MotionTek Drive Systems

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Helical Rack & Pinion Drive Systems — Technical Specifications & Catalogue

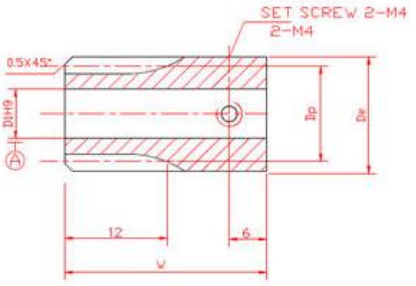
- High-precision helical rack and pinion for CNC machines, plasma cutters, routers and automation systems. Modules 1.0 and 1.5 available.

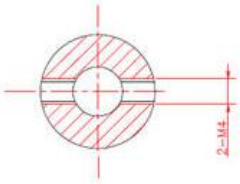
- Helical pinion (PHC) — C45 steel, pressure angle 20°, set screw holes 5.4mm. Teeth counts 12 to 30. Shape A (no hub) and Shape B (with hub). All dimensions in metric mm.

- Helical rack (RHHC) — C45 steel, pressure angle 20°, pre-drilled holes 5.4mm. Lengths 500mm to 3050mm. Machined at each end for end-to-end continuous mounting.

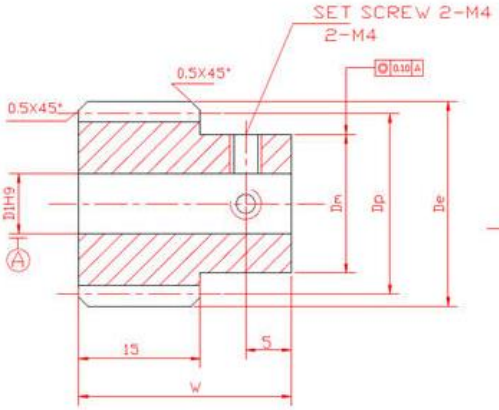
Material: C45 Steel (C) | Pressure Angle: 20° | Set Screw Holes (N) = 5.4mm | All dimensions in mm | 1 inch = 25.4mm

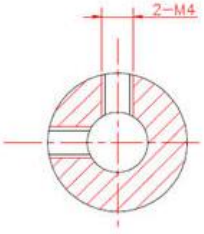
HELICAL PINION MODULE 1.0 (PHC) — Sold with Rack Module 1.0 Only





Module 1.0 Shape A



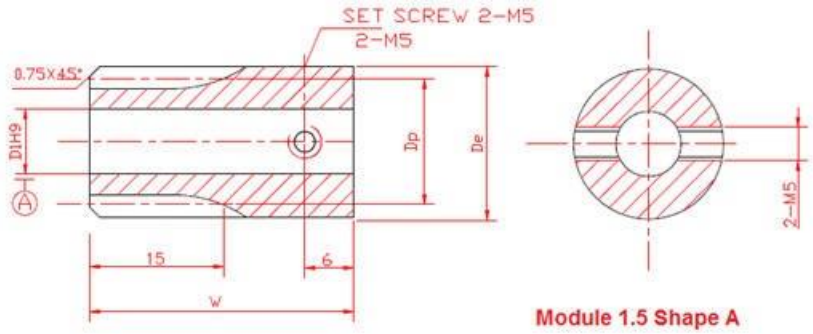


Module 1.0 Shape B

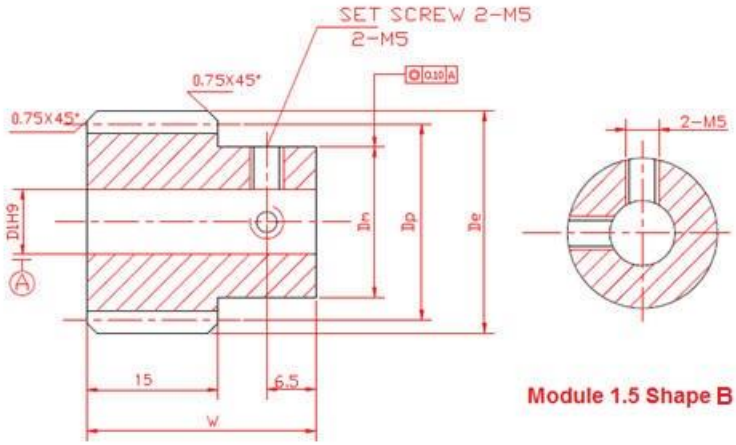
Part No.	Module	No. of Teeth	De	Dp	DH9	W	Dm	Set Screw	Shape	Max Bore
PHC1012A	1.0	12	14.0	12.0	6.35	25	—	2-M4	A	6.35
PHC1014A	1.0	14	16.0	14.0	6.35	25	—	2-M4	A	6.35
PHC1016A	1.0	16	18.0	16.0	6.35	25	—	2-M4	A	8
PHC1018A	1.0	18	20.0	18.0	6.35	25	—	2-M4	A	10
PHC1020B	1.0	20	22.0	20.0	6.35	25	16	2-M4	B	6.35
PHC1022B	1.0	22	24.0	22.0	6.35	25	16	2-M4	B	6.35
PHC1024B	1.0	24	26.0	24.0	6.35	25	20	2-M4	B	12.7
PHC1026B	1.0	26	28.0	26.0	6.35	25	20	2-M4	B	12.7
PHC1030B	1.0	30	32.0	30.0	6.35	25	20	2-M4	B	12.7

De=Outer Diameter | Dp=Pitch Diameter | DH9=Bore Diameter (H9 tolerance) | W=Face Width | Dm=Hub Diameter | Shape A=No Hub | Shape B=With Hub | Max Bore=Maximum bore diameter

HELICAL PINION MODULE 1.5 (PHC) — Sold with Rack Module 1.5 Only



Module 1.5 Shape A

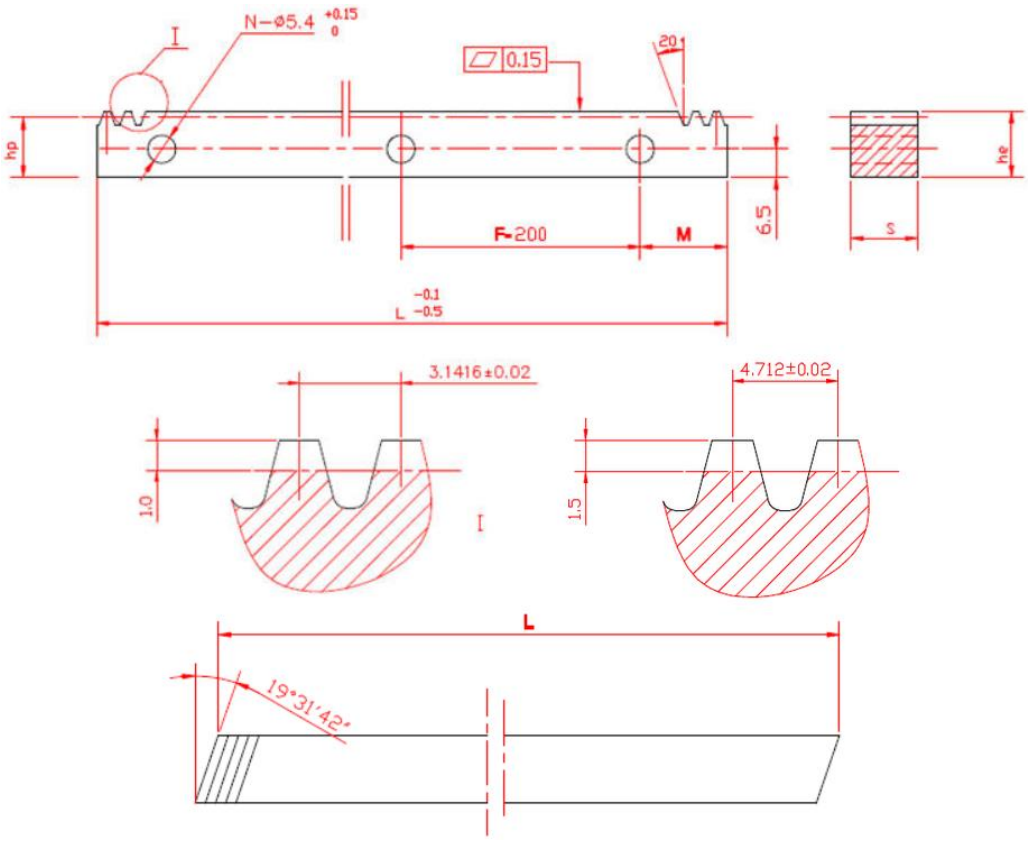


Module 1.5 Shape B

Part No.	Module	No. of Teeth	De	Dp	DH9	W	Dm	Set Screw	Shape	Max Bore
PHC1516A	1.5	16	27.0	24.0	6.35	30	—	2-M5	A	14
PHC1520A	1.5	20	33.0	30.0	6.35	30	—	2-M5	A	20
PHC1518B	1.5	18	30.0	27.0	6.35	30	20	2-M5	B	12.7
PHC1520B	1.5	20	33.0	30.0	6.35	30	25	2-M5	B	15
PHC1522B	1.5	22	36.0	33.0	6.35	30	25	2-M5	B	15
PHC1524B	1.5	24	39.0	36.0	6.35	30	25	2-M5	B	15
PHC1526B	1.5	26	42.0	39.0	6.35	30	30	2-M5	B	20
PHC1530B	1.5	30	48.0	45.0	6.35	30	30	2-M5	B	20

De=Outer Diameter | Dp=Pitch Diameter | DH9=Bore Diameter (H9 tolerance) | W=Face Width | Dm=Hub Diameter | Shape A=No Hub | Shape B=With Hub | Max Bore=Maximum bore diameter

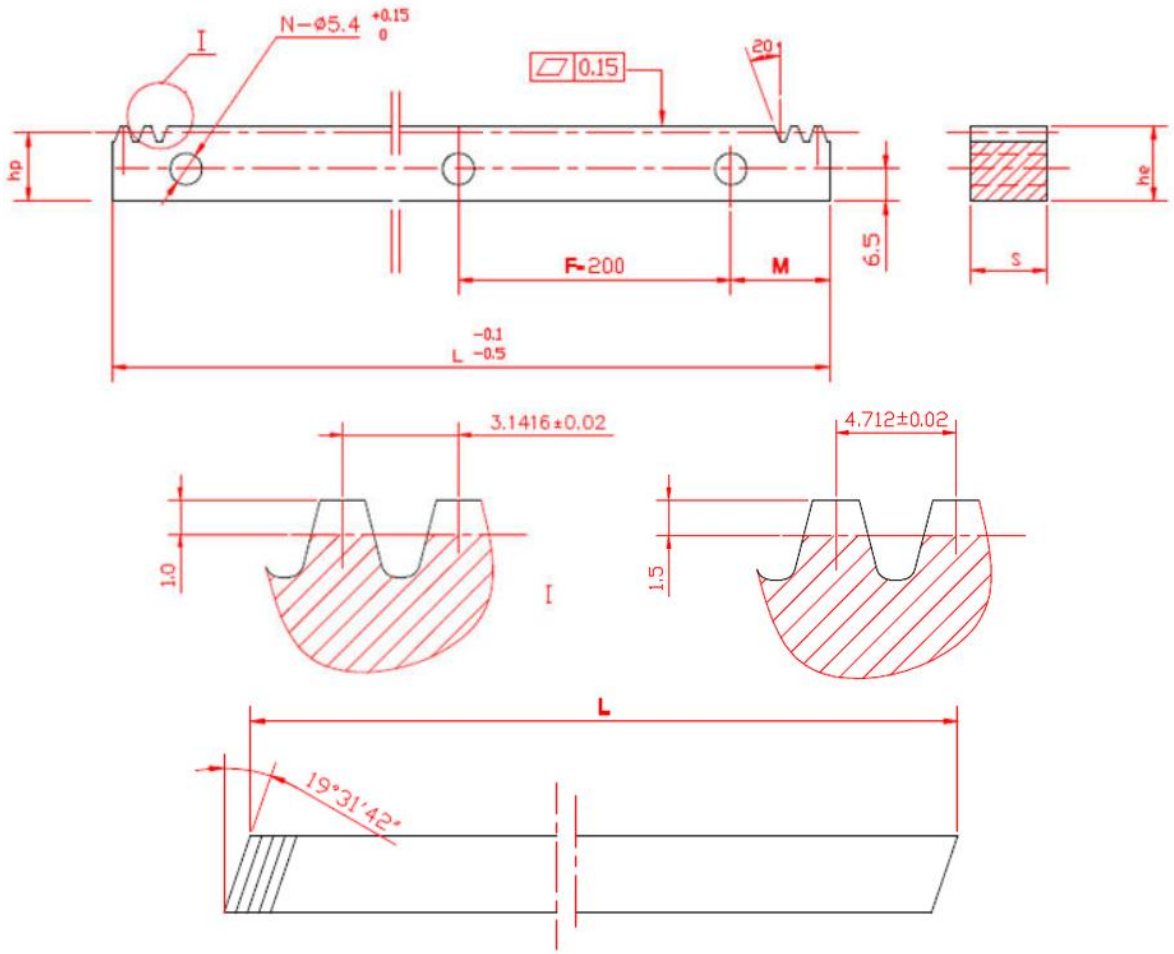
HELICAL RACK MODULE 1.0 (RHHC) — Sold Separately or with Pinion



Part No.	Module	Length (mm)	he	hp	S	L Actual	F-200	No. of Holes	M
RHHC100500	1.0	500	15	14	15	500	2	3	50
RHHC101000	1.0	1000	15	14	15	1000	4	5	100
RHHC101500	1.0	1500	15	14	15	1500	7	8	50
RHHC102000	1.0	2000	15	14	15	2000	9	10	100
RHHC102500	1.0	2500	15	13.5	15	2500	12	13	100
RHHC103050	1.0	3050	15	13.5	15	3050	14	15	100

he=External Height | hp=Pitch Height | S=Width | L Actual=Actual Length | F-200=Number of holes per 200mm | No. of Holes=Total pre-drilled holes | M=Hole spacing pitch (mm) | Machined ends allow continuous end-to-end mounting

HELICAL RACK MODULE 1.5 (RHHC) — Sold Separately or with Pinion



Part No.	Module	Length (mm)	he	hp	S	L Actual	F-200	No. of Holes	M
RHHC150500	1.5	500	15	13.5	15	500	2	3	50
RHHC151000	1.5	1000	15	13.5	15	1000	4	5	100
RHHC151500	1.5	1500	15	13.5	15	1500	7	8	50
RHHC152000	1.5	2000	15	13.5	15	2000	9	10	100
RHHC152500	1.5	2500	15	13.5	15	2500	12	13	100
RHHC153050	1.5	3050	15	13.5	15	3050	14	15	100

he=External Height | hp=Pitch Height | S=Width | L Actual=Actual Length | F-200=Number of holes per 200mm | No. of Holes=Total pre-drilled holes | M=Hole spacing pitch (mm) | Machined ends allow continuous end-to-end mounting

APPLICATIONS & TECHNICAL NOTES

Rack & pinion drive is a transmission system used with automation and CNC machines. Pinion used to build gearbox and reducer, precision garage doors, and sliding door systems. We combine shipping costs — contact us for multi-item orders.

Module	Recommended Application	PDF Catalogue
1.0	CNC routers, plasma cutters, light automation, small gantry systems	
1.5	Heavy CNC gantry, industrial automation, high-load sliding systems	