



Helical Rack Gear, L Fixed Type / Assembly Gauge

Module 1.0/1.5/2.0/2.5/3.0, Helix Angle 19°31'42"

RoHS 10

Type	Material	Surface Treatment
HRGEA	1045 Carbon Steel	Black Oxide

① Surface treatment is not applied to the holes in HT, ST and Z hole machining.
② Both ends are machined to be able to connect to helical rack gears.

Accuracy: Accumulated Pitch Error (Unit: μm)

Module			
0.5	1.0 to 1.5	2.0 to 2.5	3.0
110	115	120	130

① Basic tolerance P1634

Gear Specifications	
Datum Section of Gears	Teeth perpendicular
Module	1.0 to 3.0
Pressure Angle	20°
Helix Angle	19°31'42" RH

① $F = \frac{L-B \times (K-1)}{2}$

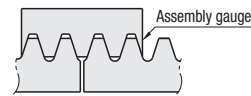
Part Number Type	Module	L	Hole Machining	Effective Number of Teeth	P (Front Surface Pitch)	W	H	h	B (Hole Pitch)	M (Coarse)	d ₁	d ₂	Z ₁	K (Number of Holes)	Available Types											
															Hole Machining N	Hole Machining NH/ST/Z										
HRGEA	1.0	100	N No Hole Machining	30	3.333	10	15	14	180	M3	3.5	6.5	3.5	2	•	•										
		300		3										•	•											
		500		4										•	•											
		1000		6										•	•											
		100		HT Bottom Tapped										20	5	15	20	18.5	180	M4	4.5	8	4.5	2	•	•
		300												3										•	•	
	500	4	•		•																					
	1000	6	•		•																					
	100	ST Side Tapped	15		6.667	20	25	23	180	M5	5.5	9.5	5.5	2										•	•	
	300		3											•										•		
	500		4	•										•												
	1000		6	•										•												
100	Z Side Counterbored		12	8.333										25	30	27.5	180	M6	6.5	11	6.5	2	•	•		
300			3																			•	•			
500		4	•		•																					
1000		6	•		•																					
100		3.0	10		10	30	35	32	180	M8	9.0	14	9.0									2	•	•		
300			3																			•	•			
500	4		•	•																						
1000	6		•	•																						

Part Number Example: HRGEA1.0 - 300 - HT - N

Part Number Alterations: HRGEA2.0 - 300 - HT - TPC4

How to Connect Rack Gears

MISUMI Helical Rack Gears are end machined with negative pitch tolerance in length. When connecting, use an assembly gauge as shown in the right side figure to properly adjust the pitch.



Alterations Code	Tapped Hole Dimension	
	Code	Spec.
TPC	TPC4	Changes the tapped hole dimension.
Spec.	M	TPC
	M3	M4
	M4	M3 M5
	M5	M4 M6
	M6	M5 M8
	M8	M6

Reverse twist assembly gauge used when connecting helical rack gears.

Type	Material	Surface Treatment
HRGEA	1045 Carbon Steel	Black Oxide

① Both ends are cut vertically.

Accuracy: Accumulated Pitch Error (Unit: μm)

Module			
0.5	1.0 to 1.5	2.0 to 2.5	3.0
110	115	120	130

① Basic tolerance P1634

Gear Specifications	
Datum Section of Gears	Teeth perpendicular
Module	1.0 to 3.0
Pressure Angle	20°
Helix Angle	19°31'42" LH

Part Number Type	Module	Nominal	L	P (Front Surface Pitch)	W	H	h
	1.5		5	15	20	18.5	
	2.0		6.667	20	25	23	
	2.5		8.333	25	30	27.5	
	3.0		10	30	35	32	

Part Number Example: HRGEA1.0 - GE



Helical Rack Gear, L Configurable Type (One End Machined)

Module 1.0/1.5/2.0/2.5/3.0, Helix Angle 19°31'42"

Features: Configurable to desired lengths. One end is machined to be able to connect to helical rack gears.

RoHS 10

Type	Material	Surface Treatment
HRGEAL	1045 Carbon Steel	Black Oxide

① Cut surface and machined surface are not surface treated.

Accuracy: Accumulated Pitch Error (Unit: μm)

Module			
0.5	1.0 to 1.5	2.0 to 2.5	3.0
110	115	120	130

① Basic tolerance P1634

Gear Specifications	
Datum Section of Gears	Teeth perpendicular
Module	1.0 to 3.0
Pressure Angle	20°
Helix Angle	19°31'42" RH

① $F = \frac{L-B \times (K-1)}{2} \geq 20$

Part Number Type	Module	Overall Length Unit: mm	Hole Machining	Hole Position ABCD Unit: mm	P (Front Surface Pitch)	W	H	h	M (Coarse)	d ₁	d ₂	Z ₁

Part Number Type	Module	Overall Length Unit: mm	Hole Machining	K (Number of Holes)	B (Hole Pitch) Unit: mm	P (Front Surface Pitch)	W	H	h	M (Coarse)	d ₁	d ₂	Z ₁

Part Number Example: HRGEAL1.0 - 450 - HT - A50 - B150 - C150

Part Number Alterations: HRGEA1.0 - 380 - ST - K6 - B40

Part Number Alterations: HLRGEA1.0 - 950 - ST - K6 - B100 - TPC4

Alterations Code	Tapped Hole Dimension	
	Code	Spec.
TPC	TPC4	Changes the tapped hole dimension.
Spec.	M	TPC
	M3	M4
	M4	M3 M5
	M5	M4 M6
	M6	M5 M8
	M8	M6