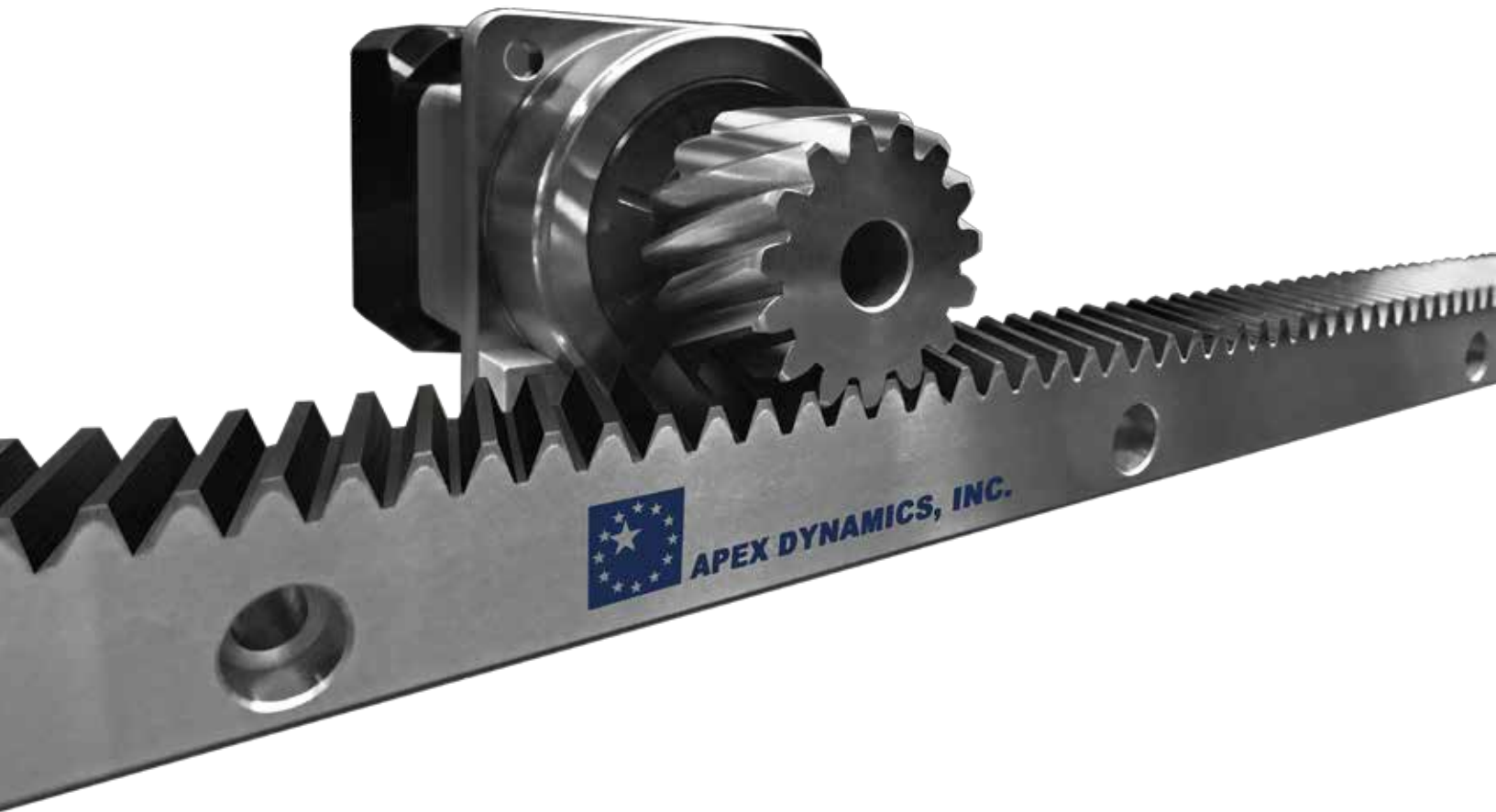




**APEX DYNAMICS**



***PRECISION RACK AND PINION***

***Product Range***



**An all new facility** - dedicated to production of precision gear rack and pinion for the worldwide market. In 2014, Apex Dynamics, Inc. completed construction on a 180,000 square foot facility in Taichung Industrial Science Park, Taiwan, becoming the worlds largest manufacturer of precision gear rack.



**All new technology** and machining centers enable the production of the highest quality gear rack. Manufacture to stock production and the world's largest capacity, 50 Kilometers per month, ensures the capability to meet worldwide demand.



**Based on** more than thirty years of accumulated manufacturing and marketing experience, plus the highest level of technical production capabilities, Apex Dynamics, Inc. is the **ONLY** manufacturer worldwide who produces rack strictly according to specifications regarding :

- Geometrical Tolerance of all Dimensions
- Defined Straightness, Parallelism and Perpendicularity
- Helical Angle and Pressure Angle with Tolerance
- Defined Surface Roughness of Teeth
- Defined Hardness and Thickness of the Hardened Layer of the Teeth

**All the specifications** that APEX publishes and adheres to in the production of precision rack has been adapted by our engineers from DIN quality standards for round gears. As there is no existing standard for gear rack, there is no basis for comparison on the market. APEX has created and published these specifications for one goal - being the world wide standard for precision gear rack.



**APEX** is also the **ONLY ONE** of the world leading brands who designs and produces rack, pinion and gearbox with complete ownership of the entire process, and provides well coordinated high-quality transmission sets to fulfill different industrial requirements. We are continuously improving processes, finding proper and effective methods to provide customers new solutions for difficult applications, and developing new products.

**The primary focus** in daily operation is quality. We pride ourselves on our dedication to quality; our duty - is customer satisfaction.

# Pinions

## Flange Connection



### Curvic Coupling

Patented tooth coupling design that provides high torque transmission, zero backlash, automatic concentricity and quick assembly and disassembly. Pinion diameter is not limited by flange mounting bolts and pinion can be quickly indexed to adjust runout of the assembly.

Cut	Module	Quality	Material	Process
Helical / Straight	2 ~ 10	DIN 4	Alloy Steel	Case Hardened and Ground



### Welded Plate

Pinion is electron beam welded to the plate for high concentricity. Suitable for smaller pitch circle diameter pinions where higher accuracy and lower speed is required.

Cut	Module	Quality	Material	Process
Helical / Straight	2 ~ 8	DIN 4	Alloy Steel	Case Hardened and Ground



### Tooth Plate

Mounting bolt circle is inside the diameter of the pinion, the gear teeth are cut directly in to the mounting plate. Suitable for larger pitch circle diameter pinions where higher speed is required.

Cut	Module	Quality	Material	Process
Helical	2 ~ 5	DIN 4	Alloy Steel	Case Hardened and Ground

## Shaft Connection



### DIN 5480 Spline

For spline shaft connections. Female spline is hardened and cut to DIN 7 quality. Apex servo gearboxes are available with matching spline output shafts.

Cut	Module	Quality	Material	Process
Helical	1.5 ~ 5	DIN 5	Alloy Steel	Case Hardened and Ground



### Keyway

A simple shaft mount connection. Pinion solutions are available to mount to Apex servo gearboxes.

Cut	Module	Quality	Material	Process
Helical / Straight	1 ~ 4	DIN 5	Alloy Steel	Case Hardened and Ground



### Keyway with Shrink Disc

Keyed pinion with taper lock compression device for a backlash free connection to the driving shaft.

Cut	Module	Quality	Material	Process
Helical / Straight	2 ~ 10	DIN 5	Alloy Steel	Case Hardened and Ground



### Long Shaft

A one piece pinion and shaft for connection to hollow shaft gearboxes, motors and pillow blocks. Available with keyway and smooth shaft.

Cut	Module	Quality	Material	Process
Helical / Straight	1.5 ~ 6	DIN 5	Alloy Steel	Case Hardened and Ground

# Precision Rack

Helical



Straight



Quality	Module	Total Pitch Error ( $\mu\text{m}$ / 1000mm)	Tooth Thickness Tolerance ( $\mu\text{m}$ )	Maximum Feed Force (N)	Application
4	5 ~ 12	20 ~ 23	-13 ~ 0	204,000	<ul style="list-style-type: none"> <li>• Measurement Equipment</li> <li>• High-end machine tools with electric preload</li> <li>• Linear motor alternative</li> </ul>
5H	2 ~ 10	24 ~ 31	-15 ~ 0	204,000	<ul style="list-style-type: none"> <li>• Installations without back support</li> <li>• High rigidity / high torque</li> <li>• Multi-pinion application</li> <li>• Downsizing module no.</li> </ul>
5	2 ~ 12	24 ~ 33	-15 ~ 0	204,000	<ul style="list-style-type: none"> <li>• High-end machine tools</li> <li>• Lifting axis</li> <li>• Multi-pinion application</li> </ul>
6	1 ~ 12 5 Pitch 10 Pitch 13.33 Pitch	33 ~ 46	-22 ~ 0	204,000	<ul style="list-style-type: none"> <li>• Machine Tools</li> <li>• Water-/ laser-/ plasma-cutting machines</li> <li>• Portal machine center</li> <li>• Tube bending machine</li> <li>• Woodworking machine</li> <li>• Linear guide mount available</li> </ul>
6M	2 ~ 10	34 ~ 43	-22 ~ 0	204,000	<ul style="list-style-type: none"> <li>• Combination with linear guide</li> <li>• Automatic loading system</li> </ul>
8H	2 ~ 4	66 ~ 78	-48 ~ 0	52,000	<ul style="list-style-type: none"> <li>• Welding machines</li> <li>• Robots</li> <li>• Automatic loading systems</li> <li>• Linear axis with low load feed</li> </ul>
8	1.5 ~ 12 5 Pitch 10 Pitch 13.33 Pitch	66 ~ 90	-48 ~ 0	100,000	<ul style="list-style-type: none"> <li>• Welding machines</li> <li>• Robots</li> <li>• Automatic loading systems</li> <li>• Linear axis with low load feed</li> <li>• Linear guide mount available</li> </ul>
9*	1 ~ 6	91 ~ 109	-63 ~ 0	9,000	<ul style="list-style-type: none"> <li>• Stainless</li> <li>• Food industry / pharmaceutical industry</li> <li>• Clean room application</li> </ul>
10	1.5 ~ 12	146 ~ 202	-90 ~ 0	167,000	<ul style="list-style-type: none"> <li>• Lifting axis</li> <li>• Automatic loading system</li> <li>• Robots</li> <li>• Outdoor application</li> </ul>

\* - Q9 Stainless available in Straight Cut only.



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