

# ZOLLERN

Solid metals. Fine solutions.

Drive Technology

Torque motor



## **The ZOLLERN-Group**

With first-class products and customized solutions in the sectors drive technology, investment casting, sand casting and forging as well as steel profiles we are one of the leading manufacturers – worldwide.

As one of the oldest family-run businesses in Germany we are proud to look back on an impressive 300-year history during which we have merged tradition with innovation. Our main focus is on excellent quality and service.

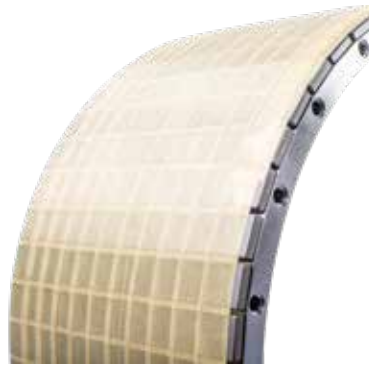
Welcome to the world of ZOLLERN, where experience and progress go hand in hand to offer our customers the best solutions and products for their requirements in various industrial sectors.

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# Powerful drives for your application



Pre-assembled for fast installation



Mechanical protection of the magnets



Electric interface

Meanwhile, Drive Technology has evolved into the largest business division within the ZOLLERN Group. It consists of the products groups: gears and winches, automation, rotary table systems, hydrostatic bearing systems, and electric motors.

ZOLLERN electric motors are synchronous or torque drive motors with permanent magnets. The torque motor were developed for high torques at comparably low speeds. Synchronous motors are used for high speeds.

Product planning, electrical configuration, engineering, manufacturing and assembly as well as commissioning take place in-house. This ensures efficient and cost-optimised configuration as well as high quality.

Customer-specific requests and requirements can be easily realised within the standard construction method.

ZOLLERN electric motors feature high power density and excellent efficiency. The drives are characterised by good control properties, optimal cooling and improved heat dissipation.

ZOLLERN electric motors are wear- and backlash-free as well as low-maintenance. Large dimensions with diameters of up to 2,200 mm and maximum torques of 100,000 Nm are also possible.

The annular high-precision motors consist of a stator unit with a winding and a rotor with a permanent magnets.





# Features and advantages of ZOLLERN motor technology

- Maximum torque density
- High dynamics
- High precision
- Extremely small torque ripple
- Customer-specific design and support
- Low heat input



## Torque motor for machine tools



For use as

- Drives in rotary tables for positioning
- Drives in swivel axes
- Drives in fast-rotating rotary tables for milling/turning work <<



- Torque motor TM360/298-150 for driving a swivel unit





## Torque motor for large applications



For use as

- Drives in vertical lathes
- Drives in presses
- Drives for rotary tables with large diameters «



- Torque motor TMS1380/1290-250 for driving a rotary table in a horizontal grinding machine.





# Torque motor for forming technology and presses



For use as

- Drives for eccentric presses
- Drives in extruders «



- Torque motor TMSHT992/919-150 as a flywheel drive





# Torque motor for stirrers and centrifuges

- »» For use as
- Drives in stirrers
  - Drives in centrifuges ««



- Torque motor TM360/298-200 as a drive for a submersion stirrer



# Torque motor for medical technology



For use as

- Drives for medical analysis devices «



- Torque motor TM1380/1290-050  
as a drive for a medical analysis device





# Torque motor for recycling and shredding

- »» For use as
- Drives for shredders
  - Drives for cutting mills «



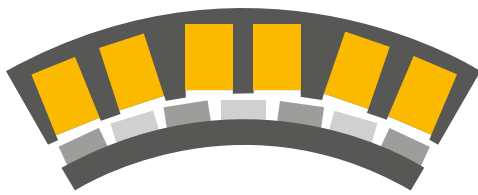
Synchronous motor SMK 500-400  
P = 360 kW  
n = 1.100 rpm



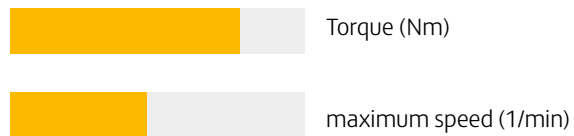
# Torque motor

## Product range / Motor types

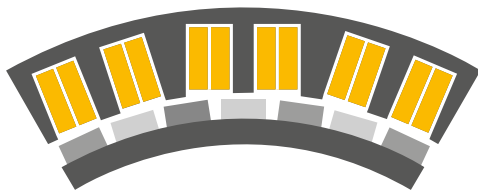
### Torque motor standard / Type TM



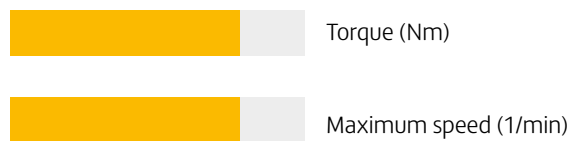
- Design with surface magnets
- Single-layer stator winding



### Torque motor high speed / Type TMS



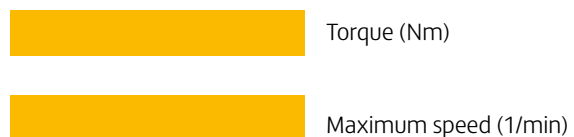
- Design with surface magnets
- Double-layer stator winding



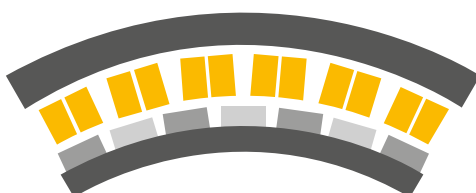
### Torque motor high speed and high torque / Type TMSHT



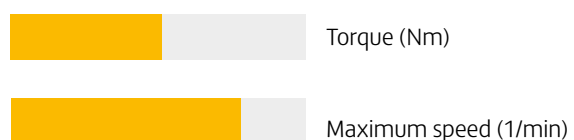
- Design with an inserted magnet
- Double-layer stator winding



### Torque motor no cogging / Typ TMNC



- No torque ripple
- Maximum precision



# Torque motor

## Type TM

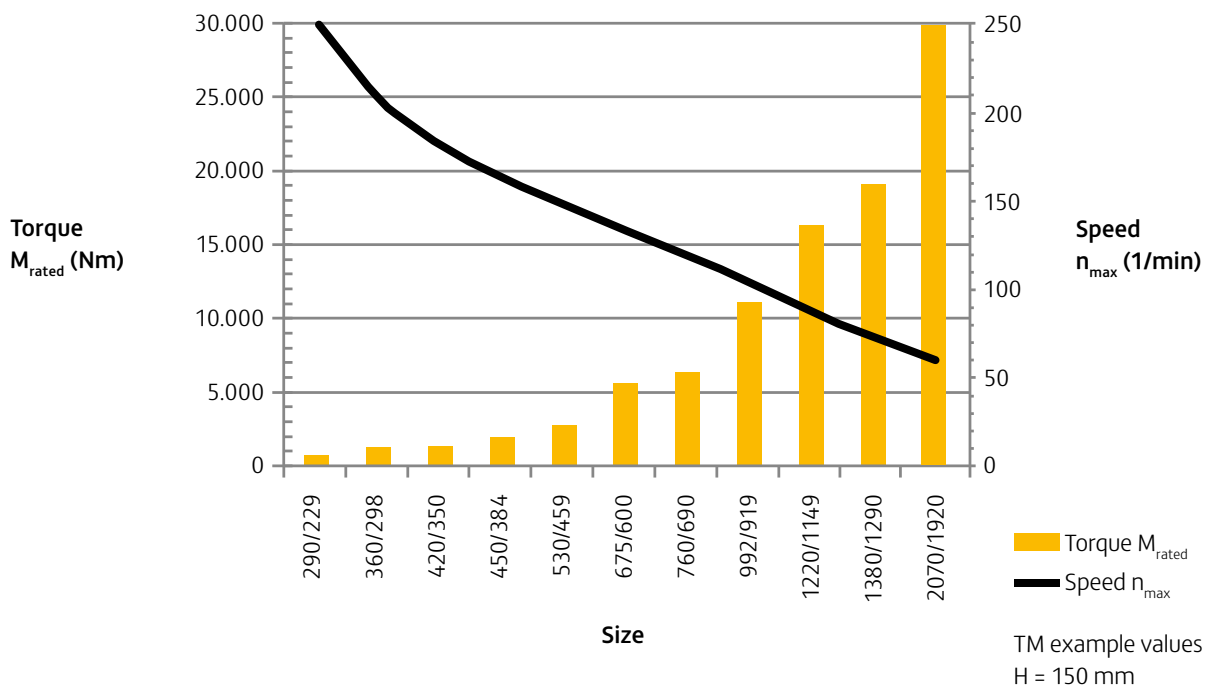
high torque

### Features

- internal rotor
- exterior cooling jacket open / closed
- surface magnets
- sleeve on rotor
- coils with orthocyclic winding
- standard and special sizes
- customer-specific designs possible



Torque / speed ratio by size



# Torque motor

## Typ TMS

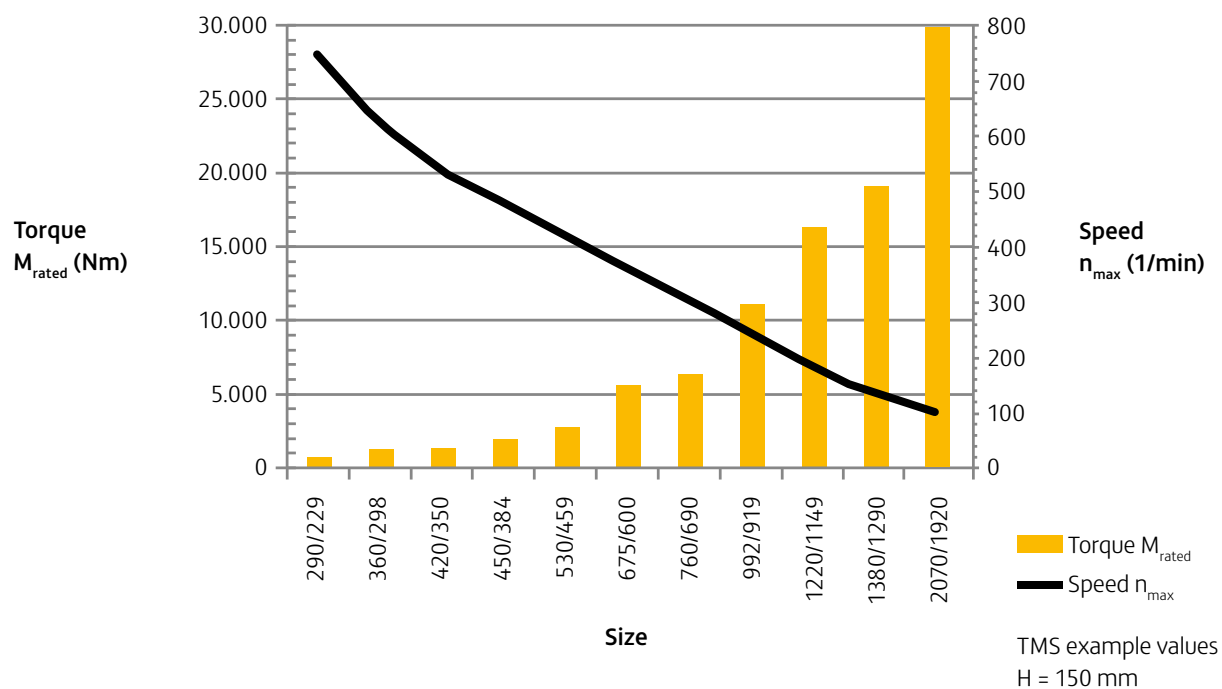
high torque / speed

### Features

- internal rotor
- exterior cooling jacket open / closed
- surface magnets
- sleeve on rotor
- coils with orthocyclic winding
- double number of coils
- standard and special sizes
- customer-specific designs possible



### Torque / speed ratio by size





# Torque motor

## Typ TMSHT

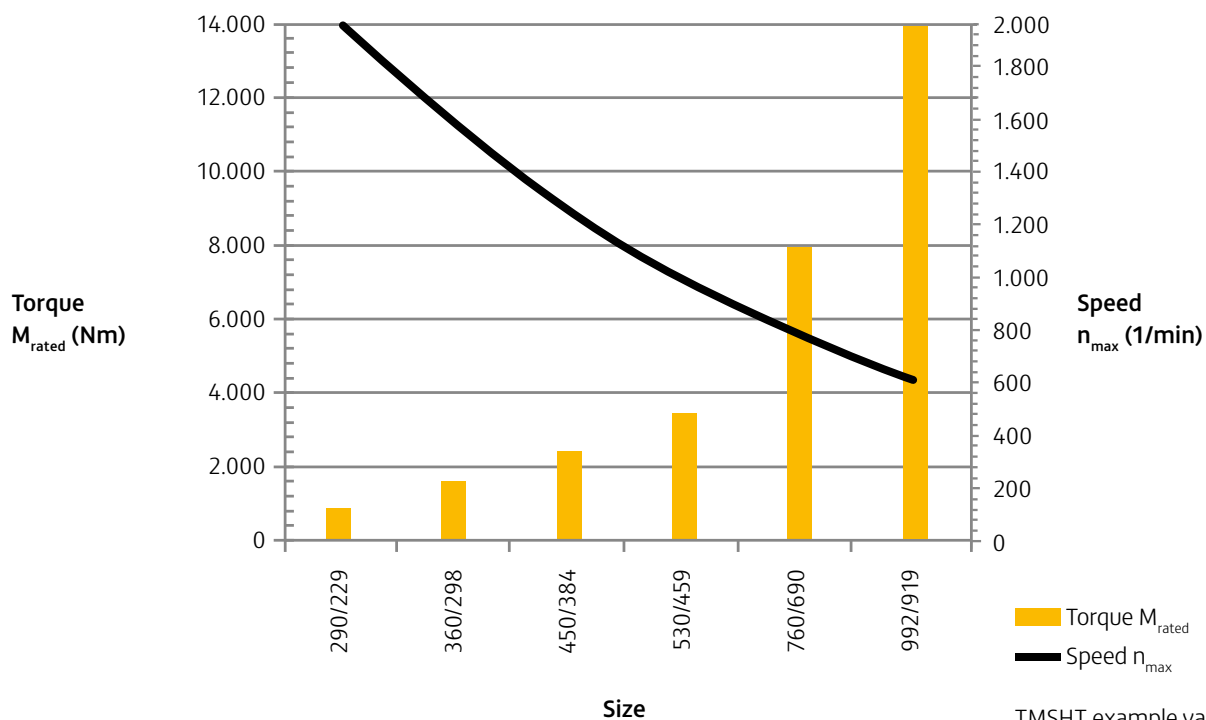
highest torque / speed

### Features

- internal rotor
- exterior cooling jacket open / closed
- embedded magnets
- coils with orthocyclic winding
- double number of coils
- standard and special sizes
- customer-specific designs possible



### Torque / speed ratio by size



TMSHT example values  
H = 150 mm

# Technical data overview

## Torque motor TM / TMS

// Technical data												
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 290/229-030	310	200	70	31	300	210	65	135	260	250	750	400
TM 290/229-050	310	200	90	51	300	210	108	230	430	250	750	400
TM 290/229-070	310	200	110	71	300	210	145	320	590	250	750	400
TM 290/229-100	310	200	140	101	300	210	207	460	845	250	750	400
TM 290/229-150	310	200	190	151	300	210	305	700	1.260	250	750	400
TM 290/229-200	310	200	240	201	300	210	410	950	1.680	250	750	400
TM 290/229-250	310	200	290	251	300	210	510	1.200	2.100	250	750	400
TM 290/229-300	310	200	340	301	300	210	610	1.400	2.520	250	750	400
TM 360/298-030	385	265	90	31	370	277	115	243	440	200	600	400
TM 360/298-050	385	265	110	51	370	277	195	405	720	200	600	400
TM 360/298-070	385	265	130	71	370	277	255	560	1.020	200	600	400
TM 360/298-100	385	265	160	101	370	277	355	825	1.420	200	600	400
TM 360/298-150	385	265	210	151	370	277	530	1.230	2.130	200	600	400
TM 360/298-200	385	265	260	201	370	277	700	1.640	2.840	200	600	400
TM 360/298-250	385	265	310	251	370	277	890	2.050	3.550	200	600	400
TM 360/298-300	385	265	360	301	370	277	1.060	2.460	4.260	200	600	400
TM 420/350-030	450	300	90	31	432	318	130	270	519	175	520	400
TM 420/350-050	450	300	110	51	432	318	210	445	856	175	520	400
TM 420/350-070	450	300	130	71	432	318	290	625	1.202	175	520	400
TM 420/350-100	450	300	160	101	432	318	405	890	1.712	175	520	400
TM 420/350-150	450	300	210	151	432	318	590	1.340	2.600	175	520	400
TM 420/350-200	450	300	260	201	432	318	780	1.800	3.450	175	520	400
TM 420/350-250	450	300	310	251	432	318	980	2.250	4.300	175	520	400
TM 420/350-300	450	300	360	301	432	318	1180	2.680	5.150	175	520	400

Further lengths on request

// Technical data												
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 450/384-030	485	345	90	31	468	360	185	370	710	170	500	400
TM 450/384-050	485	345	110	51	468	360	300	640	1.180	170	500	400
TM 450/384-070	485	345	130	71	468	360	415	890	1.650	170	500	400
TM 450/384-100	485	345	160	101	468	360	580	1.350	2.340	170	500	400
TM 450/384-150	485	345	210	151	468	360	850	1.930	3.510	170	500	400
TM 450/384-200	485	345	260	201	468	360	1.100	2.600	4.680	170	500	400
TM 450/384-250	485	345	310	251	468	360	1.400	3.220	5.850	170	500	400
TM 450/384-300	485	345	360	301	468	360	1.700	3.860	7.020	170	500	400
TM 530/459-030	565	420	90	31	548	435	275	525	1.010	150	450	400
TM 530/459-050	565	420	110	51	548	435	435	910	1.684	150	450	400
TM 530/459-070	565	420	130	71	548	435	600	1.285	2.350	150	450	400
TM 530/459-100	565	420	160	101	548	435	820	1.820	3.336	150	450	400
TM 530/459-150	565	420	210	151	548	435	1.310	2.740	5.020	150	450	400
TM 530/459-200	565	420	260	201	548	435	1.750	3.650	6.700	150	450	400
TM 530/459-250	565	420	310	251	548	435	2.150	4.570	8.350	150	450	400
TM 530/459-300	565	420	360	301	548	435	2.620	5.480	10.040	150	450	400
TM 675/600-030	710	550	90	31	690	565	460	1.020	1.705	135	350	400
TM 675/600-050	710	550	110	51	690	565	765	1.700	2.840	135	350	400
TM 675/600-070	710	550	130	71	690	565	1.075	2.390	3.990	135	350	400
TM 675/600-100	710	550	160	101	690	565	1.625	3.610	6.140	135	350	400
TM 675/600-150	710	550	210	151	690	565	2.520	5.600	10.100	135	350	400
TM 675/600-200	710	550	260	201	690	565	3.430	7.620	12.700	135	350	400
TM 675/600-250	710	550	310	251	690	565	4.290	9.540	15.930	135	350	400
TM 675/600-300	710	550	360	301	690	565	5.140	11.430	19.100	135	350	400
TM 760/690-030	795	650	90	31	778	665	630	1.230	2.250	125	350	400
TM 760/690-050	795	650	110	51	778	665	1.050	2.165	3.900	125	350	400
TM 760/690-070	795	650	130	71	778	665	1.430	2.915	5.310	125	350	400
TM 760/690-100	795	650	160	101	778	665	2.010	4.290	7.780	125	350	400
TM 760/690-150	795	650	210	151	778	665	3.000	6.420	11.602	125	350	400
TM 760/690-200	795	650	260	201	778	665	4.000	8.560	15.500	125	350	400
TM 760/690-250	795	650	310	251	778	665	5.000	10.700	19.350	125	350	400
TM 760/690-300	795	650	360	301	778	665	6.000	12.840	23.200	125	350	400



**// Technical data**

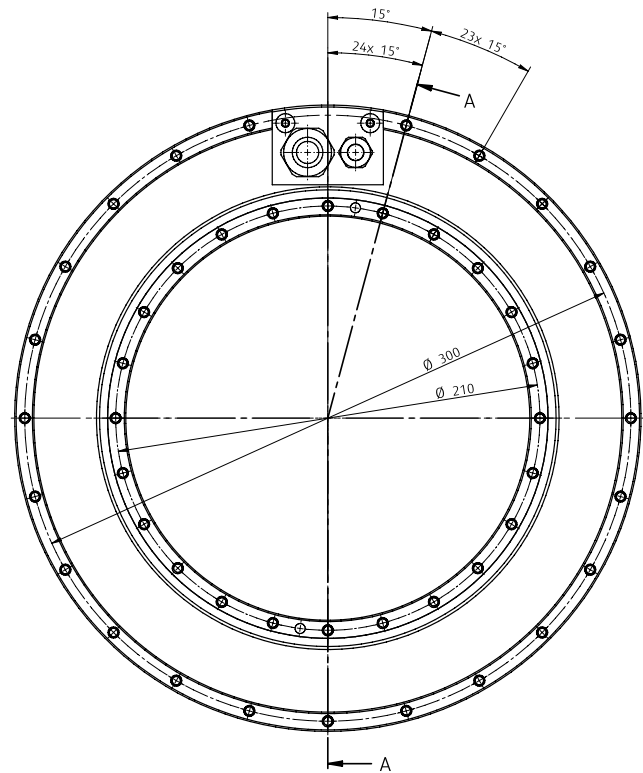
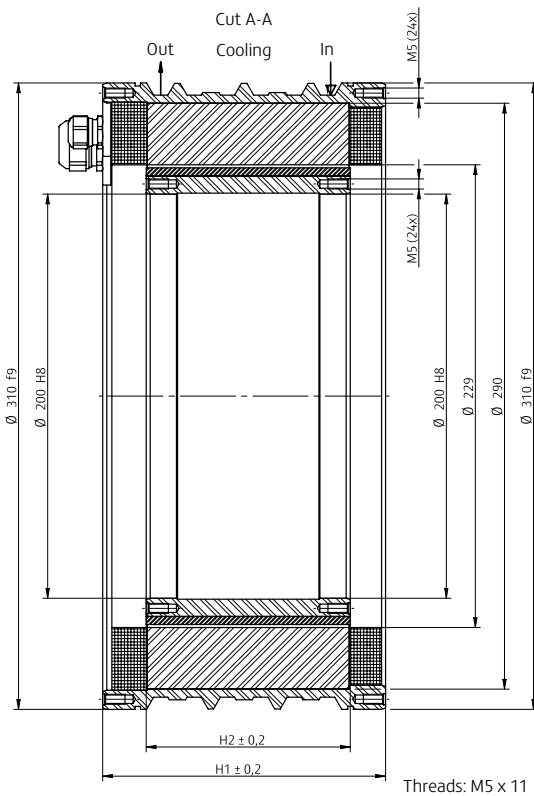
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
					(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)
TM 992/919-030	1.030	860	90	31	1.010	880	1.100	2.100	4.060	100	250	400
TM 992/919-050	1.030	860	110	51	1.010	880	1.800	3.650	6.900	100	250	400
TM 992/919-070	1.030	860	130	71	1.010	880	2.475	5.196	9.350	100	250	400
TM 992/919-100	1.030	860	160	101	1.010	880	3.400	7.486	13.720	100	250	400
TM 992/919-150	1.030	860	210	151	1.010	880	5.025	11.200	20.332	100	250	400
TM 992/919-200	1.030	860	260	201	1.010	880	6.700	14.900	27.100	100	250	400
TM 992/919-250	1.030	860	310	251	1.010	880	8.400	18.700	33.900	100	250	400
TM 992/919-300	1.030	860	360	301	1.010	880	10.050	22.400	40.600	100	250	400
TM 1220/1149-030	1.290	1.070	90	31	1.254	1.105	1.725	3.150	6.300	80	160	400
TM 1220/1149-050	1.290	1.070	110	51	1.254	1.105	2.800	5.500	10.580	80	160	400
TM 1220/1149-070	1.290	1.070	130	71	1.254	1.105	3.625	7.450	14.530	80	160	400
TM 1220/1149-100	1.290	1.070	160	101	1.254	1.105	5.150	11.200	20.910	80	160	400
TM 1220/1149-150	1.290	1.070	210	151	1.254	1.105	7.200	16.300	31.350	80	160	400
TM 1220/1149-200	1.290	1.070	260	201	1.254	1.105	9.600	21.750	41.800	80	160	400
TM 1220/1149-250	1.290	1.070	310	251	1.254	1.105	12.000	27.100	52.250	80	160	400
TM 1220/1149-300	1.290	1.070	360	301	1.254	1.105	14.400	32.600	62.700	80	160	400
TM 1380/1290-030	1.450	1.200	100	31	1.415	1.230	1.720	3.800	6.080	70	130	400
TM 1380/1290-050	1.450	1.200	120	51	1.415	1.230	2.900	6.400	10.250	70	130	400
TM 1380/1290-070	1.450	1.200	140	71	1.415	1.230	4.000	8.900	14.200	70	130	400
TM 1380/1290-100	1.450	1.200	170	101	1.415	1.230	5.700	12.700	19.900	70	130	400
TM 1380/1290-150	1.450	1.200	220	151	1.415	1.230	8.600	19.100	29.600	70	130	400
TM 1380/1290-200	1.450	1.200	270	201	1.415	1.230	11.400	25.500	39.500	70	130	400
TM 1380/1290-250	1.450	1.200	320	251	1.415	1.230	14.300	31.800	49.000	70	130	400
TM 1380/1290-300	1.450	1.200	370	301	1.415	1.230	17.200	38.200	59.200	70	130	400
TM 2070/1920-030	2.200	1.720	137	31	2.120	1.800	2.975	6.000	8.000	60	100	400
TM 2070/1920-050	2.200	1.720	157	51	2.120	1.800	4.950	10.000	13.300	60	100	400
TM 2070/1920-070	2.200	1.720	177	71	2.120	1.800	6.925	14.000	18.660	60	100	400
TM 2070/1920-100	2.200	1.720	207	101	2.120	1.800	9.900	20.000	26.600	60	100	400
TM 2070/1920-150	2.200	1.720	257	151	2.120	1.800	14.850	30.000	40.000	60	100	400
TM 2070/1920-200	2.200	1.720	270	201	2.120	1.800	19.800	40.000	53.000	60	100	400
TM 2070/1920-250	2.200	1.720	320	251	2.120	1.800	24.750	50.000	66.700	60	100	400
TM 2070/1920-300	2.200	1.720	370	301	2.120	1.800	29.700	60.000	80.000	60	100	400

# Technical data overview

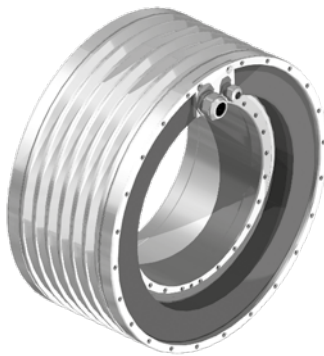
## Torque motor TMSHT

// Technical data										
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque	Peak torque up to 2 sec.	Max. speed	Voltage
					Stator	Rotor				
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(1/min)	(V)
TMSHT 290/229-050	310	145	90	85	300	200	288	430	2000	400
TMSHT 290/229-100	310	145	140	135	300	200	575	845	2000	400
TMSHT 290/229-150	310	145	190	185	300	200	875	1260	2000	400
TMSHT 360/298-050	385	210	110	85	370	228	506	720	1500	400
TMSHT 360/298-100	385	210	160	135	370	228	1031	1420	1500	400
TMSHT 360/298-150	385	210	210	185	370	228	1538	2130	1500	400
TMSHT 450/384-050	485	352	110	88,5	468	352	800	1180	1200	400
TMSHT 450/384-100	485	352	160	138,5	468	352	1688	2340	1200	400
TMSHT 450/384-150	485	352	210	188,5	468	352	2413	3510	1200	400
TMSHT 530/459-050	565	365	110	78,5	548	415	1138	1684	1000	400
TMSHT 530/459-100	565	365	160	128,5	548	415	2275	3336	1000	400
TMSHT 530/459-150	565	365	210	178,5	548	415	3425	5020	1000	400
TMSHT 760/690-050	795	570	110	85	778	650	2706	3900	700	400
TMSHT 760/690-100	795	570	160	135	778	650	5363	7780	700	400
TMSHT 760/690-150	795	570	210	185	778	650	8025	11602	700	400
TMSHT 992/919-050	1030	815	110	85	1010	890	4563	6900	600	400
TMSHT 992/919-100	1030	815	160	135	1010	890	9358	13720	600	400
TMSHT 992/919-150	1030	815	210	185	1010	890	14000	20332	600	400

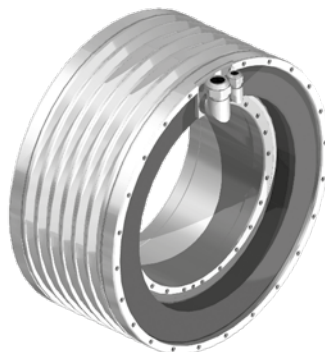
# TM 290/229-H



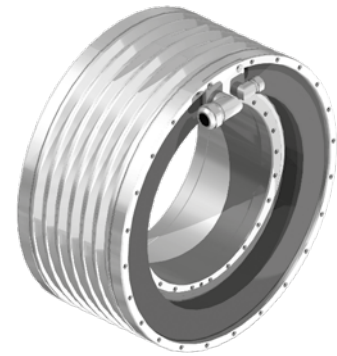
Cable outlet design:



axial



radial



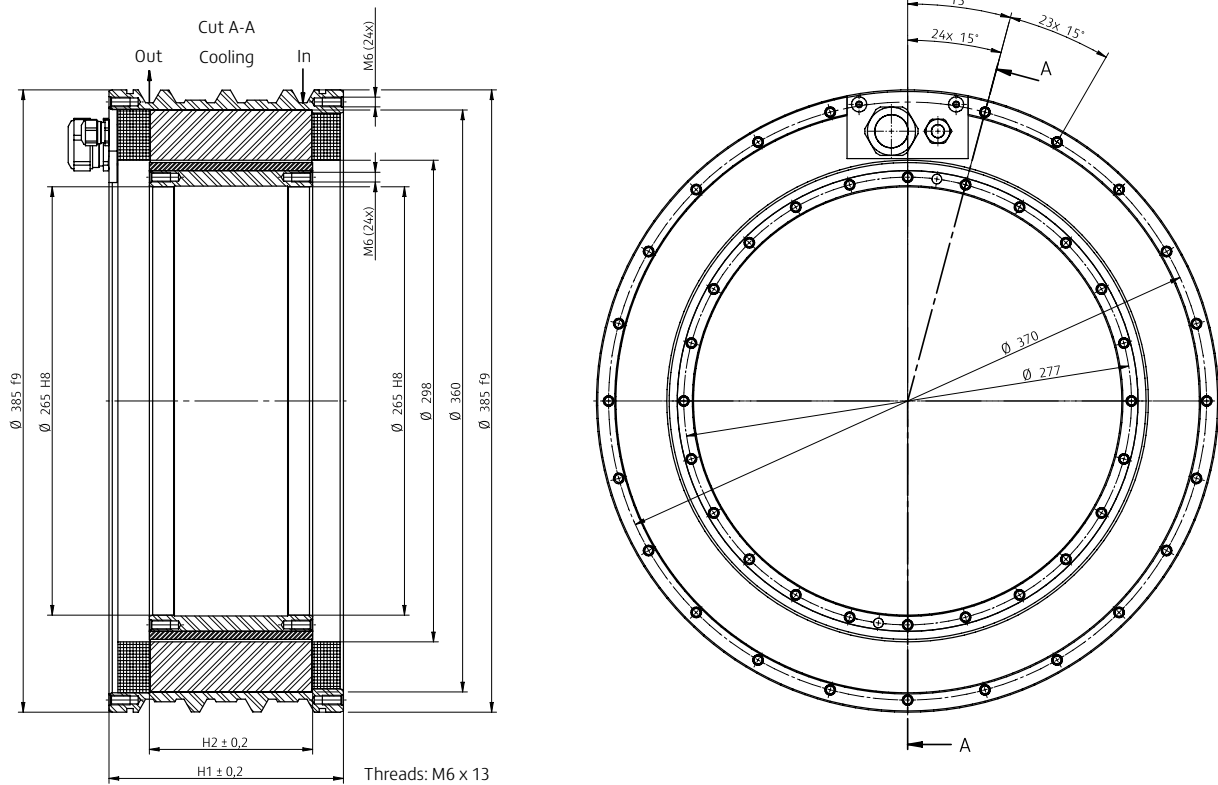
tangential

## // Technical data

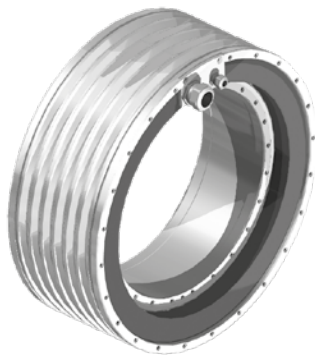
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 290/229-030	310	200	70	31	300	210	65	135	260	250	750	400
TM 290/229-050	310	200	90	51	300	210	108	230	430	250	750	400
TM 290/229-070	310	200	110	71	300	210	145	320	590	250	750	400
TM 290/229-100	310	200	140	101	300	210	207	460	845	250	750	400
TM 290/229-150	310	200	190	151	300	210	305	700	1.260	250	750	400
TM 290/229-200	310	200	240	201	300	210	410	950	1.680	250	750	400
TM 290/229-250	310	200	290	251	300	210	510	1.200	2.100	250	750	400
TM 290/229-300	310	200	340	301	300	210	610	1.400	2.520	250	750	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

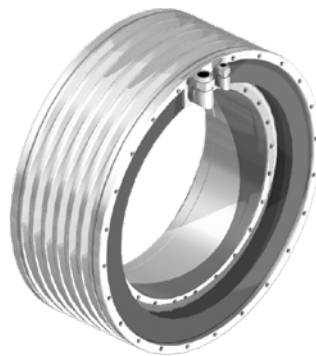
# TM 360/298-H



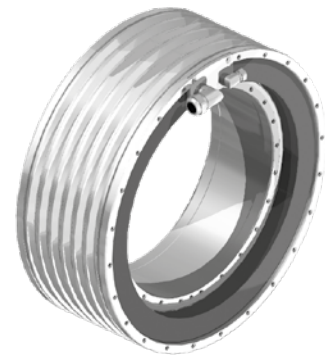
Cable outlet design:



axial



radial



tangential

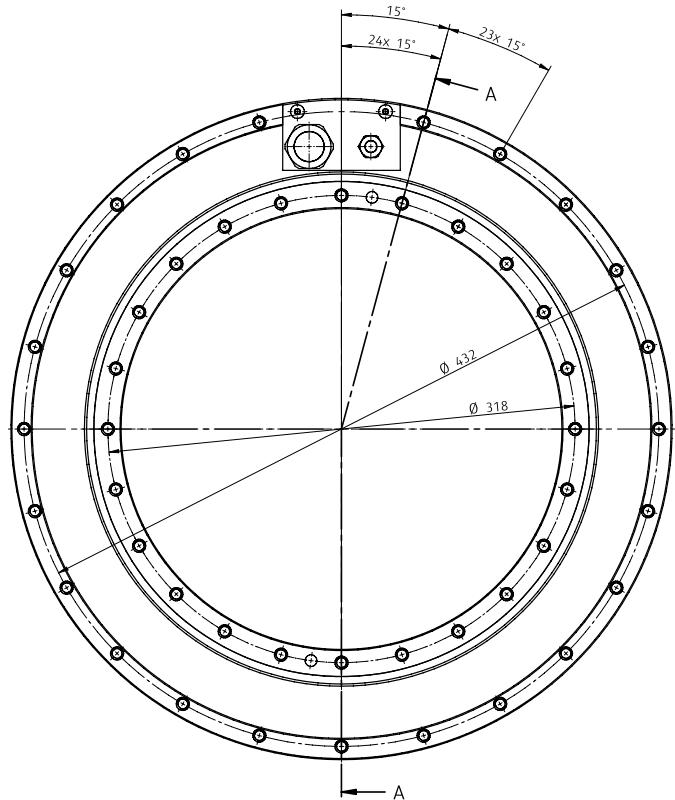
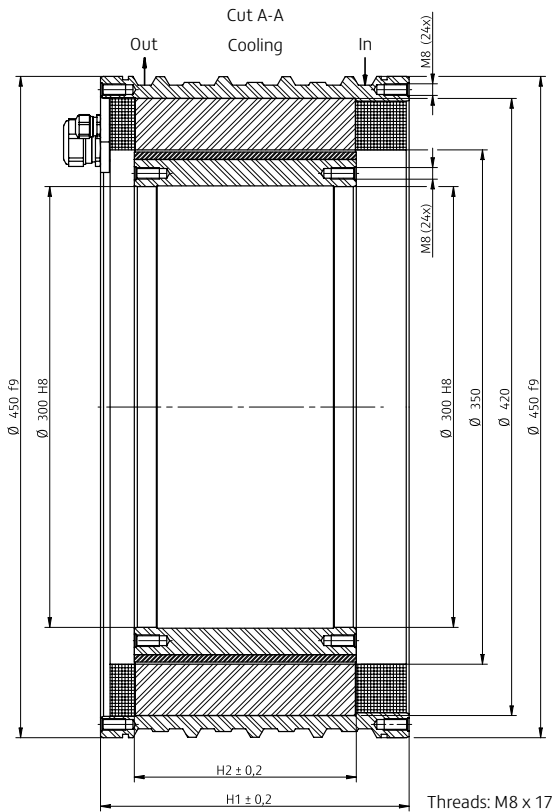
## // Technical data

Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 360/298-030	385	265	90	31	370	277	115	243	440	200	600	400
TM 360/298-050	385	265	110	51	370	277	195	405	720	200	600	400
TM 360/298-070	385	265	130	71	370	277	255	560	1.020	200	600	400
TM 360/298-100	385	265	160	101	370	277	355	825	1.420	200	600	400
TM 360/298-150	385	265	210	151	370	277	530	1.230	2.130	200	600	400
TM 360/298-200	385	265	260	201	370	277	700	1.640	2.840	200	600	400
TM 360/298-250	385	265	310	251	370	277	890	2.050	3.550	200	600	400
TM 360/298-300	385	265	360	301	370	277	1.060	2.460	4.260	200	600	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.



# TM 420/350-H



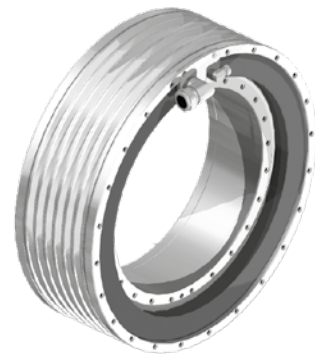
Cable outlet design:



axial



radial



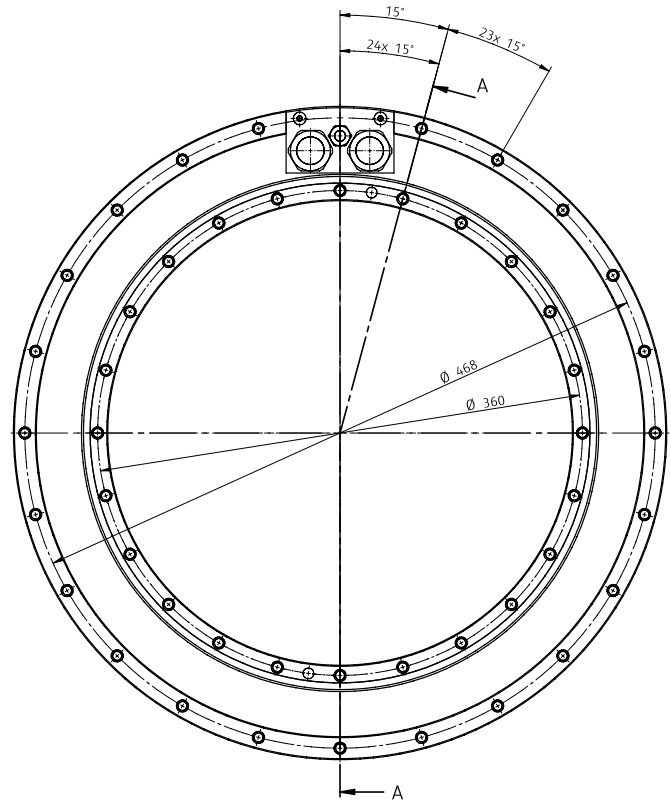
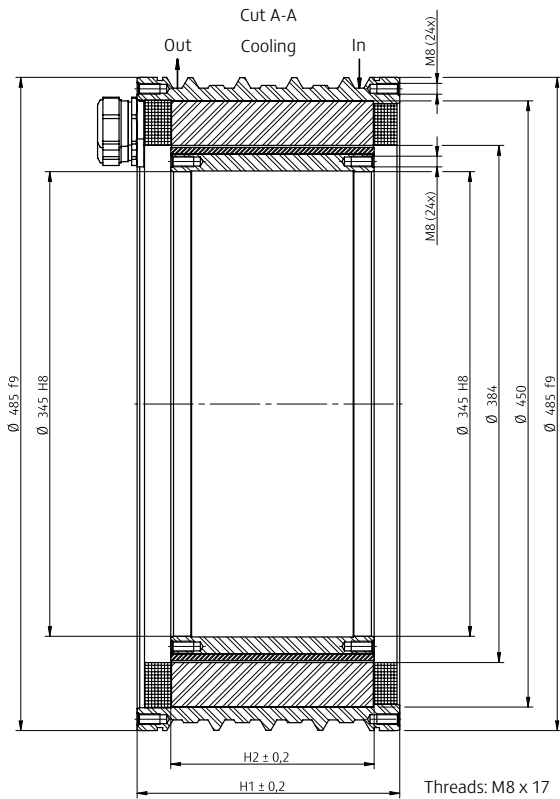
tangential

## // Technical data

Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 420/350-030	450	300	90	31	432	318	130	270	519	175	520	400
TM 420/350-050	450	300	110	51	432	318	210	445	856	175	520	400
TM 420/350-070	450	300	130	71	432	318	290	625	1.202	175	520	400
TM 420/350-100	450	300	160	101	432	318	405	890	1.712	175	520	400
TM 420/350-150	450	300	210	151	432	318	590	1.340	2.600	175	520	400
TM 420/350-200	450	300	260	201	432	318	780	1.800	3.450	175	520	400
TM 420/350-250	450	300	310	251	432	318	980	2.250	4.300	175	520	400
TM 420/350-300	450	300	360	301	432	318	1180	2.680	5.150	175	520	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

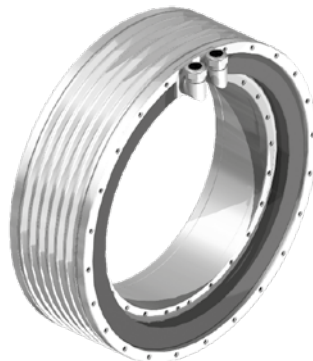
# TM 450/384-H



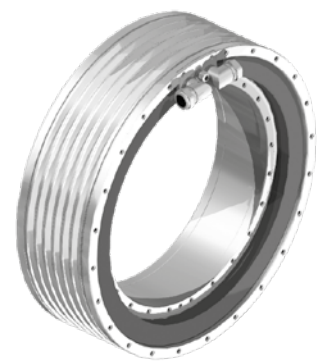
Cable outlet design:



axial



radial



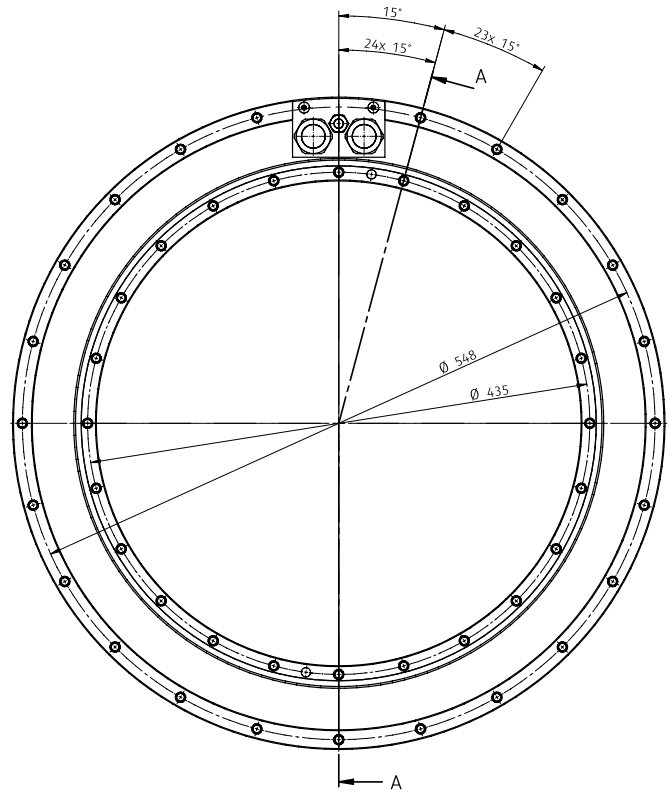
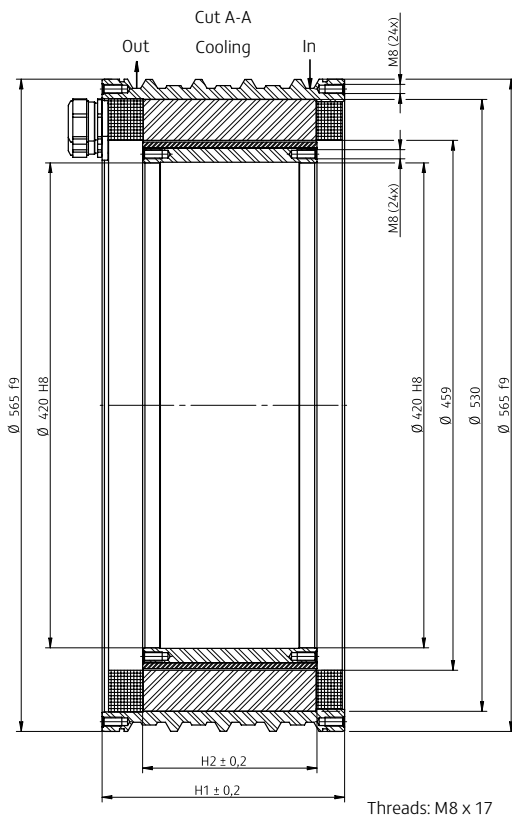
tangential

## // Technical data

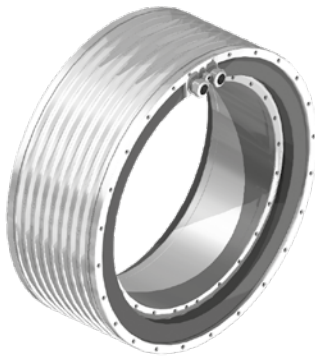
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 450/384-030	485	345	90	31	468	360	185	370	710	170	500	400
TM 450/384-050	485	345	110	51	468	360	300	640	1.180	170	500	400
TM 450/384-070	485	345	130	71	468	360	415	890	1.650	170	500	400
TM 450/384-100	485	345	160	101	468	360	580	1.350	2.340	170	500	400
TM 450/384-150	485	345	210	151	468	360	850	1.930	3.510	170	500	400
TM 450/384-200	485	345	260	201	468	360	1.100	2.600	4.680	170	500	400
TM 450/384-250	485	345	310	251	468	360	1.400	3.220	5.850	170	500	400
TM 450/384-300	485	345	360	301	468	360	1.700	3.860	7.020	170	500	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

# TM 530/459-H



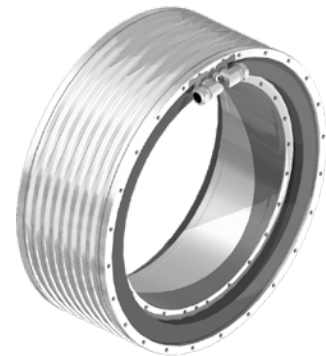
Cable outlet design:



axial



radial



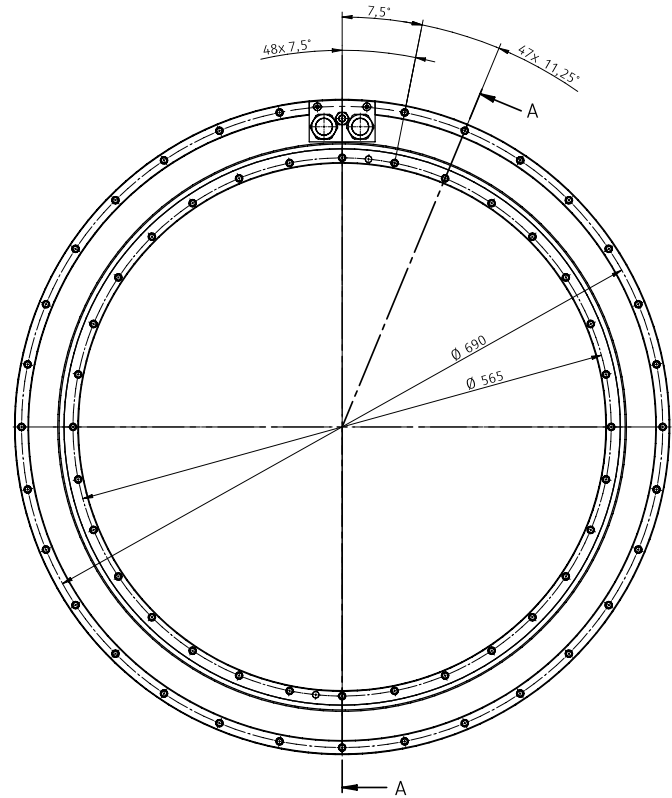
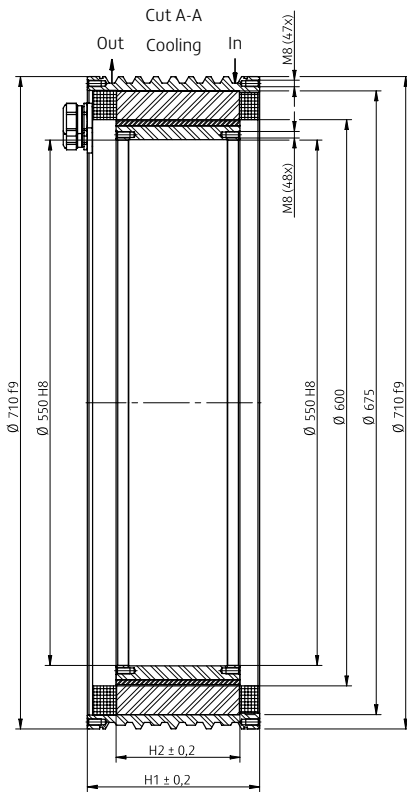
tangential

## // Technical data

Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Vol- tage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 530/459-030	565	420	90	31	548	435	275	525	1.010	150	450	400
TM 530/459-050	565	420	110	51	548	435	435	910	1.684	150	450	400
TM 530/459-070	565	420	130	71	548	435	600	1.285	2.350	150	450	400
TM 530/459-100	565	420	160	101	548	435	820	1.820	3.336	150	450	400
TM 530/459-150	565	420	210	151	548	435	1.310	2.740	5.020	150	450	400
TM 530/459-200	565	420	260	201	548	435	1.750	3.650	6.700	150	450	400
TM 530/459-250	565	420	310	251	548	435	2.150	4.570	8.350	150	450	400
TM 530/459-300	565	420	360	301	548	435	2.620	5.480	10.040	150	450	400

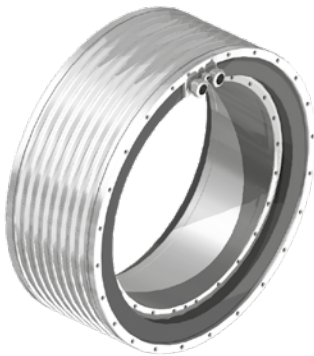
All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

# TM 675/600-H



Threads: M8 x 17/22 Ø 9 x 1U

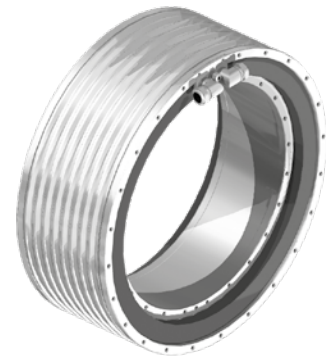
Cable outlet design:



axial



radial



tangential

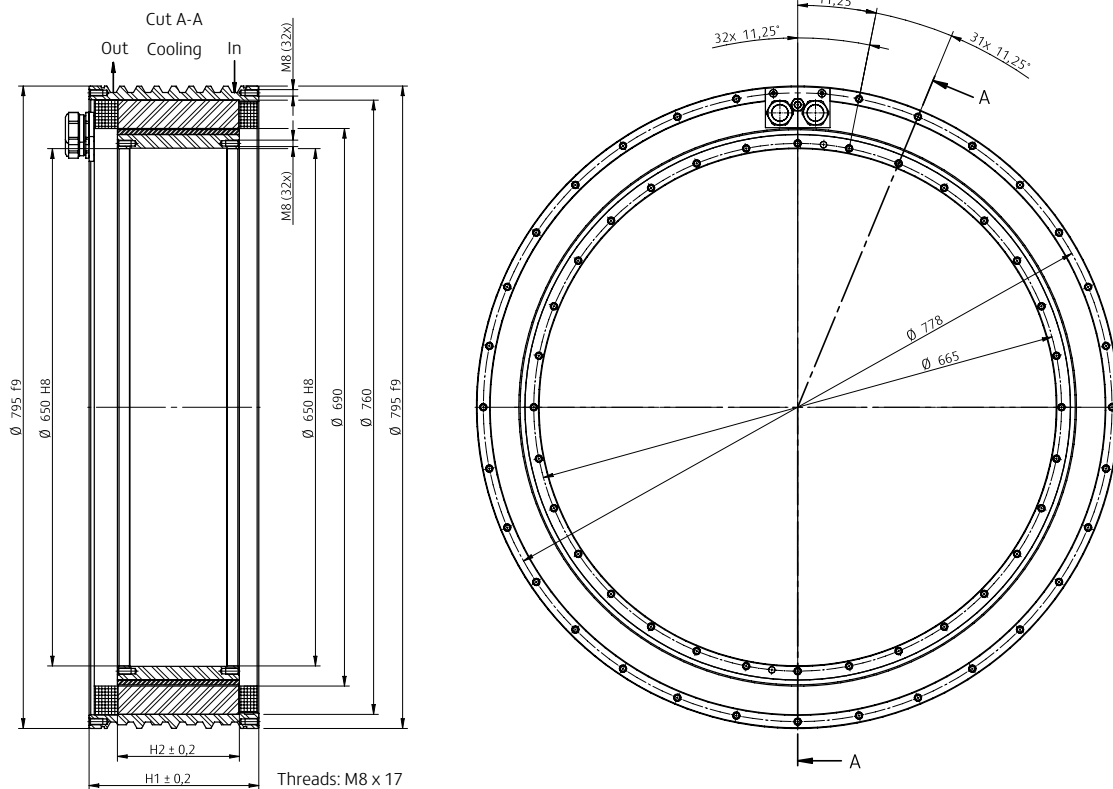
## // Technical data

Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 675/600-030	710	550	90	31	690	565	460	1.020	1.705	135	350	400
TM 675/600-050	710	550	110	51	690	565	765	1.700	2.840	135	350	400
TM 675/600-070	710	550	130	71	690	565	1.075	2.390	3.990	135	350	400
TM 675/600-100	710	550	160	101	690	565	1.625	3.610	6.140	135	350	400
TM 675/600-150	710	550	210	151	690	565	2.520	5.600	10.100	135	350	400
TM 675/600-200	710	550	260	201	690	565	3.430	7.620	12.700	135	350	400
TM 675/600-250	710	550	310	251	690	565	4.290	9.540	15.930	135	350	400
TM 675/600-300	710	550	360	301	690	565	5.140	11.430	19.100	135	350	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.



# TM 760/690-H



Cable outlet design:



axial



radial



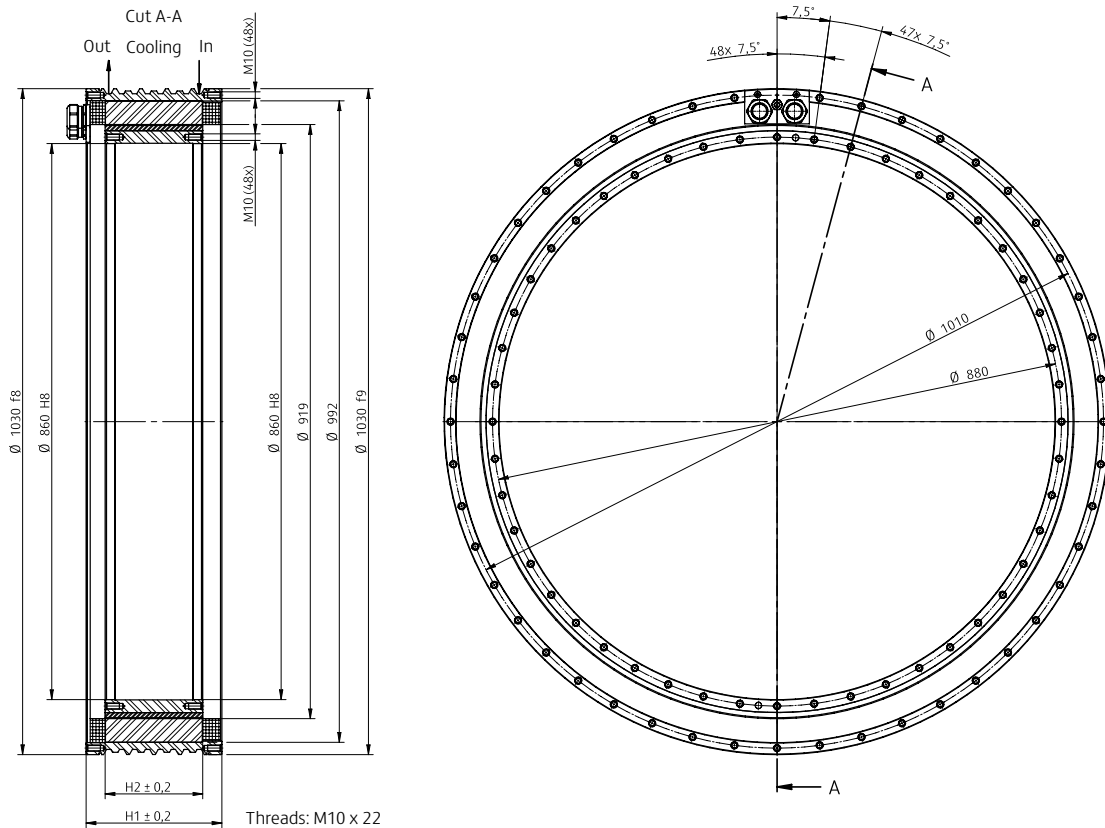
tangential

## // Technical data

Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 760/690-030	795	650	90	31	778	665	630	1230	2250	125	350	400
TM 760/690-050	795	650	110	51	778	665	1.050	2.165	3900	125	350	400
TM 760/690-070	795	650	130	71	778	665	1.430	2.915	5310	125	350	400
TM 760/690-100	795	650	160	101	778	665	2.010	4.290	7780	125	350	400
TM 760/690-150	795	650	210	151	778	665	3.000	6.420	11.602	125	350	400
TM 760/690-200	795	650	260	201	778	665	4.000	8.560	15.500	125	350	400
TM 760/690-250	795	650	310	251	778	665	5.000	10.700	19.350	125	350	400
TM 760/690-300	795	650	360	301	778	665	6.000	12.840	23.200	125	350	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

# TM 992/919-H



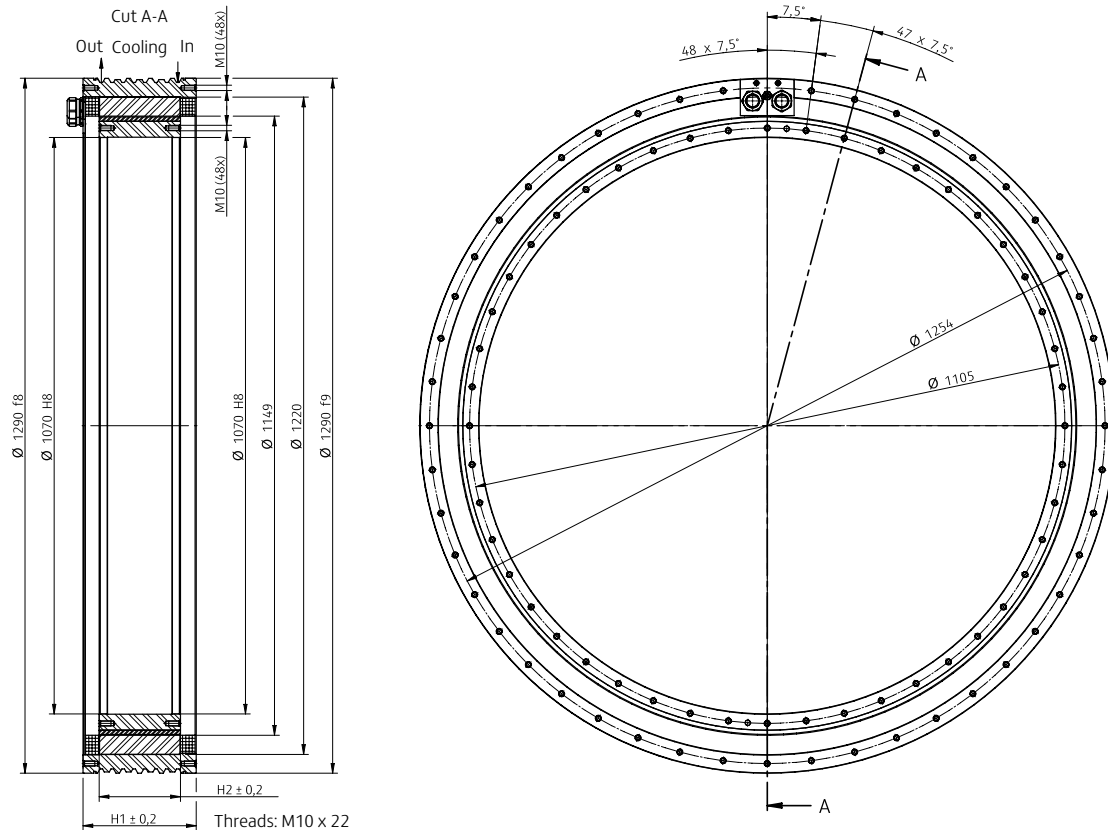
Cable outlet design:



// Technical data												
Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 992/919-030	1.030	860	90	31	1.010	880	1.100	2.100	4.060	100	250	400
TM 992/919-050	1.030	860	110	51	1.010	880	1.800	3.650	6.900	100	250	400
TM 992/919-070	1.030	860	130	71	1.010	880	2.475	5.196	9.350	100	250	400
TM 992/919-100	1.030	860	160	101	1.010	880	3.400	7.486	13.720	100	250	400
TM 992/919-150	1.030	860	210	151	1.010	880	5.025	11.200	20.332	100	250	400
TM 992/919-200	1.030	860	260	201	1.010	880	6.700	14.900	27.100	100	250	400
TM 992/919-250	1.030	860	310	251	1.010	880	8.400	18.700	33.900	100	250	400
TM 992/919-300	1.030	860	360	301	1.010	880	10.050	22.400	40.600	100	250	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

# TM 1220/1149-H



Cable outlet design:



axial



radial



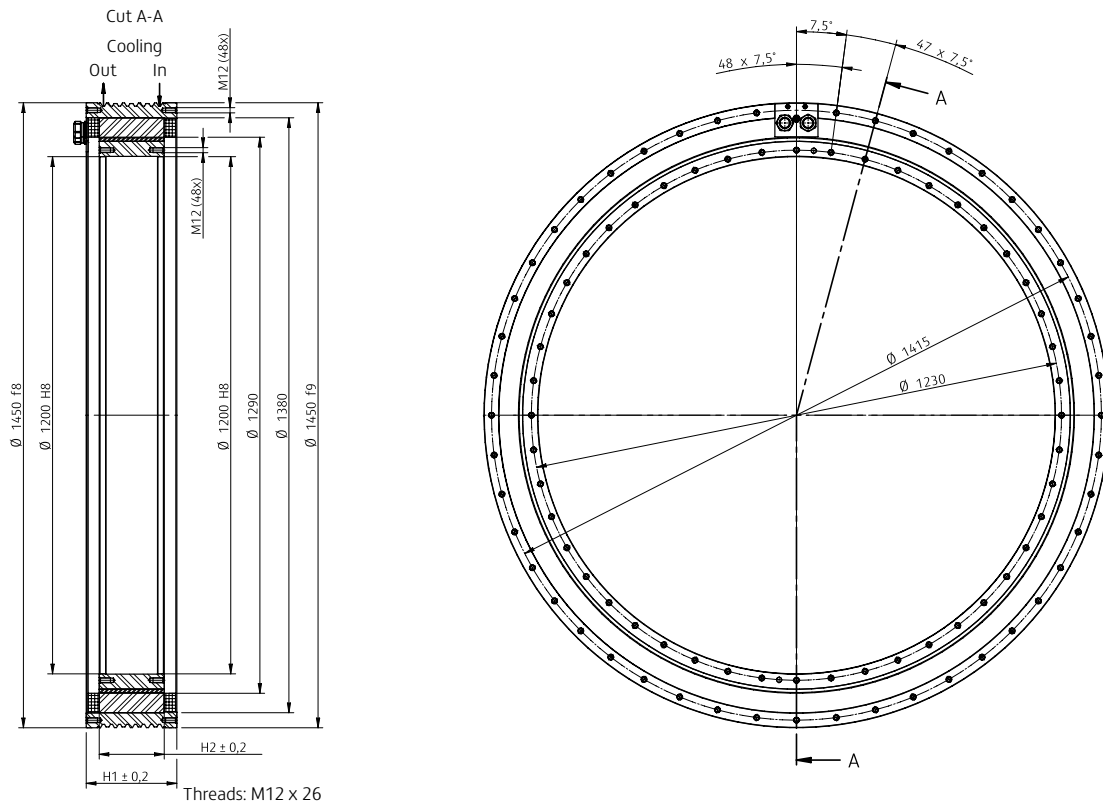
tangential

## // Technical data

Motor	Stator-Ø (mm)	Rotor-Ø (mm)	Stator length H1 (mm)	Rotor length H2 (mm)	Bolt circle-Ø (mm)		Rated torque (Nm)		Peak torque up to 2 sec. (Nm)	Max. speed (1/min)		Vol- tage (V)
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
TM 1220/1149-030	1.290	1.070	90	31	1.254	1.105	1.725	3.150	6.300	80	160	400
TM 1220/1149-050	1.290	1.070	110	51	1.254	1.105	2.800	5.500	10.580	80	160	400
TM 1220/1149-070	1.290	1.070	130	71	1.254	1.105	3.625	7.450	14.530	80	160	400
TM 1220/1149-100	1.290	1.070	160	101	1.254	1.105	5.150	11.200	20.910	80	160	400
TM 1220/1149-150	1.290	1.070	210	151	1.254	1.105	7.200	16.300	31.350	80	160	400
TM 1220/1149-200	1.290	1.070	260	201	1.254	1.105	9.600	21.750	41.800	80	160	400
TM 1220/1149-250	1.290	1.070	310	251	1.254	1.105	12.000	27.100	52.250	80	160	400
TM 1220/1149-300	1.290	1.070	360	301	1.254	1.105	14.400	32.600	62.700	80	160	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.

# TM 1380/1290-H



Cable outlet design:



axial



radial



tangential

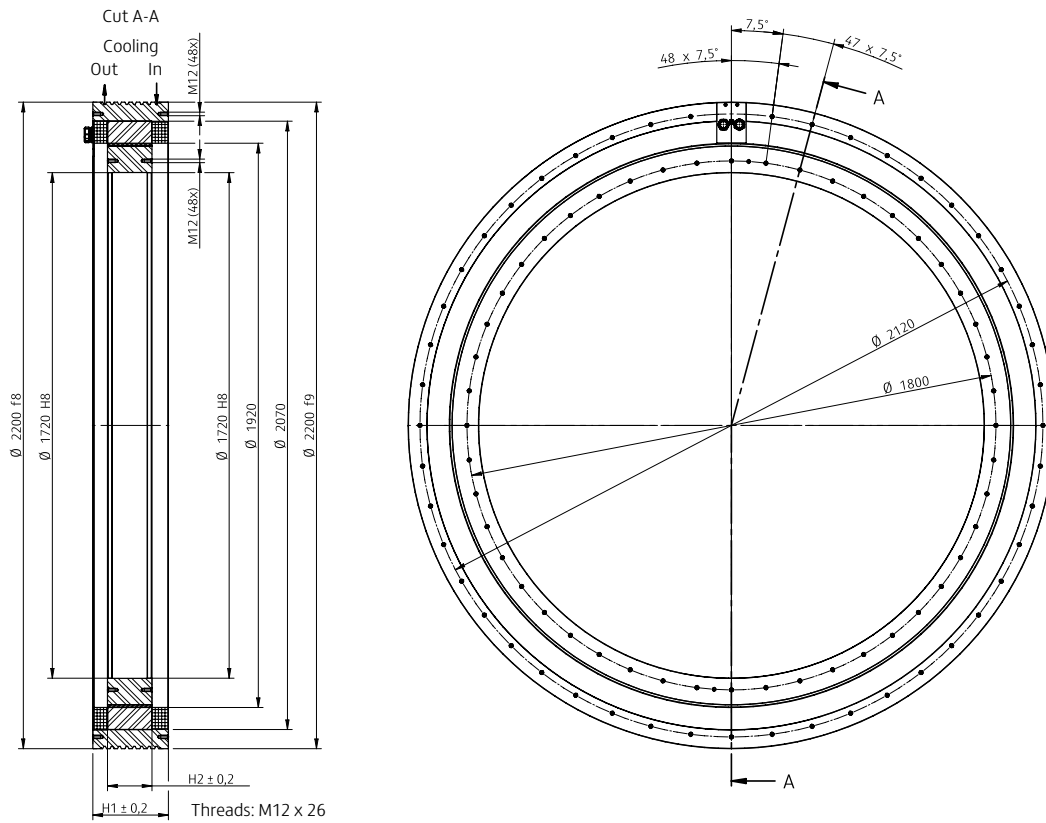
## // Technical data

Motor	Stator-Ø (mm)	Rotor-Ø (mm)	Stator length H1 (mm)	Rotor length H2 (mm)	Bolt circle-Ø (mm)		Rated torque (Nm)		Peak torque up to 2 sec. (Nm)	Max. speed (1/min)		Vol- tage (V)
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
TM 1380/1290-030	1.450	1.200	100	31	1.415	1.230	1.720	3.800	6.080	70	130	400
TM 1380/1290-050	1.450	1.200	120	51	1.415	1.230	2.900	6.400	10.250	70	130	400
TM 1380/1290-070	1.450	1.200	140	71	1.415	1.230	4.000	8.900	14.200	70	130	400
TM 1380/1290-100	1.450	1.200	170	101	1.415	1.230	5.700	12.700	19.900	70	130	400
TM 1380/1290-150	1.450	1.200	220	151	1.415	1.230	8.600	19.100	29.600	70	130	400
TM 1380/1290-200	1.450	1.200	270	201	1.415	1.230	11.400	25.500	39.500	70	130	400
TM 1380/1290-250	1.450	1.200	320	251	1.415	1.230	14.300	31.800	49.000	70	130	400
TM 1380/1290-300	1.450	1.200	370	301	1.415	1.230	17.200	38.200	59.200	70	130	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.



# TM 2070/1920-H



Cable outlet design:



axial



radial



tangential

## // Technical data

Motor	Stator-Ø	Rotor-Ø	Stator length H1	Rotor length H2	Bolt circle-Ø		Rated torque		Peak torque up to 2 sec.	Max. speed		Voltage
					Stator	Rotor	Air cooled	Water cooled		TM	TMS	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(Nm)	(Nm)	(1/min)	(1/min)	(V)
TM 2070/1920-030	2.200	1.720	137	31	2.120	1.800	2.975	6.000	8.000	60	100	400
TM 2070/1920-050	2.200	1.720	157	51	2.120	1.800	4.950	10.000	13.300	60	100	400
TM 2070/1920-070	2.200	1.720	177	71	2.120	1.800	6.925	14.000	18.660	60	100	400
TM 2070/1920-100	2.200	1.720	207	101	2.120	1.800	9.900	20.000	26.600	60	100	400
TM 2070/1920-150	2.200	1.720	257	151	2.120	1.800	14.850	30.000	40.000	60	100	400
TM 2070/1920-200	2.200	1.720	270	201	2.120	1.800	19.800	40.000	53.000	60	100	400
TM 2070/1920-250	2.200	1.720	320	251	2.120	1.800	24.750	50.000	66.700	60	100	400
TM 2070/1920-300	2.200	1.720	370	301	2.120	1.800	29.700	60.000	80.000	60	100	400

All technical data are within a tolerance of +/- 5 %. Higher speeds and torques as well as other lengths on request.




# Synchronous motors

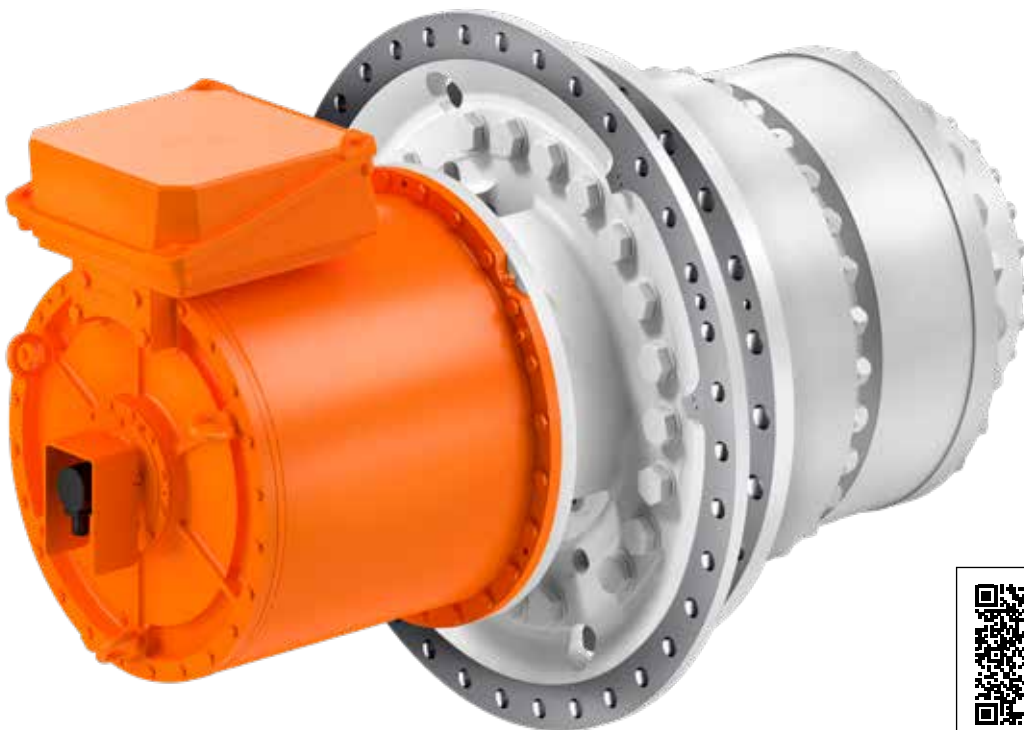
## Typ SMK

### Characteristics

- High efficiency over the entire characteristic map
- Large spread between the nominal speed and the maximum speed
- Torque increase due to additional reluctance torque
- Robust and compact design
- Minimum shaft temperature
- Excellent field weakening
- High variability thanks to modular design

 Torque (Nm)

 Maximum speed (1/min)



Broschure

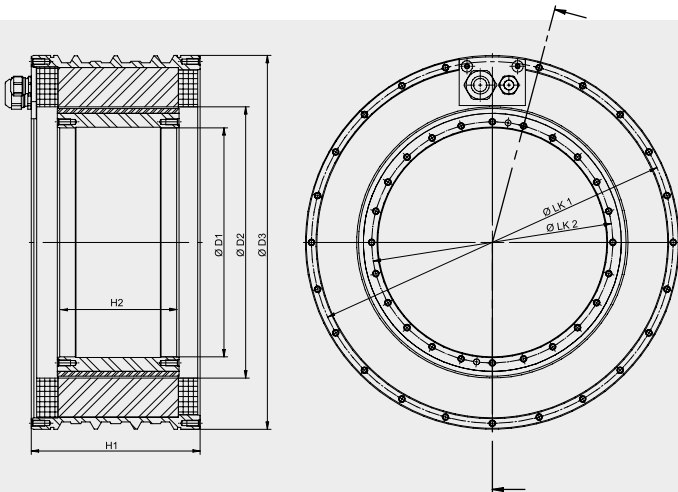
# Inquiry torque motor

Customer _____	Item no. _____
Project _____	Drawing no. _____
Contact _____	Inquiry no. _____
Phone _____	Email _____
Fax _____	Date _____

Offer _____ <input type="checkbox"/>
Draft _____ <input type="checkbox"/>
Feasibility study _____ <input type="checkbox"/>
<b>Motor</b>
Torque _____ <input type="checkbox"/>

Reply to inquiry required by:

Speed	Power S1	Torque S1	Stall torque	Max. torque	Current S1	Peak current
(min <sup>-1</sup> )	(kW)	(Nm)	(Nm)	(Nm)	(A)	(A)



Ø D1	Ø D2	Ø D3	Ø LK1	Ø LK2	H1	H2
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)

Size	Cooling
_____	Water <input type="checkbox"/>
_____	Air <input type="checkbox"/>
_____	Oil <input type="checkbox"/>
_____	Cooling open / with cooling jacket <input type="checkbox"/>
_____	ISO VG _____

## Frequency converter information

Manufacturer _____
Rated current _____
Max. current _____
Type _____
Intermediate circuit voltage _____

## Motors in contest

Manufacturer _____
Type _____

Additional Information	Additional comments
------------------------	---------------------

Cable length _____
Plug type _____
Cable connection _____
Sensor equipment _____



# ZOLLERN Group

## Product areas

### Metals and shaping

#### // Investment casting parts



- Turbine components
  - Vanes / Blades / Shrouds / Heat Shields
- Structural Castings
  - Gas Turbines / Aero / Engines Defense / Medical / Industrial Components
- Automotive
  - Turbine Wheels / Waste gates / Vanes / Pins / Planet carriers
- Implants
  - Knees (Femur, Tibia) / Hips
- Alloys
  - Super alloys / Cobalt Chrome alloys

#### // Sand casting parts



- Sand casting
- Croningguss / Maskenguss
- Ceramic casting
- Continuous casting
- Centrifugal casting

#### // Forgings



- Forgings made of pure copper and copper alloys
- Semi-finished products, open die forged, flat bars, round bar
- Drop forged parts
- Rings, seamlessly rolled
- Bushings, seamlessly forged
- Individual pieces, small series, large series

#### // Special profiles and finished parts



- Special profiles, coils, bars
- Customer-specific finished parts
- Profile types hot-rolled, cold-rolled, cold-drawn, induction-hardened

## Drive technology and automation

### // Gearboxes



- Travel drives
- Slewing gearboxes
- Winch gearboxes
- Industrial gear units
- Gearboxes for tunnel boring machines
- Sugar mill gearboxes
- Electric drive systems
- Condition Monitoring and Predictive Maintenance

### // Winches



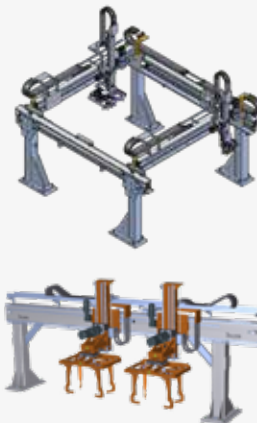
- Hoisting winches
- Free fall winches
- Pull winches
- Rescue boat winches
- Winch systems
- Winch gearboxes

### // Electric motors



- Torque motor kits
- Synchronous motor kits
- Synchronous motor modules

### // Automation, special systems



- Linear units, linear modules, gantry axes, portal units
- Telescoping axes
- Rotary modules, rotary tables
- Line gantries, area gantries
- Robot traverse axes, jig axes
- Storey lifter and lifting columns
- Fast conveyor
- Framing tenter handling / overhead systems
- Storage systems
- Complete systems with steel construction and control
- Special solutions
- Gripper

### // Hydrostatic systems



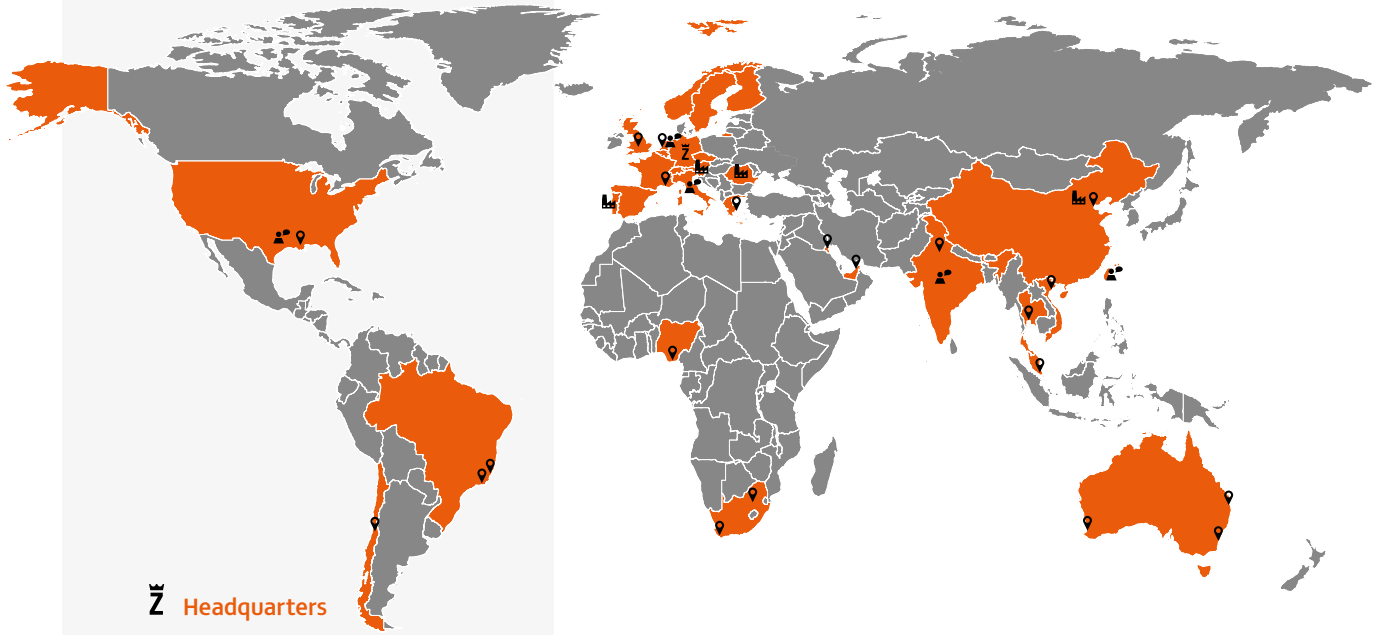
- Hydrostatic spindle units
- Hydrostatic rotary tables
- Aerostatic rotary tables
- Hydrostatic linear guides
- Hydrostatic center drive spindles
- Hydrostatic bearing components
- Hydrostatic special applications and test benches

### // Rotary tables systems



- Roller bearing rotary tables
- Hydrostatic rotary tables
- Automatic pallet changing systems and linear axes
- Swiveling tables
- After sales service for products of ZOLLERN, Ruckle and Eimeldingen

# ZOLLERN



## Headquarters

## Subsidiaries

Italy and southern Europe  
Netherlands and Northern Europe  
USA  
India and Southeast Asia  
Taiwan, China

## Factories

Germany  
Portugal  
Romania  
Slovenia  
China

## Service partner

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Brazil  
Chile  
Greece  
Great Britain  
Kuwait  
Singapore  
South Africa  
Thailand  
Dubai  
USA  
Vietnam



ZOLLERN-worldwide



ZOLLERN-Products

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