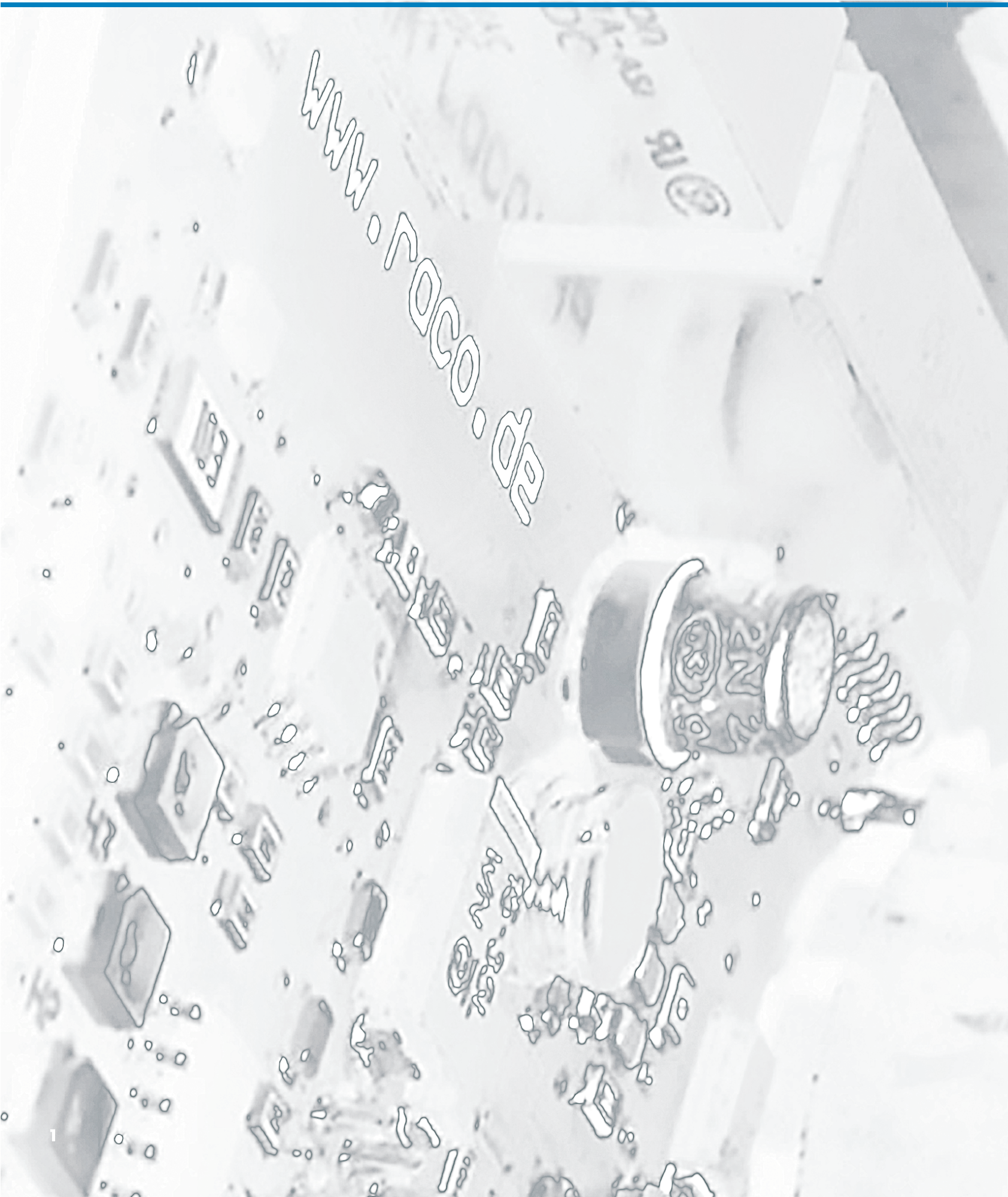


RACOMATIC[®]
intelligent Electric Actuators
**Technical Data
and Configurations**



RACOmatic[®]

MORE THAN THE SUM OF ITS PARTS

The RACOmatic[®] expands the functionality of RACO electric actuators to ready-to-use, highly precise linear actuation drives. Mechanical components, software, and sensors have been perfectly matched to the equipment architecture and the relevant requirements. RACO thus provides a customized solution for any actuation profile across a wide range of thrust ranges and designs - all with the typical reliability you have become accustomed to with RACO products.



When it comes to maximum process reliability and consistent manufacturing quality, the exact and fully reproducible control of movements in automation is indispensable.

In combination with the RACOmatic[®], RACO drives can fully leverage their strengths. In daily operation, RACO drives achieve a measurable increase in productivity, availability, and flexibility.

The key to this is the high-precision control of thrust, acceleration and position and the ability to integrate these into all industrial standard control systems. In addition, there is the unique and highly user-friendly operator interface.

This ensures that the operating parameters are easy to adjust. As a designer or operator, you rely on the results of good engineering that consolidates the expertise of many decades into a systematic actuation system - efficient, a safe investment, and absolutely in line with real-life requirements. Something you can always expect from RACO.



Electric actuators with RACOMATIC®
The high Performance solution for a wide performance range!

The RACOMATIC® transforms the RACO electric actuator into a ready-to-use linear actuating drive with integrated control. It can also be operated via a client's main control center (PLC) which is connected by a digital standardized field bus interface that can be freely parameterized.

The main components of the RACOMATIC® are the RACO asynchronous three-phase motor with an integrated, vector-controlled frequency converter including the positioning electronic realized by an integrated multi-turn absolute encoder (type RACO EPS-CAN) and an optional holding brake.

Apart from the popular control by using digital I/O or an analog set-point signal e.g. (4-20mA), RACO also offers further field-bus options by an integrated interface like ProfiBus-DP, CANopen, DeviceNet, EtherCat or ProfiNet.

- The RACOMATIC® precisely positions the electric actuator within the determined hoisting path and independently switches off the motor in case of overload
- The programmed positions are approached with a settable speed ramp to realize a very exactly positioning and prevent an overrun to avoid a drive over the mechanical end position, where the danger of a blockage exists
- The max. limit values for stroke, force and speed are pre-configured at our factory and can only be changed by the user and leading technician through a multistage password protection

The parameterization of the position encoder and the frequency converter is done via the RACOMATIC® tool for Microsoft Windows. The precise setting is very easy due to the intuitive menu navigation. The software enables to set speed and positions as well as set acceleration and deceleration ramps. To protect the mechanics of your equipment, maximum forces can be defined and a force shutdown can be programmed in case to prevent an emergency situation.

With this pre-configured drive solution RACO electric actuator are perfectly suited for positioning tasks as well as challenging adjustment and control tasks. As a Plug & Move solution they are ready for operation immediately.

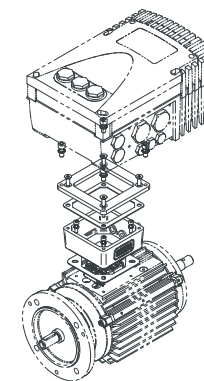
The RACOMATIC® precisely positions the electric cylinder within the determined hoisting path and independently switches off the motor in case of overload. The programmed end positions are approached at reduced speed in order to prevent the cylinder to go past them and into the mechanical end position, causing blockage.

The limit values for stroke, force and speed are pre-configured at our factory and can only be accessed by the user and lead technician through multi-layer password protection.

It is possible to reset to default settings at any time (choose from configurations A-F).

Flexible installation according to operational requirements

Due to the mounting position, limited space and other technical conditions, there are 3 mounting options available for RACOMATIC®. In the first two options the drive components are near the electric actuator. Therefore the actuator can be controlled as decentralized system e.g. by using a bus interface.



RACOMATIC® integrated mounting (AM)

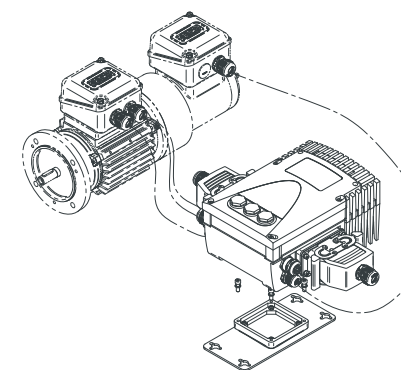
Advantages:

Speed range adjustable via integrated potentiometer*

pre-wired solid industrial-standard quick connectors for easy installation and fast exchange in case of service

hardware and EPROM can be exchanged without disconnecting separate cable connectors

IP protection: IP 54 & 65



RACOMATIC® wall mounting (WH)

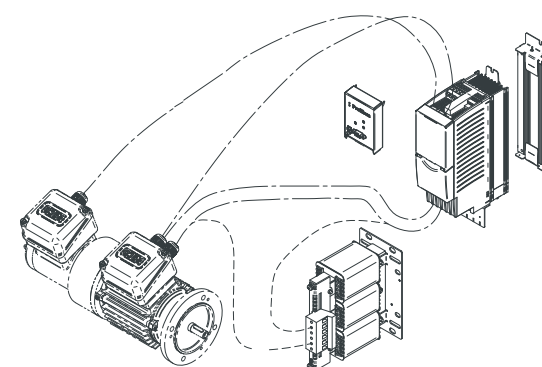
Advantages:

Speed range adjustable via integrated potentiometer*

separate frequency drive and 5 metre cable for wall mounting

Cables are pre-wired and wall bracket is included in delivery

IP protection: IP 54 & 65



RACOMATIC® panel mounting (IS)

Advantages:

Combination with further components (brake resistor, PLC) and HMI with display for direct control mounted in switching cabinet

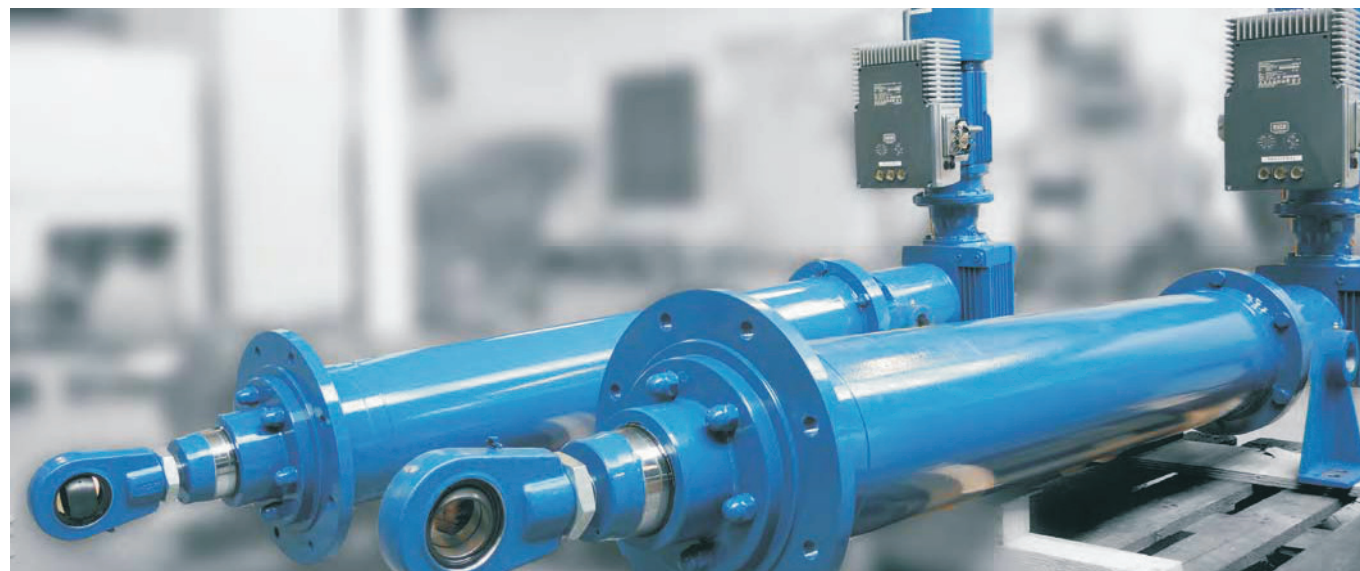
Easy possibility to provide decent temperatures in cabinet

Protection against unauthorized personal

Delivered in ready-to-assemble pieces for customized mounting solution

IP protection: IP 20

* Comprehensive monitoring and control functions are integrated - LEDs for in- and outputs as well as a status display. Direct-at-drive integrated potentiometer and 10-step switch for speed settings and thrust limitation. With this feature the linear speed can be adjusted in the permitted range at site and therefore the process can be improved.



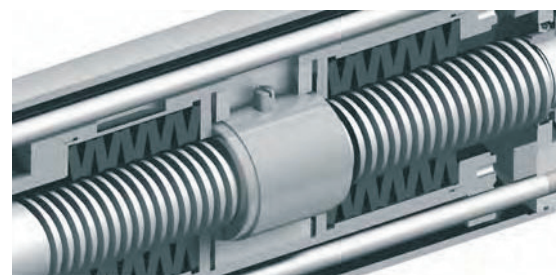
RACO Electric actuator series 1

The design of the RACO electric actuators of series 1 (heavy duty) is designed for the special robustness and longevity of the devices, even under the toughest operating conditions. The extremely stable design of the RACO electric actuator is used for highly dynamic applications with high switching frequencies. Through a variety of options within the modular structure, up to special constructions, all customer requirements are fully met!

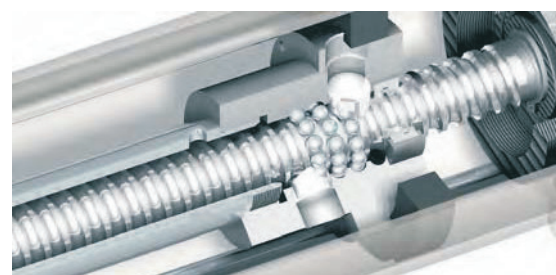
The heart of the RACO electric actuator is the high-precision screw drive from our own production.

Screw drive types

The **trapezoidal screw drive** is a swirled or optionally ground screw in combination with a nut made of special bronze. High static loads, which are above the nominal actuating force, are held securely in any intermediate positions by the self-locking effect. Higher speeds can be realized by using multi-thread trapezoidal screws.



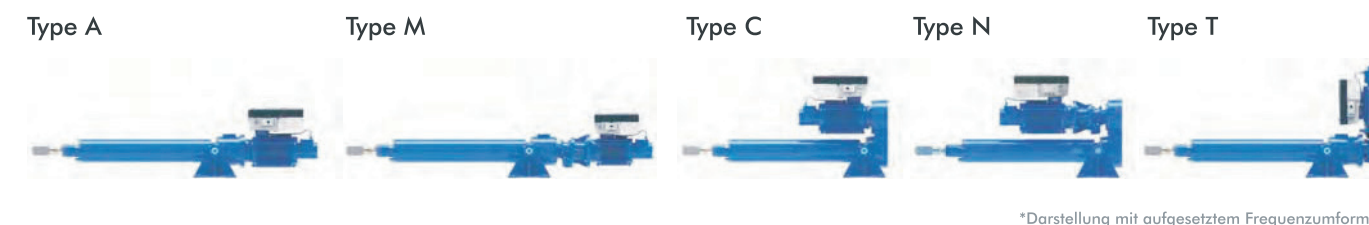
The **ball screw drive** is precision ground and made of high-strength steel. It has no self-locking effect due to the very low friction of the rolling contact between the balls and raceways. The installed drive power is more effectively converted into the actuating force. For applications requiring a high degree of precision in positioning and repeat accuracy, this screw type is particularly well suited.



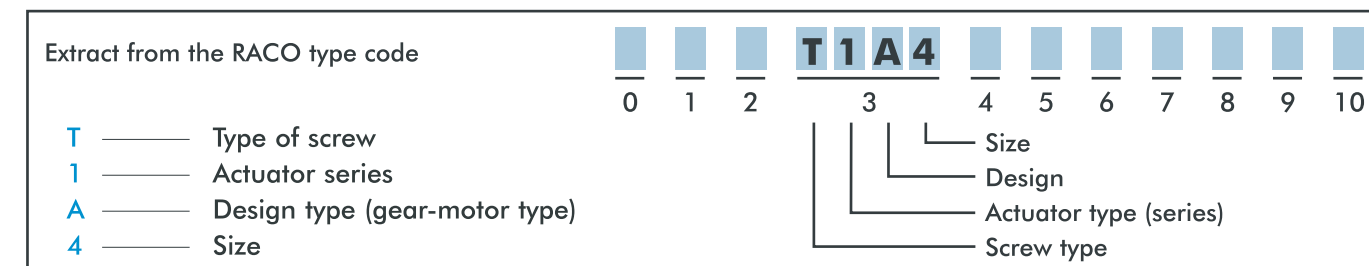
RACO – modular system for customer specific solutions

The modular design of the RACO electric actuators and the long experience gained from the numerous applications implemented are the basis for a sustainable, customer-specific drive solution. The large variability due to a modular construction concept opens up a wide range of application for RACO electric actuators. Competent and experienced employees advise and support you in questions about linear drive technology and offering customized solutions.

RACO type code

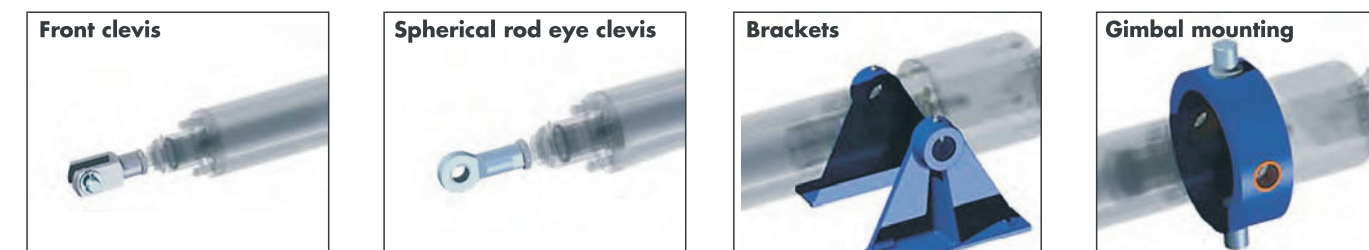


*Darstellung mit aufgesetztem Frequenzumformer



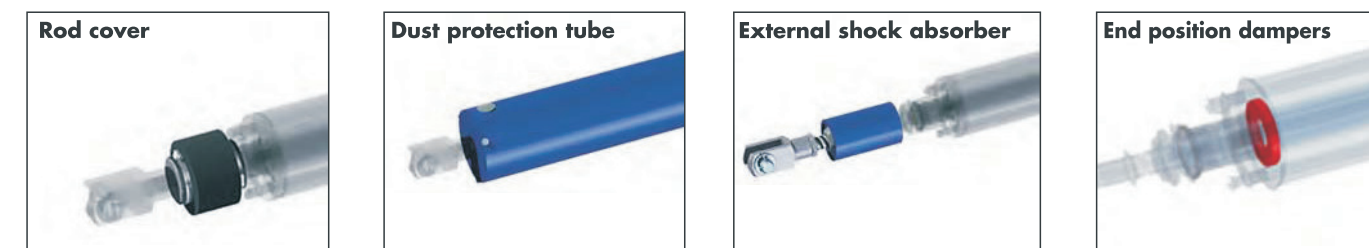
Mounting parts

For mounting the RACO electric actuator trunnions with brackets and other options are available. A cardanic ring or a flange connection is also possible as an eye to eye version. The adaptation of the thrust tube can be realized by a front clevis, spherical rod end, a thread end or a special adapter according to customer specifications.



Damping systems

To protect the electric actuator against axial impacts, the actuators of series 1 have an integrated damping system at the screw nut. The mechanical end positions of the actuator are protected with internal end position dampers.



Performance specifications Size 4 with RACOMATIC®

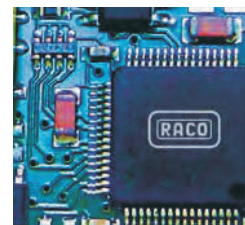
Type (Type A)	Thrust (kN)	i	P (mm)	RACO-Motor 0,75 kW/400VAC/6 pol./80K6			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1A4 (Trapezoidal screw)	2,5	1 : 1	3	5	5 - 87 Hz	80	3,84 D	2,2
K1A4 (Ball screw)		1 : 1	6	10	5 - 87 Hz	170	3,94 D	2,2
T1A4 (Trapezoidal screw)	5,0	1 : 1	3	5	5 - 50 Hz	45	4,03 D	2,2
K1A4 (Ball screw)		1 : 1	6	10	5 - 50 Hz	95	3,84 D	2,2

Type (Type C)	Thrust (kN)	i	P (mm)	RACO-Motor 0,75 kW/400VAC/6 pol./80K6			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1C4 (Trapezoidal screw)	2,5	1 : 1	3	5	5 - 87 Hz	80	3,84 D	2,2
K1C4 (Ball screw)		1 : 1	6	10	5 - 87 Hz	170	3,94 D	2,2
T1C4 (Trapezoidal screw)	5,0	1 : 1	3	5	5 - 50 Hz	45	4,03 D	2,2
K1C4 (Ball screw)		1 : 1	6	10	5 - 50 Hz	95	3,84 D	2,2

Type (Type T)	Thrust (kN)	i	P (mm)	RACO-Motor 0,37 kW/400VAC/4 pol./63G4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1T4 (Trapezoidal screw)	5,0	5 : 1	3	1,5	5 - 50 Hz	15	1,60 D	1,1
K1T4 (Ball screw)		5 : 1	6	3	5 - 50 Hz	30	1,60 D	1,1

Stroke

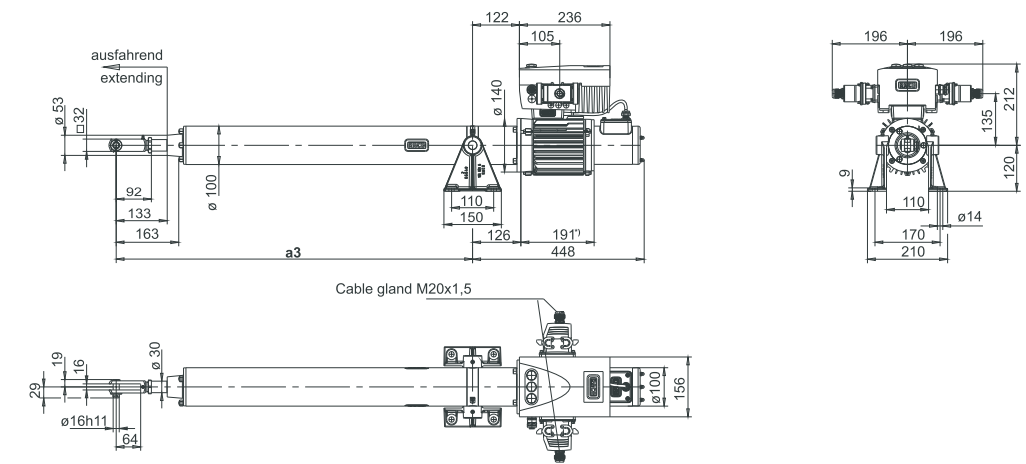
Stroke [mm]	100	200	300	400	500	600	800	1000
a3 [mm]	430	530	630	730	830	930	1130	1330
Weight [kg] ca.	26	27	28	29	30	31	33	35



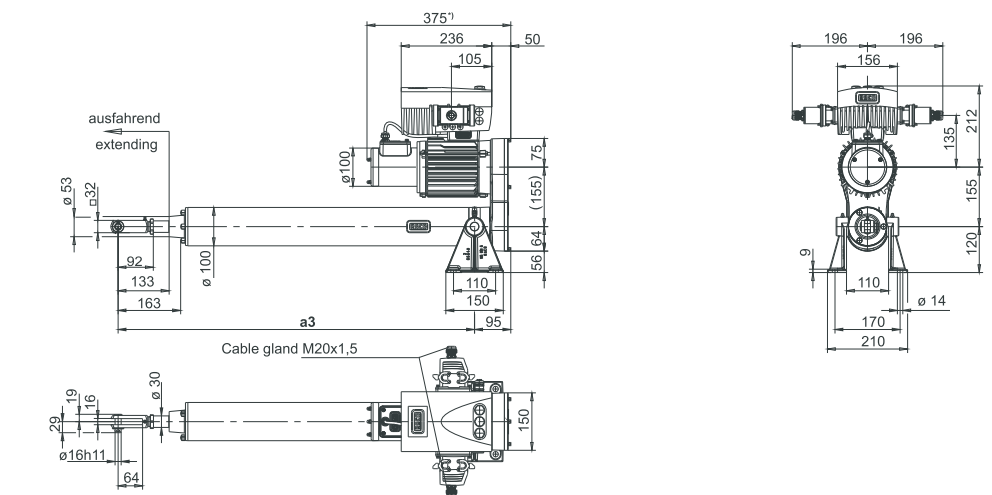
Tip 1:

RACO also offers further options to the PROFIBUS module like various fieldbus ports (CANopen, DeviceNet, EtherCat). Furthermore, it is possible to use the analogous position feedback as an output signal (4-20mA or 0-10V).

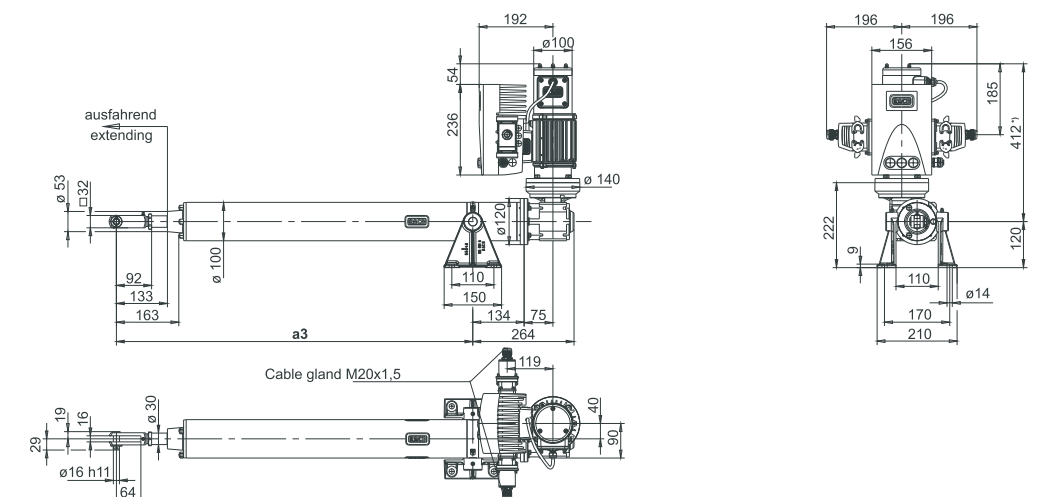
Type A



Type C



Type T



Performance specifications Size 5 with RACOMATIC®

Type (Type A)	Thrust (kN)	i	P (mm)	RACO-Motor 1,5 kW/400VAC/8 pol./100L8			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1A5 (Trapezoidal screw)	5,0	1 : 1	4	5	5 - 87 Hz	80	6,12 D	3
K1A5 (Ball screw)		1 : 1	8	9	5 - 87 Hz	160	6,00 D	3
T1A5 (Trapezoidal screw)	10,0	1 : 1	4	5	5 - 50 Hz	45	4,36 D	3
K1A5 (Ball screw)		1 : 1	8	10	5 - 50 Hz	95	4,06 D	3

Type (Type C)	Thrust (kN)	i	P (mm)	RACO-Motor 1,5 kW/400VAC/8 pol./100L8			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1C5 (Trapezoidal screw)	5,0	1 : 1	4	5	5 - 87 Hz	80	6,12 D	3
K1C5 (Ball screw)		1 : 1	8	9	5 - 87 Hz	160	6,00 D	3
T1C5 (Trapezoidal screw)	10,0	1 : 1	4	5	5 - 50 Hz	45	4,36 D	3
K1C5 (Ball screw)		1 : 1	8	10	5 - 50 Hz	95	4,06 D	3

Type (Type T)	Thrust (kN)	i	P (mm)	RACO-Motor 0,37 kW/400VAC/4 pol./63G4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1T5 (Trapezoidal screw)	10,0	7,5 : 1	4	1	5 - 50 Hz	12	2,00 D	1,1
K1T5 (Ball screw)		7,5 : 1	8	3	5 - 50 Hz	24	1,80 D	1,1

Stroke

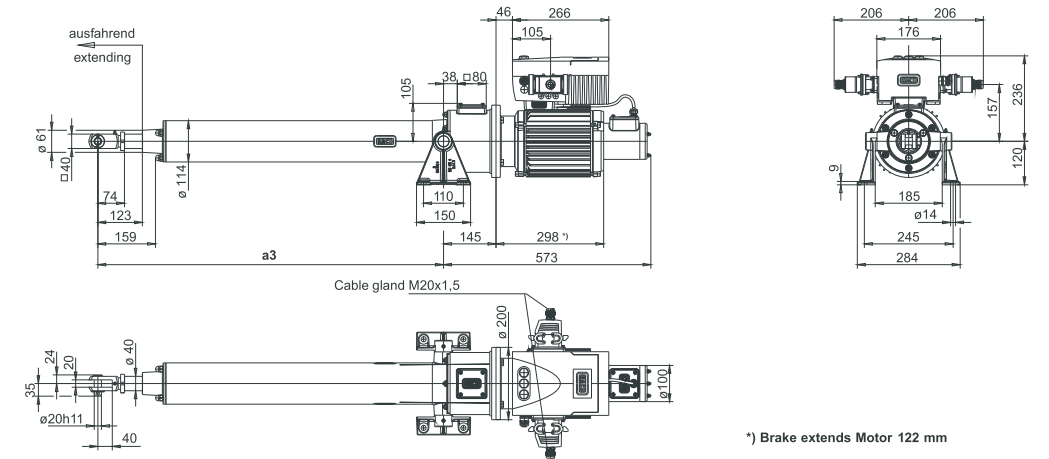
Stroke [mm]	100	200	300	400	500	600	800	1000
a3 [mm]	455	555	655	755	855	955	1155	1355
Weight [kg] ca.	32	36	39	43	46	50	57	64



Tip 2:

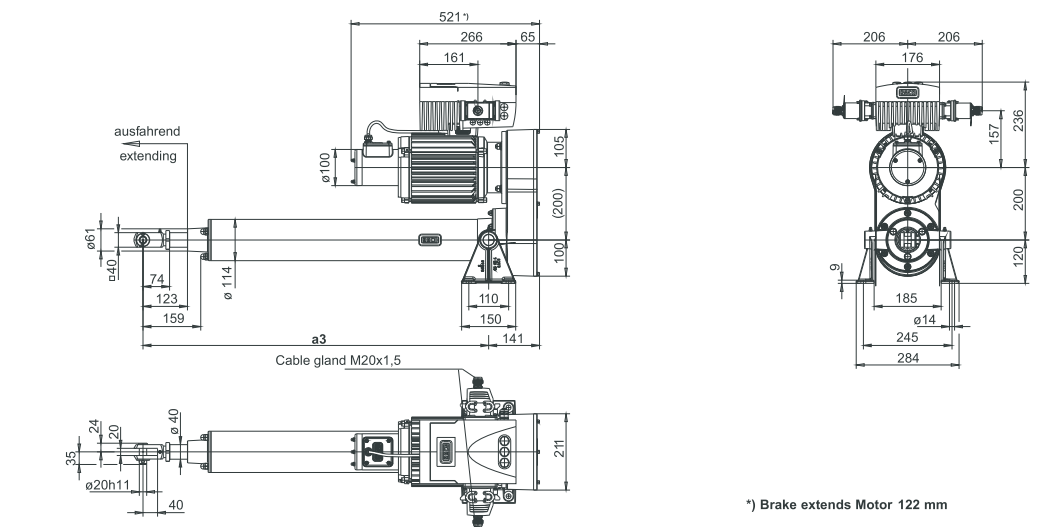
For joining processes or tasks which are requiring a thrust controlled actuating drive, either the actual force or the stroke can be evaluated by using the analog output.

Type A



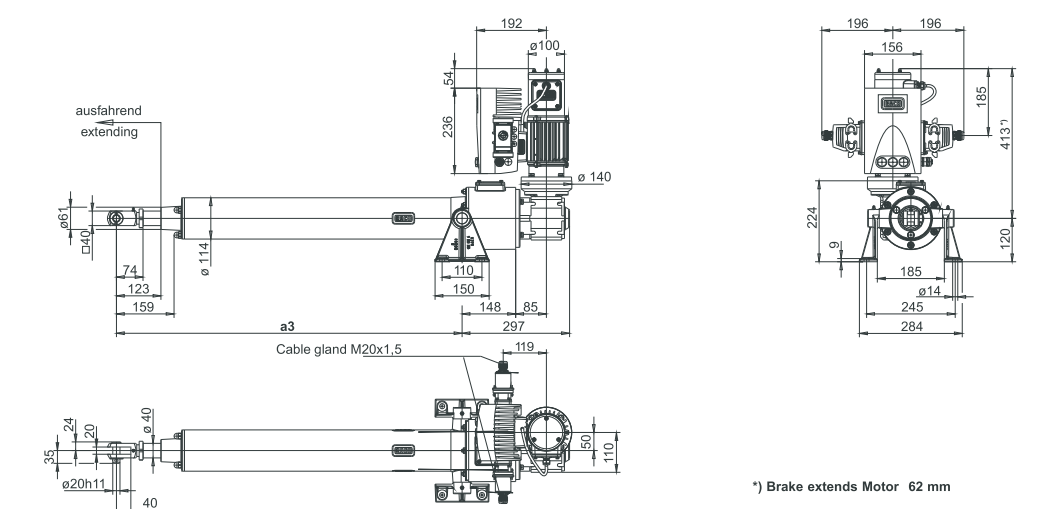
*) Brake extends Motor 122 mm

Type C



*) Brake extends Motor 122 mm

Type T



*) Brake extends Motor 62 mm

Performance specifications Size 6 with RACOMATIC®

Type (Type A)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/8 pol./100LX8			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1A6 (Trapezoidal screw)	10,0	1 : 1	5	5	5 - 87 Hz	100	9,98 D	5,5
K1A6 (Ball screw)		1 : 1	10	11	5 - 87 Hz	200	9,41 D	5,5
T1A6 (Trapezoidal screw)	17,5	1 : 1	5	5	5 - 50 Hz	50	8,50 Y	5,5
K1A6 (Ball screw)	20,0	1 : 1	10	11	5 - 50 Hz	105	8,33 Y	5,5

Type (Type C)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/8 pol./100LX8			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1C6 (Trapezoidal screw)	10,0	1 : 1	5	5	5 - 87 Hz	100	9,98 D	5,5
K1C6 (Ball screw)		1 : 1	10	11	5 - 87 Hz	200	9,41 D	5,5
T1C6 (Trapezoidal screw)	17,5	1 : 1	5	5	5 - 50 Hz	50	8,50 Y	5,5
K1C6 (Ball screw)	20,0	1 : 1	10	11	5 - 50 Hz	105	8,33 Y	5,5

Type (Type M)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/4 pol./90L4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1M6 (Trapezoidal screw)	20,0	3 : 1	5	4	5 - 50 Hz	35	5,56 Y	3

Type (Type T)	Thrust (kN)	i	P (mm)	RACO-Motor 0,37 kW/400VAC/4 pol./63G4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1T6 (Trapezoidal screw)	20,0	20 : 1	5	1	5 - 50 Hz	6	1,8 D	1,1
K1T6 (Ball screw)		20 : 1	10	2	5 - 50 Hz	12	1,8 D	1,1

Type (Type T)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/4 pol./90L4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1T6 (Trapezoidal screw)	20,0	7,5 : 1	5	2	5 - 87 Hz	28	6,0 D	3
K1T6 (Ball screw)		7,5 : 1	10	3	5 - 87 Hz	55	5,8 D	3

Stroke

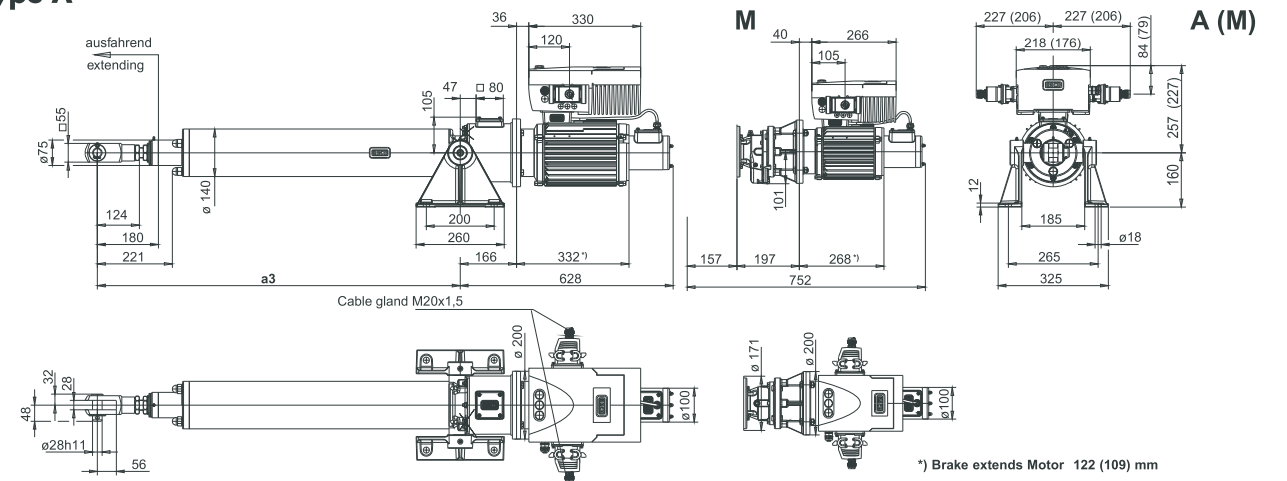
Stroke [mm]	200	400	600	800	1000	1200	1400	1600
a3 [mm]	670	870	1070	1270	1470	1670	1870	2070
Weight [kg] ca.	81	89	98	106	115	123	132	141



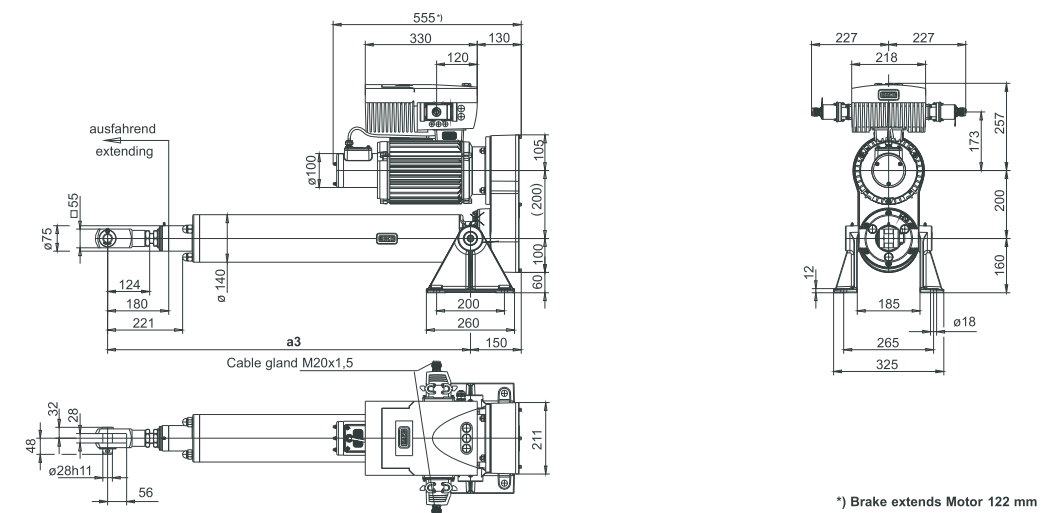
Tip 3:

RACO provides a pre-adjusted synchronous run control with all relevant functions for operation of two to up to four actuators as a complete configured black-box system.

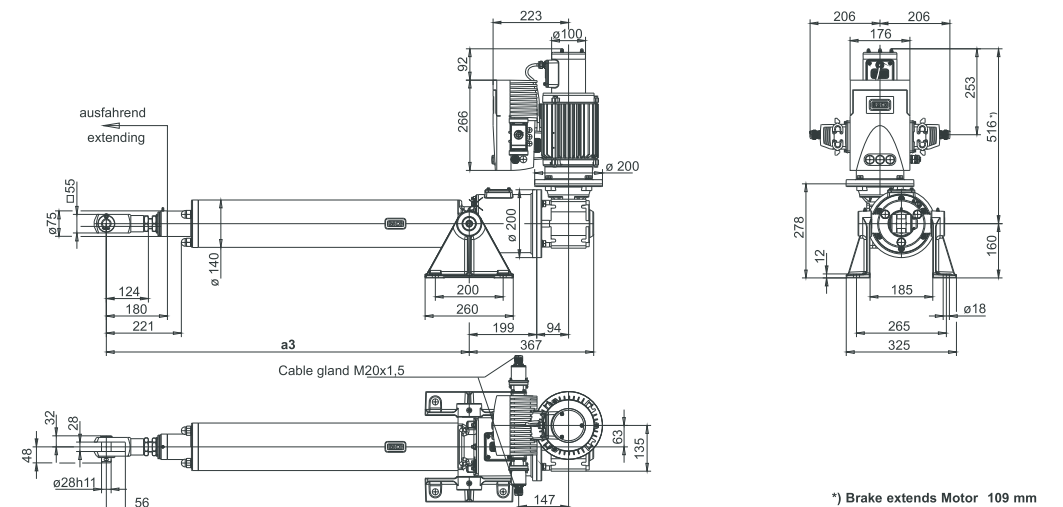
Type A



Type C



Type T



Performance specifications Size 7 with RACOMATIC®

Type (Type M)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/4 pol./90L4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
K1M7 (Ball screw)	15,0	3 : 1	12	10	5 - 87 Hz	165	8,10 D	5,5 **)
T1M7 (Trapezgewindetrieb)	20,0	5 : 1	7	5	5 - 87 Hz	55	8,50 D	5,5 **)
T1M7 (Trapezoidal screw)	30,0	6,7 : 1	7	3	5 - 50 Hz	25	5,40 Y	3
K1M7 (Ball screw)		5 : 1	12	6	5 - 50 Hz	55	5,30 Y	3
T1M7 (Trapezoidal screw)	40,0	8,4 : 1	7	2	5 - 50 Hz	20	5,70 Y	3
K1M7 (Ball screw)		6,7 : 1	12	4	5 - 50 Hz	40	5,30 Y	3
T1M7 (Trapezoidal screw)	50,0	10,6 : 1	7	2	5 - 50 Hz	15	5,60 Y	3
K1M7 (Ball screw)		8,4 : 1	12	3	5 - 50 Hz	30	5,30 Y	3

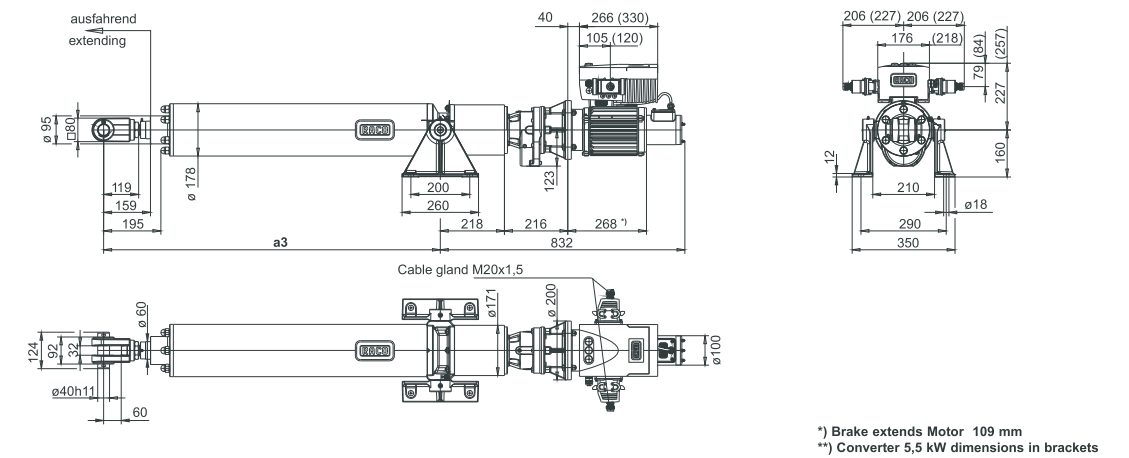
Type (Type N)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/4 pol./90L4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
K1N7 (Ball screw)	15,0	3 : 1	12	10	5 - 87 Hz	165	8,10 D	5,5 **)
T1N7 (Trapezgewindetrieb)	20,0	5 : 1	7	5	5 - 87 Hz	55	8,50 D	5,5 **)
T1N7 (Trapezoidal screw)	30,0	6,7 : 1	7	3	5 - 50 Hz	25	5,40 Y	3
K1N7 (Ball screw)		5 : 1	12	6	5 - 50 Hz	55	5,30 Y	3
T1N7 (Trapezoidal screw)	40,0	8,4 : 1	7	2	5 - 50 Hz	20	5,70 Y	3
K1N7 (Ball screw)		6,7 : 1	12	4	5 - 50 Hz	40	5,30 Y	3
T1N7 (Trapezoidal screw)	50,0	10,6 : 1	7	2	5 - 50 Hz	15	5,60 Y	3
K1N7 (Ball screw)		8,4 : 1	12	3	5 - 50 Hz	30	5,30 Y	3

Type (Type T)	Thrust (kN)	i	P (mm)	RACO-Motor 2,2 kW/400VAC/4 pol./90L4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1T7 (Trapezoidal screw)	40,0	7,6 : 1	7	2	5 - 50 Hz	20	6,20 Y	3
K1T7 (Ball screw)		7,6 : 1	12	4	5 - 50 Hz	40	4,80 Y	3
T1T7 (Trapezoidal screw)	50,0	10 : 1	7	2	5 - 50 Hz	15	5,90 Y	3
K1T7 (Ball screw)		10 : 1	12	3	5 - 50 Hz	30	4,70 Y	3

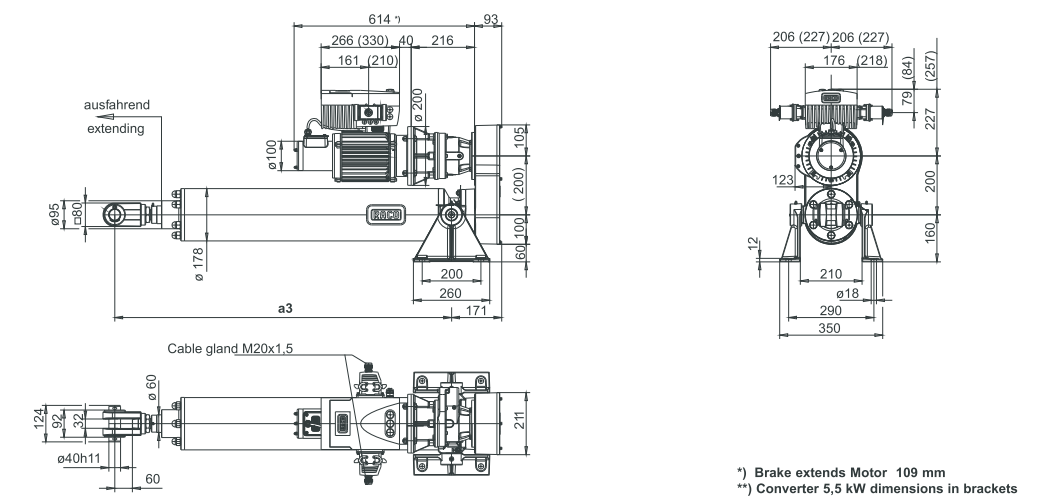
Stroke

Stroke [mm]	200	400	600	800	1000	1200	1400	1600	1800	2000
a3 [mm]	745	945	1145	1345	1545	1745	1945	2145	2345	2545
Weight [kg] ca.	128	138	148	158	168	178	188	198	208	218

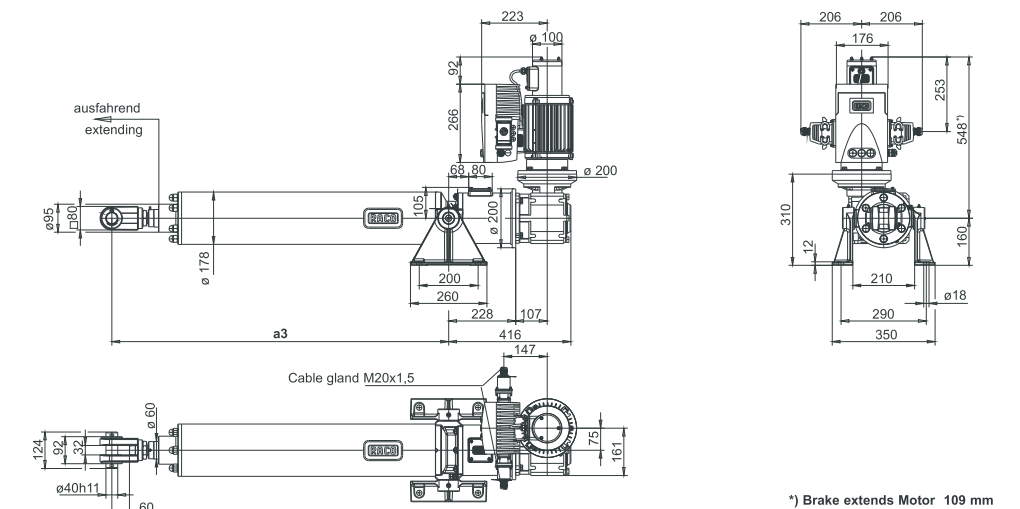
Type M



Type N



Type T



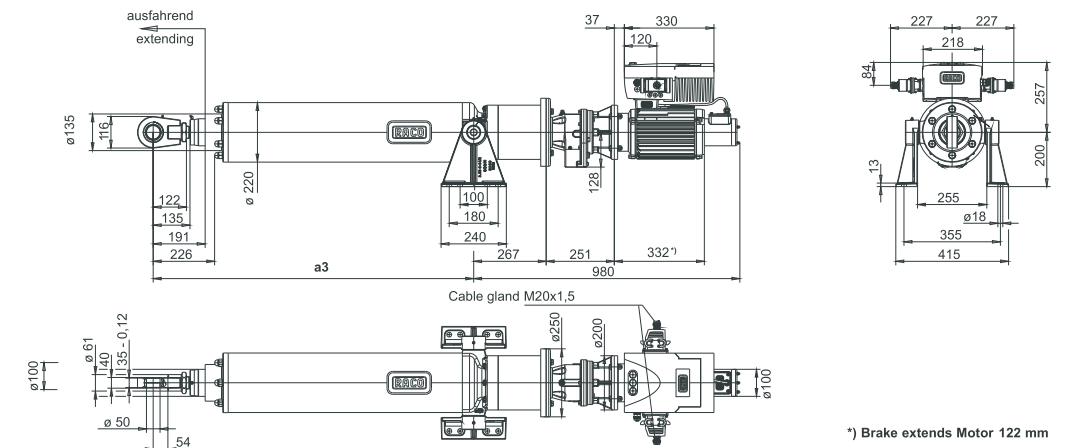
Performance specifications Size 8 with RACOMATIC®

Type (Type M, N and T)	Thrust (kN)	i	P (mm)	RACO-Motor 4kW/400VAC/4 pol./100L4			Motor power (A) / Switch	Converter (kW)
				min.	(mm/s)	max.		
T1M8 (Trapezoidal screw)	40,0	8,1 : 1	10	3	5 - 50 Hz	30	10,10 Y	5,5
K1M8 (Ball screw)		5,3 : 1	16	7	5 - 50 Hz	70	9,10 Y	5,5
T1M8 (Trapezoidal screw)	60,0	13,5 : 1	10	2	5 - 50 Hz	20	9,30 Y	5,5
K1M8 (Ball screw)		6,8 : 1	16	6	5 - 50 Hz	55	10,30 Y	5,5
T1M8 (Trapezoidal screw)	80,0	16,8 : 1	10	2	5 - 50 Hz	15	9,90 Y	5,5
K1M8 (Ball screw)		9,8 : 1	16	4	5 - 50 Hz	40	9,70 Y	5,5
T1M8 (Trapezoidal screw)	100,0	20,3 : 1	10	1	5 - 50 Hz	10	10,00 Y	5,5
K1M8 (Ball screw)		13,5 : 1	16	3	5 - 50 Hz	30	9,00 Y	5,5
T1N8 (Trapezoidal screw)	40,0	8,1 : 1	10	3	5 - 50 Hz	30	10,10 Y	5,5
K1N8 (Ball screw)		5,3 : 1	16	7	5 - 50 Hz	70	9,10 Y	5,5
T1N8 (Trapezoidal screw)	60,0	13,5 : 1	10	2	5 - 50 Hz	20	9,30 Y	5,5
K1N8 (Ball screw)		6,8 : 1	16	6	5 - 50 Hz	55	10,30 Y	5,5
T1N8 (Trapezoidal screw)	80,0	16,8 : 1	10	2	5 - 50 Hz	15	9,90 Y	5,5
K1N8 (Ball screw)		9,8 : 1	16	4	5 - 50 Hz	40	9,70 Y	5,5
T1N8 (Trapezoidal screw)	100,0	20,3 : 1	10	1	5 - 50 Hz	10	10,00 Y	5,5
K1N8 (Ball screw)		13,5 : 1	16	3	5 - 50 Hz	30	9,00 Y	5,5
T1T8 (Trapezoidal screw)	35,0	7,6 : 1	10	3	5 - 50 Hz	30	9,60 Y	5,5
T1T8 (Trapezoidal screw)	60,0	12,5 : 1	10	2	5 - 50 Hz	20	9,90 Y	5,5
K1T8 (Ball screw)		7,6 : 1	16	5	5 - 50 Hz	50	9,50 Y	5,5
T1T8 (Trapezoidal screw)	80,0	16 : 1	10	2	5 - 50 Hz	15	10,20 Y	5,5
T1T8 (Trapezoidal screw)	100,0	21,5 : 1	10	1	5 - 50 Hz	10	9,60 Y	5,5
K1T8 (Ball screw)		12,5 : 1	16	3	5 - 50 Hz	30	9,50 Y	5,5

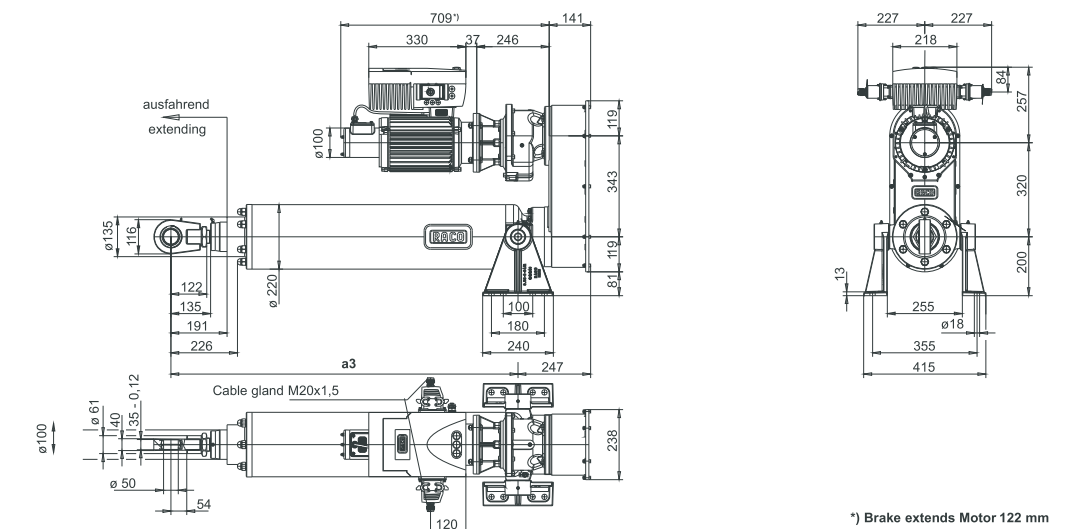
Stroke

Stroke [mm]	200	400	600	800	1000	1200	1400	1600	1800	2000
a3 [mm]	780	980	1180	1380	1580	1780	1980	2180	2380	2580
Weight [kg] ca.	209	223	237	251	265	279	293	307	321	335

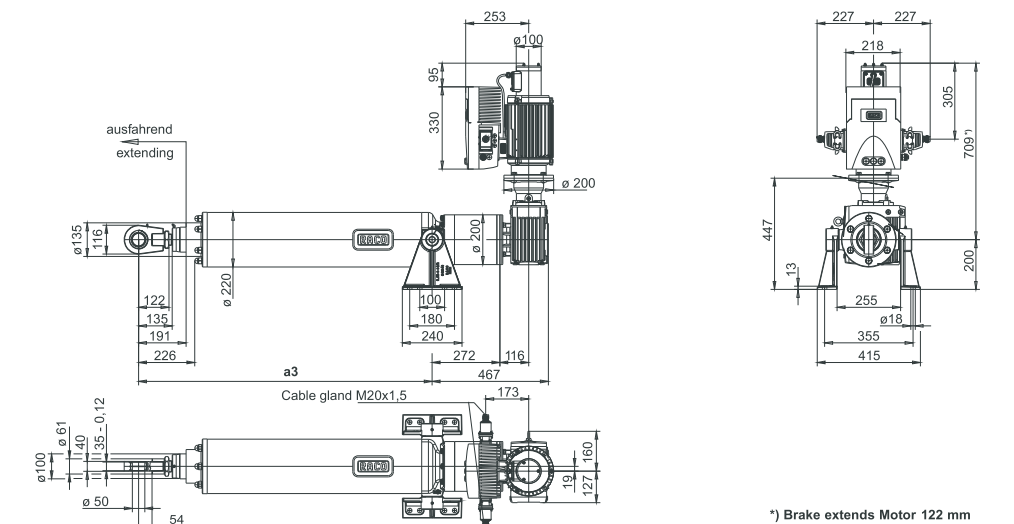
Type M



Type N



Type T





THE RACOMATIC® TOOL BECAUSE EASY IS EASIER

Integrated drive systems with RACOMATIC® are pre-configured for your operational requirements and are ready for operation as soon as they have been connected.

RACO analyzes and documents all pre-configured systems parameters and can restore them at any time.

Customer Settings (2 Prog. Endpositions)		Abs. Min. Position [mm]: 0 (fixed)
	Actual	Setpoint
Retracted Position [mm]:	5	5,000
Extended Position [mm]:	595	595,000
Retracted Endposition [mm]:	6	6,000 (REL1)
Extended Endposition [mm]:	594	594,000 (REL2)
Retracted Preposition [mm]:	10	10,000 (DIGOUT1)
Extended Preposition [mm]:	590	590,000 (DIGOUT2)
Max. Frequency [Hz]:	50	50,0
Pot1 Speed Value [%]:	85,1	
Max. Speed [mm/s]:	29	
Max Force Value [%]:	100	100,0
Pot2 Force Value [%]:	10	
Acceleration Time [s]:	1	1,0
Deceleration Time [s]:	1	1,0

Active State

Connection State: 100% —

Data Transfer State: —

Setpoint Position [mm]: 49,995

Actual Position [mm]: 49,999

Actual Speed [1/min]: 0

Actual Total Current [A]: 1

Actual Torque Current [A]: 0

Actual Error: Actual Warning: 0%

Actual Lockout Reason: —

Electronic Handwheel

Setpoint Position: 49,999

Slow Hz: 5

Fast Hz: 10

Speed: —

Retract (In) Extend (Out)

The unique RACOMATIC® Tool application software efficiently reduces the approximately 800 control variables resulting from the combination of the variable frequency drive and the sensor electronic to just a few parameters needed for your application.

The electronic handwheel function can be enabled during installation and startup to retract and extend the actuator independently from the customer's control equipment. The RACOMATIC® Tool also supports the configuration of field bus systems.

RACOMATIC®

intelligent Electric Actuators



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