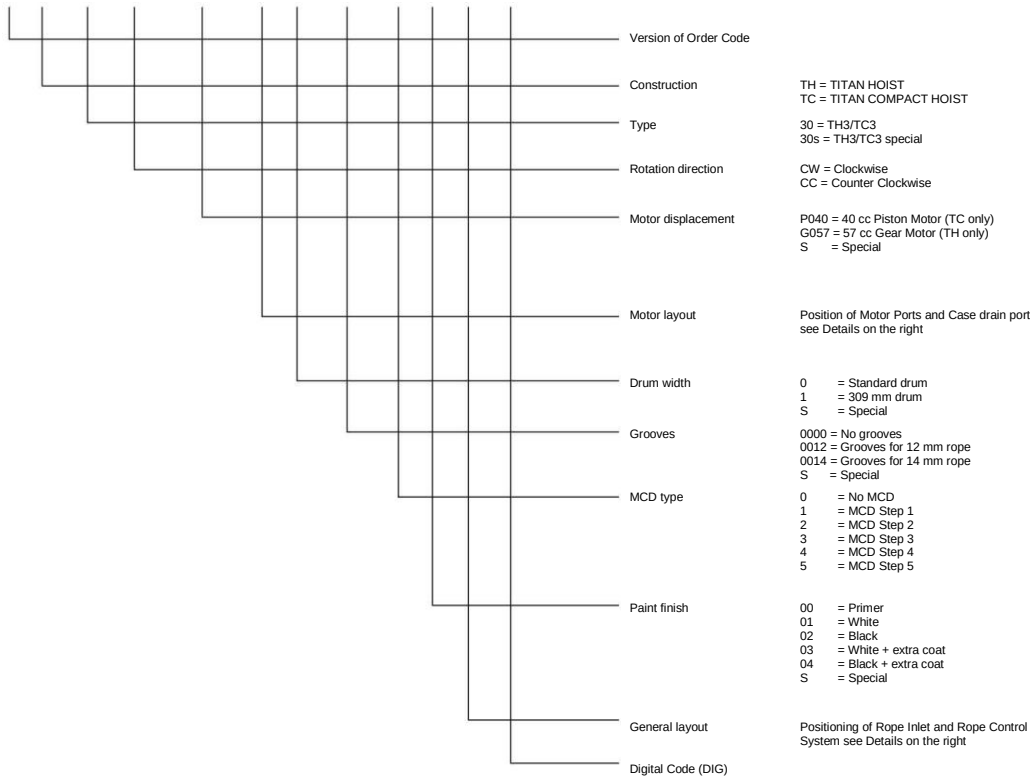
ROTZLER TITAN Hoisting winches – Technical product information
07.15 Technical data are subject to change without notice.

4. Performance Data, Dimensions, Order Codes

TITAN TH 1 TH 2 TH 3 TH 5 TC 1 TC 2 TC 3 TC 5 winches

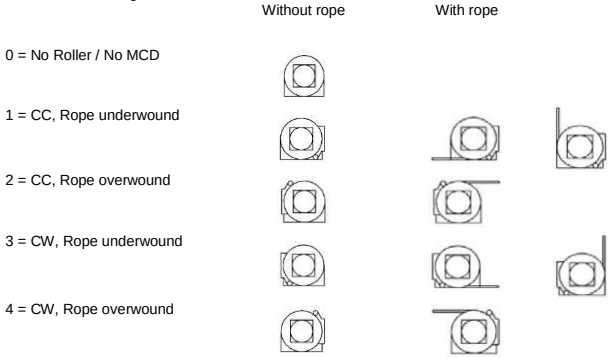
Order code

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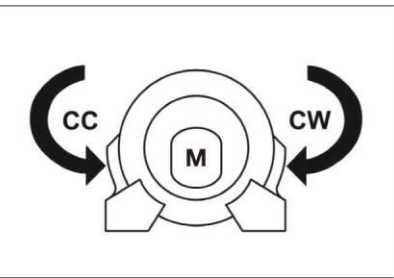
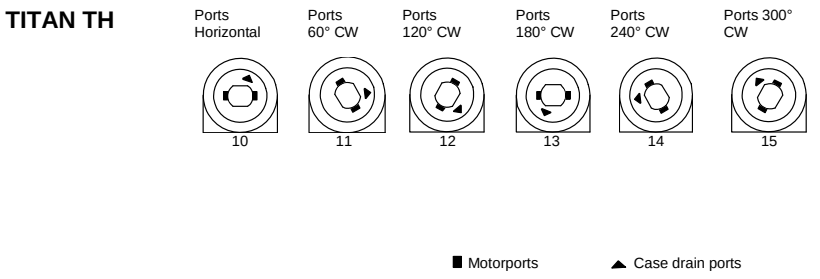


Binary Code	Parameter
1	0 Without Counterbalance Valve
1	1 With Counterbalance Valve (TC only)
2	0 Standard fasteners
2	1 Stainless fasteners
4	0 Without Pressure Roller
4	1 With Pressure Roller
8	0 Without External Brake Release
8	1 With External Brake Release (TC)
16	0 Without External Brake Release
16	1 With External Brake Release (TH)
32	0 With gear oil
32	1 Without gear oil
...	...

General Layout



Motor Layout



4. Performance Data, Dimensions, Order Codes

Motor

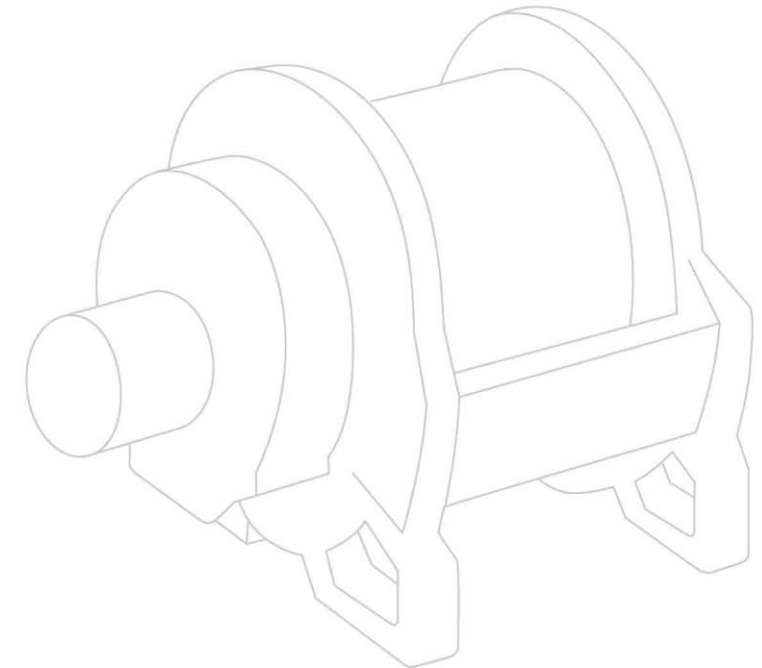
	motor G096		motor G0107	
maximum pressure	2700 psi	185 bar*	2500 psi	175 bar*
maximum return flow pressure	200 psi	14 bar	200 psi	14 bar
maximum back pressure	175 psi	12 bar	175 psi	12 bar
maximum case drain pressure	200 psi	14 bar	200 psi	14 bar
maximum oil flow	69 USGPM	260 l/min	77 USGPM	289 l/min
minimum oil flow	7 USGPM	27 l/min	7 USGPM	27 l/min
weight (drum 309)	421 lbs	191 kg	421 lbs	191 kg

*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

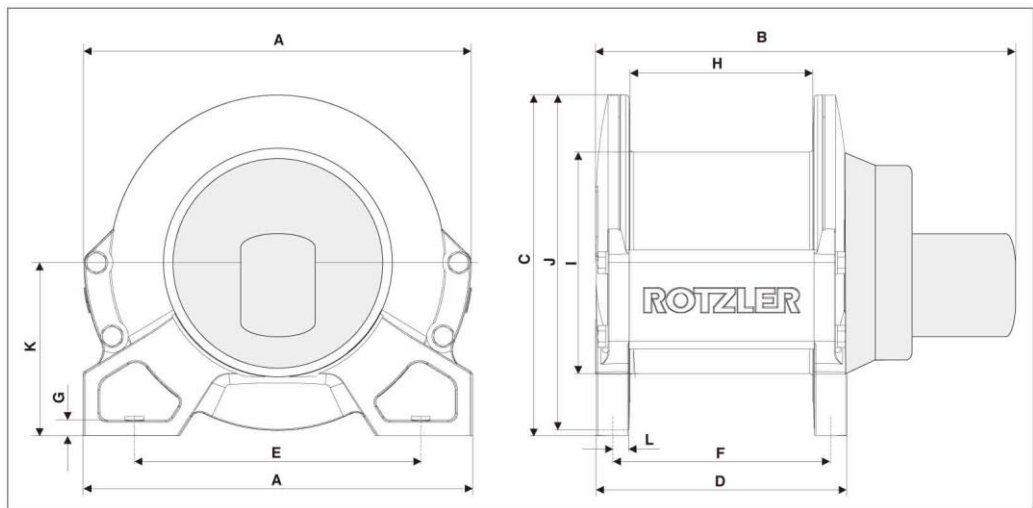
DRUM options		standard drum			
rope diameter range		3/8" - 5/8" / 10 - 16 mm			
imperial data based on rope diameter		5/8"			
metric data based on rope diameter		16 mm			
rope layer		1	2	3	4
max. hoisting force	lbs	13000	11700	10600	9800
	kN	57	52	47	43
max. rope speed	ft/min	144	159	175	191
	m/min	44	49	54	58
accumulated rope storage	ft	56	117	183	255
	m	17	35	55	77

DRUM groove options		standard drum			
rope diameter		16 mm			
rope layer		1	2	3	
max. hoisting force	lbs	12300	11100	10200	
	kN	54	49	45	
max. rope speed	ft/min	152	167	183	
	m/min	46	51	56	
accumulated rope storage	ft	56	117	183	
	m	17	35	55	

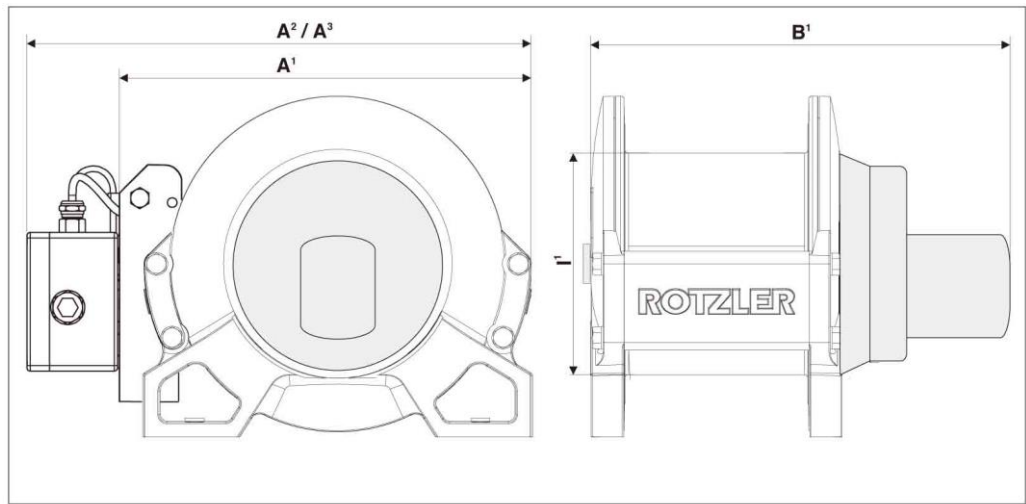


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor G096 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.9	20.4	23.5	22.6	25.1	25.5	17.1	15.6	14.2	13.8	0.8	12.2	11.0	11.6	16.7	8.6	0.9
dimensions metric (max.) – mm	505	517	597	575	636	646	433	395	360.7	351.5	20.4	309.4	279.4	295.4	424.4	218	20.3
motor G0107 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.9	20.4	23.5	22.6	25.4	25.8	17.1	15.6	14.2	13.8	0.8	12.2	11.0	11.7	16.7	8.6	0.9
dimensions metric (max.) – mm	505	517	597	575	645	655	433	395	360.7	351.5	20.4	309.4	279.4	295.4	423.4	218	20.3

A¹ = with MCD 1 / pressure roller
A² = with MCD step 2 or 3
A³ = with MCD step 4 or 5
B¹ = with MCD step 2, 3, 4 or 5
I¹ = with grooves

ROTZLER TITAN Hoisting winches – Technical product information
07.15 Technical data are subject to change without notice.

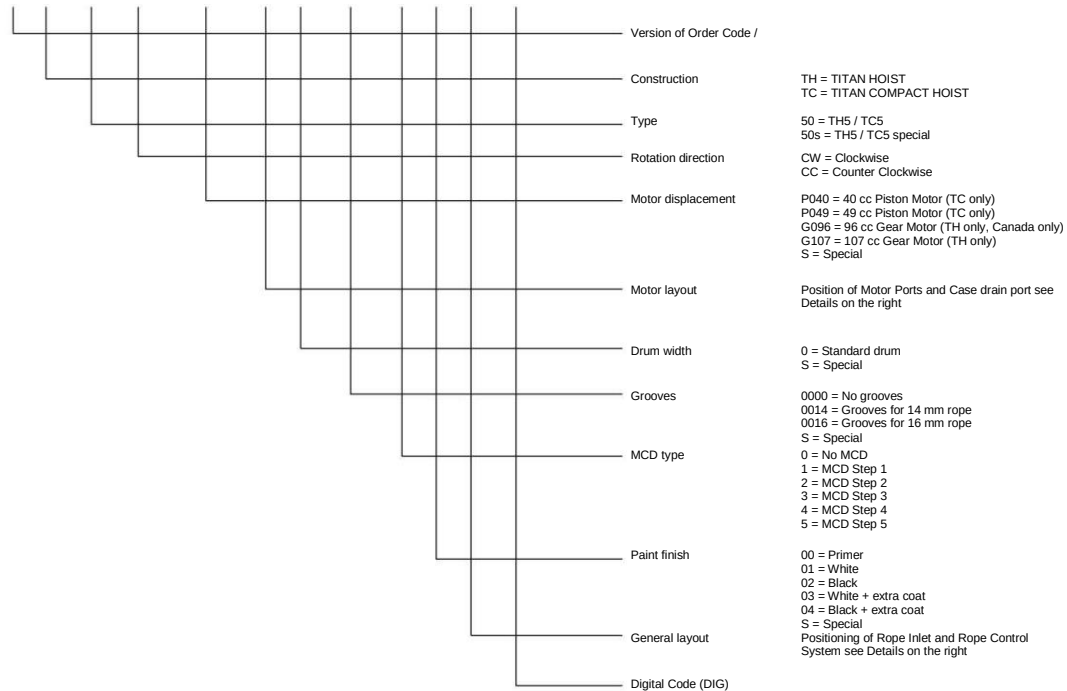
4. Performance Data, Dimensions, Order Codes

TITAN TH 1 TH 2 TH 3 TH 5 TC 1 TC 2 TC 3 TC 5 winches

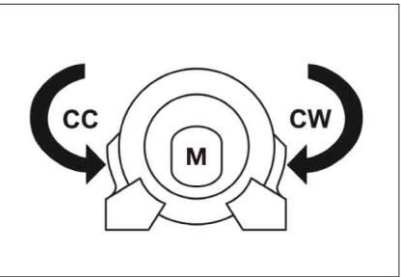
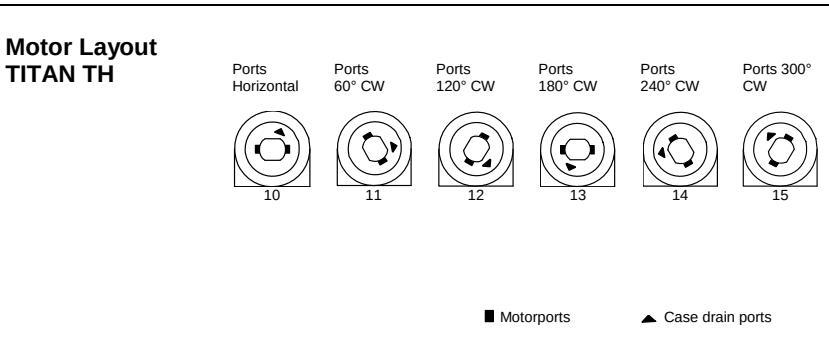
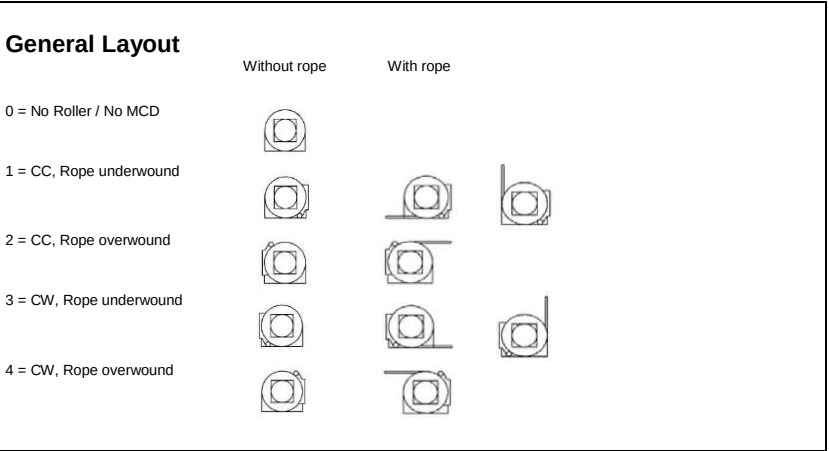
18

Order code

2.TH.50.CC.G096.00.0.0000.0.00.0.DIG



Binary Code	parameter
1	0 Without Counterbalance Valve
	1 With Counterbalance Valve (TC only)
2	0 Standard fasteners
	1 Stainless fasteners
4	0 Without Pressure Roller
	1 With Pressure Roller
8	0 Without External Brake Release
	1 With External Brake Release (TC)
	1 With External Brake Release (TH)
16	0 Without External Brake Release
	1 With External Brake Release (TH)
32	0 With gear oil
	1 Without gear oil
...	...



4. Performance Data, Dimensions, Order Codes

Motor

motor G016

maximum pressure	3200 psi	220 bar*
maximum return flow pressure	300 psi	20 bar
maximum back pressure	75 psi	5 bar
maximum case drain pressure	300 psi	20 bar
maximum oil flow	11 USGPM	40 l/min
minimum oil flow	2.6 USGPM	10 l/min
weight (drum 153)	110 lbs	50 kg

*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

DRUM options

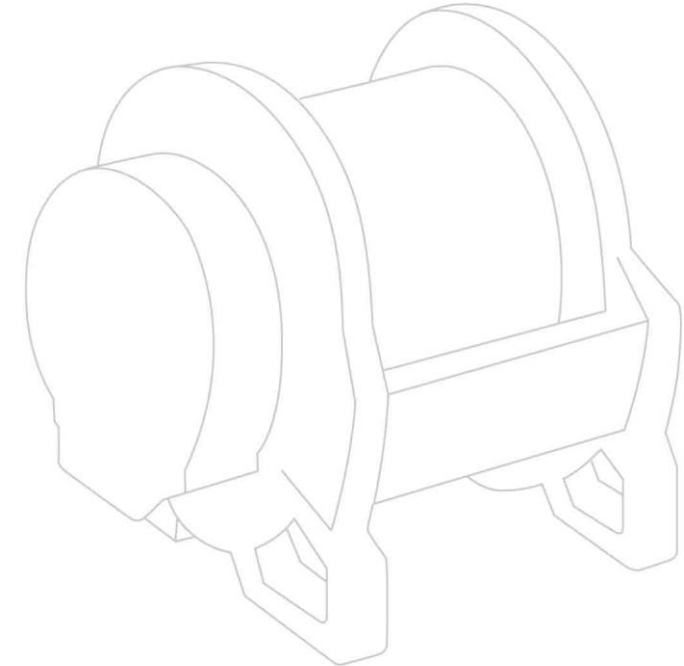
standard drum

rope diameter range		3/16" - 3/8" / 5 - 9 mm				
imperial data based on rope diameter		5/16"				
metric data based on rope diameter		8 mm				
rope layer		1	2	3	4	5
max. hoisting force	lbs	2800	2600	2400	2300	2100
	kN	12.5	11.5	10.5	10	9
max. rope speed	ft/min	128	141	151	164	174
	m/min	39	43	46	50	53
accumulated rope storage	ft	33	69	108	148	190
	m	10	21	33	45	58

DRUM groove options

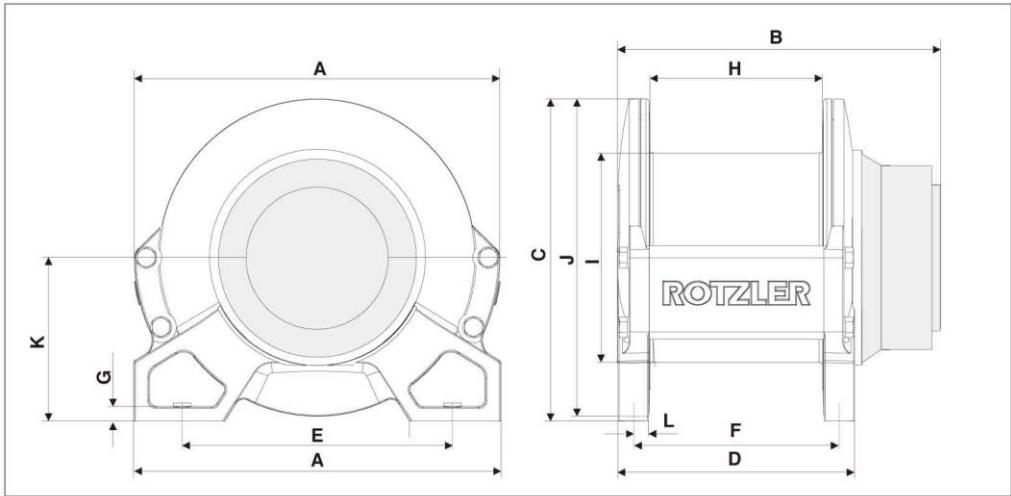
standard drum

rope diameter		8 mm			
rope layer		1	2	3	4
max. hoisting force	lbs	2600	2500	2300	2200
	kN	11.5	11	10	9.5
max. rope speed	ft/min	138	148	158	171
	m/min	42	45	48	52
accumulated rope storage	ft	33	72	112	154
	m	10	22	34	47

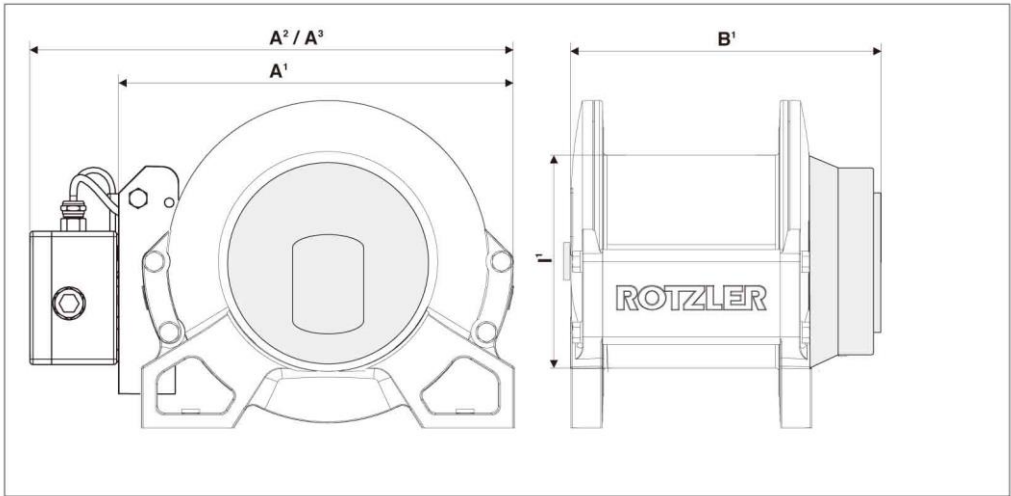


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor G016 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	12.6	13.5	16.6	15.8	11.4	11.6	11.0	8.5	9.0	7.3	0.5	6.1	7.0	7.4	10.7	5.6	0.6
dimensions metric (max.) – mm	320	342	422	400	290	300	280	215	230	184	12.7	153	178	187.8	270	141	15.5

A¹ = with MCD 1 / pressure roller
A² = with MCD step 2 or 3
A³ = with MCD step 4 or 5
B¹ = with MCD step 2, 3, 4 or 5
I¹ = with grooves

ROTZLER TITAN Hoisting winches – Technical product information
07.15 Technical data are subject to change without notice.

4. Performance Data, Dimensions, Order Codes

TITAN TH 1 TH 2 TH 3 TH 5 TC 1 TC 2 TC 3 TC 5 winches

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Order code

2.TC.10.CC.G016.00.0.0000.0.00.0.DIG

	Version of Order Code	
	Construction	TH = TITAN HOIST TC = TITAN COMPACT HOIST
	Type	10 = TH1/TC1 10s = TH1/TC1 special
	Rotation direction	CW = Clockwise CC = Counter Clockwise
	Motor displacement	G016 = 16 cc Gear Motor S = Special
	Motor layout	Position of Motor Ports and Case drain port see Details on the right
	Drum width	0 = Standard drum S = Special
	Grooves	0000 = No grooves 0008 = Grooves for 8 mm rope S = Special
	MCD type	0 = No MCD 1 = MCD Step 1 2 = MCD Step 2 (TC only) 3 = MCD Step 3 (TC only) 4 = MCD Step 4 (TC only) 5 = MCD Step 5 (TC only)
	Paint finish	00 = Primer 01 = White 02 = Black 03 = White + extra coat 04 = Black + extra coat S = Special
	General layout	Positioning of Rope Inlet and Rope Control System see Details on the right
	Digital Code (DIG)	

Binary Code	parameter
1	0 Without Counterbalance Valve 1 With Counterbalance Valve (TC only)
2	0 Standard fasteners 1 Stainless fasteners
4	0 Without Pressure Roller 1 With Pressure Roller
8	0 Without External Brake Release 1 With External Brake Release (TC) 1 With External Brake Release (TH)
16	0 Without External Brake Release 1 With External Brake Release (TH)
32	0 With gear oil 1 Without gear oil
...	...

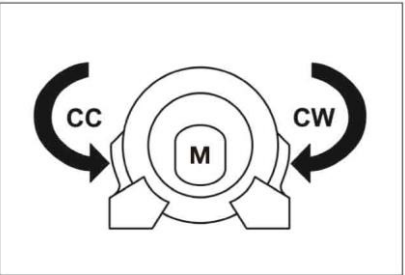
General Layout

	Without rope	With rope
0 = No Roller / No MCD		
1 = CC, Rope underwound		
2 = CC, Rope overwound		
3 = CW, Rope underwound		
4 = CW, Rope overwound		

Motor Layout TITAN TC

	Motor port left side	Motor port on top	Motor port right side	Motor port on bottom
End Cover standard (Case Drain port on top)				
End Cover rotated (Case Drain port on bottom)				

■ Motorports ▲ Case drain ports



cc = counter clockwise
cw = clockwise
M = motor

4. Performance Data, Dimensions, Order Codes

Motor

motor G036

maximum pressure	2800 psi	190 bar*
maximum return flow pressure	300 psi	20 bar
maximum back pressure	75 psi	5 bar
maximum case drain pressure	300 psi	20 bar
maximum oil flow	26 USGPM	97 l/min
minimum oil flow	6 USGMPM	20 l/min
weight (drum 180)	ca. 165 lbs	ca. 75 kg
weight (drum 252)	ca. 210 lbs	ca. 95 kg

*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

DRUM options

standard drum

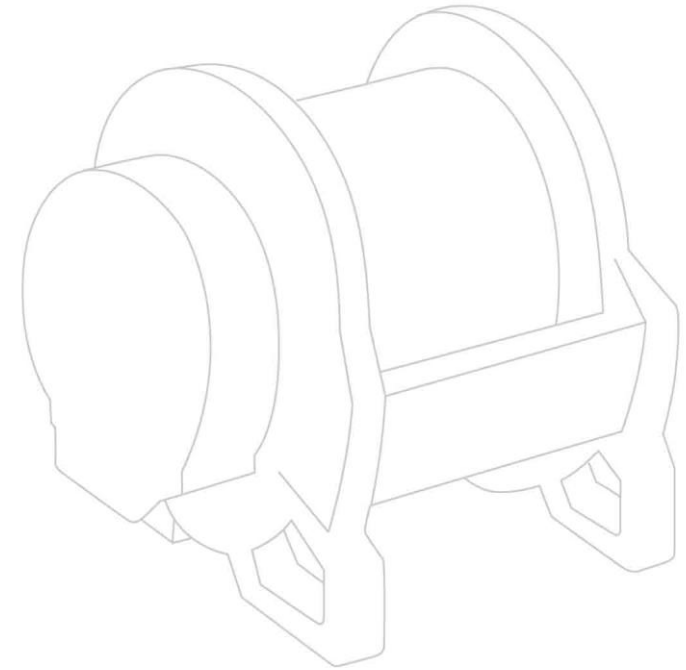
rope diameter range		1/4" - 1/2" / 6 - 12 mm				
imperial data based on rope diameter		3/8"				
metric data based on rope diameter		10 mm				
rope layer		1	2	3	4	5
max. hoisting force	lbs	6000	5400	5000	4600	4300
	kN	26	24	22	20	19
max. rope speed	ft/min	132	144	157	169	182
	m/min	40	44	48	52	56
accumulated rope storage	ft	36	76	119	165	214
	m	10	22	35	49	62

DRUM groove options

standard drum

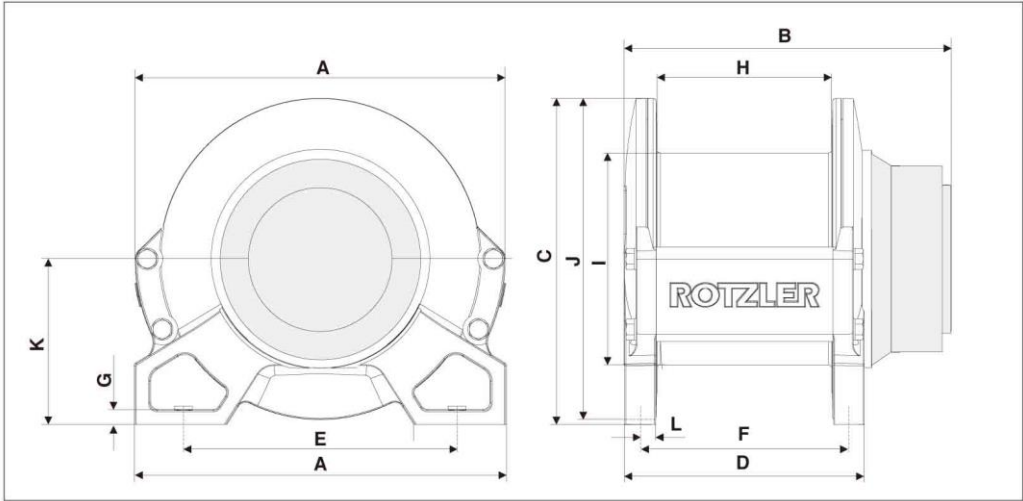
drum 252 (TC 2L)

rope diameter		10 mm						10 mm			
rope layer		1	2	3	4			1	2	3	4
max. hoisting force	lbs	5700	5200	4800	4400			5700	5200	4800	4400
	kN	25	23	21	20			25	23	21	20
max. rope speed	ft/min	139	152	165	178			139	152	165	178
	m/min	42	46	50	54			42	46	50	54
accumulated rope storage	ft	35	74	116	161			51	106	165	229
	m	10	22	34	48			15	32	50	69

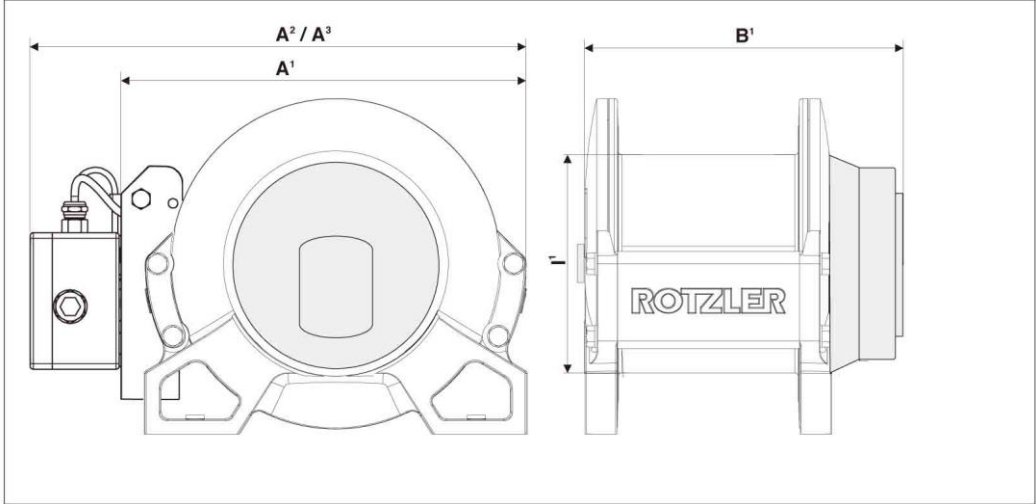


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor G036 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	13.8	15.0	18.3	17.3	14.8	15.2	11.8	10.1	9.7	8.6	0.6	7.2	7.5	7.7	11.5	6.0	0.7
dimensions metric (max.) – mm	350	380	465	440	375	385	300	256	247.5	219	14.0	180.0	190.5	200.5	292	152	17.6
motor G036 / drum 252 (TC 2L)	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	13.8	15.0	18.3	17.3	17.7	18.1	11.8	13.0	9.7	11.6	0.6	9.9	N/A	7.7	11.5	6.0	0.7
dimensions metric (max.) – mm	350	380	465	440	450	460	300	330	247.5	292.5	14.0	252	N/A	200.5	292	152	17.6

A¹ = with MCD 1 / pressure roller
A² = with MCD step 2 or 3
A³ = with MCD step 4 or 5
B¹ = with MCD step 2, 3, 4 or 5
I¹ = with grooves

4. Performance Data, Dimensions, Order Codes

Order code

2.TC.20.CC.G036.00.0.0000.0.00.0.DIG

	Version of Order Code	
	Construction	TH = TITAN HOIST TC = TITAN COMPACT HOIST
	Type	20 = TH2/TC2 20s = TH2/TC2 special
	Rotation direction	CW = Clockwise CC = Counter Clockwise
	Motor displacement	G019 = 19 cc Gear Motor (TH only) G031 = 31 cc Gear Motor (TH only) G036 = 36 cc Gear Motor (TC only) S = Special
	Motor layout	Position of Motor Ports and Case drain port see Details on the right
	Drum width	0 = Standard drum 1 = 252 mm drum (TC only) S = Special
	Grooves	0000 = No grooves 0012 = Grooves for 12 mm rope 0010 = Grooves for 10 mm rope S = Special
	MCD type	0 = No MCD 1 = MCD Step 1 2 = MCD Step 2 (TC only) 3 = MCD Step 3 (TC only) 4 = MCD Step 4 (TC only) 5 = MCD Step 5 (TC only)
	Paint finish	00 = Primer 01 = White 02 = Black 03 = White + extra coat 04 = Black + extra coat S = Special
	General layout	Positioning of Rope Inlet and Rope Control System see Details on the right
	Digital Code (DIG)	

Binary Code	Parameter
1	0 Without Counterbalance Valve 1 With Counterbalance Valve (TC only)
2	0 Standard fasteners 1 Stainless fasteners
4	0 Without Pressure Roller 1 With Pressure Roller
8	0 Without External Brake Release 1 With External Brake Release (TC)
16	0 Without External Brake Release 1 With External Brake Release (TH)
32	0 With gear oil 1 Without gear oil
...	...

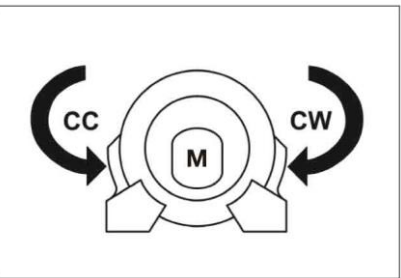
General Layout

	Without rope	With rope
0 = No Roller / No MCD		
1 = CC, Rope underwound		
2 = CC, Rope overwound		
3 = CW, Rope underwound		
4 = CW, Rope overwound		

Motor Layout TITAN TC

Motor port left side	Motor port on top	Motor port right side	Motor port on bottom
00	01	02	03

■ Motorports ▲ Case drain ports



cc = counter clockwise
cw = clockwise
M = motor

4. Performance Data, Dimensions, Order Codes

Motor

motor P040			motor P040 / drum 309		
maximum pressure	4100 psi	280 bar*	4100 psi	280 bar *	
maximum return flow pressure	200 psi	14 bar	200 psi	14 bar	
maximum back pressure	60 psi	4 bar	60 psi	4 bar	
maximum case drain pressure	25 psi	1.7 bar	25 psi	1,7 bar	
maximum oil flow	27 USGPM	100 l/min	27 USGPM	100 l/min	
minimum oil flow	6 USGPM	20 l/min	6 USGPM	20 l/min	
weight (drum 229)	373 lbs	169 kg	421 lbs	191 kg	

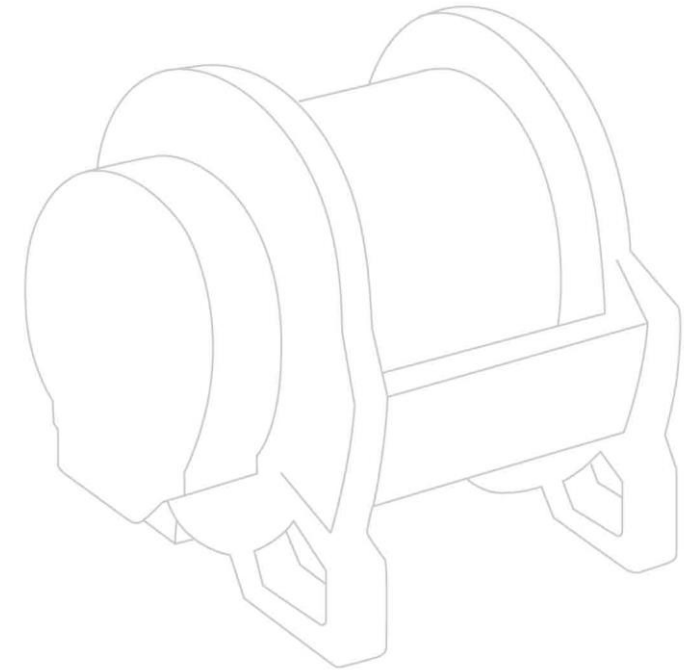
*including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

DRUM options		standard drum					drum 309				
rope diameter range		3/8" - 5/8" / 10 - 16 mm					3/8" - 5/8" / 10 - 16 mm				
imperial data based on rope diameter		9/16"					9/16"				
metric data based on rope diameter		14 mm					14 mm				
rope layer		1	2	3	4	5	1	2	3	4	5
max. hoisting force	lbs	9200	8400	7700	7100	6600	9200	8400	7700	7100	6700
	kN	41	37	34	32	29	41	37	34	32	29
max. rope speed	ft/min	144	158	172	186	197	144	158	172	186	206
	m/min	44	48	52	56	60	44	48	52	56	62
accumulated rope storage	ft	45	95	148	206	270	63	132	206	286	371
	m	14	29	46	63	82	19	40	63	87	113

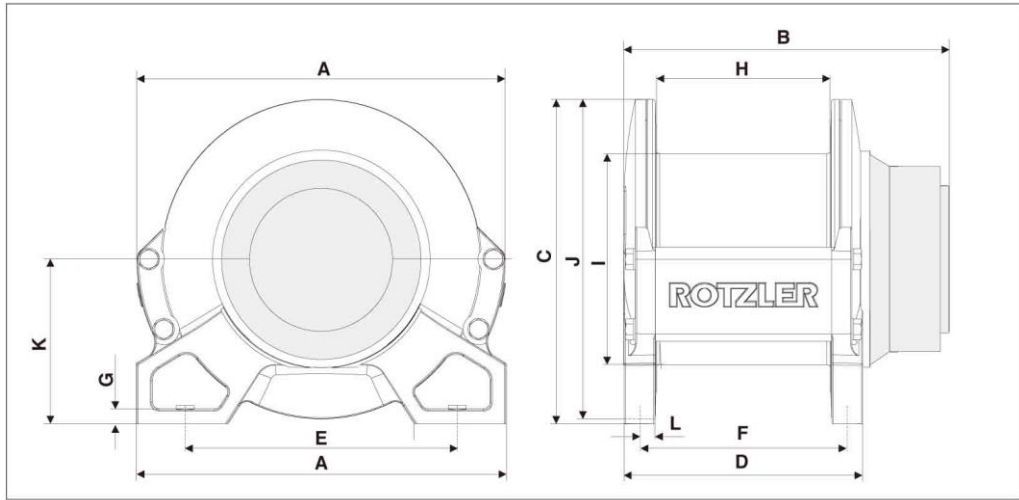
DRUM groove options		standard drum grooved					drum 309 grooved					standard drum grooved					drum 309 grooved				
rope diameter		14 mm					14 mm					12 mm*					12 mm*				
rope layer		1	2	3	4		1	2	3	4		1	2	3	4	5	1	2	3	4	5
max. hoisting force	lbs	8700	8000	7400	6800		8700	8000	7400	6800		8700	8000	7400	6800		8700	8000	7400	6800	
	kN	39	35	33	30		39	35	33	30		39	36	33	31	29	39	36	33	31	29
max. rope speed	ft/min	152	166	179	193		152	166	179	193		152	166	179	193		152	166	179	193	
	m/min	46	50	54	59		46	50	54	59		46	50	54	57	61	46	50	54	57	61
accumulated rope storage	ft	47	99	154	213		65	136	211	292		52	112	174	239	308	75	154	239	328	407
	m	14	30	47	65		20	41	64	89		16	34	53	73	94	23	47	73	100	129

*Rope increased minimum breaking force

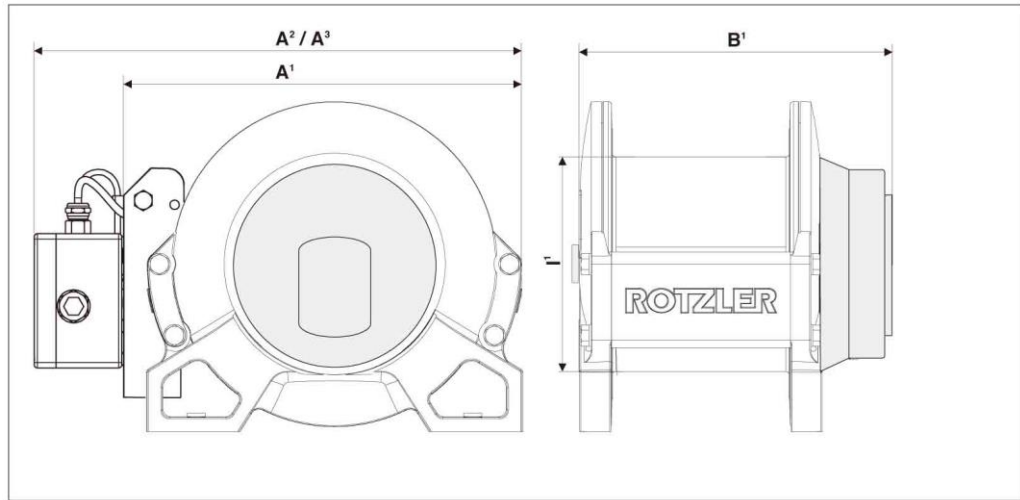


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor P040 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.5	20.4	23.5	22.6	17.1	17.5	17.1	12.7	14.2	10.8	0.8	9	11	11.6	16.7	8.6	0.8
dimensions metric (max.) – mm	495	517	597	575	435	445	433	323	360.7	275.3	20.3	228.5	279.4	295.4	423.4	218	20.3

motor P040/49 / 309 drum TC 3 L	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.9	20.4	23.5	22.6	20.1	20.5	17.1	15.6	14.2	13.8	0.8	12.2	11	11.7	16.7	8.6	0.8
dimensions metric (max.) – mm	505	517	597	575	510	520	433	395	360.7	351.5	20.4	309.4	279.4	295.4	423.4	218	20.3

A¹ = with MCD 1 / pressure roller
A² = with MCD step 2 or 3
A³ = with MCD step 4 or 5
B¹ = with MCD step 2, 3, 4 or 5
I¹ = with grooves

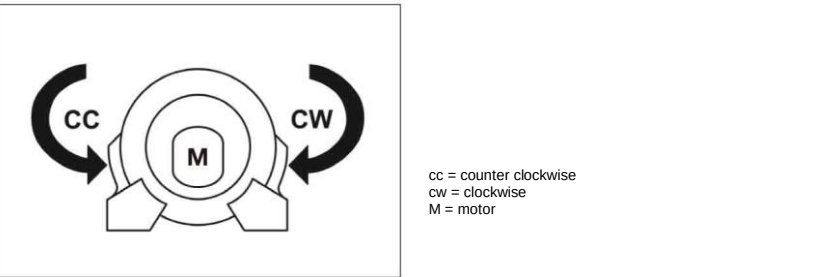
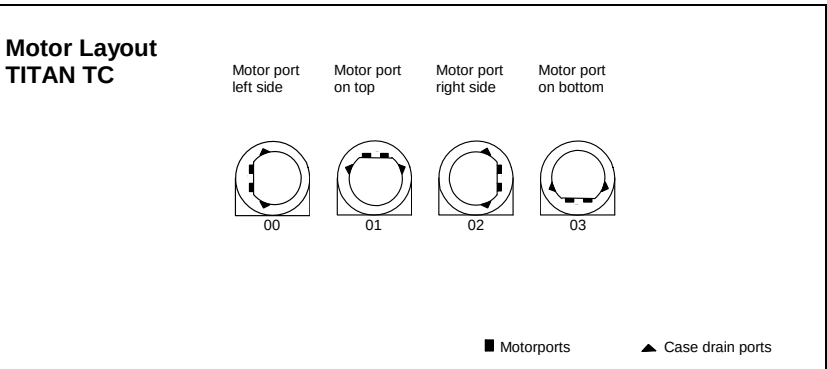
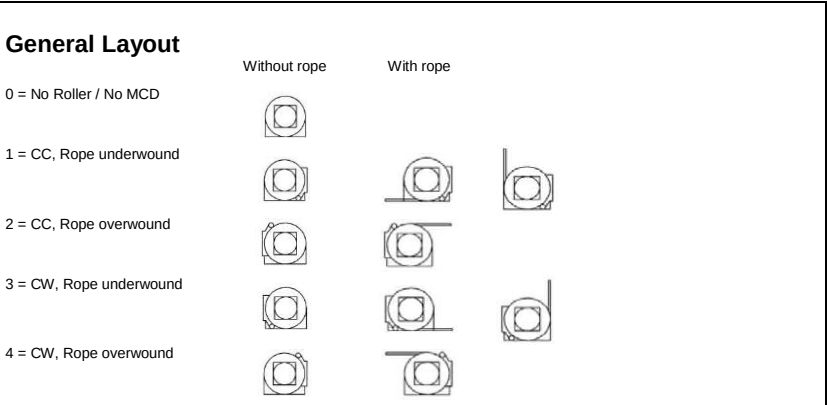
4. Performance Data, Dimensions, Order Codes

Order code

2.TC.30.CC.P040.00.0.0000.0.00.0.DIG

	Version of Order Code /	
	Construction	TH = TITAN HOIST TC = TITAN COMPACT HOIST
	Type	30 = TH3 / TC3 30s = TH3 / TC3 special
	Rotation direction	CW = Clockwise CC = Counter Clockwise
	Motor displacement	P040 = 40 cc Piston Motor (TC only) P057 = 57 cc Gear Motor (TH only) S = Special
	Motor layout	Position of Motor Ports and Case drain port see Details on the right
	Drum width	0 = Standard drum 1 = 309 mm drum S = Special
	Grooves	0000 = No grooves 0012 = Grooves for 12 mm rope 0014 = Grooves for 14 mm rope S = Special
	MCD type	0 = No MCD 1 = MCD Step 1 2 = MCD Step 2 3 = MCD Step 3 4 = MCD Step 4 5 = MCD Step 5
	Paint finish	00 = Primer 01 = White 02 = Black 03 = White + extra coat 04 = Black + extra coat S = Special
	General layout	Positioning of Rope Inlet and Rope Control System see Details on the right
	Digital Code (DIG)	

Binary Code	parameter
1	0 Without Counterbalance Valve
	1 With Counterbalance Valve (TC only)
2	0 Standard fasteners
	1 Stainless fasteners
4	0 Without Pressure Roller
	1 With Pressure Roller
8	0 Without External Brake Release
	1 With External Brake Release (TC)
16	0 Without External Brake Release
	1 With External Brake Release (TH)
32	0 With gear oil
	1 Without gear oil
...	...



4. Performance Data, Dimensions, Order Codes

Motor

motor P049

maximum pressure	4700 psi	320 bar *
maximum return flow pressure	200 psi	14 bar
maximum back pressure	75 psi	5 bar
maximum pressure drain line	25 psi	1,7 bar
maximum oil flow	32 USGPM	120 l/min
minimum oil flow	3 USGPM	11 l/min
weight (drum 309)	421 lbs	191 kg

* including 10 bar return flow pressure allowance.
For other return flow pressure values adjust maximum pressure accordingly.
For other motor variants, please refer to factory.

Drum

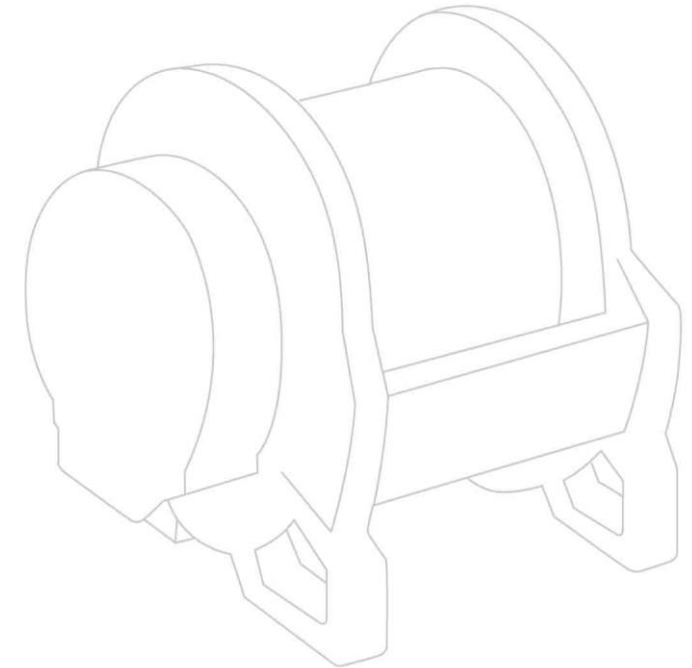
DRUM options motor P049 / standard drum

rope diameter range		3/8" - 5/8" / 10 - 16 mm			
data based on rope diameter		5/8" / 16 mm			
rope layer		1	2	3	4
max. hoisting force	lbs	13000	11700	10600	9800
	kN	57	52	47	43
max. rope speed	ft/min	144	159	175	191
	m/min	44	49	54	58
accumulated rope storage	ft	56	117	183	255
	m	17	35	55	77

DRUM groove options motor P049 / standard drum

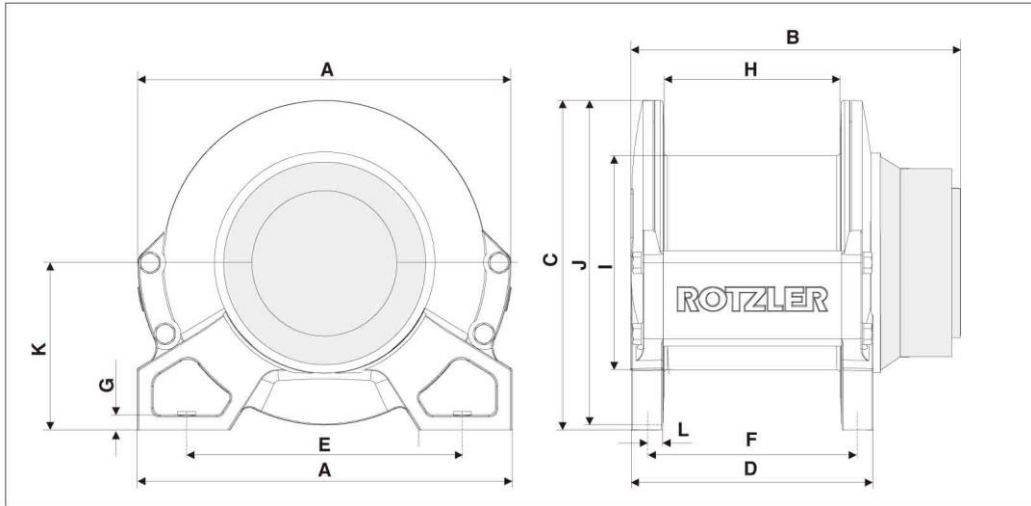
data based on rope diameter		16 mm				14 mm*			
rope layer		1	2	3		1	2	3	4
max. hoisting force	lbs	12300	11100	10200		12300	11200	10400	9600
	kN	54	49	45		54	50	46	43
max. rope speed	ft/min	152	167	183		152	166	179	193
	m/min	46	51	55		46	50	54	59
accumulated rope storage	ft	56	117	183		65	136	211	292
	m	17	35	55		20	41	64	89

* increased minimum breaking force

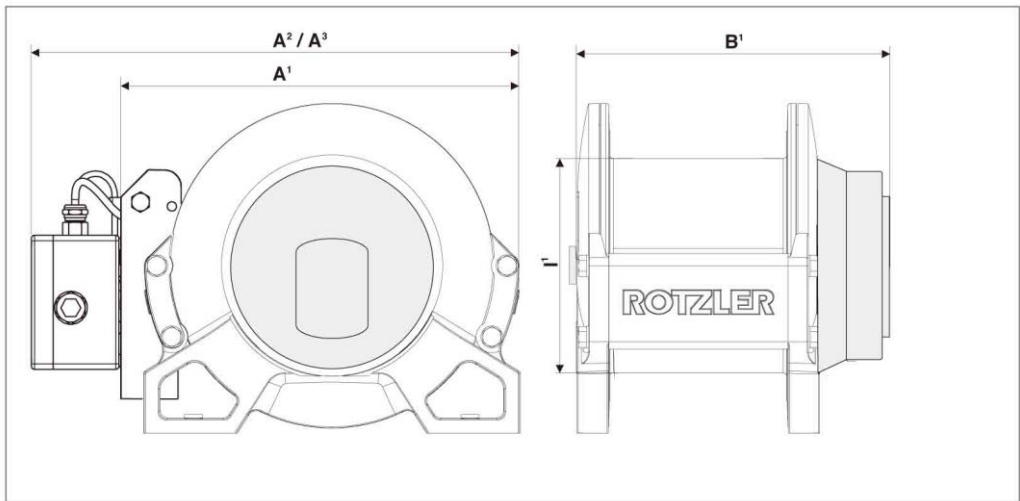


4. Performance Data, Dimensions, Order Codes

Dimensions basic



... with options and accessories



motor P040/49 / standard drum	A	A ¹	A ²	A ³	B	B ¹	C	D	E	F	G	H	I	I ¹	J	K	L
dimensions imperial (max.) – inches	19.9	20.4	23.5	22.6	20.1	20.5	17.1	15.6	14.2	13.8	0.8	12.2	11	11.7	16.7	8.6	0.8
dimensions metric (max.) – mm	505	517	597	575	510	520	433	395	360.7	351.5	20.4	309.4	279.4	295.4	423.4	218	20.3

A¹ = with MCD 1 / pressure roller

A² = with MCD step 2 or 3

A³ = with MCD step 4 or 5

B¹ = with MCD step 2, 3, 4 or 5

I¹ = with grooves

4. Performance Data, Dimensions, Order Codes

TITAN TH 1 TH 2 TH 3 TH 5 TC 1 TC 2 TC 3 TC 5 winches

Order code

2.TC.50.CC.P049.00.0.0000.0.00.0.DIG

	Version of Order Code /	
	Construction	TH = TITAN HOIST TC = TITAN COMPACT HOIST
	Type	50 = TH5 / TC5 50s = TH5 / TC5 special
	Rotation direction	CW = Clockwise CC = Counter Clockwise
	Motor displacement	P040 = 40 cc Piston Motor (TC only) P049 = 49 cc Piston Motor (TC only) G096 = 96 cc Gear Motor (TH only) G107 = 107 cc Gear Motor (TH only) S = Special
	Motor layout	Position of Motor Ports and Case drain port see Details on the right
	Drum width	0 = Standard drum S = Special
	Grooves	0000 = No grooves 0014 = Grooves for 14 mm rope 0016 = Grooves for 16 mm rope S = Special
	MCD type	0 = No MCD 1 = MCD Step 1 2 = MCD Step 2 3 = MCD Step 3 4 = MCD Step 4 5 = MCD Step 5
	Paint finish	00 = Primer 01 = White 02 = Black 03 = White + extra coat 04 = Black + extra coat S = Special
	General layout	Positioning of Rope Inlet and Rope Control System see Details on the right
	Digital Code (DIG)	

Binary Code	parameter
1	0 Without Counterbalance Valve
	1 With Counterbalance Valve (TC only)
2	0 Standard fasteners
	1 Stainless fasteners
4	0 Without Pressure Roller
	1 With Pressure Roller
8	0 Without External Brake Release
	1 With External Brake Release (TC)
16	0 Without External Brake Release
	1 With External Brake Release (TH)
32	0 With gear oil
	1 Without gear oil
⋮	⋮

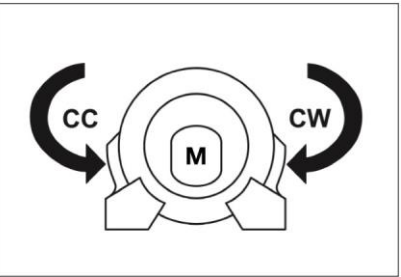
General Layout

	Without rope	With rope
0 = No Roller / No MCD		
1 = CC, Rope underwound		
2 = CC, Rope overwound		
3 = CW, Rope underwound		
4 = CW, Rope overwound		

Motor Layout TITAN TC

Motor port left side	Motor port on top	Motor port right side	Motor port on bottom
00	01	02	03

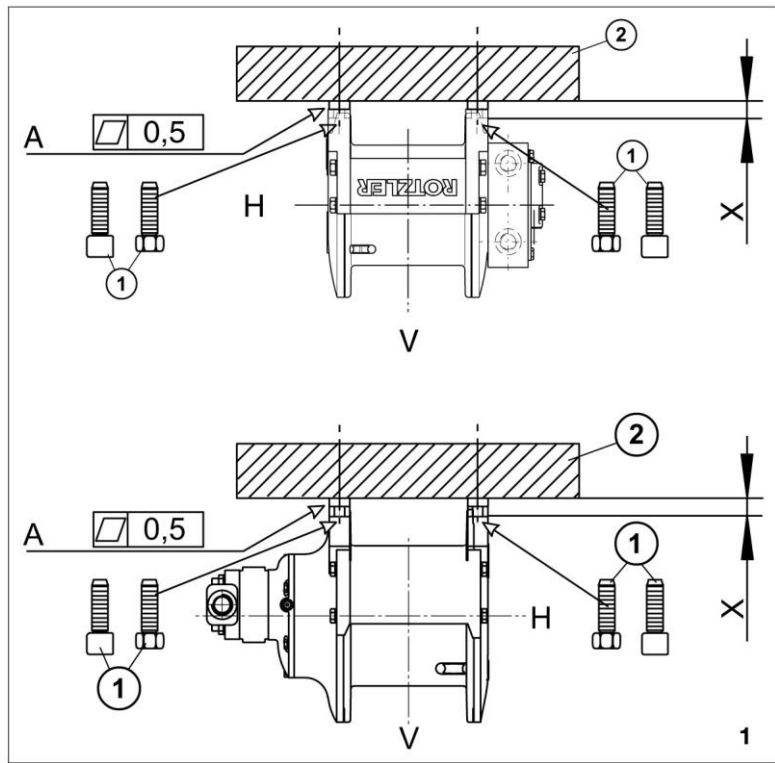
■ Motorports ▲ Case drain ports



cc = counter clockwise
cw = clockwise
M = motor

5. Installation Instructions

Mechanic installation



Mounting screws						
winch type	quantity	size	quality	tightening torque	meas. X	
				[Nm]	[mm]	
TITAN TH 1	4	M12	8.8	79	14,5	
TITAN TH 2	4	M16	8.8	195	15	
TITAN TH 3	4	M20	8.8	395	20	
TITAN TH 5	4	M22	8.8	540	20	
TITAN TC 1	4	M12	8.8	79	14,5	
TITAN TC 2	4	M16	8.8	195	15	
TITAN TC 3	4	M20	8.8	395	20	
TITAN TC 5	4	M22	8.8	540	20	

Stainless steel fasteners (optional)						
TITAN TH 1	4	M12	-80	73	14,5	
TITAN TH 2	4	M16	-80	180	15	
TITAN TH 3	4	M20	-80	360	20	
TITAN TH 5	4	M22	-80	480	20	
TITAN TC 1	4	M12	-80	73	14,5	
TITAN TC 2	4	M16	-80	180	15	
TITAN TC 3	4	M20	-80	360	20	
TITAN TC 5	4	M22	-80	480	20	

Fig. 1 Bolt winch on fixing plate (2) by means of screws (1) (size, quality and tightening moment see Fig. 2). The fixing plate (2) must be sufficiently dimensioned, in order to take up the forces at winch operation. The fixing surface (A) must be free of rust, tinder, oil and grease. The flatness tolerance of the surface is 0.5 mm. You can see the thickness of the base frame (measure X) in the chart in Fig. 2. Attention: Only mount winch in horizontal axis (H).

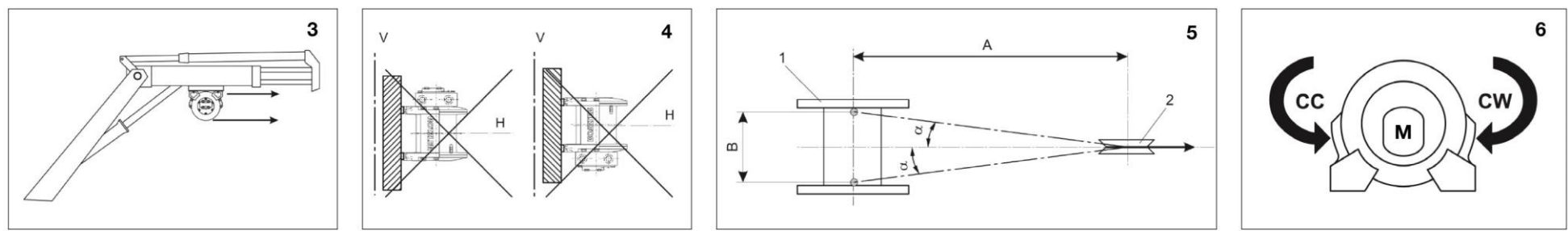
Fig. 2 Chart for the screws which have to be used in each case.

Fig. 3 Installation example - installed on knuckle boom crane.

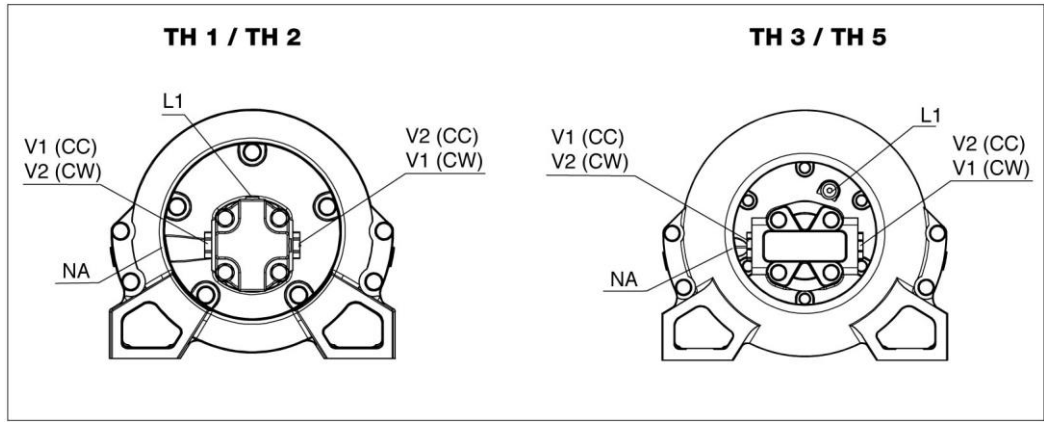
Fig. 4 Not allowed installation positions.

Fig. 5 In order to guarantee a correct rope spooling, the distance measure (A) from the middle of the winch (1) up to the first firm pulley (2) has to be chosen in such a way, that a deflection angle of $\alpha = 1 - 2^\circ$ is kept. The formula we suggest is: $28 \times B > A > 14 \times B$

Fig. 6 Shows direction of rotation with view to the motor side (M). Pay attention to direction of rotation! When installing the winch, please note whether the direction of rotation is clockwise (CW) or counter clockwise (CC).



Hydraulic installation



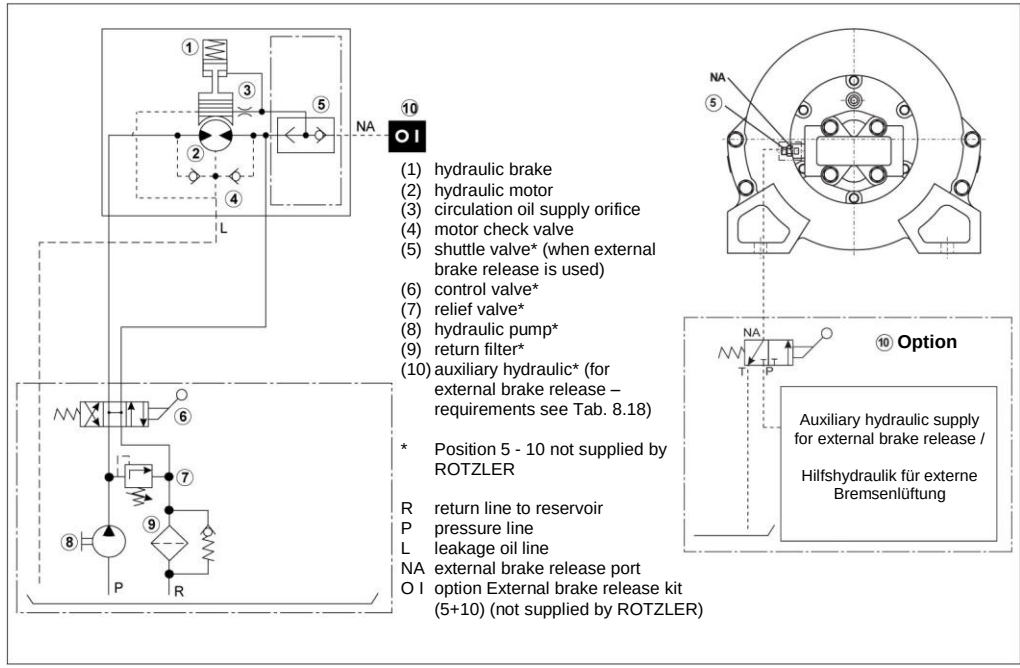
General

Connections / Max. permissible return flow pressures
Note:
V1 = return oil connection for direction „ROPE IN“
V2 = pressure oil connection for direction „ROPE IN“
You can find the permissible values for the maximum return flow pressure (pYmax) in the bottom chart.

TITAN winches	TH 1	TH 2	TH 3	TH 5
V1 / V2	7/8" – 14	1 5/16" – 12	1 5/8" – 12	1 5/8" – 12
NA (ext. brake release port)*	7/16" – 20	7/16" – 20	7/16" – 20	7/16" – 20
L1 case drain connection	7/16" – 20	7/16" – 20	3/4" – 16	3/4" – 16
return flow pressure pYmax	300 psi / 20 bar	300 psi / 20 bar	200 psi / 14 bar	200 psi / 14 bar

* optional
If return flow pressure (pY) exceeds pYmax for the winch type,
a seperate leakage oil line from the motor to the tank must be installed.

Hydraulic diagram without brake valve

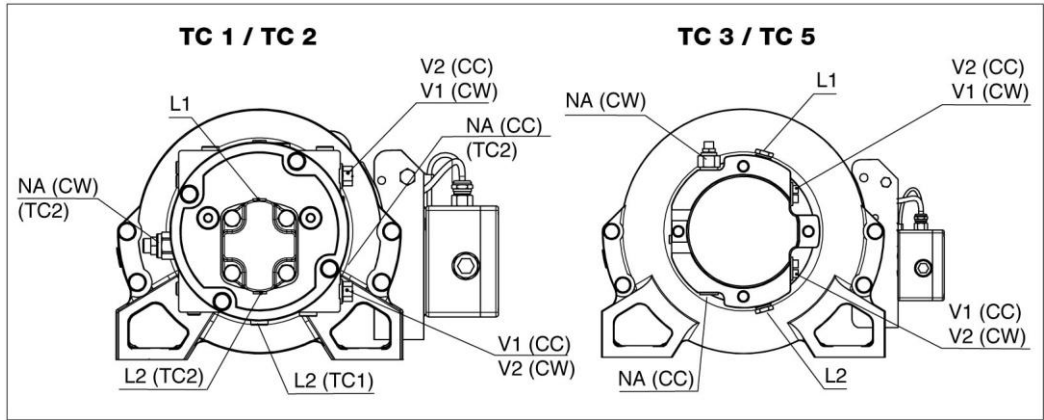


Explanation

– return flow pressure (pY): pressure in the return line when control valve is in working position measured at the motor port.

The ports „ROPE IN“ and „ROPE OUT“ are connected with the control device of the hoisting unit (control valve). The control valve has to be an open center valve („H“ or „Y“). In addition a pressure relief valve as well as a line filter (filter fineness max. 10 µm) have to be integrated in the hydraulic circuit. At the set-up of the hydraulic circuit various components in the winch system require to consider maximum permissible pressures. These are in particular motor and brake. You can find the permissible values for the max. back pressure (pXmax.), the max. return flow pressure (pYmax.), as well as the max. leakage pressure of the motor (pLmax.) in the performance data of each winch.

Hydraulic installation



General

Connections / max. permissible return flow pressures Note:

V1 = return oil connection for direction „ROPE IN“

V2 = pressure oil connection for direction „ROPE IN“

L1 / L2= Leakage oil connection

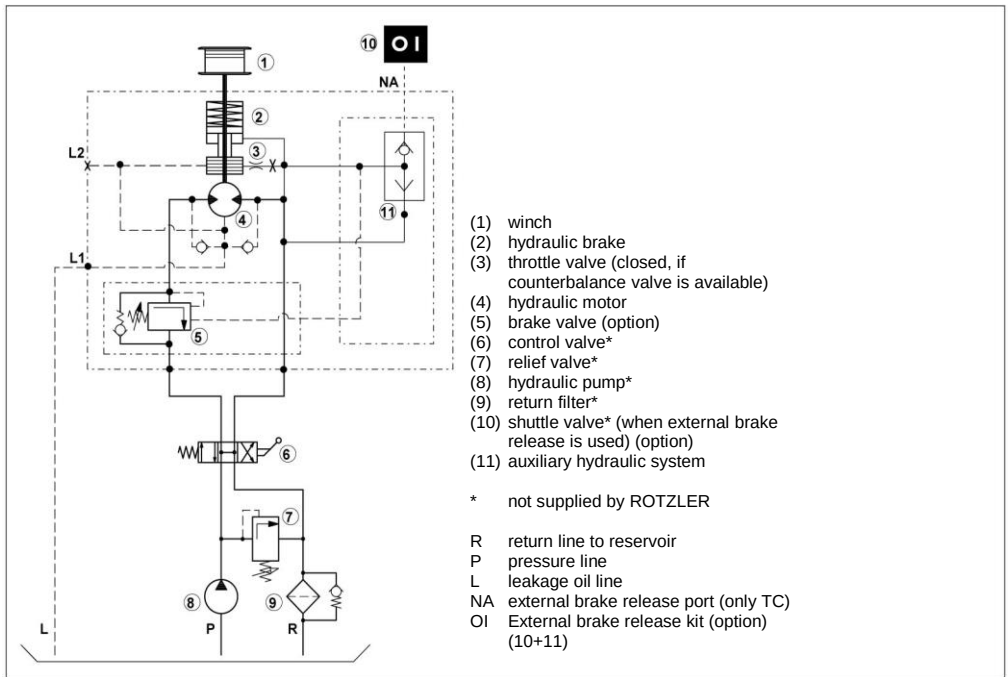
You can find the permissible values for the maximum return flow pressure rates in the bottom chart.

TITAN winches	TC 1	TC 2 / TC 2L	TC 3	TC 5
V1 / V2	G 1/2"	G 3/4"	G 1" - 11 / BSPP	G 1" - 11 / BSPP
NA (ext. brake release port)*	-	G 1/4"	G 1/4" - 19 / BSPP	G 1/4" - 19 / BSPP
L1	7/16" – 20	G 1/4"	G 1/2" - 14 / BSPP	G 1/2" - 14 / BSPP
L2	G 1/4"	G 1/4"	G 1/2" - 14 / BSPP	G 1/2" - 14 / BSPP
return flow pressure pYmax.	300 psi/20 bar**	300 psi/20 bar**	200 psi/14 bar***	200 bar/14 bar***

* optional
** If the return flow pressure (pY) exceeds pYmax for the winch type, a separate leakage oil line from the motor to the tank must be installed (see chapter 5).
*** All TC 3 / TC5 winches must have separate leakage oil line installed.

Hydraulic diagram with brake valve*

* for TC winches without brake valve refer to hydraulic diagram on page 32



Explanation

– return flow pressure (pY): pressure in the return line when control valve is in working position measured at the motor port.

The ports „ROPE IN“ and „ROPE OUT“ are connected with the control device of the hoisting unit (control valve). The control valve has to be an open center valve („H“ or „Y“). In addition a pressure relief valve as well as a line filter (filter fineness max. 10 µm) have to be integrated in the hydraulic circuit. At the set-up of the hydraulic circuit various components in the winch system require to consider maximum permissible pressures. These are in particular motor and brake. You can find the permissible values for the max. back pressure (pXmax.), the max. return flow pressure (pYmax.), as well as the max. leakage pressure of the motor (pLmax.) in the performance data of each winch.

5. Installation Instructions

Overview

TITAN winches	TH 2	TH 3	TH 5	TC 1	TC 2	TC 3	TC 5
Options							
MCD Step 1	x	x	x	x	x	x	x
MCD Step 2			x	x	x	x	x
MCD Step 3			x	x	x	x	x
MCD Step 4			x	x	x	x	x
MCD Step 5			x	x	x	x	x
Stainless Steel Fastness	x	x	x	x	x	x	x
External Brake Release	x	x	x	x*	x	x	x
Counterbalance Valve				x	x	x	x
Pressure Roller	x	x	x	x	x	x	x
Grooved Drums	x	x	x	x	x	x	x

* for configurations without counterbalance valve only

MCD (Measuring Control Device)

Description

By measuring the current gear torque (static and dynamic) all possible operating states are identified to rule out overloading. The ROTZLER MCD delivers an exact linear output signal, proportional to the load torque. In addition, the MCD issues an electrical signal when the rope reaches the prescribed last three safety windings. The linear signal delivered from the MCD electronics may be used for a variety of applications.

The ROTZLER MCD are exclusively used for ROTZLER TITAN winches. The use as determined is the overload sensor and rope sensor of ROTZLER TITAN winches. The use as determined also includes the related equipment, manufacturer's recommendations regarding installation, operation and maintenance.

Temperature range

The ROTZLER TITAN electronics are designed for operation in a temperature range/ambient temperature of -30° C up to +60° C.

Please contact us regarding extreme temperatures, vibrations, jerks, sand, dust, sea water or any other extreme environment condition.

Function

The ROTZLER MCD is available in different steps (MCD-step 1-5):

MCD step 1

- is a rope end sensor at drum rotation direction "ROPE OUT"

MCD step 2

- is an overload sensor (1-point sensing) in winch direction "ROPE IN" which is attached in the gear. This sensor serves as overload protection of the winch and for the protection of the operator.

MCD step 3

- is an additional overload sensor in winch direction "ROPE IN". This option can be used for adjusting a second sensing point (2-point sensing). For example: overload protection of the hoisting device by extending the jib manually.

As soon as the allowable load is exceeded, a signal is given by the electronics system (MCD Step 2 and 3). This signal can be used via the hoist security device to switch off the system.

MCD step 2: Signal = 1,15 x rated load

MCD step 3: Signal 1 = 1,15 x rated load

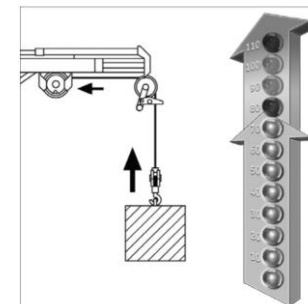
MCD step 3: Signal 2 >_ 0,2 x rated load

MCD step 4

- combined rope end and torque signal (signal 1). Signal 2 without function.

MCD step 5

- separate rope end (signal 1) and torque (signal 2) signals. To ensure correct winch operation, a suitable electronic control system capable of processing the MCD output signals, must be provided.



6. Options and Accessories

Electric installation for MCD step 1 without Rotzler electronics

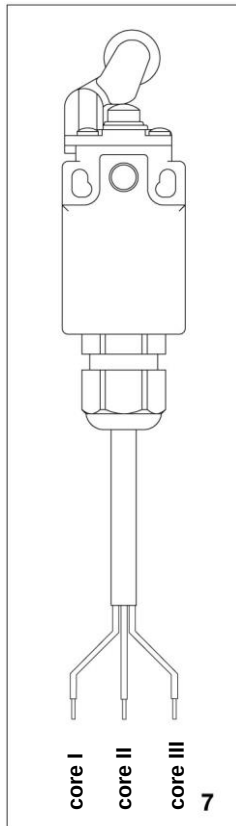


Fig. 7

Technical data: max. voltage 250 V / max. permanent current 10 A.
Regarding the assembly it has to be secured that through an interruption of the power supply between cable cores I and II, the winch is stopped in direction „OUT“.

Electric installation for MCD step 2/3

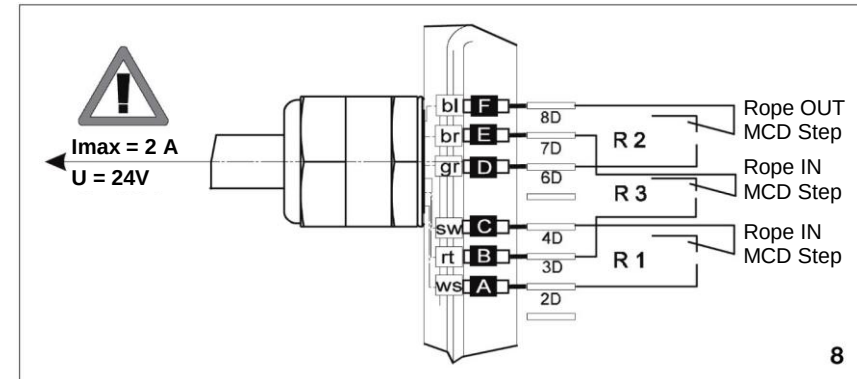


Fig. 8 connections sensor functions (output)

The user has to make sure, that the winch is stopped in direction „ROPE IN“ resp. „ROPE OUT“ when the signal is interrupted.

Designation for cable sensor functions (output) / A = white (ws) / C = black (sw) / E = brown (br) / B = red (rt) / D = grey (gr) / F = blue (bl).

Designation for cable voltage supply + 24 V = red (rt) - 0 V = brown (br)

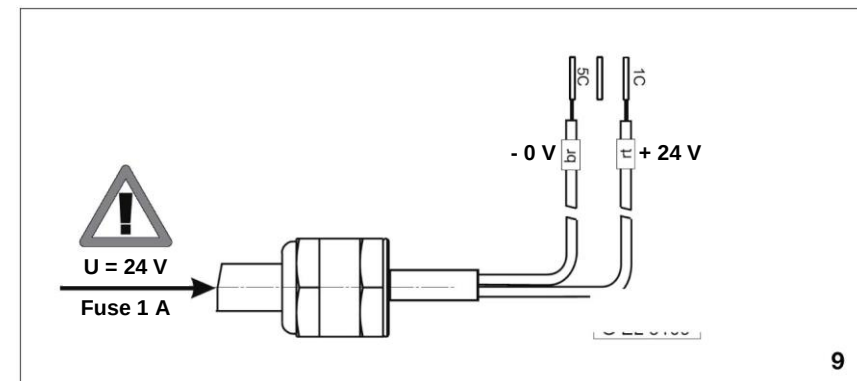


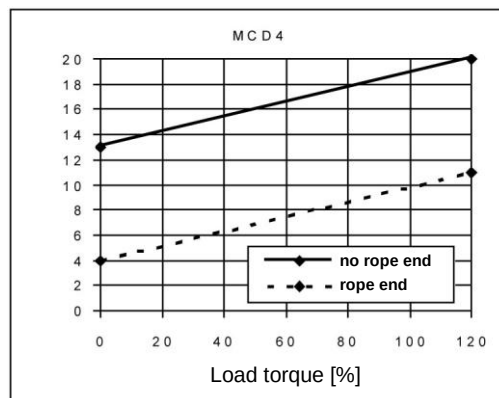
Fig. 9 connection voltage supply

6. Options and Accessories

MCD step 4

Output signals

Load torque [%]	Signal [mA] (no rope end)	Signal [mA] (rope end)
0	13,00	4,00
10	13,58	4,58
20	14,17	5,17
30	14,75	5,75
40	15,33	6,33
50	15,92	6,92
60	16,50	7,50
70	17,08	8,08
80	17,67	8,67
90	18,25	9,25
100	18,83	9,83
110	19,42	10,42
120	20,00	11,00



Output signals are calculated using the following formula:

$$\text{Signal [mA]} = 13 \text{ mA} + \text{Load torque [\%]} \times \frac{7 \text{ mA}}{120 \%}$$

(no rope end)

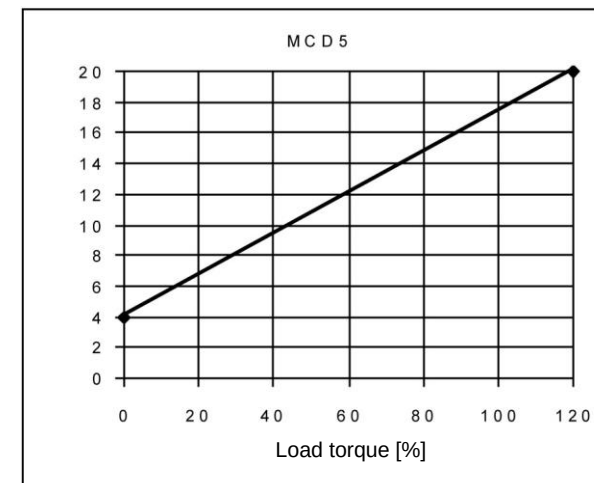
$$\text{Signal [mA]} = 4 \text{ mA} + \text{Load torque [\%]} \times \frac{7 \text{ mA}}{120 \%}$$

(rope end)

MCD step 5

Output signals

Load torque [%]	Signal [mA]
0	4,00
10	5,33
20	6,67
30	8,00
40	9,33
50	10,67
60	12,00
70	13,33
80	14,67
90	16,00
100	17,33
110	18,67
120	20,00

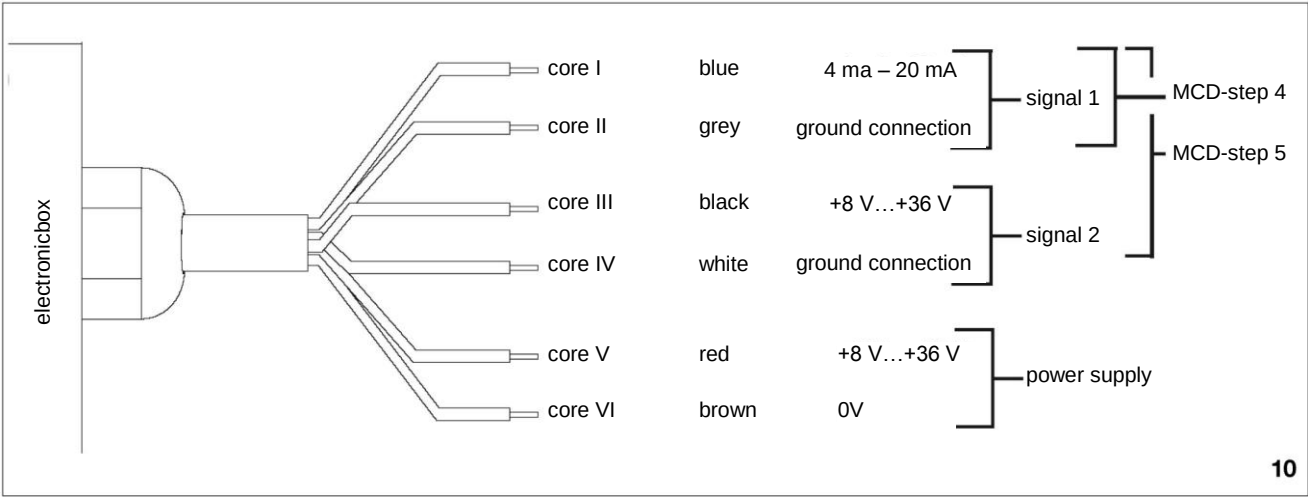


Output signals are calculated using the following formula:

$$\text{Signal [mA]} = 4 \text{ mA} + \text{Load torque [\%]} \times \frac{16 \text{ mA}}{120 \%}$$

Electric installation for MCD step 4/5

Fig. 10
Connections sensor functions (output) and voltage supply



MCD-step 4: combined rope end and torque signal (signal 1). Signal 2 without function.
MCD-step 5: separate rope end (signal1) and torque (signal 2) signals.
To ensure correct winch operation, a suitable electronic control system capable of processing the MCD output signals, must be provided.

6. Options and Accessories

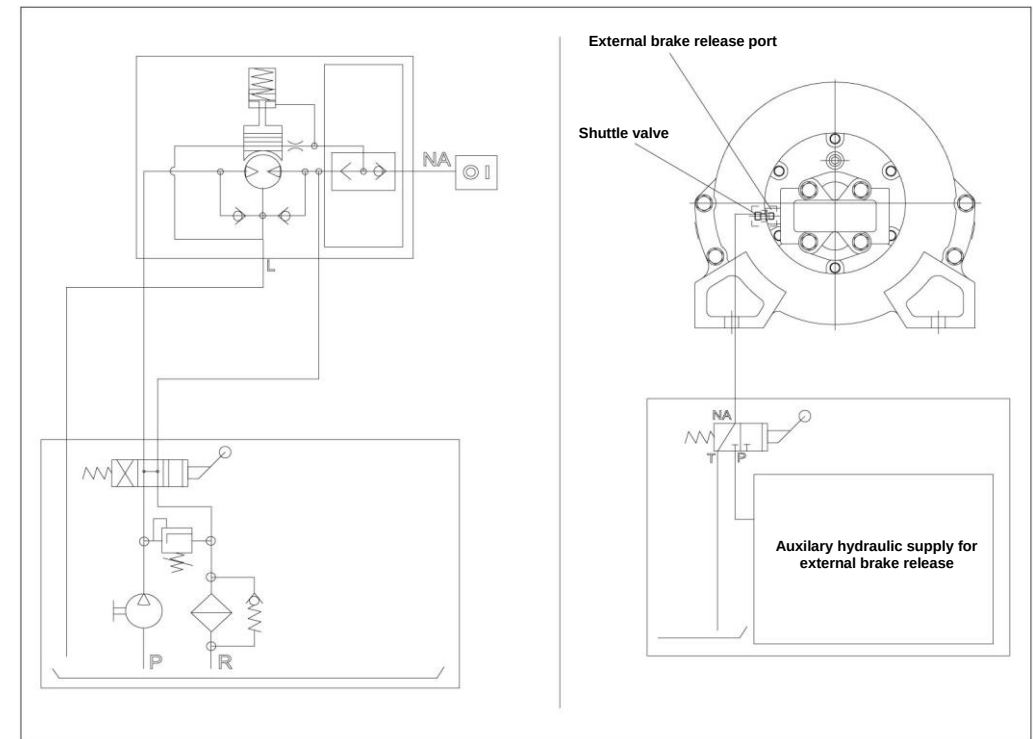
Stainless steel fasteners

Optional stainless steel fasteners are available for applications where additional corrosion protection is desirable; for example marine / offshore environments.

Stainless steel screws (optional)					
Winch	qty.	size	quality	tightening torque [Nm]	meas. X [mm]
TITAN TH 1	4	M12	-80	73	14,5
TITAN TH 2	4	M16	-80	180	15
TITAN TH 3	4	M20	-80	360	20
TITAN TH 5	4	M22	-80	480	20
TITAN TC 1	4	M12	-80	73	14,5
TITAN TC 2	4	M16	-80	180	15
TITAN TC 3	4	M20	-80	360	20
TITAN TC 5	4	M20	-80	480	20

External brake release

The external brake release option enables an external auxiliary hydraulic supply to be connected directly to the brake system, should the main hydraulic system fail, in order to safely lower a suspended load.



For further details refer to section 5 – Hydraulic installation.

6. Options and Accessories

Counterbalance valve

The counterbalance valve option offers an alternative lowering brake function designed to suit specific applications and hydraulic systems. The counterbalance valve option also features a failsafe, spring applied, static disc brake.

- Optimizes lowering speed in 'low flow' hydraulic systems.
- Optimized lowering performance in high pressure mobile hydraulic systems.

Pressure roller

The sprung pressure roller is made from stainless steel components including heavy duty springs, and nylon roller.

- Enhances rope spooling onto the drum.
- Ensures slack rope remains on the drum.
- Extends rope life expectancy.
- Suitable for marine applications



Grooved drum sleeves

Rotzler offers a special hard wearing nylon grooved sleeve system which can be supplied to suit different rope diameters.

- Enhances rope spooling onto the drum.
- Improves winch operation.
- Extends rope life expectancy.

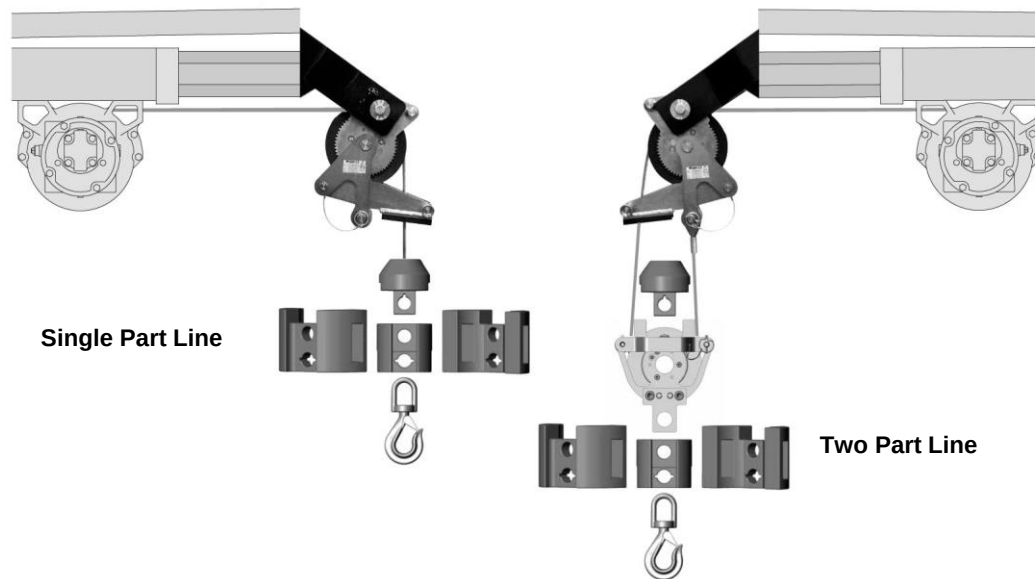
6. Options and Accessories

Hook weight system

The flexible and modular hook weight system with integrated snatch block system is designed for single- and two-part-line configurations and is part of the ROTZLER System for Loading Cranes.

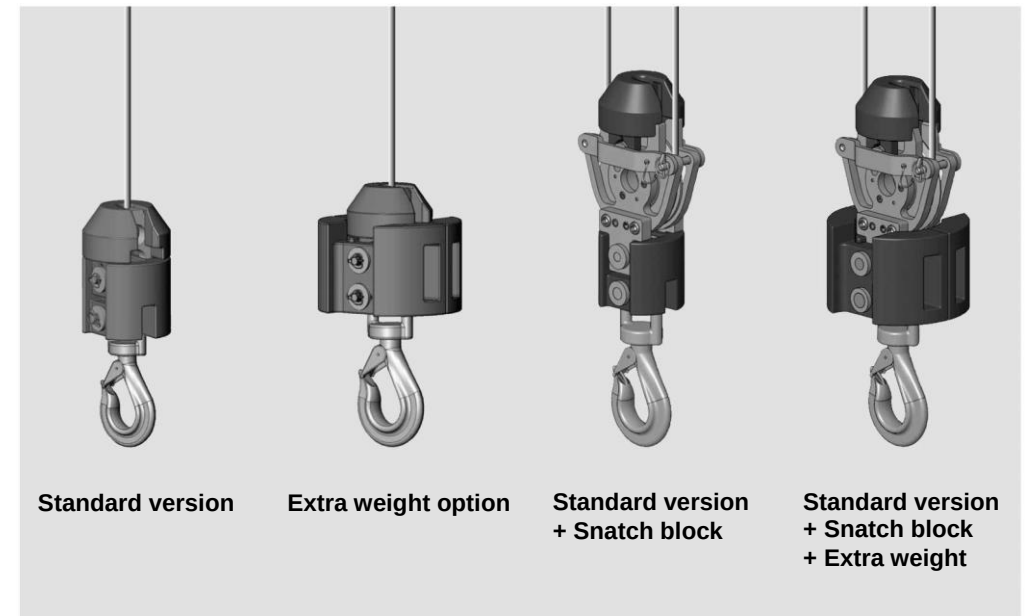
Main features Hook weight:

- Increased product flexibility through a modular design.
- Improved spooling by offering different hook weight options.
- Reliable two-part-line operation using integrated snatch block option, fully compatible to ROTZLER Top Roller accessories.
- Compatible to current standards and the EC Machinery Directive 2006/42/EG.
- Increased safety due to captive rope splice protection system.
- Maximize hoisting travel in confined working spaces by reducing overall length.
- Quick and easy assembly.
- Quick and easy to change from single part line to two part line operation.
- Compliance to single person lifting regulations.



Main features integrated Snatch block option:

- Improved spooling by using optional additional weights.
- Improved stability without load.
- Anti-2-block function in combination with ROTZLER Top Rollers.
- Compatible to current standards and the EC Machinery Directive 2006/42/EG.



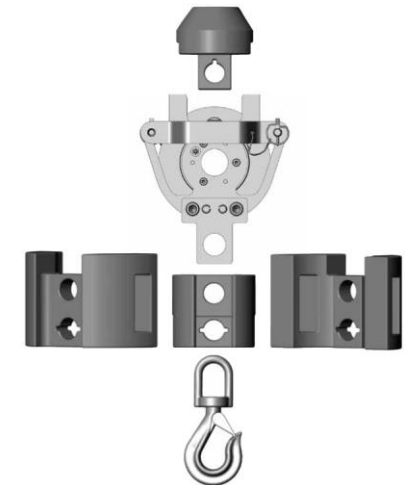
6. Options and Accessories

Hook weight system

The Selection Chart shows the multifunctional product configurations:

Part No	TITAN Winches				Max. Hoisting Force		Product Weight				mm Rope Ø	Product Description
	TH 1 TC 1	TH 2 TC 2	TH 3 TC 3	TH 5 TC 5	kN Single Part Line	kN Two Part Line	kg Standard Weight	lbs Standard Weight	kg Additional Weight	lbs Additional Weight		
400001 0706	x	x			15		25	55.2			7 – 8	Standard Hook Weight 15 kN
400001 0707	x	x			15	30	40	88.2			7 – 8	Standard Hook Weight 15 kN + Snatch Block
400001 0708	x	x			29		25	55.2			10 – 12	Standard Hook Weight 29 kN
400001 0709	x	x			29	58	40	88.2			10 – 12	Standard Hook Weight 29 kN + Snatch Block
400001 0710	x	x			29	58	40	88.2	75	165.4	10 – 12	Standard Hook Weight 29 kN + Snatch Block + Additional Weight
400001 0711	x	x			15	30	40	88.2	75	165.4	7 – 8	Standard Hook Weight 15 kN + Snatch Block + Additional Weight
400001 0714			x	x	58		50	110.3			14 – 16	Standard Hook Weight 58 kN
400001 0715			x	x	58		50	110.3	85	187.4	14 – 16	Standard Hook Weight 58 kN + Additional Weight
400001 0716			x	x	58	116	80	176.4			14 – 16	Standard Hook Weight 58 kN + Snatch Block
400001 0717			x	x	58	116	80	176.4	115	253.6	14 – 16	Standard Hook Weight 58 kN + Snatch Block + Additional Weight

Part No	TITAN Winches				mm Rope Ø	Product Description
	TH 1 TC 1	TH 2 TC 2	TH 3 TC 3	TH 5 TC 5		
400001 0712	x				7 – 8	Conversion Kit to Part No 400001 0711 for use without additional weight
400001 0713		x			10 – 12	Conversion Kit to Part No 400001 0710 for use without additional weight
400001 0935			x	x	14 – 16	Conversion Kit to Part No 400001 0715 / 400001 0717 for use without additional weight

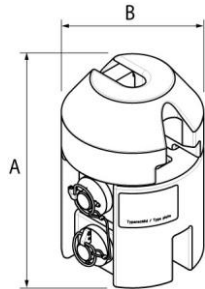


Multipurpose configurations with less components

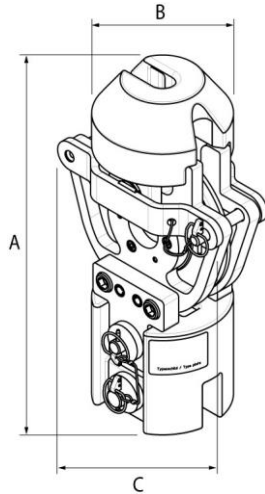
6. Options and Accessories

Hook weight system

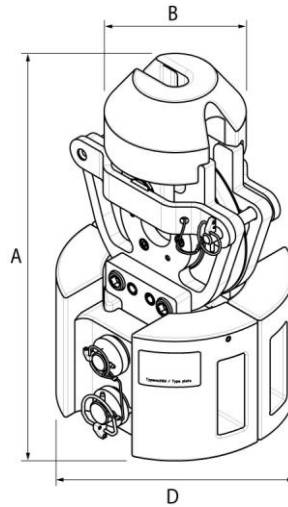
400001 0706
400001 0708



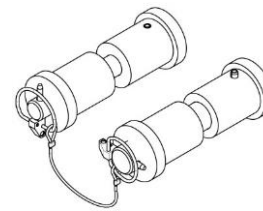
400001 0707
400001 0709



400001 0710
400001 0711



400001 0712
400001 0713



F _{max} [kN]	15	15* / 30**	29	29* / 58**	29* / 58**	15* / 30**		
Part NO	400001 0706	400001 0707	400001 0708	400001 0709	400001 0710	400001 0711	400001 0712	400001 0713
For rope-Ø [mm]	7 – 8	7 – 8	10 – 12	10 – 12	10 – 12	7 – 8	7 – 8	10 – 12
Weight [kg / lbs]	25 / 55.2	40 / 88.2 ***	25 / 55.2	40 / 88.2 ***	75 / 165.4 ***	75 / 165.4 ***	-	-
A [mm / inch]	max. 260 / 10.3	max. 475 / 18.8	max. 260 / 10.3	max. 475 / 18.8	max. 475 / 18.8	max. 475 / 18.8	-	-
B [mm / inch]	max. 175 / 6.9	max. 175 / 6.9	max. 175 / 6.9	max. 175 / 6.9	max. 175 / 6.9	max. 175 / 6.9	-	-
C [mm / inch]	-	max. 275 / 10.9	-	max. 275 / 10.9	-	-	-	-
D [mm / inch]	-	-	-	-	max. 290 / 11.5	max. 290 / 11.5	-	-

* = single-part line, two-part line optional

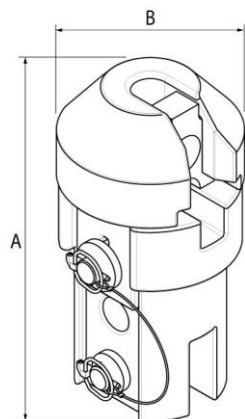
** = two-part line, single-part line optional

*** = weight incl. snatch block

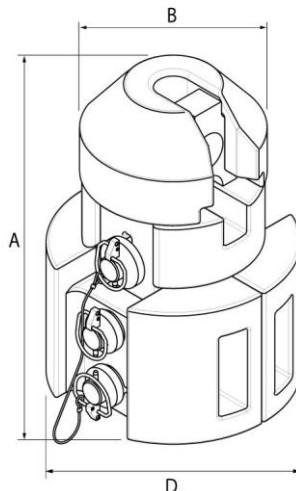
6. Options and Accessories

Hook weight system

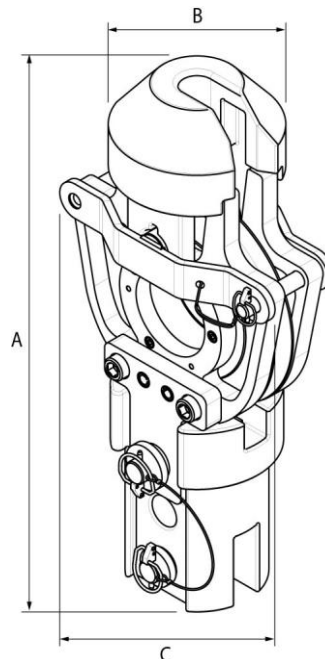
400001 0714



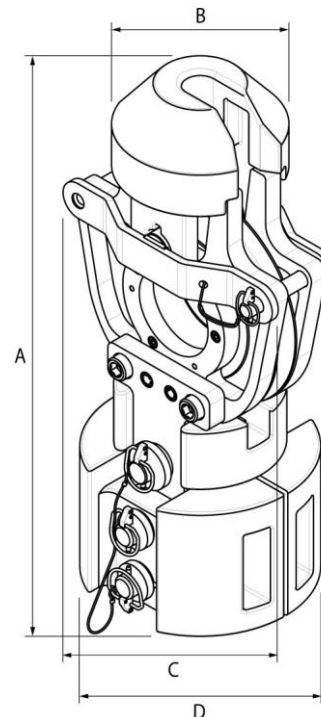
400001 0715



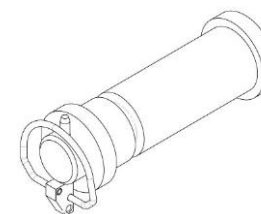
400001 0716



400001 0717



400001 0935



F _{max} [kN]	58	58	58* / 116**	58* / 116**	
Part NO	400001 0714	400001 0715	400001 0716	400001 0717	400001 0935
For rope-Ø [mm]	14 - 16	14 - 16	14 - 16	14 - 16	14 - 16
Weight [kg / lbs]	50 / 110.3	85 / 187.4	80 / 176.4***	115 / 253.6 ***	-
A [mm / inch]	max. 410 / 16.2	max. 410 / 16.2	max. 720 / 28.4	max. 720 / 28.4	-
B [mm / inch]	max. 210 / 8.3	max. 210 / 8.3	max. 210 / 8.3	max. 210 / 8.3	-
C [mm / inch]	-	-	max. 355 / 14.0	max. 355 / 14.0	-
D [mm / inch]	-	max. 290 / 11.5	-	max. 290 / 11.5	-

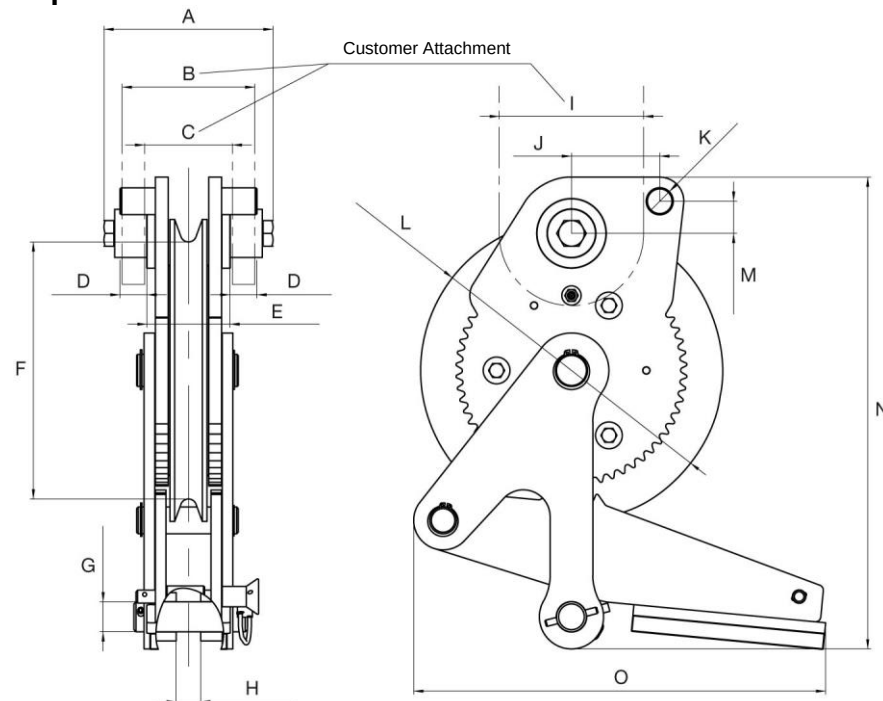
* = single-part line, two-part line optional

** = two-part line, single-part line optional

*** = weight incl. snatch block

6. Options and Accessories

Top roller



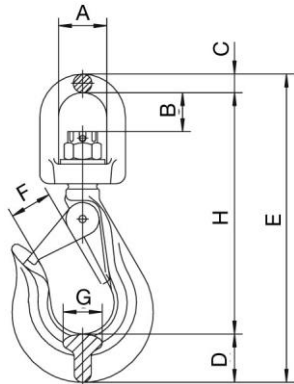
Maximum load in single line pull: 43 kN

Maximum load dual line pull: 86 kN

F _{max} [kN]	15		29		43		58	
Part NO	400000 6808		400000 7707		400000 6798		400000 7676	
For rope-Ø [mm]	8 ... 9		10 ... 12		14 ... 16		14 ... 16	
Weight [kg / lbs]	10,0	22,0	14,0	31,0	26,0	57,0	32,0	71,0
A [mm / inch]	160	6,3	160	6,3	160	6,3	160	6,3
B [mm / inch]	124	4,9	124	4,9	124	4,9	124	4,9
C [mm / inch]	82	3,2	82	3,2	82	3,2	82	3,2
D [mm / inch]	25	1,0	25	1,0	25	1,0	25	1,0
E [mm / inch]	78	3,1	78	3,1	78	3,1	78	3,1
F [mm / inch]	135	5,3	180	7,1	240	9,4	240	9,4
G [mm / inch]	20	0,8	22	0,9	28	1,1	30	1,2
H [mm / inch]	21,5	0,84	23,5	0,92	23	0,90	29	1,14
I [mm / inch]	125	4,9	125	4,9	135	5,3	135	5,3
J [mm / inch]	75	2,9	75	2,9	82,5	3,24	82,5	3,24
K [mm / inch]	20	0,8	20	0,8	25	1,0	25	1,0
L [mm / inch]	159 ... 165	6,2 - 6,5	210 ... 216	8,2 - 8,5	282 ... 288	11,1 - 11,3	282 ... 288	11,1 - 11,3
M [mm / inch]	20	0,8	25	1,0	30	1,2	30	1,2
N [mm / inch]	275	10,8	355	13,9	445	17,5	445	17,5
O [mm / inch]	235	9,2	310	12,0	395	15,6	395	15,6

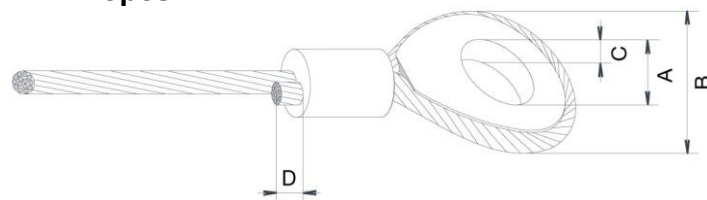
6. Options and Accessories

Swivel hook



Safe working load F [kN]	10		20		32		50		80		125	
Part NO	011875 0000		011878 0000		011879 0000		011880 0000		011954 0000		012244 0000	
Weight [kg]	0,6	1,3	1,4	3	2,5	5,5	5,4	12	7	15,4	9,6	21,1
A [mm / inch]	26	1,03	36	1,5	39	1,61	61	2,5	60	2,4	71	2,8
B [mm / inch]	21	0,84	33	1,3	30	1,2	58	2,3	54	2,2	58	2,3
C [mm / inch]	10	0,4	17	0,7	18	0,78	23	1	20	0,9	23	1
D [mm / inch]	26	1,03	32	1,3	42	1,7	46	2	51	2,01	55	2,2
E [mm / inch]	166	6,6	229	9,02	261	10,3	357	14,1	400	15,85	480	19
F [mm / inch]	22	0,9	28	1,11	33	1,32	45	1,9	74	3	89	3,6
G [mm / inch]	21	0,86	30	1,2	31	1,25	42	1,7	42	1,7	42	1,75
H [mm / inch]	130	5,2	180	7,1	201	8	288	11,4	321	12,8	355	14

Ropes



Rope-Ø* [mm]	7	8	10	12	12°	14	14°	16
Part NO	250850 3037 250850 3068	250851 3038 250851 3050	400000 0046 400000 0047 400000 0048	250853 3046 250853 3090	40000 13819 40000 13820 40000 13821 40000 13822	250854 3042 400000 0768 250854 3084	400000 2914 400000 4268 400000 2346	250855 3056 250855 3093
Rope length** [m]	37 / 68	38 / 50	49 / 60 / 69	46 / 90	70 / 94 / 120 / 130	42 / 65 / 84	50 / 65 / 90	56 / 93
Weight [kg/m]	0,2	0,26	0,47	0,61	0,96	0,88	0,94	1,15
Class of rope strength	1960	1960	2160	1960	2160	1960	2260	1960
Min. breaking strength*** [kN]	39	53,3	95,4	119	146	159	196	211
Stranding factor	0,77	0,79	0,82	0,75	0,75	0,80	0,80	0,75
Ferrule swaging	EN 13411-3	EN 13411-3	EN 13411-3	EN 13411-3	EN 13411-3	EN 13411-3	EN 13411-3	EN 13411-3
Strand surface 0,77	Zinc	Zinc	Zinc	Zinc	Zinc	Zinc	Zinc	Zinc
A [mm] +0,15 / -1,0	20	20	25	30	35	35	35	40
B max. [mm]	48	50	72	62	80	84	84	95
C [mm]	15	15	17,5	20	23,5	23,5	23,5	26
D max. [mm]	3,5	4	5	6	6	7	7	8

Rope type: Lang's lay right, rotation-resistant

* permissible nominal diameter; usual Ø-tolerance: +0 ... +5 %; usual Ø-tolerance grooved drum: +2 ... +4 %

** rope length must be chosen, so that the drum free flange is >= 0

*** usual: 3,55 x nominal lifting force (in gear class M3). GL-certification: 5 x nominal lifting force.

° increased min. breaking strength

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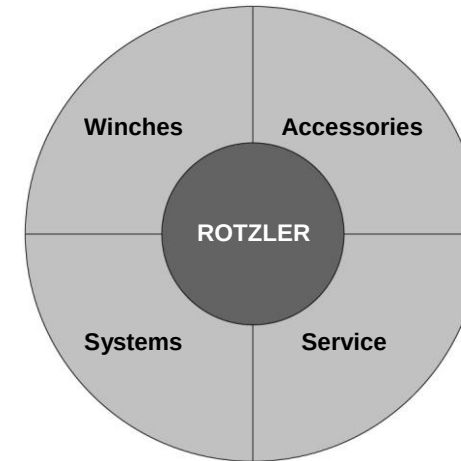
Please call us or send us an e-mail for detailed information about Rotzler's products and services:

**ROTZLER Deutschland GmbH + Co. KG,
Germany**

Customer Support
Phone +49 (0)7627 701-133
Fax +49 (0)7627 701-198
rotzler.germany@rotzler.com

**ROTZLER Canada Inc.,
Canada**

Customer Service
Phone +1 604 940-7134
Fax +1 604 940-7135
rotzler.canada@rotzler.com



ROTZLER Deutschland GmbH + Co. KG
Winches, Capstans and Winch systems
Robert-Bosch-Strasse 4
79585 Steinen
Germany
Phone +49(0)7627 701-0
Fax +49(0)7627 701-166
info@rotzler.de

ROTZLER Canada Inc.
Unit 122, 7350
72nd Street
Delta, B.C. V4G 1H9
Canada
Phone +1 604 940-7134
Fax +1 604 940-7135
rotzler.canada@rotzler.com

ROTZLER Korea Ltd.
1-110 Changwon Knowledge Industrial Center,
316, Ungnam-ro, Seongsan-gu, Changwon,
Gyeongnam, 642-290
Korea
Phone +82 55 282 5067
Fax +82 55 262 5068
rotzler.korea@rotzler.com

ROTZLER India Pvt. Ltd.
S 806, Manipal Center,
No. 47, Dickenson Road
560042 Bangalore
India
Phone +91 80 4096 36 42
info@rotzler.com

