

14-1/2° PRESSURE ANGLE – CATALOG NUMBER / DIMENSIONS

| | |
|------------------------|-------|
| Spur Gears..... | 18-27 |
| Change Gears | 28-32 |
| Stem Pinions | 33 |
| Drawn Pinion Wire..... | 34 |
| Rack..... | 35 |
| Internal Gears..... | 36 |

20° PRESSURE ANGLE – CATALOG NUMBER / DIMENSIONS

| | |
|---------------------|-------|
| Spur Gears..... | 37-46 |
| Rack..... | 47 |
| Internal Gears..... | 48 |

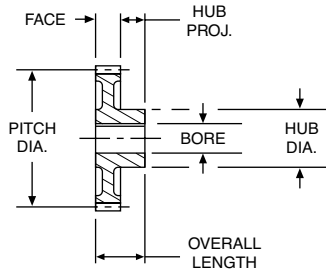
| | |
|--|---------|
| Selection Procedure..... | 49 |
| Horsepower & Torque Ratings | 50-62 |
| Gear Gauges | 62 |
| Stock Altered/Custom Spur Gears..... | 3-5 |
| Spur Gear Engineering Information..... | 306-311 |

Spur Gears

48 and 32 Diametral Pitch (Brass)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



REFERENCE PAGES

Alterations — 322
Lubrication — 322
Materials — 323

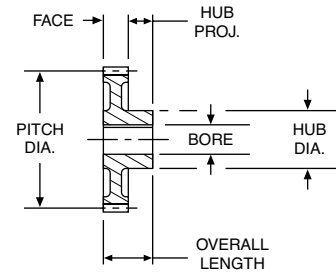
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | | | |
|---------------------------|------------|-------|-------|-------|--------------------|---|-----------|------|-------|-------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | | | |
| 48 DIAMETRAL PITCH | | | | | | Face = .125" Outside Dia. = Pitch Dia. + .042" Overall Length = .125" + Hub Proj. | | | | |
| BRASS | | | | | | | | | | |
| 10 | .208 | .0935 | - | - | A | G127 | 09322 | | | |
| 12 | .250 | .125 | - | - | | G129 | 09324 | | | |
| 14 | .292 | | | | | G130 | 09326 | | | |
| 15 | .312 | | | | | G131 | 09328 | | | |
| 16 | .333 | | | | | G132 | 09330 | | | |
| 18 | .375 | | | | | G133 | 09332 | | | |
| 20 | .417 | | | | | G134 | 09334 | | | |
| 22 | .458 | .1875 | - | - | | G135 | 09336 | | | |
| 24 | .500 | | | | | G136 | 09338 | | | |
| 26 | .542 | | | | | G137 | 09340 | | | |
| 32 | .667 | | | | G138 | 09342 | | | | |
| 36 | .750 | | | | G139 | 09344 | | | | |
| 40 | .833 | | | | G140 | 09346 | | | | |
| 44 | .917 | G141 | 09348 | | | | | | | |
| 48 | 1.000 | .250 | .50 | .25 | G142 | 09350 | | | | |
| 54 | 1.125 | | | | G143 | 09352 | | | | |
| 60 | 1.250 | | | | G144 | 09354 | | | | |
| 66 | 1.375 | | | | G145 | 09356 | | | | |
| 72 | 1.500 | | | | G146 | 09358 | | | | |
| 84 | 1.750 | | | | G147 | 09360 | | | | |
| 96 | 2.000 | | | | G148 | 09362 | | | | |
| 100 | 2.083 | | | | .3125 | .62 | .31 | D | G154 | 09364 |
| 120 | 2.500 | | | | | | | G149 | 09366 | |
| 144 | 3.000 | | | | | | | G150 | 09368 | |
| 192 | 4.000 | G151 | 09370 | | | | | | | |
| | | | | | | | | | | |
| 32 DIAMETRAL PITCH | | | | | | Face = .062" Outside Dia. = Pitch Dia. + .062" | | | | |
| BRASS | | | | | | | | | | |
| 10 | .312 | .125 | - | - | A | G96 | 09234 | | | |
| 14 | .438 | | | | | G98 | 09238 | | | |
| 16 | .500 | .1875 | - | - | | G99 | 09240 | | | |
| 20 | .625 | | | | | G101 | 09244 | | | |
| 24 | .750 | | | | | G102 | 09246 | | | |
| 28 | .875 | | | | | G103 | 09248 | | | |
| 32 | 1.000 | | | | | G104 | 09250 | | | |
| 40 | 1.250 | | | | | .250 | - | - | G105 | 09252 |
| 48 | 1.500 | G106 | 09254 | | | | | | | |
| 64 | 2.000 | .3125 | - | - | | G110 | 09256 | | | |
| 80 | 2.500 | | | | G111 | 09258 | | | | |
| 96 | 3.000 | | | | G112 | 09260 | | | | |
| 112 | 3.500 | | | | G113 | 09262 | | | | |
| 128 | 4.000 | | | | .375 | - | - | G114 | 09264 | |
| Face = .188" | | | | | | | | | | |
| 8 | .250 | .125 | - | - | A | G159 | 09266 | | | |
| 10 | .312 | | | | | G161 | 09268 | | | |
| 12 | .375 | | | | | G163 | 09270 | | | |
| 14 | .438 | | | | | G165 | 09272 | | | |
| 15 | .469 | | | | | G166 | 09274 | | | |
| 16 | .500 | .1875 | - | - | | G167 | 09276 | | | |
| 18 | .562 | | | | | G168 | 09278 | | | |
| 20 | .625 | | | | | G169 | 09280 | | | |
| 22 | .688 | | | | | G170 | 09282 | | | |
| 24 | .750 | | | | | G171 | 09284 | | | |
| 26 | .812 | | | | G172 | 09286 | | | | |
| 28 | .875 | | | | G173 | 09288 | | | | |
| 30 | .938 | | | | G174 | 09290 | | | | |
| 32 | 1.000 | | | | .250 | - | - | G175 | 09292 | |
| 36 | 1.125 | | | | | | | G176 | 09294 | |
| 40 | 1.250 | G177 | 09296 | | | | | | | |
| 44 | 1.375 | G178 | 09298 | | | | | | | |
| 48 | 1.500 | G179 | 09300 | | | | | | | |
| 52 | 1.625 | G180 | 09302 | | | | | | | |
| 56 | 1.750 | .3125 | - | - | G181 | 09304 | | | | |

32 and 24 Diametral Pitch (Brass & Steel) 14-1/2° Pressure Angle (will not operate with 20° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Setscrew | | | |
|---------------------------|------------|-------|-------|-------|--------------------|---|-----------|----------------|-----------|-------|---|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code | | |
| 32 DIAMETRAL PITCH | | | | | | Face = .188" Outside Dia. = Pitch Dia. + .062" Overall Length = .187" + Hub Proj. | | | | | |
| BRASS | | | | | | | | | | | |
| 64 | 2.000 | .3125 | .62 | .25 | B | G182 | 09306 | - | - | | |
| 72 | 2.250 | | | .31 | .31 | C | G183 | 09308 | - | - | |
| 80 | 2.500 | | | | | .75 | .31 | D | G184 | 09310 | - |
| 96 | 3.000 | | | G185 | 09312 | | | - | - | | |
| 112 | 3.500 | | | G186 | 09314 | | | - | - | | |
| 128 | 4.000 | | | G187 | 09316 | | | - | - | | |
| STEEL | | | | | | | | | | | |
| 16 | .500 | .1875 | - | - | A | S3216 | 09572 | - | - | | |
| 20 | .625 | .250 | - | - | | S3220 | 09574 | - | - | | |
| 22 | .688 | .250 | - | - | | S3222 | 09576 | - | - | | |
| 24 | .750 | .3125 | - | - | | S3224 | 09578 | - | - | | |
| 28 | .875 | .375 | - | - | | S3228 | 09580 | - | - | | |
| 32 | 1.000 | .375 | - | - | | S3232 | 09582 | - | - | | |
| 40 | 1.250 | .375 | - | - | | S3240 | 09584 | - | - | | |
| 48 | 1.500 | | | | | S3248 | 09586 | - | - | | |
| 56 | 1.750 | | | | | S3256 | 09588 | - | - | | |
| 64 | 2.000 | | | | | S3264 | 09590 | - | - | | |
| 80 | 2.500 | | | | | S3280 | 09592 | - | - | | |
| 96 | 3.000 | | | | | S3296 | 09594 | - | - | | |
| 16 | .500 | .1875 | .39 | .31 | | - | - | H3216 | 09536 | | |
| 18 | .562 | .1875 | .45 | .31 | | - | - | H3218 | 09538 | | |
| 20 | .625 | .250 | .52 | .31 | | - | - | H3220 | 09540 | | |
| 22 | .688 | .250 | .58 | .31 | | - | - | H3222 | 09542 | | |
| 24 | .750 | .3125 | .64 | .31 | | - | - | H3224 | 09544 | | |
| 26 | .812 | | .70 | | | - | H3226 | 09546 | | | |
| 28 | .875 | | .75 | | | - | H3228 | 09548 | | | |
| 30 | .938 | | .75 | | - | H3230 | 09550 | | | | |
| 32 | 1.000 | | .75 | | .38 | - | - | H3232 | 09552 | | |
| 40 | 1.250 | | .375 | | .88 | .38 | - | - | H3240 | 09554 | |
| 48 | 1.500 | 1.00 | | .38 | - | - | H3248 | 09556 | | | |
| 56 | 1.750 | | | | - | - | H3256 | 09558 | | | |
| 64 | 2.000 | | | | - | - | H3264 | 09560 | | | |
| 80 | 2.500 | | | | 1.12 | .38 | - | - | H3280 | 09562 | |
| 96 | 3.000 | | | | 1.25 | .50 | - | - | H3296 | 09564 | |
| 128 | 4.000 | | 1.88 | | .50 | - | - | H32128 | 09566 | | |
| 160 | 5.000 | 2.12 | .50 | - | - | H32160 | 09568 | | | | |
| 192 | 6.000 | 2.12 | .50 | - | - | H32192 | 09570 | | | | |
| 24 DIAMETRAL PITCH | | | | | | Face = .250" Outside Dia. = Pitch Dia. + .083" Overall Length = .250" + Hub Proj. | | | | | |
| BRASS | | | | | | | | | | | |
| 12 | .500 | .1875 | .38 | .25 | A | G254 | 09202 | - | - | | |
| 16 | .667 | | .50 | | | G256 | 09204 | - | - | | |
| 18 | .750 | | .50 | | | G257 | 09206 | - | - | | |
| 24 | 1.000 | .250 | .62 | .25 | A | G258 | 09208 | - | - | | |
| 30 | 1.250 | | .62 | | | G259 | 09210 | - | - | | |
| 36 | 1.500 | | .62 | | | G261 | 09212 | - | - | | |
| 42 | 1.750 | | .3125 | | | .62 | .25 | B | G263 | 09214 | - |
| 48 | 2.000 | .69 | | .31 | G264 | 09216 | | | - | - | |
| 54 | 2.250 | | | | .31 | G265 | | | 09218 | - | - |
| 60 | 2.500 | | | | | G266 | | | 09220 | - | - |
| 66 | 2.750 | | .375 | | .31 | D | G267 | 09222 | - | - | |
| 72 | 3.000 | .75 | | G268 | | | 09224 | - | - | | |
| 84 | 3.500 | .75 | | G269 | | | 09226 | - | - | | |
| 96 | 4.000 | .75 | | G270 | | | 09228 | - | - | | |
| 120 | 5.000 | .88 | | G272 | | | 09230 | - | - | | |
| 144 | 6.000 | .88 | | G274 | | | 09232 | - | - | | |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



REFERENCE PAGES

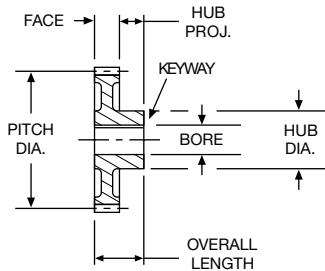
- Alterations — 322
- Horsepower Ratings — 50
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

Spur Gears

24 and 20 Diametral Pitch (Steel)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 50, 51
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

†H2412 & H2414 have #35 (.110) drilled hole through one wall, no keyway.

‡H2415-H24144 has one setscrew, no keyway.

**NA11B-5/16"-NA14B-5/16 bore has #35 (.110) drilled hole through one wall, no keyway.

††3/8" & 1/2" bores have one setscrew, no keyway.

NA40-5/8" & NA40-3/4" bores have standard keyway at 90° to setscrew. See Page 323.

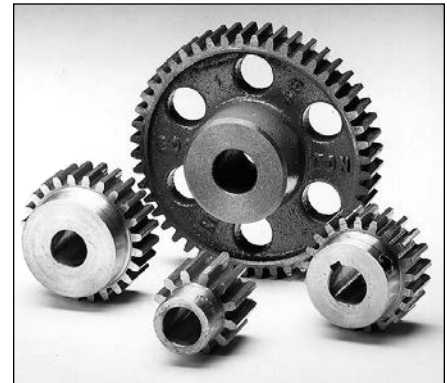
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway & Setscrew† | |
|---------------------------|------------|-------|--------|-------|--------------------|---|--------------|-------------------------|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code |
| 24 DIAMETRAL PITCH | | | | | | Face = .250" Outside Dia. = Pitch Dia. + .083" Overall Length = .250" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 12 | .500 | .250 | - | - | A | S2412 | 09630 | - | - |
| 15 | .625 | | - | - | | S2415 | 09632 | - | - |
| 16 | .667 | | - | - | | S2416 | 09634 | - | - |
| 18 | .750 | | - | - | | S2418 | 09636 | - | - |
| 21 | .875 | .500 | - | - | S2421 | 09638 | - | - | |
| 24 | 1.000 | | - | - | S2424 | 09640 | - | - | |
| 30 | 1.250 | | - | - | S2430 | 09642 | - | - | |
| 36 | 1.500 | | - | - | S2436 | 09644 | - | - | |
| 42 | 1.750 | | - | - | S2442 | 09646 | - | - | |
| 48 | 2.000 | | - | - | S2448 | 09648 | - | - | |
| 60 | 2.500 | | - | - | S2460 | 09650 | - | - | |
| 72 | 3.000 | | - | - | S2472 | 09652 | - | - | |
| 12 | .500 | .250 | .36 | .31 | - | - | H2412† | 09596 | |
| 14 | .583 | | .46 | | H2414† | 09598 | | | |
| 15 | .625 | | .50 | | H2415‡ | 09600 | | | |
| 16 | .667 | | .54 | | H2416‡ | 09602 | | | |
| 18 | .750 | .3125 | .62 | .31 | - | - | H2418‡ | 09604 | |
| 20 | .833 | | .70 | | H2420‡ | 09606 | | | |
| 21 | .875 | | .74 | | H2421‡ | 09608 | | | |
| 24 | 1.000 | | .87 | | H2424‡ | 09610 | | | |
| 30 | 1.250 | | 1.00 | | H2430‡ | 09612 | | | |
| 36 | 1.500 | | 1.12 | | H2436‡ | 09614 | | | |
| 42 | 1.750 | | 1.12 | | H2442‡ | 09616 | | | |
| 48 | 2.000 | | 1.25 | | H2448‡ | 09618 | | | |
| 60 | 2.500 | 1.25 | H2460‡ | 09620 | | | | | |
| 72 | 3.000 | .500 | 1.38 | .50 | - | - | H2472‡ | 09622 | |
| 96 | 4.000 | | 2.00 | | H2496‡ | 09624 | | | |
| 120 | 5.000 | | 2.25 | | H24120‡ | 09626 | | | |
| 144 | 6.000 | | 2.25 | | H24144‡ | 09628 | | | |
| 20 DIAMETRAL PITCH | | | | | | Face = .375" Outside Dia. = Pitch Dia. + .100" Overall Length = .375" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 11 | .600* | .3125 | .46 | .38 | NA11B | 09662 | NA11B-5/16** | 46000 | |
| 12 | .600 | | .46 | | NA12B | 09664 | NA12B-5/16** | 46001 | |
| 13 | .650 | | .50 | | NA13B | 09666 | NA13B-5/16** | 46002 | |
| 14 | .700 | | .56 | | NA14B | 09668 | NA14B-5/16** | 46003 | |
| 15 | .750 | .375 | .60 | .38 | NA15B | 09670 | NA15B-3/8†† | 46004 | |
| 16 | .800 | | .66 | | NA16B | 09672 | NA16B-3/8†† | 46005 | |
| 18 | .900 | | .74 | | NA18B | 09674 | NA18B-3/8†† | 46006 | |
| 20 | 1.000 | | .84 | | NA20B | 09676 | NA20B-3/8†† | 46007 | |
| | | .500 | .84 | | - | - | NA20B-1/2†† | 46008 | |
| 22 | 1.100 | .500 | .82 | .38 | NA22B | 09678 | NA22B-3/8†† | 46009 | |
| | | | .82 | | - | - | NA22B-1/2†† | 46010 | |
| 24 | 1.200 | | .92 | | NA24 | 09680 | NA24-3/8†† | 46011 | |
| | | | .92 | | - | - | NA24-1/2†† | 46012 | |
| 25 | 1.250 | .375 | .97 | .38 | NA25B | 09682 | NA25B-3/8†† | 46013 | |
| | | | .97 | | - | - | NA25B-1/2†† | 46014 | |
| 28 | 1.400 | | 1.12 | | NA28B | 09684 | NA28B-3/8†† | 46015 | |
| | | | 1.12 | | - | - | NA28B-1/2†† | 46016 | |
| 30 | 1.500 | .500 | 1.22 | .38 | NA30B | 09686 | NA30B-3/8†† | 46017 | |
| | | | 1.22 | | - | - | NA30B-1/2†† | 46018 | |
| 32 | 1.600 | | 1.32 | | NA32 | 09688 | NA32-3/8†† | 46019 | |
| | | | 1.32 | | - | - | NA32-1/2†† | 46020 | |
| 35 | 1.750 | .375 | 1.47 | .50 | NA35 | 09690 | NA35-3/8†† | 46021 | |
| | | | 1.47 | | - | - | NA35-1/2†† | 46022 | |
| 36 | 1.800 | | 1.52 | | NA36 | 09692 | NA36-3/8†† | 46023 | |
| | | | 1.52 | | - | - | NA36-1/2†† | 46024 | |
| 40 | 2.000 | .500 | 1.72 | .50 | NA40 | 09694 | NA40-3/8†† | 46025 | |
| | | | 1.72 | | - | - | NA40-1/2†† | 46026 | |
| | | | .625 | | - | - | NA40-5/8 | 46027 | |
| | | | .750 | | - | - | NA40-3/4 | 46028 | |
| 48 | 2.400 | .375 | 1.33 | .50 | NA48A | 10208 | - | - | |
| 50 | 2.500 | | 1.42 | | NA50A | 10210 | - | - | |
| 60 | 3.000 | | 1.92 | | NA60A | 10212 | - | - | |
| 64 | 3.200 | | 2.12 | | NA64A | 10214 | - | - | |

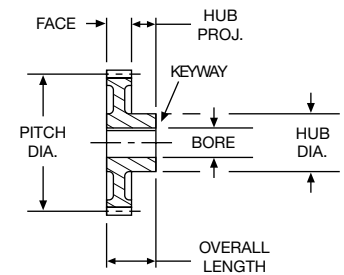
20 and 16 Diametral Pitch (Cast Iron, Brass & Steel)

14-1/2° Pressure Angle (will not operate with 20° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE



| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | | | | |
|---------------------------|------------|-------|-------|-------|--------------------|---|-----------|---------------------------|-----------|-------|---|---|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code | | | |
| 20 DIAMETRAL PITCH | | | | | | Face = .375" Outside Dia. = Pitch Dia. + .100" Overall Length = .375" + Hub Proj. | | | | | | |
| CAST IRON | | | | | | | | | | | | |
| 70 | 3.500 | .375 | 1.25 | .50 | B | NA70 | 10216 | - | - | | | |
| 72 | 3.600 | | | | | NA72 | 10218 | - | - | | | |
| 80 | 4.000 | | | | | .500 | 1.25 | .50 | NA80 | 10220 | - | - |
| 84 | 4.200 | | | | | | | | NA84 | 10222 | - | - |
| 90 | 4.500 | NA90 | 10224 | - | - | | | | | | | |
| 96 | 4.800 | NA96 | 10226 | - | - | | | | | | | |
| 100 | 5.000 | | | | C | NA100 | 10228 | - | - | | | |
| 112 | 5.600 | .500 | 1.50 | .50 | D | NA112 | 10230 | - | - | | | |
| 120 | 6.000 | | | | | NA120 | 10232 | - | - | | | |
| 140 | 7.000 | | | | | NA140 | 10234 | - | - | | | |
| 144 | 7.200 | | | | | NA144 | 10236 | - | - | | | |
| 160 | 8.000 | | | | | NA160 | 10238 | - | - | | | |
| 180 | 9.000 | | | | | NA180 | 10240 | - | - | | | |
| 200 | 10.000 | | | | | NA200B | 10242 | - | - | | | |
| | | | | | | | 2.25 | | | | | |
| 16 DIAMETRAL PITCH | | | | | | Face = .313" Outside Dia. = Pitch Dia. + .125" Overall Length = Face + Hub Proj. | | | | | | |
| BRASS | | | | | | | | | | | | |
| 8 | .500 | .1875 | - | - | A | G226 | 09168 | - | - | | | |
| 9 | .563 | | | | | G227 | 09170 | - | - | | | |
| 10 | .625 | | | | | .250 | - | - | G228 | 09172 | - | - |
| 12 | .750 | | | | | | | | G229 | 09174 | - | - |
| 14 | .875 | G230 | 09176 | - | - | | | | | | | |
| 16 | 1.000 | G231 | 09178 | - | - | | | | | | | |
| 18 | 1.125 | G232 | 09180 | - | - | | | | | | | |
| 20 | 1.250 | G233 | 09182 | - | - | | | | | | | |
| 24 | 1.500 | G235 | 09184 | - | - | | | | | | | |
| 28 | 1.750 | G236 | 09186 | - | - | | | | | | | |
| 32 | 2.000 | G237 | 09188 | - | - | | | | | | | |
| 40 | 2.500 | .3125 | .75 | .31 | B | G238 | 09190 | - | - | | | |
| 48 | 3.000 | | | | | G239 | 09192 | - | - | | | |
| 56 | 3.500 | .375 | 1.00 | .38 | D | G240 | 09194 | - | - | | | |
| 64 | 4.000 | | | | | G241 | 09196 | - | - | | | |
| 80 | 5.000 | | | | | G242 | 09198 | - | - | | | |
| | | | | | | | | | | | | |
| STEEL | | | | | | Face = .500" | | | | | | |
| 11 | .750* | .375 | .56 | .44 | A | NB11B | 09704 | NB11B-3/8† | 46029 | | | |
| 12 | .750 | | | | | NB12B | 09706 | NB12B-3/8† | 46030 | | | |
| 13 | .813 | | | | | NB13B | 09708 | NB13B-3/8† | 46031 | | | |
| 14 | .875 | | | | | NB14B | 09710 | NB14B-3/8† | 46032 | | | |
| 15 | .938 | .500 | .75 | .44 | A | NB15B | 09712 | NB15B-1/2† | 46033 | | | |
| 16 | 1.000 | | | | | NB16B | 09714 | NB16B-1/2† | 46034 | | | |
| 18 | 1.125 | | | | | NB18B | 09716 | NB18B-1/2† | 46035 | | | |
| 20 | 1.250 | | | | | NB20B | 09718 | NB20B-1/2† | 46036 | | | |
| | | | .625 | .96 | | - | - | NB20B-5/8 | 46037 | | | |
| 22 | 1.375 | .500 | 1.08 | .44 | | NB22B | 09720 | NB22B-1/2† | 46038 | | | |
| | | .625 | | | | - | - | NB22B-5/8 | 46039 | | | |
| 24 | 1.500 | .500 | 1.20 | .44 | | NB24B | 09722 | NB24B-1/2† | 46040 | | | |
| | | .625 | | | | - | - | NB24B-5/8 | 46041 | | | |
| | | .750 | | | | - | - | NB24B-3/4 | 46042 | | | |
| 26 | 1.625 | .500 | 1.33 | .44 | | NB26B | 09724 | NB26B-1/2† | 46043 | | | |
| | | .625 | | | | - | - | NB26B-5/8 | 46044 | | | |
| | | .750 | | | | - | - | NB26B-3/4 | 46045 | | | |
| 28 | 1.750 | .500 | 1.45 | .50 | | NB28B | 09726 | NB28B-1/2† | 46046 | | | |
| | | .625 | | | | - | - | NB28B-5/8 | 46047 | | | |
| | | .750 | | | | - | - | NB28B-3/4 | 46048 | | | |
| | | .875 | | | | - | - | NB28B-7/8 | 46049 | | | |
| 30 | 1.875 | .500 | 1.58 | .50 | | NB30B | 09728 | NB30B-1/2† | 46050 | | | |
| | | .625 | | | | - | - | NB30B-5/8 | 46051 | | | |
| | | .750 | | | | - | - | NB30B-3/4 | 46052 | | | |
| | | .875 | | | | - | - | NB30B-7/8 | 46053 | | | |
| | | 1.000 | | | | - | - | NB30B-1 | 46054 | | | |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 51, 52
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

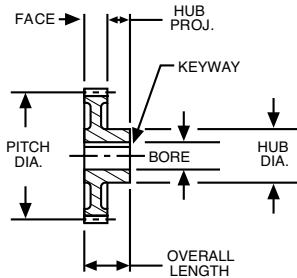
†3/8" and 1/2" bores have one setscrew, no keyway.
5/8" bore and larger have standard keyway at 90° to setscrew. See Page 323.

Spur Gears

16 and 12 Diametral Pitch (Steel, Non-Metallic & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 52, 53
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

†1/2" bore has one setscrew, no keyway.

5/8" bore and larger have standard keyway at 90° to setscrew. See Page 323.

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

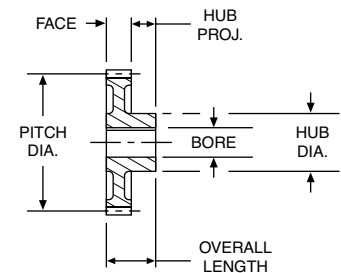
| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | |
|---------------------------|------------|---------------------------------------|------|-------|--------------------|---|-----------|---------------------------|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code |
| 16 DIAMETRAL PITCH | | | | | | | | | |
| | | | | | | Face = .500" Outside Dia. = Pitch Dia. + .125" Overall Length = .500" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 32 | 2.000 | .500 .625 .750 .875 1.000 | 1.70 | .50 | A | NB32 | 09730 | NB32-1/2† | 46055 |
| | | | | | | - | - | NB32-5/8 | 46056 |
| | | | | | | - | - | NB32-3/4 | 46057 |
| | | | | | | - | - | NB32-7/8 | 46058 |
| | | | | | | - | - | NB32-1 | 46059 |
| 36 | 2.250 | | 1.95 | | | NB36 | 09732 | - | - |
| 40 | 2.500 | .500 | 1.69 | .50 | | NB40A | 10244 | - | - |
| 48 | 3.000 | | 2.19 | | | NB48A | 10246 | - | - |
| NON-METALLIC | | | | | | | | | |
| 16 | 1.000 | .375 | .81 | .50 | A | QBH16 | 09014 | - | - |
| 20 | 1.250 | | 1.06 | | | QBH20 | 09018 | - | - |
| 24 | 1.500 | | 1.31 | .50 | | QBH24 | 09022 | - | - |
| 32 | 2.000 | .500 | 1.81 | .50 | | QBH32 | 09024 | - | - |
| 40 | 2.500 | | - | - | | QB40 | 09000 | - | - |
| 48 | 3.000 | | - | - | | QB48 | 09002 | - | - |
| 64 | 4.000 | | - | - | QB64 | 09006 | - | - | |
| CAST IRON | | | | | | | | | |
| 54 | 3.375 | | 1.25 | .50 | B | NB54 | 10248 | - | - |
| 56 | 3.500 | .500 | 1.25 | .50 | | NB56 | 10250 | - | - |
| 60 | 3.750 | | 1.38 | .62 | | NB60 | 10252 | - | - |
| 64 | 4.000 | | 1.38 | | C | NB64 | 10254 | - | - |
| 72 | 4.500 | | 1.38 | | | NB72 | 10256 | - | - |
| 80 | 5.000 | | 1.50 | | | NB80 | 10258 | - | - |
| 84 | 5.250 | .625 | 1.50 | .62 | | NB84 | 10260 | - | - |
| 96 | 6.000 | | 1.50 | | | NB96 | 10262 | - | - |
| 112 | 7.000 | | 1.50 | | | NB112 | 10264 | - | - |
| 120 | 7.500 | | 1.50 | | D | NB120 | 10266 | - | - |
| 128 | 8.000 | | 1.50 | | | NB128 | 10268 | - | - |
| 144 | 9.000 | | 1.75 | | | NB144 | 10270 | - | - |
| 160 | 10.000 | .625 | 1.75 | .75 | NB160B | 10272 | - | - | |
| 192 | 12.000 | | 2.00 | | NB192B | 10274 | - | - | |
| 12 DIAMETRAL PITCH | | | | | | | | | |
| | | | | | | Face = .750" Outside Dia. = Pitch Dia. + .167" Overall Length = .750" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 11 | 1.000* | | .75 | | A | ND11B | 09744 | ND11B-1/2† | 46060 |
| 12 | 1.000 | .500 | .75 | .50 | | ND12B | 09746 | ND12B-1/2† | 46061 |
| 13 | 1.083 | | .83 | | | ND13B | 09748 | ND13B-1/2† | 46062 |
| 14 | 1.167 | | .92 | | | ND14B | 09750 | ND14B-1/2† | 46063 |
| 15 | 1.250 | | 1.00 | | | ND15B | 09752 | ND15B-5/8 | 46064 |
| 16 | 1.333 | .625 | .99 | .50 | | ND16B | 09754 | ND16B-5/8 | 46065 |
| 18 | 1.500 | | 1.15 | | | ND18B | 09756 | ND18B-5/8 | 46066 |
| 20 | 1.667 | .625 .750 | 1.32 | .50 | | ND20B | 09758 | ND20B-5/8 | 46067 |
| | | | | | | - | - | ND20B-3/4 | 46068 |
| 21 | 1.750 | .625 .750 .875 | 1.40 | .50 | | ND21B | 09760 | ND21B-5/8 | 46069 |
| | | | | | | - | - | ND21B-3/4 | 46070 |
| | | | | | | - | - | ND21B-7/8 | 46071 |
| 22 | 1.833 | .625 .750 .875 1.000 | 1.49 | .50 | | ND22B | 09762 | ND22B-5/8 | 46072 |
| | | | | | | - | - | ND22B-3/4 | 46073 |
| | | | | | - | - | ND22B-7/8 | 46074 | |
| | | | | | - | - | ND22B-1 | 46075 | |
| 24 | 2.000 | .625 .750 .875 1.000 | 1.65 | .50 | ND24B | 09764 | ND24B-5/8 | 46076 | |
| | | | | | - | - | ND24B-3/4 | 46077 | |
| | | | | | - | - | ND24B-7/8 | 46078 | |
| | | | | | - | - | ND24B-1 | 46079 | |
| 30 | 2.500 | | 2.15 | | | ND30 | 09766 | - | - |
| 32 | 2.667 | .625 | 1.92 | .62 | | ND32A | 10276 | - | - |
| 36 | 3.000 | | 2.25 | | | ND36A | 10278 | - | - |
| 40 | 3.333 | | 2.34 | | | ND40A | 10280 | - | - |
| 42 | 3.500 | | 2.50 | | | ND42A | 10282 | - | - |

12 and 10 Diametral Pitch (Steel, Non-Metallic & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

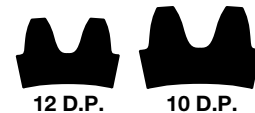
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | |
|---------------------------|------------|-------|-------|-------|--------------------|---|-----------|---------------------------|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code |
| 12 DIAMETRAL PITCH | | | | | | Face = .750" Outside Dia. = Pitch Dia. + .167" Overall Length = .750" + Hub Proj. | | | |
| NON-METALLIC | | | | | | | | | |
| 15 | 1.250 | | 1.00 | | A | QDH15 | 09038 | - | - |
| 18 | 1.500 | .500 | 1.25 | .50 | | QDH18 | 09042 | - | - |
| 21 | 1.750 | | 1.50 | | | QDH21 | 09046 | - | - |
| 24 | 2.000 | .625 | 1.75 | .50 | | QDH24 | 09050 | - | - |
| 30 | 2.500 | | 2.25 | | | QDH30 | 09052 | - | - |
| 36 | 3.000 | | - | - | | QD36 | 09026 | - | - |
| 48 | 4.000 | | - | - | | QD48 | 09030 | - | - |
| 60 | 5.000 | .750 | - | - | QD60 | 09034 | - | - | |
| CAST-IRON | | | | | | | | | |
| 48 | 4.000 | .750 | 1.75 | .75 | C | ND48 | 10284 | - | - |
| 54 | 4.500 | | | | | ND54 | 10286 | - | - |
| 60 | 5.000 | | | | | ND60 | 10288 | - | - |
| 64 | 5.333 | | | | | ND64 | 10290 | - | - |
| 72 | 6.000 | | | | | ND72 | 10292 | - | - |
| 84 | 7.000 | | | | | ND84 | 10294 | - | - |
| 96 | 8.000 | | | | | .750 | 2.00 | .75 | D |
| 108 | 9.000 | ND108 | 10298 | - | - | | | | |
| 112 | 9.333 | ND112 | 10300 | - | - | | | | |
| 120 | 10.000 | ND120 | 10302 | - | - | | | | |
| 144 | 12.000 | ND144 | 10304 | - | - | | | | |
| 168 | 14.000 | .875 | 2.00 | 1.00 | ND168 | 10306 | - | - | |
| 10 DIAMETRAL PITCH | | | | | | Face = 1.000" Outside Dia. = Pitch Dia. + .200" Overall Length = 1.000" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 11 | 1.200* | .625 | .92 | .62 | A | NF11B | 09778 | NF11B-5/8 | 46080 |
| 12 | 1.200 | | .92 | | | NF12B | 09780 | NF12B-5/8 | 46081 |
| 14 | 1.400 | | 1.02 | | | NF14B | 09782 | NF14B-5/8 | 46082 |
| 15 | 1.500 | .750 | 1.12 | .62 | | NF15B | 09784 | NF15B-3/4 | 46083 |
| 16 | 1.600 | | 1.22 | | | NF16B | 09786 | NF16B-3/4 | 46084 |
| 18 | 1.800 | .750 | 1.42 | .62 | | NF18B | 09788 | NF18B-3/4 | 46085 |
| | | .875 | | | | - | - | NF18B-7/8 | 46086 |
| 20 | 2.000 | .750 | 1.62 | .62 | | NF20B | 09790 | NF20B-3/4 | 46087 |
| | | .875 | | | | - | - | NF20B-7/8 | 46088 |
| | | 1.000 | | | | - | - | NF20B-1 | 46089 |
| 24 | 2.400 | .750 | 2.02 | .62 | | NF24B | 09792 | NF24B-3/4 | 46090 |
| | | .875 | | | | - | - | NF24B-7/8 | 46091 |
| | | 1.000 | | | | - | - | NF24B-1 | 46092 |
| 25 | 2.500 | .750 | 2.12 | .62 | | NF25 | 09794 | - | - |
| 28 | 2.800 | .750 | 1.81 | .88 | | NF28A | 10310 | - | - |
| 30 | 3.000 | | 2.02 | | NF30A | 10312 | - | - | |
| 32 | 3.200 | | 2.22 | | NF32A | 10314 | - | - | |
| 35 | 3.500 | | 2.52 | | NF35A | 10316 | - | - | |
| 36 | 3.600 | | 2.61 | | NF36A | 10318 | - | - | |
| | | | | | | | | | |
| NON-METALLIC | | | | | | | | | |
| 15 | 1.500 | .625 | 1.20 | .62 | A | QFH15 | 09062 | - | - |
| 18 | 1.800 | | 1.50 | | | QFH18 | 09066 | - | - |
| 20 | 2.000 | .750 | 1.70 | .62 | | QFH20 | 09068 | - | - |
| 25 | 2.500 | | 2.20 | | | QFH25 | 09070 | - | - |
| 30 | 3.000 | | 2.70 | | | QFH30 | 09072 | - | - |
| | | | | | | | | | |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 53, 54
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

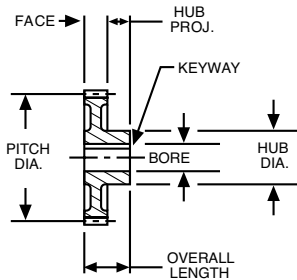
†All gears have standard keyway at 90° to setscrew. See Page 323.

Spur Gears

10 and 8 Diametral Pitch (Cast Iron, Steel & Non-Metallic)

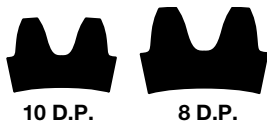
14-1/2° Pressure Angle (will not operate with 20° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 54, 55
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

†All gears have standard keyway, at 90° to setscrew. See Page 323.

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

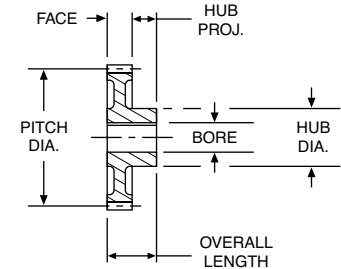
| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | | | | | |
|---------------------------|------------|------------------------|-------|-----------|--------------------|---|-----------|---------------------------|-----------|-------|-------|-----------|-------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code | | | | |
| 10 DIAMETRAL PITCH | | | | | | Face = 1.000" Outside Dia. = Pitch Dia. + .200" Overall Length = 1.000" + Hub Proj. | | | | | | | |
| CAST IRON | | | | | | | | | | | | | |
| 40 | 4.000 | .875 | 2.12 | .88 | B | NF40 | 10320 | - | - | | | | |
| 42 | 4.200 | | | | | NF42 | 10322 | - | - | | | | |
| 45 | 4.500 | | | | | NF45 | 10324 | - | - | | | | |
| 48 | 4.800 | | | | | NF48 | 10326 | - | - | | | | |
| 50 | 5.000 | | | | | NF50 | 10328 | - | - | | | | |
| 54 | 5.400 | | | | | NF54 | 10330 | - | - | | | | |
| 55 | 5.500 | | | | | NF55 | 10332 | - | - | | | | |
| 60 | 6.000 | | | | | NF60 | 10334 | - | - | | | | |
| 64 | 6.400 | | | | | NF64 | 10336 | - | - | | | | |
| 70 | 7.000 | | | | | NF70 | 10338 | - | - | | | | |
| 72 | 7.200 | | | | | NF72 | 10340 | - | - | | | | |
| 80 | 8.000 | | | | | NF80 | 10342 | - | - | | | | |
| 84 | 8.400 | | | | | NF84 | 10344 | - | - | | | | |
| 90 | 9.000 | | | | | NF90 | 10346 | - | - | | | | |
| 96 | 9.600 | NF96 | 10348 | - | - | | | | | | | | |
| 100 | 10.000 | 1.00 | 2.50 | 1.00 | D | NF100 | 10350 | - | - | | | | |
| 110 | 11.000 | | | | | NF110 | 10352 | - | - | | | | |
| 120 | 12.000 | | | | | NF120 | 10356 | - | - | | | | |
| 140 | 14.000 | | | | | NF140 | 10358 | - | - | | | | |
| 144 | 14.400 | | | | | NF144 | 10360 | - | - | | | | |
| 160 | 16.000 | | | | | NF160 | 10362 | - | - | | | | |
| 180 | 18.000 | | | | | NF180 | 10364 | - | - | | | | |
| 8 DIAMETRAL PITCH | | | | | | Face = 1.250" Outside Dia. = Pitch Dia. + .250" Overall Length = 1.250" + Hub Proj. | | | | | | | |
| STEEL | | | | | | | | | | | | | |
| 11 | 1.500* | | | | | .750 | 1.12 | .75 | A | NH11B | 09806 | NH11B-3/4 | 46093 |
| 12 | 1.500 | NH12B | 09808 | NH12B-3/4 | 46094 | | | | | | | | |
| 14 | 1.750 | NH14B | 09810 | NH14B-3/4 | 46095 | | | | | | | | |
| 15 | 1.875 | NH15B | 09812 | NH15B-7/8 | 46096 | | | | | | | | |
| 16 | 2.000 | .875 1.000 | 1.56 | .75 | A | NH16B | 09814 | NH16B-7/8 | 46097 | | | | |
| | | | | | | - | - | NH16B-1 | 46098 | | | | |
| 18 | 2.250 | .875 1.000 1.125 | 1.81 | .75 | A | NH18B | 09816 | NH18B-7/8 | 46099 | | | | |
| | | | | | | - | - | NH18B-1 | 46100 | | | | |
| | | | | | | - | - | NH18B-1-1/8 | 46101 | | | | |
| 20 | 2.500 | .875 1.000 1.125 | 2.06 | .75 | A | NH20B | 09818 | NH20B-7/8 | 46102 | | | | |
| | | | | | | - | - | NH20B-1 | 46103 | | | | |
| 22 | 2.750 | .875 1.000 1.125 | 2.31 | .75 | A | - | - | NH20B-1-1/8 | 46104 | | | | |
| | | | | | | NH22B | 09820 | NH22B-7/8 | 46105 | | | | |
| 24 | 3.000 | .875 | 2.06 | .88 | A | - | - | NH22B-1 | 46106 | | | | |
| | | | | | | - | - | NH22B-1-1/8 | 46107 | | | | |
| 28 | 3.500 | 1.000 | 2.56 | .88 | A | NH24A | 10368 | - | - | | | | |
| 30 | 3.750 | | | | | NH28A | 10370 | - | - | | | | |
| 32 | 4.000 | | | | | NH30A | 10372 | - | - | | | | |
| | | | | | | NH32A | 10374 | - | - | | | | |
| NON-METALLIC | | | | | | | | | | | | | |
| 16 | 2.000 | .750 | 1.62 | .75 | A | QHH16 | 09082 | - | - | | | | |
| 18 | 2.250 | | | | | QHH18 | 09084 | - | - | | | | |
| 20 | 2.500 | .875 | 2.12 | .75 | A | QHH20 | 09086 | - | - | | | | |
| 24 | 3.000 | | | | | QHH24 | 09088 | - | - | | | | |
| 28 | 3.500 | | | | | QHH28 | 09090 | - | - | | | | |
| | | | | | | | | | | | | | |

8 and 6 Diametral Pitch (Cast Iron & Steel)

14-1/2° Pressure Angle (will not operate with 20° spurs)

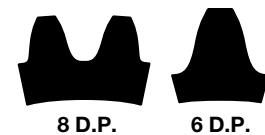
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | | | | |
|--------------------------|------------|--------|-------|-------|--------------------|---|-------------|---------------------------|--|-------|---|---|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code | | | |
| 8 DIAMETRAL PITCH | | | | | | Face = 1.250" Outside Dia. = Pitch Dia. + .250" Overall Length = 1.250" + Hub Proj. | | | | | | |
| CAST IRON | | | | | | | | | | | | |
| 36 | 4.500 | 1.000 | 2.50 | 1.00 | B | NH36 | 10376 | - | - | | | |
| 40 | 5.000 | | | | | NH40 | 10378 | - | - | | | |
| 42 | 5.250 | | | | | NH42 | 10380 | - | - | | | |
| 44 | 5.500 | | | | | NH44 | 10382 | - | - | | | |
| 48 | 6.000 | | | | | NH48 | 10384 | - | - | | | |
| 54 | 6.750 | | | | | NH54 | 10386 | - | - | | | |
| 56 | 7.000 | | | | | NH56 | 10388 | - | - | | | |
| 60 | 7.500 | | | | NH60 | 10390 | - | - | | | | |
| 64 | 8.000 | | | | NH64 | 10392 | - | - | | | | |
| 72 | 9.000 | | | | NH72 | 10394 | - | - | | | | |
| 80 | 10.000 | | | | 1.125 | 3.00 | 1.12 | D | NH80 | 10396 | - | - |
| 84 | 10.500 | | | | | | | | NH84 | 10398 | - | - |
| 88 | 11.000 | | | | | | | | NH88 | 10400 | - | - |
| 96 | 12.000 | | | | | | | | NH96 | 10402 | - | - |
| 112 | 14.000 | NH112 | 10404 | - | | | | | - | | | |
| 120 | 15.000 | NH120 | 10406 | - | | | | | - | | | |
| 128 | 16.000 | NH128 | 10408 | - | | | | | - | | | |
| 144 | 18.000 | NH144 | 10410 | - | | | | | - | | | |
| 160 | 20.000 | NH160B | 10412 | - | | | | | - | | | |
| 6 DIAMETRAL PITCH | | | | | | | | | Face = 1.500" Outside Dia. = Pitch Dia + .333" Overall Length = 1.500" + Hub Proj. | | | |
| STEEL | | | | | | | | | | | | |
| 11 | 2.000* | 1.000 | 1.46 | .88 | A | NJ11B | 09830 | NJ11B-1 | 46108 | | | |
| 12 | 2.000 | | | | | NJ12B | 09832 | NJ12B-1 | 46109 | | | |
| 14 | 2.333 | 1.000 | 1.79 | .88 | | NJ14B | 09834 | NJ14B-1 | 46110 | | | |
| | | 1.125 | | | | - | NJ14B-1-1/8 | 46111 | | | | |
| | | 1.250 | | | | - | NJ15B-1 | 46112 | | | | |
| | | 1.375 | | | | - | NJ15B-1-1/8 | 46113 | | | | |
| 15 | 2.500 | 1.000 | 1.96 | .88 | | - | - | NJ15B-1-3/16 | 46114 | | | |
| | | 1.125 | | | | - | NJ15B-1-1/4 | 46115 | | | | |
| | | 1.1875 | | | | - | NJ16B-1 | 46116 | | | | |
| | | 1.250 | | | | - | NJ16B-1-1/8 | 46117 | | | | |
| 16 | 2.667 | 1.000 | 2.13 | .88 | | - | - | NJ16B-1-3/16 | 46118 | | | |
| | | 1.125 | | | | - | NJ16B-1-1/4 | 46119 | | | | |
| | | 1.1875 | | | | - | NJ18B-1 | 46120 | | | | |
| | | 1.250 | | | | - | NJ18B-1-1/8 | 46121 | | | | |
| 18 | 3.000 | 1.000 | 2.46 | .88 | | - | - | NJ18B-1-3/16 | 46122 | | | |
| | | 1.125 | | | | - | NJ18B-1-1/4 | 46123 | | | | |
| | | 1.1875 | | | | - | NJ20-1 | 46124 | | | | |
| | | 1.250 | | | | - | NJ20-1-1/8 | 46125 | | | | |
| 20 | 3.333 | 1.000 | 2.79 | .88 | | - | - | NJ20-1-3/16 | 46126 | | | |
| | | 1.125 | | | | - | NJ20-1-1/4 | 46127 | | | | |
| | | 1.1875 | | | - | - | - | | | | | |
| | | 1.250 | | | - | - | - | | | | | |
| 21 | 3.500 | 1.000 | 2.96 | .88 | NJ21B | 09844 | - | - | | | | |
| 24 | 4.000 | 1.125 | 3.00 | .88 | NJ24A | 10414 | - | - | | | | |
| 27 | 4.500 | | 3.50 | | NJ27A | 10416 | - | - | | | | |
| 30 | 5.000 | | 4.00 | | NJ30A | 10418 | - | - | | | | |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 55, 56
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

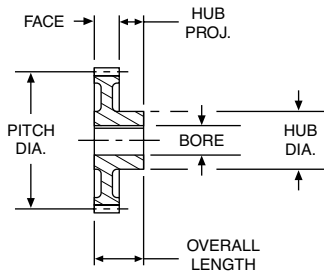
†All gears have standard keyway, at 90° to setscrew. See Page 323.

Spur Gears

6 and 5 Diametral Pitch (Steel & Cast Iron)

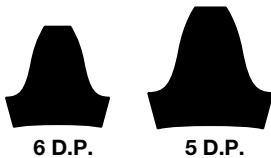
14-1/2° Pressure Angle (will not operate with 20° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | |
|--------------------------|------------|--------|------|-------|--------------------|---|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code |
| 6 DIAMETRAL PITCH | | | | | | Face = 1.500" Outside Dia. = Pitch Dia. + .333" Overall Length = 1.500" + Hub Proj. | |
| CAST IRON | | | | | | | |
| 32 | 5.333 | 1.125 | 2.50 | 1.00 | B | NJ32 | 10420 |
| 33 | 5.500 | | | | | NJ33 | 10422 |
| 36 | 6.000 | | | | | NJ36 | 10424 |
| 40 | 6.667 | | | | | NJ40 | 10426 |
| 42 | 7.000 | | | | | NJ42 | 10428 |
| 48 | 8.000 | | | | | NJ48 | 10430 |
| 54 | 9.000 | | | | | NJ54 | 10432 |
| 60 | 10.000 | 1.250 | 3.00 | 1.25 | D | NJ60 | 10434 |
| 64 | 10.667 | | | | | NJ64 | 10436 |
| 66 | 11.000 | | | | | NJ66 | 10438 |
| 72 | 12.000 | | | | | NJ72 | 10440 |
| 84 | 14.000 | | 3.25 | 1.50 | | NJ84 | 10442 |
| 96 | 16.000 | | | | | NJ96 | 10444 |
| 108 | 18.000 | | 3.50 | 1.50 | | NJ108 | 10446 |
| 120 | 20.000 | | | | | NJ120B | 10448 |
| 144 | 24.000 | | | | | NJ144B | 10452 |
| 5 DIAMETRAL PITCH | | | | | | Face = 1.750" Outside Dia. = Pitch Dia. + .400" Overall Length = 1.750" + Hub Proj. | |
| STEEL | | | | | | | |
| 11 | 2.400* | 1.0625 | 1.78 | .88 | A | NK11B | 09846 |
| 12 | 2.400 | | 1.78 | | | NK12B | 09848 |
| 14 | 2.800 | | 2.18 | | | NK14B | 09850 |
| 15 | 3.000 | | 2.38 | | | NK15B | 09852 |
| 16 | 3.200 | | 2.58 | | | NK16B | 09854 |
| 18 | 3.600 | | 2.98 | | | NK18B | 09856 |
| 20 | 4.000 | | 3.38 | | | NK20B | 09858 |
| CAST IRON | | | | | | | |
| 24 | 4.800 | 1.0625 | 3.00 | 1.25 | A | NK24B | 10454 |
| 25 | 5.000 | | | | | NK25B | 10456 |
| 30 | 6.000 | | | | | NK30B | 10458 |
| 35 | 7.000 | 1.1875 | 3.00 | 1.25 | B | NK35B | 10460 |
| 40 | 8.000 | | | | | NK40B | 10462 |
| 45 | 9.000 | | | | | NK45B | 10464 |
| 50 | 10.000 | 1.1875 | 3.50 | 1.25 | D | NK50B | 10466 |
| 55 | 11.000 | | | | | NK55B | 10468 |
| 60 | 12.000 | | | | | NK60B | 10470 |
| 70 | 14.000 | | | | | NK70B | 10472 |
| 80 | 16.000 | | | | | NK80B | 10474 |
| 100 | 20.000 | | | | | 1.3125 | 3.75 |

*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.

REFERENCE PAGES

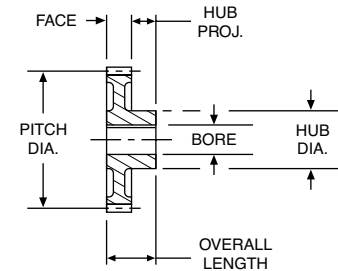
- Alterations — 322
- Horsepower Ratings — 56
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

4 and 3 Diametral Pitch (Steel & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

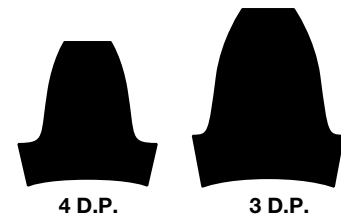
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | | | | |
|--------------------------|------------|--------|-------|-------|--------------------|---|-----------|-------|-------|-------|-------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | | | | |
| 4 DIAMETRAL PITCH | | | | | | | | | | | |
| | | | | | | Face = 2.000" Outside Dia. = Pitch Dia. + .500" Overall Length = 2.000" + Hub Proj. | | | | | |
| STEEL | | | | | | | | | | | |
| 11 | 3.000* | 1.125 | 2.27 | .88 | A | NL11B | 09860 | | | | |
| 12 | 3.000 | | 2.27 | | | NL12B | 09862 | | | | |
| 14 | 3.500 | | 2.77 | | | NL14B | 09864 | | | | |
| 15 | 3.750 | | 3.02 | | | NL15B | 09866 | | | | |
| 16 | 4.000 | | 3.27 | | | NL16B | 09868 | | | | |
| 18 | 4.500 | | 3.77 | | | NL18B | 09870 | | | | |
| 20 | 5.000 | | 4.27 | | | NL20B | 09872 | | | | |
| 22 | 5.500 | | 4.77 | | | NL22B | 09874 | | | | |
| CAST IRON | | | | | | | | | | | |
| 24 | 6.000 | | 1.125 | | | 3.50 | 1.50 | A | NL24B | 10484 | |
| 28 | 7.000 | B | | NL28B | 10486 | | | | | | |
| 30 | 7.500 | | | NL30 | 10488 | | | | | | |
| 32 | 8.000 | | | NL32B | 10490 | | | | | | |
| 36 | 9.000 | | | NL36B | 10492 | | | | | | |
| 40 | 10.000 | D | | NL40B | 10494 | | | | | | |
| 42 | 10.500 | | | NL42 | 10496 | | | | | | |
| 44 | 11.000 | | | NL44B | 10498 | | | | | | |
| 48 | 12.000 | | | NL48B | 10500 | | | | | | |
| 54 | 13.500 | | | NL54 | 10502 | | | | | | |
| 56 | 14.000 | 1.250 | 4.00 | 1.50 | NL56B | 10504 | | | | | |
| 60 | 15.000 | | | | NL60 | 10506 | | | | | |
| 64 | 16.000 | | | | NL64B | 10508 | | | | | |
| 72 | 18.000 | | | | NL72B | 10510 | | | | | |
| 80 | 20.000 | | | | 1.375 | 4.50 | 1.50 | NL80B | 10512 | | |
| 84 | 21.000 | | NL84 | | | | | 10514 | | | |
| 88 | 22.000 | | 1.75 | | | | | NL88B | 10516 | | |
| 96 | 24.000 | | | | | | | NL96B | 10518 | | |
| 3 DIAMETRAL PITCH | | | | | | | | | | | |
| | | | | | | Face = 3.000"† Outside Dia. = Pitch Dia. + .667" Overall Length = Face + Hub Proj. | | | | | |
| STEEL | | | | | | | | | | | |
| 11 | 4.000* | 1.3125 | - | - | A | NO11B† | 09876 | | | | |
| 12 | 4.000 | | | | | NO12B† | 09878 | | | | |
| 14 | 4.667 | | | | | NO14B | 09880 | | | | |
| 15 | 5.000 | | | | | NO15B | 09882 | | | | |
| 16 | 5.333 | | | | | NO16B | 09884 | | | | |
| 18 | 6.000 | | | | | NO18B | 09886 | | | | |
| 20 | 6.667 | | | | | NO20 | 09888 | | | | |
| 21 | 7.000 | | | | | NO21B | 09890 | | | | |
| CAST IRON | | | | | | | | | | | |
| 24 | 8.000 | | | | | 1.4375 | 4.50 | 1.25 | B | NO24B | 10524 |
| 30 | 10.000 | 5.25 | 1.75 | NO30B | 10526 | | | | | | |
| 36 | 12.000 | | D | 1.75 | NO36B | | 10528 | | | | |
| 42 | 14.000 | NO42 | | | 10530 | | | | | | |
| 48 | 16.000 | 1.5625 | 5.25 | 1.75 | NO48B | | 10532 | | | | |
| 60 | 20.000 | | | | NO60B | | 10536 | | | | |
| 72 | 24.000 | 1.6875 | 5.50 | 1.75 | NO72B | | 10538 | | | | |
| 84 | 28.000 | | 5.75 | | NO84B | | 10540 | | | | |
| 96 | 32.000 | 1.9375 | 5.75 | 1.75 | NO96B | | 10542 | | | | |
| 108 | 36.000 | | | | NO108B | | 10544 | | | | |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



REFERENCE PAGES

Alterations — 322
Horsepower Ratings — 56, 57
Lubrication — 322
Materials — 323
Selection Procedure — 49

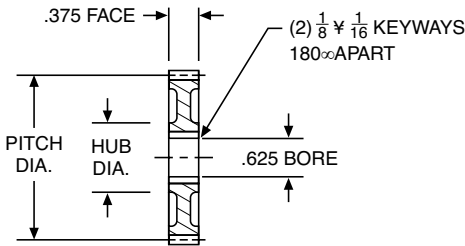
*Special Pitch Diameter, used for calculating Center Distance only, not Ratio.
†NO11B and NO12B have 4" Face.

Change Gears

20 Diametral Pitch (Steel & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A



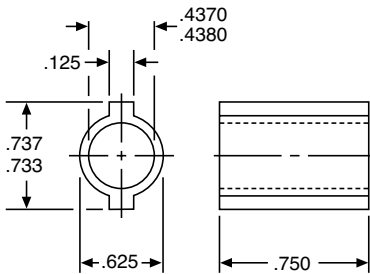
REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 51
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49



COMPOUND STEEL BUSHINGS

These steel bushings have 2 keys, 180° apart and fit bores of GA series change gears with a slip fit. They are used to mount two gears on one shaft (or stud) and drive one from the other.



ORDER BY CATALOG NUMBER OR ITEM CODE

| CATALOG NO. | ITEM CODE |
|-------------|-----------|
| GAB20A | 18500 |

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code | No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code |
|-----------------------------------|------------|----------|----------------|-----------|------------------|------------|----------|----------------|-----------|
| 20 DIAMETRAL PITCH | | | | | | | | | |
| Outside Dia. = Pitch Dia. + .100" | | | | | | | | | |
| STEEL | | | | | CAST IRON | | | | |
| 20 | 1.000 | | GA20 | 10038 | 71 | 3.550 | | GA71B | 10842 |
| 21 | 1.050 | | GA21 | 10040 | 72 | 3.600 | | GA72B | 10844 |
| 22 | 1.100 | | GA22 | 10042 | 73 | 3.650 | | GA73B | 10846 |
| 23 | 1.150 | | GA23 | 10044 | 74 | 3.700 | | GA74B | 10848 |
| 24 | 1.200 | | GA24 | 10046 | 75 | 3.750 | 1.56 | GA75B | 10850 |
| 25 | 1.250 | | GA25 | 10048 | 76 | 3.800 | | GA76B | 10852 |
| 26 | 1.300 | | GA26 | 10050 | 77 | 3.850 | | GA77B | 10854 |
| 27 | 1.350 | | GA27 | 10052 | 78 | 3.900 | | GA78B | 10856 |
| 28 | 1.400 | | GA28 | 10054 | 79 | 3.950 | | GA79B | 10858 |
| 29 | 1.450 | | GA29 | 10056 | 80 | 4.000 | | GA80B | 10860 |
| 30 | 1.500 | | GA30 | 10058 | 81 | 4.050 | | GA81B | 10862 |
| 31 | 1.550 | | GA31 | 10060 | 82 | 4.100 | | GA82B | 10864 |
| 32 | 1.600 | | GA32 | 10062 | 83 | 4.150 | | GA83B | 10866 |
| 33 | 1.650 | | GA33 | 10064 | 84 | 4.200 | | GA84B | 10868 |
| 34 | 1.700 | | GA34 | 10066 | 85 | 4.250 | | GA85B | 10870 |
| 35 | 1.750 | | GA35 | 10068 | 86 | 4.300 | | GA86B | 10872 |
| 36 | 1.800 | | GA36 | 10070 | 87 | 4.350 | | GA87B | 10874 |
| 37 | 1.850 | | GA37 | 10072 | 88 | 4.400 | | GA88B | 10876 |
| 38 | 1.900 | | GA38 | 10074 | 89 | 4.450 | | GA89B | 10878 |
| 39 | 1.950 | | GA39 | 10076 | 90 | 4.500 | | GA90B | 10880 |
| 40 | 2.000 | | GA40 | 10078 | 91 | 4.550 | | GA91B | 10882 |
| 41 | 2.050 | | GA41 | 10080 | 92 | 4.600 | | GA92B | 10884 |
| 42 | 2.100 | | GA42 | 10082 | 93 | 4.650 | | GA93B | 10886 |
| 43 | 2.150 | | GA43 | 10084 | 94 | 4.700 | | GA94B | 10888 |
| 44 | 2.200 | | GA44 | 10086 | 95 | 4.750 | | GA95B | 10890 |
| 45 | 2.250 | | GA45 | 10088 | 96 | 4.800 | | GA96B | 10892 |
| 46 | 2.300 | | GA46 | 10090 | 97 | 4.850 | | GA97B | 10894 |
| 47 | 2.350 | | GA47 | 10092 | 98 | 4.900 | 1.69 | GA98B | 10896 |
| 48 | 2.400 | | GA48 | 10094 | 99 | 4.950 | | GA99B | 10898 |
| 49 | 2.450 | | GA49 | 10096 | 100 | 5.000 | | GA100B | 10900 |
| 50 | 2.500 | | GA50 | 10098 | 101 | 5.050 | | GA101B | 10902 |
| CAST IRON | | | | | 102 | 5.100 | | GA102B | 10904 |
| 51 | 2.550 | | GA51B | 10802 | 103 | 5.150 | | GA103B | 10906 |
| 52 | 2.600 | | GA52B | 10804 | 104 | 5.200 | | GA104B | 10908 |
| 53 | 2.650 | | GA53B | 10806 | 105 | 5.250 | | GA105B | 10910 |
| 54 | 2.700 | | GA54B | 10808 | 106 | 5.300 | | GA106B | 10912 |
| 55 | 2.750 | | GA55B | 10810 | 107 | 5.350 | | GA107B | 10914 |
| 56 | 2.800 | | GA56B | 10812 | 108 | 5.400 | | GA108B | 10916 |
| 57 | 2.850 | | GA57B | 10814 | 109 | 5.450 | | GA109B | 10918 |
| 58 | 2.900 | 1.38 | GA58B | 10816 | 110 | 5.500 | | GA110B | 10920 |
| 59 | 2.950 | | GA59B | 10818 | 111 | 5.550 | | GA111B | 10922 |
| 60 | 3.000 | | GA60B | 10820 | 112 | 5.600 | | GA112B | 10924 |
| 61 | 3.050 | | GA61B | 10822 | 113 | 5.650 | | GA113B | 10926 |
| 62 | 3.100 | | GA62B | 10824 | 114 | 5.700 | | GA114B | 10928 |
| 63 | 3.150 | | GA63B | 10826 | 115 | 5.750 | | GA115B | 10930 |
| 64 | 3.200 | | GA64B | 10828 | 116 | 5.800 | | GA116B | 10932 |
| 65 | 3.250 | | GA65B | 10830 | 117 | 5.850 | | GA117B | 10934 |
| 66 | 3.300 | | GA66B | 10832 | 118 | 5.900 | | GA118B | 10936 |
| 67 | 3.350 | 1.56 | GA67B | 10834 | 119 | 5.950 | | GA119B | 10938 |
| 68 | 3.400 | | GA68B | 10836 | 120 | 6.000 | | GA120B | 10940 |
| 69 | 3.450 | | GA69B | 10838 | | | | | |
| 70 | 3.500 | | GA70B | 10840 | | | | | |

| | |
|--------------------|---|
| Style See Page 323 | 20 – 78 Teeth – A 79 – 120 Teeth – C |
|--------------------|---|

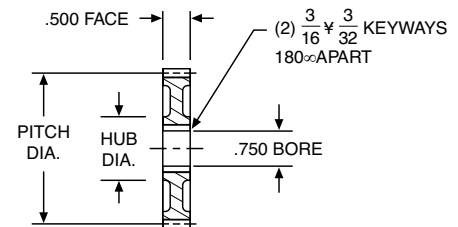
16 Diametral Pitch (Steel & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code | No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code |
|-----------------------------------|------------|----------|----------------|-----------|------------------|------------|----------|----------------|-----------|
| 16 DIAMETRAL PITCH | | | | | | | | | |
| Outside Dia. = Pitch Dia. + .125" | | | | | | | | | |
| STEEL | | | | | CAST IRON | | | | |
| 20 | 1.250 | | GB20 | 10100 | 76 | 4.750 | | GB76B | 11012 |
| 21 | 1.313 | | GB21 | 10102 | 77 | 4.813 | | GB77B | 11014 |
| 22 | 1.375 | | GB22 | 10104 | 78 | 4.875 | | GB78B | 11016 |
| 23 | 1.438 | | GB23 | 10106 | 79 | 4.938 | | GB79B | 11018 |
| 24 | 1.500 | | GB24 | 10108 | 80 | 5.000 | | GB80B | 11020 |
| 25 | 1.563 | | GB25 | 10110 | 81 | 5.063 | | GB81B | 11022 |
| 26 | 1.625 | | GB26 | 10112 | 82 | 5.125 | | GB82A | 11024 |
| 27 | 1.688 | | GB27 | 10114 | 83 | 5.188 | | GB83A | 11026 |
| 28 | 1.750 | | GB28 | 10116 | 84 | 5.250 | | GB84A | 11028 |
| 29 | 1.813 | | GB29 | 10118 | 85 | 5.313 | | GB85A | 11030 |
| 30 | 1.875 | - | GB30 | 10120 | 86 | 5.375 | | GB86A | 11032 |
| 31 | 1.938 | | GB31 | 10122 | 87 | 5.438 | | GB87A | 11034 |
| 32 | 2.000 | | GB32 | 10124 | 88 | 5.500 | | GB88A | 11036 |
| 33 | 2.063 | | GB33 | 10126 | 89 | 5.563 | | GB89A | 11038 |
| 34 | 2.125 | | GB34 | 10128 | 90 | 5.625 | | GB90A | 11040 |
| 35 | 2.188 | | GB35 | 10130 | 91 | 5.688 | | GB91A | 11042 |
| 36 | 2.250 | | GB36 | 10132 | 92 | 5.750 | | GB92A | 11044 |
| 37 | 2.313 | | GB37 | 10134 | 93 | 5.813 | | GB93A | 11046 |
| 38 | 2.375 | | GB38 | 10136 | 94 | 5.875 | | GB94A | 11048 |
| 39 | 2.438 | | GB39 | 10138 | 95 | 5.938 | | GB95A | 11050 |
| 40 | 2.500 | | GB40 | 10140 | 96 | 6.000 | | GB96A | 11052 |
| CAST IRON | | | | | 97 | 6.063 | | GB97A | 11054 |
| 41 | 2.563 | | GB41B | 10942 | 98 | 6.125 | | GB98A | 11056 |
| 42 | 2.625 | | GB42B | 10944 | 99 | 6.188 | | GB99A | 11058 |
| 43 | 2.688 | | GB43B | 10946 | 100 | 6.250 | | GB100A | 11060 |
| 44 | 2.750 | | GB44B | 10948 | 101 | 6.313 | 1.81 | GB101A | 11062 |
| 45 | 2.913 | | GB45B | 10950 | 102 | 6.375 | | GB102A | 11064 |
| 46 | 2.875 | 1.56 | GB46B | 10952 | 103 | 6.438 | | GB103A | 11066 |
| 47 | 2.938 | | GB47B | 10954 | 104 | 6.500 | | GB104A | 11068 |
| 48 | 3.000 | | GB48B | 10956 | 105 | 6.563 | | GB105A | 11070 |
| 49 | 3.063 | | GB49B | 10958 | 106 | 6.625 | | GB106A | 11072 |
| 50 | 3.125 | | GB50B | 10960 | 107 | 6.688 | | GB107A | 11074 |
| 51 | 3.188 | | GB51B | 10962 | 108 | 6.750 | | GB108A | 11076 |
| 52 | 3.250 | | GB52B | 10964 | 109 | 6.913 | | GB109A | 11078 |
| 53 | 3.313 | | GB53B | 10966 | 110 | 6.975 | | GB110A | 11080 |
| 54 | 3.375 | | GB54B | 10968 | 111 | 6.938 | | GB111A | 11082 |
| 55 | 3.438 | | GB55B | 10970 | 112 | 7.000 | | GB112A | 11084 |
| 56 | 3.500 | | GB56B | 10972 | 113 | 7.063 | | GB113A | 11086 |
| 57 | 3.563 | | GB57B | 10974 | 114 | 7.125 | | GB114A | 11088 |
| 58 | 3.625 | | GB58B | 10976 | 115 | 7.188 | | GB115A | 11090 |
| 59 | 3.688 | | GB59B | 10978 | 116 | 7.250 | | GB116A | 11092 |
| 60 | 3.750 | | GB60B | 10980 | 117 | 7.313 | | GB117A | 11094 |
| 61 | 3.813 | | GB61B | 10982 | 118 | 7.375 | | GB118A | 11096 |
| 62 | 3.875 | | GB62B | 10984 | 119 | 7.438 | | GB119A | 11098 |
| 63 | 3.938 | | GB63B | 10986 | 120 | 7.500 | | GB120A | 11100 |
| 64 | 4.000 | 1.81 | GB64B | 10988 | 121 | 7.563 | | GB121A | 11102 |
| 65 | 4.063 | | GB65B | 10990 | 122 | 7.625 | | GB122A | 11104 |
| 66 | 4.125 | | GB66B | 10992 | 123 | 7.688 | | GB123A | 11106 |
| 67 | 4.188 | | GB67B | 10994 | 124 | 7.750 | | GB124A | 11108 |
| 68 | 4.250 | | GB68B | 10996 | 125 | 7.813 | | GB125A | 11110 |
| 69 | 4.313 | | GB69B | 10998 | 126 | 7.875 | | GB126A | 11112 |
| 70 | 4.375 | | GB70B | 11000 | 127 | 7.938 | | GB127A | 11114 |
| 71 | 4.438 | | GB71B | 11002 | 128 | 8.000 | | GB128A | 11116 |
| 72 | 4.500 | | GB72B | 11004 | | | | | |
| 73 | 4.563 | | GB73B | 11006 | | | | | |
| 74 | 4.625 | | GB74B | 11008 | | | | | |
| 75 | 4.688 | | GB75B | 11010 | | | | | |

| | |
|--------------------|--------------------|
| Style See Page 323 | 20 - 79 Teeth - A |
| | 80 - 128 Teeth - C |

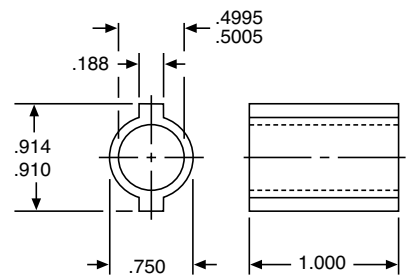


REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 52
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

COMPOUND STEEL BUSHINGS

These steel bushings have 2 keys, 180° apart and fit bores of GB series change gears with a slip fit. They are used to mount two gears on one shaft (or stud) and drive one from the other.



ORDER BY CATALOG NUMBER OR ITEM CODE

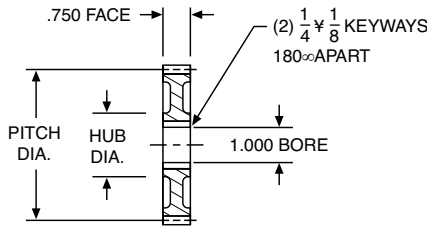
| CATALOG NO. | ITEM CODE |
|-------------|-----------|
| GBB16A | 18502 |

Change Gears

12 Diametral Pitch (Steel & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A

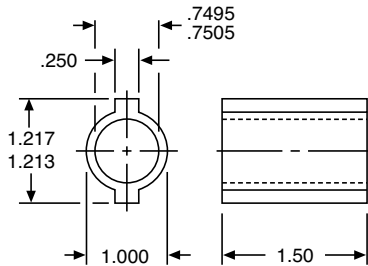


REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 53
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

Compound Steel Bushings

These steel bushings have 2 keys, 180° apart and fit bores of GD series change gears with a slip fit. They are used to mount two gears on one shaft (or stud) and drive one from the other.



ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code | No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code |
|-----------------------------------|------------|----------|----------------|-----------|------------------|------------|----------|----------------|-----------|
| 12 DIAMETRAL PITCH | | | | | | | | | |
| STEEL | | | | | CAST IRON | | | | |
| Outside Dia. = Pitch Dia. + .167" | | | | | | | | | |
| 20 | 1.667 | | GD20 | 10142 | 75 | 6.250 | | GD75A | 11194 |
| 21 | 1.750 | | GD21 | 10144 | 76 | 6.333 | | GD76A | 11196 |
| 22 | 1.833 | | GD22 | 10146 | 77 | 6.417 | | GD77A | 11198 |
| 23 | 1.917 | | GD23 | 10148 | 78 | 6.500 | | GD78A | 11200 |
| 24 | 2.000 | | GD24 | 10150 | 79 | 6.583 | 2.19 | GD79A | 11202 |
| 25 | 2.083 | | GD25 | 10152 | 80 | 6.667 | | GD80A | 11204 |
| 26 | 2.167 | | GD26 | 10154 | 81 | 6.750 | | GD81A | 11206 |
| 27 | 2.250 | | GD27 | 10156 | 82 | 6.833 | | GD82A | 11208 |
| 28 | 2.333 | | GD28 | 10158 | 83 | 6.917 | | GD83A | 11210 |
| 29 | 2.417 | | GD29 | 10160 | 84 | 7.000 | | GD84A | 11212 |
| 30 | 2.500 | | GD30 | 10162 | 85 | 7.083 | | GD85A | 11214 |
| 31 | 2.583 | | GD31 | 10164 | 86 | 7.167 | | GD86A | 11216 |
| 32 | 2.667 | | GD32 | 10166 | 87 | 7.250 | | GD87A | 11218 |
| 33 | 2.750 | | GD33 | 10168 | 88 | 7.333 | | GD88A | 11220 |
| 34 | 2.833 | | GD34 | 10170 | 89 | 7.417 | | GD89A | 11222 |
| 35 | 2.917 | | GD35 | 10172 | 90 | 7.500 | | GD90A | 11224 |
| 36 | 3.000 | | GD36 | 10174 | 91 | 7.583 | | GD91A | 11226 |
| CAST IRON | | | | | 92 | 7.667 | | GD92A | 11228 |
| 37 | 3.083 | | GD37B | 11118 | 93 | 7.750 | | GD93A | 11230 |
| 38 | 3.167 | | GD38B | 11120 | 94 | 7.833 | | GD94A | 11232 |
| 39 | 3.250 | | GD39B | 11122 | 95 | 7.917 | | GD95A | 11234 |
| 40 | 3.333 | | GD40B | 11124 | 96 | 8.000 | | GD96A | 11236 |
| 41 | 3.417 | | GD41B | 11126 | 97 | 8.083 | | GD97A | 11238 |
| 42 | 3.500 | 1.76 | GD42B | 11128 | 98 | 8.167 | | GD98A | 11240 |
| 43 | 3.583 | | GD43B | 11130 | 99 | 8.250 | | GD99A | 11242 |
| 44 | 3.667 | | GD44B | 11132 | 100 | 8.333 | 2.44 | GD100A | 11244 |
| 45 | 3.750 | | GD45B | 11134 | 101 | 8.417 | | GD101A | 11246 |
| 46 | 3.833 | | GD46B | 11136 | 102 | 8.500 | | GD102A | 11248 |
| 47 | 3.917 | | GD47B | 11138 | 103 | 8.583 | | GD103A | 11250 |
| 48 | 4.000 | | GD48B | 11140 | 104 | 8.667 | | GD104A | 11252 |
| 49 | 4.083 | | GD49B | 11142 | 105 | 8.750 | | GD105A | 11254 |
| 50 | 4.167 | | GD50B | 11144 | 106 | 8.833 | | GD106A | 11256 |
| 51 | 4.250 | | GD51B | 11146 | 107 | 8.917 | | GD107A | 11258 |
| 52 | 4.333 | | GD52B | 11148 | 108 | 9.000 | | GD108A | 11260 |
| 53 | 4.417 | | GD53B | 11150 | 109 | 9.083 | | GD109A | 11262 |
| 54 | 4.500 | | GD54B | 11152 | 110 | 9.167 | | GD110A | 11264 |
| 55 | 4.583 | | GD55B | 11154 | 111 | 9.250 | | GD111A | 11266 |
| 56 | 4.667 | | GD56B | 11156 | 112 | 9.333 | | GD112A | 11268 |
| 57 | 4.750 | | GD57B | 11158 | 113 | 9.417 | | GD113A | 11270 |
| 58 | 4.833 | | GD58B | 11160 | 114 | 9.500 | | GD114A | 11272 |
| 59 | 4.917 | | GD59B | 11162 | 115 | 9.583 | | GD115A | 11274 |
| 60 | 5.000 | 2.19 | GD60B | 11164 | 116 | 9.667 | | GD116A | 11276 |
| 61 | 5.083 | | GD61B | 11166 | 117 | 9.750 | | GD117A | 11278 |
| 62 | 5.167 | | GD62B | 11168 | 118 | 9.833 | | GD118A | 11280 |
| 63 | 5.250 | | GD63A | 11170 | 119 | 9.917 | | GD119A | 11282 |
| 64 | 5.333 | | GD64A | 11172 | 120 | 10.000 | | GD120A | 11284 |
| 65 | 5.417 | | GD65A | 11174 | | | | | |
| 66 | 5.500 | | GD66A | 11176 | | | | | |
| 67 | 5.583 | | GD67A | 11178 | | | | | |
| 68 | 5.667 | | GD68A | 11180 | | | | | |
| 69 | 5.750 | | GD69A | 11182 | | | | | |
| 70 | 5.833 | | GD70A | 11184 | | | | | |
| 71 | 5.917 | | GD71A | 11186 | | | | | |
| 72 | 6.000 | | GD72A | 11188 | | | | | |
| 73 | 6.083 | | GD73A | 11190 | | | | | |
| 74 | 6.167 | | GD74A | 11192 | | | | | |

| | |
|--------------------|---|
| Style See Page 323 | 20 – 60 Teeth – A 61 – 120 Teeth – C |
|--------------------|---|

ORDER BY CATALOG NUMBER OR ITEM CODE

| CATALOG NO. | ITEM CODE |
|-------------|-----------|
| GDB12A | 18504 |

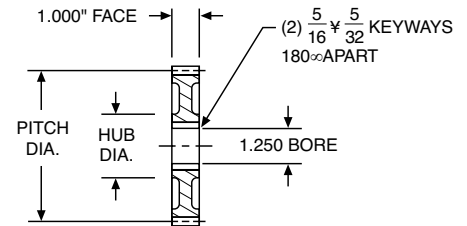
10 Diametral Pitch (Steel & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code | No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code |
|----------------------------------|------------|----------|----------------|-----------|------------------|------------|----------|----------------|-----------|
| 10 DIAMETRAL PITCH | | | | | | | | | |
| Outside Dia. = Pitch Dia. +.200" | | | | | | | | | |
| STEEL | | | | | CAST IRON | | | | |
| 20 | 2.000 | | GF20 | 10176 | 61 | 6.100 | | GF61A | 11346 |
| 21 | 2.100 | | GF21 | 10178 | 62 | 6.200 | | GF62A | 11348 |
| 22 | 2.200 | | GF22 | 10180 | 63 | 6.300 | | GF63A | 11350 |
| 23 | 2.300 | | GF23 | 10182 | 64 | 6.400 | | GF64A | 11352 |
| 24 | 2.400 | | GF24 | 10184 | 65 | 6.500 | | GF65A | 11354 |
| 25 | 2.500 | - | GF25 | 10186 | 66 | 6.600 | | GF66A | 11356 |
| 26 | 2.600 | | GF26 | 10188 | 67 | 6.700 | | GF67A | 11358 |
| 27 | 2.700 | | GF27 | 10190 | 68 | 6.800 | | GF68A | 11360 |
| 28 | 2.800 | | GF28 | 10192 | 69 | 6.900 | | GF69A | 11362 |
| 29 | 2.900 | | GF29 | 10194 | 70 | 7.000 | | GF70A | 11364 |
| 30 | 3.000 | | GF30 | 10196 | 71 | 7.100 | | GF71A | 11366 |
| CAST IRON | | | | | 72 | 7.200 | | GF72A | 11368 |
| 31 | 3.100 | | GF31B | 11286 | 73 | 7.300 | | GF73A | 11370 |
| 32 | 3.200 | | GF32B | 11288 | 74 | 7.400 | | GF74A | 11372 |
| 33 | 3.300 | | GF33B | 11290 | 75 | 7.500 | | GF75A | 11374 |
| 34 | 3.400 | | GF34B | 11292 | 76 | 7.600 | | GF76A | 11376 |
| 35 | 3.500 | | GF35B | 11294 | 77 | 7.700 | | GF77A | 11378 |
| 36 | 3.600 | 1.94 | GF36B | 11296 | 78 | 7.800 | | GF78A | 11380 |
| 37 | 3.700 | | GF37B | 11298 | 79 | 7.900 | | GF79A | 11382 |
| 38 | 3.800 | | GF38B | 11300 | 80 | 8.000 | | GF80A | 11384 |
| 39 | 3.900 | | GF39B | 11302 | 81 | 8.100 | 3.12 | GF81A | 11386 |
| 40 | 4.000 | | GF40B | 11304 | 82 | 8.200 | | GF82A | 11388 |
| 41 | 4.100 | | GF41B | 11306 | 83 | 8.300 | | GF83A | 11390 |
| 42 | 4.200 | | GF42B | 11308 | 84 | 8.400 | | GF84A | 11392 |
| 43 | 4.300 | | GF43B | 11310 | 85 | 8.500 | | GF85A | 11394 |
| 44 | 4.400 | | GF44B | 11312 | 86 | 8.600 | | GF86A | 11396 |
| 45 | 4.500 | | GF45B | 11314 | 87 | 8.700 | | GF87A | 11398 |
| 46 | 4.600 | | GF46B | 11316 | 88 | 8.800 | | GF88A | 11400 |
| 47 | 4.700 | | GF47B | 11318 | 89 | 8.900 | | GF89A | 11402 |
| 48 | 4.800 | 2.68 | GF48B | 11320 | 90 | 9.000 | | GF90A | 11404 |
| 49 | 4.900 | | GF49B | 11322 | 91 | 9.100 | | GF91A | 11406 |
| 50 | 5.000 | | GF50B | 11324 | 92 | 9.200 | | GF92A | 11408 |
| 51 | 5.100 | | GF51B | 11326 | 93 | 9.300 | | GF93A | 11410 |
| 52 | 5.200 | | GF52A | 11328 | 94 | 9.400 | | GF94A | 11412 |
| 53 | 5.300 | | GF53A | 11330 | 95 | 9.500 | | GF95A | 11414 |
| 54 | 5.400 | | GF54A | 11332 | 96 | 9.600 | | GF96A | 11416 |
| 55 | 5.500 | | GF55A | 11334 | 97 | 9.700 | | GF97A | 11418 |
| 56 | 5.600 | | GF56A | 11336 | 98 | 9.800 | | GF98A | 11420 |
| 57 | 5.700 | 3.12 | GF57A | 11338 | 99 | 9.900 | | GF99A | 11422 |
| 58 | 5.800 | | GF58A | 11340 | 100 | 10.000 | | GF100A | 11424 |
| 59 | 5.900 | | GF59A | 11342 | | | | | |
| 60 | 6.000 | | GF60A | 11344 | | | | | |

| | |
|-------|--------------------|
| Style | 20 - 60 Teeth - A |
| See | 61 - 66 Teeth - B |
| Page | 67 - 100 Teeth - C |
| 323 | |

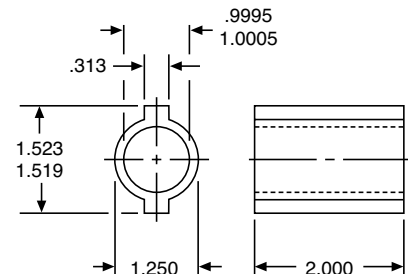


REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 54
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

Compound Steel Bushings

These steel bushings have 2 keys, 180° apart and fit bores of GF series change gears with a slip fit. They are used to mount two gears on one shaft (or stud) and drive one from the other.



ORDER BY CATALOG NUMBER
OR ITEM CODE

| CATALOG NO. | ITEM CODE |
|-------------|-----------|
| GFB10A | 18506 |

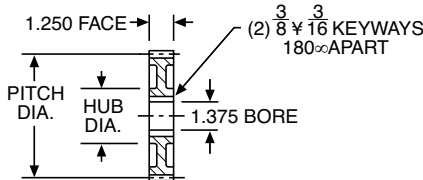
Change Gears

8 Diametral Pitch (Steel & Cast Iron)

14-1/2° Pressure Angle (will not operate with 20° spurs)



A

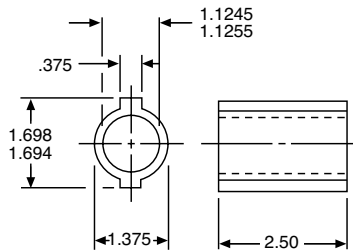


REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 55
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

Compound Steel Bushings

These steel bushings have 2 keys, 180° apart and fit bores of GH series change gears with a slip fit. They are used to mount two gears on one shaft (or stud) and drive one from the other.



ORDER BY CATALOG NUMBER OR ITEM CODE

| CATALOG NO. | ITEM CODE |
|-------------|-----------|
| GHB8A | 18508 |

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code | No. of Teeth | Pitch Dia. | Hub Dia. | Catalog Number | Item Code |
|-----------------------------------|------------|----------|----------------|-----------|------------------|------------|----------|----------------|-----------|
| 8 DIAMETRAL PITCH | | | | | | | | | |
| Outside Dia. = Pitch Dia. + .250" | | | | | | | | | |
| STEEL | | | | | CAST IRON | | | | |
| 20 | 2.500 | — | GH20 | 10198 | 61 | 7.625 | | GH61A | 11498 |
| 21 | 2.625 | — | GH21 | 10200 | 62 | 7.750 | | GH62A | 11500 |
| 22 | 2.750 | — | GH22 | 10202 | 63 | 7.875 | | GH63A | 11502 |
| 23 | 2.875 | — | GH23 | 10204 | 64 | 8.000 | | GH64A | 11504 |
| 24 | 3.000 | — | GH24 | 10206 | 65 | 8.125 | | GH65A | 11506 |
| CAST IRON | | | | | | | | | |
| 25 | 3.125 | 2.06 | GH25B | 11426 | 66 | 8.250 | 3.25 | GH66A | 11508 |
| 26 | 3.250 | | GH26B | 11428 | 67 | 8.375 | | GH67A | 11510 |
| 27 | 3.375 | | GH27B | 11430 | 68 | 8.500 | | GH68A | 11512 |
| 28 | 3.500 | | GH28B | 11432 | 69 | 8.625 | | GH69A | 11514 |
| 29 | 3.625 | | GH29B | 11434 | 70 | 8.750 | | GH70A | 11516 |
| 30 | 3.750 | | GH30B | 11436 | 71 | 8.875 | | GH71A | 11518 |
| 31 | 3.875 | | GH31B | 11438 | 72 | 9.000 | | GH72A | 11520 |
| 32 | 4.000 | | GH32B | 11440 | 73 | 9.125 | | GH73A | 11522 |
| 33 | 4.125 | | GH33B | 11442 | 74 | 9.250 | | GH74A | 11524 |
| 34 | 4.250 | | GH34B | 11444 | 75 | 9.375 | | GH75A | 11526 |
| 35 | 4.375 | GH35B | 11446 | 76 | 9.500 | GH76A | 11528 | | |
| 36 | 4.500 | GH36B | 11448 | 77 | 9.625 | GH77A | 11530 | | |
| 37 | 4.625 | GH37B | 11450 | 78 | 9.750 | GH78A | 11532 | | |
| 38 | 4.750 | GH38B | 11452 | 79 | 9.875 | GH79A | 11534 | | |
| 39 | 4.875 | GH39B | 11454 | 80 | 10.000 | GH80A | 11536 | | |
| 40 | 5.000 | 2.69 | GH40B | 11456 | 81 | 10.125 | 3.75 | GH81A | 11538 |
| 41 | 5.125 | | GH41A | 11458 | 82 | 10.250 | | GH82A | 11540 |
| 42 | 5.250 | | GH42A | 11460 | 83 | 10.375 | | GH83A | 11542 |
| 43 | 5.375 | | GH43A | 11462 | 84 | 10.500 | | GH84A | 11544 |
| 44 | 5.500 | | GH44A | 11464 | 85 | 10.625 | | GH85A | 11546 |
| 45 | 5.625 | | GH45A | 11466 | 86 | 10.750 | | GH86A | 11548 |
| 46 | 5.750 | | GH46A | 11468 | 87 | 10.875 | | GH87A | 11550 |
| 47 | 5.875 | | GH47A | 11470 | 88 | 11.000 | | GH88A | 11552 |
| 48 | 6.000 | | GH48A | 11472 | 89 | 11.125 | | GH89A | 11554 |
| 49 | 6.125 | | GH49A | 11474 | 90 | 11.250 | | GH90A | 11556 |
| 50 | 6.250 | 3.12 | GH50A | 11476 | 91 | 11.375 | 3.75 | GH91A | 11558 |
| 51 | 6.375 | | GH51A | 11478 | 92 | 11.500 | | GH92A | 11560 |
| 52 | 6.500 | | GH52A | 11480 | 93 | 11.625 | | GH93A | 11562 |
| 53 | 6.625 | | GH53A | 11482 | 94 | 11.750 | | GH94A | 11564 |
| 54 | 6.750 | | GH54A | 11484 | 95 | 11.875 | | GH95A | 11566 |
| 55 | 6.875 | | GH55A | 11486 | 96 | 12.000 | | GH96A | 11568 |
| 56 | 7.000 | | GH56A | 11488 | 97 | 12.125 | | GH97A | 11570 |
| 57 | 7.125 | | GH57A | 11490 | 98 | 12.250 | | GH98A | 11572 |
| 58 | 7.250 | | GH58A | 11492 | 99 | 12.375 | | GH99A | 11574 |
| 59 | 7.375 | | GH59A | 11494 | 100 | 12.500 | | GH100A | 11576 |
| 60 | 7.500 | GH60A | 11496 | | | | | | |

| | |
|-------|--------------------|
| Style | 20 – 49 Teeth – A |
| See | 50 – 57 Teeth – B |
| Page | 58 – 68 Teeth – C |
| 323 | 69 – 100 Teeth – D |

Stem Pinions

20 through 6 Diametral Pitch (Steel)

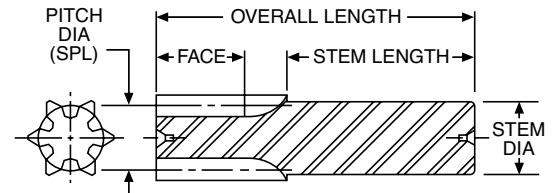
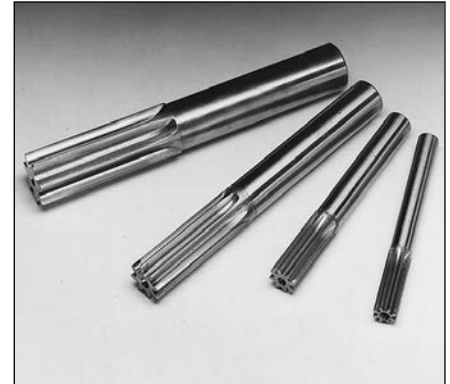
14-1/2° Pressure Angle (will not operate with 20° spurs)

Boston Gear Stem Pinions feature small numbers of teeth cut integral on a steel shaft. Undercutting of the teeth is minimized by the use of special enlarged Pitch Diameters. When run with standard stock spur gears, they provide high ratios not normally found in spur gear drives. They are not intended to be operated with each other, with internal gears or with 11 tooth pinions, but will run satisfactorily with all other standard 14½° Pressure Angle spur gears.

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia.* | Stem Dia. | Stem Length | Overall Length | Catalog Number | Item Code |
|---|-------------|-----------|-------------|----------------|----------------|-----------|
| 20 DIAMETRAL PITCH FACE = 1.125" | | | | | | |
| 5 | .287 | .375 | 2.875 | 4.500 | NAR5 | 09654 |
| 6 | .335 | .375 | 2.875 | 4.500 | NAR6 | 09656 |
| 8 | .430 | .500 | 3.375 | 5.000 | NAR8 | 09658 |
| 10 | .525 | .625 | 3.375 | 5.000 | NAR10 | 09660 |
| 16 DIAMETRAL PITCH FACE = 1.375" | | | | | | |
| 5 | .359 | .4375 | 3.125 | 5.000 | NBR5 | 09696 |
| 6 | .419 | .500 | 3.125 | 5.000 | NBR6 | 09698 |
| 8 | .537 | .625 | 3.375 | 5.250 | NBR8 | 09700 |
| 10 | .656 | .750 | 3.375 | 5.250 | NBR10 | 09702 |
| 12 DIAMETRAL PITCH FACE = 2.000" | | | | | | |
| 5 | .479 | .625 | 4.375 | 7.250 | NDR5 | 09734 |
| 6 | .558 | .625 | 4.375 | 7.250 | NDR6 | 09736 |
| 7 | .637 | .750 | 4.375 | 7.250 | NDR7 | 09738 |
| 8 | .716 | .875 | 4.375 | 7.250 | NDR8 | 09740 |
| 10 | .875 | 1.000 | 4.375 | 7.250 | NDR10 | 09742 |
| 10 DIAMETRAL PITCH FACE = 2.250" | | | | | | |
| 5 | .575 | .750 | 4.375 | 7.500 | NFR5 | 09768 |
| 6 | .670 | .750 | 4.375 | 7.500 | NFR6 | 09770 |
| 7 | .765 | .875 | 4.375 | 7.500 | NFR7 | 09772 |
| 8 | .860 | 1.000 | 4.375 | 7.500 | NFR8 | 09774 |
| 10 | 1.050 | 1.125 | 4.375 | 7.500 | NFR10 | 09776 |
| 8 DIAMETRAL PITCH FACE = 2.500" | | | | | | |
| 5 | .718 | .875 | 4.375 | 7.750 | NHR5 | 09796 |
| 6 | .837 | 1.000 | 4.375 | 7.750 | NHR6 | 09798 |
| 7 | .956 | 1.125 | 4.375 | 7.750 | NHR7 | 09800 |
| 8 | 1.075 | 1.125 | 4.375 | 7.750 | NHR8 | 09802 |
| 10 | 1.312 | 1.500 | 4.375 | 7.750 | NHR10 | 09804 |
| 6 DIAMETRAL PITCH FACE = 3.000" | | | | | | |
| 5 | .958 | 1.250 | 4.375 | 8.500 | NJR5 | 09822 |
| 6 | 1.116 | 1.375 | 4.375 | 8.500 | NJR6 | 09824 |
| 8 | 1.433 | 1.625 | 5.000 | 9.000 | NJR8 | 09826 |
| 10 | 1.750 | 2.000 | 5.375 | 9.500 | NJR10 | 09828 |

*Used for calculating Center Distance, not ratio.



STANDARD TOLERANCES

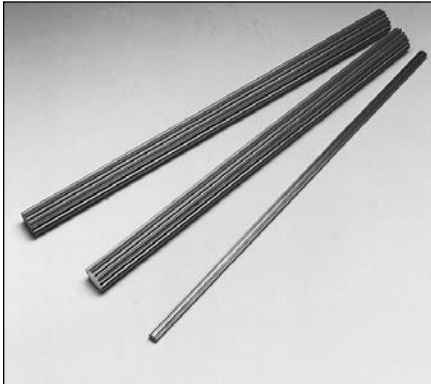
| DIMENSION | TOLERANCE |
|-----------|--------------------|
| STEM DIA. | All +.0000 - .0015 |

Drawn Pinion Wire

48, 32 and 24 Diametral Pitch (Brass & Steel)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A



Drawn Pinion Wire, teeth not generated. All Pinion Wire is stocked in 4 foot pieces. Other lengths can be furnished on special order. Price on application.

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

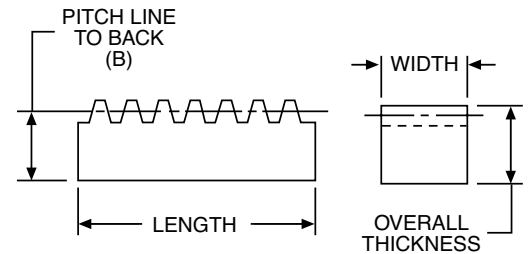
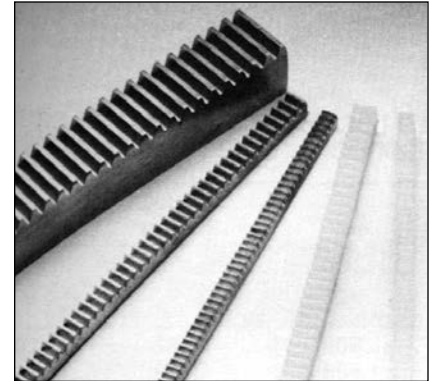
| No. of Teeth | Pitch Dia. | Catalog Number | Item Code |
|------------------------|------------|----------------|-----------|
| 48 | | | |
| DIAMETRAL PITCH | | | |
| BRASS | | | |
| 6 | .125 | G24 | 36900 |
| 8 | .167 | G25 | 36902 |
| 9 | .188 | G26 | 36904 |
| 10 | .208 | G27 | 36906 |
| 12 | .250 | G29 | 36908 |
| 14 | .292 | G30 | 36910 |
| 15 | .312 | G31 | 36912 |
| 16 | .333 | G32 | 36914 |
| 18 | .375 | G33 | 36916 |
| STEEL | | | |
| 6 | .125 | GS24 | 36954 |
| 8 | .167 | GS25 | 36956 |
| 9 | .188 | GS26 | 36958 |
| 10 | .208 | GS27 | 36960 |
| 12 | .250 | GS29 | 36962 |
| 14 | .292 | GS30 | 36964 |
| 15 | .312 | GS31 | 36966 |
| 16 | .333 | GS32 | 36968 |
| 18 | .375 | GS33 | 36970 |
| 32 | | | |
| DIAMETRAL PITCH | | | |
| BRASS | | | |
| 6 | .188 | G39 | 36918 |
| 8 | .250 | G40 | 36920 |
| 9 | .281 | G41 | 36922 |
| 10 | .312 | G42 | 36924 |
| 11 | .344 | G43 | 36926 |
| 12 | .375 | G44 | 36928 |
| 14 | .438 | G45 | 36930 |
| 15 | .469 | G46 | 36932 |
| 16 | .500 | G47 | 36934 |
| STEEL | | | |
| 6 | .188 | GS39 | 36972 |
| 8 | .250 | GS40 | 36974 |
| 9 | .281 | GS41 | 36976 |
| 10 | .312 | GS42 | 36978 |
| 11 | .344 | GS43 | 36980 |
| 12 | .375 | GS44 | 36982 |
| 14 | .438 | GS45 | 36984 |
| 15 | .469 | GS46 | 36986 |
| 16 | .500 | GS47 | 36988 |
| 24 | | | |
| DIAMETRAL PITCH | | | |
| BRASS | | | |
| 6 | .250 | G54 | 36936 |
| 9 | .375 | G56 | 36940 |
| 10 | .417 | G57 | 36942 |
| 12 | .500 | G59 | 36946 |
| 14 | .583 | G60 | 36948 |
| 15 | .625 | G61 | 36950 |
| 16 | .667 | G62 | 36952 |
| STEEL | | | |
| 6 | .250 | GS54 | 36990 |
| 8 | .333 | GS55 | 36992 |
| 9 | .375 | GS56 | 36994 |
| 10 | .417 | GS57 | 36996 |
| 11 | .458 | GS58 | 36998 |
| 12 | .500 | GS59 | 37000 |
| 14 | .583 | GS60 | 37002 |
| 15 | .625 | GS61 | 37004 |
| 16 | .667 | GS62 | 37006 |

48 through 3 Diametral Pitch (Nylon & Steel) 14-1/2° Pressure Angle (will not operate with 20° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| Overall Thickness | Pitch Line to Back (B) | Nominal Length (Feet) | Mating Spur Gear Page # | Nylon | | Steel | |
|---------------------------|------------------------|-----------------------|-------------------------|----------------------------|-----------|----------------|-----------|
| | | | | Catalog Number | Item Code | Catalog Number | Item Code |
| 48 DIAMETRAL PITCH | | | | FACE WIDTH = .125" | | | |
| .125 | .104 | 1/2 | 18 | GP586-1 | 53899 | - | - |
| | | | | - | - | L501-2 | 12726 |
| 32 DIAMETRAL PITCH | | | | FACE WIDTH = .188" | | | |
| .188 | .156 | 1/2 | 18, 19 | GP583-1 | 53900 | - | - |
| | | 2/4 | | - | - | L503-2 | 12728 |
| | | | | - | - | L503-4 | 12730 |
| 24 DIAMETRAL PITCH | | | | FACE WIDTH = .250" | | | |
| .250 | .208 | 1/2 | 19, 20 | GP579-1 | 53901 | - | - |
| | | 2/4 | | - | - | L505-2 | 12732 |
| | | | | - | - | L505-4 | 12734 |
| 20 DIAMETRAL PITCH | | | | FACE WIDTH = .375" | | | |
| .375 | .325 | 2/4 | 20, 21 | - | - | L509-2 | 12736 |
| | | 4/6 | | - | - | L509-4 | 12738 |
| | | | | - | - | L509-6 | 12740 |
| 16 DIAMETRAL PITCH | | | | *FACE WIDTH = .313" | | | |
| .313 | .250 | 2/4 | 21, 22 | - | - | L510-2 | 12742 |
| | | | | - | - | L510-4 | 12744 |
| 16 DIAMETRAL PITCH | | | | *FACE WIDTH = .500" | | | |
| .500 | .438 | 4/6 | 21, 22 | - | - | L512-4 | 12746 |
| | | | | - | - | L512-6 | 12748 |
| 12 DIAMETRAL PITCH | | | | FACE WIDTH = .750" | | | |
| .500 | .417 | 4/6 | 22, 23 | - | - | L514-4 | 12750 |
| | | | | - | - | L514-6 | 12752 |
| .750 | .667 | 4/6 | | - | - | L515-4 | 12754 |
| | | | | - | - | L515-6 | 12756 |
| 10 DIAMETRAL PITCH | | | | FACE WIDTH = 1.000" | | | |
| .625 | .525 | 4/6 | 23, 24 | - | - | L516-4 | 37324 |
| | | | | - | - | L516-6 | 37326 |
| 1.000 | .900 | 4/6 | | - | - | L517-4 | 37328 |
| | | | | - | - | L517-6 | 37330 |
| 8 DIAMETRAL PITCH | | | | FACE WIDTH = 1.250" | | | |
| .750 | .625 | 4/6 | 24, 25 | - | - | L518-4 | 37332 |
| | | | | - | - | L518-6 | 37334 |
| 1.250 | 1.125 | 4/6 | | - | - | L519-4 | 37336 |
| | | | | - | - | L519-6 | 37338 |
| 6 DIAMETRAL PITCH | | | | FACE WIDTH = 1.500" | | | |
| 1.000 | .833 | 4/6 | 25, 26 | - | - | L520-4 | 37340 |
| | | | | - | - | L520-6 | 37342 |
| 1.500 | 1.333 | 4/6 | | - | - | L521-4 | 37344 |
| | | | | - | - | L521-6 | 37346 |
| 5 DIAMETRAL PITCH | | | | FACE WIDTH = 1.750" | | | |
| 1.250 | 1.050 | 4/6 | 26 | - | - | L522-4 | 37348 |
| | | | | - | - | L522-6 | 37350 |
| 4 DIAMETRAL PITCH | | | | FACE WIDTH = 2.000" | | | |
| 1.500 | 1.250 | 4/6 | 27 | - | - | L523-4 | 37352 |
| | | | | - | - | L523-6 | 37354 |
| 3 DIAMETRAL PITCH | | | | FACE WIDTH = 3.000" | | | |
| 1.500 | 1.167 | 4/6 | 27 | - | - | L524-4 | 37356 |
| | | | | - | - | L524-6 | 37358 |

*Face Width of L512-4 and L512-6 = 1/2".

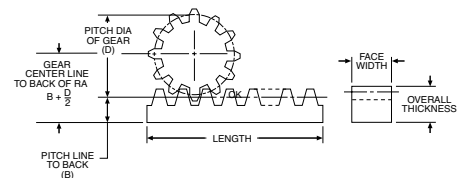


STANDARD TOLERANCES†

| DIMENSION | TOLERANCE |
|------------|-------------------------|
| LENGTH† | All + 1.00 - .000 |
| FACE WIDTH | 1/8 - 3/4 + .000 - .002 |
| | 1 - 1-1/2 + .000 - .003 |
| | 1-3/4 - 2 + .000 - .004 |
| | 3 + .000 - .006 |

†Ends not machined. Tolerance allows for cutting and matching. Nylon Rack is molded in proper lengths to permit end to end butting without interruption of tooth spacing.

‡Steel only.



REFERENCE PAGES

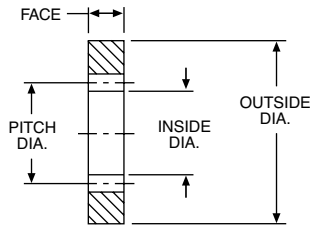
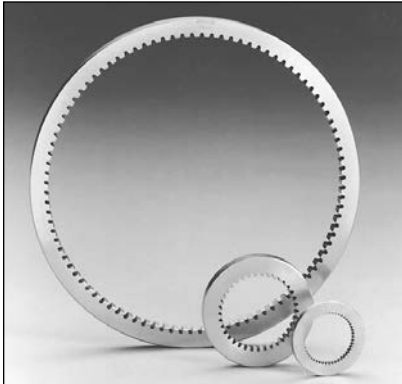
Alterations — 322
Lubrication — 322
Materials — 323

Internal Gears

48 through 16 Diametral Pitch (Brass)

14-1/2° Pressure Angle (will not operate with 20° spurs)

A

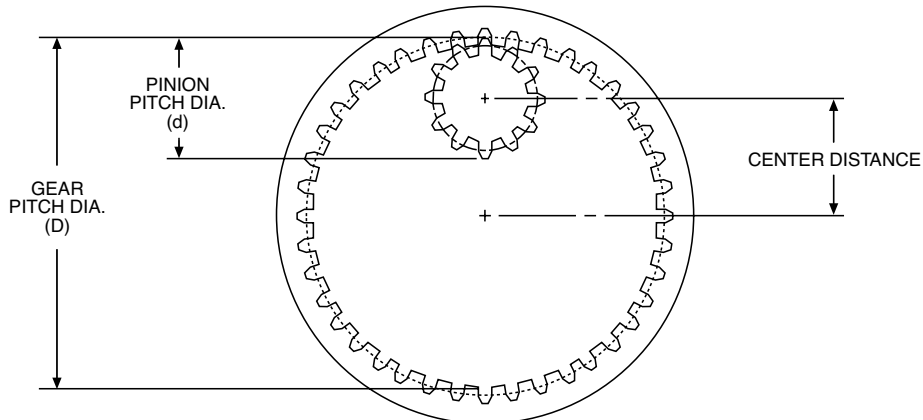


STANDARD TOLERANCES

| DIMENSION | | TOLERANCE | |
|-----------|----------|-----------|--------------|
| I.D. | 48 Pitch | All | +.004 - .000 |
| | 32 Pitch | All | +.005 - .000 |
| | 24 Pitch | All | +.006 - .000 |
| | 16 Pitch | All | +.008 - .000 |
| O.D. | All | | +.001 + .003 |

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | O.D. | I.D. | Catalog Number | Item Code |
|------------------------|------------|-------|-------|----------------|-----------|
| 48 | | | | | |
| DIAMETRAL PITCH | | | | | |
| FACE = .125" | | | | | |
| 48 | 1.000 | 1.500 | .986 | G632 | 12066 |
| 72 | 1.500 | 2.000 | 1.486 | G633 | 12068 |
| 96 | 2.000 | 2.750 | 1.986 | G635 | 12070 |
| 144 | 3.000 | 3.750 | 2.986 | G637 | 12072 |
| 32 | | | | | |
| DIAMETRAL PITCH | | | | | |
| FACE = .188" | | | | | |
| 48 | 1.500 | 2.000 | 1.480 | G664 | 12056 |
| 64 | 2.000 | 2.750 | 1.980 | G666 | 12058 |
| 96 | 3.000 | 3.750 | 2.980 | G668 | 12060 |
| 128 | 4.000 | 4.750 | 3.980 | G669 | 12062 |
| 192 | 6.000 | 6.750 | 5.980 | G670 | 12064 |
| 24 | | | | | |
| DIAMETRAL PITCH | | | | | |
| FACE = .250" | | | | | |
| 36 | 1.500 | 2.250 | 1.474 | G675 | 12046 |
| 48 | 2.000 | 2.750 | 1.974 | G677 | 12048 |
| 72 | 3.000 | 3.750 | 2.974 | G679 | 12050 |
| 96 | 4.000 | 4.750 | 3.974 | G680 | 12052 |
| 144 | 6.000 | 6.750 | 5.974 | G681 | 12054 |
| 16 | | | | | |
| DIAMETRAL PITCH | | | | | |
| FACE = .313" | | | | | |
| 32 | 2.000 | 2.750 | 1.962 | G689 | 12038 |
| 48 | 3.000 | 3.750 | 2.962 | G691 | 12040 |
| 64 | 4.000 | 4.750 | 3.962 | G692 | 12042 |
| 96 | 6.000 | 6.750 | 5.962 | G693 | 12044 |



$$\text{CENTER DISTANCE} = \frac{D-d}{2}$$

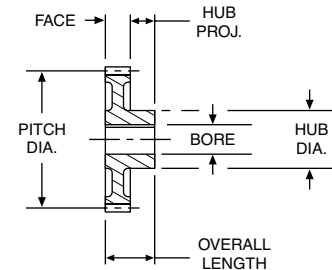
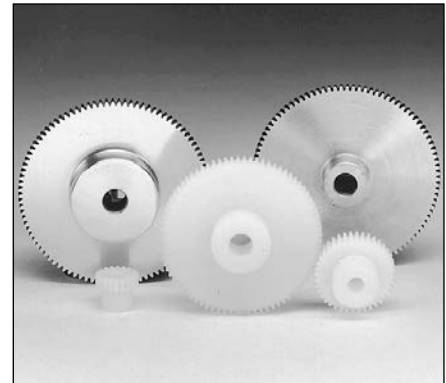
NOTE: The difference in tooth numbers between Gear and Pinion should not be less than 15.

64 and 48 Diametral Pitch (Delrin & Brass)

20° Pressure Angle (will not operate with 14-1/2° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | |
|---------------------------|------------|-------|--------|--------|--------------------|---|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code |
| 64 DIAMETRAL PITCH | | | | | | Face = .125" Outside Dia. = Pitch Dia. + .033" Overall Length = .125" + Hub Proj. | |
| BRASS | | | | | | | |
| 16 | .250 | .125 | .19 | .19 | A | Y6416 | 09482 |
| 18 | .281 | | .22 | | | Y6418 | 09484 |
| 20 | .312 | | .25 | | | Y6420 | 09486 |
| 24 | .375 | | .28 | | | Y6424 | 09488 |
| 28 | .438 | | .34 | | | Y6428 | 09490 |
| 32 | .500 | .1875 | .38 | .25 | | Y6432 | 09492 |
| 36 | .562 | | .44 | | | Y6436 | 09494 |
| 40 | .625 | | .44 | | | Y6440 | 09496 |
| 44 | .688 | | .50 | | | Y6444 | 09498 |
| 48 | .750 | | .50 | | | Y6448 | 09500 |
| 52 | .812 | | .56 | | Y6452 | 09502 | |
| 56 | .875 | | .56 | | Y6456 | 09504 | |
| 60 | .938 | .62 | Y6460 | 09506 | | | |
| 64 | 1.000 | .250 | .62 | .25 | Y6464 | 09508 | |
| 72 | 1.125 | | .69 | | Y6472 | 09510 | |
| 80 | 1.250 | | .69 | | Y6480 | 09512 | |
| 88 | 1.375 | | .75 | | Y6488 | 09514 | |
| 96 | 1.500 | | .75 | | Y6496 | 09516 | |
| 112 | 1.750 | | .81 | | Y64112 | 09518 | |
| 128 | 2.000 | | .88 | | Y64128 | 09520 | |
| 144 | 2.250 | | .3125 | | .75 | .31 | C |
| 160 | 2.500 | .75 | | Y64160 | 09524 | | |
| 192 | 3.000 | .88 | | Y64192 | 09526 | | |
| 48 DIAMETRAL PITCH | | | | | | Face = .125" Outside Dia. = Pitch Dia. + .042" Overall Length = .125" + Hub Proj. | |
| MOLDED DELRIN | | | | | | | |
| 18 | .375 | .1562 | .31 | .25 | A | YP4818 | 53902 |
| 19 | .396 | | .34 | | | YP4819 | 53903 |
| 20 | .417 | | .38 | | | YP4820 | 53904 |
| 21 | .438 | | .41 | | | YP4821 | 53905 |
| 22 | .458 | | .45 | | | YP4822 | 53906 |
| 23 | .479 | | .48 | | | YP4823 | 53907 |
| 24 | .500 | | .50 | | | YP4824 | 53908 |
| 25 | .521 | | | | | YP4825 | 53909 |
| 26 | .542 | | | | | YP4826 | 53910 |
| 27 | .562 | | | | | YP4827 | 53911 |
| 28 | .583 | .1875 | .55 | .25 | YP4828 | 53912 | |
| 29 | .604 | | | | YP4829 | 53913 | |
| 30 | .625 | | | | YP4830 | 53914 | |
| 31 | .646 | | | | YP4831 | 53915 | |
| 32 | .667 | | | | YP4832 | 53916 | |
| 33 | .688 | | | | YP4833 | 53917 | |
| 34 | .708 | | | | YP4834 | 53918 | |
| 35 | .729 | | | | YP4835 | 53919 | |
| 36 | .750 | | YP4836 | 53920 | | | |
| 37 | .771 | | YP4837 | 53921 | | | |
| 38 | .792 | | YP4838 | 53922 | | | |
| 39 | .813 | | YP4839 | 53923 | | | |
| 40 | .833 | | YP4840 | 53924 | | | |
| 42 | .875 | | YP4842 | 53925 | | | |



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



48 D.P.



64 D.P.

REFERENCE PAGES

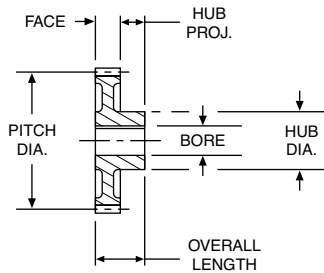
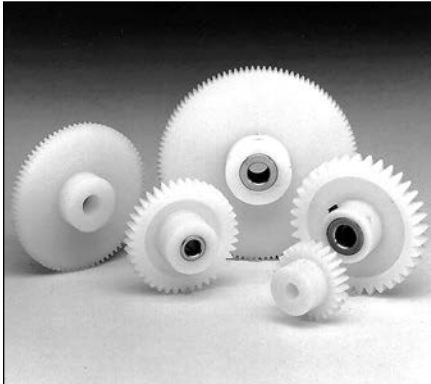
Alterations — 322
Lubrication — 322
Materials — 323

Spur Gears

48 Diametral Pitch (Delrin)

20° Pressure Angle (will not operate with 14-1/2° spurs)

A



STANDARD TOLERANCES*

| DIMENSION | | TOLERANCE |
|-----------|-----|---------------|
| BORE | All | + .001 - .000 |

*Gears with Brass Inserts only.



REFERENCE PAGES

Alterations — 322
Materials — 323

†All YPB gears have setscrews.

| BORE | SETScrew |
|------|----------|
| 1/8 | #2-56 |
| 3/16 | #4-40 |
| 1/4 | #6-32 |

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

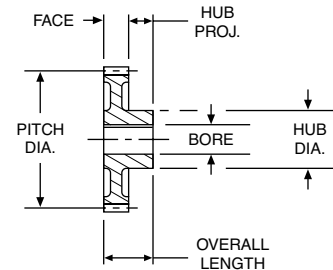
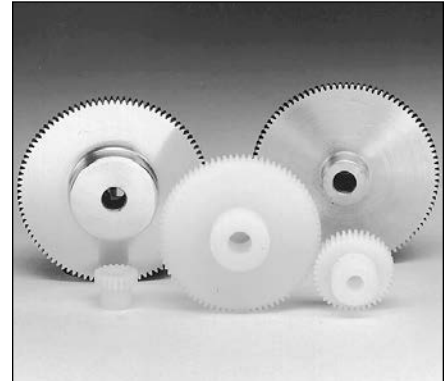
| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew† | | | | | |
|---|------------|----------|-------|-------|--------------------|---|-----------|-----|---|---------|-------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | | | | |
| 48 DIAMETRAL PITCH | | | | | | Face = .125" Outside Dia. = Pitch Dia. + .042" Overall Length = .125" + Hub Proj. | | | | | |
| MOLDED DELRIN | | | | | | | | | | | |
| 44 | .917 | .188 | .55 | .25 | B | YP4844 | 53926 | | | | |
| 45 | .938 | | | | | YP4845 | 53927 | | | | |
| 48 | 1.000 | | | | | YP4848 | 53928 | | | | |
| 52 | 1.083 | | | | | YP4852 | 53929 | | | | |
| 54 | 1.125 | | | | | YP4854 | 53930 | | | | |
| 56 | 1.168 | | | | | YP4856 | 53931 | | | | |
| 60 | 1.250 | | | | | YP4860 | 53932 | | | | |
| 64 | 1.333 | | | | | YP4864 | 53933 | | | | |
| 66 | 1.375 | | | | | YP4866 | 53934 | | | | |
| 72 | 1.500 | | | | | YP4872 | 53935 | | | | |
| 80 | 1.667 | YP4880 | 53936 | | | | | | | | |
| 84 | 1.750 | YP4884 | 53937 | | | | | | | | |
| 96 | 2.000 | YP4896 | 53938 | | | | | | | | |
| 100 | 2.083 | YP48100 | 53939 | | | | | | | | |
| 108 | 2.250 | YP48108 | 53940 | | | | | | | | |
| 120 | 2.500 | YP48120 | 53941 | | | | | | | | |
| MOLDED DELRIN WITH BRASS INSERTS | | | | | | | | | | | |
| 18 | .375 | .125 | .31 | .25 | A | YPB4818 | 53942 | | | | |
| 19 | .396 | | | | | YPB4819 | 53943 | | | | |
| 20 | .417 | | | | | YPB4820 | 53944 | | | | |
| 21 | .438 | | | | | YPB4821 | 53945 | | | | |
| 22 | .458 | | | | | YPB4822 | 53946 | | | | |
| 23 | .479 | | | | | YPB4823 | 53947 | | | | |
| 24 | .500 | | | | | YPB4824 | 53948 | | | | |
| 25 | .521 | YPB4825 | 53949 | | | | | | | | |
| 26 | .542 | .188 | .45 | .25 | A | YPB4826 | 53950 | | | | |
| 27 | .562 | | | | | YPB4827 | 53951 | | | | |
| 28 | .583 | | | | | YPB4828 | 53952 | | | | |
| 29 | .604 | | | | | YPB4829 | 53953 | | | | |
| 30 | .625 | | | | | YPB4830 | 53954 | | | | |
| 31 | .646 | | | | | YPB4831 | 53955 | | | | |
| 32 | .667 | | | | | YPB4832 | 53956 | | | | |
| 33 | .688 | | | | | YPB4833 | 53957 | | | | |
| 34 | .708 | | | | | YPB4834 | 53958 | | | | |
| 35 | .729 | | | | | YPB4835 | 53959 | | | | |
| 36 | .750 | YPB4836 | 53960 | | | | | | | | |
| 37 | .771 | .188 | .55 | .25 | A | YPB4837 | 53961 | | | | |
| 38 | .792 | | | | | YPB4838 | 53962 | | | | |
| 39 | .813 | | | | | YPB4839 | 53963 | | | | |
| 40 | .833 | | | | | YPB4840 | 53964 | | | | |
| 42 | .875 | | | | | YPB4842 | 53965 | | | | |
| 44 | .917 | | | | | YPB4844 | 53966 | | | | |
| 45 | .938 | | | | | YPB4845 | 53967 | | | | |
| 48 | 1.000 | | | | | .250 | .61 | .25 | B | YPB4848 | 53968 |
| 52 | 1.083 | | | | | | | | | YPB4852 | 53969 |
| 54 | 1.125 | | | | | | | | | YPB4854 | 53970 |
| 56 | 1.168 | YPB4856 | 53971 | | | | | | | | |
| 60 | 1.250 | YPB4860 | 53972 | | | | | | | | |
| 64 | 1.333 | YPB4864 | 53973 | | | | | | | | |
| 66 | 1.375 | YPB4866 | 53974 | | | | | | | | |
| 72 | 1.500 | YPB4872 | 53975 | | | | | | | | |
| 80 | 1.667 | YPB4880 | 53976 | | | | | | | | |
| 84 | 1.750 | YPB4884 | 53977 | | | | | | | | |
| 96 | 2.000 | YPB4896 | 53978 | | | | | | | | |
| 100 | 2.083 | YPB48100 | 53979 | | | | | | | | |
| 108 | 2.250 | YPB48108 | 53980 | | | | | | | | |
| 120 | 2.500 | YPB48120 | 53981 | | | | | | | | |

48 and 32 Diametral Pitch (Delrin & Brass)

20° Pressure Angle (will not operate with 14-1/2° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | |
|---------------------------|------------|-------|--------|-------|--------------------|---|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code |
| 48 DIAMETRAL PITCH | | | | | | Face = .125" Outside Dia. = Pitch Dia. + .042" Overall Length = .125" + Hub Proj. | |
| BRASS | | | | | | | |
| 12 | .250 | .125 | .18 | .19 | A | Y4812 | 09444 |
| 15 | .312 | | .22 | | | Y4815 | 09446 |
| 18 | .375 | | .28 | | | Y4818 | 09448 |
| 21 | .438 | | .35 | | | Y4821 | 09450 |
| 24 | .500 | .1875 | .38 | .25 | A | Y4824 | 09452 |
| 27 | .562 | | .44 | | | Y4827 | 09454 |
| 30 | .625 | | .44 | | | Y4830 | 09456 |
| 36 | .750 | | .50 | | | Y4836 | 09458 |
| 42 | .875 | | .57 | | | Y4842 | 09460 |
| 48 | 1.000 | .250 | .63 | .25 | A | Y4848 | 09462 |
| 54 | 1.125 | | .69 | | | Y4854 | 09464 |
| 60 | 1.250 | | .69 | | | Y4860 | 09466 |
| 66 | 1.375 | | .75 | | | Y4866 | 09468 |
| 72 | 1.500 | | .75 | | | Y4872 | 09470 |
| 84 | 1.750 | | .82 | | | Y4884 | 09472 |
| 96 | 2.000 | | .88 | | | Y4896 | 09474 |
| 120 | 2.500 | | .3125 | | | .75 | .31 |
| 144 | 3.000 | .88 | Y48144 | 09478 | | | |
| 192 | 4.000 | 1.00 | Y48192 | 09480 | | | |
| 32 DIAMETRAL PITCH | | | | | | Face = .188" Outside Dia. = Pitch Dia. + .062" Overall Length = .188" + Hub Proj. | |
| MOLDED DELRIN | | | | | | | |
| 12 | .375 | .1562 | .28 | .31 | A | YP3212 | 53982 |
| 14 | .438 | | .31 | | | YP3214 | 53983 |
| 15 | .469 | | .31 | | | YP3215 | 53984 |
| 16 | .500 | | .34 | | | YP3216 | 53985 |
| 18 | .562 | | .34 | | | YP3218 | 53986 |
| 20 | .625 | .1875 | .47 | .31 | A | YP3220 | 53987 |
| 22 | .688 | | .50 | | | YP3222 | 53988 |
| 24 | .750 | | .50 | | | YP3224 | 53989 |
| 26 | .812 | | .56 | | | YP3226 | 53990 |
| 28 | .875 | | .50 | | | YP3228 | 53991 |
| 30 | .938 | | .56 | | | YP3230 | 53992 |
| 32 | 1.000 | .250 | .63 | .31 | B | YP3232 | 53993 |
| 34 | 1.062 | | .61 | | | YP3234 | 53994 |
| 36 | 1.125 | | .61 | | | YP3236 | 53995 |
| 38 | 1.187 | | .61 | | | YP3238 | 53996 |
| 40 | 1.250 | | .61 | | | YP3240 | 53997 |
| 42 | 1.312 | | .63 | | | YP3242 | 53998 |
| 44 | 1.375 | | .63 | | | YP3244 | 53999 |
| 48 | 1.500 | | .63 | | | YP3248 | 54000 |
| 52 | 1.625 | .3125 | .67 | .31 | B | YP3252 | 54001 |
| 56 | 1.750 | | .67 | | | YP3256 | 54002 |
| 64 | 2.000 | | .81 | | | YP3264 | 54003 |
| 72 | 2.250 | | .81 | | | YP3272 | 54004 |
| 80 | 2.500 | | .81 | | | YP3280 | 54005 |
| 96 | 3.000 | | .81 | | | YP3296 | 54006 |



STANDARD TOLERANCES*

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005" |

*Brass only.



48 D.P.



32 D.P.

REFERENCE PAGES

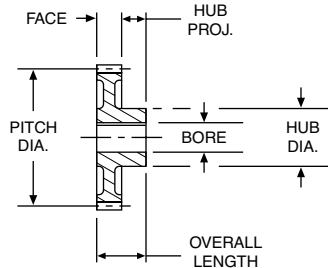
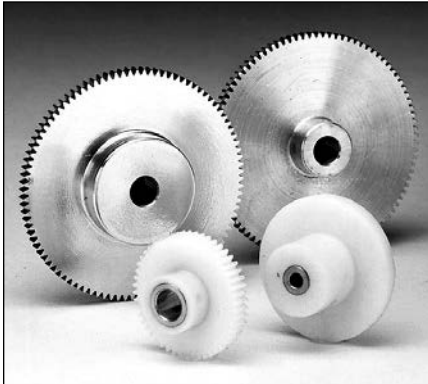
Alterations — 322
Lubrication — 322
Materials — 323

Spur Gears

32 Diametral Pitch (Delrin & Brass)

20° Pressure Angle (will not operate with 14-1/2° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|----------------------------------|-----|---------------|
| Brass | | |
| BORE | All | ± .0005 |
| Delrin with Brass Inserts | | |
| BORE | All | + .001 - .000 |



32 D.P.

REFERENCE PAGES

Alterations — 322
 Lubrication — 322
 Materials — 323

†All YPB gears have setscrew and spot drill.

| BORE | SETScrew |
|------|----------|
| 1/8 | #2-56 |
| 3/16 | #4-40 |
| 1/4 | #6-32 |
| 5/16 | #8-32 |

ALL DIMENSIONS IN INCHES
 ORDER BY CATALOG NUMBER OR ITEM CODE

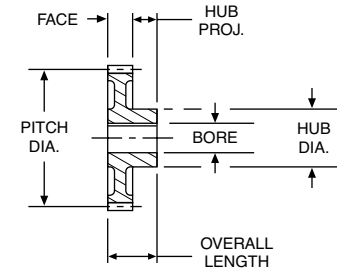
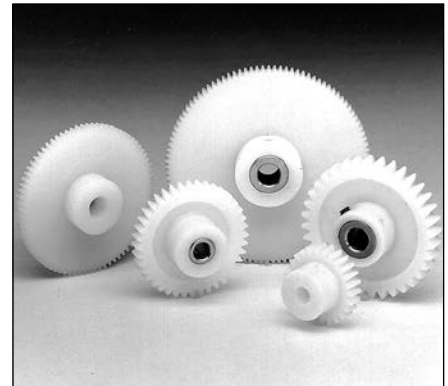
| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew† | | | |
|---|------------|-------|---------|-------|--------------------|---|-----------|-------|-------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | | |
| 32 DIAMETRAL PITCH | | | | | | Face = .188" Outside Dia. = Pitch Dia. + .062" Overall Length = .188" + Hub Proj. | | | |
| MOLDED DELRIN with BRASS INSERTS | | | | | | | | | |
| 12 | .375 | .125 | .28 | .31 | A | YPB3212 | 54007 | | |
| 14 | .438 | | .31 | | | YPB3214 | 54008 | | |
| 15 | .469 | | .31 | | | YPB3215 | 54009 | | |
| 16 | .500 | | .34 | | | YPB3216 | 54010 | | |
| 18 | .562 | | .34 | | | YPB3218 | 54011 | | |
| 20 | .625 | | .1875 | | | .47 | YPB3220 | 54012 | |
| 22 | .688 | .50 | | | | YPB3222 | 54013 | | |
| 24 | .750 | .50 | | | | YPB3224 | 54014 | | |
| 26 | .812 | .56 | | | | YPB3226 | 54015 | | |
| 28 | .875 | .50 | | | | YPB3228 | 54016 | | |
| 30 | .938 | .56 | | | | YPB3230 | 54017 | | |
| 32 | 1.000 | .250 | .63 | | | B | YPB3232 | 54018 | |
| 34 | 1.062 | | .61 | | | | YPB3234 | 54019 | |
| 36 | 1.125 | | .61 | | | | YPB3236 | 54020 | |
| 38 | 1.187 | | .61 | | | | YPB3238 | 54021 | |
| 40 | 1.250 | | .61 | | | | YPB3240 | 54022 | |
| 42 | 1.312 | | .61 | | | | YPB3242 | 54023 | |
| 44 | 1.375 | .61 | YPB3244 | | | | 54024 | | |
| 48 | 1.500 | .63 | YPB3248 | 54025 | | | | | |
| 52 | 1.625 | .3125 | .67 | C | YPB3252 | | 54026 | | |
| 56 | 1.750 | | .67 | | YPB3256 | | 54027 | | |
| 64 | 2.000 | | .67 | | YPB3264 | | 54028 | | |
| 72 | 2.250 | | .81 | | YPB3272 | | 54029 | | |
| 80 | 2.500 | | .81 | | YPB3280 | | 54030 | | |
| 96 | 3.000 | | .81 | | YPB3296 | | 54031 | | |
| BRASS | | | | | | | | | |
| 12 | .375 | .125 | .28 | | .25 | | A | Y3212 | 09406 |
| 14 | .438 | | .34 | | | | | Y3214 | 09408 |
| 16 | .500 | | .40 | | | | | Y3216 | 09410 |
| 18 | .562 | | .43 | | | Y3218 | | 09412 | |
| 20 | .625 | | .47 | | | Y3220 | | 09414 | |
| 24 | .750 | | .53 | | | Y3224 | | 09416 | |
| 28 | .875 | .59 | Y3228 | | | 09418 | | | |
| 32 | 1.000 | .250 | .66 | | | .25 | | Y3232 | 09420 |
| 36 | 1.125 | | .72 | | | | | Y3236 | 09422 |
| 40 | 1.250 | | .72 | | | | | Y3240 | 09424 |
| 48 | 1.500 | | .78 | | | | | Y3248 | 09426 |
| 56 | 1.750 | | .84 | Y3256 | | | | 09428 | |
| 64 | 2.000 | | .90 | Y3264 | | | | 09430 | |
| 72 | 2.250 | .88 | Y3272 | 09432 | | | | | |
| 80 | 2.500 | .88 | Y3280 | 09434 | | | | | |
| 96 | 3.000 | .3125 | 1.00 | .31 | | | | Y3296 | 09436 |
| 112 | 3.500 | 1.00 | Y32112 | | | | | 09438 | |
| 128 | 4.000 | 1.00 | Y32128 | | | | | 09440 | |
| 160 | 5.000 | 1.00 | Y32160 | | 09442 | | | | |

24 Diametral Pitch (Delrin)

20° Pressure Angle (will not operate with 14-1/2° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew† | | | | |
|---|------------|---------|---------|--------|--------------------|---|-----------|---------|---------|-------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | | | |
| 24 DIAMETRAL PITCH | | | | | | Face = .250" Outside Dia. = Pitch Dia. + .083" Overall Length = .250" + Hub Proj. | | | | |
| MOLDED DELRIN | | | | | | | | | | |
| 12 | .500 | .188 | .38 | .31 | A | YP2412 | 54032 | | | |
| 14 | .583 | | .44 | | | YP2414 | 54033 | | | |
| 15 | .625 | | .48 | | | YP2415 | 54034 | | | |
| 16 | .667 | | .55 | | | .31 | A | YP2416 | 54035 | |
| 17 | .709 | | | | | | | YP2417 | 54036 | |
| 18 | .750 | | | | | | | YP2418 | 54037 | |
| 19 | .791 | | | | | | | YP2419 | 54038 | |
| 20 | .833 | | .250 | | | .31 | B | YP2420 | 54039 | |
| 21 | .875 | | | | | | | YP2421 | 54040 | |
| 22 | .917 | | | | | | | YP2422 | 54041 | |
| 23 | .959 | YP2423 | | 54042 | | | | | | |
| 24 | 1.000 | .63 | | YP2424 | 54043 | | | | | |
| 25 | 1.041 | .61 | | YP2425 | 54044 | | | | | |
| 26 | 1.083 | .63 | | .31 | B | | | YP2426 | 54045 | |
| 27 | 1.125 | | YP2427 | | | 54046 | | | | |
| 28 | 1.167 | | YP2428 | | | 54047 | | | | |
| 30 | 1.250 | | YP2430 | | | 54048 | | | | |
| 32 | 1.333 | .313 | .67 | B | YP2432 | 54049 | | | | |
| 33 | 1.375 | | | | .61 | YP2433 | 54050 | | | |
| 34 | 1.416 | | | | YP2434 | 54051 | | | | |
| 36 | 1.500 | | | | .63 | YP2436 | 54052 | | | |
| 39 | 1.625 | | | | .188 | .31 | A | YP2439 | 54053 | |
| 40 | 1.666 | | | | | | | YP2440 | 54054 | |
| 42 | 1.750 | | | | | | | YP2442 | 54055 | |
| 44 | 1.833 | | | | | | | .250 | .31 | B |
| 45 | 1.875 | YP2445 | 54057 | | | | | | | |
| 48 | 2.000 | YP2448 | 54058 | | | | | | | |
| 50 | 2.083 | YP2450 | 54059 | | | | | | | |
| 52 | 2.166 | .313 | .67 | B | | | | YP2452 | 54060 | |
| 54 | 2.250 | | | | | | | YP2454 | 54061 | |
| 56 | 2.333 | | | | | | | YP2456 | 54062 | |
| 60 | 2.500 | | | | YP2460 | 54063 | | | | |
| MOLDED DELRIN WITH BRASS INSERTS | | | | | | | | | | |
| 12 | .500 | | | | .188 | .38 | .31 | A | YPB2412 | 54064 |
| 14 | .583 | .44 | YPB2414 | 54065 | | | | | | |
| 15 | .625 | .48 | YPB2415 | 54066 | | | | | | |
| 16 | .667 | .55 | .31 | A | | YPB2416 | | | 54067 | |
| 17 | .709 | | | | | YPB2417 | | | 54068 | |
| 18 | .750 | | | | | YPB2418 | | | 54069 | |
| 19 | .791 | | | | | YPB2419 | | | 54070 | |
| 20 | .833 | .250 | .31 | B | | YPB2420 | | | 54071 | |
| 21 | .875 | | | | | YPB2421 | | | 54072 | |
| 22 | .917 | | | | | YPB2422 | | | 54073 | |
| 23 | .959 | | | | YPB2423 | 54074 | | | | |
| 24 | 1.000 | | | | .63 | YPB2424 | 54075 | | | |
| 25 | 1.041 | | | | .61 | YPB2425 | 54076 | | | |
| 26 | 1.083 | | | | .63 | .31 | B | YPB2426 | 54077 | |
| 27 | 1.125 | YPB2427 | 54078 | | | | | | | |
| 28 | 1.167 | YPB2428 | 54079 | | | | | | | |
| 30 | 1.250 | YPB2430 | 54080 | | | | | | | |
| 32 | 1.333 | .313 | .67 | B | YPB2432 | 54081 | | | | |
| 33 | 1.375 | | | | .61 | YPB2433 | 54082 | | | |
| 34 | 1.416 | | | | YPB2434 | 54083 | | | | |
| 36 | 1.500 | | | | .63 | YPB2436 | 54084 | | | |
| 39 | 1.625 | | | | .188 | .31 | A | YPB2439 | 54085 | |
| 40 | 1.666 | | | | | | | YPB2440 | 54086 | |
| 42 | 1.750 | | | | | | | YPB2442 | 54087 | |



STANDARD TOLERANCES*

| DIMENSION | TOLERANCE |
|-----------|------------------|
| BORE | All +.001 - .000 |

*Gears with Brass Inserts only.



24 D.P.

REFERENCE PAGES

Alterations — 322
Materials — 323

†All YPB gears have setscrew and spot drill.

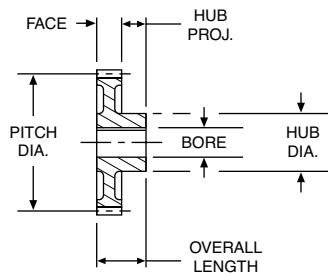
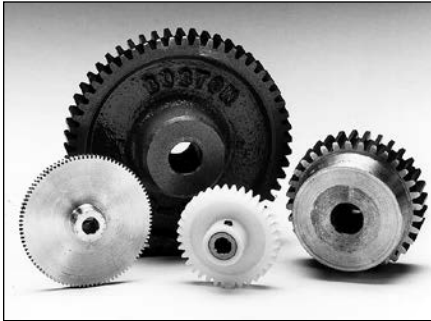
| BORE | SETSCREW |
|------|----------|
| 3/16 | #4-40 |
| 1/4 | #6-32 |
| 5/16 | #8-32 |

Spur Gears

24 and 20 Diametral Pitch (Delrin, Brass, Steel & Cast Iron)

20° Pressure Angle (will not operate with 14-1/2° spurs)

A



STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------------------------------|-----|---------------|
| Brass, Steel and Cast Iron | | |
| BORE | All | ± .0005 |
| Delrin with Brass Inserts | | |
| BORE | All | + .001 - .000 |



24 D.P.



20 D.P.

REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 58
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

†YPB gears have one setscrew (#8-32), no keyway.

*5/16" bore have #35 (.110) drilled hole through one wall, no keyway.

‡3/8" bore have one setscrew. No keyway.

1/2" bore and larger have standard keyway at 90° to setscrew. See Page 323.

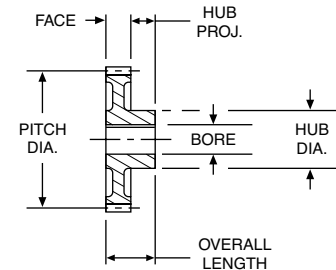
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | | | | | | | | | |
|---|------------|-------|-------|-------|--------------------|---|-----------|---------------------------|-----------|-------|-------|-----|---|------|-------|---|---|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code | | | | | | | | |
| 24 DIAMETRAL PITCH | | | | | | Face = .250" Outside Dia. = Pitch Dia. + .083" Overall Length = .250" + Hub Proj. | | | | | | | | | | | |
| MOLDED DELRIN WITH BRASS INSERTS | | | | | | | | | | | | | | | | | |
| 44 | 1.833 | .3125 | .67 | .31 | B | YPB2444 | 54088 | - | - | | | | | | | | |
| 45 | 1.875 | | | | | YPB2445 | 54089 | - | - | | | | | | | | |
| 48 | 2.000 | | | | | YPB2448 | 54090 | - | - | | | | | | | | |
| 50 | 2.083 | | | | | YPB2450 | 54091 | - | - | | | | | | | | |
| 52 | 2.166 | | | | | YPB2452 | 54092 | - | - | | | | | | | | |
| 54 | 2.250 | | | | | YPB2454 | 54093 | - | - | | | | | | | | |
| 56 | 2.333 | | | | | YPB2456 | 54094 | - | - | | | | | | | | |
| 60 | 2.500 | | | | | YPB2460 | 54095 | - | - | | | | | | | | |
| BRASS | | | | | | | | | | | | | | | | | |
| 12 | .500 | | | | | .1875 | .38 | .25 | A | Y2412 | 09372 | - | - | | | | |
| 15 | .625 | Y2415 | 09374 | - | - | | | | | | | | | | | | |
| 18 | .750 | Y2418 | 09376 | - | - | | | | | | | | | | | | |
| 21 | .875 | Y2421 | 09378 | - | - | | | | | | | | | | | | |
| 24 | 1.000 | Y2424 | 09380 | - | - | | | | | | | | | | | | |
| 27 | 1.125 | Y2427 | 09382 | - | - | | | | | | | | | | | | |
| 30 | 1.250 | Y2430 | 09384 | - | - | | | | | | | | | | | | |
| 36 | 1.500 | Y2436 | 09386 | - | - | | | | | | | | | | | | |
| 42 | 1.750 | .3125 | .86 | .25 | C | | | | | Y2442 | 09388 | - | - | | | | |
| 48 | 2.000 | | | | | | | | | Y2448 | 09390 | - | - | | | | |
| 54 | 2.250 | | | | | Y2454 | 09392 | - | - | | | | | | | | |
| 60 | 2.500 | | | | | Y2460 | 09394 | - | - | | | | | | | | |
| 72 | 3.000 | | | | | Y2472 | 09396 | - | - | | | | | | | | |
| 84 | 3.500 | | | | | Y2484 | 09398 | - | - | | | | | | | | |
| 96 | 4.000 | | | | | Y2496 | 09400 | - | - | | | | | | | | |
| 120 | 5.000 | | | | | Y24120 | 09402 | - | - | | | | | | | | |
| 144 | 6.000 | | | | | Y24144 | 09404 | - | - | | | | | | | | |
| 20 DIAMETRAL PITCH | | | | | | Face = .500" Outside Dia. = Pitch Dia. + .100" Overall Length = .500" + Hub Proj. | | | | | | | | | | | |
| STEEL | | | | | | | | | | | | | | | | | |
| 12 | .600 | .3125 | .46 | .44 | A | YA12 | 09892 | YA12-5/16" | 46128 | | | | | | | | |
| 14 | .700 | | | | | YA14 | 09894 | YA14-5/16" | 46129 | | | | | | | | |
| 15 | .750 | | | | | YA15 | 09896 | YA15-3/8" | 46130 | | | | | | | | |
| 16 | .800 | | | | | YA16 | 09898 | YA16-3/8" | 46131 | | | | | | | | |
| 18 | .900 | | | | | YA18 | 09900 | YA18-3/8" | 46132 | | | | | | | | |
| 20 | 1.000 | | | | | YA20 | 09902 | YA20-1/2 | 46133 | | | | | | | | |
| 24 | 1.200 | | | | | YA24 | 09914 | YA24-1/2 | 46134 | | | | | | | | |
| 25 | 1.250 | | | | | YA25 | 09904 | YA25-1/2 | 46135 | | | | | | | | |
| 30 | 1.500 | | | | | YA30 | 09906 | YA30-1/2 | 46136 | | | | | | | | |
| 35 | 1.750 | | | | | YA35 | 09908 | YA35-1/2 | 46137 | | | | | | | | |
| 40 | 2.000 | .500 | 1.72 | .50 | A | YA40 | 09910 | YA40-1/2 | 46138 | | | | | | | | |
| | .625 | | | | | - | - | YA40-5/8 | 46139 | | | | | | | | |
| | .750 | | | | | - | - | YA40-3/4 | 46140 | | | | | | | | |
| 45 | 2.250 | | | | | .500 | 1.97 | .50 | A | YA45 | 09912 | - | - | | | | |
| 50 | 2.500 | | | | | | | | | YA50A | 10548 | - | - | | | | |
| 60 | 3.000 | | | | | | | | | YA60A | 10550 | - | - | | | | |
| 70 | 3.500 | | | | | | | | | YA70A | 10552 | - | - | | | | |
| CAST IRON | | | | | | | | | | | | | | | | | |
| 80 | 4.000 | | | | | | | | | .625 | 1.38 | .62 | C | YA80 | 10554 | - | - |
| 84 | 4.200 | | | | | YA84 | 10556 | - | - | | | | | | | | |
| 90 | 4.500 | YA90 | 10558 | - | - | | | | | | | | | | | | |
| 100 | 5.000 | C | 1.50 | .62 | D | YA100 | 10560 | - | - | | | | | | | | |
| 120 | 6.000 | | | | | YA120 | 10562 | - | - | | | | | | | | |
| 140 | 7.000 | | | | | YA140 | 10564 | - | - | | | | | | | | |
| 160 | 8.000 | .625 | 1.75 | .75 | D | YA160 | 10566 | - | - | | | | | | | | |
| 180 | 9.000 | | | | | YA180 | 10568 | - | - | | | | | | | | |
| 200 | 10.000 | | | | | YA200 | 10570 | - | - | | | | | | | | |

16 and 12 Diametral Pitch (Steel & Cast Iron) 20° Pressure Angle (will not operate with 14-1/2° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | |
|---------------------------|------------|-------|------|-------|--------------------|---|-----------|---------------------------|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code |
| 16 DIAMETRAL PITCH | | | | | | | | | |
| | | | | | | Face = .750" Outside Dia. = Pitch Dia. + .125" Overall Length = .750" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 12 | .750 | .375 | .56 | .50 | A | YB12 | 09916 | YB12-3/8† | 46141 |
| 14 | .875 | .375 | .69 | .50 | | YB14 | 09918 | YB14-3/8† | 46142 |
| 15 | .938 | .500 | .75 | .50 | | YB15 | 09920 | YB15-3/8† | 45991 |
| | | | | | | - | - | YB15-1/2 | 46143 |
| 16 | 1.000 | .500 | .81 | .50 | | YB16 | 09922 | YB16-1/2 | 46144 |
| 18 | 1.125 | .500 | .94 | .50 | | YB18 | 09924 | YB18-1/2 | 46145 |
| 20 | 1.250 | .625 | 1.05 | .50 | | YB20 | 09926 | YB20-5/8 | 46146 |
| 24 | 1.500 | .750 | 1.20 | .50 | | YB24 | 09928 | YB24-5/8 | 46147 |
| | | | | | | - | - | YB24-3/4 | 46148 |
| 28 | 1.750 | .750 | 1.45 | .50 | | YB28 | 09930 | YB28-5/8 | 46149 |
| | | | | | | - | - | YB28-3/4 | 46150 |
| 30 | 1.875 | .875 | 1.58 | .50 | | YB30 | 09932 | YB30-5/8 | 46151 |
| | | | | | | - | - | YB30-3/4 | 46152 |
| | | | | | | - | - | YB30-7/8 | 46153 |
| 32 | 2.000 | 1.000 | 1.70 | .50 | | YB32 | 09934 | YB32-5/8 | 46154 |
| | | | | | | - | - | YB32-3/4 | 46155 |
| | | | | | | - | - | YB32-7/8 | 46156 |
| | | | | | | - | - | YB32-1 | 46157 |
| 36 | 2.250 | .625 | 1.95 | .50 | | YB36 | 09936 | - | - |
| 40 | 2.500 | .625 | 2.20 | .50 | | YB40 | 09938 | - | - |
| 48 | 3.000 | .625 | 2.00 | .62 | YB48A | 10572 | - | - | |
| 56 | 3.500 | .625 | 2.50 | .62 | YB56A | 10574 | - | - | |
| 60 | 3.750 | .625 | 2.75 | .62 | YB60A | 10576 | - | - | |
| 64 | 4.000 | .750 | 2.88 | .75 | YB64A | 10578 | - | - | |
| 72 | 4.500 | .750 | 3.38 | .75 | YB72A | 10580 | - | - | |
| 80 | 5.000 | .750 | 3.88 | .75 | YB80A | 10582 | - | - | |
| CAST IRON | | | | | | | | | |
| 96 | 6.000 | .750 | 1.75 | .75 | D | YB96 | 10584 | - | - |
| 128 | 8.000 | .750 | 2.00 | .75 | | YB128 | 10588 | - | - |
| 144 | 9.000 | .750 | 2.00 | .75 | | YB144 | 10590 | - | - |
| 160 | 10.000 | .875 | 2.00 | .75 | | YB160 | 10592 | - | - |
| 192 | 12.000 | .875 | 2.00 | 1.00 | | YB192 | 10594 | - | - |
| | | | | | | - | - | - | - |
| | | | | | | Face = 1.000" Outside Dia. = Pitch Dia. + .167" Overall Length = 1.000" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 12 | 1.000 | .500 | .75 | .62 | A | YD12 | 09940 | YD12-1/2* | 46158 |
| 13 | 1.083 | .625 | .83 | .62 | | YD13 | 09942 | YD13-5/8‡ | 46159 |
| 14 | 1.167 | .625 | .92 | .62 | | YD14 | 09944 | YD14-5/8 | 46160 |
| 15 | 1.250 | .625 | .99 | .62 | | YD15 | 09946 | YD15-5/8 | 46161 |
| 16 | 1.333 | .625 | 1.07 | .62 | | YD16 | 09948 | YD16-5/8 | 46162 |
| 18 | 1.500 | .750 | 1.24 | .62 | | YD18 | 09950 | YD18-3/4 | 46163 |
| 20 | 1.667 | .750 | 1.32 | .62 | | YD20 | 09952 | YD20-3/4 | 46164 |
| 21 | 1.750 | .875 | 1.40 | .62 | | YD21 | 09954 | YD21-3/4 | 46165 |
| | | | | | | - | - | YD21-7/8 | 46166 |
| 24 | 2.000 | 1.000 | 1.65 | .62 | | YD24 | 09956 | YD24-3/4 | 46167 |
| | | | | | | - | - | YD24-7/8 | 46168 |
| | | | | | | - | - | YD24-1 | 46169 |
| 28 | 2.333 | 1.000 | 1.99 | .62 | | YD28 | 09958 | YD28-3/4 | 46170 |
| | | | | | | - | - | YD28-7/8 | 46171 |
| | | | | | | - | - | YD28-1 | 46172 |
| 30 | 2.500 | .750 | 2.15 | .62 | | YD30 | 09960 | - | - |
| 36 | 3.000 | .750 | 1.94 | .88 | | YD36A | 10596 | - | - |
| 42 | 3.500 | .750 | 2.44 | .88 | | YD42A | 10598 | - | - |
| 48 | 4.000 | .875 | 2.88 | .88 | | YD48A | 10600 | - | - |
| 54 | 4.500 | .875 | 3.38 | .88 | | YD54A | 10602 | - | - |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



16 D.P.



12 D.P.

REFERENCE PAGES

Alterations — 322
Horsepower Ratings — 58, 59
Lubrication — 322
Materials — 323
Selection Procedure — 49

†3/8" bore have one setscrew.
No keyway.

YB15-1/2 and larger have standard keyway at 90° to setscrew.
See page 323.

*YD12-1/2 has one setscrew.
No keyway.

‡YD13-5/8 has one setscrew.
No keyway.

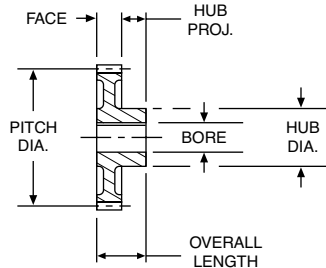
YD14-5/8 bore and larger have standard keyway at 90° to setscrew.

Spur Gears

12 and 10 Diametral Pitch (Cast Iron & Steel)

20° Pressure Angle (will not operate with 14-1/2° spurs)

A

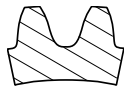


STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



12 D.P.



10 D.P.

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | |
|---------------------------|------------|-------|-------|--------|--------------------|---|-----------|---------------------------|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code |
| 12 DIAMETRAL PITCH | | | | | | Face = 1.000" Outside Dia. = Pitch Dia. + .166" Overall Length = 1.000" + Hub Proj. | | | |
| CAST IRON | | | | | | | | | |
| 60 | 5.000 | .875 | 2.12 | .88 | B | YD60 | 10604 | - | - |
| 66 | 5.500 | | | | | YD66 | 10606 | - | - |
| 72 | 6.000 | | | | | YD72 | 10608 | - | - |
| 84 | 7.000 | | YD84 | 10610 | | - | - | | |
| 96 | 8.000 | | YD96 | 10612 | | - | - | | |
| 108 | 9.000 | | 2.25 | YD108 | | 10614 | - | - | |
| 120 | 10.000 | 1.000 | 2.25 | .88 | D | YD120 | 10616 | - | - |
| 132 | 11.000 | | | | | YD132 | 10618 | - | - |
| 144 | 12.000 | | | | | YD144 | 10620 | - | - |
| 168 | 14.000 | | YD168 | 10622 | | - | - | | |
| 192 | 16.000 | | YD192 | 10624 | | - | - | | |
| 216 | 18.000 | | 2.75 | YD216 | | 10626 | - | - | |
| 10 DIAMETRAL PITCH | | | | | | Face = 1.250" Outside Dia. = Pitch Dia. + .200" Overall Length = 1.250" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 12 | 1.200 | .625 | .92 | .62 | A | YF12 | 09962 | YF12-5/8 | 46173 |
| 14 | 1.400 | | | | | YF14 | 09964 | YF14-5/8 | 46174 |
| 15 | 1.500 | | | | | YF15 | 09966 | YF15-3/4 | 46175 |
| 16 | 1.600 | | | | | YF16 | 09968 | YF16-3/4 | 46176 |
| 18 | 1.800 | .750 | 1.42 | .62 | | YF18 | 09970 | YF18-3/4 | 46177 |
| | | .875 | | | | - | YF18-7/8 | 46178 | |
| 20 | 2.000 | .875 | 1.62 | .62 | | YF20 | 09972 | YF20-7/8 | 46179 |
| | | 1.000 | | | | - | YF20-1 | 46180 | |
| 24 | 2.400 | .875 | 2.02 | .62 | | YF24 | 09974 | YF24-7/8 | 46181 |
| | | 1.000 | | | | - | YF24-1 | 46182 | |
| 25 | 2.500 | .875 | 2.12 | .62 | | YF25 | 09976 | YF25-7/8 | 46183 |
| | | 1.000 | | | | - | YF25-1 | 46184 | |
| 28 | 2.800 | .875 | 2.42 | .62 | | YF28 | 09978 | YF28-7/8 | 46185 |
| | | 1.000 | | | | - | YF28-1 | 46186 | |
| 30 | 3.000 | .875 | 2.00 | .88 | | YF30A | 10630 | - | - |
| 35 | 3.500 | | | | | YF35A | 10632 | - | - |
| 40 | 4.000 | 1.000 | 2.95 | .88 | YF40A | 10634 | - | - | |
| 45 | 4.500 | | | | YF45A | 10636 | - | - | |
| 48 | 4.800 | | 3.45 | YF48A | 10638 | - | - | | |
| 50 | 5.000 | | 3.75 | YF50A | 10640 | - | - | | |
| | | | 3.95 | | | | | | |
| | | | | | | | | | |
| CAST IRON | | | | | | | | | |
| 55 | 5.500 | 1.000 | 2.50 | 1.00 | B | YF55 | 10642 | - | - |
| 60 | 6.000 | | | | | YF60 | 10644 | - | - |
| 70 | 7.000 | | | | | YF70 | 10646 | - | - |
| 80 | 8.000 | | | | | YF80 | 10648 | - | - |
| 90 | 9.000 | | | | | YF90 | 10650 | - | - |
| 100 | 10.000 | | | | | 1.125 | 3.00 | 1.12 | D |
| 120 | 12.000 | YF120 | 10656 | - | - | | | | |
| 140 | 14.000 | YF140 | 10658 | - | - | | | | |
| 160 | 16.000 | YF160 | 10660 | - | - | | | | |
| 200 | 20.000 | 3.25 | 1.25 | YF200B | 10664 | | - | - | |

†All gears have standard keyway at 90° to setscrew. See Page 323.

REFERENCE PAGES

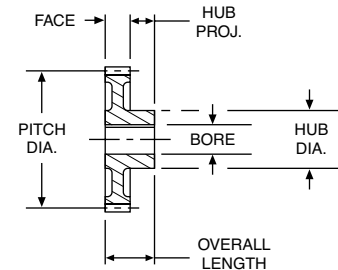
- Alterations — 322
- Horsepower Ratings — 59, 60
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

8 and 6 Diametral Pitch (Steel & Cast Iron)

20° Pressure Angle (will not operate with 14-1/2° spurs)

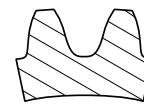
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | |
|--------------------------|------------|-----------------------------------|-------|-------|--------------------|---|-----------|---------------------------|-----------|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code |
| 8 DIAMETRAL PITCH | | | | | | Face = 1.500" Outside Dia. = Pitch Dia. + .250" Overall Length = 1.500" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 12 | 1.500 | .750 | 1.12 | .75 | A | YH12 | 09980 | YH12-3/4 | 46187 |
| 14 | 1.750 | .750 | 1.31 | .75 | | YH14 | 09982 | YH14-3/4 | 46188 |
| 15 | 1.875 | .750 .875 | 1.43 | .75 | | YH15 | 09984 | YH15-3/4 | 46189 |
| | | | | | | - | - | YH15-7/8 | 46190 |
| 16 | 2.000 | .875 1.000 | 1.56 | .88 | | YH16 | 09986 | YH16-7/8 | 46191 |
| | | | | | | - | - | YH16-1 | 46192 |
| 18 | 2.250 | .875 1.000 1.125 | 1.81 | .88 | | YH18 | 09988 | YH18-7/8 | 46193 |
| | | | | | | - | - | YH18-1 | 46194 |
| | | | | | | - | - | YH18-1-1/8 | 46195 |
| 20 | 2.500 | .875 1.000 1.125 | 2.06 | .88 | | YH20 | 09990 | YH20-7/8 | 46196 |
| | | | | | | - | - | YH20-1 | 46197 |
| | | | | | | - | - | YH20-1-1/8 | 46198 |
| 22 | 2.750 | .875 1.000 1.125 | 2.31 | .88 | | YH22 | 09992 | YH22-7/8 | 46199 |
| | | | | | | - | - | YH22-1 | 46200 |
| 24 | 3.000 | .875 1.000 1.125 | 2.56 | .88 | | - | - | YH22-1-1/8 | 46201 |
| | | | | | | YH24 | 09994 | YH24-7/8 | 46202 |
| - | - | - | - | - | - | YH24-1 | 46203 | | |
| - | - | - | - | - | - | YH24-1-1/8 | 46204 | | |
| 28 | 3.500 | .875 | 3.06 | .88 | YH28 | 09996 | - | - | |
| 32 | 4.000 | 1.000 | 3.00 | .88 | YH32C | 10666 | - | - | |
| 36 | 4.500 | 1.000 | 3.50 | .88 | YH36C | 10668 | - | - | |
| CAST IRON | | | | | | | | | |
| 40 | 5.000 | 1.000 | 2.50 | 1.00 | B | YH40B | 10670 | - | - |
| 44 | 5.500 | | | | | YH44B | 10672 | - | - |
| 48 | 6.000 | | | | | YH48B | 10674 | - | - |
| 56 | 7.000 | | | | | YH56B | 10676 | - | - |
| 60 | 7.500 | | | | YH60 | 10678 | - | - | |
| 64 | 8.000 | | | | YH64B | 10680 | - | - | |
| 72 | 9.000 | | | | YH72B | 10682 | - | - | |
| 80 | 10.000 | | | | 1.125 | 3.00 | 1.25 | D | YH80B |
| 88 | 11.000 | YH88B | 10686 | - | | | | | - |
| 96 | 12.000 | YH96B | 10688 | - | | | | | - |
| 112 | 14.000 | YH112B | 10690 | - | | | | | - |
| 120 | 15.000 | YH120 | 10692 | - | | | | | - |
| 128 | 16.000 | YH128B | 10694 | - | | | | | - |
| 6 DIAMETRAL PITCH | | | | | | Face = 2.000" Outside Dia. = Pitch Dia. + .333" Overall Length = 2.000" + Hub Proj. | | | |
| STEEL | | | | | | | | | |
| 12 | 2.000 | 1.000 | 1.46 | .88 | A | YJ12 | 09998 | YJ12-1 | 46205 |
| 14 | 2.333 | 1.000 1.125 | 1.79 | .88 | | YJ14 | 10000 | YJ14-1 | 46206 |
| | | | | | | - | - | YJ14-1-1/8 | 46207 |
| 15 | 2.500 | 1.000 1.125 1.1875 1.250 | 1.96 | .88 | | YJ15 | 10002 | YJ15-1 | 46208 |
| | | | | | | - | - | YJ15-1-1/8 | 46209 |
| | | | | | | - | - | YJ15-1-3/16 | 46210 |
| | | | | | | - | - | YJ15-1-1/4 | 46211 |



STANDARD TOLERANCES

| DIMENSION | TOLERANCE |
|-----------|------------|
| BORE | All ±.0005 |



8 D.P.



6 D.P.

†All gears have standard keyway at 90° to setscrew. See Page 323.

REFERENCE PAGES

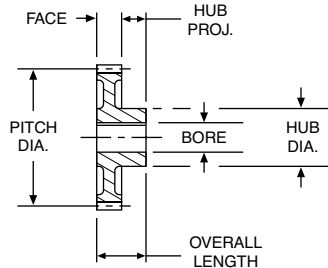
- Alterations — 322
- Horsepower Ratings — 60, 61
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

Spur Gears

6 and 5 Diametral Pitch (Steel & Cast Iron)

20° Pressure Angle (will not operate with 14-1/2° spur)

A

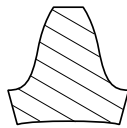


STANDARD TOLERANCES

| DIMENSION | | TOLERANCE |
|-----------|-----|-----------|
| BORE | All | ±.0005 |



6 D.P.



5 D.P.

REFERENCE PAGES

- Alterations — 322
- Horsepower Ratings — 61, 62
- Lubrication — 322
- Materials — 323
- Selection Procedure — 49

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | Bore | Hub | | Style See Page 323 | Without Keyway or Setscrew | | With Keyway and Setscrew† | | |
|--------------------------|------------|-----------------------------------|------|-------|--------------------|---|-----------|---------------------------|-----------|---|
| | | | Dia. | Proj. | | Catalog Number | Item Code | Catalog Number | Item Code | |
| 6 DIAMETRAL PITCH | | | | | | Face = 2.000" Outside Dia. = Pitch Dia. + .333" Overall Length = 2.000" + Hub Proj. | | | | |
| STEEL | | | | | | | | | | |
| 16 | 2.667 | 1.000 1.125 1.1875 1.250 | 2.13 | .88 | A | YJ16 | 10004 | YJ16-1 | 46212 | |
| | | | | | | - | - | YJ16-1-1/8 | 46213 | |
| | | | | | | - | - | YJ16-1-3/16 | 46214 | |
| | | | | | | - | - | YJ16-1-1/4 | 46215 | |
| 18 | 3.000 | 1.000 1.125 1.1875 1.250 | 2.46 | .88 | | YJ18 | 10006 | YJ18-1 | 46216 | |
| | | | | | | - | - | YJ18-1-1/8 | 46217 | |
| | | | | | | - | - | YJ18-1-3/16 | 46218 | |
| | | | | | | - | - | YJ18-1-1/4 | 46219 | |
| 21 | 3.500 | 1.000 1.125 1.1875 1.250 | 2.96 | .88 | | YJ21 | 10008 | YJ21-1 | 46220 | |
| | | | | | | - | - | YJ21-1-1/8 | 46221 | |
| | | | | | | - | - | YJ21-1-3/16 | 46222 | |
| | | | | | | - | - | YJ21-1-1/4 | 46223 | |
| 24 | 4.000 | | 3.00 | | YJ24A | 10704 | - | - | | |
| 27 | 4.500 | 1.125 | 3.50 | .88 | YJ27A | 10706 | - | - | | |
| 30 | 5.000 | | 4.00 | | YJ30C | 10708 | - | - | | |
| CAST IRON | | | | | | | | | | |
| 33 | 5.500 | 1.125 | 3.00 | 1.50 | B | YJ33B | 10710 | - | - | |
| 36 | 6.000 | | 3.50 | | A | YJ36B | 10712 | - | - | |
| 42 | 7.000 | | | | | YJ42B | 10714 | - | - | |
| 48 | 8.000 | 1.250 | 3.50 | 1.50 | B | YJ48B | 10716 | - | - | |
| 54 | 9.000 | | | | | YJ54B | 10718 | - | - | |
| 60 | 10.000 | | | | C | YJ60B | 10720 | - | - | |
| 66 | 11.000 | | | | | YJ66B | 10722 | - | - | |
| 72 | 12.000 | 1.250 | 4.00 | 1.50 | | YJ72B | 10724 | - | - | |
| 84 | 14.000 | | | | | YJ84B | 10726 | - | - | |
| 96 | 16.000 | | | | D | YJ96B | 10728 | - | - | |
| 108 | 18.000 | | | | | YJ108B | 10730 | - | - | |
| 120 | 20.000 | 1.375 | 4.50 | 1.50 | | YJ120B | 10732 | - | - | |
| 5 DIAMETRAL PITCH | | | | | | Face = 2.500" Outside Dia. = Pitch Dia. + .400" Overall Length = 2.500" + Hub Proj. | | | | |
| STEEL | | | | | | | | | | |
| 12 | 2.400 | | 1.78 | | A | YK12 | 10010 | - | - | |
| 14 | 2.800 | | 2.18 | | | YK14 | 10012 | - | - | |
| 15 | 3.000 | 1.125 | 2.38 | .88 | | YK15 | 10014 | - | - | |
| 16 | 3.200 | | 2.58 | | | YK16 | 10016 | - | - | |
| 18 | 3.600 | | 2.98 | | | YK18 | 10018 | - | - | |
| 20 | 4.000 | | 3.38 | | | YK20 | 10020 | - | - | |
| CAST IRON | | | | | | | | | | |
| 24 | 4.800 | 1.125 | 3.75 | 1.25 | | A | YK24 | 10738 | - | - |
| 25 | 5.000 | | | | | YK25B | 10740 | - | - | |
| 28 | 5.600 | | | | | YK28 | 10742 | - | - | |
| 30 | 6.000 | | | | | YK30B | 10744 | - | - | |
| 35 | 7.000 | | | | B | YK35B | 10746 | - | - | |
| 40 | 8.000 | 1.250 | 3.75 | 1.25 | | YK40B | 10748 | - | - | |
| 45 | 9.000 | | | | | YK45B | 10750 | - | - | |
| 50 | 10.000 | | 4.00 | | C | YK50B | 10752 | - | - | |
| 60 | 12.000 | | | | | YK60B | 10754 | - | - | |
| 70 | 14.000 | 1.375 | 4.38 | 1.50 | | YK70B | 10756 | - | - | |
| 80 | 16.000 | | | | | YK80B | 10758 | - | - | |
| 100 | 20.000 | | | | D | YK100B | 10762 | - | - | |
| 110 | 22.000 | 1.500 | 4.75 | 1.75 | | YK110B | 10764 | - | - | |
| 120 | 24.000 | | 5.00 | | | YK120B | 10766 | - | - | |
| 140 | 28.000 | | 5.00 | | | YK140B | 10768 | - | - | |
| 160 | 32.000 | 1.625 | 5.00 | 2.00 | | YK160B | 10770 | - | - | |
| 180 | 36.000 | | 5.50 | | | YK180B | 10772 | - | - | |

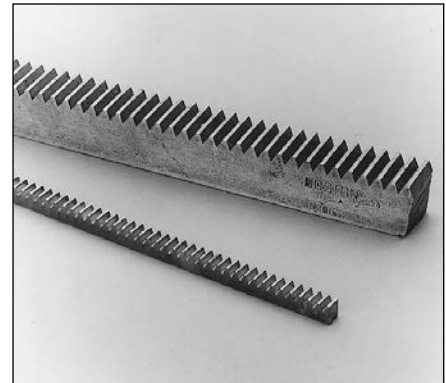
†All gears have standard keyway at 90° to setscrew. See Page 323.

20 through 4 Diametral Pitch (Steel)

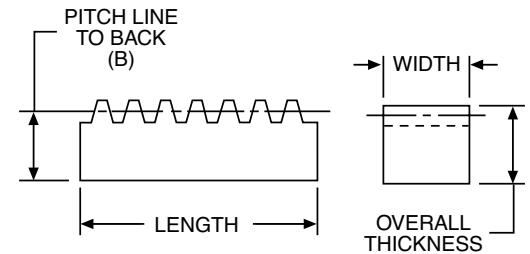
20° Pressure Angle (will not operate with 14-1/2° spurs)

ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| Overall Thickness | Pitch Line to Back (B) | Nominal Length (Feet) | Mating Spur Gear Page No. | Steel | |
|---------------------------|------------------------|-----------------------|---------------------------|----------------------------|-----------|
| | | | | Catalog Number | Item Code |
| 20 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - .500" | |
| .500 | .450 | 4/6 | 42 | L2020-4 | 12758 |
| | | | | L2020-6 | 12760 |
| 16 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - .750" | |
| .750 | .688 | 4/6 | 43 | L2016-4 | 12762 |
| | | | | L2016-6 | 12764 |
| 12 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - 1.000" | |
| 1.000 | .917 | 4/6 | 43 - 44 | L2012-4 | 37320 |
| | | | | L2012-6 | 37322 |
| 10 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - 1.250" | |
| 1.250 | 1.150 | 4/6 | 44 | L2010-4 | 37316 |
| | | | | L2010-6 | 37318 |
| 8 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - 1.500" | |
| 1.500 | 1.375 | 4/6 | 45 | L208-4 | 37312 |
| | | | | L208-6 | 37314 |
| 6 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - 2.000" | |
| 1.500 | 1.333 | 4/6 | 45 - 46 | L206-4 | 37308 |
| | | | | L206-6 | 37310 |
| 5 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - 2.500" | |
| 1.500 | 1.300 | 4/6 | 46 | L205-4 | 37304 |
| | | | | L205-6 | 37306 |
| 4 DIAMETRAL PITCH | | | | | |
| | | | | FACE WIDTH - 3.500" | |
| 2.000 | 1.750 | 4/6 | - | L204-4 | 37300 |
| | | | | L204-6 | 37302 |



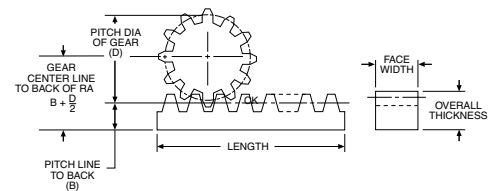
A



STANDARD TOLERANCES

| DIMENSION | TOLERANCE | |
|------------|-----------|---------------|
| LENGTH† | All | +1.000 - .000 |
| FACE WIDTH | 1/2 - 3/4 | + .000 - .002 |
| | 1 - 1-1/2 | + .000 - .003 |
| | 2 - 2-1/2 | + .000 - .004 |
| | 3-1/2 | + .000 - .006 |

†Ends not machined. Tolerance allows for cutting and matching.



REFERENCE PAGES

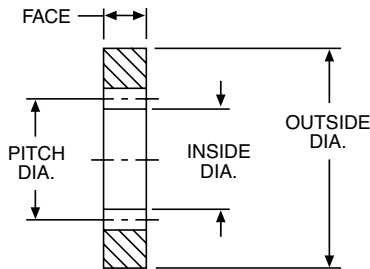
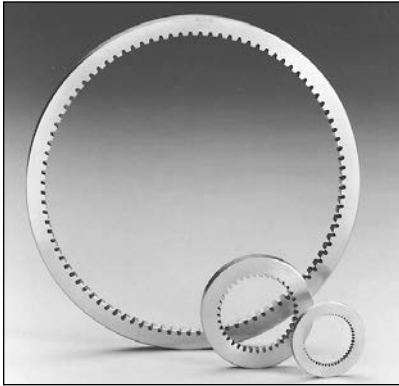
- Alterations — 322
- Lubrication — 322
- Materials — 323

Internal Gears

64 through 24 Diametral Pitch (Brass)

20° Pressure Angle (will not operate with 14-1/2° spurs)

A



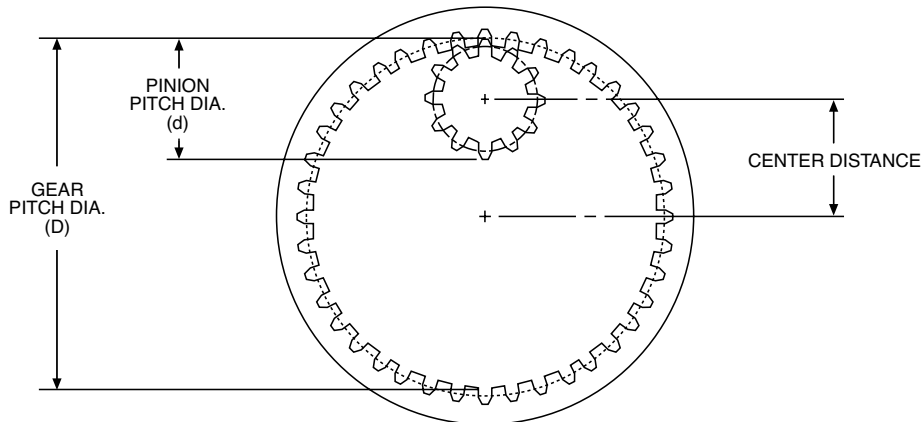
ALL DIMENSIONS IN INCHES
ORDER BY CATALOG NUMBER OR ITEM CODE

| No. of Teeth | Pitch Dia. | O.D. | I.D. | Catalog Number | Item Code |
|---------------------------|------------|-------|---------------------------|----------------|-----------|
| 64 DIAMETRAL PITCH | | | FACE WIDTH - .125" | | |
| 64 | 1.000 | 1.500 | .980 | YI6464 | 12030 |
| 96 | 1.500 | 2.000 | 1.480 | YI6496 | 12032 |
| 128 | 2.000 | 2.750 | 1.980 | YI64128 | 12034 |
| 192 | 3.000 | 3.750 | 2.980 | YI64192 | 12036 |
| 48 DIAMETRAL PITCH | | | FACE WIDTH - .125" | | |
| 48 | 1.000 | 1.500 | .974 | YI4848 | 12020 |
| 72 | 1.500 | 2.000 | 1.474 | YI4872 | 12022 |
| 96 | 2.000 | 2.750 | 1.974 | YI4896 | 12024 |
| 144 | 3.000 | 3.750 | 2.974 | YI48144 | 12026 |
| 192 | 4.000 | 4.750 | 3.974 | YI48192 | 12028 |
| 32 DIAMETRAL PITCH | | | FACE WIDTH - .188" | | |
| 48 | 1.500 | 2.000 | 1.461 | YI3248 | 12010 |
| 64 | 2.000 | 2.750 | 1.961 | YI3264 | 12012 |
| 96 | 3.000 | 3.750 | 2.961 | YI3296 | 12014 |
| 128 | 4.000 | 4.750 | 3.961 | YI32128 | 12016 |
| 192 | 6.000 | 6.750 | 5.961 | YI32192 | 12018 |
| 24 DIAMETRAL PITCH | | | FACE WIDTH - .250" | | |
| 36 | 1.500 | 2.250 | 1.450 | YI2436 | 12000 |
| 48 | 2.000 | 2.750 | 1.950 | YI2448 | 12002 |
| 72 | 3.000 | 3.750 | 2.950 | YI2472 | 12004 |
| 96 | 4.000 | 4.750 | 3.950 | YI2496 | 12006 |
| 144 | 6.000 | 6.750 | 5.950 | YI24144 | 12008 |

NOTE: The difference in tooth numbers between Gear and Pinion should not be less than 12.

STANDARD TOLERANCES

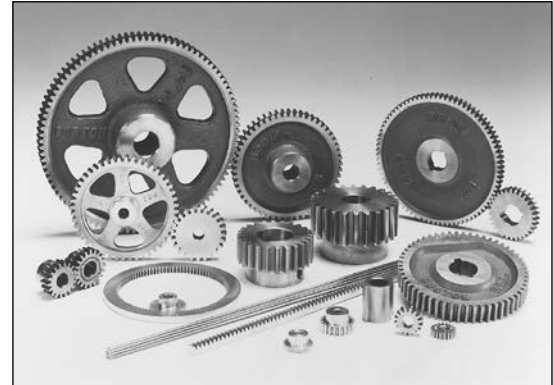
| DIMENSION | | TOLERANCE | |
|-----------|----------|-----------|--------------|
| I.D. | 64 Pitch | All | +.004 - .000 |
| | 48 Pitch | All | +.005 - .000 |
| | 32 Pitch | All | +.006 - .000 |
| | 24 Pitch | All | +.008 - .000 |
| O.D. | All | | +.001 + .003 |



$$\text{CENTER DISTANCE} = \frac{D - d}{2}$$

Boston spur gears are designed to transmit motion or power between parallel shafts. Configurations include spur, rack, pinion wire, stem pinions and internal gears; most with a selection of bores, keyways and setscrews. Styles include plain, web, web with lightening holes or spoked. Change gears have consecutive numbers of teeth for reduction uses.

Boston fine-pitch spur gears are available in Delrin and Brass. Configurations include spur, rack, pinion wire and internal gears; most with a selection of bores, keyways, and setscrews. Styles include plain, web with lightening holes or spoked.



Selection Procedure

1. Determine service factor.
 - a. Using application Classification Chart, pages 331-332, determine service factor or
 - b. With knowledge of operating conditions and load classification, select service factor from Table 1 below.

Design HP = Application Load X Service Factor (Table 1)

3. Select spur gear pinion with horsepower capacity equal to (or greater than) design horsepower determined in Step 2. 14½° Pressure Angle Spur Gears—Page 50 to Page 57. 20° Pressure Angle Spur Gears— Page 58 to Page 62.
4. Select a driven spur gear with a catalog rating equal to or greater than the horsepower determined in Step 2. All ratings are predicated on gears properly lubricated and maintained.

Selection Hints

- A. Select pinion having pitch diameter at least twice the shaft diameter.
- B. Pinion number of teeth should be greater than 16 for 14½°PA and 13 for 20°PA to avoid excessive under-cutting.
- C. For tooth numbers or RPMs not on Chart, interpolation of horsepower is adequate.
- D. Pitchline velocities above 1000 FPM are not recommended for metallic spur gears. The Selection Chart reflects this in the lack of ratings for larger numbers of teeth at higher RPM's. Ratings to the right of heavy line are not recommended, as suggested maximum velocity is exceeded, and should be used for interpolation purposes only.

TABLE 1

| Service Factor | Operating Conditions |
|----------------|--|
| .8 | Uniform — not more than 15 minutes in 2 hours. |
| 1.0 | Moderate Shock — not more than 15 minutes in 2 hours. Uniform — not more than 10 hours per day. |
| 1.25 | Moderate Shock — not more than 10 hours per day. Uniform — more than 10 hours per day. |
| 1.50 | Heavy Shock — not more than 15 minutes in 2 hours. Moderate Shock — more than 10 hours per day. |
| 1.75 | Heavy Shock — not more than 10 hours per day. |
| 2.0 | Heavy Shock — more than 10 hours per day. |

Heavy shock loads and/or severe wear conditions may require the use of higher service factors. Consultation with factory is recommended in these applications.

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

32 DIAMETRAL PITCH STEEL

14½° PRESSURE ANGLE

3/16" FACE

REFERENCE PAGE 19.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 16 | .003 | 7.4 | .01 | 7.3 | .01 | 7.3 | .02 | 7.1 | .03 | 7.0 | .06 | 6.6 | .09 | 6.3 | .11 | 5.9 | .15 | 5.4 | .24 | 4.2 |
| 18 | .003 | 8.9 | .01 | 8.8 | .01 | 8.7 | .03 | 8.5 | .04 | 8.3 | .07 | 7.8 | .10 | 7.3 | .13 | 6.9 | .18 | 6.1 | .27 | 4.7 |
| 20 | .004 | 10.2 | .01 | 10.2 | .02 | 10.1 | .03 | 9.8 | .05 | 9.6 | .08 | 8.9 | .12 | 8.3 | .15 | 7.8 | .20 | 6.9 | .30 | 5.2 |
| 22 | .005 | 11.7 | .01 | 11.6 | .02 | 11.4 | .04 | 11.1 | .05 | 10.8 | .09 | 9.9 | .13 | 9.3 | .16 | 8.7 | .22 | 7.6 | .32 | 5.7 |
| 24 | .01 | 13.0 | .01 | 12.9 | .02 | 12.7 | .04 | 12.3 | .06 | 11.9 | .10 | 10.9 | .14 | 10.1 | .18 | 9.4 | .24 | 8.3 | .34 | 6.0 |
| 26 | .01 | 14.5 | .01 | 14.4 | .02 | 14.1 | .04 | 13.7 | .06 | 13.3 | .12 | 12.0 | .16 | 11.1 | .20 | 10.2 | .26 | 8.9 | .37 | 6.4 |
| 28 | .01 | 15.9 | .01 | 15.1 | .02 | 15.5 | .05 | 14.9 | .07 | 14.5 | .12 | 13.1 | .17 | 12.0 | .21 | 11.0 | .27 | 9.5 | .39 | 6.8 |
| 30 | .01 | 17.3 | .01 | 17.0 | .03 | 16.7 | .05 | 16.1 | .07 | 15.5 | .13 | 13.9 | .18 | 12.7 | .22 | 11.7 | .29 | 10.0 | .40 | 7.0 |
| 32 | .01 | 18.9 | .01 | 18.7 | .03 | 18.3 | .06 | 17.6 | .08 | 16.9 | .14 | 15.2 | .20 | 13.7 | .24 | 12.6 | .31 | 10.7 | .43 | 7.4 |
| 40 | .01 | 24.5 | .02 | 24.2 | .04 | 23.6 | .07 | 22.4 | .10 | 21.3 | .18 | 18.7 | .24 | 16.7 | .29 | 15 | .36 | 12.5 | .48 | 8.4 |
| 48 | .01 | 29.9 | .02 | 29.4 | .05 | 28.5 | .09 | 26.8 | .12 | 25.4 | .21 | 21.8 | .27 | 19.1 | .32 | 17 | .40 | 13.9 | .52 | 9.0 |
| 56 | .01 | 35.7 | .03 | 35 | .05 | 33.8 | .10 | 31.5 | .14 | 29.6 | .24 | 24.9 | .31 | 21.6 | .36 | 18.9 | .44 | 15.3 | .55 | 9.7 |
| 64 | .02 | 41.4 | .03 | 40.6 | .06 | 38.9 | .11 | 36 | .16 | 33.5 | .26 | 27.8 | .34 | 23.7 | .39 | 20.7 | .47 | 16.5 | .58 | 10.2 |
| 80 | .02 | 52.4 | .04 | 51 | .08 | 48.5 | .14 | 44.2 | .19 | 40.6 | .31 | 32.5 | .39 | 27.2 | .44 | 23.3 | .52 | 18.2 | | |
| 96 | .02 | 62.6 | .05 | 60.6 | .09 | 57.1 | .16 | 51.2 | .22 | 46.4 | .34 | 36.2 | .42 | 29.6 | .48 | 25.1 | .55 | 19.2 | | |
| 128 | .03 | 83.9 | .06 | 80.6 | .12 | 74.6 | .21 | 64.9 | .27 | 57.5 | .41 | 42.7 | .49 | 34 | .54 | 28.3 | | | | |
| 160 | .04 | 106 | .08 | 101 | .15 | 92.1 | .25 | 78.2 | .32 | 67.8 | .46 | 48.6 | .54 | 37.9 | | | | | | |
| 192 | .05 | 126 | .09 | 119 | .17 | 107 | .28 | 88.4 | .36 | 75.4 | .50 | 52.4 | .57 | 40.1 | | | | | | |

24 DIAMETRAL PITCH STEEL

14½° PRESSURE ANGLE

1/4" FACE

REFERENCE PAGE 20.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .004 | 10.9 | .01 | 10.8 | .02 | 10.7 | .03 | 10.5 | .05 | 10.3 | .09 | 9.7 | .13 | 9.2 | .17 | 8.7 | .22 | 7.9 | .35 | 6.1 |
| 14 | .01 | 14.2 | .01 | 14.1 | .02 | 13.9 | .04 | 13.6 | .06 | 13.3 | .12 | 12.4 | .17 | 11.6 | .23 | 10.9 | .28 | 9.8 | .43 | 7.5 |
| 15 | .01 | 15.8 | .01 | 15.7 | .02 | 15.5 | .05 | 15.1 | .07 | 14.7 | .13 | 13.7 | .18 | 12.8 | .23 | 12 | .31 | 10.7 | .46 | 8.0 |
| 16 | .01 | 17.5 | .01 | 17.4 | .03 | 17.2 | .05 | 16.7 | .08 | 16.2 | .14 | 15 | .20 | 14 | .25 | 13.1 | .33 | 11.6 | .49 | 8.6 |
| 18 | .01 | 20.9 | .02 | 20.7 | .03 | 20.4 | .06 | 19.8 | .09 | 19.2 | .17 | 17.6 | .23 | 16.3 | .29 | 15.1 | .38 | 13.3 | .55 | 9.7 |
| 20 | .01 | 24.3 | .02 | 24.1 | .04 | 23.7 | .07 | 22.9 | .11 | 22.1 | .19 | 20.1 | .26 | 18.5 | .33 | 17.1 | .42 | 14.8 | .61 | 10.6 |
| 21 | .01 | 26.1 | .02 | 25.8 | .04 | 25.4 | .08 | 24.5 | .11 | 23.6 | .20 | 21.4 | .28 | 19.6 | .34 | 18.1 | .45 | 15.6 | .63 | 11.0 |
| 24 | .01 | 30.7 | .02 | 30.4 | .05 | 29.7 | .09 | 28.5 | .13 | 27.5 | .23 | 24.6 | .32 | 22.3 | .39 | 20.4 | .50 | 17.4 | .69 | 12.0 |
| 30 | .02 | 40.7 | .03 | 40.2 | .06 | 39.2 | .12 | 37.2 | .17 | 35.5 | .30 | 31.1 | .40 | 27.7 | .48 | 24.9 | .60 | 20.8 | .80 | 13.9 |
| 36 | .02 | 51.2 | .04 | 50.4 | .08 | 48.8 | .15 | 46 | .21 | 43.5 | .36 | 37.3 | .47 | 32.7 | .55 | 29.1 | .68 | 23.9 | .89 | 15.5 |
| 42 | .02 | 60.7 | .05 | 59.6 | .09 | 59.5 | .17 | 53.6 | .24 | 50.3 | .40 | 42.4 | .52 | 36.6 | .61 | 32.3 | .74 | 26 | .94 | 16.5 |
| 48 | .03 | 70.4 | .05 | 68.9 | .11 | 66.2 | .19 | 61.3 | .27 | 57 | .45 | 47.2 | .58 | 40.3 | .67 | 35.1 | .80 | 28 | .99 | 17.4 |
| 60 | .04 | 90 | .07 | 87.7 | .13 | 83.3 | .24 | 75.9 | .33 | 69.6 | .53 | 55.9 | .67 | 46.6 | .76 | 40 | .89 | 31.2 | | |
| 72 | .04 | 109 | .08 | 106 | .16 | 99.8 | .28 | 89.5 | .39 | 81 | .60 | 63.2 | .74 | 51.8 | .84 | 43.9 | .96 | 33.6 | | |
| 96 | .06 | 147 | .11 | 141 | .21 | 130 | .36 | 113 | .48 | 100 | .71 | 74.7 | .85 | 59.5 | .94 | 49.5 | | | | |
| 120 | .07 | 185 | .14 | 175 | .25 | 159 | .43 | 135 | .56 | 118 | .80 | 84.3 | .94 | 65.7 | 1.07 | 56.4 | | | | |
| 144 | .09 | 219 | .16 | 207 | .29 | 185 | .49 | 153 | .62 | 131 | .86 | 90.8 | .99 | 69.6 | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

* Torque Ratings (Lb. Ins.).

Ratings for brass gears are approximately 50% of steel ratings with same face width.

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

20 DIAMETRAL PITCH STEEL

14½° PRESSURE ANGLE

3/8" FACE

REFERENCE PAGE 20.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .01 | 21.6 | .02 | 21.4 | .03 | 21.2 | .07 | 20.7 | .10 | 20.2 | .18 | 18.9 | .25 | 17.8 | .32 | 16.8 | .43 | 15.1 | .66 | 11.6 |
| 12 | .01 | 23.5 | .02 | 23.4 | .04 | 23 | .07 | 22.5 | .10 | 21.9 | .19 | 20.5 | .27 | 19.2 | .34 | 18 | .46 | 16.1 | .70 | 12.2 |
| 13 | .01 | 26.9 | .02 | 26.8 | .04 | 26.4 | .08 | 25.7 | .12 | 25 | .22 | 23.2 | .31 | 21.6 | .39 | 20.3 | .51 | 17.9 | .77 | 13.4 |
| 14 | .01 | 30.7 | .02 | 30.5 | .05 | 30 | .09 | 29.1 | .13 | 28.3 | .25 | 26.1 | .35 | 24.2 | .43 | 22.6 | .57 | 20 | .84 | 14.7 |
| 15 | .01 | 34.2 | .03 | 33.9 | .05 | 33.4 | .10 | 32.3 | .15 | 31.4 | .27 | 28.8 | .38 | 26.6 | .47 | 24.7 | .62 | 21.7 | .90 | 15.8 |
| 16 | .02 | 37.8 | .03 | 37.5 | .06 | 36.8 | .11 | 35.7 | .16 | 34.5 | .30 | 31.6 | .41 | 29 | .51 | 26.9 | .67 | 23.4 | .97 | 16.9 |
| 18 | .02 | 45.1 | .04 | 44.7 | .07 | 43.8 | .13 | 42.3 | .19 | 40.8 | .35 | 36.9 | .48 | 33.7 | .59 | 31 | .76 | 26.7 | 1.08 | 18.9 |
| 20 | .02 | 52.4 | .04 | 51.9 | .08 | 50.8 | .15 | 48.7 | .22 | 46.9 | .40 | 42 | .54 | 38 | .66 | 34.8 | .85 | 29.7 | 1.18 | 20.6 |
| 22 | .02 | 59.5 | .05 | 58.8 | .09 | 57.5 | .17 | 54.9 | .25 | 52.7 | .45 | 46.8 | .60 | 42 | .73 | 38.2 | .92 | 32.3 | 1.26 | 22.1 |
| 24 | .03 | 66.3 | .05 | 65.4 | .10 | 63.8 | .19 | 60.8 | .28 | 58 | .49 | 51.1 | .65 | 45.6 | .78 | 41.2 | .99 | 34.6 | 1.33 | 23.3 |
| 25 | .03 | 70.5 | .06 | 69.5 | .11 | 67.7 | .20 | 64.4 | .29 | 61.4 | .51 | 53.8 | .68 | 47.9 | .82 | 43.1 | 1.03 | 36 | 1.38 | 24.0 |
| 28 | .03 | 81.2 | .06 | 80 | .12 | 77.7 | .23 | 73.4 | .33 | 69.7 | .57 | 60.3 | .76 | 53.2 | .91 | 47.5 | 1.12 | 39.2 | 1.47 | 25.7 |
| 30 | .03 | 87.8 | .07 | 86.4 | .13 | 83.7 | .25 | 78.9 | .36 | 74.6 | .61 | 64 | .80 | 56.1 | .95 | 50 | 1.17 | 40.9 | 1.52 | 26.6 |
| 32 | .04 | 96.3 | .08 | 94.7 | .15 | 91.6 | .27 | 86 | .39 | 81 | .66 | 69.1 | .86 | 60.2 | 1.02 | 53.3 | 1.24 | 43.4 | 1.59 | 27.8 |
| 35 | .04 | 107 | .08 | 105 | .16 | 101 | .30 | 94.7 | .42 | 88.9 | .71 | 74.9 | .92 | 64.7 | 1.09 | 57 | 1.31 | 46 | 1.66 | 29.1 |
| 36 | .04 | 110 | .09 | 108 | .17 | 104 | .31 | 97.1 | .43 | 91 | .73 | 76.4 | .94 | 65.8 | 1.10 | 57.8 | 1.33 | 46.5 | 1.68 | 29.3 |
| 40 | .05 | 124 | .10 | 122 | .19 | 117 | .34 | 108 | .48 | 101 | .79 | 83.5 | 1.02 | 71.2 | 1.18 | 62.1 | 1.41 | 49.4 | 1.75 | 30.7 |
| 48 | .06 | 151 | .12 | 148 | .22 | 141 | .41 | 128 | .56 | 118 | .91 | 95.4 | 1.14 | 80 | 1.31 | 69.8 | 1.54 | 53.8 | | |
| 50 | .06 | 158 | .12 | 154 | .23 | 146 | .42 | 133 | .58 | 122 | .93 | 98 | 1.17 | 81.7 | 1.34 | 70.1 | 1.56 | 54.6 | | |
| 60 | .08 | 193 | .15 | 187 | .28 | 176 | .50 | 158 | .68 | 143 | 1.06 | 112 | 1.31 | 91.6 | 1.48 | 77.6 | 1.70 | 59.5 | | |
| 64 | .08 | 209 | .16 | 203 | .30 | 190 | .54 | 169 | .73 | 153 | 1.12 | 118 | 1.37 | 96 | 1.54 | 80.9 | | | | |

A

20 DIAMETRAL PITCH CAST IRON

14½° PRESSURE ANGLE

3/8" FACE

REFERENCE PAGE 21.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 70 | .05 | 137 | .10 | 132 | .20 | 123 | .35 | 109 | .46 | 97.5 | .71 | 74.2 | .86 | 60 | .96 | 50.2 | | | | |
| 72 | .06 | 140 | .11 | 136 | .20 | 126 | .35 | 111 | .47 | 99.4 | .72 | 75.3 | .87 | 60.6 | .97 | 50.7 | | | | |
| 80 | .06 | 158 | .12 | 152 | .22 | 141 | .39 | 123 | .52 | 108 | .77 | 80.7 | .92 | 64.3 | 1.02 | 53.4 | | | | |
| 84 | .07 | 166 | .13 | 159 | .23 | 147 | .40 | 127 | .53 | 112 | .79 | 82.7 | .94 | 65.5 | 1.03 | 54.3 | | | | |
| 90 | .07 | 177 | .13 | 169 | .25 | 155 | .42 | 133 | .56 | 117 | .81 | 85.4 | .96 | 67.2 | | | | | | |
| 96 | .07 | 189 | .14 | 180 | .26 | 164 | .44 | 140 | .58 | 122 | .84 | 87.9 | .98 | 68.8 | | | | | | |
| 100 | .08 | 196 | .15 | 186 | .27 | 170 | .46 | 144 | .59 | 125 | .85 | 89.5 | 1.00 | 69.7 | | | | | | |
| 112 | .09 | 222 | .17 | 210 | .30 | 189 | .50 | 158 | .65 | 136 | .91 | 95.5 | 1.05 | 73.6 | | | | | | |
| 120 | .09 | 237 | .18 | 223 | .32 | 200 | .53 | 166 | .67 | 141 | .93 | 98.1 | 1.07 | 75.1 | | | | | | |
| 140 | .11 | 273 | .20 | 255 | .36 | 225 | .58 | 183 | .73 | 153 | .99 | 104 | | | | | | | | |
| 144 | .11 | 281 | .21 | 262 | .37 | 230 | .59 | 186 | .74 | 156 | 1.00 | 105 | | | | | | | | |
| 160 | .13 | 317 | .23 | 294 | .41 | 256 | .64 | 203 | .80 | 168 | 1.06 | 111 | | | | | | | | |
| 180 | .14 | 353 | .26 | 324 | .44 | 278 | .69 | 217 | .85 | 178 | 1.10 | 115 | | | | | | | | |
| 200 | .15 | 388 | .28 | 354 | .48 | 300 | .73 | 230 | .89 | 187 | 1.13 | 119 | | | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

16 DIAMETRAL PITCH STEEL 14½° PRESSURE ANGLE 1/2" FACE REFERENCE PAGE 21 & 22.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .02 | 44.9 | .04 | 44.5 | .07 | 43.9 | .14 | 42.7 | .20 | 41.5 | .36 | 38.3 | .51 | 35.6 | .63 | 33.2 | .84 | 29.4 | 1.24 | 21.7 |
| 12 | .02 | 48.9 | .04 | 48.5 | .08 | 47.8 | .15 | 46.3 | .21 | 44.9 | .39 | 41.2 | .54 | 38.1 | .67 | 35.4 | .89 | 31 | 1.29 | 22.6 |
| 13 | .02 | 56.1 | .04 | 55.6 | .09 | 54.7 | .17 | 52.9 | .24 | 51.2 | .44 | 46.7 | .61 | 42.9 | .76 | 39.7 | .99 | 34.6 | 1.42 | 24.9 |
| 14 | .03 | 63.8 | .05 | 63.2 | .10 | 62 | .19 | 59.8 | .28 | 57.8 | .50 | 52.4 | .68 | 47.9 | .84 | 44.2 | 1.09 | 38.2 | 1.55 | 27.1 |
| 15 | .03 | 71.1 | .06 | 70.3 | .11 | 68.9 | .21 | 66.4 | .30 | 63.9 | .55 | 57.6 | .75 | 52.5 | .92 | 48.1 | 1.18 | 41.3 | 1.66 | 29.0 |
| 16 | .03 | 78.7 | .06 | 77.8 | .12 | 76.2 | .23 | 73.1 | .33 | 70.3 | .60 | 63 | .82 | 57.1 | .99 | 52.2 | 1.27 | 44.5 | 1.77 | 30.9 |
| 18 | .04 | 93.8 | .07 | 99.6 | .14 | 90.5 | .27 | 86.5 | .39 | 82.8 | .70 | 73.4 | .94 | 65.9 | 1.14 | 59.8 | 1.44 | 50.4 | 1.96 | 34.3 |
| 20 | .04 | 109 | .09 | 107 | .17 | 105 | .32 | 99 | .45 | 94.9 | .79 | 83.2 | 1.06 | 74.1 | 1.27 | 66.7 | 1.59 | 55.7 | 2.13 | 37.2 |
| 22 | .05 | 124 | .10 | 122 | .19 | 118 | .36 | 112 | .51 | 106 | .88 | 92.3 | 1.16 | 81.5 | 1.39 | 72.9 | 1.72 | 60.3 | 2.27 | 39.7 |
| 24 | .05 | 138 | .11 | 135 | .21 | 131 | .39 | 124 | .56 | 117 | .96 | 100 | 1.26 | 88 | 1.49 | 78.3 | 1.83 | 64.2 | 2.38 | 41.7 |
| 26 | .06 | 154 | .12 | 151 | .23 | 146 | .43 | 137 | .61 | 129 | 1.04 | 110 | 1.36 | 95.4 | 1.61 | 84.4 | 1.96 | 68.6 | 2.51 | 43.9 |
| 28 | .07 | 168 | .13 | 165 | .25 | 160 | .47 | 149 | .66 | 140 | 1.12 | 118 | 1.45 | 102 | 1.71 | 89.6 | 2.06 | 72.3 | 2.62 | 45.8 |
| 30 | .07 | 182 | .14 | 179 | .27 | 172 | .51 | 160 | .71 | 149 | 1.19 | 125 | 1.53 | 107 | 1.79 | 93.8 | 2.15 | 75.1 | 2.69 | 47.1 |
| 32 | .08 | 200 | .16 | 196 | .30 | 188 | .55 | 174 | .77 | 162 | 1.28 | 134 | 1.63 | 114 | 1.90 | 99.7 | 2.27 | 79.4 | 2.81 | 49.3 |
| 36 | .09 | 228 | .18 | 223 | .34 | 213 | .62 | 196 | .86 | 181 | 1.40 | 147 | 1.77 | 124 | 2.05 | 107 | 2.42 | 84.6 | | |
| 40 | .10 | 258 | .20 | 251 | .38 | 239 | .69 | 217 | .95 | 200 | 1.52 | 160 | 1.91 | 134 | 2.18 | 115 | 2.55 | 89.4 | | |
| 48 | .12 | 314 | .24 | 304 | .45 | 286 | .81 | 257 | 1.11 | 232 | 1.73 | 181 | 2.12 | 149 | 2.40 | 126 | 2.76 | 96.5 | | |

16 DIAMETRAL PITCH CAST IRON 14½° PRESSURE ANGLE 1/2" FACE REFERENCE PAGE 22.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 54 | .09 | 217 | .17 | 209 | .31 | 196 | .55 | 173 | .74 | 156 | 1.13 | 119 | 1.38 | 96.6 | 1.54 | 81.1 | | | | |
| 56 | .09 | 224 | .17 | 216 | .32 | 202 | .57 | 178 | .76 | 160 | 1.16 | 121 | 1.40 | 98.1 | 1.57 | 82.2 | | | | |
| 60 | .10 | 239 | .18 | 231 | .34 | 214 | .60 | 188 | .80 | 167 | 1.20 | 126 | 1.44 | 100 | 1.60 | 84.2 | | | | |
| 64 | .10 | 260 | .20 | 249 | .37 | 231 | .64 | 201 | .85 | 178 | 1.26 | 132 | 1.50 | 105 | 1.67 | 87.5 | | | | |
| 72 | .12 | 290 | .22 | 277 | .40 | 255 | .69 | 219 | .91 | 192 | 1.33 | 140 | 1.57 | 110 | | | | | | |
| 80 | .13 | 327 | .25 | 311 | .45 | 283 | .76 | 240 | .99 | 208 | 1.42 | 149 | 1.66 | 116 | | | | | | |
| 84 | .14 | 342 | .26 | 325 | .47 | 294 | .79 | 248 | 1.02 | 214 | 1.45 | 152 | 1.69 | 118 | | | | | | |
| 96 | .15 | 388 | .29 | 365 | .52 | 327 | .86 | 271 | 1.10 | 231 | 1.53 | 161 | 1.76 | 123 | | | | | | |
| 112 | .18 | 455 | .34 | 425 | .60 | 376 | .97 | 304 | 1.22 | 256 | 1.65 | 173 | | | | | | | | |
| 120 | .19 | 486 | .36 | 452 | .63 | 396 | 1.01 | 318 | 1.26 | 265 | 1.69 | 177 | | | | | | | | |
| 128 | .20 | 516 | .38 | 477 | .66 | 415 | 1.05 | 330 | 1.30 | 274 | 1.72 | 181 | | | | | | | | |
| 144 | .23 | 574 | .42 | 527 | .72 | 453 | 1.12 | 353 | 1.38 | 289 | 1.79 | 188 | | | | | | | | |
| 160 | .26 | 648 | .47 | 590 | .79 | 500 | 1.22 | 384 | 1.48 | 311 | 1.89 | 198 | | | | | | | | |
| 192 | .307 | 762 | .54 | 683 | .90 | 566 | 1.34 | 421 | 1.60 | 335 | | | | | | | | | | |

16 DIAMETRAL PITCH NON-METALLIC 14½° PRESSURE ANGLE 1/2" FACE REFERENCE PAGE 22.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 16 | | | | | | | .06 | 19 | .09 | 19 | .15 | 16 | .20 | 14 | .25 | 13 | .32 | 11 | .56 | 9 |
| 20 | | | | | | | .09 | 28 | .12 | 30 | .20 | 21 | .26 | 18 | .32 | 17 | .42 | 15 | .69 | 12 |
| 24 | | | | | | | .11 | 34 | .15 | 31 | .24 | 25 | .31 | 22 | .38 | 20 | .50 | 17 | .82 | 14 |
| 32 | | | | | | | .14 | 44 | .19 | 40 | .31 | 32 | .40 | 28 | .49 | 26 | .65 | 23 | 1.12 | 20 |
| 40 | | | | | | | .18 | 57 | .24 | 50 | .38 | 40 | .49 | 34 | .62 | 32 | .82 | 29 | 1.41 | 25 |
| 48 | | | | | | | .21 | 63 | .28 | 58 | .44 | 46 | .60 | 40 | .72 | 37 | .96 | 33 | 1.65 | 29 |
| 64 | | | | | | | .26 | 82 | .34 | 71 | .54 | 57 | .72 | 50 | .88 | 46 | 1.20 | 42 | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: 1. Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute.

They should be used for interpolation purposes only.

2. Non-metallic gears are most commonly used for the driving pinion of a pair of gears, with mating gear made of Cast Iron or Steel, where pitch line velocities exceed 1000 FPM and are not subjected to shock loads.

*Torque Ratings (Lb. Ins.).

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

12 DIAMETRAL PITCH STEEL

14½° PRESSURE ANGLE

¾" FACE

REFERENCE PAGE 22.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .05 | 119 | .09 | 118 | .18 | 116 | .35 | 112 | .51 | 108 | .93 | 97 | 1.27 | 88.6 | 1.55 | 81.5 | 2.00 | 70 | 2.82 | 49.4 |
| 12 | .05 | 130 | .10 | 129 | .20 | 126 | .38 | 120 | .55 | 116 | .99 | 104 | 1.35 | 94.4 | 1.64 | 86.3 | 2.10 | 73.6 | 2.92 | 51.1 |
| 13 | .06 | 149 | .12 | 147 | .23 | 144 | .44 | 138 | .63 | 132 | 1.12 | 118 | 1.51 | 106 | 1.83 | 96.3 | 2.33 | 81.6 | 3.19 | 55.9 |
| 14 | .07 | 169 | .13 | 167 | .26 | 163 | .49 | 156 | .71 | 149 | 1.25 | 131 | 1.68 | 118 | 2.03 | 107 | 2.56 | 89.6 | 3.46 | 60.6 |
| 15 | .07 | 189 | .15 | 186 | .29 | 181 | .55 | 172 | .78 | 164 | 1.37 | 144 | 1.83 | 128 | 2.20 | 116 | 2.76 | 96.6 | 3.69 | 64.6 |
| 16 | .08 | 209 | .16 | 206 | .32 | 200 | .60 | 190 | .86 | 180 | 1.50 | 157 | 1.99 | 139 | 2.38 | 125 | 2.96 | 103 | 3.91 | 68.5 |
| 18 | .10 | 249 | .19 | 245 | .38 | 237 | .71 | 224 | 1.01 | 242 | 1.73 | 182 | 2.28 | 159 | 2.70 | 142 | 3.32 | 116 | 4.31 | 75.4 |
| 20 | .11 | 289 | .23 | 284 | .44 | 274 | .82 | 257 | 1.15 | 215 | 1.95 | 205 | 2.54 | 178 | 2.99 | 157 | 3.64 | 127 | 4.65 | 81.4 |
| 21 | .12 | 310 | .24 | 304 | .47 | 293 | .87 | 274 | 1.22 | 257 | 2.06 | 216 | 2.67 | 187 | 3.14 | 164 | 3.80 | 133 | 4.81 | 84.3 |
| 22 | .13 | 328 | .26 | 322 | .49 | 310 | .92 | 288 | 1.28 | 270 | 2.15 | 226 | 2.78 | 195 | 3.25 | 171 | 3.92 | 137 | 4.93 | 86.2 |
| 24 | .14 | 365 | .28 | 357 | .54 | 343 | 1.01 | 317 | 1.41 | 296 | 2.33 | 245 | 2.98 | 209 | 3.47 | 182 | 4.14 | 145 | 5.14 | 90.0 |
| 30 | .19 | 483 | .37 | 470 | .71 | 447 | 1.29 | 407 | 1.78 | 373 | 2.85 | 299 | 3.57 | 250 | 4.09 | 215 | 4.78 | 167 | | |
| 32 | .21 | 529 | .41 | 514 | .77 | 488 | 1.40 | 442 | 1.92 | 403 | 3.05 | 320 | 3.80 | 266 | 4.32 | 227 | 5.02 | 176 | | |
| 36 | .24 | 605 | .46 | 586 | .88 | 552 | 1.57 | 495 | 2.13 | 448 | 3.33 | 349 | 4.09 | 286 | 4.62 | 243 | 5.31 | 186 | | |
| 40 | .27 | 682 | .52 | 659 | .98 | 617 | 1.74 | 547 | 2.34 | 492 | 3.59 | 377 | 4.37 | 306 | 4.90 | 257 | | | | |
| 42 | .28 | 715 | .55 | 689 | 1.02 | 644 | 1.80 | 568 | 2.42 | 509 | 3.69 | 387 | 4.46 | 312 | 4.99 | 262 | | | | |

A

12 DIAMETRAL PITCH CAST IRON

14½° PRESSURE ANGLE

¾" FACE

REFERENCE PAGE 23.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 48 | .20 | 497 | .38 | 477 | .70 | 441 | 1.22 | 384 | 1.62 | 340 | 2.41 | 253 | 2.88 | 201 | 3.19 | 167 | | | | |
| 54 | .23 | 571 | .43 | 545 | .79 | 500 | 1.36 | 430 | 1.79 | 377 | 2.62 | 275 | 3.09 | 216 | 3.40 | 178 | | | | |
| 60 | .25 | 631 | .48 | 600 | .87 | 546 | 1.47 | 463 | 1.91 | 402 | 2.74 | 288 | 3.21 | 224 | | | | | | |
| 64 | .27 | 683 | .51 | 647 | .93 | 586 | 1.56 | 493 | 2.02 | 425 | 2.87 | 301 | 3.33 | 233 | | | | | | |
| 72 | .30 | 762 | .57 | 718 | 1.02 | 644 | 1.69 | 533 | 2.17 | 455 | 3.01 | 316 | 3.46 | 242 | | | | | | |
| 84 | .36 | 896 | .66 | 837 | 1.17 | 739 | 1.90 | 598 | 2.40 | 503 | 3.24 | 340 | | | | | | | | |
| 96 | .40 | 1014 | .74 | 938 | 1.30 | 817 | 2.06 | 649 | 2.56 | 538 | 3.39 | 356 | | | | | | | | |
| 108 | .46 | 1148 | .84 | 1054 | 1.44 | 906 | 2.24 | 706 | 2.76 | 579 | 3.58 | 376 | | | | | | | | |
| 112 | .47 | 1187 | .86 | 1087 | 1.47 | 929 | 2.29 | 720 | 2.80 | 588 | 3.62 | 379 | | | | | | | | |
| 120 | .50 | 1264 | .91 | 1150 | 1.55 | 975 | 2.37 | 748 | 2.89 | 607 | 3.69 | 387 | | | | | | | | |
| 144 | .59 | 1487 | 1.06 | 1333 | 1.75 | 1103 | 2.61 | 821 | 3.11 | 654 | 3.86 | 406 | | | | | | | | |
| 168 | .69 | 1745 | 1.22 | 1541 | 1.98 | 1248 | 2.87 | 905 | 3.38 | 710 | | | | | | | | | | |

12 DIAMETRAL PITCH NON-METALLIC

14½° PRESSURE ANGLE

¾" FACE

REFERENCE PAGE 23.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 15 | | | | | | | .13 | 41 | .20 | 42 | .34 | 36 | .45 | 31 | .56 | 29 | .72 | 25 | 1.15 | 20 |
| 18 | | | | | | | .19 | 60 | .26 | 54 | .43 | 45 | .56 | 39 | .68 | 36 | .90 | 31 | 1.44 | 25 |
| 21 | | | | | | | .23 | 72 | .31 | 65 | .50 | 52 | .66 | 46 | .81 | 42 | 1.06 | 37 | 1.80 | 31 |
| 24 | | | | | | | .27 | 85 | .36 | 76 | .58 | 60 | .76 | 53 | .92 | 48 | 1.22 | 42 | 2.07 | 36 |
| 30 | | | | | | | .34 | 107 | .44 | 92 | .73 | 76 | .95 | 66 | 1.14 | 60 | 1.56 | 54 | 2.64 | 46 |
| 36 | | | | | | | .40 | 126 | .52 | 109 | .82 | 86 | 1.13 | 79 | 1.36 | 71 | 1.83 | 64 | 3.18 | 56 |
| 48 | | | | | | | .51 | 161 | .66 | 138 | 1.05 | 110 | 1.39 | 97 | 1.70 | 89 | 2.33 | 81 | | |
| 60 | | | | | | | .60 | 189 | .80 | 168 | 1.29 | 135 | 1.72 | 120 | 2.13 | 112 | 2.95 | 103 | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: 1. Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

2. Non-metallic gears are most commonly used for the driving pinion of a pair of gears, with mating gear made of Cast Iron or Steel, where pitch line velocities exceed 1000 FPM and are not subjected to shock loads.

*Torque Ratings (Lb. Ins.).

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

10 DIAMETRAL PITCH STEEL

14½° PRESSURE ANGLE

1" FACE

REFERENCE PAGE 23.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .09 | 229 | .18 | 226 | .35 | 221 | .67 | 211 | .96 | 202 | 1.71 | 179 | 2.31 | 162 | 2.80 | 147 | 3.55 | 124 | 4.85 | 85 |
| 12 | .10 | 249 | .20 | 246 | .38 | 240 | .73 | 229 | 1.04 | 218 | 1.83 | 192 | 2.45 | 172 | 2.95 | 155 | 3.71 | 130 | 5.00 | 88 |
| 14 | .13 | 325 | .25 | 320 | .49 | 311 | .93 | 294 | 1.33 | 279 | 2.30 | 241 | 3.04 | 213 | 3.62 | 190 | 4.49 | 157 | 5.89 | 103 |
| 15 | .14 | 362 | .28 | 356 | .55 | 345 | 1.03 | 325 | 1.46 | 307 | 2.51 | 264 | 3.30 | 231 | 3.92 | 206 | 4.82 | 169 | 6.25 | 109 |
| 16 | .16 | 400 | .31 | 393 | .60 | 381 | 1.13 | 357 | 1.60 | 337 | 2.73 | 287 | 3.57 | 250 | 4.22 | 221 | 5.15 | 180 | 6.62 | 116 |
| 18 | .19 | 447 | .37 | 468 | .72 | 451 | 1.33 | 420 | 1.87 | 394 | 3.15 | 330 | 4.07 | 285 | 4.76 | 250 | 5.75 | 201 | 7.25 | 127 |
| 20 | .22 | 553 | .43 | 542 | .83 | 520 | 1.53 | 481 | 2.13 | 448 | 3.53 | 371 | 4.52 | 317 | 5.26 | 276 | 6.28 | 220 | 7.79 | 136 |
| 24 | .28 | 698 | .54 | 681 | 1.03 | 648 | 1.88 | 592 | 2.59 | 545 | 4.19 | 440 | 5.26 | 369 | 6.04 | 317 | 7.09 | 248 | | |
| 25 | .29 | 742 | .57 | 722 | 1.09 | 687 | 1.98 | 625 | 2.73 | 574 | 4.38 | 460 | 5.49 | 384 | 6.28 | 330 | 7.34 | 257 | | |
| 28 | .34 | 854 | .66 | 829 | 1.24 | 784 | 2.24 | 707 | 3.06 | 644 | 4.83 | 507 | 5.98 | 419 | 6.79 | 357 | 7.85 | 275 | | |
| 30 | .37 | 922 | .71 | 893 | 1.34 | 842 | 2.39 | 754 | 3.25 | 683 | 5.07 | 533 | 6.24 | 437 | 7.05 | 370 | 8.10 | 283 | | |
| 32 | .40 | 1010 | .78 | 977 | 1.46 | 917 | 2.59 | 817 | 3.51 | 737 | 5.41 | 569 | 6.61 | 463 | 7.44 | 391 | | | | |
| 35 | .45 | 1123 | .86 | 1083 | 1.60 | 1011 | 2.83 | 893 | 3.80 | 799 | 5.79 | 608 | 7.01 | 491 | 7.83 | 411 | | | | |
| 36 | .46 | 1153 | .88 | 1111 | 1.64 | 1036 | 2.89 | 912 | 3.88 | 815 | 5.87 | 617 | 7.09 | 496 | 7.91 | 415 | | | | |

10 DIAMETRAL PITCH CAST IRON

14½° PRESSURE ANGLE

1" FACE

REFERENCE PAGE 24.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 40 | .31 | 780 | .59 | 749 | 1.10 | 693 | 1.92 | 603 | 2.54 | 534 | 3.79 | 398 | 4.52 | 317 | 5.01 | 263 | | | | |
| 42 | .32 | 818 | .62 | 783 | 1.15 | 722 | 1.99 | 626 | 2.63 | 552 | 3.88 | 407 | 4.61 | 323 | 5.09 | 267 | | | | |
| 45 | .35 | 889 | .67 | 850 | 1.24 | 780 | 2.13 | 670 | 2.79 | 587 | 4.08 | 428 | 4.81 | 337 | | | | | | |
| 48 | .38 | 946 | .71 | 901 | 1.31 | 823 | 2.23 | 701 | 2.91 | 611 | 4.20 | 441 | 4.92 | 345 | | | | | | |
| 50 | .39 | 983 | .74 | 935 | 1.35 | 851 | 2.29 | 722 | 2.98 | 626 | 4.27 | 449 | 4.99 | 350 | | | | | | |
| 54 | .43 | 1083 | .82 | 1029 | 1.48 | 931 | 2.48 | 782 | 3.21 | 674 | 4.53 | 476 | 5.26 | 368 | | | | | | |
| 55 | .44 | 1105 | .83 | 1046 | 1.50 | 945 | 2.51 | 791 | 3.24 | 681 | 4.57 | 480 | 5.29 | 371 | | | | | | |
| 60 | .48 | 1199 | .90 | 1130 | 1.61 | 1013 | 2.66 | 839 | 3.41 | 716 | 4.73 | 497 | 5.43 | 381 | | | | | | |
| 64 | .51 | 1297 | .97 | 1217 | 1.72 | 1084 | 2.82 | 890 | 3.59 | 755 | 4.93 | 518 | | | | | | | | |
| 70 | .56 | 1410 | 1.04 | 1316 | 1.84 | 1162 | 2.99 | 942 | 3.77 | 792 | 5.10 | 535 | | | | | | | | |
| 72 | .57 | 1447 | 1.07 | 1349 | 1.88 | 1187 | 3.04 | 958 | 3.82 | 803 | 5.15 | 541 | | | | | | | | |
| 80 | .64 | 1623 | 1.19 | 1502 | 2.07 | 1308 | 3.30 | 1039 | 4.10 | 861 | 5.43 | 570 | | | | | | | | |
| 84 | .67 | 1697 | 1.24 | 1565 | 2.15 | 1355 | 3.39 | 1069 | 4.10 | 882 | 5.51 | 579 | | | | | | | | |
| 90 | .72 | 1807 | 1.32 | 1659 | 2.26 | 1425 | 3.53 | 1111 | 4.34 | 911 | 5.63 | 591 | | | | | | | | |
| 96 | .76 | 1916 | 1.39 | 1750 | 2.37 | 1492 | 3.65 | 1152 | 4.46 | 938 | 5.73 | 602 | | | | | | | | |
| 100 | .79 | 1988 | 1.44 | 1810 | 2.44 | 1535 | 3.74 | 1177 | 4.54 | 955 | 5.80 | 609 | | | | | | | | |
| 110 | .87 | 2203 | 1.58 | 1990 | 2.64 | 1667 | 3.99 | 1258 | 4.81 | 1011 | 6.05 | 636 | | | | | | | | |
| 120 | .94 | 2380 | 1.69 | 2133 | 2.80 | 1766 | 4.17 | 1314 | 4.98 | 1047 | 6.18 | 650 | | | | | | | | |
| 140 | 1.08 | 2724 | 1.91 | 2405 | 3.09 | 1949 | 4.48 | 1413 | 5.27 | 1108 | | | | | | | | | | |
| 144 | 1.11 | 2791 | 1.95 | 2457 | 3.15 | 1983 | 4.54 | 1430 | 5.33 | 1119 | | | | | | | | | | |
| 160 | 1.24 | 3132 | 2.16 | 2727 | 3.44 | 2166 | 4.87 | 1535 | 5.66 | 1188 | | | | | | | | | | |
| 180 | 1.37 | 3459 | 2.36 | 2971 | 3.68 | 2318 | 5.11 | 1609 | 5.87 | 1233 | | | | | | | | | | |

10 DIAMETRAL PITCH NON-METALLIC

14½° PRESSURE ANGLE

1" FACE

REFERENCE PAGE 23.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 15 | | | | | | | .27 | 85 | .38 | 80 | .63 | 66 | .83 | 58 | 1.00 | 52 | 1.31 | 46 | 2.08 | 36 |
| 18 | | | | | | | .33 | 104 | .47 | 99 | .78 | 82 | 1.02 | 71 | 1.24 | 65 | 1.63 | 57 | 2.60 | 45 |
| 20 | | | | | | | .40 | 126 | .54 | 113 | .88 | 92 | 1.15 | 80 | 1.39 | 73 | 1.85 | 65 | 3.12 | 55 |
| 25 | | | | | | | .51 | 161 | .67 | 140 | 1.09 | 114 | 1.42 | 99 | 1.73 | 90 | 2.32 | 81 | 4.00 | 70 |
| 30 | | | | | | | .62 | 195 | .81 | 170 | 1.29 | 135 | 1.69 | 118 | 2.07 | 109 | 2.80 | 98 | 4.89 | 86 |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: 1. Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute.

They should be used for interpolation purposes only.

2. Non-metallic gears are most commonly used for the driving pinion of a pair of gears, with mating gear made of Cast Iron or Steel, where pitch line velocities exceed 1000 FPM and are not subjected to shock loads.

*Torque Ratings (Lb. Ins.).

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

8 DIAMETRAL PITCH STEEL 14½° PRESSURE ANGLE 1-1/4" FACE REFERENCE PAGE 24.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .18 | 446 | .35 | 439 | .68 | 427 | 1.28 | 404 | 1.82 | 383 | 3.16 | 332 | 4.19 | 294 | 5.00 | 263 | 6.21 | 217 | 8.17 | 143 |
| 12 | .19 | 485 | .38 | 478 | .73 | 463 | 1.38 | 436 | 1.96 | 412 | 3.37 | 354 | 4.43 | 310 | 5.26 | 276 | 6.47 | 226 | 8.39 | 147 |
| 14 | .25 | 632 | .49 | 620 | .95 | 599 | 1.77 | 559 | 2.49 | 524 | 4.21 | 442 | 5.45 | 382 | 6.40 | 336 | 7.75 | 271 | 9.81 | 172 |
| 15 | .28 | 703 | .55 | 690 | 1.05 | 664 | 1.96 | 617 | 2.74 | 576 | 4.58 | 481 | 5.90 | 413 | 6.89 | 362 | 8.29 | 290 | 10.39 | 182 |
| 16 | .31 | 778 | .60 | 762 | 1.16 | 731 | 2.15 | 677 | 3.00 | 630 | 4.97 | 522 | 6.36 | 445 | 7.39 | 388 | 8.83 | 309 | 10.96 | 192 |
| 18 | .37 | 927 | .72 | 905 | 1.37 | 865 | 2.52 | 794 | 3.49 | 734 | 5.69 | 598 | 7.20 | 504 | 8.30 | 436 | 9.80 | 343 | | |
| 20 | .43 | 1075 | .83 | 1047 | 1.58 | 996 | 2.88 | 907 | 3.96 | 832 | 6.35 | 667 | 7.96 | 557 | 9.10 | 478 | 10.64 | 372 | | |
| 22 | .48 | 1219 | .94 | 1184 | 1.78 | 1121 | 3.21 | 1012 | 4.39 | 923 | 6.95 | 730 | 8.62 | 603 | 9.79 | 514 | 11.34 | 397 | | |
| 24 | .54 | 1355 | 1.04 | 1313 | 1.96 | 1237 | 3.52 | 1109 | 4.78 | 1004 | 7.46 | 783 | 9.17 | 642 | 10.36 | 544 | 11.90 | 417 | | |
| 28 | .66 | 1655 | 1.27 | 1596 | 2.37 | 1490 | 4.18 | 1316 | 5.61 | 1178 | 8.53 | 896 | 10.33 | 723 | 11.54 | 606 | | | | |
| 30 | .71 | 1786 | 1.36 | 1718 | 2.53 | 1598 | 4.44 | 1400 | 5.93 | 1247 | 8.93 | 938 | 10.73 | 752 | 11.94 | 627 | | | | |
| 32 | .78 | 1957 | 1.49 | 1878 | 2.76 | 1738 | 4.80 | 1513 | 6.38 | 1340 | 9.49 | 997 | 11.34 | 794 | 12.56 | 660 | | | | |

8 DIAMETRAL PITCH CAST IRON 14½° PRESSURE ANGLE 1-1/4" FACE REFERENCE PAGE 25.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 36 | .53 | 1339 | 1.01 | 1279 | 1.86 | 1174 | 3.20 | 1009 | 4.21 | 884 | 6.14 | 645 | 7.25 | 507 | | | | | | |
| 40 | .60 | 1508 | 1.14 | 1434 | 2.07 | 1305 | 3.51 | 1107 | 4.57 | 961 | 6.55 | 688 | 7.66 | 536 | | | | | | |
| 42 | .63 | 1579 | 1.19 | 1498 | 2.16 | 1358 | 3.63 | 1145 | 4.71 | 989 | 6.69 | 703 | 7.78 | 545 | | | | | | |
| 44 | .67 | 1681 | 1.26 | 1591 | 2.28 | 1437 | 3.82 | 1204 | 4.93 | 1036 | 6.95 | 730 | 8.05 | 564 | | | | | | |
| 48 | .72 | 1824 | 1.36 | 1719 | 2.44 | 1540 | 4.05 | 1275 | 5.18 | 1088 | 7.19 | 756 | 8.27 | 579 | | | | | | |
| 54 | .83 | 2092 | 1.55 | 1958 | 2.75 | 1735 | 4.48 | 1413 | 5.67 | 1192 | 7.72 | 811 | | | | | | | | |
| 56 | .86 | 2164 | 1.60 | 2021 | 2.83 | 1784 | 4.59 | 1446 | 5.78 | 1215 | 7.83 | 822 | | | | | | | | |
| 60 | .92 | 2307 | 1.70 | 2145 | 2.98 | 1880 | 4.79 | 1508 | 5.99 | 1259 | 8.01 | 842 | | | | | | | | |
| 64 | .99 | 2492 | 1.83 | 2307 | 3.19 | 2008 | 5.06 | 1595 | 6.30 | 1323 | 8.33 | 875 | | | | | | | | |
| 72 | 1.10 | 2775 | 2.02 | 2548 | 3.47 | 2188 | 5.42 | 1707 | 6.66 | 1399 | 8.64 | 908 | | | | | | | | |
| 80 | 1.23 | 3107 | 2.24 | 2828 | 3.81 | 2398 | 5.84 | 1839 | 7.10 | 1492 | 9.06 | 952 | | | | | | | | |
| 84 | 1.29 | 3246 | 2.34 | 2943 | 3.94 | 2481 | 5.99 | 1887 | 7.25 | 1523 | 9.18 | 965 | | | | | | | | |
| 88 | 1.34 | 3384 | 2.42 | 3056 | 4.06 | 2561 | 6.13 | 1933 | 7.39 | 1553 | 9.30 | 976 | | | | | | | | |
| 96 | 1.45 | 3656 | 2.60 | 3277 | 4.31 | 2713 | 6.41 | 2019 | 7.65 | 1608 | 9.50 | 998 | | | | | | | | |
| 112 | 1.69 | 4256 | 2.98 | 3757 | 4.83 | 3045 | 7.01 | 2207 | 8.24 | 1731 | | | | | | | | | | |
| 120 | 1.79 | 4517 | 3.14 | 3960 | 5.04 | 3176 | 7.22 | 2275 | 8.44 | 1773 | | | | | | | | | | |
| 128 | 1.89 | 4773 | 3.30 | 4155 | 5.24 | 3300 | 7.42 | 2339 | 8.62 | 1811 | | | | | | | | | | |
| 144 | 2.09 | 5272 | 3.59 | 4528 | 5.60 | 3532 | 7.78 | 2452 | | | | | | | | | | | | |
| 160 | 2.33 | 5868 | 3.95 | 4980 | 6.07 | 3828 | 8.28 | 2610 | | | | | | | | | | | | |

8 DIAMETRAL PITCH NON-METALLIC 14½° PRESSURE ANGLE 1-1/4" FACE REFERENCE PAGE 24.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 16 | | | | | | | .56 | 176 | .76 | 160 | 1.23 | 129 | 1.61 | 112 | 1.96 | 103 | 2.60 | 91 | 4.39 | 77 |
| 18 | | | | | | | .61 | 192 | .88 | 185 | 1.41 | 148 | 1.84 | 129 | 2.25 | 118 | 3.00 | 105 | 4.71 | 82 |
| 20 | | | | | | | .74 | 233 | .99 | 208 | 1.59 | 167 | 2.08 | 146 | 2.54 | 133 | 3.40 | 119 | 5.84 | 102 |
| 24 | | | | | | | .90 | 283 | 1.19 | 250 | 1.90 | 200 | 2.50 | 175 | 3.06 | 160 | 4.13 | 144 | 7.22 | 126 |
| 28 | | | | | | | 1.06 | 334 | 1.38 | 290 | 2.20 | 231 | 2.91 | 204 | 3.57 | 187 | 4.86 | 170 | | |

6 DIAMETRAL PITCH STEEL 14½° PRESSURE ANGLE 1-1/2" FACE REFERENCE PAGE 25.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .38 | 946 | .74 | 928 | 1.42 | 893 | 2.64 | 832 | 3.70 | 778 | 6.20 | 652 | 8.01 | 561 | 9.37 | 492 | 11.29 | 395 | 14.19 | 249 |
| 12 | .41 | 1030 | .80 | 1008 | 1.54 | 968 | 2.84 | 896 | 3.97 | 834 | 6.57 | 691 | 8.41 | 589 | 9.78 | 514 | 11.69 | 409 | 14.51 | 254 |
| 14 | .53 | 1340 | 1.04 | 1308 | 1.98 | 1247 | 3.62 | 1142 | 5.01 | 1053 | 8.12 | 853 | 10.24 | 717 | 11.77 | 618 | 13.85 | 485 | | |
| 15 | .59 | 1491 | 1.15 | 1452 | 2.19 | 1381 | 3.99 | 1257 | 5.49 | 1154 | 8.81 | 925 | 11.03 | 773 | 12.62 | 663 | 14.75 | 517 | | |
| 16 | .65 | 1648 | 1.27 | 1603 | 2.41 | 1519 | 4.37 | 1376 | 5.98 | 1257 | 9.51 | 999 | 11.83 | 828 | 13.47 | 708 | 15.65 | 548 | | |
| 18 | .78 | 1962 | 1.51 | 1902 | 2.84 | 1792 | 5.10 | 1606 | 6.92 | 1455 | 10.80 | 1135 | 13.28 | 930 | 15.00 | 788 | 17.23 | 603 | | |
| 20 | .90 | 2273 | 1.74 | 2196 | 3.26 | 2057 | 5.79 | 1825 | 7.81 | 1640 | 11.97 | 1258 | 14.57 | 1020 | 16.33 | 858 | | | | |
| 21 | .97 | 2436 | 1.86 | 2349 | 3.48 | 2194 | 6.15 | 1937 | 8.25 | 1734 | 12.56 | 1319 | 15.20 | 1065 | 16.99 | 892 | | | | |
| 24 | 1.13 | 2860 | 2.18 | 2745 | 4.03 | 2541 | 7.02 | 2212 | 9.32 | 1958 | 13.87 | 1457 | 16.57 | 1160 | 18.35 | 964 | | | | |
| 27 | 1.32 | 3335 | 2.53 | 3186 | 4.64 | 2924 | 7.97 | 2512 | 10.48 | 2201 | 15.29 | 1606 | 18.05 | 1264 | | | | | | |
| 30 | 1.49 | 3761 | 2.84 | 3576 | 5.17 | 3255 | 8.76 | 2761 | 11.41 | 2396 | 16.35 | 1717 | 19.10 | 1338 | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

6 DIAMETRAL PITCH CAST IRON 14½° PRESSURE ANGLE 1-1/2" FACE REFERENCE PAGE 26.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 32 | .98 | 2470 | 1.86 | 2341 | 3.36 | 2120 | 5.66 | 1783 | 7.32 | 1539 | 10.38 | 1090 | 12.06 | 844 | | | | | | |
| 33 | 1.01 | 2543 | 1.91 | 2406 | 3.45 | 2173 | 5.78 | 1821 | 7.46 | 1567 | 10.51 | 1104 | | | | | | | | |
| 36 | 1.12 | 2813 | 2.10 | 2650 | 3.77 | 2375 | 6.24 | 1967 | 7.99 | 1678 | 11.09 | 1165 | | | | | | | | |
| 40 | 1.25 | 3163 | 2.35 | 2962 | 4.17 | 2628 | 6.80 | 2144 | 8.62 | 1811 | 11.76 | 1235 | | | | | | | | |
| 42 | 1.31 | 3310 | 2.45 | 3090 | 4.33 | 2728 | 7.02 | 2211 | 8.85 | 1858 | 11.97 | 1257 | | | | | | | | |
| 48 | 1.51 | 3814 | 2.80 | 3530 | 4.88 | 3073 | 7.75 | 2441 | 9.64 | 2025 | 12.75 | 1339 | | | | | | | | |
| 54 | 1.73 | 4364 | 3.18 | 4005 | 5.46 | 3440 | 8.52 | 2683 | 10.47 | 2199 | 13.59 | 1427 | | | | | | | | |
| 60 | 1.90 | 4801 | 3.47 | 4371 | 5.88 | 3706 | 9.02 | 2842 | 10.97 | 2305 | 14.00 | 1471 | | | | | | | | |
| 64 | 2.05 | 5177 | 3.72 | 4688 | 6.26 | 3944 | 9.50 | 2993 | 11.48 | 2411 | 14.50 | 1523 | | | | | | | | |
| 66 | 2.11 | 5322 | 3.81 | 4807 | 6.39 | 4027 | 9.65 | 3040 | 11.62 | 2442 | 14.62 | 1536 | | | | | | | | |
| 72 | 2.28 | 5750 | 4.09 | 5153 | 6.77 | 4267 | 10.08 | 3175 | 12.03 | 2528 | 14.94 | 1569 | | | | | | | | |
| 84 | 2.66 | 6695 | 4.69 | 5912 | 7.60 | 4790 | 11.02 | 3473 | 12.96 | 2724 | | | | | | | | | | |
| 96 | 2.98 | 7510 | 5.19 | 6538 | 8.24 | 5193 | 11.68 | 3680 | 13.56 | 2849 | | | | | | | | | | |
| 108 | 3.35 | 8436 | 5.75 | 7246 | 8.97 | 5652 | 12.45 | 3924 | 14.31 | 3006 | | | | | | | | | | |
| 120 | 3.65 | 9205 | 6.19 | 7806 | 9.50 | 5987 | 12.96 | 4083 | | | | | | | | | | | | |
| 144 | 4.23 | 10664 | 7.01 | 8831 | 10.43 | 6571 | 13.79 | 4347 | | | | | | | | | | | | |

5 DIAMETRAL PITCH STEEL 14½° PRESSURE ANGLE 1-3/4" FACE REFERENCE PAGE 26.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | .63 | 1583 | 1.23 | 1546 | 2.35 | 1479 | 4.31 | 1360 | 5.99 | 1258 | 9.79 | 1028 | 12.41 | 869 | 14.33 | 753 | 16.96 | 594 | | |
| 12 | .68 | 1723 | 1.33 | 1680 | 2.54 | 1600 | 4.64 | 1462 | 6.40 | 1345 | 10.33 | 1085 | 12.99 | 910 | 14.91 | 783 | 17.49 | 613 | | |
| 14 | .89 | 2241 | 1.73 | 2176 | 3.26 | 2057 | 5.89 | 1855 | 8.04 | 1689 | 12.68 | 1332 | 15.70 | 1099 | 17.82 | 936 | 20.60 | 721 | | |
| 15 | .99 | 2491 | 1.92 | 2415 | 3.61 | 2275 | 6.47 | 2039 | 8.79 | 1847 | 13.71 | 1441 | 16.86 | 1181 | 19.05 | 1000 | 21.88 | 766 | | |
| 16 | 1.09 | 2754 | 2.11 | 2664 | 3.97 | 2501 | 7.07 | 2227 | 9.56 | 2008 | 14.76 | 1550 | 18.03 | 1262 | 20.27 | 1065 | | | | |
| 18 | 1.30 | 3275 | 2.50 | 3156 | 4.67 | 2942 | 8.22 | 2590 | 11.01 | 2313 | 16.68 | 1752 | 20.13 | 1410 | 22.46 | 1179 | | | | |
| 20 | 1.50 | 3793 | 2.89 | 3640 | 5.35 | 3370 | 9.31 | 2934 | 12.36 | 2597 | 18.40 | 1933 | 21.98 | 1539 | 24.34 | 1279 | | | | |

5 DIAMETRAL PITCH CAST IRON 14½° PRESSURE ANGLE 1-3/4" FACE REFERENCE PAGE 26.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 24 | 1.13 | 2859 | 2.16 | 2723 | 3.95 | 2487 | 6.73 | 2120 | 8.79 | 1847 | 12.69 | 1333 | 14.88 | 1042 | | | | | | |
| 25 | 1.20 | 3034 | 2.29 | 2885 | 4.17 | 2626 | 7.07 | 2227 | 9.20 | 1933 | 13.19 | 1385 | 15.41 | 1079 | | | | | | |
| 30 | 1.49 | 3752 | 2.80 | 3534 | 5.03 | 3168 | 8.32 | 2623 | 10.66 | 2238 | 14.80 | 1554 | 17.00 | 1191 | | | | | | |
| 35 | 1.80 | 4548 | 3.37 | 4246 | 5.95 | 3749 | 9.64 | 3038 | 12.15 | 2554 | 16.44 | 1727 | | | | | | | | |
| 40 | 2.08 | 5242 | 3.85 | 4852 | 6.70 | 4224 | 10.65 | 3356 | 13.25 | 2783 | 17.53 | 1841 | | | | | | | | |
| 45 | 2.36 | 5947 | 4.33 | 5459 | 7.44 | 4689 | 11.60 | 3657 | 14.27 | 2997 | 18.52 | 1945 | | | | | | | | |
| 50 | 2.60 | 6543 | 4.73 | 5956 | 8.01 | 5051 | 12.29 | 3874 | 14.95 | 3142 | 19.08 | 2005 | | | | | | | | |
| 55 | 2.90 | 7321 | 5.25 | 6612 | 8.79 | 5539 | 13.27 | 4182 | 15.99 | 3359 | 20.11 | 2112 | | | | | | | | |
| 60 | 3.14 | 7910 | 5.62 | 7089 | 9.31 | 5870 | 13.86 | 4368 | 16.56 | 3478 | 20.55 | 2159 | | | | | | | | |
| 70 | 3.65 | 9213 | 6.45 | 8135 | 10.46 | 6592 | 15.16 | 4779 | 17.84 | 3748 | | | | | | | | | | |
| 80 | 4.17 | 10514 | 7.26 | 9153 | 11.54 | 7270 | 16.35 | 5152 | 18.99 | 3989 | | | | | | | | | | |
| 100 | 5.03 | 12671 | 8.52 | 10745 | 13.08 | 8241 | 17.84 | 5620 | | | | | | | | | | | | |

4 DIAMETRAL PITCH STEEL 14½° PRESSURE ANGLE 2" FACE REFERENCE PAGE 27.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | 1.11 | 2810 | 2.17 | 2730 | 4.10 | 2584 | 7.41 | 2334 | 10.13 | 2128 | 16.01 | 1682 | 19.86 | 1391 | 22.57 | 1185 | 26.14 | 915 | | |
| 12 | 1.21 | 3057 | 2.35 | 2963 | 4.43 | 2792 | 7.94 | 2502 | 10.79 | 2266 | 16.83 | 1768 | 20.69 | 1449 | 23.37 | 1228 | 26.85 | 940 | | |
| 14 | 1.58 | 3971 | 3.04 | 3831 | 5.67 | 3577 | 10.02 | 3158 | 13.46 | 2827 | 20.48 | 2151 | 24.79 | 1736 | 27.70 | 1455 | | | | |
| 15 | 1.75 | 4414 | 3.37 | 4247 | 6.26 | 3948 | 10.98 | 3461 | 14.67 | 3081 | 22.06 | 2318 | 26.52 | 1857 | 29.50 | 1550 | | | | |
| 16 | 1.93 | 4876 | 3.71 | 4680 | 6.87 | 4332 | 11.97 | 3772 | 15.90 | 3339 | 23.66 | 2485 | 28.26 | 1979 | 31.30 | 1644 | | | | |
| 18 | 2.30 | 5794 | 4.39 | 5535 | 8.06 | 5080 | 13.85 | 4364 | 18.20 | 3824 | 26.56 | 2790 | 31.35 | 2196 | | | | | | |
| 20 | 2.66 | 6703 | 5.06 | 6373 | 9.21 | 5802 | 15.61 | 4920 | 20.33 | 4271 | 29.13 | 3060 | 34.04 | 2384 | | | | | | |
| 22 | 3.01 | 7579 | 5.69 | 7173 | 10.28 | 6478 | 17.22 | 5427 | 22.23 | 4670 | 31.33 | 3291 | 36.29 | 2541 | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute.

They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

4 DIAMETRAL PITCH CAST IRON 14½° PRESSURE ANGLE 2" FACE REFERENCE PAGE 27.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 24 | 2.00 | 5042 | 3.77 | 4750 | 6.75 | 4257 | 11.19 | 3525 | 14.32 | 3008 | 19.88 | 2089 | 22.84 | 1600 | | | | | | |
| 28 | 2.43 | 6129 | 4.54 | 5723 | 8.02 | 5053 | 12.99 | 4094 | 16.38 | 3441 | 22.16 | 2328 | | | | | | | | |
| 30 | 2.62 | 6599 | 4.87 | 6135 | 8.53 | 5378 | 13.69 | 4314 | 17.14 | 3601 | 22.92 | 2408 | | | | | | | | |
| 32 | 2.86 | 7211 | 5.30 | 6675 | 9.22 | 5811 | 14.65 | 4616 | 18.22 | 3829 | 24.11 | 2534 | | | | | | | | |
| 36 | 3.25 | 8187 | 5.96 | 7514 | 10.24 | 6454 | 15.98 | 5034 | 19.64 | 4126 | 25.49 | 2677 | | | | | | | | |
| 40 | 3.64 | 9177 | 6.63 | 8354 | 11.24 | 7085 | 17.24 | 5433 | 20.97 | 4406 | 26.77 | 2812 | | | | | | | | |
| 42 | 3.80 | 9588 | 6.90 | 8694 | 11.63 | 7328 | 17.69 | 5575 | 21.42 | 4499 | 27.12 | 2849 | | | | | | | | |
| 44 | 4.04 | 10181 | 7.29 | 9195 | 12.22 | 7703 | 18.46 | 5816 | 22.24 | 4672 | 27.97 | 2938 | | | | | | | | |
| 48 | 4.36 | 10999 | 7.82 | 9858 | 12.95 | 8163 | 19.28 | 6074 | 23.02 | 4837 | 28.58 | 3002 | | | | | | | | |
| 54 | 4.97 | 12530 | 8.81 | 11104 | 14.35 | 9045 | 20.94 | 6598 | 24.72 | 5193 | | | | | | | | | | |
| 56 | 5.13 | 12933 | 9.06 | 11419 | 14.68 | 9253 | 21.29 | 6708 | 25.04 | 5261 | | | | | | | | | | |
| 60 | 5.44 | 13727 | 9.55 | 12034 | 15.32 | 9652 | 21.94 | 6915 | 25.65 | 5388 | | | | | | | | | | |
| 64 | 5.86 | 14763 | 10.20 | 12852 | 16.20 | 10209 | 22.95 | 7233 | 26.66 | 5601 | | | | | | | | | | |
| 72 | 6.47 | 16305 | 11.11 | 14005 | 17.33 | 10923 | 24.07 | 7585 | 27.65 | 5810 | | | | | | | | | | |
| 80 | 7.18 | 18101 | 12.18 | 15350 | 18.68 | 11772 | 25.48 | 8029 | | | | | | | | | | | | |
| 84 | 7.47 | 18838 | 12.60 | 15877 | 19.17 | 12079 | 25.93 | 8170 | | | | | | | | | | | | |
| 88 | 7.76 | 19561 | 13.00 | 16387 | 19.63 | 12372 | 26.35 | 8304 | | | | | | | | | | | | |
| 96 | 8.32 | 20970 | 13.78 | 17365 | 20.50 | 12922 | 27.13 | 8548 | | | | | | | | | | | | |



3 DIAMETRAL PITCH STEEL 14½° PRESSURE ANGLE 3" FACE REFERENCE PAGE 27.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 11 | 2.94 | 7421 | 5.67 | 7146 | 10.56 | 6652 | 18.55 | 5846 | 24.82 | 5213 | 37.47 | 3936 | 45.15 | 3162 | 50.30 | 2642 | | | | |
| 12 | 3.20 | 8067 | 6.14 | 7743 | 11.37 | 7167 | 19.80 | 6239 | 26.30 | 5524 | 39.14 | 4111 | 46.74 | 3273 | 51.78 | 2719 | | | | |
| 14 | 4.15 | 10462 | 7.92 | 9979 | 14.49 | 9134 | 24.79 | 7812 | 32.48 | 6824 | 47.09 | 4947 | 55.40 | 3880 | | | | | | |
| 15 | 4.61 | 11618 | 8.76 | 11046 | 15.96 | 10056 | 27.06 | 8528 | 35.24 | 7403 | 50.49 | 5304 | 59.01 | 4132 | | | | | | |
| 16 | 5.09 | 12825 | 9.64 | 12156 | 17.47 | 11008 | 29.38 | 9259 | 38.03 | 7989 | 53.89 | 5661 | 62.60 | 4383 | | | | | | |
| 18 | 6.03 | 15214 | 11.37 | 14333 | 20.38 | 12845 | 33.75 | 10637 | 43.20 | 9076 | 60.00 | 6303 | 68.93 | 4827 | | | | | | |
| 20 | 6.97 | 17570 | 13.05 | 16454 | 23.16 | 14599 | 37.80 | 11913 | 47.89 | 10062 | 65.33 | 6863 | | | | | | | | |
| 21 | 7.46 | 18795 | 13.92 | 17549 | 24.59 | 15495 | 39.84 | 12556 | 50.24 | 10554 | 67.96 | 7139 | | | | | | | | |

3 DIAMETRAL PITCH CAST IRON 14½° PRESSURE ANGLE 3" FACE REFERENCE PAGE 27.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 24 | 5.23 | 13175 | 9.67 | 12195 | 16.84 | 10617 | 26.76 | 8433 | 33.30 | 6995 | 44.05 | 4627 | 22.84 | 1600 | | | | | | |
| 30 | 6.81 | 17164 | 12.40 | 15626 | 21.03 | 13251 | 32.25 | 10162 | 39.23 | 8241 | 50.07 | 5259 | | | | | | | | |
| 36 | 8.41 | 21199 | 15.07 | 18998 | 24.96 | 15732 | 37.15 | 11707 | 44.37 | 9322 | 55.08 | 5786 | | | | | | | | |
| 42 | 9.81 | 24721 | 17.32 | 21828 | 28.06 | 17687 | 40.69 | 12822 | 47.87 | 10056 | | | | | | | | | | |
| 48 | 11.20 | 28241 | 19.50 | 24586 | 30.99 | 19530 | 43.91 | 13838 | 51.00 | 10715 | | | | | | | | | | |
| 54 | 12.71 | 32043 | 21.83 | 27523 | 34.06 | 21466 | 47.30 | 14906 | 54.35 | 11417 | | | | | | | | | | |
| 60 | 13.87 | 34965 | 23.52 | 29651 | 36.08 | 22740 | 49.22 | 15509 | | | | | | | | | | | | |
| 72 | 16.35 | 41223 | 27.08 | 34136 | 40.30 | 25402 | 53.32 | 16803 | | | | | | | | | | | | |
| 84 | 18.76 | 47293 | 30.40 | 38322 | 44.08 | 27782 | 56.87 | 17923 | | | | | | | | | | | | |
| 96 | 20.75 | 52300 | 32.96 | 41545 | 46.71 | 29437 | 59.02 | 18597 | | | | | | | | | | | | |
| 108 | 22.99 | 57968 | 35.87 | 45212 | 49.81 | 31395 | 61.84 | 19486 | | | | | | | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

20 DIAMETRAL PITCH STEEL

20° PRESSURE ANGLE

1/2" FACE

REFERENCE PAGE 42.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .01 | 36.5 | .03 | 36.3 | .06 | 35.8 | .11 | 34.9 | .16 | 34.1 | .30 | 31.8 | .42 | 29.7 | .53 | 28.0 | .71 | 25.0 | 1.08 | 18.9 |
| 14 | .02 | 48.0 | .04 | 47.7 | .07 | 46.9 | .14 | 45.6 | .21 | 44.3 | .39 | 40.9 | .54 | 37.9 | .67 | 35.4 | .89 | 31.2 | 1.32 | 23.0 |
| 15 | .02 | 53.8 | .04 | 53.3 | .08 | 52.5 | .16 | 50.9 | .23 | 49.3 | .43 | 45.3 | .60 | 41.9 | .74 | 38.9 | .97 | 34.1 | 1.42 | 24.9 |
| 16 | .02 | 58.6 | .05 | 58.1 | .09 | 57.1 | .18 | 55.2 | .25 | 53.5 | .46 | 48.8 | .64 | 44.9 | .79 | 41.6 | 1.04 | 36.3 | 1.49 | 26.2 |
| 18 | .03 | 68.6 | .05 | 67.9 | .11 | 66.7 | .20 | 64.2 | .29 | 62.0 | .53 | 56.1 | .73 | 51.2 | .90 | 47.1 | 1.16 | 40.6 | 1.64 | 28.7 |
| 20 | .03 | 79.2 | .06 | 78.4 | .12 | 76.8 | .23 | 73.7 | .34 | 70.8 | .60 | 63.5 | .82 | 57.5 | 1.00 | 52.6 | 1.28 | 44.9 | 1.78 | 31.2 |
| 24 | .04 | 99.5 | .08 | 98.3 | .15 | 95.8 | .29 | 91.3 | .41 | 87.1 | .73 | 76.7 | .98 | 68.5 | 1.18 | 61.9 | 1.48 | 51.9 | 2.00 | 34.9 |
| 25 | .04 | 105 | .08 | 103 | .16 | 101 | .30 | 95.6 | .43 | 91.1 | .76 | 79.9 | 1.02 | 71.1 | 1.22 | 64.1 | 1.53 | 53.5 | 2.04 | 35.8 |
| 30 | .05 | 132 | .10 | 130 | .20 | 126 | .38 | 119 | .53 | 112 | .92 | 96.4 | 1.21 | 84.5 | 1.43 | 75.2 | 1.76 | 61.6 | 2.28 | 40.0 |
| 35 | .07 | 165 | .13 | 162 | .25 | 156 | .46 | 145 | .65 | 136 | 1.09 | 115 | 1.42 | 99.4 | 1.67 | 87.5 | 2.02 | 70.6 | 2.55 | 44.7 |
| 40 | .08 | 194 | .15 | 190 | .29 | 182 | .53 | 168 | .75 | 157 | 1.24 | 130 | 1.58 | 111 | 1.84 | 96.6 | 2.20 | 77.0 | 2.73 | 47.8 |
| 45 | .09 | 224 | .17 | 219 | .33 | 209 | .61 | 192 | .84 | 177 | 1.38 | 145 | 1.74 | 122 | 2.01 | 105 | 2.37 | 83.0 | | |
| 50 | .10 | 248 | .19 | 242 | .37 | 230 | .66 | 210 | .92 | 192 | 1.47 | 154 | 1.84 | 129 | 2.10 | 111 | 2.46 | 86.1 | | |
| 60 | .12 | 306 | .24 | 296 | .44 | 279 | .79 | 250 | 1.08 | 227 | 1.68 | 177 | 2.07 | 145 | 2.34 | 123 | 2.69 | 94.0 | | |
| 70 | .14 | 365 | .28 | 352 | .52 | 329 | .92 | 291 | 1.24 | 260 | 1.88 | 198 | 2.28 | 160 | 2.55 | 134 | | | | |

20 DIAMETRAL PITCH CAST IRON

20° PRESSURE ANGLE

1/2" FACE

REFERENCE PAGE 42.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 80 | .10 | 256 | .20 | 246 | .36 | 228 | .63 | 198 | .84 | 176 | 1.24 | 131 | 1.49 | 104 | 1.65 | 86.5 | | | | |
| 84 | .11 | 269 | .20 | 257 | .38 | 237 | .65 | 206 | .86 | 181 | 1.27 | 134 | 1.51 | 106 | 1.67 | 87.8 | | | | |
| 90 | .11 | 287 | .22 | 274 | .40 | 252 | .69 | 216 | .90 | 189 | 1.32 | 138 | 1.55 | 109 | 1.71 | 89.7 | | | | |
| 100 | .13 | 317 | .24 | 302 | .44 | 275 | .74 | 233 | .96 | 202 | 1.38 | 145 | 1.61 | 113 | 1.76 | 92.4 | | | | |
| 120 | .15 | 387 | .29 | 365 | .52 | 327 | .86 | 271 | 1.10 | 231 | 1.53 | 161 | 1.76 | 123 | | | | | | |
| 140 | .18 | 447 | .33 | 418 | .59 | 369 | .95 | 299 | 1.20 | 251 | 1.62 | 170 | 1.83 | 128 | | | | | | |
| 160 | .21 | 520 | .38 | 481 | .66 | 419 | 1.06 | 333 | 1.31 | 276 | 1.74 | 183 | | | | | | | | |
| 180 | .23 | 579 | .42 | 532 | .72 | 457 | 1.13 | 356 | 1.39 | 292 | 1.80 | 189 | | | | | | | | |
| 200 | .25 | 637 | .46 | 580 | .78 | 492 | 1.20 | 377 | 1.46 | 306 | 1.86 | 195 | | | | | | | | |

16 DIAMETRAL PITCH STEEL

20° PRESSURE ANGLE

3/4" FACE

REFERENCE PAGE 43.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .03 | 85.5 | .07 | 84.7 | .13 | 83.4 | .26 | 80.9 | .37 | 78.4 | .69 | 72.0 | .95 | 66.5 | 1.18 | 61.8 | 1.55 | 54.2 | 2.26 | 39.5 |
| 14 | .04 | 112 | .09 | 111 | .17 | 109 | .33 | 105 | .48 | 102 | .88 | 92.2 | 1.20 | 84.4 | 1.48 | 77.7 | 1.92 | 67.2 | 2.73 | 47.7 |
| 15 | .05 | 126 | .10 | 124 | .19 | 122 | .37 | 117 | .54 | 113 | .97 | 102 | 1.33 | 92.8 | 1.62 | 85.2 | 2.09 | 73.1 | 2.93 | 51.3 |
| 16 | .05 | 136 | .11 | 135 | .21 | 133 | .40 | 127 | .58 | 122 | 1.04 | 110 | 1.42 | 99.4 | 1.73 | 90.8 | 2.21 | 77.5 | 3.07 | 53.8 |
| 18 | .06 | 160 | .13 | 158 | .25 | 155 | .47 | 148 | .67 | 142 | 1.19 | 125 | 1.61 | 113 | 1.94 | 102 | 2.46 | 86.2 | 3.35 | 58.6 |
| 20 | .07 | 185 | .14 | 183 | .28 | 178 | .54 | 169 | .77 | 161 | 1.35 | 141 | 1.80 | 126 | 2.16 | 113 | 2.70 | 94.7 | 3.62 | 63.3 |
| 24 | .09 | 233 | .18 | 229 | .35 | 222 | .66 | 209 | .94 | 198 | 1.62 | 170 | 2.12 | 149 | 2.52 | 132 | 3.10 | 108 | 4.02 | 70.4 |
| 28 | .11 | 283 | .22 | 278 | .43 | 268 | .79 | 250 | 1.12 | 235 | 1.88 | 198 | 2.44 | 171 | 2.87 | 151 | 3.47 | 122 | 4.40 | 77.0 |
| 30 | .12 | 308 | .24 | 302 | .46 | 291 | .86 | 270 | 1.20 | 253 | 2.01 | 211 | 2.59 | 181 | 3.02 | 159 | 3.63 | 127 | 4.55 | 79.7 |
| 32 | .13 | 340 | .26 | 333 | .51 | 320 | .94 | 296 | 1.31 | 275 | 2.17 | 228 | 2.78 | 195 | 3.23 | 170 | 3.86 | 135 | 4.79 | 83.9 |
| 36 | .16 | 395 | .31 | 385 | .58 | 368 | 1.07 | 338 | 1.49 | 312 | 2.42 | 254 | 3.06 | 215 | 3.53 | 186 | 4.17 | 146 | 5.09 | 89.1 |
| 40 | .18 | 452 | .35 | 440 | .66 | 418 | 1.21 | 381 | 1.66 | 349 | 2.67 | 280 | 3.34 | 234 | 3.82 | 201 | 4.47 | 156 | 5.37 | 94.1 |
| 48 | .22 | 556 | .43 | 539 | .81 | 508 | 1.44 | 455 | 1.96 | 412 | 3.06 | 322 | 3.76 | 264 | 4.25 | 223 | 4.88 | 171 | | |
| 56 | .26 | 665 | .51 | 642 | .95 | 599 | 1.68 | 529 | 2.25 | 474 | 3.43 | 360 | 4.15 | 291 | 4.64 | 244 | | | | |
| 60 | .28 | 711 | .54 | 684 | 1.01 | 636 | 1.77 | 557 | 2.36 | 496 | 3.55 | 373 | 4.27 | 299 | 4.75 | 250 | | | | |
| 64 | .31 | 779 | .59 | 748 | 1.10 | 692 | 1.91 | 602 | 2.54 | 533 | 3.78 | 397 | 4.51 | 316 | 5.00 | 263 | | | | |
| 72 | .35 | 872 | .66 | 833 | 1.21 | 764 | 2.08 | 656 | 2.74 | 575 | 4.00 | 420 | 4.72 | 330 | | | | | | |
| 80 | .39 | 991 | .75 | 943 | 1.36 | 858 | 2.31 | 728 | 3.01 | 632 | 4.31 | 453 | 5.04 | 353 | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

16 DIAMETRAL PITCH CAST IRON

20° PRESSURE ANGLE

3/4" FACE

REFERENCE PAGE 43.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 96 | .28 | 707 | .53 | 666 | .95 | 597 | 1.57 | 494 | 2.01 | 421 | 2.79 | 293 | 3.20 | 224 | | | | | | |
| 128 | .38 | 949 | .70 | 879 | 1.21 | 765 | 1.93 | 608 | 2.40 | 504 | 3.17 | 333 | 3.56 | 249 | | | | | | |
| 144 | .42 | 1057 | .77 | 970 | 1.32 | 833 | 2.06 | 650 | 2.54 | 533 | 3.29 | 346 | | | | | | | | |
| 160 | .47 | 1195 | .86 | 1088 | 1.46 | 923 | 2.25 | 707 | 2.73 | 574 | 3.49 | 366 | | | | | | | | |
| 192 | .56 | 1406 | 1.00 | 1260 | 1.66 | 1044 | 2.46 | 777 | 2.94 | 618 | 3.65 | 384 | | | | | | | | |

A

12 DIAMETRAL PITCH STEEL

20° PRESSURE ANGLE

1" FACE

REFERENCE PAGE 43.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .08 | 202 | .16 | 200 | .31 | 196 | .60 | 188 | .86 | 181 | 1.54 | 162 | 2.09 | 147 | 2.55 | 134 | 3.27 | 114 | 4.53 | 79.4 |
| 13 | .09 | 233 | .18 | 230 | .36 | 225 | .68 | 215 | .98 | 206 | 1.75 | 183 | 2.36 | 165 | 2.86 | 150 | 3.63 | 127 | 4.97 | 87.1 |
| 14 | .11 | 265 | .21 | 262 | .41 | 256 | .77 | 244 | 1.11 | 233 | 1.96 | 206 | 2.63 | 184 | 3.18 | 167 | 4.00 | 140 | 5.42 | 94.8 |
| 15 | .12 | 297 | .23 | 293 | .45 | 285 | .86 | 271 | 1.23 | 259 | 2.16 | 227 | 2.88 | 202 | 3.46 | 182 | 4.34 | 152 | 5.80 | 102 |
| 16 | .13 | 323 | .25 | 319 | .49 | 310 | .93 | 294 | 1.33 | 279 | 2.31 | 243 | 3.07 | 215 | 3.68 | 193 | 4.58 | 160 | 6.05 | 106 |
| 18 | .15 | 379 | .30 | 373 | .57 | 361 | 1.08 | 340 | 1.53 | 322 | 2.63 | 276 | 3.46 | 242 | 4.10 | 215 | 5.04 | 177 | 6.55 | 115 |
| 20 | .17 | 437 | .34 | 429 | .66 | 415 | 1.23 | 389 | 1.74 | 365 | 2.95 | 310 | 3.84 | 269 | 4.52 | 238 | 5.50 | 193 | 7.02 | 123 |
| 21 | .19 | 468 | .36 | 459 | .70 | 443 | 1.31 | 413 | 1.84 | 388 | 3.11 | 327 | 4.03 | 282 | 4.73 | 249 | 5.73 | 201 | 7.26 | 127 |
| 24 | .22 | 548 | .43 | 537 | .82 | 515 | 1.51 | 477 | 2.11 | 444 | 3.50 | 368 | 4.48 | 314 | 5.21 | 274 | 6.22 | 218 | 7.72 | 135 |
| 28 | .26 | 667 | .52 | 651 | .99 | 621 | 1.80 | 568 | 2.49 | 524 | 4.04 | 425 | 5.10 | 357 | 5.86 | 308 | 6.89 | 241 | | |
| 30 | .29 | 720 | .56 | 707 | 1.07 | 673 | 1.94 | 612 | 2.68 | 562 | 4.29 | 451 | 5.37 | 376 | 6.15 | 323 | 7.19 | 252 | | |
| 36 | .37 | 928 | .71 | 899 | 1.34 | 847 | 2.41 | 759 | 3.27 | 688 | 5.11 | 537 | 6.28 | 440 | 7.09 | 373 | 8.15 | 285 | | |
| 42 | .44 | 1112 | .85 | 1073 | 1.59 | 1001 | 2.81 | 884 | 3.77 | 792 | 5.73 | 602 | 6.94 | 486 | 7.76 | 407 | | | | |
| 48 | .52 | 1304 | .99 | 1252 | 1.84 | 1159 | 3.20 | 1009 | 4.25 | 893 | 6.33 | 665 | 7.56 | 529 | 8.37 | 440 | | | | |
| 54 | .60 | 1505 | 1.14 | 1437 | 2.09 | 1319 | 3.60 | 1133 | 4.73 | 993 | 6.90 | 724 | 8.14 | 570 | | | | | | |

12 DIAMETRAL PITCH CAST IRON

20° PRESSURE ANGLE

1" FACE

REFERENCE PAGE 44.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 60 | .40 | 998 | .75 | 949 | 1.37 | 864 | 2.32 | 733 | 3.03 | 636 | 4.34 | 456 | 5.07 | 355 | | | | | | |
| 66 | .45 | 1125 | .84 | 1064 | 1.53 | 961 | 2.56 | 805 | 3.30 | 693 | 4.65 | 488 | 5.38 | 377 | | | | | | |
| 72 | .48 | 1221 | .91 | 1150 | 1.64 | 1031 | 2.71 | 853 | 3.47 | 728 | 4.81 | 506 | 5.53 | 387 | | | | | | |
| 84 | .58 | 1450 | 1.07 | 1354 | 1.90 | 1196 | 3.07 | 969 | 3.88 | 814 | 5.24 | 551 | | | | | | | | |
| 96 | .65 | 1641 | 1.21 | 1519 | 2.10 | 1322 | 3.33 | 1050 | 4.15 | 871 | 5.49 | 576 | | | | | | | | |
| 108 | .75 | 1879 | 1.37 | 1725 | 2.35 | 1482 | 3.67 | 1156 | 4.51 | 947 | 5.85 | 615 | | | | | | | | |
| 120 | .82 | 2068 | 1.49 | 1882 | 2.53 | 1596 | 3.88 | 1224 | 4.73 | 993 | 6.03 | 634 | | | | | | | | |
| 132 | .89 | 2252 | 1.61 | 2034 | 2.70 | 1704 | 4.08 | 1287 | 4.92 | 1033 | 6.19 | 650 | | | | | | | | |
| 144 | .97 | 2433 | 1.73 | 2181 | 2.87 | 1806 | 4.26 | 1344 | 5.09 | 1070 | 6.32 | 664 | | | | | | | | |
| 168 | 1.13 | 2861 | 2.00 | 2526 | 3.25 | 2047 | 4.71 | 1484 | 5.54 | 1164 | | | | | | | | | | |
| 192 | 1.27 | 3209 | 2.22 | 2794 | 3.52 | 2219 | 4.99 | 1573 | 5.80 | 1218 | | | | | | | | | | |
| 216 | 1.41 | 3545 | 2.42 | 3045 | 3.77 | 2375 | 5.23 | 1649 | 6.01 | 1263 | | | | | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

10 DIAMETRAL PITCH STEEL 20° PRESSURE ANGLE 1-1/4" FACE REFERENCE PAGE 44.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .14 | 363 | .28 | 358 | .55 | 349 | 1.06 | 333 | 1.51 | 318 | 2.66 | 280 | 3.57 | 250 | 4.30 | 226 | 5.40 | 189 | 7.27 | 127 |
| 14 | .19 | 477 | .37 | 469 | .72 | 456 | 1.37 | 431 | 1.95 | 409 | 3.37 | 354 | 4.46 | 312 | 5.31 | 279 | 6.58 | 230 | 8.63 | 151 |
| 15 | .21 | 533 | .42 | 525 | .81 | 509 | 1.52 | 479 | 2.16 | 453 | 3.70 | 389 | 4.87 | 341 | 5.78 | 303 | 7.10 | 249 | 9.22 | 161 |
| 16 | .23 | 580 | .45 | 571 | .88 | 552 | 1.64 | 518 | 2.32 | 488 | 3.96 | 416 | 5.18 | 363 | 6.12 | 321 | 7.47 | 262 | 9.60 | 168 |
| 18 | .27 | 679 | .53 | 667 | 1.02 | 642 | 1.90 | 599 | 2.67 | 561 | 4.48 | 471 | 5.79 | 406 | 6.79 | 356 | 8.19 | 287 | 10.33 | 181 |
| 20 | .31 | 784 | .61 | 768 | 1.17 | 737 | 2.16 | 682 | 3.02 | 635 | 5.00 | 526 | 6.41 | 449 | 7.45 | 391 | 8.90 | 311 | 11.04 | 193 |
| 24 | .39 | 983 | .76 | 958 | 1.45 | 913 | 2.65 | 834 | 3.65 | 767 | 5.89 | 619 | 7.41 | 519 | 8.50 | 447 | 9.98 | 349 | | |
| 25 | .41 | 1032 | .80 | 1005 | 1.52 | 956 | 2.76 | 870 | 3.80 | 799 | 6.10 | 641 | 7.64 | 535 | 8.74 | 459 | 10.21 | 358 | | |
| 28 | .47 | 1195 | .92 | 1161 | 1.74 | 1097 | 3.14 | 990 | 4.29 | 901 | 6.76 | 710 | 8.37 | 586 | 9.50 | 499 | 10.99 | 385 | | |
| 30 | .52 | 1300 | 1.00 | 1260 | 1.88 | 1187 | 3.38 | 1064 | 4.59 | 964 | 7.16 | 752 | 8.80 | 616 | 9.94 | 522 | 11.42 | 400 | | |
| 35 | .64 | 1615 | 1.24 | 1558 | 2.31 | 1454 | 4.08 | 1284 | 5.47 | 1150 | 8.33 | 875 | 10.08 | 706 | 11.27 | 592 | | | | |
| 40 | .75 | 1896 | 1.44 | 1820 | 2.67 | 1685 | 4.65 | 1467 | 6.18 | 1299 | 9.20 | 966 | 10.99 | 770 | 12.17 | 639 | | | | |
| 45 | .87 | 2190 | 1.66 | 2092 | 3.05 | 1920 | 5.23 | 1649 | 6.88 | 1445 | 10.04 | 1054 | 11.85 | 830 | | | | | | |
| 48 | .92 | 2328 | 1.76 | 2218 | 3.21 | 2026 | 5.48 | 1727 | 7.16 | 1504 | 10.33 | 1085 | 12.12 | 849 | | | | | | |
| 50 | .96 | 2420 | 1.83 | 2301 | 3.32 | 2095 | 5.64 | 1777 | 7.34 | 1542 | 10.52 | 1105 | 12.29 | 861 | | | | | | |

10 DIAMETRAL PITCH CAST IRON 20° PRESSURE ANGLE 1-1/4" FACE REFERENCE PAGE 44.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 55 | .65 | 1638 | 1.23 | 1550 | 2.22 | 1400 | 3.72 | 1173 | 4.80 | 1009 | 6.77 | 711 | 7.84 | 549 | | | | | | |
| 60 | .71 | 1778 | 1.33 | 1675 | 2.38 | 1501 | 3.94 | 1243 | 5.05 | 1061 | 7.01 | 737 | 8.06 | 564 | | | | | | |
| 70 | .84 | 2114 | 1.57 | 1974 | 2.77 | 1743 | 4.48 | 1413 | 5.65 | 1187 | 7.65 | 803 | | | | | | | | |
| 80 | .98 | 2462 | 1.81 | 2279 | 3.15 | 1984 | 5.00 | 1576 | 6.22 | 1307 | 8.23 | 865 | | | | | | | | |
| 90 | 1.09 | 2742 | 2.00 | 2517 | 3.43 | 2162 | 5.35 | 1686 | 6.58 | 1382 | 8.54 | 897 | | | | | | | | |
| 100 | 1.20 | 3016 | 2.18 | 2746 | 3.70 | 2329 | 5.67 | 1786 | 6.89 | 1448 | 8.80 | 924 | | | | | | | | |
| 120 | 1.45 | 3650 | 2.59 | 3271 | 4.30 | 2709 | 6.40 | 2016 | 7.64 | 1605 | 9.48 | 996 | | | | | | | | |
| 140 | 1.66 | 4177 | 2.93 | 3688 | 4.74 | 2989 | 6.88 | 2167 | 8.09 | 1699 | | | | | | | | | | |
| 160 | 1.91 | 4814 | 3.32 | 4191 | 5.28 | 3329 | 7.49 | 2359 | 8.69 | 1826 | | | | | | | | | | |
| 200 | 2.30 | 5802 | 3.90 | 4920 | 5.99 | 3773 | 8.17 | 2573 | | | | | | | | | | | | |

8 DIAMETRAL PITCH STEEL 20° PRESSURE ANGLE 1-1/2" FACE REFERENCE PAGE 45.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .27 | 678 | .53 | 667 | 1.03 | 647 | 1.93 | 609 | 2.74 | 576 | 4.71 | 495 | 6.19 | 434 | 7.35 | 386 | 9.03 | 316 | 11.72 | 205 |
| 14 | .35 | 890 | .69 | 874 | 1.34 | 843 | 2.50 | 787 | 3.51 | 738 | 5.92 | 622 | 7.68 | 537 | 9.01 | 473 | 10.91 | 382 | 13.81 | 242 |
| 15 | .39 | 996 | .77 | 976 | 1.49 | 939 | 2.77 | 873 | 3.88 | 816 | 6.49 | 681 | 8.35 | 585 | 9.76 | 513 | 11.73 | 411 | 14.70 | 257 |
| 16 | .43 | 1084 | .84 | 1061 | 1.62 | 1018 | 2.99 | 943 | 4.18 | 877 | 6.92 | 727 | 8.85 | 620 | 10.30 | 541 | 12.30 | 431 | | |
| 18 | .50 | 1268 | .98 | 1238 | 1.88 | 1183 | 3.44 | 1086 | 4.77 | 1003 | 7.78 | 817 | 9.84 | 689 | 11.35 | 596 | 13.40 | 469 | | |
| 20 | .58 | 1462 | 1.13 | 1424 | 2.15 | 1354 | 3.91 | 1233 | 5.39 | 1131 | 8.64 | 908 | 10.82 | 758 | 12.38 | 650 | 14.47 | 507 | | |
| 22 | .66 | 1651 | 1.27 | 1604 | 2.41 | 1518 | 4.35 | 1371 | 5.95 | 1250 | 9.41 | 989 | 11.67 | 817 | 13.27 | 698 | 15.36 | 538 | | |
| 24 | .73 | 1831 | 1.41 | 1775 | 2.65 | 1672 | 4.75 | 1498 | 6.46 | 1357 | 10.08 | 1059 | 12.39 | 868 | 14.00 | 735 | 16.08 | 563 | | |
| 28 | .88 | 2224 | 1.70 | 2145 | 3.18 | 2003 | 5.61 | 1768 | 7.54 | 1583 | 11.47 | 1204 | 13.88 | 972 | 15.51 | 815 | | | | |
| 32 | 1.06 | 2664 | 2.03 | 2557 | 3.76 | 2367 | 6.54 | 2060 | 8.68 | 1824 | 12.92 | 1358 | 15.44 | 1081 | 17.10 | 898 | | | | |
| 36 | 1.22 | 3082 | 2.34 | 2944 | 4.29 | 2703 | 7.37 | 2321 | 9.68 | 2034 | 14.13 | 1484 | 16.68 | 1168 | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

8 DIAMETRAL PITCH CAST IRON

20° PRESSURE ANGLE 1-1/2" FACE

REFERENCE PAGE 45.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 40 | .84 | 2111 | 1.59 | 2007 | 2.90 | 1928 | 4.92 | 1550 | 6.40 | 1345 | 9.18 | 964 | 10.72 | 751 | | | | | | |
| 44 | .95 | 2384 | 1.79 | 2256 | 3.23 | 2038 | 5.42 | 1707 | 6.99 | 1469 | 9.86 | 1035 | 11.41 | 799 | | | | | | |
| 48 | 1.03 | 2587 | 1.93 | 2437 | 3.47 | 2184 | 5.74 | 1809 | 7.35 | 1543 | 10.20 | 1072 | 11.72 | 821 | | | | | | |
| 56 | 1.22 | 3080 | 2.28 | 2876 | 4.03 | 2539 | 6.53 | 2057 | 8.23 | 1729 | 11.14 | 1170 | | | | | | | | |
| 60 | 1.30 | 3283 | 2.42 | 3052 | 4.25 | 2676 | 6.81 | 2146 | 8.53 | 1792 | 11.40 | 1198 | | | | | | | | |
| 64 | 1.42 | 3588 | 2.64 | 3322 | 4.59 | 2892 | 7.29 | 2297 | 9.07 | 1905 | 12.00 | 1260 | | | | | | | | |
| 72 | 1.59 | 3997 | 2.91 | 3669 | 5.00 | 3151 | 7.80 | 2458 | 9.59 | 2014 | 12.44 | 1307 | | | | | | | | |
| 80 | 1.79 | 4525 | 3.27 | 4119 | 5.54 | 3493 | 8.50 | 2679 | 10.34 | 2173 | 13.20 | 1386 | | | | | | | | |
| 88 | 1.96 | 4929 | 3.53 | 4451 | 5.92 | 3729 | 8.93 | 2816 | 10.76 | 2262 | 13.54 | 1422 | | | | | | | | |
| 96 | 2.11 | 5325 | 3.79 | 4772 | 6.27 | 3952 | 9.33 | 2941 | 11.15 | 2341 | 13.83 | 1453 | | | | | | | | |
| 112 | 2.49 | 6266 | 4.39 | 5533 | 7.11 | 4483 | 10.31 | 3250 | 12.13 | 2549 | | | | | | | | | | |
| 120 | 2.64 | 6651 | 4.63 | 5830 | 7.42 | 4677 | 10.63 | 3351 | 12.43 | 2610 | | | | | | | | | | |
| 128 | 2.79 | 7028 | 4.85 | 6118 | 7.71 | 4860 | 10.93 | 3444 | 12.69 | 2667 | | | | | | | | | | |

A

6 DIAMETRAL PITCH STEEL

20° PRESSURE ANGLE

2" FACE

REFERENCE PAGE 45 & 46.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | .63 | 1559 | 1.24 | 1565 | 2.38 | 1502 | 4.41 | 1391 | 6.16 | 1294 | 10.20 | 1072 | 13.06 | 915 | 15.19 | 798 | 18.14 | 635 | | |
| 14 | .83 | 2097 | 1.62 | 2046 | 3.10 | 1951 | 5.67 | 1786 | 7.84 | 1647 | 12.70 | 1334 | 16.02 | 1122 | 18.42 | 967 | 21.67 | 759 | | |
| 15 | .93 | 2345 | 1.81 | 2284 | 3.45 | 2171 | 6.27 | 1977 | 8.64 | 1814 | 13.85 | 1455 | 17.35 | 1215 | 19.85 | 1043 | 23.20 | 812 | | |
| 16 | 1.01 | 2551 | 1.97 | 2480 | 3.73 | 2351 | 6.76 | 2129 | 9.26 | 1945 | 14.71 | 1545 | 18.30 | 1282 | 20.85 | 1095 | 24.21 | 848 | | |
| 18 | 1.18 | 2981 | 2.29 | 2889 | 4.32 | 2722 | 7.74 | 2440 | 10.52 | 2210 | 16.41 | 1724 | 20.18 | 1413 | 22.79 | 1197 | 26.18 | 917 | | |
| 21 | 1.46 | 3671 | 2.81 | 3541 | 5.25 | 3306 | 9.26 | 2919 | 12.44 | 2613 | 18.93 | 1988 | 22.91 | 1605 | 25.61 | 1345 | | | | |
| 24 | 1.70 | 4294 | 3.27 | 4122 | 6.05 | 3815 | 10.54 | 3322 | 14.00 | 2941 | 20.83 | 2188 | 24.88 | 1743 | 27.56 | 1448 | | | | |
| 27 | 1.98 | 4986 | 3.78 | 4763 | 6.94 | 4372 | 11.92 | 3755 | 15.66 | 3241 | 22.85 | 2400 | 26.98 | 1889 | | | | | | |
| 30 | 2.25 | 5660 | 4.27 | 5381 | 7.77 | 4899 | 13.18 | 4155 | 17.17 | 3607 | 24.60 | 2584 | 28.75 | 2013 | | | | | | |

6 DIAMETRAL PITCH CAST IRON

20° PRESSURE ANGLE

2" FACE

REFERENCE PAGE 46.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 33 | 1.53 | 3847 | 2.89 | 3641 | 5.22 | 3288 | 8.74 | 2755 | 11.28 | 2370 | 15.90 | 1670 | 18.42 | 1290 | | | | | | |
| 36 | 1.71 | 4316 | 3.23 | 4066 | 5.78 | 3644 | 9.58 | 3018 | 12.26 | 2575 | 17.02 | 1788 | 19.56 | 1370 | | | | | | |
| 42 | 2.04 | 5148 | 3.81 | 4807 | 6.73 | 4244 | 10.91 | 3439 | 13.76 | 2891 | 18.62 | 1955 | | | | | | | | |
| 48 | 2.38 | 6009 | 4.41 | 5563 | 7.68 | 4843 | 12.21 | 3847 | 15.19 | 3191 | 20.09 | 2111 | | | | | | | | |
| 54 | 2.74 | 6899 | 5.02 | 6333 | 8.63 | 5440 | 13.46 | 4243 | 16.55 | 3477 | 21.48 | 2256 | | | | | | | | |
| 60 | 3.01 | 7591 | 5.48 | 6910 | 9.30 | 5860 | 14.26 | 4494 | 17.35 | 3645 | 22.14 | 2326 | | | | | | | | |
| 66 | 3.38 | 8515 | 6.10 | 7691 | 10.22 | 6443 | 15.44 | 4864 | 18.60 | 3907 | 23.39 | 2457 | | | | | | | | |
| 72 | 3.65 | 9200 | 6.54 | 8245 | 10.83 | 6827 | 16.12 | 5080 | 19.26 | 4045 | 23.90 | 2511 | | | | | | | | |
| 84 | 4.30 | 10835 | 7.59 | 9566 | 12.30 | 7752 | 17.83 | 5620 | 20.98 | 4407 | | | | | | | | | | |
| 96 | 4.82 | 12152 | 8.39 | 10579 | 13.33 | 8404 | 18.90 | 5955 | 21.95 | 4611 | | | | | | | | | | |
| 108 | 5.47 | 13800 | 9.40 | 11583 | 14.67 | 9245 | 20.37 | 6420 | 23.41 | 4917 | | | | | | | | | | |
| 120 | 5.97 | 15059 | 10.13 | 12770 | 15.54 | 9793 | 21.20 | 6680 | | | | | | | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Spur Gears

Approximate Horsepower and Torque* Ratings

For Class I Service (Service Factor = 1.0)

5 DIAMETRAL PITCH STEEL 20° PRESSURE ANGLE 2-1/2" FACE REFERENCE PAGE 46.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 12 | 1.14 | 2865 | 2.22 | 2794 | 4.22 | 2662 | 7.71 | 2431 | 10.65 | 2237 | 17.19 | 1805 | 21.61 | 1513 | 24.80 | 1302 | 29.09 | 1019 | | |
| 14 | 1.49 | 3756 | 2.89 | 3647 | 5.47 | 3449 | 9.87 | 3110 | 13.48 | 2832 | 21.25 | 2233 | 26.31 | 1843 | 29.87 | 1569 | 34.53 | 1209 | | |
| 15 | 1.67 | 4198 | 3.23 | 4069 | 6.08 | 3833 | 10.90 | 3435 | 14.81 | 3112 | 23.11 | 2427 | 28.41 | 1990 | 32.09 | 1686 | 36.87 | 1291 | | |
| 16 | 1.81 | 4565 | 3.50 | 4416 | 6.58 | 4146 | 11.72 | 3693 | 15.85 | 3329 | 24.47 | 2570 | 29.89 | 2093 | 33.61 | 1765 | | | | |
| 18 | 2.12 | 5332 | 4.08 | 5138 | 7.60 | 4789 | 13.38 | 4216 | 17.92 | 3766 | 27.15 | 2852 | 32.77 | 2295 | 36.56 | 1920 | | | | |
| 20 | 2.44 | 6141 | 4.68 | 5894 | 8.66 | 5456 | 15.07 | 4750 | 20.02 | 4205 | 29.79 | 3129 | 35.58 | 2492 | 39.41 | 2070 | | | | |

5 DIAMETRAL PITCH CAST IRON 20° PRESSURE ANGLE 2-1/2" FACE REFERENCE PAGE 46.

| No. Teeth | 25 RPM | | 50 RPM | | 100 RPM | | 200 RPM | | 300 RPM | | 600 RPM | | 900 RPM | | 1200 RPM | | 1800 RPM | | 3600 RPM | |
|-----------|--------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|----------|--------|----------|--------|----------|--------|
| | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque | H.P. | Torque |
| 24 | 1.82 | 4599 | 3.48 | 4381 | 6.35 | 4002 | 10.82 | 3411 | 14.15 | 2972 | 20.41 | 2144 | 23.95 | 1677 | | | | | | |
| 25 | 1.91 | 4826 | 3.64 | 4588 | 6.63 | 4177 | 11.24 | 3542 | 14.64 | 3075 | 20.97 | 2203 | 24.51 | 1716 | | | | | | |
| 28 | 2.21 | 5571 | 4.18 | 5267 | 7.54 | 4750 | 12.60 | 3970 | 16.23 | 3410 | 22.81 | 2396 | 26.37 | 1847 | | | | | | |
| 30 | 2.40 | 6050 | 4.52 | 5700 | 8.10 | 5108 | 13.42 | 4230 | 17.18 | 3609 | 23.86 | 2506 | 27.41 | 1920 | | | | | | |
| 35 | 2.97 | 7477 | 5.54 | 6982 | 9.78 | 6164 | 15.85 | 4995 | 19.98 | 4199 | 27.04 | 2840 | | | | | | | | |
| 40 | 3.47 | 8737 | 6.42 | 8087 | 11.17 | 7040 | 17.75 | 5593 | 22.08 | 4639 | 29.21 | 3068 | | | | | | | | |
| 45 | 3.98 | 10040 | 7.31 | 9216 | 12.56 | 7916 | 19.59 | 6174 | 24.09 | 5060 | 31.26 | 3284 | | | | | | | | |
| 50 | 4.38 | 11046 | 7.98 | 10056 | 13.53 | 8528 | 20.75 | 6540 | 25.25 | 5304 | 32.22 | 3384 | | | | | | | | |
| 60 | 5.32 | 13399 | 9.53 | 12008 | 15.78 | 9944 | 23.48 | 7400 | 28.05 | 5892 | 34.81 | 3657 | | | | | | | | |
| 70 | 6.27 | 15794 | 11.06 | 13945 | 17.93 | 11300 | 26.00 | 8192 | 30.58 | 6425 | | | | | | | | | | |
| 80 | 7.23 | 18229 | 12.59 | 15869 | 20.00 | 12605 | 28.34 | 8932 | 32.92 | 6916 | | | | | | | | | | |
| 100 | 8.71 | 21969 | 14.78 | 18630 | 22.67 | 14288 | 30.92 | 9745 | | | | | | | | | | | | |
| 110 | 9.68 | 24409 | 16.22 | 20449 | 24.50 | 15439 | 32.88 | 10362 | | | | | | | | | | | | |
| 120 | 10.38 | 26168 | 17.19 | 21669 | 25.58 | 16125 | 33.85 | 10666 | | | | | | | | | | | | |
| 140 | 11.70 | 29508 | 18.97 | 23910 | 27.50 | 17334 | 35.49 | 11182 | | | | | | | | | | | | |
| 160 | 13.30 | 33526 | 21.13 | 26631 | 29.94 | 18870 | 37.83 | 11921 | | | | | | | | | | | | |
| 180 | 14.49 | 36534 | 22.61 | 28495 | 31.40 | 19787 | 38.97 | 12281 | | | | | | | | | | | | |

Ratings are based on strength calculation. Basic static strength rating, or for hand operation of above gears is approximately 3 times the 100 RPM rating.

NOTE: Ratings to right of heavy line are not recommended, as pitch line velocity exceeds 1000 feet per minute. They should be used for interpolation purposes only.

*Torque Ratings (Lb. Ins.).

Gear Gauge Set



14-1/2° and 20° Pressure Angles

This handy, steel gear gauge set consists of 16 leaves — 24 gauges — to measure both 14-1/2° and 20° Pressure Angle tooth form, in diametral pitch sizes 64, 48, 32, 24, 20, 16, 12, 10, 8, 6, 5 and 4. Pitch sizes 8, 6, 5 and 4 both 14-1/2° and 20° are cut on individual leaves. Pitch sizes 64 through 10 inclusive, have both 14-1/2° and 20° Pressure Angles on a single leaf.

SOLD ONLY AS A COMPLETE SET

ORDER BY CATALOG NUMBER OR ITEM CODE

| Catalog Number | Item Code |
|----------------|-----------|
| Gear Gauge | 06000 |