

# Table Of Contents

Stock Altered and Custom Worm and Worm Gears.....	3-5
Selection and Reference Guide .....	6-12
Product Descriptions .....	13-16
<b>A SPUR GEARS</b>	
Section Contents .....	17
Pinions and Spur Gears .....	18-27, 37-46
Change Gears .....	28-32
Stem Pinions .....	33
Drawn Pinion Wire .....	34
Rack .....	35, 47
Internal Gears.....	36, 48
Selection.....	49-62
Gear Gauge Sets.....	62
<b>B HELICAL GEARS</b>	
Section Contents .....	63
Helical Gears .....	64-65
Selection.....	66-68
Stock Altered and Custom Helical Gears .....	3-5
<b>C MITER AND BEVEL GEARS</b>	
Section Contents .....	69
Miter Gears.....	70-73
Bevel Gears .....	74-78
Selection.....	79-83
Stock Altered and Custom Miter & Bevel Gears .....	3-5
<b>D WORMS AND WORM GEARS</b>	
Section Contents .....	85
Worms and Worm Gears.....	86-95
Selection.....	96-98
<b>E SHAFT ACCESSORIES</b>	
Selection Contents .....	99
Shaft Couplings .....	100-106
Universal Joints .....	107-113
Shaft Collars, Set Screw and Clamping Collars.....	114-117
Washers and Bushings .....	118-119
Pulleys, Round Belt .....	120
Miniature Timing Belt & Pulley Selection .....	121-134
<b>F BEARINGS</b>	
Selection Contents .....	135
BOST-BRONZ (Oil-Impregnated Sintered Bronze) .....	136-144
BEAR-N-BRONZ (660 Cast Bronze).....	145-153
Bronze Bearing Emergency Bank.....	154
BOSTonE F-1 (Glass Filled Teflon).....	155-157
RULON® 641 Bearings .....	158-159
BOSTonE Molded Plastic .....	160-171
BOSTonE Molded Nylon .....	172-173
Sleeve Bearing Engineering .....	174-182
Anti-Friction (Ball Bearings) .....	183-197
Self-Aligning (Rod End & Spherical Bearings).....	198-206
Engineering.....	207-211
Mounted Bearings.....	212-232
Stainless Mounted Bearings .....	233-238
Rolling Element Bearing Engineering.....	239-245
<b>G CHAINS</b>	
Section Contents.....	249
Roller Chains.....	253-260
Block Chains .....	261

Continued on next page

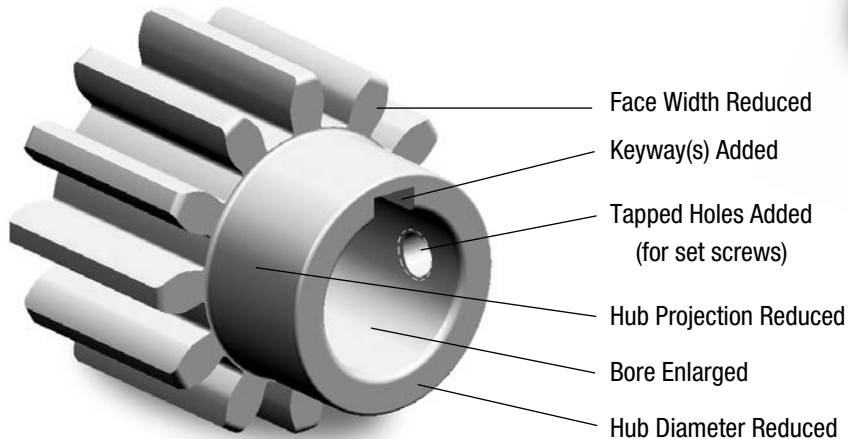
# Table Of Contents Continued

---

<b>G CHAINS (continued)</b>	
Leaf (Cable) Chains .....	261
Ladder Chains .....	262
Miniature Roller Chains.....	263
Chain Pullers/Chain Breaking Tools.....	264
<b>H SPROCKETS</b>	
Section Contents.....	265
Roller Chain Drives .....	266-273
Miniature Chain Sprockets.....	274
Roller Chain Sprockets.....	275-297
Block Chain Sprockets .....	298
Ladder Chain Sprockets.....	299-300
Roller Chain Drive Tensioners .....	301-304
Idler Sprockets .....	301
<b>I ENGINEERING INFORMATION</b>	
<b>SPUR GEARS</b>	
Nomenclature .....	306-307
Involute Form .....	308
Diametral Pitch / Pressure Angle / Tooth Dimensions.....	309
Backlash / Undercut / Formulas.....	310
Lewis Formula .....	311
<b>HELICAL GEARS</b>	
Nomenclature / Helix Angle .....	312
Formulas .....	313
Thrust Loads.....	314
<b>MITER &amp; BEVEL GEARS</b>	
Nomenclature .....	315
Mounting Distance .....	316
Tooth Strength / Thrust .....	317
<b>WORMS &amp; WORM GEARS</b>	
Hand / Efficiency / Thrust Loads .....	318
Formulas / Self-Locking .....	319
<b>COUPLING / UNIVERSAL JOINTS</b> .....	320
<b>GENERAL INFORMATION</b>	
How To Figure Horsepower & Torque .....	321
Mountings / Alterations / Lubrication .....	322
Materials / Styles / Keyways & Setscrews .....	323
Sprockets, Sprocket Diameters.....	324-326
Horsepower & Torque Capacity Of Shafting .....	327
Temperature Conversion Table .....	328
Equivalent Table .....	329
Metric Conversion Chart .....	330
Application Classifications.....	331-332
<b>INDEX TO CATALOG NUMBERS</b> .....	333-336

# Modified Stock Gearing

With thousands of stock gears available, chances are we've got just what you're looking for. If you find a stock gear that's close to what you need, but not precisely right, that's not a problem. We can modify most stock gears to meet your requirements and ship it within 24 hours. The full range of modifications we can provide are shown below.

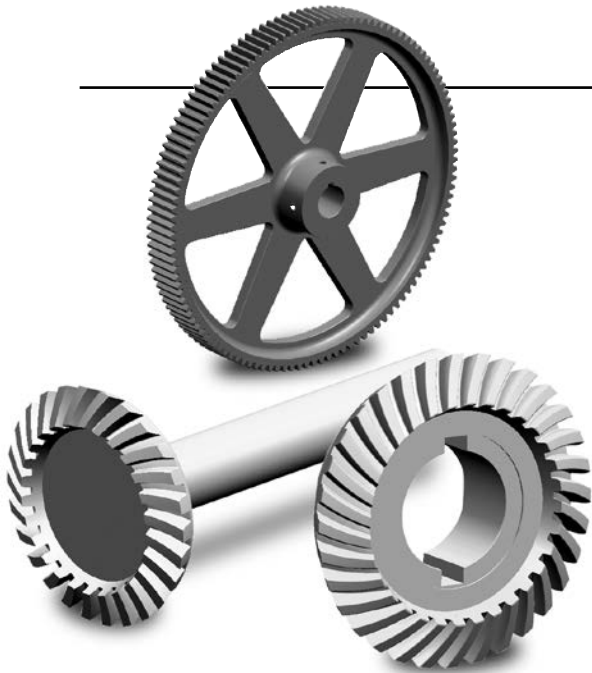


Keyways and bores available in common metric sizes.

**24 HOUR  
MODIFIED STOCK GEARING  
SHIPMENT**

With Boston Gear, stock gear modifications are quick and easy. Give us a call at **800-825-6544**.

# Custom Gearing



Not every job is alike and not every job requires the same solution. That's why Boston Gear will configure a custom gear to suit you. Even though we have built our reputation on supplying a breadth of standard products for virtually any industry, we have forged a name for ourselves as makers of quality custom gears. Custom doesn't have to mean expensive and it doesn't have to mean that it requires long lead times.

Depending on the amount of tooling required and the complexity of the job, your custom gear solution can be delivered in days, not weeks. No matter how small or how large your job is, contact our custom engineering team for a customized quote.

To request a quote for a custom gear solution from Boston Gear, simply fill out the "Request For Quotation Form" on page 5, and **FAX to 800-387-0130**. Or give us a call at 800-816-5608.

# Custom Gearing Capabilities

## Gear Types

- Spur
- Helical
- Miter & Bevel
- Worm & Worm Gear

## AGMA Classes

**AGMA 9** Non-Heat Treated, Spur & Helical Gears only

**AGMA 8** Heat Treated & Non-Heat Treated, all other gears

Note: Worm & Worm Gears do not have AGMA Class listings, however Boston Gear manufacturing tolerances relate to AGMA 8.

## Capabilities

Gear Type	Diametral Pitch	Pitch Diameter	Face Max.
Spur	64DP-3DP	.250"-36.000"	5.000"
Helical	64DP-3DP	.337"-24.000"	5.000"
Internal Spur	64DP-3DP	1.000"-24.000"	5.000"
Bevel & Miter	64DP-3DP	.500"-24.000"	3.000"
Worm	48DP-3DP	.333"-4.000"	12.000"
Worm Gear	48DP-3DP	.420"-24.000"	5.000"
Splines	Consult Engineering		

Module	Diametral Pitch	Circular Pitch (in.)
.4	63.500	.0495
.5	50.800	.0618
.6	42.333	.0742
.8	31.750	.0989
1	25.400	.1237
1.25	20.320	.1546
1.5	16.933	.1855
2	12.700	.2474
2.5	10.160	.3092
3	8.467	.3711
4	6.350	.4947
5	5.080	.6184
6	4.233	.7422
8	3.175	.9895

Note: Circular Pitch (.0491"-1.0472") or Module Pitch (.4mm-8mm) within the Diametral Pitch Limits are optional (refer to page 309).

## Tolerances

Features	≤ 2" Diameter	≥ 2" Diameter
Bore Diameter	.0005"	.0010"
Ground O.D.	.0005"	.0010"
Turned O.D.	.0020"	.0020"
Bore Length	.0020"	.0020"
Keyway Width	.0020"	.0020"
Keyway Depth	.0100"	.0100"
Tapped Holes	2B Thread	

## Geometric Dimensioning

Features	≤ 2" Diameter	≥ 2" Diameter
Perpendicularity	.0010"	.0010"
Parallelism	.0010"	.0010"
Circular Runout	.0010"	.0010"
Flatness	.0010"	.0010"
Concentricity	.0005"	.0010"

## Backlash

Refer to Engineering Information found on pages 310 and 309.

Refer to engineering for backlash related to helical and worm gearing.

## Lot Sizes

**25 pcs** Minimum Quantity on 6" OD and less

## Finishes

**63 RMS** Minimum on gear teeth

**32 RMS** Minimum on Bores, Shaved Gear Teeth, Ground Worms, and Machined Surfaces

## Material

Description	Designation
Low Carbon Steels	11L17, 12L14, 12L15
Medium Carbon Steels	11L41, 1045
Low Carbon Alloy Steels	86(L)20* (*86L20 or 8620)
Medium Carbon Alloy Steels	41(L)30, 41(L)40, 41(L)50
Preheat Treated Steels	4140, 4150
Stainless Steels	17-4PH, 303, 304
Cast Iron	Grade 25, Grade 30
Brass	Free Cutting, Half Hard
Bronze	
Non-Metallic	Phenolic (NEMA "C"), Delron, Nylon