



### TRM Torque Motors

TRM series torque motors are frameless direct drive synchronous motors used in direct drive applications eliminating mechanical transmission elements such as gearboxes, timing belts, speed reducers and worm gears. MDS Motor offers a wide range of high torque frameless motors. TRM series motors have great variety in frame sizes from 130 mm up to 390 mm, winding options and stacks.

TRM series torque motors have a wide range of products as it has 3 different stacks for each of 14 different frame sizes.



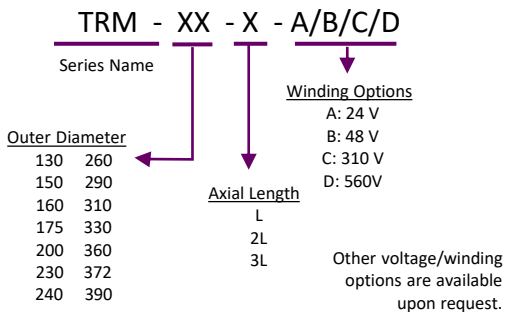
### TRM Torque Motor Selection

	TRM-130	TRM-150	TRM-160	TRM-175	TRM-200	TRM-230	TRM-240	TRM-260	TRM-290	TRM-310	TRM-330	TRM-360	TRM-372	TRM-390
Stator OD [mm]	130	150	160	175	200	230	240	260	290	310	330	360	372	390
Rotor ID [mm]	55	70	80	88	120	148	158	178	200	220	240	270	287	290
DC Bus Voltage [V]	24/ 48/ 310/ 560													

### TRM Series Torque Motor Range

Model	Tr [Nm]	2L	3L
TRM-130	6	12	22
	17	34	67
TRM-150	9	17	32
	26	52	103
TRM-160	11	22	40
	34	65	134
TRM-175	15	30	55
	44	89	181
TRM-200	20	35	70
	60	122	242
TRM-230	29	56	97
	96	193	385
TRM-240	35	65	116
	116	234	464

Model	Tr [Nm]	2L	3L
TRM-260	41	74	141
	143	283	568
TRM-290	55	105	190
	191	380	758
TRM-310	68	126	2220
	227	456	907
TRM-330	79	144	251
	265	526	1049
TRM-360	94	173	300
	317	633	1262
TRM-372	106	195	341
	359	718	1436
TRM-390	110	200	361
	379	748	1483



Find your product!



Product Family:

DC Bus Voltage (V):

Outer Diameter (mm):  <

Inner Diameter (mm):  <

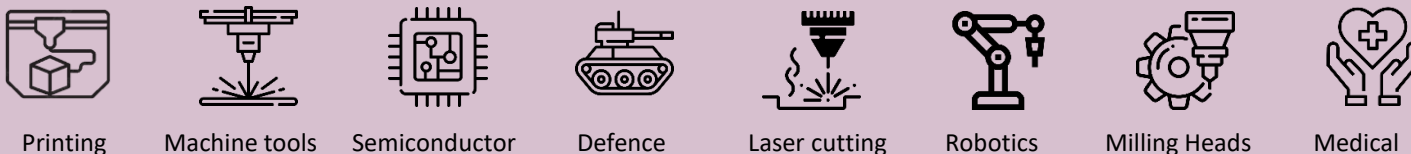
Length (mm):  <

Rated Torque (Nm):  <

Peak Torque (Nm):  <

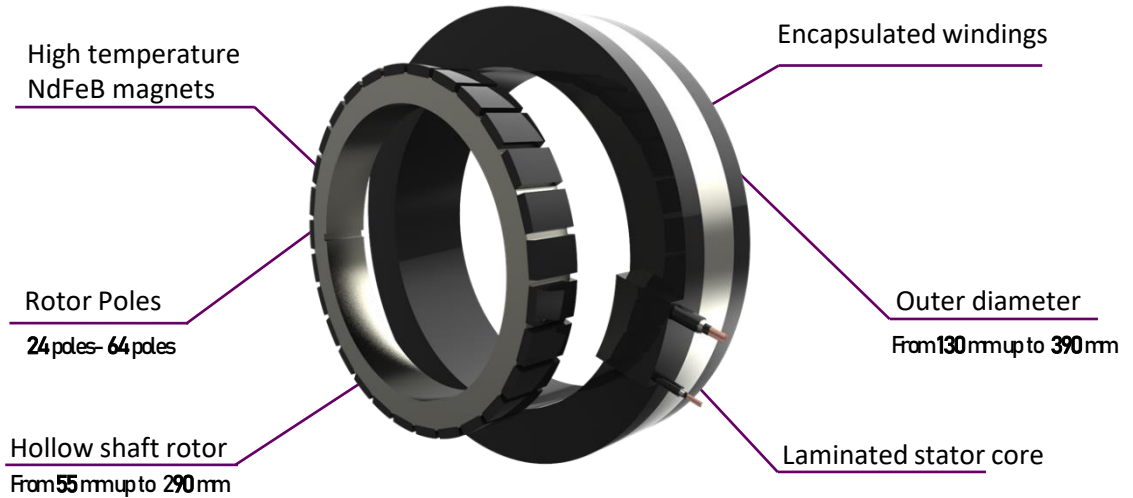
Rated Speed (RPM):  <

### Applications





**Structure**



**Main Features & Benefits**

- 42 Standard motor sizes
- Rated torque up to 361 Nm
- Peak torque up to 1483 Nm
- Speed up to 725 rpm
- Outer diameter up to 390 mm
- Hollow shaft up to 290 mm
- 4 Different winding options (24 V/48 V/310 V/560 V)
- AC custom winding options
- Maximum torque-per-weight ratios
- Hall effect sensor option
- NdFeB or SmCo magnets
- Excellent dynamic response
- Very low torque ripple
- Extremely low cogging
- Optimal speed control
- Very high torque density
- Easy direct system integration
- Compact design
- Wide product range
- Lowest possible rotor inertia
- Excellent rotor integrity
- High reliability and lifetime

**MDS Motor** TRM SERIES FRAMELESS TORQUE MOTORS (TRM-200)

Motor Parameters	Symbol	Units	TM1-200-030	TM1-200-050	TM1-200-080
Rated Torque	T <sub>n</sub>	Nm	19.7	28.2	38.2
Peak Torque	T <sub>p</sub>	Nm	51.3	69.9	93.9
Rated Speed	n <sub>n</sub>	rpm	115	75	55
Max Load Speed	n <sub>max</sub>	rpm	195	130	95
Turnover	n <sub>0</sub>	rpm	1.58	2.49	3.40
Voltage	U <sub>n</sub>	V/310V	0.135	0.213	0.292
Current	I <sub>n</sub>	A	1.5	2.2	3.0
Max. Temp. Rise	T <sub>max</sub>	°C	-15	-15	-15
Target Ripple	T <sub>ripple</sub>	%	-	-	-
Mass of Rotor	m <sub>r</sub>	kg	0.024	0.034	0.046
Rated Current	I <sub>n</sub>	A	1.5	2.2	3.0
Peak Current	I <sub>p</sub>	A	4.0	5.8	7.8
Line Resistance	R <sub>line</sub>	mΩ	0.06	0.08	0.11
Inductance	L <sub>line</sub>	mH	0.001	0.001	0.001
Motor Weight	m <sub>m</sub>	kg	0.06	0.08	0.11
Motor Weight	m <sub>m</sub>	kg	0.75	0.77	0.79
Motor Length	L <sub>m</sub>	mm	1.85	1.95	2.05
Flux Density	B <sub>max</sub>	Tesla	0.68	0.68	0.68
Efficiency	η	%	80	80	80
Motor ID	φ	mm	30	35	40

**Note:** All performance and electrical specifications are obtained at 20°C ambient and may change with temperature.  
1. All performance and electrical specifications are obtained at 20°C ambient and may change with temperature.  
2. Housed version of motor mounted to 300mm sq. x 15mm aluminum heat sink (maximum winding temperature is 120°C).  
3. Higher torque and speed options as well as dimensions on request.

**MDS Motor** TRM SERIES FRAMELESS TORQUE MOTORS (TRM-200)

TM(L)/H-200 Outline Drawing

**MDS Motor** TRM SERIES FRAMELESS TORQUE MOTORS (TRM-200)

Torque-Speed Curves

Detailed technical datasheets are available on our website.

