



**MOTION TECHNOLOGIES
PTY LIMITED**

PHT PINIONS

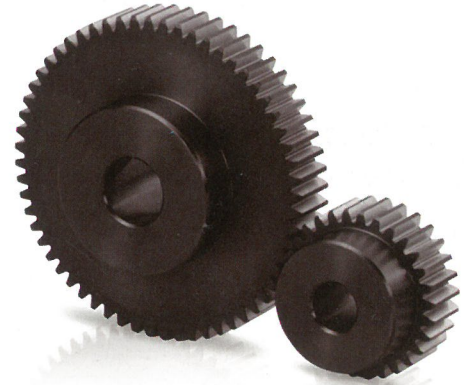
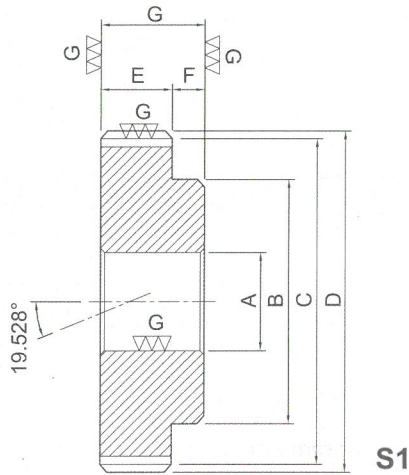


This catalogue depicts a standard range of pinions gears but typically it is determined that they are not suitable for many application of technical reasons.

Thus, PHT provide cost effective fully customized service to provide pinions to customer needs according to drawing using the following pages as a design guideline.

SG15 Grinding Spur Gears

PHT VERTEX PRECISION COMPONENTS CORP.



Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
	m	z	A _{H7}	B	C	D	E	F	G	H	I
SG15~M1.5-20-12	1.5	20	12	25	30.0	33.0	15	10	25	-	-
SG15~M1.5-20-15			15								
SG15~M1.5-25-14	1.5	25	14	30	37.5	40.5	15	10	25	-	-
SG15~M1.5-25-16			16								
SG15~M1.5-30-15	1.5	30	15	30	45.0	48.0	15	10	25	-	-
SG15~M1.5-30-18			18								
SG15~M1.5-35-15	1.5	35	15	25	52.5	55.5	15	10	25	-	-
SG15~M1.5-35-18			18								
SG15~M1.5-40-16	1.5	40	16	35	60.0	63.0	15	10	25	-	-
SG15~M1.5-40-20			20								
SG15~M1.5-45-16	1.5	45	16	40	67.5	70.5	15	10	25	-	-
SG15~M1.5-45-20			20								
SG15~M1.5-50-18	1.5	50	18	40	75.0	78.0	15	10	25	-	-
SG15~M1.5-50-22			22								
SG15~M1.5-60-20	1.5	60	20	45	90.0	93.0	15	10	25	-	-
SG15~M1.5-60-25			25								
SG15~M1.5-70-20	1.5	70	20	45	105.0	108.0	15	10	25	-	-
SG15~M1.5-70-25			25								
SG15~M1.5-80-20	1.5	80	20	45	120.0	123.0	15	10	25	-	-
SG15~M1.5-80-25			25								
SG15~M1.5-100-25	1.5	100	25	50	150.0	153.0	15	10	25	-	-
SG15~M1.5-100-30			30								

MODULE M1.5

Specifications

Precision Grade	DIN3962 6 Class	Tooth Hardness	55~60HRC
Gear Teeth	Standard full depth	Surface Treatment	N/A
Pressure Angle	20°	Tooth Process	Grinding
Material	SCM415	Datum Reference Gear Grinding Surface	Bore
Heat Treatment	Carburizing	Secondary Process	Not possible NOTE4

NOTE1 The dimension of Keyway shall be influenced by tolerance after heat treatment. Keyway produced based by CNS JS9.

NOTE2 The reference of Allowable Torque shall be considered when applied on device.

NOTE3 The information of Backlash are based by one pair of gear pinions under same dimension and model.

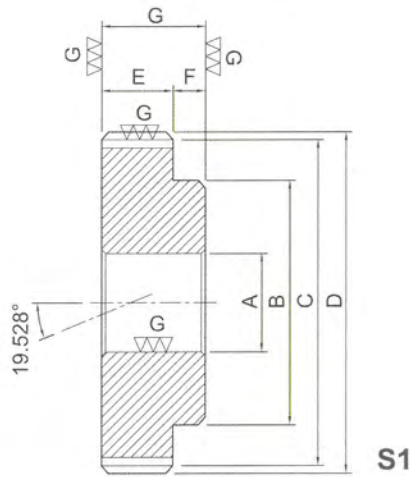
NOTE4 Due to full carburizing, gear pinion can't do secondary process; if customized gear pinion is necessary, please contact with us for further discussion.

Unit: mm

Model	Keyway NOTE1 J X K	Shape	Allowable Torque (Nm) NOTE2		Allowable Torque (kgf.m)		Backlash NOTE3	Weight (kgf)
			Bending Strength	Surface Durability	Bending Strength	Surface Durability		
SG15~M1.5-20-12	4 X 1.8	S1	47.97	27.88	4.892	2.843	0.08~0.16	0.09 0.10
SG15~M1.5-20-15	5 X 2.3							
SG15~M1.5-25-14	5 X 2.3	S1	66.02	45.41	6.732	4.631	0.08~0.16	0.15 0.14
SG15~M1.5-25-16	5 X 2.3							
SG15~M1.5-30-15	5 X 2.3	S1	84.66	66.39	8.633	6.770	0.08~0.16	0.20 0.19
SG15~M1.5-30-18	6 X 2.8							
SG15~M1.5-35-15	5 X 2.3	S1	103.80	91.54	10.580	9.335	0.1~0.18	0.31 0.30
SG15~M1.5-35-18	6 X 2.8							
SG15~M1.5-40-16	5 X 2.3	S1	123.10	120.90	12.550	12.330	0.1~0.18	0.36 0.34
SG15~M1.5-40-20	6 X 2.8							
SG15~M1.5-45-16	5 X 2.3	S1	142.60	154.70	14.540	15.780	0.1~0.18	0.51 0.49
SG15~M1.5-45-20	6 X 2.8							
SG15~M1.5-50-18	6 X 2.8	S1	162.40	192.90	16.560	19.670	0.1~0.18	0.55 0.53
SG15~M1.5-50-22	6 X 2.8							
SG15~M1.5-60-20	6 X 2.8	S1	202.20	282.60	20.620	28.820	0.1~0.18	0.80 0.76
SG15~M1.5-60-25	8 X 3.3							
SG15~M1.5-70-20	6 X 2.8	S1	230.90	372.40	23.550	37.970	0.12~0.2	1.14 1.11
SG15~M1.5-70-25	8 X 3.3							
SG15~M1.5-80-20	6 X 2.8	S1	269.50	493.60	27.480	50.330	0.12~0.2	1.40 1.30
SG15~M1.5-80-25	8 X 3.3							
SG15~M1.5-100-25	8 X 3.3	S1	347.20	786.90	35.400	80.240	0.12~0.2	2.20 2.10
SG15~M1.5-100-30	8 X 3.3							

SG15 Grinding Spur Gears

PHT VERTEX PRECISION COMPONENTS CORP.



Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
	m	z	A _{H7}	B	C	D	E	F	G	H	I
SG15~M2-20-15 SG15~M2-20-18	2	20	15 18	32	40	44	20	10	30	-	-
SG15~M2-25-16 SG15~M2-25-20	2	25	16 20	35	50	54	20	10	30	-	-
SG15~M2-30-18 SG15~M2-30-22	2	30	18 22	40	60	64	20	10	30	-	-
SG15~M2-35-18 SG15~M2-35-22	2	35	18 22	40	70	74	20	10	30	-	-
SG15~M2-40-20 SG15~M2-40-25	2	40	20 25	45	80	84	20	10	30	-	-
SG15~M2-45-20 SG15~M2-45-25	2	45	20 25	45	90	94	20	10	30	-	-
SG15~M2-50-22 SG15~M2-50-28	2	50	22 28	50	100	104	20	10	30	13	84
SG15~M2-60-25 SG15~M2-60-30	2	60	25 30	55	120	124	20	10	30	13	104
SG15~M2-70-25 SG15~M2-70-30	2	70	25 30	55	140	144	20	10	30	13	114
SG15~M2-80-30 SG15~M2-80-35	2	80	30 35	60	160	164	20	10	30	13	144
SG15~M2-100-35 SG15~M2-100-40	2	100	35 40	80	200	204	20	10	30	13	174

MODULE M2

Specifications

Precision Grade	DIN3962 6 Class	Tooth Hardness	55~60HRC
Gear Teeth	Standard full depth	Surface Treatment	N/A
Pressure Angle	20°	Tooth Process	Grinding
Material	SCM415	Datum Reference Gear Grinding Surface	Bore
Heat Treatment	Carburizing	Secondary Process	Not possible NOTE4

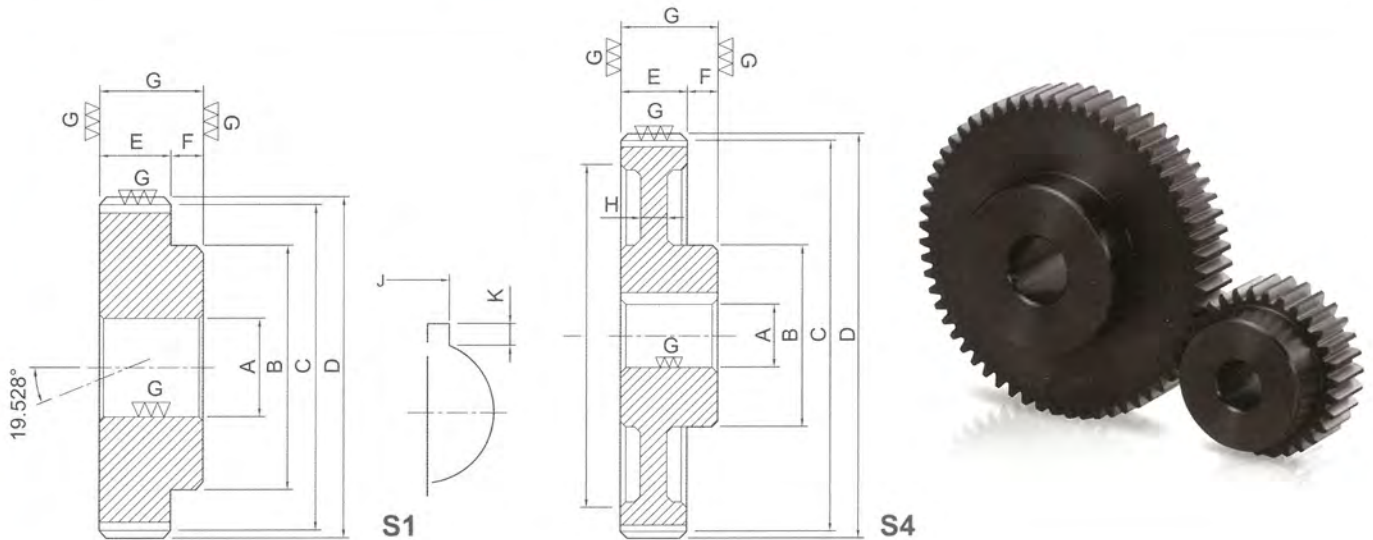
- NOTE1** The dimension of Keyway shall be influenced by tolerance after heat treatment. Keyway produced based by CNS JS9.
- NOTE2** The reference of Allowable Torque shall be considered when applied on device.
- NOTE3** The information of Backlash are based by one pair of gear pinions under same dimension and model.
- NOTE4** Due to full carburizing, gear pinion can't do secondary process; if customized gear pinion is necessary, please contact with us for further discussion.

Unit: mm

Model	Keyway NOTE1	Shape	Allowable Torque (Nm) NOTE2		Allowable Torque (kgf.m)		Backlash NOTE3	Weight (kgf)
	J X K		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
SG15~M2-20-15	5 X 2.3	S1	113.8	67.58	11.60	6.891	0.1~0.2	0.29
SG15~M2-20-18	6 X 2.8							0.20
SG15~M2-25-16	5 X 2.3	S1	156.5	110.20	15.96	11.240	0.1~0.2	0.36
SG15~M2-25-20	6 X 2.8							0.35
SG15~M2-30-18	6 X 2.8	S1	200.6	161.30	20.46	16.450	0.12~0.22	0.47
SG15~M2-30-22	6 X 2.8							0.44
SG15~M2-35-18	6 X 2.8	S1	245.9	222.60	25.07	22.700	0.12~0.22	0.71
SG15~M2-35-22	6 X 2.8							0.68
SG15~M2-40-20	6 X 2.8	S1	291.6	294.40	29.74	30.020	0.12~0.22	0.82
SG15~M2-40-25	8 X 3.3							0.79
SG15~M2-45-20	6 X 2.8	S1	338.1	376.90	34.48	38.430	0.12~0.22	1.0
SG15~M2-45-25	8 X 3.3							1.1
SG15~M2-50-22	6 X 2.8	S1	366.6	448.00	37.38	45.680	0.12~0.22	1.1
SG15~M2-50-28	8 X 3.3							1.0
SG15~M2-60-25	8 X 3.3	S1	456.6	658.10	46.56	67.110	0.14~0.24	1.5
SG15~M2-60-30	8 X 3.3							1.4
SG15~M2-70-25	8 X 3.3	S1	547.4	908.80	55.82	92.670	0.14~0.24	2.4
SG15~M2-70-30	8 X 3.3							2.3
SG15~M2-80-30	8 X 3.3	S1	609.9	1145.00	62.19	116.800	0.14~0.24	2.5
SG15~M2-80-35	10 X 3.3							2.4
SG15~M2-100-35	10 X 3.3	S1	785.4	1824.00	80.09	186.000	0.14~0.24	5.0
SG15~M2-100-40	12 X 3.3							4.9

SG15 Grinding Spur Gears

PHT VERTEX PRECISION COMPONENTS CORP.



Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
	m	z	A _{H7}	B	C	D	E	F	G	H	I
SG15~M2.5-20-18 SG15~M2.5-20-22	2.5	20	18 22	40	50.0	55.0	25	12	37	-	-
SG15~M2.5-25-20 SG15~M2.5-25-25	2.5	25	20 25	45	62.5	67.5	25	12	37	-	-
SG15~M2.5-30-22 SG15~M2.5-30-28	2.5	30	22 28	50	75.0	80.0	25	12	37	-	-
SG15~M2.5-35-25 SG15~M2.5-35-30	2.5	35	25 30	55	87.5	92.5	25	12	37	-	-
SG15~M2.5-40-25 SG15~M2.5-40-32	2.5	40	25 32	55	100.0	105.0	25	12	37	-	-
SG15~M2.5-45-30 SG15~M2.5-45-35	2.5	45	30 35	60	112.5	117.5	25	12	37	-	-
SG15~M2.5-50-30 SG15~M2.5-50-35	2.5	50	30 35	60	125.0	130.0	25	12	37	17	105
SG15~M2.5-60-30 SG15~M2.5-60-40	2.5	60	30 40	70	150.0	155.0	25	12	37	17	130
SG15~M2.5-70-40 SG15~M2.5-70-50	2.5	70	40 50	80	175.0	180.0	25	12	37	17	150

MODULE M2.5

Specifications

Precision Grade	DIN3962 6 Class	Tooth Hardness	55~60HRC
Gear Teeth	Standard full depth	Surface Treatment	N/A
Pressure Angle	20°	Tooth Process	Grinding
Material	SCM415	Datum Reference Gear Grinding Surface	Bore
Heat Treatment	Carburizing	Secondary Process	Not possible NOTE4

NOTE1 The dimension of Keyway shall be influenced by tolerance after heat treatment. Keyway produced based by CNS JS9.

NOTE2 The reference of Allowable Torque shall be considered when applied on device.

NOTE3 The information of Backlash are based by one pair of gear pinions under same dimension and model.

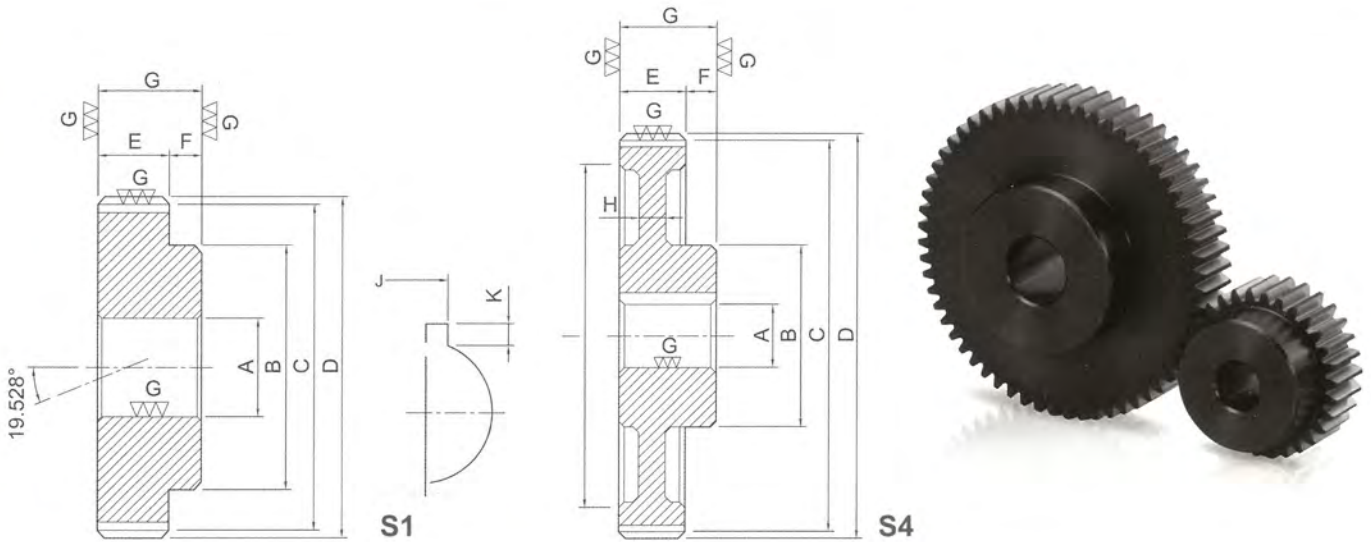
NOTE4 Due to full carburizing, gear pinion can't do secondary process; if customized gear pinion is necessary, please contact with us for further discussion.

Unit: mm

Model	Keyway NOTE1	Shape	Allowable Torque (Nm) NOTE2		Allowable Torque (kgf.m)		Backlash NOTE3	Weight (kgf)
	J X K		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
SG15~M2.5-20-18 SG15~M2.5-20-22	6 X 2.8 6 X 2.8	S1	222.1	134.4	22.65	13.71	0.1~0.2	0.42 0.38
SG15~M2.5-25-20 SG15~M2.5-25-25	6 X 2.8 8 X 3.3	S1	305.7	219.6	31.17	22.39	0.12~0.22	0.65 0.60
SG15~M2.5-30-22 SG15~M2.5-30-28	6 X 2.8 8 X 3.3	S1	392.0	321.5	39.97	32.78	0.12~0.22	0.93 0.85
SG15~M2.5-35-25 SG15~M2.5-35-30	8 X 3.3 8 X 3.3	S1	480.1	444.0	48.96	45.28	0.12~0.22	1.40 1.30
SG15~M2.5-40-25 SG15~M2.5-40-32	8 X 3.3 10 X 3.3	S1	542.6	560.0	55.33	57.10	0.12~0.22	1.60 1.50
SG15~M2.5-45-30 SG15~M2.5-45-35	8 X 3.3 10 X 3.3	S1	628.9	717.7	64.13	73.19	0.14~0.24	2.20 2.10
SG15~M2.5-50-30 SG15~M2.5-50-35	8 X 3.3 10 X 3.3	S4	716.0	896.8	73.01	91.45	0.14~0.24	2.10 2.00
SG15~M2.5-60-30 SG15~M2.5-60-40	8 X 3.3 12 X 3.3	S4	891.8	1311.0	90.94	133.70	0.14~0.24	3.00 2.80
SG15~M2.5-70-40 SG15~M2.5-70-50	12 X 3.3 14 X 3.3	S4	1021.0	1727.0	104.10	176.10	0.14~0.24	5.40 5.20

SG15 Grinding Spur Gears

PHT VERTEX PRECISION COMPONENTS CORP.



MODULE M₃

Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
	m	z	A _{H7}	B	C	D	E	F	G	H	I
SG15~M3-20-20	3	20	20	45	60	66	30	15	45	-	-
SG15~M3-20-25			25								
SG15~M3-25-25	3	25	25	55	75	81	30	15	45	-	-
SG15~M3-25-30			30								
SG15~M3-30-28	3	30	28	60	90	96	30	15	45	-	-
SG15~M3-30-35			35								
SG15~M3-40-30	3	40	30	70	120	126	30	15	45	-	-
SG15~M3-40-40			40								
SG15~M3-50-32	3	50	32	70	150	156	30	15	45	20	126
SG15~M3-50-40			40								
SG15~M3-60-35	3	60	35	80	180	186	30	15	45	20	126
SG15~M3-60-45			45								

MODULE M₄

Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Web thickness	Web O.D.
	m	z	A _{H7}	B	C	D	E	F	G	H	I
SG15~M4-20-28	4	20	28	60	80	88	40	20	60	-	-
SG15~M4-20-32			32								
SG15~M4-30-35	4	30	35	70	120	128	40	20	60	-	-
SG15~M4-30-40			40								
SG15~M4-40-40	4	40	40	80	160	168	40	20	60	-	-
SG15~M4-40-45			45								
SG15~M4-40-40	4	50	40	85	200	208	40	20	60	26	168
SG15~M4-40-50			50								

MODULE M₃ / 4

Specifications

Precision Grade	DIN3962 6 Class	Tooth Hardness	55~60HRC
Gear Teeth	Standard full depth	Surface Treatment	N/A
Pressure Angle	20°	Tooth Process	Grinding
Material	SCM415	Datum Reference Gear Grinding Surface	Bore
Heat Treatment	Carburizing	Secondary Process	Not possible NOTE4

NOTE1 The dimension of Keyway shall be influenced by tolerance after heat treatment. Keyway produced based by CNS JS9.

NOTE2 The reference of Allowable Torque shall be considered when applied on device.

NOTE3 The information of Backlash are based by one pair of gear pinions under same dimension and model.

NOTE4 Due to full carburizing, gear pinion can't do secondary process; if customized gear pinion is necessary, please contact with us for further discussion.

MODULE M₃

Unit: mm

Model	Keyway NOTE1	Shape	Allowable Torque (Nm) NOTE2		Allowable Torque (kgf.m)		Backlash NOTE3	Weight (kgf)
	J X K		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
SG15~M3-20-20	6 X 2.8	S1	383.8	236.00	39.14	24.07	0.12~0.22	0.73
SG15~M3-20-25	8 X 3.3							
SG15~M3-25-25	8 X 3.3	S1	528.2	385.70	53.86	39.33	0.12~0.22	1.10
SG15~M3-25-30	10 X 3.3							
SG15~M3-30-28	8 X 3.3	S1	677.2	565.36	69.06	57.65	0.12~0.22	1.60
SG15~M3-30-35	10 X 3.3							
SG15~M3-40-30	8 X 3.3	S1	937.6	987.50	95.61	100.70	0.14~0.24	2.80
SG15~M3-40-40	12 X 3.3							
SG15~M3-50-32	10 X 3.3	S4	1238.0	1574.00	126.20	160.50	0.14~0.24	3.60
SG15~M3-50-40	12 X 3.3							
SG15~M3-60-35	10 X 3.3	S4	1471.0	2198.00	150.00	224.10	0.14~0.24	5.10
SG15~M3-60-45	14 X 3.3							

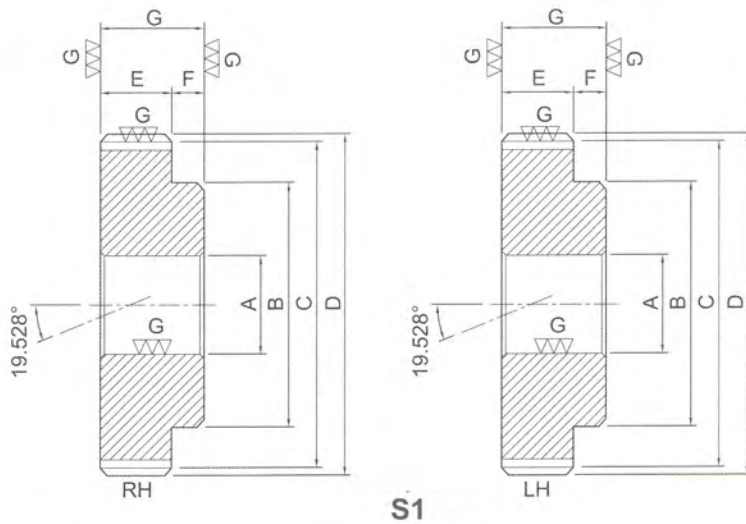
MODULE M₄

Unit: mm

Model	Keyway NOTE1	Shape	Allowable Torque (Nm) NOTE2		Allowable Torque (kgf.m)		Backlash NOTE3	Weight (kgf)
	J X K		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
SG15~M4-20-28	8 X 3.3	S1	909.8	574.4	92.77	58.57	0.14~0.24	1.70
SG15~M4-20-32	10 X 3.3							
SG15~M4-30-35	10 X 3.3	S1	1529.0	1316.0	155.90	134.20	0.16~0.26	3.60
SG15~M4-30-40	12 X 3.3							
SG15~M4-40-40	12 X 3.3	S1	2121.0	2291.0	216.30	233.60	0.16~0.26	6.50
SG15~M4-40-45	14 X 3.8							
SG15~M4-40-40	12 X 3.3	S4	2799.0	3647.0	285.40	371.90	0.16~0.26	8.30
SG15~M4-40-50	14 X 3.8							

HGR(L)40 Grinding Helical Gears

PHT VERTEX PRECISION COMPONENTS CORP.



Unit: mm

Model	Helix Direction	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length
		m	z	A _{H7}	B	C	D	E	F	G
HGR40~M1.5-20-12 HGL40~M1.5-20-12	R L	1.5	20	12	24	31.83	34.83	15	12	24
HGR40~M1.5-25-12 HGL40~M1.5-25-12	R L	1.5	25	12	30	39.78	42.78	15	12	24
HGR40~M1.5-30-15 HGL40~M1.5-30-15	R L	1.5	30	15	38	47.74	50.74	15	12	24
HGR40~M1.5-35-15 HGL40~M1.5-35-15	R L	1.5	35	15	42	55.70	58.70	15	12	24
HGR40~M1.5-40-15 HGL40~M1.5-40-15	R L	1.5	40	15	50	63.66	66.66	15	12	24
HGR40~M1.5-45-18 HGL40~M1.5-45-18	R L	1.5	45	18	50	71.61	74.61	15	12	24
HGR40~M1.5-50-18 HGL40~M1.5-50-18	R L	1.5	50	18	60	79.57	82.57	15	12	24
HGR40~M1.5-60-20 HGL40~M1.5-60-20	R L	1.5	60	20	60	95.49	98.49	15	12	24
HGR40~M1.5-70-20 HGL40~M1.5-70-20	R L	1.5	70	20	60	111.40	114.40	15	12	24
HGR40~M1.5-80-20 HGL40~M1.5-80-20	R L	1.5	80	20	70	127.32	130.32	15	12	24
HGR40~M1.5-90-20 HGL40~M1.5-90-20	R L	1.5	90	20	70	143.23	146.23	15	12	24
HGR40~M1.5-100-20 HGL40~M1.5-100-20	R L	1.5	100	20	70	159.15	162.15	15	12	24

MODULE M1.5

Specifications

Precision Grade	DIN3962 7 Class	Heat Treatment	Quenched / tooth surface by reduction hardened
Gear Reference Section	Axial right angle	Tooth Hardness	50~55HRC
Gear Teeth	Standard full depth	Surface Treatment	Black oxide, except the ground surface
Pressure Angle	20°	Tooth Process	Grinding
Helix Angle	19.528°	Datum Reference Gear Grinding Surface	Bore
Material	SCM440	Secondary Process	Possible

NOTE1 The reference of Allowable Torque shall be considered when applied on device.

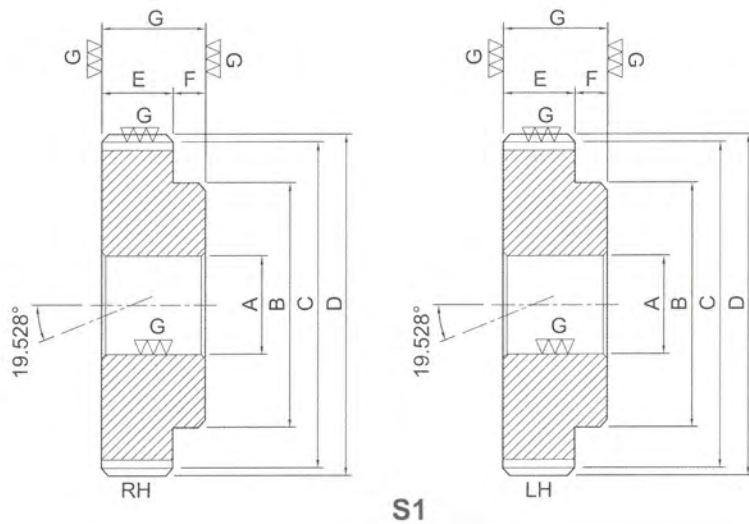
NOTE2 The information of Backlash are based by one pair of gear pinions under same dimension and model.

Unit: mm

Model	Shape	Allowable Torque (Nm) NOTE1		Allowable Torque (kgf.m)		Backlash NOTE2	Weight (kgf)
		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
HGR40~M1.5-20-12 HGL40~M1.5-20-12	S1	26.27	18.53	2.679	1.890	0.08~0.16	0.09
HGR40~M1.5-25-12 HGL40~M1.5-25-12	S1	32.70	27.71	3.334	2.826	0.08~0.16	0.15
HGR40~M1.5-30-15 HGL40~M1.5-30-15	S1	41.78	41.57	4.260	4.239	0.08~0.16	0.22
HGR40~M1.5-35-15 HGL40~M1.5-35-15	S1	51.06	58.47	5.207	5.962	0.1~0.18	0.30
HGR40~M1.5-40-15 HGL40~M1.5-40-15	S1	60.49	78.49	6.168	8.004	0.1~0.18	0.42
HGR40~M1.5-45-18 HGL40~M1.5-45-18	S1	70.02	101.70	7.140	10.370	0.1~0.18	0.47
HGR40~M1.5-50-18 HGL40~M1.5-50-18	S1	79.63	128.20	8.120	13.070	0.1~0.18	0.63
HGR40~M1.5-60-20 HGL40~M1.5-60-20	S1	99.05	191.00	10.100	19.480	0.1~0.18	0.81
HGR40~M1.5-70-20 HGL40~M1.5-70-20	S1	113.50	256.00	11.570	26.100	0.12~0.2	1.00
HGR40~M1.5-80-20 HGL40~M1.5-80-20	S1	132.30	342.70	13.490	34.950	0.12~0.2	1.40
HGR40~M1.5-90-20 HGL40~M1.5-90-20	S1	151.20	442.30	15.420	45.100	0.12~0.2	1.65
HGR40~M1.5-100-20 HGL40~M1.5-100-20	S1	170.20	554.40	17.360	56.530	0.12~0.2	1.97

HGR(L)40 Grinding Helical Gears

PHT VERTEX PRECISION COMPONENTS CORP.



Unit: mm

Model	Helix Direction	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length
		m	z	A _{H7}	B	C	D	E	F	G
HGR40~M2-20-15 HGL40~M2-20-15	R L	2	20	15	32	42.44	46.44	20	13	29
HGR40~M2-25-15 HGL40~M2-25-15	R L	2	25	15	40	53.05	57.05	20	13	29
HGR40~M2-30-18 HGL40~M2-30-18	R L	2	30	18	50	63.66	67.66	20	13	29
HGR40~M2-35-18 HGL40~M2-35-18	R L	2	35	18	60	74.27	78.27	20	13	29
HGR40~M2-40-20 HGL40~M2-40-20	R L	2	40	20	60	84.88	88.88	20	13	29
HGR40~M2-45-20 HGL40~M2-45-20	R L	2	45	20	60	95.49	99.49	20	13	29
HGR40~M2-50-25 HGL40~M2-50-25	R L	2	50	25	60	106.10	110.10	20	13	29
HGR40~M2-60-25 HGL40~M2-60-25	R L	2	60	25	65	127.32	131.32	20	13	29
HGR40~M2-70-25 HGL40~M2-70-25	R L	2	70	25	70	148.54	152.54	20	13	29
HGR40~M2-80-25 HGL40~M2-80-25	R L	2	80	25	80	169.76	173.76	20	13	29
HGR40~M2-90-25 HGL40~M2-90-25	R L	2	90	25	90	190.98	194.98	20	13	29
HGR40~M2-100-25 HGL40~M2-100-25	R L	2	100	25	100	212.20	216.20	20	13	29

MODULE M2

Specifications

Precision Grade	DIN3962 7 Class	Heat Treatment	Quenched / tooth surface by reduction hardened
Gear Reference Section	Axial right angle	Tooth Hardness	50~55HRC
Gear Teeth	Standard full depth	Surface Treatment	Black oxide, except the ground surface
Pressure Angle	20°	Tooth Process	Grinding
Helix Angle	19.528°	Datum Reference Gear Grinding Surface	Bore
Material	SCM440	Secondary Process	Possible

NOTE1 The reference of Allowable Torque shall be considered when applied on device.

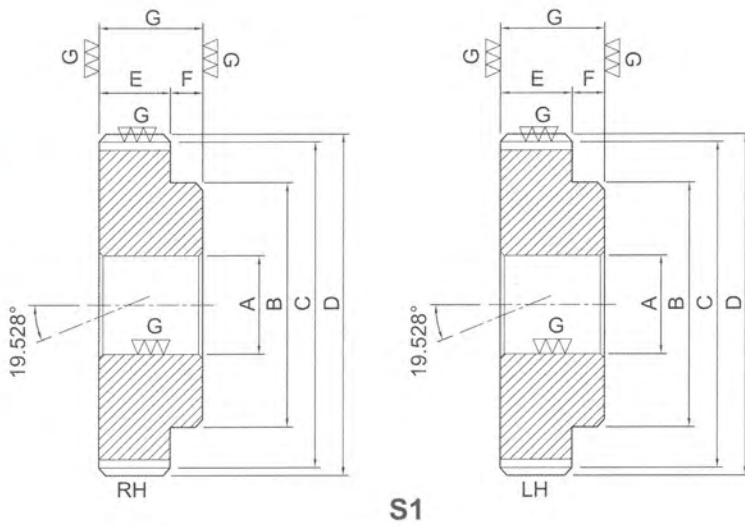
NOTE2 The information of Backlash are based by one pair of gear pinions under same dimension and model.

Unit: mm

Model	Shape	Allowable Torque (Nm) NOTE1		Allowable Torque (kgf.m)		Backlash NOTE2	Weight (kgf)
		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
HGR40~M2-20-15 HGL40~M2-20-15	S1	56.62	40.83	5.774	4.164	0.10~0.20	0.20
HGR40~M2-25-15 HGL40~M2-25-15	S1	77.49	67.29	7.902	6.862	0.10~0.20	0.33
HGR40~M2-30-18 HGL40~M2-30-18	S1	99.05	101.00	10.100	10.300	0.12~0.22	0.50
HGR40~M2-35-18 HGL40~M2-35-18	S1	121.0	142.20	12.340	14.500	0.12~0.22	0.63
HGR40~M2-40-20 HGL40~M2-40-20	S1	143.4	191.00	14.620	19.480	0.12~0.22	0.85
HGR40~M2-45-20 HGL40~M2-45-20	S1	165.9	247.70	16.920	25.260	0.12~0.22	1.00
HGR40~M2-50-25 HGL40~M2-50-25	S1	180.5	298.90	18.410	30.480	0.12~0.22	1.20
HGR40~M2-60-25 HGL40~M2-60-25	S1	224.6	446.70	22.900	45.550	0.14~0.24	1.60
HGR40~M2-70-25 HGL40~M2-70-25	S1	269.0	624.80	27.430	63.710	0.14~0.24	2.20
HGR40~M2-80-25 HGL40~M2-80-25	S1	300.6	798.60	30.650	81.440	0.14~0.24	2.90
HGR40~M2-90-25 HGL40~M2-90-25	S1	343.6	1030.00	35.040	105.00	0.14~0.24	3.37
HGR40~M2-100-25 HGL40~M2-100-25	S1	386.7	1290.00	39.430	131.500	0.14~0.24	4.63

HGR(L)40 Grinding Helical Gears

PHT VERTEX PRECISION COMPONENTS CORP.



MODULE M2.5

Unit: mm

Model	Helix Direction	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length
		m	z	A _{H7}	B	C	D	E	F	G
HGR40~M2.5-20-18 HGL40~M2.5-20-18	R L	2.5	20	18	40	53.05	58.05	25	14	34
HGR40~M2.5-25-20 HGL40~M2.5-25-20	R L	2.5	25	20	50	66.31	71.31	25	14	34
HGR40~M2.5-30-20 HGL40~M2.5-30-20	R L	2.5	30	20	65	79.57	84.57	25	14	34
HGR40~M2.5-35-20 HGL40~M2.5-35-20	R L	2.5	35	20	70	92.84	97.84	25	14	34
HGR40~M2.5-40-25 HGL40~M2.5-40-25	R L	2.5	40	25	70	106.10	111.10	25	14	34
HGR40~M2.5-45-25 HGL40~M2.5-45-25	R L	2.5	45	25	75	119.36	124.36	25	14	34
HGR40~M2.5-50-25 HGL40~M2.5-50-25	R L	2.5	50	25	80	132.62	137.62	25	14	34
HGR40~M2.5-60-25 HGL40~M2.5-60-25	R L	2.5	60	25	80	159.15	164.15	25	14	34

MODULE M3

Unit: mm

Model	Helix Direction	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length
		m	z	A _{H7}	B	C	D	E	F	G
HGR40~M2.5-20-20 HGL40~M2.5-20-20	R L	3	20	20	50	63.66	69.66	30	16	41
HGR40~M2.5-25-20 HGL40~M2.5-25-20	R L	3	25	20	60	79.57	85.57	30	16	41
HGR40~M2.5-30-25 HGL40~M2.5-30-25	R L	3	30	25	75	95.49	101.49	30	16	41
HGR40~M2.5-35-25 HGL40~M2.5-35-25	R L	3	35	25	80	111.40	117.40	30	16	41
HGR40~M2.5-40-25 HGL40~M2.5-40-25	R L	3	40	25	80	127.32	133.32	30	16	41
HGR40~M2.5-45-25 HGL40~M2.5-45-25	R L	3	45	25	80	143.23	149.23	30	16	41
HGR40~M2.5-50-30 HGL40~M2.5-50-30	R L	3	50	30	85	159.15	165.15	30	16	41
HGR40~M2.5-60-30 HGL40~M2.5-60-30	R L	3	60	30	90	190.98	196.98	30	16	41

MODULE M2.5~3

Specifications

Precision Grade	DIN3962 7 Class	Heat Treatment	Quenched / tooth surface by reduction hardened
Gear Reference Section	Axial right angle	Tooth Hardness	50~55HRC
Gear Teeth	Standard full depth	Surface Treatment	Black oxide, except the ground surface
Pressure Angle	20°	Tooth Process	Grinding
Helix Angle	19.528°	Datum Reference Gear Grinding Surface	Bore
Material	SCM440	Secondary Process	Possible

NOTE1 The reference of Allowable Torque shall be considered when applied on device.

NOTE2 The information of Backlash are based by one pair of gear pinions under same dimension and model.

MODULE M2.5

Unit: mm

Model	Shape	Allowable Torque (Nm) NOTE1		Allowable Torque (kgf.m)		Backlash NOTE2	Weight (kgf)
		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
HGR40-M2.5-20-18 HGL40-M2.5-20-18	S1	110.6	81.25	11.28	8.285	0.10~0.20	0.39
HGR40-M2.5-25-20 HGL40-M2.5-25-20	S1	151.3	134.00	15.43	13.660	0.12~0.22	0.64
HGR40-M2.5-30-20 HGL40-M2.5-30-20	S1	193.4	201.20	19.72	20.520	0.12~0.22	1.00
HGR40-M2.5-35-20 HGL40-M2.5-35-20	S1	236.4	283.60	24.11	28.920	0.12~0.22	1.30
HGR40-M2.5-40-25 HGL40-M2.5-40-25	S1	267.8	364.90	27.31	37.210	0.12~0.22	1.60
HGR40-M2.5-45-25 HGL40-M2.5-45-25	S1	310.1	473.90	31.62	48.320	0.14~0.24	2.00
HGR40-M2.5-50-25 HGL40-M2.5-50-25	S1	352.6	598.50	35.96	61.030	0.14~0.24	2.40
HGR40-M2.5-60-25 HGL40-M2.5-60-25	S1	438.5	890.10	44.72	90.770	0.14~0.24	3.30

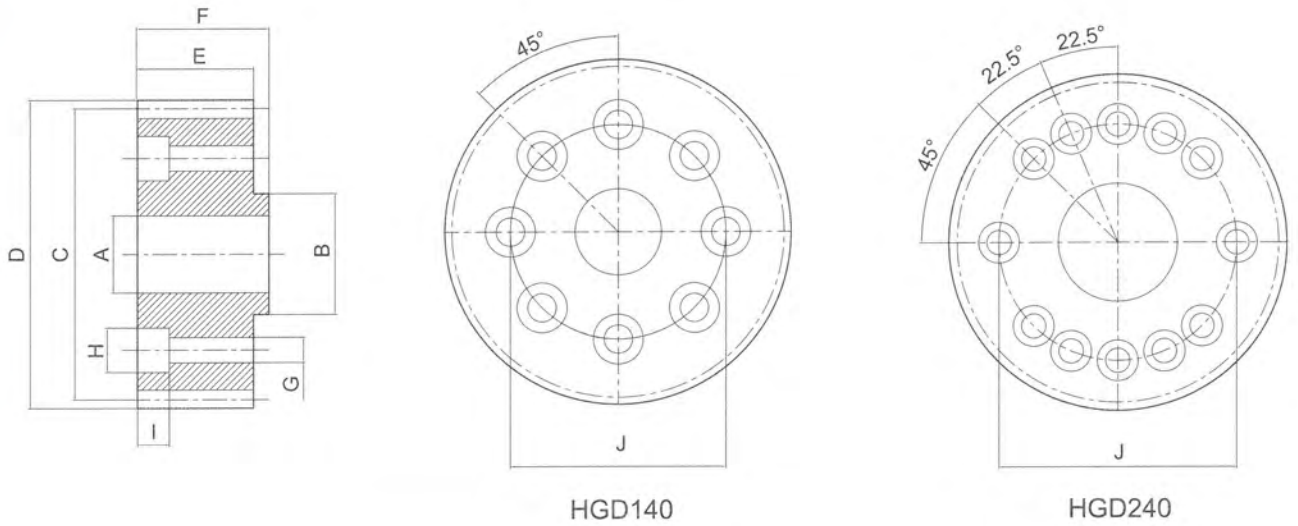
MODULE M3

Unit: mm

Model	Shape	Allowable Torque (Nm) NOTE1		Allowable Torque (kgf.m)		Backlash NOTE2	Weight (kgf)
		Bending Strength	Surface Durability	Bending Strength	Surface Durability		
HGR40-M2.5-20-20 HGL40-M2.5-20-20	S1	199.1	148.0	20.30	15.09	0.12~0.22	0.7
HGR40-M2.5-25-20 HGL40-M2.5-25-20	S1	272.4	245.2	27.78	25.00	0.12~0.22	1.1
HGR40-M2.5-30-25 HGL40-M2.5-30-25	S1	348.1	368.7	35.50	37.60	0.12~0.22	1.6
HGR40-M2.5-35-25 HGL40-M2.5-35-25	S1	407.0	497.6	41.50	50.74	0.14~0.26	2.2
HGR40-M2.5-40-25 HGL40-M2.5-40-25	S1	482.1	670.1	49.16	68.33	0.14~0.26	2.7
HGR40-M2.5-45-25 HGL40-M2.5-45-25	S1	558.1	869.2	56.91	88.63	0.14~0.26	3.3
HGR40-M2.5-50-30 HGL40-M2.5-50-30	S1	634.8	1094.0	64.73	111.60	0.14~0.26	4.0
HGR40-M2.5-60-30 HGL40-M2.5-60-30	S1	756.6	1560.0	77.15	159.10	0.14~0.26	5.6

HGD140/240 Grinding Helical Gears

PHT VERTEX PRECISION COMPONENTS CORP.



HGD140

Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Total length
			A _{h6}	B _{h6}	C	D	E	F
HGD140~M2-26-15	2	26	15	20.0	55.20	60.50	26	29.0
HGD140~M2-27-15	2	27	15	20.0	57.29	61.29	30	33.5
HGD140~M2-29-15	2	29	15	20.0	61.54	66.50	26	29.0
HGD140~M2-35-15	2	35	15	20.0	74.30	79.50	26	29.0
HGD140~M2-29-20	2	29	20	25.0	61.54	67.00	26	30.0
HGD140~M2-33-20	2	33	20	31.5	70.00	75.00	26	30.0
HGD140~M2-36-20	2	36	20	31.5	76.39	80.39	30	34.0
HGD140~M2-37-20	2	37	20	31.5	78.50	83.50	26	30.0
HGD140~M3-31-20	3	31	20	31.5	98.70	106.50	31	35.5

HGD240

Unit: mm

Model	Module	No. of teeth	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Total length
			A _{h6}	B _{h6}	C	D	E	F
HGD240~M2-40-31.5	2	40	31.5	40.0	84.90	90.00	26	30
HGD240~M2-45-31.5	2	45	31.5	40.0	95.50	100.00	26	30
HGD240~M3-30-20	3	30	20	40.0	95.49	101.49	35	39



Specifications

Precision grade	DIN3962 7 Class	Heat treatment	Quenched / tooth surface by reduction hardened
Gear Reference Section	Axial right angle	Tooth hardness	50~55HRC
Gear teeth	Standard full depth	Surface treatment	Black oxide, except the ground surface
Pressure angle	20°	Tooth Process	Grinding
Helix angle	19.528°	Datum reference Gear Grinding Surface	Bore
Material	SCM440	Secondary Process	Possible

Unit: mm

Model	G	H	I	J	Circumference	Modified Coefficient	Weight (kgf)
HGD140~M2-26-15	5.5	10	12	31.5	173.33	0.4065	0.4
HGD140~M2-27-15	5.5	10	11	31.5	180.00	0	0.5
HGD140~M2-29-15	5.5	10	12	31.5	193.33	0.4150	0.5
HGD140~M2-35-15	5.5	10	12	31.5	233.33	0.3819	0.8
HGD140~M2-29-20	6.6	11	14	40.0	193.33	0.4150	0.5
HGD140~M2-33-20	6.6	11	14	50.0	220.00	0.3928	0.7
HGD140~M2-36-20	6.6	11	8	50.0	240.00	0	1.2
HGD140~M2-37-20	6.6	11	14	50.0	246.76	0.4209	0.9
HGD140~M3-31-20	6.6	11	9	50.0	310.00	0.3540	1.8

Unit: mm

Model	G	H	I	J	Circumference	Modified Coefficient	Weight (kgf)
HGD240~M2-40-31.5	6.6	11	14	63	200.69	0.3792	1.0
HGD240~M2-45-31.5	6.6	11	14	63	300.00	0.3267	1.4
HGD240~M3-30-20	6.6	11	10	63	300.00	0	10.0



Distributors for Australia & New Zealand
MOTION TECHNOLOGIES PTY LIMITED



24/22-30 Northumberland Road
Caringbah NSW 2229 Australia
Phone: (02) 9524 4782

sales@motiontech.com.au
www.motiontech.com.au

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