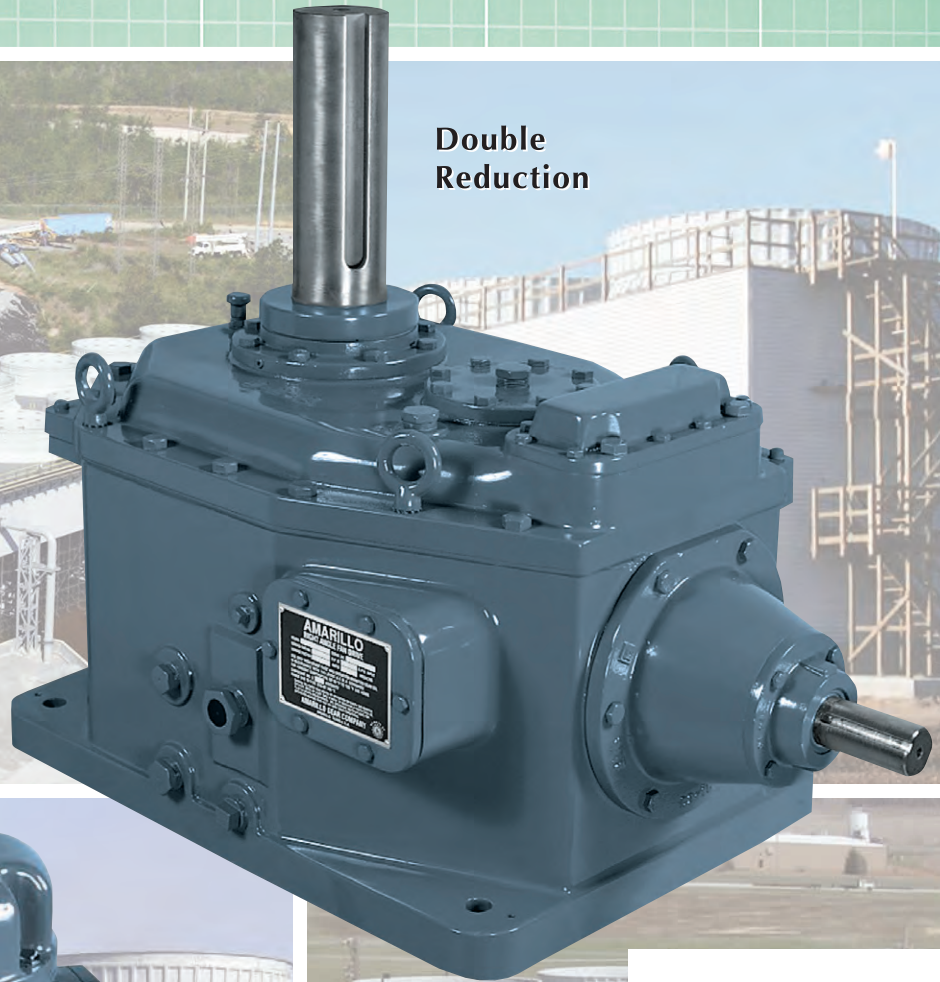


# RIGHT ANGLE GEAR DRIVES

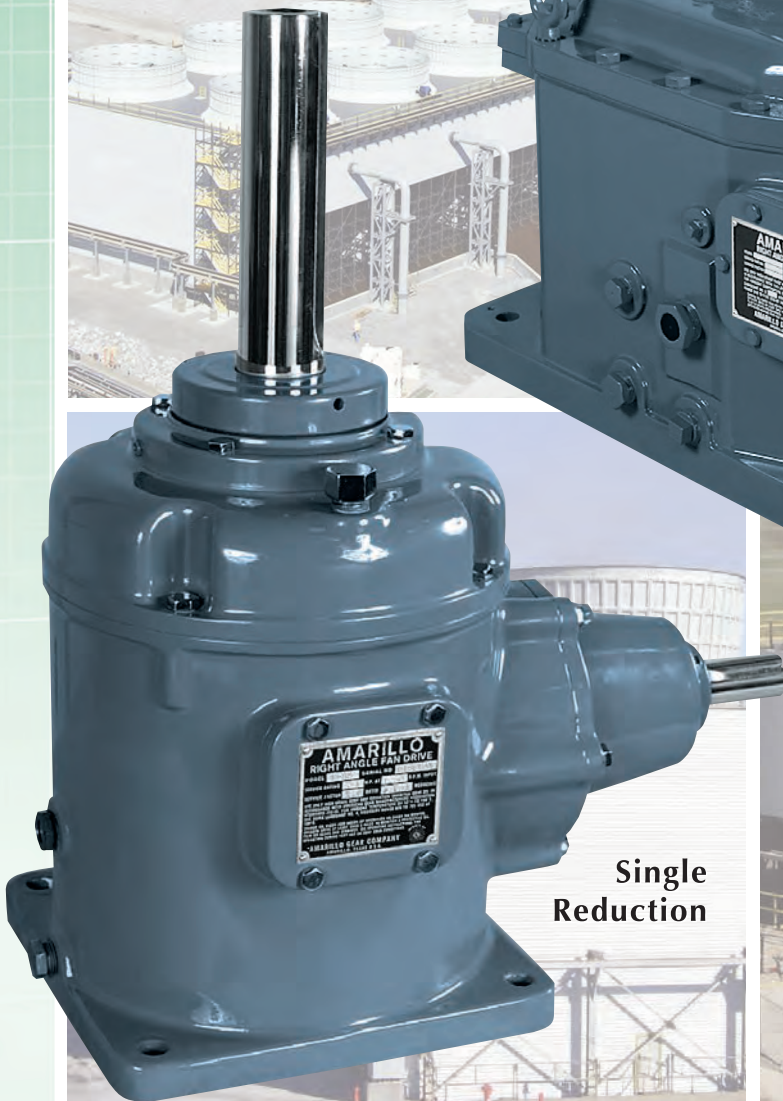
FOR COOLING TOWERS



Double Reduction



Single Reduction

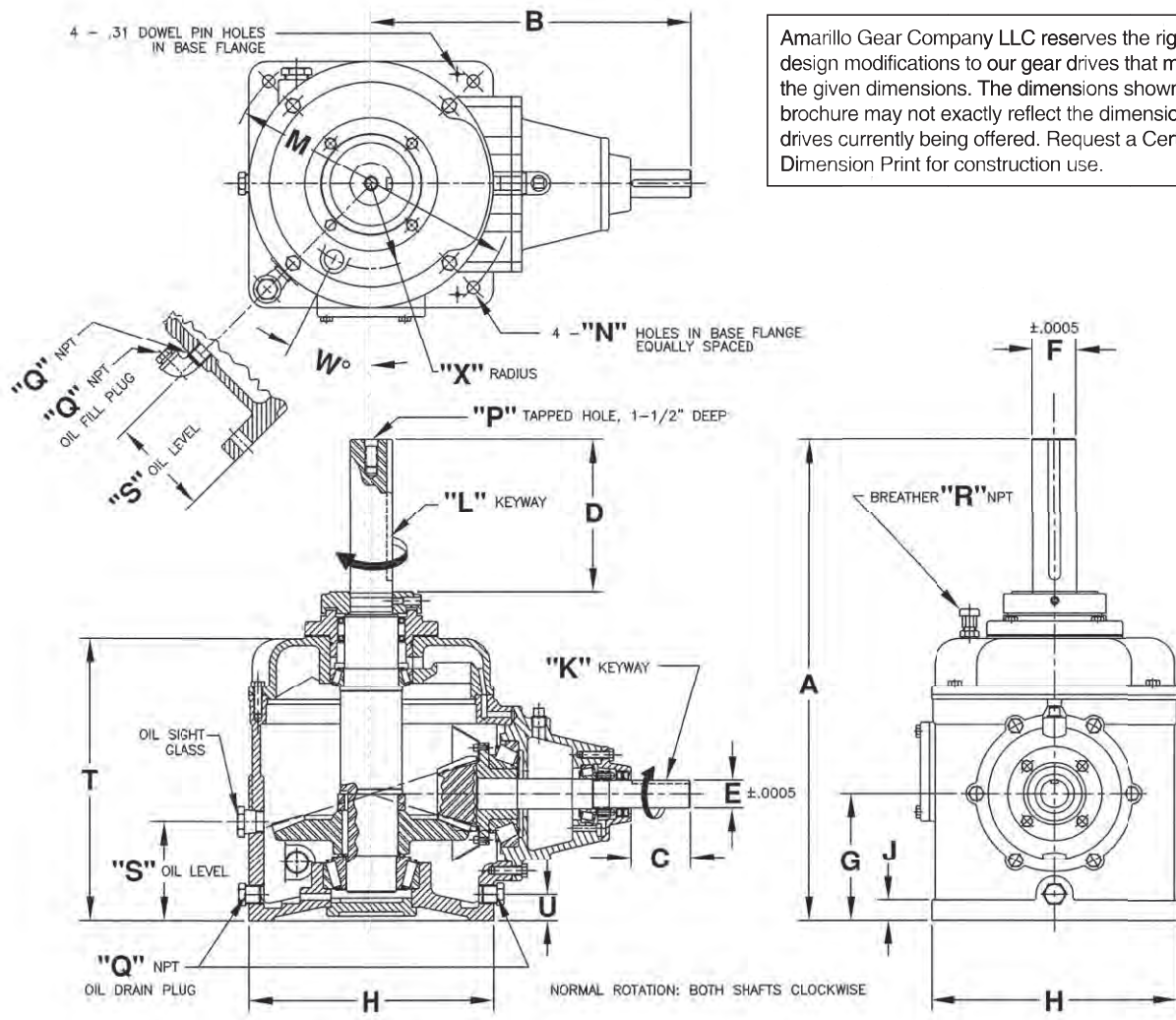


Amarillo<sup>®</sup>  
Gear  
Company LLC



**TABLE I - SINGLE REDUCTION**

| Service Horsepower Ratings (HP) with 2.0 Service Factor |             |  |     |     |      |     |      |     |      |     |      |     |     |     |     |     |     |     |     |     |     |
|---|-------------|--|-----|-----|------|-----|------|-----|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Model   | Input (RPM) | Nominal Ratio (See Table VI for exact ratio) |     |     |      |     |      |     |      |     |      |     |     |     |     |     |     |     |     |     |     |
|   |             | 2.0  | 2.5 | 3.0 | 3.25 | 3.5 | 3.75 | 4.0 | 4.25 | 4.5 | 4.75 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 9.5 |
| 65  | 1750        | 25   | 25  | 20  | 18   | 17  |      | 15  |      | 12  |      | 10  |     |     |     |     |     |     |     |     |     |
|   | 1450        | 21   | 21  | 17  | 15   | 14  |      | 12  |      | 10  |      | 8   |     |     |     |     |     |     |     |     |     |
|   | 1160        | 17   | 17  | 13  | 12   | 11  |      | 10  |      | 8   |      | 7   |     |     |     |     |     |     |     |     |     |
| 85  | 1750        |  | 48  | 45  | 43   | 39  | 36   | 33  | 32   | 28  | 27   | 25  | 20  | 18  | 15  | 15  |     |     |     |     |     |
|   | 1450        |  | 40  | 37  | 36   | 32  | 30   | 27  | 26   | 23  | 22   | 21  | 17  | 15  | 12  | 12  |     |     |     |     |     |
|   | 1160        |  | 32  | 30  | 29   | 26  | 24   | 22  | 21   | 19  | 18   | 17  | 13  | 12  | 10  | 10  |     |     |     |     |     |
| 110   | 1750        |  |     |     |      | 75  | 74   | 72  | 71   | 69  | 64   | 60  | 46  | 40  | 33  | 30  | 25  | 24  |     |     |     |
|   | 1450        |  |     |     |      | 62  | 61   | 60  | 59   | 57  | 53   | 50  | 38  | 33  | 27  | 25  | 21  | 20  |     |     |     |
|   | 1160        |  |     |     |      | 50  | 49   | 48  | 47   | 46  | 42   | 40  | 30  | 27  | 22  | 20  | 17  | 16  |     |     |     |
| 135   | 1750        |  |     |     |      |     |      | 110 |      | 93  | 88   | 83  | 71  | 65  | 59  | 48  | 43  | 42  | 35  | 30  |     |
|   | 1450        |  |     |     |      |     |      | 91  |      | 77  | 73   | 69  | 59  | 54  | 49  | 40  | 36  | 35  | 29  | 25  |     |
|   | 1160        |  |     |     |      |     |      | 73  |      | 62  | 58   | 55  | 47  | 43  | 39  | 32  | 29  | 28  | 23  | 20  |     |
| 155   | 1750        |  |     |     |      |     |      |     |      |     |      | 110 | 100 | 90  | 85  | 75  | 65  | 55  | 50  | 45  |     |
|   | 1450        |  |     |     |      |     |      |     |      |     |      | 91  | 83  | 75  | 70  | 62  | 54  | 46  | 41  | 37  |     |
|   | 1160        |  |     |     |      |     |      |     |      |     |      | 73  | 66  | 60  | 56  | 50  | 43  | 36  | 33  | 30  |     |
| 175   | 1750        |  |     |     |      |     |      |     |      |     |      | 133 | 126 | 112 | 105 | 100 | 80  | 60  | 60  | 60  | 50  |
|   | 1450        |  |     |     |      |     |      |     |      |     |      | 110 | 104 | 93  | 87  | 83  | 66  | 50  | 50  | 50  | 41  |
|   | 1160        |  |     |     |      |     |      |     |      |     |      | 88  | 84  | 74  | 70  | 66  | 53  | 40  | 40  | 40  | 33  |



Amarillo Gear Company LLC reserves the right to make design modifications to our gear drives that may change the given dimensions. The dimensions shown in this brochure may not exactly reflect the dimensions of gear drives currently being offered. Request a Certified Dimension Print for construction use.

**TABLE II - DIMENSIONS (in)**

| Model | A        | B       | C       | C with Non-Reverse | D     | E     | F     | G     | H      | J     | K           | L          | M     | N     | P          | Q   | R   | S      | T      | U      | W  | X      | WT(lbs) |
|-------|----------|---------|---------|--------------------|-------|-------|-------|-------|--------|-------|-------------|------------|-------|-------|------------|-----|-----|--------|--------|--------|----|--------|---------|
| * 65  | 17 3/4   | 10 7/8  | 2 1/4   | 2 1/4              | 6     | .999  | 1.749 | 5     | 10     | 5/8   | 1/4 X 1/8   | 3/8 X 3/16 | 9 1/8 | 9/16  | 3/4 - 10NC | 1/2 | 1/2 | 5      | 9 1/2  | 7/8    | 15 | 3 1/4  | 90      |
| 85    | 23 3/4   | 14 1/4  | 2 11/16 | 1 19/32            | 8     | 1.249 | 1.999 | 6     | 11     | 1     | 5/16 X 5/32 | 1/2 X 1/4  | 13    | 11/16 | 3/4 - 10NC | 1/2 | 1/2 | 4 9/16 | 13 1/4 | 1 3/16 | 0  | 4 5/16 | 195     |
| 110   | 26 1/2   | 17 5/8  | 3 5/16  | 2 1/16             | 8 1/2 | 1.499 | 2.374 | 7     | 13 1/2 | 1 1/8 | 3/8 X 3/16  | 5/8 X 5/16 | 16    | 11/16 | 3/4 - 10NC | 3/4 | 1/2 | 5 1/2  | 15 5/8 | 1 7/16 | 0  | 4 5/8  | 325     |
| 135   | 29 5/8   | 21      | 3 3/4   | 2 5/16             | 9     | 1.874 | 2.624 | 8     | 16     | 1 1/4 | 3/8 X 3/16  | 5/8 X 5/16 | 20    | 19/16 | 3/4 - 10NC | 3/4 | 1/2 | 6      | 18 1/8 | 1 3/8  | 54 | 5      | 500     |
| 155   | 31 11/16 | 23 1/16 | 3 7/8   | 2 1/2              | 9 1/2 | 1.874 | 2.999 | 9 1/2 | 19     | 1 1/4 | 3/8 X 3/16  | 3/4 X 3/8  | 22    | 19/16 | 3/4 - 10NC | 3/4 | 1/2 | 7      | 19 3/4 | 1 3/8  | 54 | 6 3/8  | 675     |
| 175   | 33 3/8   | 23 1/2  | 3 9/16  | 2 1/8              | 9 1/2 | 1.874 | 2.999 | 9 1/2 | 20 1/2 | 1 1/2 | 3/8 X 3/16  | 3/4 X 3/8  | 25    | 19/16 | 3/4 - 10NC | 3/4 | 1/2 | 7 1/2  | 21 1/2 | 1 1/2  | 54 | 7      | 825     |

\* Model 65 has a 10" Diameter Base

### TABLE III - DOUBLE REDUCTION

| Service Horsepower Ratings (HP) with 2.0 Service Factor |             |  |     |     |     |     |     |      |     |     |      |     |     |     |      |     |     |     |     |
|---|-------------|--|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|-----|------|-----|-----|-----|-----|
| Model   | Input (RPM) | Nominal Ratio (See Table VI for exact ratio) |     |     |     |     |     |      |     |     |      |     |     |     |      |     |     |     |     |
|   |             | 7.5  | 8   | 8.5 | 9   | 9.5 | 10  | 10.5 | 11  | 12  | 12.5 | 13  | 14  | 15  | 15.5 | 16  | 17  | 18  | 19  |
| 1008  | 1750        | 100  | 100 | 100 | 100 | 95  | 90  | 86   | 82  | 75  |      | 75  | 60  |     |      |     |     |     |     |
|   | 1450        | 83   | 83  | 83  | 83  | 79  | 75  | 71   | 68  | 62  |      | 62  | 50  |     |      |     |     |     |     |
|   | 1160        | 66   | 66  | 66  | 66  | 63  | 60  | 57   | 54  | 50  |      | 50  | 40  |     |      |     |     |     |     |
| 1110  | 1750        | 142  | 142 | 141 | 140 | 135 | 130 | 130  | 130 | 125 |      | 125 | 120 |     |      |     |     |     |     |
|   | 1450        | 118  | 118 | 117 | 116 | 112 | 108 | 108  | 108 | 104 |      | 104 | 99  |     |      |     |     |     |     |
|   | 1160        | 94   | 94  | 93  | 93  | 89  | 86  | 86   | 86  | 83  |      | 83  | 80  |     |      |     |     |     |     |
| 1311  | 1750        |  | 210 | 208 | 206 | 198 | 190 | 183  | 176 | 165 |      | 160 | 155 | 150 |      |     | 137 |     |     |
|   | 1450        |  | 174 | 172 | 171 | 164 | 157 | 151  | 146 | 137 |      | 133 | 128 | 124 |      |     | 114 |     |     |
|   | 1160        |  | 139 | 138 | 137 | 131 | 126 | 121  | 117 | 109 |      | 106 | 103 | 99  |      |     | 91  |     |     |
| 1712  | 1750        |  |     |     | 312 | 300 | 290 | 280  | 271 | 255 | 255  | 241 | 229 | 214 | 207  | 200 | 188 | 178 |     |
|   | 1450        |  |     |     | 259 | 249 | 240 | 232  | 225 | 211 | 211  | 200 | 190 | 177 | 171  | 166 | 156 | 147 |     |
|   | 1160        |  |     |     | 207 | 198 | 192 | 186  | 180 | 169 | 169  | 160 | 152 | 142 | 137  | 133 | 125 | 118 |     |
| 1712.5  | 1750        |  |     |     |     |     |     |      | 309 | 297 |      | 279 | 262 | 252 | 244  | 236 | 231 | 225 | 201 |
|   | 1450        |  |     |     |     |     |     |      | 256 | 246 |      | 231 | 217 | 209 | 202  | 196 | 191 | 186 | 167 |
|   | 1160        |  |     |     |     |     |     |      | 205 | 197 |      | 185 | 174 | 167 | 162  | 156 | 153 | 149 | 133 |
| 1713  | 1750        |  |     |     |     |     |     |      | 390 | 343 | 333  | 323 | 310 | 300 | 294  | 285 | 272 | 262 | 250 |
|   | 1450        |  |     |     |     |     |     |      | 323 | 284 | 276  | 268 | 257 | 249 | 244  | 236 | 225 | 217 | 207 |
|   | 1160        |  |     |     |     |     |     |      | 259 | 227 | 220  | 214 | 205 | 199 | 195  | 189 | 180 | 174 | 166 |
| 1814  | 1750        |  |     |     |     |     |     |      |     | 454 |      | 419 | 389 | 363 | 356  | 345 | 324 | 309 | 291 |
|   | 1450        |  |     |     |     |     |     |      |     | 376 |      | 346 | 322 | 301 | 295  | 286 | 268 | 255 | 241 |
|   | 1160        |  |     |     |     |     |     |      |     | 301 |      | 277 | 258 | 241 | 236  | 229 | 215 | 204 | 192 |
| 2016  | 1750        |  |     |     |     |     |     |      |     |     |      | 500 | 480 | 460 | 454  | 440 | 420 | 400 | 380 |
|   | 1450        |  |     |     |     |     |     |      |     |     |      | 414 | 398 | 381 | 376  | 365 | 348 | 331 | 315 |
|   | 1160        |  |     |     |     |     |     |      |     |     |      | 331 | 318 | 305 | 301  | 292 | 278 | 265 | 252 |

### TABLE IV - VERTICAL SHAFT DOWN THRUST CAPACITY (lbs)

| Model | Thrust |
|-------|--------|
| 65    | 1500   |
| 85    | 1750   |
| 110   | 2650   |
| 135   | 2500   |
| 155   | 4700   |
| 175   | 5150   |

| Model   | Thrust |
|---------|--------|
| 1008    | 3800   |
| 1110    | 5400   |
| 1311    | 5950   |
| 1311W   | 12000  |
| 1712    | 8900   |
| 1712W   | 13000  |
| 1712.5  | 9250   |
| 1712.5W | 13500  |
| 1713    | 10900  |
| 1713W   | 16000  |
| 1814    | 17000  |
| 2016    | 17000  |

Thrust ratings vary greatly depending upon the transmitted power and the vertical shaft speed. The ratings in TABLE IV are the axial loads that can be applied to the fan shaft which will always result in a calculated bearing life greater than 100,000 hours  $L_{10a}$ . These ratings are based on the worst case from the power rating tables. Contact the factory when the fan loading conditions or the bearing life requirements cannot be satisfied with the ratings from the tables.

### TABLE V - WEIGHTS & SHIPPING DIMENSIONS

| Model   | Domestic Shipping Weight (lbs) | Weight with Export Crate (lbs) | Export Crate Dimensions (in) |       |        |
|---------|--------------------------------|--------------------------------|------------------------------|-------|--------|
|         |                                |                                | Length                       | Width | Height |
| 65A     | 100                            | 125                            | 15                           | 22    | 23     |
| 85      | 212                            | 245                            | 15                           | 27    | 31     |
| 110     | 350                            | 400                            | 19                           | 29    | 35     |
| 135     | 525                            | 560                            | 23                           | 36    | 36     |
| 155     | 700                            | 830                            | 30                           | 40    | 42     |
| 175     | 850                            | 945                            | 30                           | 40    | 42     |
| 1008    | 875                            | 990                            | 30                           | 40    | 42     |
| 1110    | 1375                           | 1490                           | 36                           | 48    | 42     |
| 1311    | 1690                           | 1810                           | 36                           | 48    | 42     |
| 1311W   | 2025                           | 2265                           | 36                           | 50    | 50     |
| 1712    | 2125                           | 2210                           | 32                           | 50    | 44     |
| 1712W   | 2585                           | 2904                           | 41                           | 55    | 47     |
| 1712.5  | 2400                           | 2550                           | 41                           | 55    | 47     |
| 1712.5W | 2860                           | 3179                           | 41                           | 55    | 47     |
| 1713A   | 2775                           | 2960                           | 41                           | 55    | 47     |
| 1713W   | 3325                           | 3575                           | 41                           | 55    | 47     |
| 1814    | 4270                           | 4530                           | 49                           | 65    | 53     |
| 2016    | 6400                           | 6970                           | 70                           | 48    | 57     |

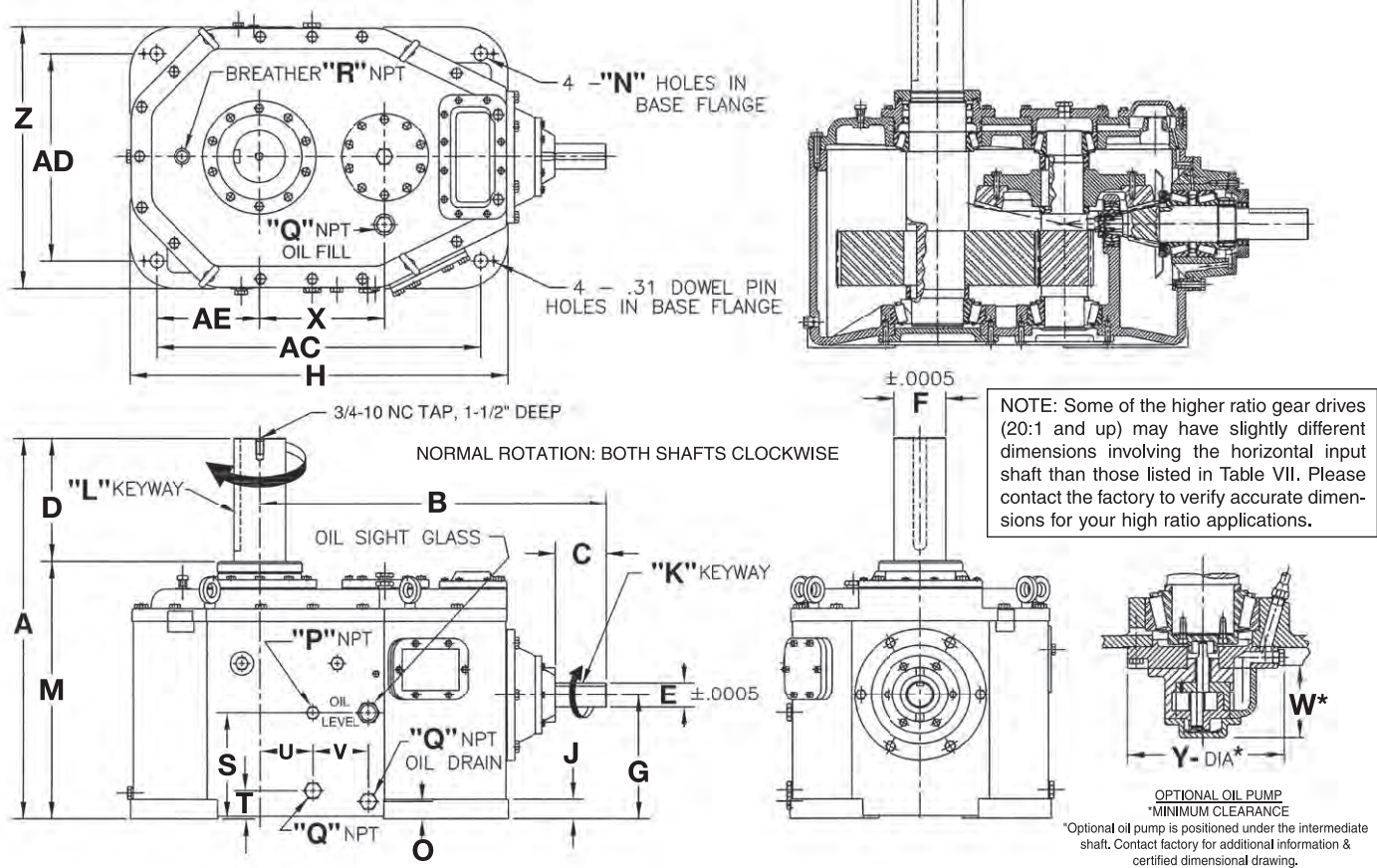
### TABLE VI - EXACT RATIO

| MODEL | 2.0  | 2.5  | 3.0  | 3.25 | 3.5  | 3.75 | 4.0  | 4.25 | 4.5  | 4.75 | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  | 7.5  | 8.0  | 8.5  | 9.0  | 9.5  |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 65    | 2.00 | 2.47 | 2.94 | 3.27 | 3.54 |      | 3.92 |      | 4.55 |      | 4.90 |      |      |      |      |      |      |      |      |      |
| 85    |      | 2.56 | 3.00 | 3.23 | 3.50 | 3.75 | 4.00 | 4.27 | 4.55 | 4.70 | 5.00 | 5.56 | 6.00 | 6.56 | 7.00 |      |      |      |      |      |
| 110   |      |      |      |      | 3.46 | 3.77 | 4.00 | 4.25 | 4.45 | 4.73 | 5.00 | 5.50 | 6.00 | 6.56 | 7.00 | 7.50 | 8.00 |      |      |      |
| 135   |      |      |      |      |      |      | 4.00 |      | 4.50 | 4.73 | 5.00 | 5.50 | 6.00 | 6.56 | 7.00 | 7.50 | 8.00 | 8.57 | 9.00 |      |
| 155   |      |      |      |      |      |      |      |      |      |      | 5.08 | 5.58 | 6.00 | 6.56 | 7.11 | 7.56 | 8.00 | 8.50 | 9.00 |      |
| 175   |      |      |      |      |      |      |      |      |      |      | 5.08 | 5.58 | 6.09 | 6.60 | 7.10 | 7.56 | 8.13 | 8.50 | 9.14 | 9.57 |

| MODEL  | 7.5  | 8    | 8.5  | 9    | 9.5  | 10    | 10.5  | 11    | 12    | 12.5  | 13    | 14    | 15    | 15.5  | 16    | 17    | 18    | 19    | 20    |
|--------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1008   | 7.53 | 7.97 | 8.72 | 8.96 | 9.64 | 9.90  | 10.43 | 11.08 | 11.94 |       | 12.93 | 13.93 |       |       |       |       |       |       |       |
| 1110   | 7.50 | 7.96 | 8.52 | 8.96 | 9.35 | 10.19 | 10.50 | 11.05 | 11.96 |       | 12.94 | 14.06 |       |       |       |       |       |       |       |
| 1311   |      | 8.00 | 8.72 | 9.04 | 9.45 | 9.90  | 10.46 | 11.14 | 12.16 |       | 12.93 | 13.93 | 15.13 |       |       | 17.33 |       |       |       |
| 1712   |      |      |      | 9.04 | 9.45 | 10.00 | 10.55 | 11.17 | 12.20 | 12.50 | 13.05 | 13.89 | 15.00 | 15.50 | 16.25 | 16.86 | 18.15 |       |       |
| 1712.5 |      |      |      |      |      |       |       | 11.18 | 11.85 |       | 13.17 | 13.98 | 14.69 | 15.40 | 15.98 | 17.21 | 17.88 | 19.25 | 19.83 |
| 1713   |      |      |      |      |      |       |       | 11.20 | 12.27 | 12.27 | 13.06 | 13.83 | 15.11 | 15.48 | 16.17 | 17.21 | 18.27 | 18.58 | 20.13 |
| 1814   |      |      |      |      |      |       |       |       | 12.06 |       | 13.15 | 14.21 | 15.23 | 15.50 | 16.04 | 16.88 | 18.24 | 18.82 | 20.02 |
| 2016   |      |      |      |      |      |       |       |       |       |       | 13.04 | 13.86 | 15.25 | 15.50 | 16.05 | 16.84 | 17.94 | 18.67 | 20.00 |



# DOUBLE REDUCTION



**TABLE VII - DIMENSIONS (in)**

| Model    | A      | B       | C       | C with Non Reverse | D  | E     | F     | G      | H      | J     | K          | L           | M      | N       | O       |
|----------|--------|---------|---------|--------------------|----|-------|-------|--------|--------|-------|------------|-------------|--------|---------|---------|
| 1008     | 28 1/2 | 26      | 3 3/4   | 2 1/4              | 10 | 1.874 | 3.499 | 8 1/2  | 25 1/4 | 1 7/8 | 3/8 x 3/16 | 7/8 x 7/16  | 18 1/2 | 1 1/16  | 2 1/8   |
| 1110     | 32 5/8 | 29 3/4  | 3 3/4   | 2 1/4              | 12 | 1.874 | 3.999 | 9 1/2  | 30 1/4 | 1 7/8 | 3/8 x 3/16 | 1 x 1/2     | 20 5/8 | 1 1/16  | 2 1/8   |
| 1311     | 34 3/8 | 30 7/16 | 4 15/16 | 3 1/4              | 12 | 2.436 | 4.499 | 10 1/4 | 33 1/4 | 1 7/8 | 5/8 x 5/16 | 1 x 1/2     | 22 3/8 | 1 5/16  | 1 1/2   |
| 1311W*   | 35 7/8 | 30 7/16 | 4 15/16 | 3 1/4              | 12 | 2.436 | 4.499 | 11 3/4 | 33 1/2 | 1 1/2 | 5/8 x 5/16 | 1 x 1/2     | 23 7/8 | 1 5/16  | 3       |
| 1712     | 35 7/8 | 33 3/4  | 4 15/16 | 3 1/4              | 12 | 2.436 | 4.999 | 11     | 36 3/4 | 1 7/8 | 5/8 x 5/16 | 1 1/4 x 5/8 | 23 7/8 | 1 5/16  | 1 11/16 |
| 1712W*   | 37 3/8 | 33 3/4  | 4 15/16 | 3 1/4              | 12 | 2.436 | 4.999 | 12 1/2 | 37     | 1 1/2 | 5/8 x 5/16 | 1 1/4 x 5/8 | 25 3/8 | 1 5/16  | 3 3/16  |
| 1712.5   | 36 7/8 | 35 3/4  | 5 13/16 | 3 1/2              | 12 | 2.936 | 4.999 | 12     | 36 3/4 | 1 7/8 | 3/4 x 3/8  | 1 1/4 x 5/8 | 24 7/8 | 1 5/16  | 1 11/16 |
| 1712.5W* | 38 3/8 | 35 3/4  | 5 13/16 | 3 1/2              | 12 | 2.936 | 4.999 | 13 1/2 | 37     | 1 1/2 | 3/4 x 3/8  | 1 1/4 x 5/8 | 26 3/8 | 1 5/16  | 3 3/16  |
| 1713     | 38 1/8 | 37 1/4  | 5 13/16 | 3 1/2              | 12 | 2.936 | 5.499 | 12     | 40 7/8 | 1 1/2 | 3/4 x 3/8  | 1 1/4 x 5/8 | 26 1/8 | 1 5/16  | 1 3/4   |
| 1713W*   | 39 5/8 | 37 1/4  | 5 13/16 | 3 1/2              | 12 | 2.936 | 5.499 | 13 1/2 | 41     | 1 1/2 | 3/4 x 3/8  | 1 1/4 x 5/8 | 27 5/8 | 1 5/16  | 3 1/4   |
| 1814     | 44 3/4 | 39 1/4  | 5 7/8   | 5 7/8              | 15 | 3.124 | 6.498 | 14 1/2 | 44 1/4 | 2 1/2 | 3/4 x 3/8  | 1 1/2 x 3/4 | 29 3/4 | 1 9/16  | 2       |
| 2016     | 48 5/8 | 43 3/4  | 6       | 6                  | 15 | 3.499 | 7.498 | 16     | 52 3/4 | 3     | 7/8 x 7/16 | 1 3/4 x 7/8 | 33 5/8 | 1 13/16 | 2 5/8   |

| Model    | P   | Q | R   | S      | T     | U      | V      | W       | X      | Y      | Z      | AC     | AD     | AE      | WT(lbs) |
|----------|-----|---|-----|--------|-------|--------|--------|---------|--------|--------|--------|--------|--------|---------|---------|
| 1008     | 3/4 | 1 | 1/2 | 7      | 2 3/4 | 1 1/2  | 3 1/2  | 2 7/8   | 8 1/4  | 10     | 18 1/2 | 21 1/4 | 14 1/2 | 7 1/4   | 830     |
| 1110     | 3/4 | 1 | 1/2 | 7      | 2 3/4 | 1 3/4  | 4      | 2 7/8   | 10     | 10     | 22     | 26     | 18     | 8 7/8   | 1245    |
| 1311     | 3/4 | 1 | 1/2 | 7 7/8  | 2 3/4 | 2 3/4  | 4      | 6 13/16 | 11     | 10     | 23 1/2 | 29 1/4 | 19 1/2 | 10 3/8  | 1575    |
| 1311W*   | 3/4 | 1 | 1/2 | 9 3/8  | 4 1/4 | 2 3/4  | 4      | 5 5/16  | 11     | 10     | 30     | 29 1/4 | 27     | 10 3/8  | 1950    |
| 1712     | 3/4 | 1 | 1/2 | 9 1/4  | 2 3/4 | 5 1/8  | 5 1/2  | 6 3/8   | 12 1/4 | 10     | 25 1/4 | 31 1/2 | 20     | 10      | 2000    |
| 1712W*   | 3/4 | 1 | 1/2 | 10 3/4 | 4 1/4 | 5 1/8  | 5 1/2  | 4 7/8   | 12 1/4 | 10     | 32     | 31 1/2 | 29     | 10      | 2460    |
| 1712.5   | 3/4 | 1 | 1/2 | 10 1/4 | 2 3/4 | 5 1/8  | 5 1/2  | 6 3/8   | 12 1/4 | 10     | 25 1/4 | 31 1/2 | 20     | 10      | 2280    |
| 1712.5W* | 3/4 | 1 | 1/2 | 11 3/4 | 4 1/4 | 5 1/8  | 5 1/2  | 4 7/8   | 12 1/4 | 10     | 32     | 31 1/2 | 29     | 10      | 2740    |
| 1713     | 3/4 | 1 | 1/2 | 9 1/4  | 3 1/4 | 3 5/8  | 5 7/16 | 6 3/8   | 13 3/4 | 10 1/2 | 29 1/4 | 34 7/8 | 23 1/4 | 11 5/8  | 2600    |
| 1713W*   | 3/4 | 1 | 1/2 | 10 3/4 | 4 3/4 | 3 5/8  | 5 7/16 | 4 7/8   | 13 3/4 | 10 1/2 | 36     | 34 7/8 | 33     | 11 5/8  | 3180    |
| 1814     | 3/4 | 1 | 1/2 | 11 1/4 | 3 3/4 | 5 1/16 | 4 7/8  | 5 5/16  | 14 1/2 | 10     | 31 7/8 | 37 1/4 | 24 7/8 | 12 7/16 | 3850    |
| 2016     | 3/4 | 1 | 1/2 | 12 1/4 | 5     | 5 1/2  | 8 7/8  | 5 5/16  | 16 1/2 | 10     | 38 1/4 | 44 3/4 | 30 1/4 | 15 1/8  | 6390    |

\* The W series incorporates design provisions to counter the very high thrust and undefined loads that are often encountered with applications involving very large fans. Please contact the factory to discuss your applications that might require the W Series gear drives. Dimensions include supplied base plate.

Each Amarillo Gear fan drive is the result of careful design and manufacturing technique. As with any precision machine component, proper selection, installation, maintenance and operating procedures are imperative for long life and trouble-free service. The following instructions are offered for selection of gear drives for usual applications. Our engineers will be pleased to assist when unusual conditions require special procedures.

### Selection

The required ratio is established by dividing the input or driver speed by the output or fan speed. Select the ratio from the table that is the closest to the required ratio. Select a gear drive from the table that has a service rating listed under the required ratio column that is equal to or greater than the power rating of the driver at the input speed. When gear drives are to be selected using a service factor other than 2.0, multiply the "service rating" from the tables by 2.0 to get the "mechanical rating." The "mechanical rating" is then divided by the appropriate service factor to obtain the new "service rating" at the required service factor. Efficiency varies with speed, power and thrust, with normal ranges between 96-98%. Contact factory for actual values for your application.

### Ratio

All ratios are reducing and defined as the ratio of input speed to output speed. Single reduction ratios shown in Table I are exact within  $\pm 2\%$ . Double reduction ratios shown in Table III are exact within  $\pm 3\%$ . Exact ratios are listed in Table VI.

### Ratings

AGMA and CTI recommend a minimum service factor of 2.0 for gear drives in cooling tower fan service when driven by electric motors or steam turbines. All ratings in Table I and Table III are service ratings and include a 2.0 service factor. Ratings are listed for both 60 and 50 cycle electric motor speeds. Ratings at intermediate speeds may be interpolated from the tables. Contact the factory for recommendations when the driver speed exceeds 1800 rpm.

### Thermal Rating

The thermal ratings of Amarillo Gear cooling tower drives are equal to or exceed the service ratings listed in Tables I & III when the discharge air temperature is 120°F or less. Contact the factory for thermal rating when the air temperature exceeds 120°F.

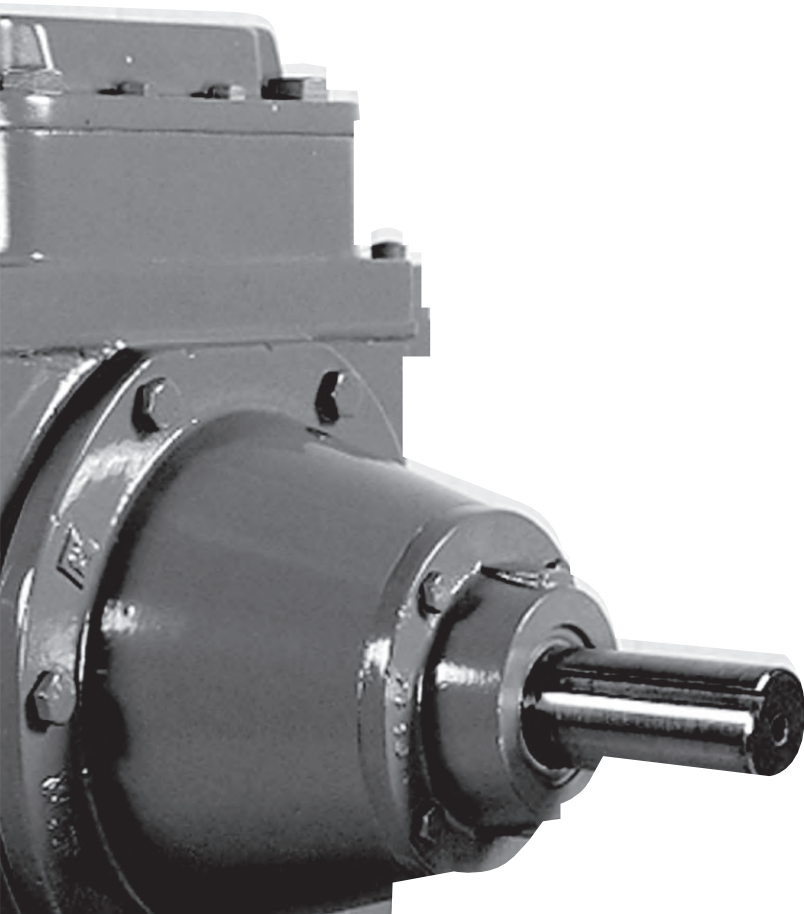
### Direction of Rotation

Normal rotation is both shafts clockwise as shown in the illustrations. Occasional use with both shafts rotating counterclockwise is permissible.

### "W" Series

The "W" Series of gear drives were developed primarily for applications involving larger diameter fans. These applications may require special design features to be incorporated in the gear drives to accommodate the higher thrust and undefined dynamic loads which are normally associated with larger diameter fans. Contact Amarillo Gear to discuss any applications involving 36 foot or larger diameter fans.

To view Amarillo's complete warranty terms, please visit [www.amarillogear.com](http://www.amarillogear.com)



# Right Angle Gear Drives For Cooling Towers

The drives Amarillo Gear Company LLC produces for cooling tower and air fin heat exchanger service reflect a long history of quality workmanship and reliability. Amarillo Gear has been designing and manufacturing right angle drives since 1934, and the commitment to excellence continues today. One example of this commitment is the availability of complete noise and vibration testing, with all data taken under full horsepower loading up to 500 hp.

## Features

Design features and ratings are in accordance with, or exceed, the minimum requirements of AGMA (American Gear Manufacturers Association) and CTI (Cooling Technology Institute) standards.

### Housing and Castings

Castings are rigidly designed and constructed to absorb internal and external loads with minimum deflection. Gear case and cover are manufactured to assure permanent alignment of bearings and gears under load. The sloped floor of the gear case adds rigidity and permits complete oil drainage. All casting materials are gray cast iron for effective damping of noise and vibration. All mating castings are sealed using “formed-in-place” gasket material that eliminates “weeping” associated with fiber-type gaskets. Gear cases are pre-drilled with pilot holes to assist in installation of dowel pins.

### Spiral Bevel Gears

Designed and manufactured by Amarillo Gear Company LLC for fan drive service. All spiral bevel gears are precision machined from high grade alloy steel, case hardened and lapped in pairs.

### Helical Gears

Helical gears are designed specifically for fan drive service and are precision machined from high grade alloy steel, case hardened and precision ground to provide low-noise, low vibration operation.

### Bearings

Amarillo Gear is an industry leader with  $L_{10a}$  bearing life exceeding 100,000 hours on all bearings. Input and intermediate bearings provide double the service life specified in AGMA and CTI standards, resulting in lower maintenance costs. The fan shaft bearings are designed to carry all loads imposed by the fan while maintaining this outstanding bearing life. Only trusted name brand bearings such as Timken and SKF are installed in Amarillo fan drives.

### Quiet Operation

Quiet operation of the Amarillo Fan Drives is achieved through careful design and controlled manufacturing methods of components. Our engineers understand all of the many parameters that affect gear noise and have applied the latest research to the design and manufacture of all components. Parameters that reduce gear noise are controlled during design, manufacturing, and assembly to ensure quiet operation. Rigid shafts and permanently aligned housings guarantee alignment of gears under load. Test results collected in our on-site test lab prove that our sound levels will meet or be below project requirements.

### Shafting

Amply sized to provide a rugged spindle for the fan. Surfaces for gears, bearings, input coupling and fan hub are precision machined.

### Shaft Seals

Both the input and output shaft openings have 2 spring-loaded, single-lip seals to keep outside contamination from entering the gearbox. Plus, the output shaft has a labyrinth-type plate directly mounted to the shaft to triple protect the gearbox from contamination that might try to enter due to the natural effect of gravity.

### Lubrication

Oversized slinger on the input shaft provides excellent lubrication in either direction or at half speed operation. Continuous circulation of oil to all bearings is assured by location of adequately sized channels and baffles. Double reduction units can also be supplied with a positive displacement bi-directional oil pump/internal oil distribution system. This pump is driven from the intermediate shaft and provides a redundant lubrication system for extreme reliability. A permanently mounted oil sight glass is provided on all units to provide direct visual determination of oil level.

Fan drives ship with the first fill of operating mineral oil installed. Synthetic oil is also available as an option. Synthetic lubricants offer advantages of extended service life, a broader operational temperature range, reduced friction, and the ability to maintain a higher film strength which can extend the service life of the gear drive.

### Low Speed Operation

For operation when motor speeds are less than 450 rpm, single reduction fan drives require Amarillo Gear's exclusive “Low Speed” option, and double reduction fan drives require a mechanical oil pump for proper lubrication. The addition of these options allow operation with no minimum input speed restrictions.

### Service Openings

Large inspection opening facilitates periodic inspections. Ports for oil fill, oil drain and venting are tapped and located for installation of remote service piping when desired.

### Optional Features

Special output shaft extensions, backstops (anti-windmilling), oil level switches, oil heaters & thermostats, oil temperature gauges, spot-face/drill & tap for vibration transducers, “low speed” option, and other accessory items are available on special order

Catalog CT 7/21



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