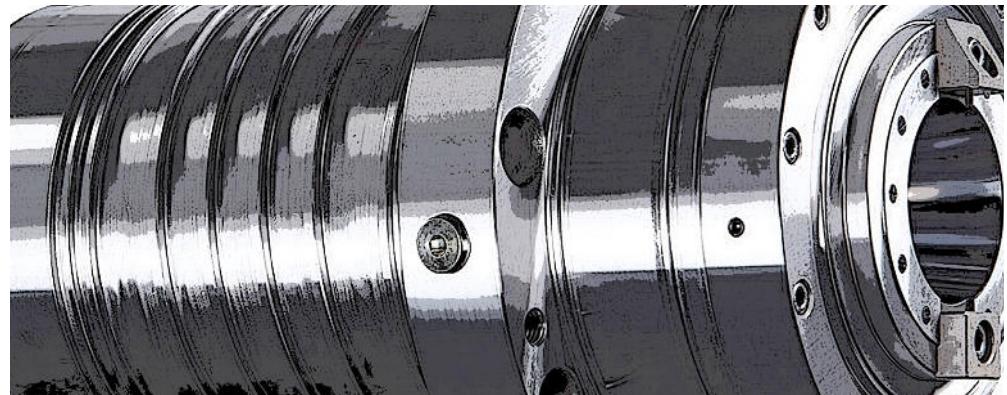


# Electrical Motor

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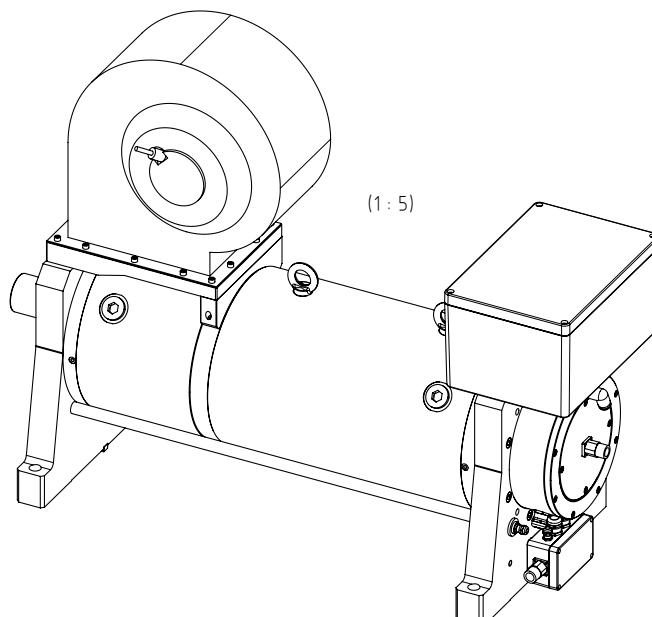
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Standard Program

Type	Speed [rpm]	Shaft [mm]	Power S1 [kW]	Torque S1 [Nm]	Radial runout [mm]	Rigidity [N/μm]		Inertia [kg m²]
						axial	radial	
GMO-DC150-150-4-24	24,000	40	24	57	≤ 0.002	150	150	0.02
GMO-DC160-520-8-30	30,000	40	50	500	≤ 0.002	150	150	0.07
GMO-DC170-300-4-18	18,000	55	80	100	≤ 0.002	200	180	0.038
GMO-AC170-300-4-18	18,000	55	50	95	≤ 0.002	200	180	0.038
GMO-DC170-200-4-24	24,000	55	53	67	≤ 0.002	220	220	0.032
GMO-DC200-580-4-10	10,000	65	95	450	≤ 0.003	220	230	0.148
GMO-DC200-520-4-10	10,000	65	95	450	≤ 0.003	220	230	0.125
GMO-DC200-460-4-14	14,000	65	170	400	≤ 0.003	220	230	0.108
GMO-DC200-460-4-18	18,000	65	60	250	≤ 0.003	220	230	0.108
GMO-DC240-460-4-10	10,000	65	125	600	≤ 0.003	220	300	depending on type
GMO-DC240-340-4-14	14,000	65	106	505	≤ 0.003	220	300	depending on type
GMO-DC240-270-4-18	18,000	65	100	400	≤ 0.002	200	200	depending on type
GMO-AC240-360-4-14	14,000	65	95	460	≤ 0.003	220	300	depending on type
GMO-DC300-540-4-05	5,000	90	200	1,200	≤ 0.003	400	480	depending on type
GMO-AC375-1000-4-025	2,500	80	295	1,900	≤ 0.003	520	560	depending on type
GMO-AC580-700-4-025	2,500	100	295	1,900	≤ 0.003	520	560	15.6

Power / torque:	Other performance data on request
Lubrication:	<ul style="list-style-type: none"> <li>▪ Greased for life</li> <li>▪ Grease replenishing technology for long service life and better vibration management</li> <li>▪ Oil-air lubrication for maximum speed on request</li> </ul>
Rigidity:	Higher rigidity of bearing arrangement on request
Design of the shaft end:	<ul style="list-style-type: none"> <li>▪ Grinded; tolerance H6; other diameters on request</li> <li>▪ Adapter flange for torque measuring systems on request</li> <li>▪ Special shaft design on request</li> </ul>
Equipment:	<ul style="list-style-type: none"> <li>▪ Toothed wheel encoder</li> <li>▪ Special encoder (Heidenhain etc.) on request</li> </ul>
Sealing:	<ul style="list-style-type: none"> <li>▪ Labyrinth sealing</li> <li>▪ Labyrinth sealing with purge air on request</li> <li>▪ Brush sealing for difficult environmental conditions on request</li> </ul>
Balancing grade:	G1 (ISO1940) or better

wGMO-DC200-580-4-10



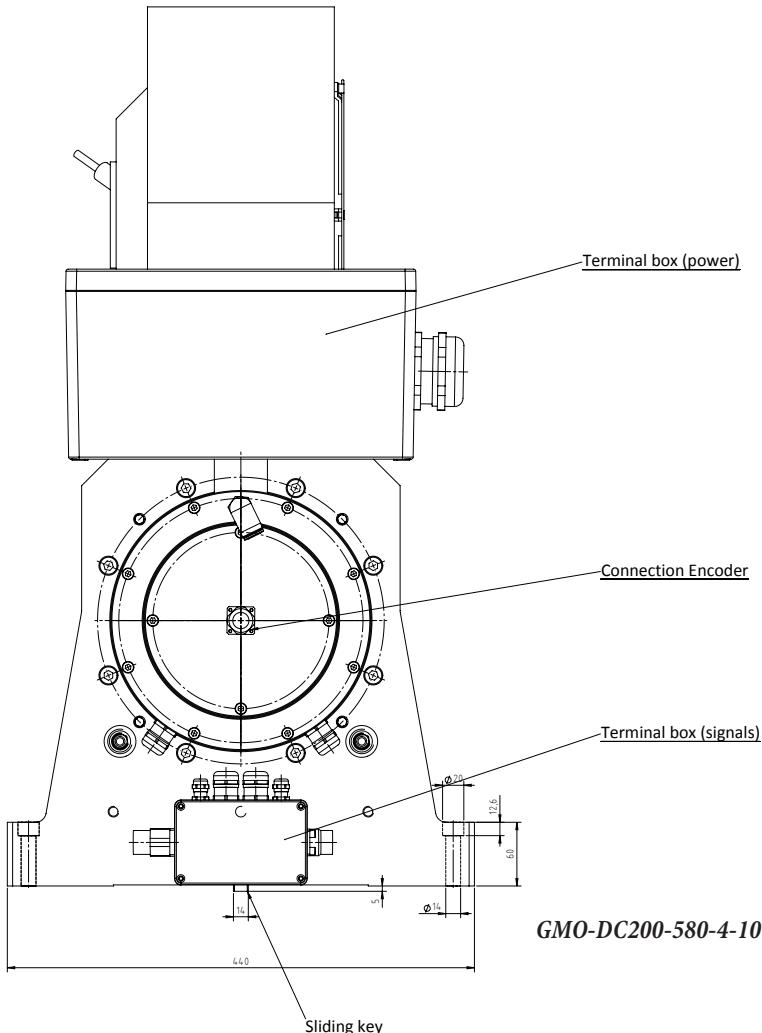
Based on our **know-how since 20 years in spindle and bearing technology** we created a standard program for high-speed, high-precision electrical motors. In these motors we combine latest technology with attractive prices of series production with high-quality manufacturing of components.

All **high-end synchronous and asynchronous electrical motors** from GTW have a solid housing for water, oil or air cooling. Our housings are not based on the unstable laminates of the stator. The axial and radial runout of our electrical motors is similar to high accurate machine tool spindles. The vibration velocity is better than 1mm/s over the whole speed range. For special demands the vibration levels can be decreased up to 0.3 mm/s or even less. This is very important for **the application of motors in test benches** to allow high accurate measurements.

Our high-end electrical motors are equipped with sorted and specially matched high-precision hybrid angular contact ball bearings. All bearings are greased with extremely pure **high-performance greases**. For maximum life our bearings are being cleaned in special washing devices in clean room environment with cleaning liquid filtered to  $0.4\mu\text{m}$ . This guarantees that all preservation agents are being removed and do not affect the grease quality. Preservation fluids never have lubrication and load carrying properties like high-performance greases.

For high speeds, high vibrations, high temperatures or other extreme conditions **grease replenishing technology** can be applied. With this technology the maximum speed of electrical motors can be increased up to 30% - compared with bearings greased for life. Or, if no high speeds are necessary, service life can be doubled as shown in plenty of applications.

All electrical motors are available with **oil-air lubrication** for achieving maximum speeds too. However we lubricate our bearings through the outer rings only. This guarantees that oil always finds its way to the rolling elements. No air turbulences or any other disturbances in the bearing arrangement can affect the lubrication and finally the accuracy as well as the dynamic behavior of the motor. Further on old oil can be drained and removed more efficiently without significant leakage.

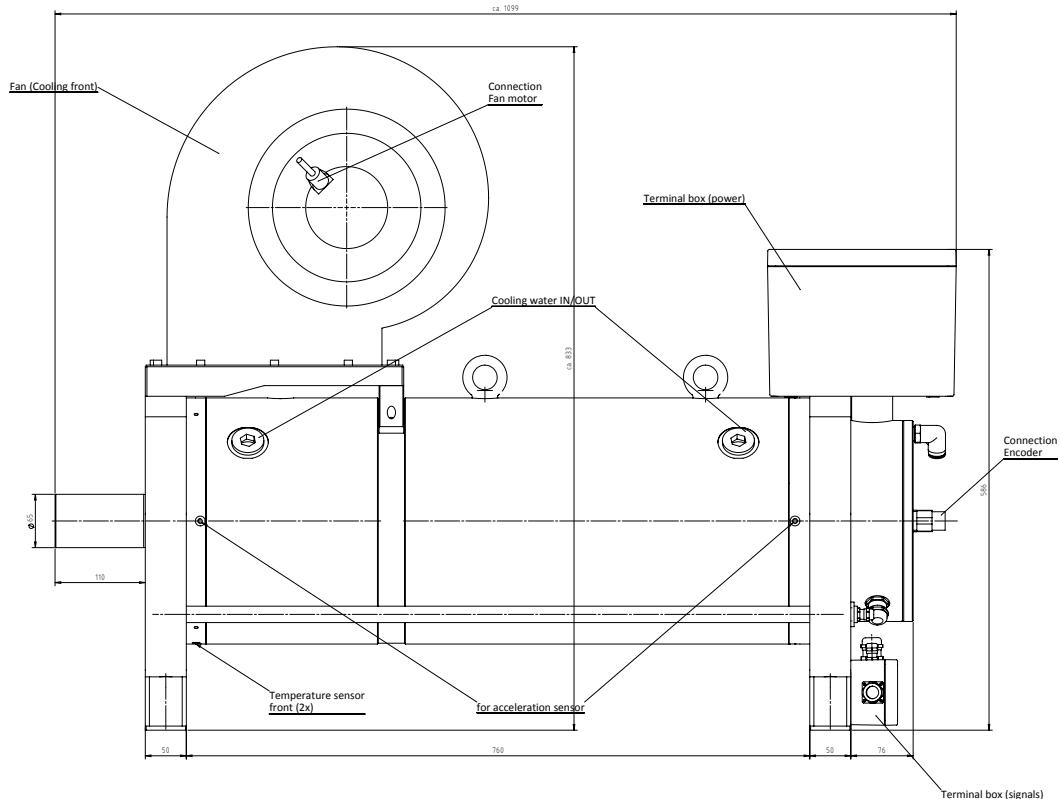


The dynamical and thermal behavior of all our electrical motors is being calculated and optimized by **finite element method**. On demand even very special systems can be manufactured and put into operation successfully. We are starting when other motor manufacturers capitulate. The development of numerous test benches, generators or compressors with **speeds far above 24,000rpm** and **powers up to 500kW** were realized in the past.

The **design of our electrical motors** is in a way that all features requested - like accuracy, rigidity, thermal stability and dynamic behavior - can be realized without any fashioning on the already assembled system. Our assembly processes are standardized for maximum efficiency and accuracy. This guarantees maximum performance over the whole lifetime of every motor.

**All components** of our electrical motors are being **checked 100%** on **modern measu-**

GMO-DC200-580-4-10



**ring machines** or with high-precision measuring equipment. After measuring and inspection all components are being cleaned in special washing machines - and if necessary due to technical reasons, components will be washed and prepared manually. Sensitive components like high-precision bearings are being cleaned in **special washing devices** in clean room environment with cleaning liquid filtered to  $0.4\mu\text{m}$ . After this procedure the bearings are being checked for noise, preserved or greased and packed immediately for assembly. Before installation all components are being checked a second time. Nor component

will be installed before it passed our very **strict quality guidelines**. These measures guarantee **maximum life and performance** of our systems.

All data of our electrical motors are being recorded. Every motor has its own **measuring and assembly protocol**. In these papers all features of the components, including preloading data of the bearings, covers and so on are being inscribed. This guarantees a complete and consistent documentation of the quality and history of every single motor leaving our factory.



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