

Frameless Servo Motor - TK Series

Overview

Description

TK Series torque motors, delivered as separate rotor and stator to be integrated into the mechanical structure of the machine, lead to simplified designs, reduced costs, and increased accuracy.

TK series is distinguished from existing solutions by their exceptional robustness, making them particularly suited to harsh environments.

Benefiting from Parker's unprecedented know-how in the design and manufacture of torque motors, TK series can also be delivered as complete sub-assemblies including frame, cooling system, bearings, feedback sensor, etc.



Advantages

- Very high torque
- Very large hollow shaft
- Coating against corrosion (on request)
- High resistance (oil proof on request)
- Compatible with Parker drives and third parties
- Global cost reduction
- Increased reliability and reduced maintenance
- Simple, light and compact machine design
- No coupling systems needed
- Greater stiffness and robustness of the system
- Low noise level
- Integration assistance available

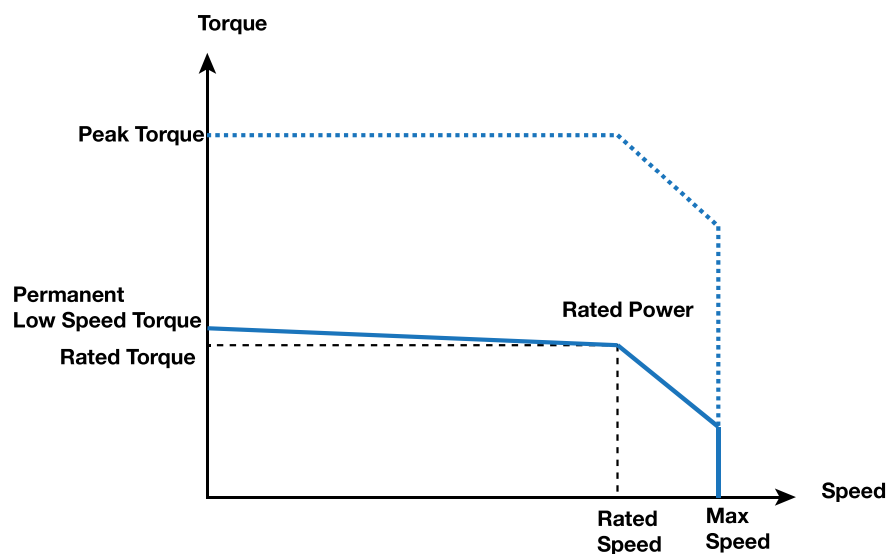
Applications

- Rotating Table
- Mixer for Pulp & Paper
- Material Forming
- Material Handling
- Machine Tools
- Winch and Marine

Technical Characteristics - Overview

Cooling	Natural cooling	Water cooling
Power	2.8...58 kW	7...207 kW
Torque	41...10 100 Nm	90...21 900 Nm
Speed	870 min ⁻¹	2 500 min ⁻¹
Number of poles	30 (TK_130) / 60 (TK_200) / 90 (TK_300) / 120 (TK_400)	
Diameter	230 – 385 – 565 - 795 mm	
Power supply	400 VAC	

Technical Data



Motor	Rated Power P _n	Rated Torque M _n	Rated Speed N _n	Rated Current I _n	Low speed torque M ₀	Low speed Current I ₀	Peak Torque M _{peak}	Peak Current I _{peak}	Max. Speed N _{max}	Frequency at max speed	Moment of Inertia J
	[kW]	(Nm)	[min ⁻¹]	[Arms]	[Nm]	[Arms]	[Nm]	[Arms]	[min ⁻¹]	[Hz]	[kgm ²]
400 VAC power supply - three-phased - Natural cooling											
TKA131HL	2.8	28	5.0	940	41	7.0	200	38.2	940	235	0.01
TKA132HL	4.5	70	8.3	610	85	9.8	415	54.2	610	153	0.02
TKA133HN	6.6	108	12.2	580	130	14.4	625	78.8	580	145	0.03
TKA134HN	7.4	154	13.8	460	175	15.4	850	85.9	460	115	0.04
TKA135HP	8.5	198	16	410	220	17.6	1060	97.0	410	103	0.05
TKA136HP	10.0	239	18.6	400	265	20.4	1280	113.0	400	100	0.06
TKA201HM	4.9	109	8.9	430	145	11.4	650	63.6	430	215	0.09
TKA202HS	8.0	246	14.5	310	300	17.3	1300	93.2	310	155	0.18
TKA203HR	9.8	398	18.1	235	455	20.3	1950	108.0	235	118	0.27
TKA204HV	10.5	558	20	180	610	21.6	2600	114.0	180	90	0.35
TKA205HU	12.5	705	23.5	170	770	25.5	3250	134.0	170	85	0.44
TKA206HS	16.6	832	31.7	190	925	34.7	3900	182.0	190	95	0.52
TKA208HS	17.0	1160	32.9	140	1240	34.9	5200	182.0	140	70	0.69
TKA301HJ	7.1	273	13	250	350	16.2	1200	57.6	250	188	0.6
TKA302HP	11.4	604	20.7	180	720	24.2	2400	83.6	180	135	1.2
TKA303HN	14.9	948	27.9	150	1100	31.8	3600	108.0	150	113	1.7
TKA304HN	20.8	1240	38.6	160	1470	45.0	4800	152.0	160	120	2.3
TKA305HN	24.1	1590	44.8	145	1850	51.4	6000	173.0	145	109	2.9
TKA306HM	26.6	1950	49.1	130	2220	55.0	7200	185.0	130	98	3.4
TKA308HL	28.5	2720	55.1	100	2970	59.5	9600	199.0	100	75	4.6
TKA30AHL	29.3	3490	56.4	80	3710	59.4	12000	199.0	80	60	5.7

Motor	Rated Power P _n	Rated Torque M _n	Rated Speed N _n	Rated Current I _n	Low speed torque M ₀	Low speed Current I ₀	Peak Torque M _{peak}	Peak Current I _{peak}	Max. Speed N _{max}	Frequency at max speed	Moment of Inertia J
	[kW]	(Nm)	[min ⁻¹]	[Arms]	[Nm]	[Arms]	[Nm]	[Arms]	[min ⁻¹]	[Hz]	[kgm ²]
400 VAC power supply - three-phased - Natural cooling											
TKA401HG	12.6	604	22.6	200	820	29.7	3300	145.0	200	200	1.9
TKA402HP	20.4	1260	37	155	1640	47.0	6600	229.0	155	155	3.5
TKA403HL	27.4	1940	48.7	135	2460	60.4	9900	295.0	135	135	5.2
TKA404HR	30.5	2770	55.9	105	3270	64.9	13200	317.0	105	105	6.8
TKA405HQ	33.7	3570	62.2	90	4070	70.0	16500	344.0	90	90	8.5
TKA406HP	36.6	4370	69	80	4880	76.3	19800	375.0	80	80	10.1
TKA408HN	46.0	5850	84.7	75	6490	93.0	26400	459.0	75	75	13.4
TKA40AHM	49.3	7470	91.5	63	8100	98.3	33000	486.0	63	63	16.7
TKA40CHK	58.1	9400	109	59	10100	116.0	39600	550.0	59	59	20
400 VAC power supply - three-phased - water cooled											
TKW131HL	6.9	88.3	15.1	750	90	15.2	200	38.2	1120	280	0.01
TKW131HC	17.9	68.2	35.1	2500	90	44.3	200	111.0	2800	700	0.01
TKW132HL	10.1	201	23	480	205	23.4	415	54.2	720	180	0.02
TKW132HF	22.2	189	47.5	1120	205	50.6	415	118.0	1680	420	0.02
TKW133HN	14.8	314	34.7	450	320	35.2	625	78.8	675	169	0.03
TKW133HH	30.7	299	66.7	980	320	70.4	625	158.0	1470	368	0.03
TKW133HD	45.3	278	93.8	1550	320	106	625	236.0	2320	580	0.03
TKW134HN	15.3	431	37.9	340	435	38	850	85.9	510	128	0.04
TKW134HJ	27.8	422	63.2	630	435	64.6	850	146.0	945	236	0.04
TKW134HF	46.4	402	101	1100	435	108	850	243.0	1650	413	0.04
TKW135HM	27.7	540	64.8	490	550	65.4	1060	146.0	735	184	0.05
TKW135HG	54.0	515	116	1000	550	123	1060	273.0	1500	375	0.05
TKW136HM	31.0	656	72.9	450	660	72.7	1280	163.0	675	169	0.06
TKW136HF	71.2	616	155	1100	660	164	1280	367.0	1650	413	0.06
TKW201HF	20.6	219	39.9	900	275	48.6	650	143.0	1000	500	0.09
TKW201HM	10.0	262	20.8	365	275	21.6	650	63.6	540	270	0.09
TKW202HF	45.0	480	87.7	895	610	108	1300	286.0	1040	520	0.18
TKW202HS	15.8	592	34.5	255	610	35.3	1300	93.2	380	190	0.18
TKW203HD	57.5	819	115	670	960	133	1950	334.0	940	470	0.27
TKW203HE	53.7	835	108	614	960	123	1950	308.0	905	453	0.27
TKW203HR	18.2	936	42.2	185	960	43.2	1950	108.0	275	138	0.27
TKW204HI	71.1	1140	145	595	1300	163	2600	401.0	890	445	0.35
TKW204HV	18.9	1280	46.1	140	1300	46.5	2600	114.0	170	85	0.35
TKW205HH	80.7	1480	167	520	1650	184	3250	445.0	780	390	0.44
TKW205HM	51.8	1570	113	316	1650	118	3250	286.0	470	235	0.44
TKW205HU	22.2	1630	54.6	130	1650	55.1	3250	134.0	195	98	0.44
TKW206HG	92.0	1810	192	485	2000	209	3900	501.0	725	363	0.52
TKW206HM	51.3	1920	116	255	2000	120	3900	286.0	380	190	0.52
TKW206HS	31.0	1960	75	150	2000	76.1	3900	182.0	225	113	0.52
TKW208HF	106.0	2500	226	405	2700	242	5200	572.0	605	303	0.69
TKW208HM	50.9	2630	119	185	2700	121	5200	286.0	275	138	0.69
TKW208HS	29.4	2670	76.6	105	2700	77.1	5200	182.0	135	68	0.69
TKW301HB	36.1	497	67.4	695	680	87.6	1200	162.0	695	521	0.6
TKW301HJ	14.7	651	30.2	215	680	31.1	1200	57.6	320	240	0.6

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	[kW]	(Nm)	[min ⁻¹]	[Arms]	[Nm]	[Arms]	[Nm]	[Arms]	[min ⁻¹]	[Hz]	[kgm ²]
400 VAC power supply - three-phased - water cooled											
TKW302HE	64.0	1290	124	475	1520	143	2400	235.0	605	454	1.2
TKW302HJ	46.0	1390	91.6	315	1520	98.2	2400	162.0	470	353	1.2
TKW302HP	23.2	1480	49.7	150	1520	50.7	2400	83.5	220	165	1.2
TKW303HC	83.2	2120	166	375	2380	183	3600	288.0	550	413	1.7
TKW303HJ	47.8	2270	99.1	200	2380	103	3600	162.0	295	221	1.7
TKW303HN	30.5	2330	67.4	125	2380	68.4	3600	108.0	185	139	1.7
TKW304HG	96.4	2970	196	310	3250	211	4800	324.0	465	349	2.3
TKW304HM	51.1	3150	110	155	3250	112	4800	173.0	230	173	2.3
TKW304HN	44.8	3160	97.1	135	3250	99.1	4800	152.0	195	146	2.3
TKW305HG	99.2	3870	203	245	4100	213	6000	324.0	360	270	2.9
TKW305HN	50.6	4030	112	120	4100	113	6000	173.0	175	131	2.9
TKW305HO	42.4	4050	99.3	100	4100	100	6000	152.0	125	94	2.9
TKW306HF	113.0	4710	235	230	4950	245	7200	370.0	340	255	3.4
TKW306HM	53.9	4900	122	105	4950	122	7200	185.0	150	113	3.4
TKW306HO	41.3	4930	101	80	4950	101	7200	152.0	120	90	3.4
TKW308HC	141.0	6400	296	211	6740	309	9600	457.0	315	236	4.6
TKW308HL	55.7	6650	133	80	6740	135	9600	199.0	115	86	4.6
TKW308HO	39.3	6690	103	56	6740	103	9600	152.0	80	60	4.6
TKW30AHD	162.0	8110	340	190	8450	351	12000	518.0	280	210	5.7
TKW30AHL	52.0	8420	135	59	8450	135	12000	199.0	70	53	5.7
TKW30AHO	35.4	8450	104	40	8450	103	12000	152.0	60	45	5.7
TKW401HA	45.6	1150	87.2	380	1460	108	3300	295.0	415	415	1.9
TKW401HG	24.4	1370	50.5	169	1460	53	3300	145.0	255	255	1.9
TKW402HG	78.8	2840	158	265	3270	180	6600	434.0	375	375	3.5
TKW402HI	69.0	2930	141	225	3270	155	6600	375.0	335	335	3.5
TKW402HP	42.5	3110	90.9	130	3270	94.8	6600	229.0	195	195	3.5
TKW403HC	106.0	4590	215	220	5100	237	9900	550.0	325	325	5.2
TKW403HJ	66.3	4860	142	130	5100	148	9900	344.0	195	195	5.2
TKW403HL	56.7	4910	123	110	5100	127	9900	295.0	160	160	5.2
TKW404HI	124.0	6400	260	185	6900	278	13200	635.0	275	275	6.8
TKW404HQ	63.7	6760	148	90	6900	151	13200	344.0	135	135	6.8
TKW404HR	60.3	6780	137	84.9	6900	139	13200	317.0	125	125	6.8
TKW405HH	134.0	8270	292	155	8800	308	16500	688.0	200	200	8.5
TKW405HQ	65.1	8630	152	72	8800	154	16500	344.0	105	105	8.5
TKW406HG	148.0	10100	324	140	10600	338	19800	750.0	210	210	10.1
TKW406HP	71.4	10500	168	65	10600	169	19800	375.0	95	95	10.1
TKW406HQ	63.9	10500	154	58	10600	155	19800	344.0	70	70	10.1
TKW408HF	166.0	13800	365	115	14400	379	26400	825.0	170	170	13.4
TKW408HN	84.8	14200	208	57	14400	211	26400	459.0	85	85	13.4
TKW408HQ	59.9	14300	157	40.1	14400	158	26400	344.0	60	60	13.4
TKW40AHE	184.0	17500	413	100	18100	424	33000	917.0	145	145	16.7
TKW40AHM	88.3	17900	223	47	18100	225	33000	486.0	70	70	16.7
TKW40AHQ	54.9	18100	159	29	18100	159	33000	344.0	40	40	16.7
TKW40CHD	207.0	21200	469	93	21900	482	39600	1030.0	135	135	20
TKW40CHK	97.5	21700	255	43	21900	257	39600	550.0	60	60	20

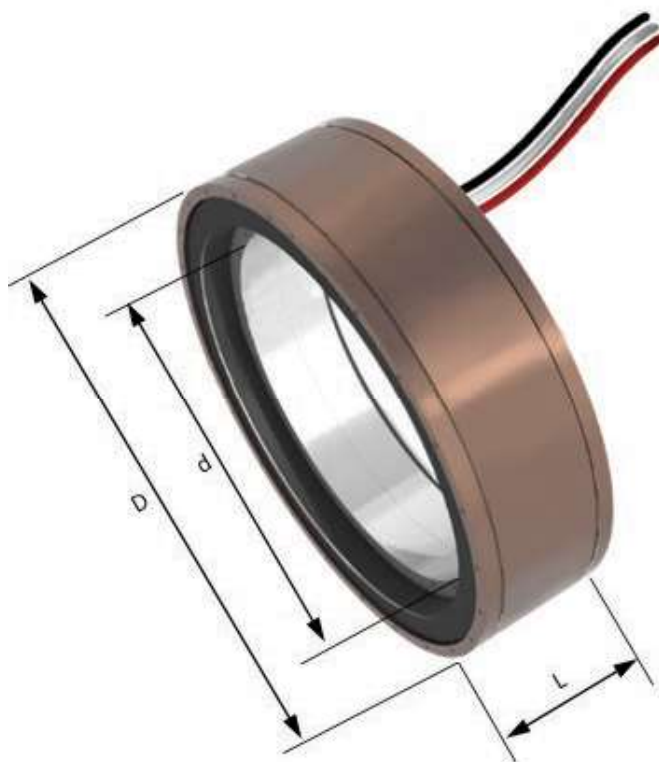
Associated Drives

Motor	AC890	Compax3
400 VAC power supply - three-phased - Natural cooling		
TKA131HL	AC890SD-531600B	C3S075V4
TKA132HL	AC890SD-532100B	C3S150V4
TKA133HN	AC890SD-532240C	C3S150V4
TKA134HN	AC890SD-532240C	C3S300V4
TKA135HP	AC890SD-532240C	C3S300V4
TKA136HP	AC890SD-532300C	C3S300V4
TKA201HM	AC890SD-532240C	C3S150V4
TKA202HS	AC890SD-532240C	C3S300V4
TKA203HR	AC890SD-532300C	C3S300V4
TKA204HV	AC890SD-532300C	C3S300V4
TKA205HU	AC890SD-532390D	C3S300V4
TKA206HS	AC890SD-532390D	C3H050V4
TKA208HS	AC890SD-532390D	C3H050V4
TKA301HJ	AC890SD-532240C	C3S300V4
TKA302HP	AC890SD-532300C	C3S300V4
TKA303HN	AC890SD-532390D	C3H050V4
TKA304HN	AC890SD-532590D	C3H050V4
TKA305HN	AC890SD-432730E	C3H090V4
TKA306HM	AC890SD-432730E	C3H090V4
TKA308HL	AC890SD-432730E	C3H090V4
TKA30AHL	AC890SD-432730E	C3H090V4
TKA401HG	AC890SD-532390D	C3S300V4
TKA402HP	AC890SD-532590D	C3H050V4
TKA403HL	AC890SD-432730E	C3H090V4
TKA404HR	AC890SD-432730E	C3H090V4
TKA405HQ	AC890SD-432730E	C3H090V4
TKA406HP	AC890SD-433105F	C3H090V4
TKA408HN	AC890SD-433145F	C3H125V4
TKA40AHM	AC890SD-433145F	C3H125V4
TKA40CHK	AC890SD-433156F	C3H125V4
400 VAC power supply - three-phased - Water cooled		
TKW131HL	AC890SD-532240C	C3S300V4
TKW131HC	AC890SD-532590D	C3H050V4
TKW132HL	AC890SD-532300C	C3S300V4
TKW132HF	AC890SD-532590D	C3H090V4
TKW133HN	AC890SD-532390D	C3H050V4
TKW133HH	AC890SD-432730E	C3H090V4
TKW133HD	AC890SD-433145F	C3H125V4
TKW134HN	AC890SD-532450D	C3H050V4
TKW134HJ	AC890SD-432730E	C3H090V4
TKW134HF	AC890SD-433145F	C3H125V4
TKW135HM	AC890SD-432730E	C3H090V4
TKW135HG	AC890SD-433156F	C3H125V4
TKW136HM	AC890SD-432730E	C3H090V4
TKW136HF	AC890SD-433216G	-
TKW201HF	AC890SD-532590D	C3H050V4
TKW201HM	AC890SD-532300C	C3S300V4
TKW202HF	AC890SD-433145F	C3H125V4
TKW202HS	AC890SD-532450D	C3H090V4
TKW203HD	AC890SD-433156F	C3H155V4
TKW203HE	AC890SD-433156F	C3H125V4
TKW203HR	AC890SD-532590D	C3H050V4
TKW204HI	AC890SD-433250G	-
TKW204HV	AC890SD-532590D	C3H050V4

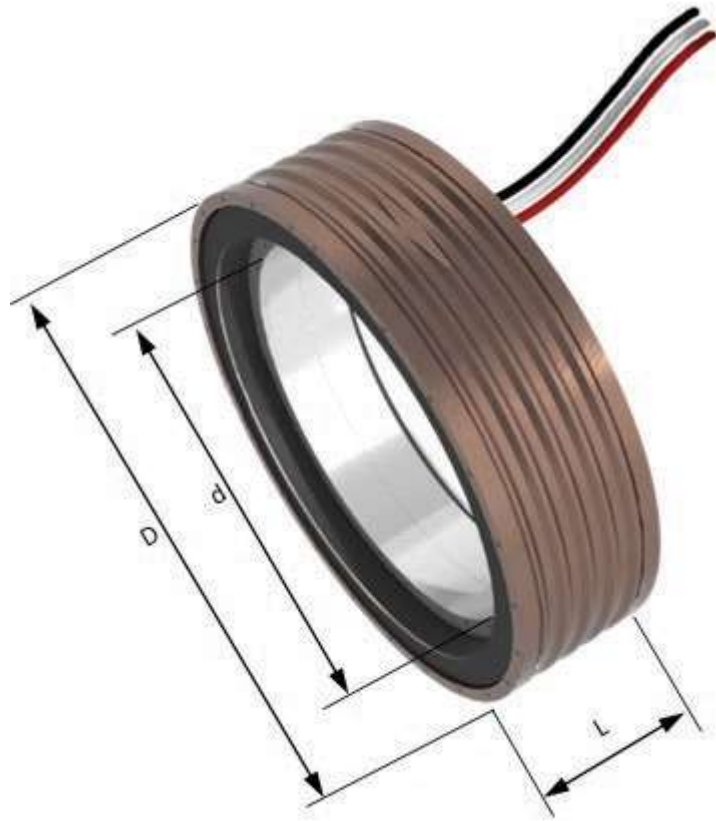
Motor	AC890	Compax3
400 VAC power supply - three-phased - Water cooled		
TKW205HH	AC890SD-433316G	-
TKW205HM	AC890SD-433156F	C3H125V4
TKW205HU	AC890SD-432730E	C3H090V4
TKW206HG	AC890SD-433316G	-
TKW206HM	AC890SD-433156F	C3H125V4
TKW206HS	AC890SD-432870E	C3H090V4
TKW208HF	AC890SD-433361G	-
TKW208HM	AC890SD-433156F	C3H125V4
TKW208HS	AC890SD-432870E	C3H090V4
TKW301HB	AC890SD-433145F	C3H090V4
TKW301HJ	AC890SD-532390D	C3H050V4
TKW302HE	AC890SD-433216G	C3H155V4
TKW302HJ	AC890SD-433145F	C3H125V4
TKW302HP	AC890SD-432730E	C3H090V4
TKW303HC	AC890SD-433316G	-
TKW303HJ	AC890SD-433145F	C3H125V4
TKW303HN	AC890SD-432730E	C3H090V4
TKW304HG	AC890SD-433316G	-
TKW304HM	AC890SD-433156F	C3H125V4
TKW304HN	AC890SD-433145F	C3H125V4
TKW305HG	AC890SD-433316G	-
TKW305HN	AC890SD-433156F	C3H125V4
TKW305HO	AC890SD-433145F	C3H125V4
TKW306HF	AC890SD-433361G	-
TKW306HM	AC890SD-433156F	C3H125V4
TKW306HO	AC890SD-433145F	C3H125V4
TKW308HC	AC890SD-433480H	-
TKW308HL	AC890SD-433216G	C3H155V4
TKW308HO	AC890SD-433145F	C3H125V4
TKW30AHD	AC890SD-433520H	-
TKW30AHL	AC890SD-433216G	C3H155V4
TKW30AHO	AC890SD-433145F	C3H125V4
TKW401HA	AC890SD-433145F	C3H125V4
TKW401HG	AC890SD-432730E	C3H090V4
TKW402HG	AC890SD-433316G	-
TKW402HI	AC890SD-433250G	C3H155V4
TKW402HP	AC890SD-433145F	C3H125V4
TKW403HC	AC890SD-433361G	-
TKW403HJ	AC890SD-433216G	C3H155V4
TKW403HL	AC890SD-433156F	C3H155V4
TKW404HI	AC890SD-433420H	-
TKW404HQ	AC890SD-433250G	C3H155V4
TKW404HR	AC890SD-433216G	C3H155V4
TKW405HH	AC890SD-433480H	-
TKW405HQ	AC890SD-433250G	C3H155V4
TKW406HG	AC890SD-433520H	-
TKW406HP	AC890SD-433250G	-
TKW406HQ	AC890SD-433250G	C3H155V4
TKW408HF	AC890SD-433590J	-
TKW408HN	AC890SD-433316G	-
TKW408HQ	AC890SD-433250G	-
TKW40AHE	AC890SD/5/0685K	-
TKW40AHM	AC890SD-433361G	-
TKW40AHQ	AC890SD-433250G	-
TKW40CHD	AC890SD/5/0798K	-
TKW40CHK	AC890SD-433420H	-

Dimensions

Motor	Dimensions [mm]		
	d	D	L
TKA131HL	132	230	90
TKA132HL			140
TKA133HN			190
TKA134HN			240
TKA135HP			290
TKA136HP			340
TKA201HM	250	385	110
TKA202HS			160
TKA203HR			210
TKA204HV			260
TKA205HU			320
TKA206HS			370
TKA208HS			470
TKA301HJ	420	565	110
TKA302HP			160
TKA303HN			210
TKA304HN			255
TKA305HN			320
TKA306HM			370
TKA308HL			470
TKA30AHL	620	795	580
TKA401HG			110
TKA402HP			160
TKA403HL			215
TKA404HR			265
TKA405HQ			330
TKA406HP			385
TKA408HN			485
TKA40AHM			590
TKA40CHK			700



Motor	d	D	L
TKW131HL	132	230	90
TKW131HC			100
TKW132HL			140
TKW132HF			150
TKW133HN			190
TKW133HH			205
TKW133HD			225
TKW134HN			246
TKW134HJ			256
TKW134HF			276
TKW135HM			306
TKW135HG			326
TKW136HM			356
TKW136HF			376
TKW201HF	250	385	110
TKW201HM			110
TKW202HF			170
TKW202HS			160
TKW203HD			220
TKW203HE			220
TKW203HR			210
TKW204HI			270
TKW204HV			270
TKW205HH			340
TKW205HM			340
TKW205HU			340
TKW206HG			390
TKW206HM			390
TKW206HS			390
TKW208HF			480
TKW208HM			480
TKW208HS			480
TKW301HB	420	565	110
TKW301HJ			110
TKW302HE			170
TKW302HJ			160
TKW302HP			160
TKW303HC			220
TKW303HJ			210
TKW303HN			210
TKW304HG			275
TKW304HM			275
TKW304HN			275
TKW305HG			340
TKW305HN			340
TKW305HO			340
TKW306HF			395
TKW306HM			380
TKW306HO			380
TKW308HC			520
TKW308HL			485
TKW308HO			485
TKW30AHD			650
TKW30AHL			590
TKW30AHO			590



Motor	d	D	L
TKW401HA	620	795	130
TKW401HG			130
TKW402HG			180
TKW402HI			180
TKW402HP			180
TKW403HC			230
TKW403HJ			230
TKW403HL			230
TKW404HI			280
TKW404HQ			280
TKW404HR			280
TKW405HH			350
TKW405HQ			350
TKW406HG			400
TKW406HP			400
TKW406HQ			400
TKW408HF			500
TKW408HN			500
TKW408HQ			500
TKW40AHE			605
TKW40AHM			605
TKW40AHQ			605
TKW40CHD			710
TKW40CHK			710

Order Code

TK-Series

	1	2	3	4	5	6	7	8	9	10	11	12
Order example	TK	W	20	4HG	Y	Z	B	2	R	9	0	00

1 Motor type	TK	Frameless torque motors
2 Cooling method	W	Water cooling (standard)
	A	Natural convection (available with derating, consult us)
3 Shaft heights	13	130 mm
	20	200 mm
	30	315 mm
	40	400 mm
4 Torque/Speed characteristics	1HL	
	1HC	
	2HL	see table TK-Series technical data
	...	
5 Feedback sensor	K	Without sensor
	B	Direct Endat encoder
6 Transportation bridge	B	Bridges on both sides
	C	Bridges on cables output side
	D	Bridges on cables output opposite side
	Z	Without bridges (standard)
7 Cables output	B	Output towards the rear
8 Cable length	2	2 m
9 Fix code	R	
10 Connections	1	Flying cables (3 phases + ground)
11 Thermal protection	0	1 PTC 140°C + 1 PTC 150°C + 1 KTY (+1 in reserve)
12 Mechanical interface	00	Standard motor