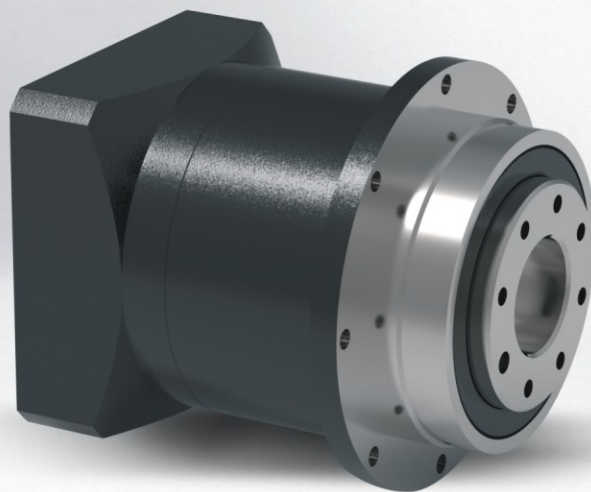


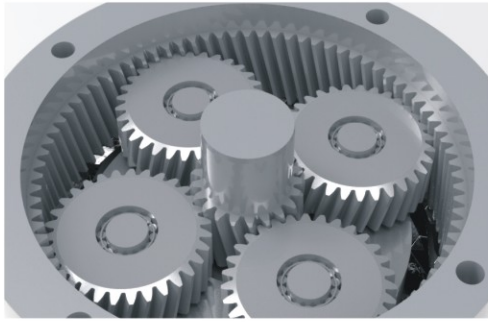
KPH

Powerful. High Precision. Reliable

▶ Servo Planetary Gearbox

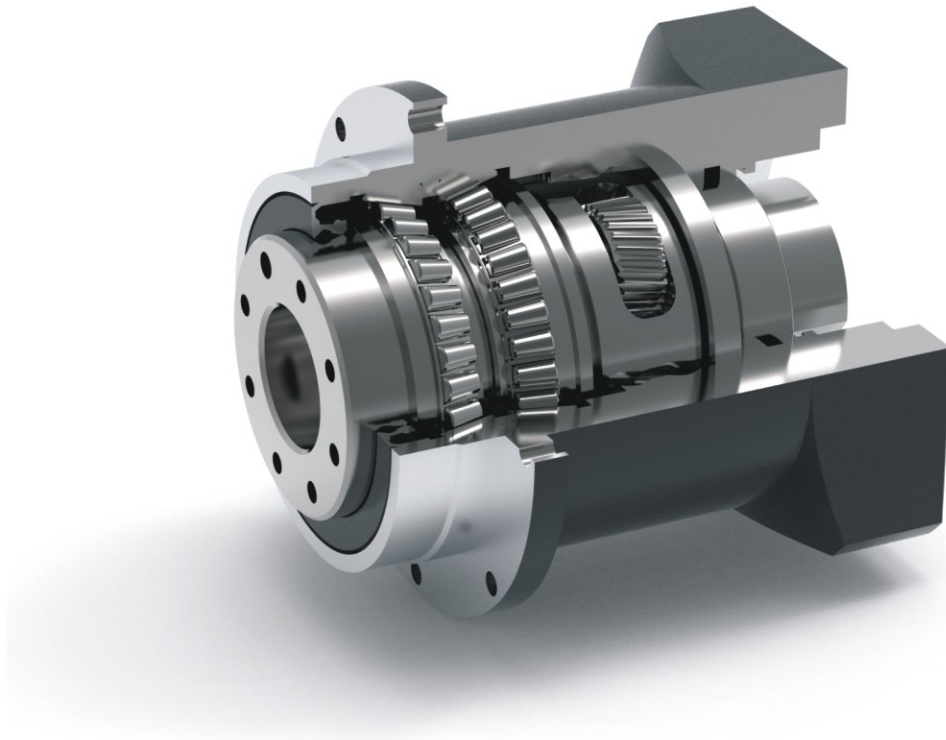
Advanced Gearbox Solution





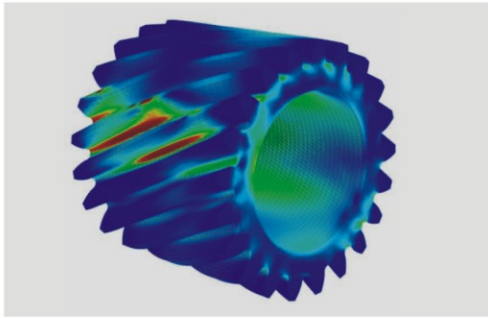
Helical Gear System Technology

Thanks to the tooth to tooth compact ratio more than 60%.The helical gearing and full needle bearing bring the benefits including higher torque capacity, smooth and lower noise running, decreased backlash and higher efficiency. Integrated housing engineering with super skiving gearing tooling craft.



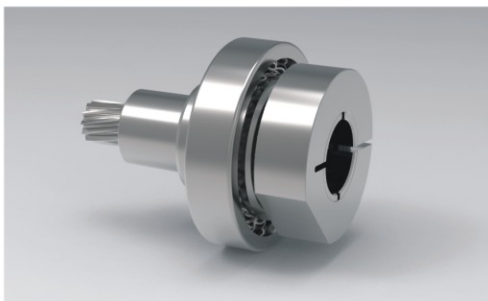
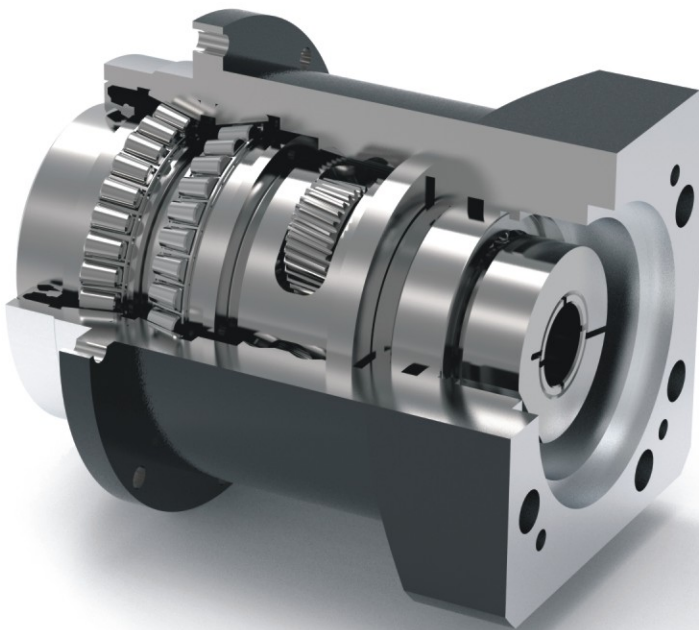
Master CageSpindle Planetary Carrier

The patented Master CageSpindle integrated planetary carrier support planetary gearbox to increase constructional strength running stability and rigidity significantly. Synthetic grease lubrication allows maintenance free for gearbox whole service life.



Super Gear Grinding and Heat Treatment Technology

The global leading gear grinding technology brings the great improvement for the tooth profile optimization, with the high level carburizing and quenching heat treatment technology to reach high precision and gear harden performance.



Dynamic Balance Clamping and Sealing System

For the gearbox input dynamic balance clamping design with perfect concentricity to decrease backlash and increase gearbox operation stability. The ultra sealing system offers grease leakage protection and support gearbox to reach IP65.

Order Instructions

Order Code:

KPH — 120 — 02 — 015 — P0 — Servo Motor



KPH

Gearbox Series: KPH



120

Gearbox Size



02

Gearbox Stage



015

Gearbox Ratio



P0

Gearbox Precision



Servo Motor

Motor Manufacturer and model

Technical Memo



KPH050 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	21	21	20	18	18	14	14
		in.lb	186	186	177	159	159	124	124
Emergency Stop Torque	T_{2Not}	Nm	63	63	60	54	54	42	42
		in.lb	558	558	531	478	478	372	372
Maximum Acceleration Torque	T_{2B}	Nm	37.8	37.8	36	32.4	32.4	25.2	25.2
		in.lb	335	335	319	287	287	223	223
Maximum Torque	T_{2a}	Nm	42	42	40	36	36	28	28
		in.lb	372	372	354	319	319	248	248
Permitted Average Input Speed	n_{1N}	rpm	4000						
Maximum Input Speed	n_{1Max}	rpm	8000						
Mean No Load Running Torque	T_{012}	Nm	0.15	0.14	0.12	0.12	0.12	0.12	0.11
		in.lb	1.33	1.24	1.06	1.06	1.06	1.06	0.97
Standard Backlash P1	j_t	arcmin	≤6						
Reduced Low Backlash P0	j_t	arcmin	≤4						
Torsional Rigidity	C_{d1}	Nm/arcmin	7						
		in.lb/arcmin	61.95						
Maximum Radial Load	F_{2AMax}	N	700						
		lb _r	157						
Maximum Axial Load	F_{2OMax}	N	450						
		lb _r	101						
Max. Tilting Moment	M_{2KMax}	Nm	28						
		in.lb	248						
Mass Moment of Inertia	j_i	kgcm ²	0.022	0.019	0.017	0.017	0.017	0.017	0.017
Operating Noise Level	L_{PA}	dB(A)	< 56						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	1						
		lb _m	1.54						

KPH050 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	21	21	21	21	21	21	21	21	20	18	18	14	14
		in.lb	186	186	186	186	186	186	186	186	177	159	159	124	124
Emergency Stop Torque	T_{2Not}	Nm	63	63	63	63	63	63	63	63	60	54	54	42	42
		in.lb	558	558	558	558	558	558	558	558	531	478	478	372	372
Maximum Acceleration Torque	T_{2B}	Nm	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	36	32.4	32.4	25.2	25.2
		in.lb	335	335	335	335	335	335	335	335	319	287	287	223	223
Maximum Torque	T_{2a}	Nm	42	42	42	42	42	42	42	42	40	36	36	28	28
		in.lb	372	372	372	372	372	372	372	372	354	319	319	248	248
Permitted Average Input Speed	n_{1N}	rpm	4000												
Maximum Input Speed	n_{1Max}	rpm	8000												
Mean No Load Running Torque	T_{012}	Nm	0.14	0.14	0.14	0.14	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11
		in.lb	1.24	1.24	1.24	1.24	1.06	1.06	1.06	1.06	1.06	1.06	1.06	0.97	0.97
Standard Backlash P1	j_1	arcmin	≤8												
Reduced Low Backlash P0	j_2	arcmin	≤6												
Torsional Rigidity	C_{21}	Nm/arcmin	7												
		in.lb/arcmin	61.95												
Maximum Radial Load	F_{2AMax}	N	700												
		lb _r	157												
Maximum Axial Load	F_{2QMax}	N	450												
		lb _r	101												
Max. Tilting Moment	M_{2KMax}	Nm	28												
		in.lb	248												
Mass Moment of Inertia	j_1	kgcm ²	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Operating Noise Level	L_{PA}	dB(A)	< 56												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP65												
Service lifetime	L_{-h}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	1.1												
		lb _m	2.2												

KPH070 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	52	55	50	50	45	42	42
		in.lb	460	487	443	443	398	372	372
Emergency Stop Torque	T_{2Not}	Nm	156	165	150	150	135	126	126
		in.lb	1381	1460	1328	1328	1195	1115	1115
Maximum Acceleration Torque	T_{2B}	Nm	93.6	99	90	90	81	75.6	75.6
		in.lb	828	876	797	797	717	669	669
Maximum Torque	T_{2a}	Nm	104	110	100	100	90	84	84
		in.lb	920	974	885	885	797	743	743
Permitted Average Input Speed	n_{1N}	rpm	3000						
Maximum Input Speed	n_{1Max}	rpm	6000						
Mean No Load Running Torque	T_{012}	Nm	0.3	0.27	0.25	0.25	0.25	0.25	0.25
		in.lb	2.66	2.39	2.21	2.21	2.21	2.21	2.21
Standard Backlash P1	j_t	arcmin	≤ 5						
Reduced Low Backlash P0	j_t	arcmin	≤ 3						
Ultra Low Backlash PU	j_t	arcmin	≤ 1						
Torsional Rigidity	C_{Q1}	Nm/arcmin	14						
		in.lb/arcmin	123.91						
Maximum Radial Load	F_{2AMax}	N	2500						
		lb _r	562						
Maximum Axial Load	F_{2QMax}	N	2000						
		lb _r	450						
Max. Tilting Moment	M_{2KMax}	Nm	80						
		in.lb	708						
Mass Moment of Inertia	j_1	kgcm ²	0.140	0.130	0.130	0.130	0.130	0.130	0.130
Operating Noise Level	L_{pA}	dB(A)	< 58						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP 65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	1.4						
		lb _m	3.1						

KPH070 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	52	52	55	55	55	55	55	55	50	50	45	42	42
		in.lb	460	460	487	487	487	487	487	487	443	443	398	372	372
Emergency Stop Torque	T_{2Not}	Nm	156	156	165	165	165	165	165	165	150	150	135	126	126
		in.lb	1381	1381	1460	1460	1460	1460	1460	1460	1328	1328	1195	1115	1115
Maximum Acceleration Torque	T_{2B}	Nm	93.6	93.6	99	99	99	99	99	99	90	90	81	75.6	75.6
		in.lb	828	828	876	876	876	876	876	876	797	797	717	669	669
Maximum Torque	T_{2a}	Nm	104	104	110	110	110	110	110	110	100	100	90	84	84
		in.lb	920	920	974	974	974	974	974	974	885	885	797	743	743
Permitted Average Input Speed	n_{1N}	rpm	3000												
Maximum Input Speed	n_{1Max}	rpm	6000												
Mean No Load Running Torque	T_{012}	Nm	0.27	0.27	0.27	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
		in.lb	2.39	2.39	2.39	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
Standard Backlash P1	j_1	arcmin	≤7												
Reduced Low Backlash P0	j_1	arcmin	≤5												
Ultra Low Backlash PU	j_1	arcmin	≤3												
Torsional Rigidity	C_{21}	Nm/arcmin	14												
		in.lb/arcmin	123.91												
Maximum Radial Load	F_{2AMax}	N	2500												
		lb _r	562												
Maximum Axial Load	F_{2QMax}	N	2000												
		lb _r	450												
Max. Tilting Moment	M_{2KMax}	Nm	80												
		in.lb	708												
Mass Moment of Inertia	j_1	kgcm ²	0.124	0.075	0.075	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.075	0.064	0.064
Operating Noise Level	L_{pA}	dB(A)	< 58												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	L_{-1}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	1.6												
		lb _m	3.5												

KPH090 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	145	155	145	135	115	105	105
		in.lb	1283	1372	1283	1195	1018	929	929
Emergency Stop Torque	T_{2Not}	Nm	435	465	435	405	345	315	315
		in.lb	3850	4116	3850	3585	3053	2788	2788
Maximum Acceleration Torque	T_{2B}	Nm	261	279	261	243	207	189	189
		in.lb	2310	2469	2310	2151	1832	1673	1673
Maximum Torque	T_{2a}	Nm	290	310	290	270	230	210	210
		in.lb	2567	2744	2567	2390	2036	1859	1859
Permitted Average Input Speed	n_{1N}	rpm	3000						
Maximum Input Speed	n_{1Max}	rpm	6000						
Mean No Load Running Torque	T_{012}	Nm	0.46	0.41	0.39	0.35	0.35	0.35	0.35
		in.lb	4.07	3.63	3.45	3.10	3.10	3.10	3.10
Standard Backlash P1	j_t	arcmin	≤ 5						
Reduced Low Backlash P0	j_t	arcmin	≤ 3						
Ultra Low Backlash PU	j_t	arcmin	≤ 1						
Torsional Rigidity	C_{Q1}	Nm/arcmin	35						
		in.lb/arcmin	309.77						
Maximum Radial Load	F_{2AMax}	N	4500						
		lb _r	1012						
Maximum Axial Load	F_{2QMax}	N	3500						
		lb _r	787						
Max. Tilting Moment	M_{2KMax}	Nm	228						
		in.lb	2018						
Mass Moment of Inertia	j_1	kgcm ²	0.48	0.47	0.47	0.47	0.45	0.44	0.44
Operating Noise Level	L_{pA}	dB(A)	< 60						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP 65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	3.3						
		lb _m	7.3						

KPH090 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	145	145	155	155	155	155	155	155	145	135	115	105	105
		in.lb	1283	1283	1372	1372	1372	1372	1372	1372	1283	1195	1018	929	929
Emergency Stop Torque	T_{2Not}	Nm	435	435	465	465	465	465	465	465	435	405	345	315	315
		in.lb	3850	3850	4116	4116	4116	4116	4116	4116	3850	3585	3053	2788	2788
Maximum Acceleration Torque	T_{2B}	Nm	261	261	279	279	279	279	279	279	261	243	207	189	189
		in.lb	2310	2310	2469	2469	2469	2469	2469	2469	2310	2151	1832	1673	1673
Maximum Torque	T_{2a}	Nm	290	290	310	310	310	310	310	310	290	270	230	210	210
		in.lb	2567	2567	2744	2744	2744	2744	2744	2744	2567	2390	2036	1859	1859
Permitted Average Input Speed	n_{1N}	rpm	3000												
Maximum Input Speed	n_{1Max}	rpm	6000												
Mean No Load Running Torque	T_{012}	Nm	0.41	0.41	0.41	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
		in.lb	3.63	3.63	3.63	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
Standard Backlash P1	j_1	arcmin	≤7												
Reduced Low Backlash P0	j_1	arcmin	≤5												
Ultra Low Backlash PU	j_1	arcmin	≤3												
Torsional Rigidity	C_{21}	Nm/arcmin	35												
		in.lb/arcmin	309.77												
Maximum Radial Load	F_{2AMax}	N	4500												
		lb _r	1012												
Maximum Axial Load	F_{2QMax}	N	3500												
		lb _r	787												
Max. Tilting Moment	M_{2KMax}	Nm	228												
		in.lb	2018												
Mass Moment of Inertia	j_1	kgcm ²	0.44	0.44	0.44	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.44	0.44	0.44
Operating Noise Level	L_{pA}	dB(A)	< 60												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	L_{-1}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	4.5												
		lb _m	9.9												

KPH120 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	300	320	300	290	255	220	220
		in.lb	2655	2832	2655	2567	2257	1947	1947
Emergency Stop Torque	T_{2Not}	Nm	900	960	900	870	765	660	660
		in.lb	7966	8497	7966	7700	6771	5841	5841
Maximum Acceleration Torque	T_{2B}	Nm	540	576	540	522	459	396	396
		in.lb	4779	5098	4779	4620	4062	3505	3505
Maximum Torque	T_{2a}	Nm	600	640	600	580	510	440	440
		in.lb	5310	5664	5310	5133	4514	3894	3894
Permitted Average Input Speed	n_{1N}	rpm	3000						
Maximum Input Speed	n_{1Max}	rpm	6000						
Mean No Load Running Torque	T_{012}	Nm	1.05	0.95	0.91	0.88	0.88	0.88	0.88
		in.lb	9.29	8.41	8.05	7.79	7.79	7.79	7.79
Standard Backlash P1	j_t	arcmin	≤ 5						
Reduced Low Backlash P0	j_t	arcmin	≤ 3						
Ultra Low Backlash PU	j_t	arcmin	≤ 1						
Torsional Rigidity	C_{Q1}	Nm/arcmin	90						
		in.lb/arcmin	796.56						
Maximum Radial Load	F_{2AMax}	N	7800						
		lb _f	1753						
Maximum Axial Load	F_{2QMax}	N	6000						
		lb _f	1349						
Max. Tilting Moment	M_{2KMax}	Nm	450						
		in.lb	3983						
Mass Moment of Inertia	j_1	kgcm ²	2.74	2.71	2.71	2.62	2.62	2.62	2.57
Operating Noise Level	L_{pA}	dB(A)	< 63						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP 65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	5.5						
		lb _m	12.1						

KPH120 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	300	300	320	320	320	320	320	320	300	290	255	220	220
		in.lb	2655	2655	2832	2832	2832	2832	2832	2832	2655	2567	2257	1947	1947
Emergency Stop Torque	T_{2Not}	Nm	900	900	960	960	960	960	960	960	900	870	765	660	660
		in.lb	7966	7966	8497	8497	8497	8497	8497	8497	7966	7700	6771	5841	5841
Maximum Acceleration Torque	T_{2B}	Nm	540	540	576	576	576	576	576	576	540	522	459	396	396
		in.lb	4779	4779	5098	5098	5098	5098	5098	5098	4779	4620	4062	3505	3505
Maximum Torque	T_{2a}	Nm	600	600	640	640	640	640	640	640	600	580	510	440	440
		in.lb	5310	5310	5664	5664	5664	5664	5664	5664	5310	5133	4514	3894	3894
Permitted Average Input Speed	n_{1N}	rpm	3000												
Maximum Input Speed	n_{1Max}	rpm	6000												
Mean No Load Running Torque	T_{012}	Nm	0.95	0.95	0.95	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
		in.lb	8.41	8.41	8.41	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79
Standard Backlash P1	j_1	arcmin	≤7												
Reduced Low Backlash P0	j_1	arcmin	≤5												
Ultra Low Backlash PU	j_1	arcmin	≤3												
Torsional Rigidity	C_{21}	Nm/arcmin	90												
		in.lb/arcmin	796.56												
Maximum Radial Load	F_{2AMax}	N	7800												
		lb _r	1753												
Maximum Axial Load	F_{2QMax}	N	6000												
		lb _r	1349												
Max. Tilting Moment	M_{2KMax}	Nm	450												
		in.lb	3983												
Mass Moment of Inertia	j_1	kgcm ²	2.58	1.5	1.49	1.3	1.3	1.3	1.3	1.3	1.3	0.44	0.44	0.44	0.44
Operating Noise Level	L_{pA}	dB(A)	< 63												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	L_{-1}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	8												
		lb _m	17.6												

KPH160 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	550	650	610	540	510	440	440
		in.lb	4868	5753	5399	4779	4514	3894	3894
Emergency Stop Torque	T_{2Not}	Nm	1650	1950	1830	1620	1530	1320	1320
		in.lb	14604	17259	16197	14338	13542	11683	11683
Maximum Acceleration Torque	T_{2B}	Nm	990	1170	1098	972	918	792	792
		in.lb	8762	10355	9718	8603	8125	7010	7010
Maximum Torque	T_{2a}	Nm	1100	1300	1220	1080	1020	880	880
		in.lb	9736	11506	10798	9559	9028	7789	7789
Permitted Average Input Speed	n_{IN}	rpm	3000						
Maximum Input Speed	n_{1Max}	rpm	6000						
Mean No Load Running Torque	T_{012}	Nm	2.6	2.5	2.4	2.4	2.4	2.4	2.4
		in.lb	23.01	22.13	21.24	21.24	21.24	21.24	21.24
Standard Backlash P1	j_t	arcmin	≤ 5						
Reduced Low Backlash P0	j_t	arcmin	≤ 3						
Ultra Low Backlash PU	j_t	arcmin	≤ 1						
Torsional Rigidity	C_{Q1}	Nm/arcmin	205						
		in.lb/arcmin	1814.39						
Maximum Radial Load	F_{2AMax}	N	12000						
		lb _f	2698						
Maximum Axial Load	F_{2QMax}	N	10000						
		lb _f	2248						
Max. Tilting Moment	M_{2KMax}	Nm	1012						
		in.lb	8957						
Mass Moment of Inertia	j_1	kgcm ²	7.54	7.42	7.42	7.25	7.14	7.14	7.14
Operating Noise Level	L_{pA}	dB(A)	< 65						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP 65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	20						
		lb _m	44.0						

KPH160 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	550	550	650	650	650	650	650	650	610	540	510	440	440
		in.lb	4868	4868	5753	5753	5753	5753	5753	5753	5399	4779	4514	3894	3894
Emergency Stop Torque	T_{2Not}	Nm	1650	1650	1950	1950	1950	1950	1950	1950	1830	1620	1530	1320	1320
		in.lb	14604	14604	17259	17259	17259	17259	17259	17259	16197	14338	13542	11683	11683
Maximum Acceleration Torque	T_{2B}	Nm	990	990	1170	1170	1170	1170	1170	1170	1098	972	918	792	792
		in.lb	8762	8762	10355	10355	10355	10355	10355	10355	9718	8603	8125	7010	7010
Maximum Torque	T_{2a}	Nm	1100	1100	1300	1300	1300	1300	1300	1300	1220	1080	1020	880	880
		in.lb	9736	9736	11506	11506	11506	11506	11506	11506	10798	9559	9028	7789	7789
Permitted Average Input Speed	n_{1N}	rpm	3000												
Maximum Input Speed	n_{1Max}	rpm	6000												
Mean No Load Running Torque	T_{012}	Nm	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
		in.lb	23.01	23.01	23.01	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13
Standard Backlash P1	j_1	arcmin	≤7												
Reduced Low Backlash P0	j_1	arcmin	≤5												
Ultra Low Backlash PU	j_1	arcmin	≤3												
Torsional Rigidity	C_{21}	Nm/arcmin	205												
		in.lb/arcmin	1814.39												
Maximum Radial Load	F_{2AMax}	N	12000												
		lb _r	2698												
Maximum Axial Load	F_{2QMax}	N	10000												
		lb _r	2248												
Max. Tilting Moment	M_{2KMax}	Nm	1012												
		in.lb	8957												
Mass Moment of Inertia	j_1	kgcm ²	12.35	6.65	5.81	5.36	5.36	4.08	5.36	4.08	7.4	7.4	7.4	7.3	7.3
Operating Noise Level	L_{pA}	dB(A)	< 65												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	L_{-1}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	25												
		lb _m	55												

KPH205 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	1250	1200	1000	1000	1000	910	910
		in.lb	11063	10621	8851	8851	8851	8054	8054
Emergency Stop Torque	T_{2Not}	Nm	3750	3600	3000	3000	3000	2730	2730
		in.lb	33190	31863	26552	26552	26552	24162	24162
Maximum Acceleration Torque	T_{2B}	Nm	2250	2160	1800	1800	1800	1638	1638
		in.lb	19914	19118	15931	15931	15931	14497	14497
Maximum Torque	T_{2a}	Nm	2500	2400	2000	2000	2000	1820	1820
		in.lb	22127	21242	17701	17701	17701	16108	16108
Permitted Average Input Speed	n_{IN}	rpm	2000						
Maximum Input Speed	n_{1Max}	rpm	4000						
Mean No Load Running Torque	T_{012}	Nm	3.5	3.4	3.2	3.2	3.2	3.2	3.2
		in.lb	30.98	30.09	28.32	28.32	28.32	28.32	28.32
Standard Backlash P1	j_t	arcmin	≤ 5						
Reduced Low Backlash P0	j_t	arcmin	≤ 3						
Ultra Low Backlash PU	j_t	arcmin	≤ 1						
Torsional Rigidity	C_{Q1}	Nm/arcmin	560						
		in.lb/arcmin	4956.39						
Maximum Radial Load	F_{2AMax}	N	18000						
		lb _r	4046						
Maximum Axial Load	F_{2QMax}	N	15000						
		lb _r	3372						
Max. Tilting Moment	M_{2KMax}	Nm	2050						
		in.lb	18144						
Mass Moment of Inertia	j_1	kgcm ²	23.67	22.75	22.75	22.48	22.59	22.59	22.55
Operating Noise Level	L_{pA}	dB(A)	< 67						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP 65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	31						
		lb _m	68.2						

KPH205 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	1250	1250	1200	1200	1200	1200	1200	1200	1000	1000	1000	910	910
		in.lb	11063	11063	10621	10621	10621	10621	10621	10621	8851	8851	8851	8054	8054
Emergency Stop Torque	T_{2Not}	Nm	3750	3750	3600	3600	3600	3600	3600	3600	3000	3000	3000	2730	2730
		in.lb	33190	33190	31863	31863	31863	31863	31863	31863	26552	26552	26552	24162	24162
Maximum Acceleration Torque	T_{2B}	Nm	2250	2250	2160	2160	2160	2160	2160	2160	1800	1800	1800	1638	1638
		in.lb	19914	19914	19118	19118	19118	19118	19118	19118	15931	15931	15931	14497	14497
Maximum Torque	T_{2a}	Nm	2500	2500	2400	2400	2400	2400	2400	2400	2000	2000	2000	1820	1820
		in.lb	22127	22127	21242	21242	21242	21242	21242	21242	17701	17701	17701	16108	16108
Permitted Average Input Speed	n_{1N}	rpm	2000												
Maximum Input Speed	n_{1Max}	rpm	4000												
Mean No Load Running Torque	T_{012}	Nm	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
		in.lb	22.13	22.13	22.13	21.24	21.24	21.24	21.24	21.24	21.24	21.24	21.24	21.24	21.24
Standard Backlash P1	j_1	arcmin	≤7												
Reduced Low Backlash P0	j_1	arcmin	≤5												
Ultra Low Backlash PU	j_1	arcmin	≤3												
Torsional Rigidity	C_{21}	Nm/arcmin	560												
		in.lb/arcmin	4956.39												
Maximum Radial Load	F_{2AMax}	N	18000												
		lb _r	4046												
Maximum Axial Load	F_{2QMax}	N	15000												
		lb _r	3372												
Max. Tilting Moment	M_{2KMax}	Nm	2050												
		in.lb	18144												
Mass Moment of Inertia	j_1	kgcm ²	12.3	7.42	7.54	7.14	7.14	7.14	7.14	7.14	7.54	7.54	7.54	7.42	7.42
Operating Noise Level	L_{pA}	dB(A)	< 67												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	L_{-1}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	39												
		lb _m	85.8												

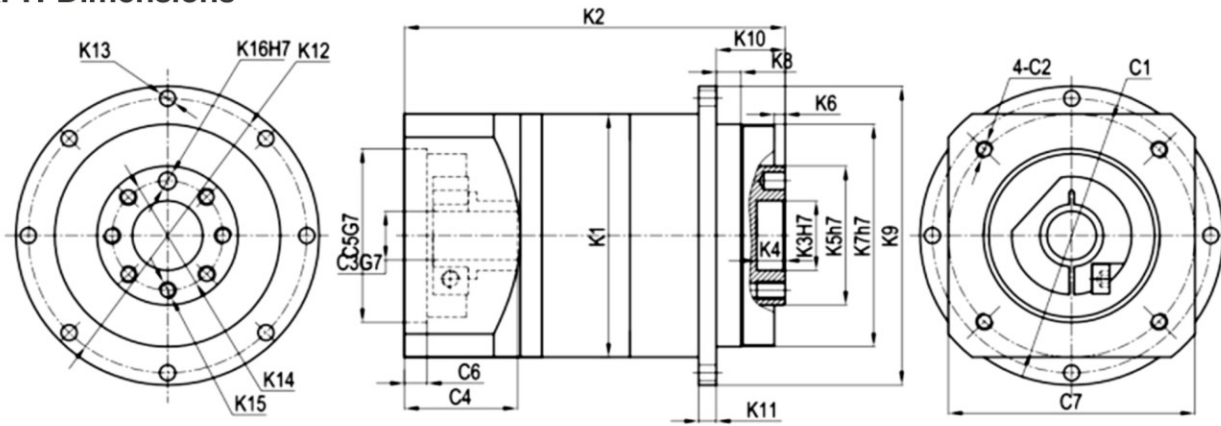
KPH255 1-stage

			1-stage						
Ratio	i		4	5	6	7	8	9	10
Nominal Output Torque		Nm	1800	2050	1850	1750	1550	1500	1500
		in.lb	15931	18144	16374	15489	13719	13276	13276
Emergency Stop Torque	T_{2Not}	Nm	5400	6150	5550	5250	4650	4500	4500
		in.lb	47794	54432	49121	46466	41156	39828	39828
Maximum Acceleration Torque	T_{2B}	Nm	3240	3690	3330	3150	2790	2700	2700
		in.lb	28676	32659	29473	27880	24693	23897	23897
Maximum Torque	T_{2a}	Nm	3600	4100	3700	3500	3100	3000	3000
		in.lb	31863	36288	32748	30977	27437	26552	26552
Permitted Average Input Speed	n_{IN}	rpm	2000						
Maximum Input Speed	n_{1Max}	rpm	4000						
Mean No Load Running Torque	T_{012}	Nm	5.5	5.25	5.1	5.1	5.1	5.1	5.1
		in.lb	48.68	46.47	45.14	45.14	45.14	45.14	45.14
Standard Backlash P1	j_t	arcmin	≤ 5						
Reduced Low Backlash P0	j_t	arcmin	≤ 3						
Ultra Low Backlash PU	j_t	arcmin	≤ 1						
Torsional Rigidity	C_{21}	Nm/arcmin	1130						
		in.lb/arcmin	10001.29						
Maximum Radial Load	F_{2AMax}	N	45000						
		lb _r	10116						
Maximum Axial Load	F_{2QMax}	N	22500						
		lb _r	5058						
Max. Tilting Moment	M_{2KMax}	Nm	6085						
		in.lb	53857						
Mass Moment of Inertia	j_1	kgcm ²	37.37	33.27	30.27	27.84	25.84	24.84	23.56
Operating Noise Level	L_{pA}	dB(A)	< 70						
Efficiency at Full loading	η	%	97						
Operating Temperature		°C	-25 to +90						
		F	-13 to +194						
Lubrication			Synthetic Lubrication Grease						
Mouting Position			Any Directions						
Protection Class			IP 65						
Service lifetime	L_h	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Weight	m	kg	70						
		lb _m	154						

KPH255 2-stage

			2-stage												
Ratio	i		16	20	25	30	35	40	45	50	60	70	80	90	100
Nominal Output Torque		Nm	1800	1800	2050	2050	2050	2050	2050	2050	1850	1750	1550	1500	1500
		in.lb	15930	15930	18143	18143	18143	18143	18143	18143	16373	15488	13718	13275	13275
Emergency Stop Torque	T_{2Not}	Nm	5400	5400	6150	6150	6150	6150	6150	6150	5550	5250	4650	4500	4500
		in.lb	47790	47790	54428	54428	54428	54428	54428	54428	49118	46463	41153	39825	39825
Maximum Acceleration Torque	T_{2B}	Nm	3240	3240	3690	3690	3690	3690	3690	3690	3330	3150	2790	2700	2700
		in.lb	28674	28674	32657	32657	32657	32657	32657	32657	29471	27878	24692	23895	23895
Maximum Torque	T_{2a}	Nm	3600	3600	4100	4100	4100	4100	4100	4100	3700	3500	3100	3000	3000
		in.lb	31860	31860	36285	36285	36285	36285	36285	36285	32745	30975	27435	26550	26550
Permitted Average Input Speed	n_{1N}	rpm	2000												
Maximum Input Speed	n_{1Max}	rpm	4000												
Mean No Load Running Torque	T_{012}	Nm	3.4	3.4	3.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
		in.lb	30.09	30.09	30.09	28.32	28.32	28.32	28.32	28.32	28.32	28.32	28.32	28.32	28.32
Standard Backlash P1	j_1	arcmin	≤7												
Reduced Low Backlash P0	j_1	arcmin	≤5												
Ultra Low Backlash PU	j_1	arcmin	≤3												
Torsional Rigidity	C_{21}	Nm/arcmin	1130												
		in.lb/arcmin	10001.29												
Maximum Radial Load	F_{2AMax}	N	45000												
		lb _r	10116												
Maximum Axial Load	F_{2QMax}	N	22500												
		lb _r	5058												
Max. Tilting Moment	M_{2KMax}	Nm	6085												
		in.lb	53857												
Mass Moment of Inertia	j_1	kgcm ²	28.92	13.75	7.54	6.59	6.59	6.59	6.59	6.59	6.59	6.59	6.59	6.59	6.59
Operating Noise Level	L_{pA}	dB(A)	< 70												
Efficiency at Full loading	η	%	95												
Operating Temperature		°C	-25 to +90												
		F	-13 to +194												
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	L_{-1}	h	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)												
Weight	m	kg	80												
		lb _m	176												

KPH Dimensions

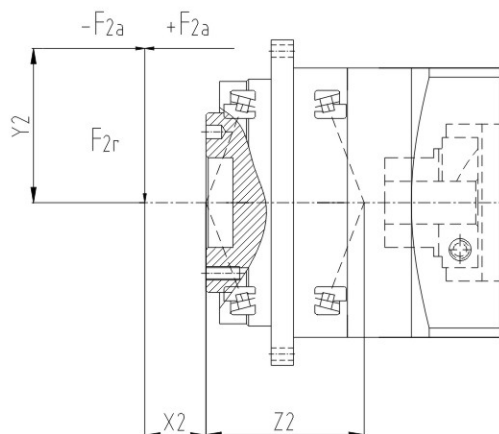


Model	KPH050		KPH070		KPH090		KPH120		KPH160		KPH205		KPH255	
Stage	1	2	1	2	1	2	1	2	1	2	1	2	1	2
K1	60		70		90		120		160		210		253	
	2.362		2.756		3.543		4.724		6.299		8.268		9.961	
K2	92.8	107.8	108	131.7	137.2	168.5	177	218.8	232.7	293.7	235	297	307	402.5
	3.654	4.244	4.252	5.185	5.402	6.634	6.969	8.614	9.161	11.563	9.252	11.693	12.087	15.846
K3	12		20		31.5		40		50		80		100	
	0.472		0.787		1.240		1.575		1.969		3.150		3.937	
K4	4		8		12		12		12		22.5		20	
	0.157		0.315		0.472		0.472		0.472		0.886		0.787	
K5	28		40		63		80		100		160		180	
	1.102		1.575		2.480		3.150		3.937		6.299		7.087	
K6	3		3		6		6		6		6		12	
	0.118		0.118		0.236		0.236		0.236		0.236		0.472	
K7	47		64		90		110		140		200		255	
	1.850		2.520		3.543		4.331		5.512		7.874		10.039	
K8	7		7		10		10		14.6		15		20	
	0.276		0.276		0.394		0.394		0.575		0.591		0.787	
K9	72		86		118		145		179		247		300	
	2.835		3.386		4.646		5.709		7.047		9.724		11.811	
K10	17.5		19.5		30		29		38		56		66	
	0.689		0.768		1.181		1.142		1.496		2.205		2.598	
K11	4		5		8		10		10		12		18	
	0.157		0.197		0.315		0.394		0.394		0.472		0.709	
K12	67		79		109		135		168		233		280	
	2.638		3.110		4.291		5.315		6.614		9.173		11.024	
K13	3.4X8		4.5X8		5.5X8		5.5X8		6.6X12		9X12		13.5X16	
	0.134X8		0.177X8		0.217X8		0.217X8		0.260X12		0.354X12		0.531X12	
K14	20.0		31.5		50		63		80		125		140	
	0.787		1.240		1.969		2.480		3.150		4.921		5.512	
K15	4-M3X8		7-M5X8		7-M6X12		11-M6X15		11-M8X18		11-M10X17		12-M16X25	
K16	3X5		5X6		6X7		6X7		8X8		10X10		16X10	
	0.118X5		0.197X6		0.236X7		0.236X7		0.315X8		0.394X10		0.63X10	
C1	46		70		90		145		200		215	200	235	215
	1.811		2.756		3.543		5.709		7.874		8.465	7.874	9.252	8.465
C2	M4X10		M5X12		M6X15		M8X20		M12X25		M12X25	M12X25	M12X25	
C3	8		14		19		24		35		42	35	55	42
	0.315		0.551		0.748		0.945		1.378		1.654	1.378	2.165	1.654
C4	26.1		32.1		41.6		61.3		82		82.5	82	115.5	82.5
	1.028		1.264		1.638		2.413		3.228		3.248	3.228	4.547	3.248
C5	30		50		70		110		114.3		180	114.3	200	180
	1.181		1.969		2.756		4.331		4.500		7.087	4.500	7.874	8 7.087
C6	5		6.5		6.5		8		8		8	8	0.315	
	0.197		0.256		0.256		0.315		0.315		0.315	0.315		
C7	60		70		97		120		175		190	175	220	190
	2.362		2.756		3.819		4.724		6.890		7.480	6.890	8.661	7.480

The dimensions modified as per the applied motor flanges.

You can get the specific gearbox drawing solution by KDP(Kofon Design Programme) on line from our website: www.kofon-motion.com

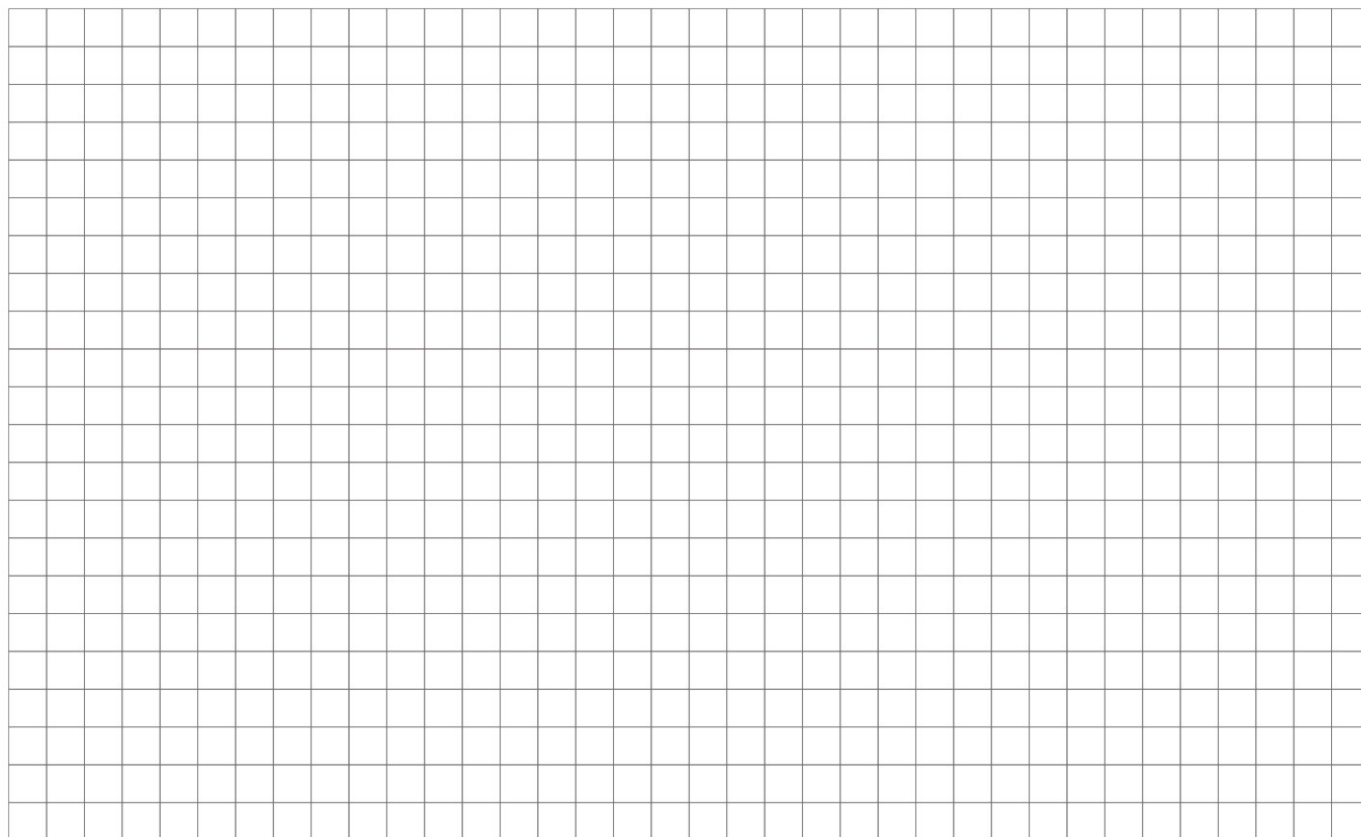
KPH Titling moment



$$M_{2kb} = \frac{2 \cdot F_{2a} \cdot y_2 + F_{2r} \cdot (x_2 + Z_2)}{1000}$$

KPH	050	070	090	120	160	205	255
Z2[mm]	40.5	32.136	50.6	57.7	84.37	113.9	135.22
M _{2kb}	28	80	228	450	1012	2050	6085

Technical Memo



Technical Memo

