

# Generation II Stealth® Series

## RS Generation II Performance Specifications

| Parameter   | Units                         | Ratio          | RS60 Gen II              |       | RS90 Gen II |        | RS115 Gen II |        | RS142 Gen II |        |
|---|-------------------------------|----------------|--------------------------|-------|-------------|--------|--------------|--------|--------------|--------|
| Nominal Output Torque <sup>1)</sup><br>$T_{nom r}$              | Nm (in-lb)                    | 5              | 13                       | (115) | 55          | (487)  | 85           | (752)  | 225          | (1992) |
|   |                               | 10             | 24                       | (212) | 80          | (708)  | 160          | (1415) | 365          | (3232) |
|   |                               | 15,20,25,50    | 35                       | (310) | 88          | (779)  | 220          | (1947) | 430          | (3807) |
|   |                               | 30,40,100      | 30                       | (266) | 86          | (752)  | 195          | (1726) | 310          | (2745) |
| Maximum Acceleration Output Torque <sup>2)</sup><br>$T_{acc r}$ | Nm (in-lb)                    | 5              | 19                       | (168) | 83          | (743)  | 127          | (1124) | 337          | (2984) |
|   |                               | 10             | 36                       | (320) | 120         | (743)  | 240          | (2124) | 547          | (4843) |
|   |                               | 15,20,25,50    | 45                       | (400) | 123         | (867)  | 255          | (2257) | 645          | (5711) |
|   |                               | 30,40,100      | 37                       | (327) | 112         | (797)  | 240          | (2124) | 465          | (4717) |
| Emergency Stop Output Torque <sup>3)</sup><br>$T_{em r}$        | Nm (in-lb)                    | 5              | 40                       | (355) | 150         | (1327) | 270          | (2390) | 625          | (5534) |
|   |                               | 10             | 72                       | (637) | 240         | (2125) | 480          | (4248) | 1000         | (8854) |
|   |                               | 15,20,25,50    | 80                       | (708) | 250         | (2213) | 510          | (4514) | 1100         | (9739) |
|   |                               | 30,40,100      | 60                       | (531) | 200         | (1770) | 430          | (3806) | 830          | (7349) |
| Nominal Input Speed $N_{nom r}$                                 | RPM                           | 5 to 10        | 3200                     |       | 2800        |        | 2400         |        | 2000         |        |
|   |                               | 15,20,25,30,40 | 3700                     |       | 3300        |        | 2900         |        | 2500         |        |
|   |                               | 50,100         | 4200                     |       | 3800        |        | 3400         |        | 3000         |        |
| Maximum Input Speed $N_{max r}$ <sup>4)</sup>                   | RPM                           | 5 – 100        | 6000                     |       | 5300        |        | 4500         |        | 3800         |        |
| Maximum Radial Load $P_{r,max}$ <sup>5, 7)</sup>                | N (lbs)                       |                | 1650                     | (370) | 4800        | (1080) | 7500         | (1685) | 10,000       | (2247) |
| Maximum Axial Load $P_{a,max}$ <sup>6)</sup>                    | N (lbs)                       |                | 2100                     | (475) | 3600        | (810)  | 6800         | (1530) | 8800         | (1976) |
| Service Life  | h                             |                | 20,000                   |       |             |        |              |        |              |        |
| Standard Backlash <sup>8)</sup>                                 | arc-min                       | 5 – 10         | <14                      |       | <12         |        | <12          |        | <10          |        |
|   |                               | 15 – 100       | <12                      |       | <10         |        | <10          |        | <8           |        |
| Low Backlash <sup>8)</sup>                                      | arc-min                       | 5 – 10         | <10                      |       | <8          |        | <8           |        | <6           |        |
|   |                               | 15 – 100       | <8                       |       | <6          |        | <6           |        | <4           |        |
| Efficiency at Nominal Torque                                    | %                             | 5 – 100        | 94                       |       | 94          |        | 94           |        | 94           |        |
| Noise Level at 3000 RPM <sup>9)</sup>                           | db                            | 5 – 100        | <65                      |       | <68         |        | <68          |        | <70          |        |
| Torsional Stiffness   | Nm/arc-min<br>(in-lb/arc-min) | 5 – 100        | 2.5                      | (22)  | 10          | (90)   | 22           | (195)  | 42           | (372)  |
| Maximum Allowable Case Temperature                              | ° C                           | 5 – 100        | -20 to 90                |       |             |        |              |        |              |        |
| Lubrication   |                               | 5 – 100        | Per Maintenance Schedule |       |             |        |              |        |              |        |
| Mounting Position   |                               | 5 – 100        | Any                      |       |             |        |              |        |              |        |
| Degree of Protection  |                               |                | IP65                     |       |             |        |              |        |              |        |
| Maximum Weight  | kg (lbs)                      | 5 – 100        | 2.0                      | (4.4) | 6.0         | (13.2) | 11.0         | (24.2) | 24           | (52)   |

1) At nominal speed  $N_{nom r}$ .

2) Parker MotionSizer sizing software available for free download at parkermotion.com.

3) Maximum of 1000 stops.

4) For intermittent operation.

5) Max radial load applied to the center of the shaft at 100 rpm.

6) Max axial load at 100 rpm.

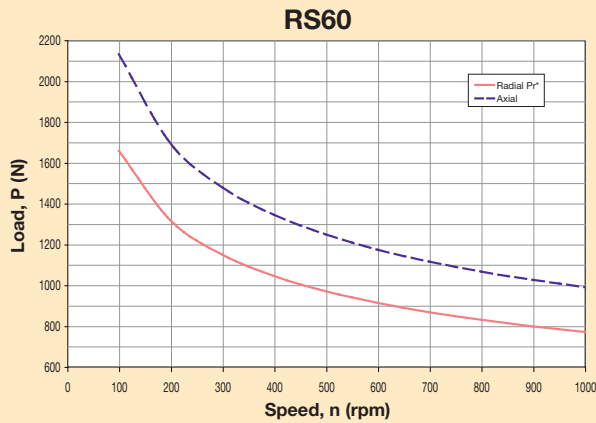
7) For combined radial and axial load consult factory.

8) Measured at 2% of rated torque.

9) Measure at 1m.

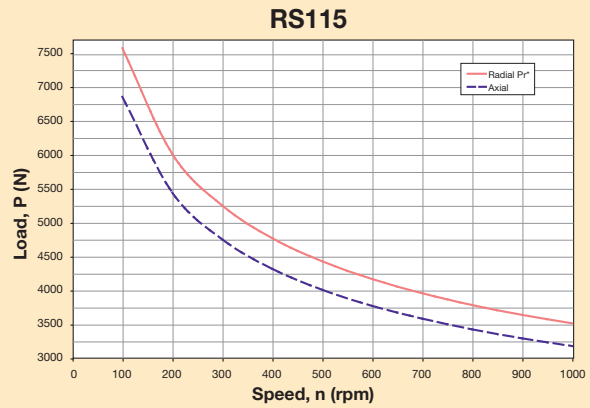
# RS Generation II Output Shaft Load Rating

Formulas below graphs are used to calculate radial load (Prx) at any distance "X" from the gearhead mounting surface:



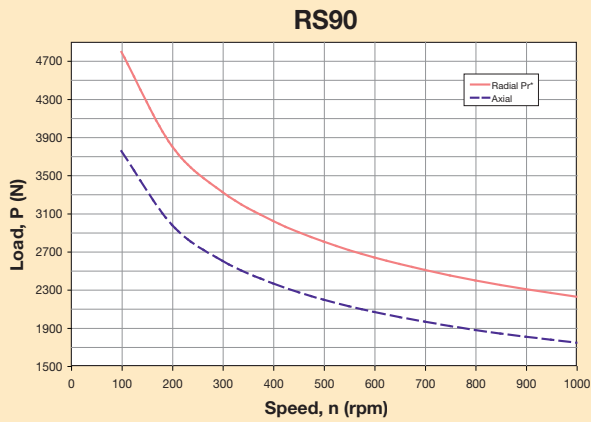
$$Pr_x = Pr * 75 \text{ mm} / (49 + X)$$

$$Pr_x = Pr * 2.95 \text{ in} / (1.93 \text{ in} + X)$$



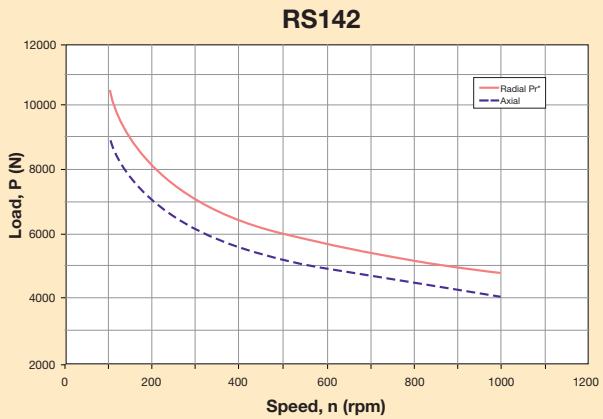
$$Pr_x = Pr * 124 \text{ mm} / (81 + X)$$

$$Pr_x = Pr * 4.88 \text{ in} / (3.19 \text{ in} + X)$$



$$Pr_x = Pr * 96 \text{ mm} / (62 + X)$$

$$Pr_x = Pr * 3.78 \text{ in} / (2.44 \text{ in} + X)$$



$$Pr_x = Pr * 156 \text{ mm} / (93 + X)$$

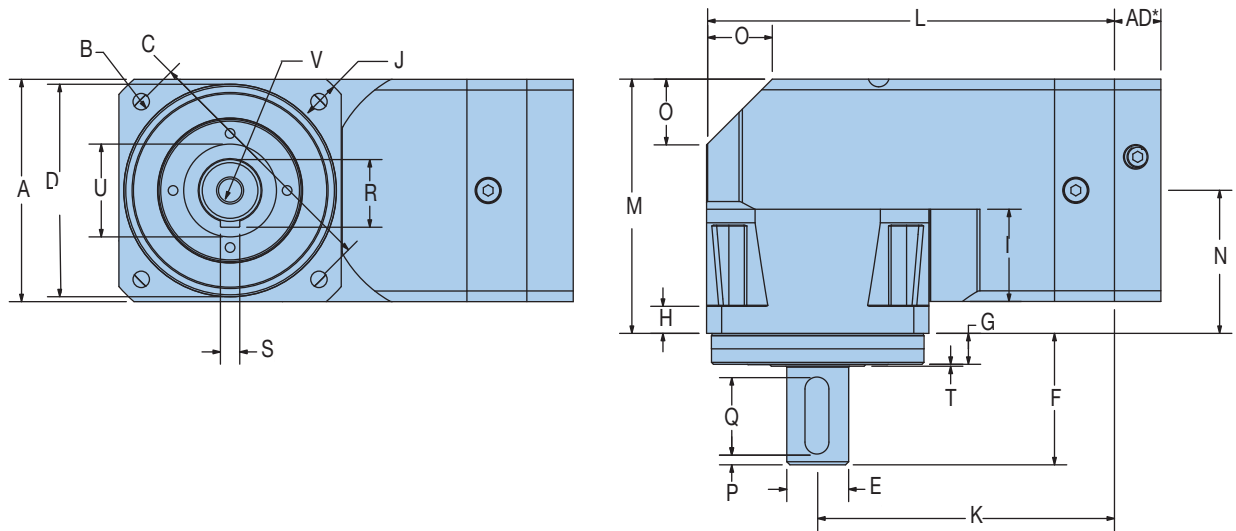
$$Pr_x = Pr * 6.14 \text{ in} / (3.66 \text{ in} + X)$$

\* Radial load applied to center of the shaft.

# Generation II Stealth® Series

## RS Generation II Dimensions

Free 3D Solid Models and drawings available at [parkermotion.com](http://parkermotion.com)



### Metric Frame Sizes

| Frame Size | A             |       | B         |       | C           |       | D              |       | E                     |       | F                   |       | G               |       | H                |       |
|------------|---------------|-------|-----------|-------|-------------|-------|----------------|-------|-----------------------|-------|---------------------|-------|-----------------|-------|------------------|-------|
|            | Square Flange |       | Bolt Hole |       | Bolt Circle |       | Pilot Diameter |       | Output Shaft Diameter |       | Output Shaft Length |       | Pilot Thickness |       | Flange Thickness |       |
|            | mm            | in    | mm        | in    | mm          | in    | mm             | in    | mm                    | in    | mm                  | in    | mm              | in    | mm               | in    |
| RS60       | 62            | 2.441 | 5.5       | 0.217 | 70          | 2.756 | 50             | 1.969 | 16                    | 0.630 | 40                  | 1.575 | 11              | 0.433 | 8                | 0.315 |
| RS90       | 90            | 3.543 | 6.5       | 0.256 | 100         | 3.937 | 80             | 3.150 | 22                    | 0.866 | 52                  | 2.047 | 15              | 0.591 | 10               | 0.394 |
| RS115      | 115           | 4.528 | 8.5       | 0.335 | 130         | 5.118 | 110            | 4.331 | 32                    | 1.260 | 68                  | 2.677 | 16              | 0.630 | 14               | 0.551 |
| RS142      | 142           | 5.591 | 11.0      | 0.433 | 165         | 6.496 | 130            | 5.118 | 40                    | 1.575 | 102                 | 4.016 | 20              | 0.787 | 15               | 0.591 |

| Frame Size | I             |       | J              |       | K                             |       | L              |        | M             |       | N                            |       | O              |       | P                       |       |
|------------|---------------|-------|----------------|-------|-------------------------------|-------|----------------|--------|---------------|-------|------------------------------|-------|----------------|-------|-------------------------|-------|
|            | Recess Length |       | Housing Recess |       | Distance to Output Centerline |       | Housing Length |        | Housing Width |       | Distance to Input Centerline |       | Taper Distance |       | Distance from Shaft End |       |
|            | mm            | in    | mm             | in    | mm                            | in    | mm             | in     | mm            | in    | mm                           | in    | mm             | in    | mm                      | in    |
| RS60       | 23.5          | 0.925 | 5.0            | 0.197 | 66.0                          | 2.598 | 124.7          | 4.909  | 78.0          | 3.071 | 47.0                         | 1.850 | 15             | 0.591 | 2                       | 0.079 |
| RS90       | 33.0          | 1.299 | 6.5            | 0.256 | 132.0                         | 5.197 | 177.0          | 6.969  | 103.0         | 4.055 | 58.0                         | 2.283 | 27             | 1.063 | 3                       | 0.118 |
| RS115      | 42.0          | 1.653 | 7.5            | 0.295 | 153.5                         | 6.043 | 211.0          | 8.307  | 132.0         | 5.177 | 74.0                         | 2.913 | 34             | 1.339 | 5                       | 0.197 |
| RS142      | 56.5          | 2.224 | 10.0           | 0.394 | 198.5                         | 7.815 | 269.5          | 10.610 | 158.2         | 6.228 | 87.2                         | 3.433 | 42             | 1.654 | 5                       | 0.197 |

| Frame Size | Q             |       | R          |       | S            |       | T               |       | U                 |       | V                          |
|------------|---------------|-------|------------|-------|--------------|-------|-----------------|-------|-------------------|-------|----------------------------|
|            | Keyway Length |       | Key Height |       | Keyway Width |       | Shoulder Height |       | Shoulder Diameter |       |                            |
|            | mm            | in    | mm         | in    | mm           | in    | mm              | in    | mm                | in    | Tap & Depth (end of shaft) |
| RS60       | 25            | 0.984 | 18.0       | 0.709 | 5            | 0.197 | 0.5             | 0.020 | 22                | 0.866 | M5x8                       |
| RS90       | 32            | 1.260 | 24.5       | 0.965 | 6            | 0.236 | 0.5             | 0.020 | 35                | 1.378 | M8x16                      |
| RS115      | 40            | 1.575 | 35.0       | 1.378 | 10           | 0.394 | 1               | 0.039 | 45                | 1.772 | M12x25                     |
| RS142      | 63            | 2.480 | 43.0       | 1.693 | 12           | 0.472 | 2.5             | 0.098 | 78                | 3.071 | M16x32                     |

## RS Generation II Universal Mounting Kits\*

Adapter Length “AD” Dimension

| Frame Size | Motor Shaft Length |               | Gearhead Adapter Length |       |
|------------|--------------------|---------------|-------------------------|-------|
|            | mm                 | in            | mm                      | in    |
| 60         | 16 – 35            | 0.630 – 1.378 | 16.5                    | 0.65  |
|            | 35.1 – 41          | 1.382 – 1.614 | 22.5                    | 0.886 |
| 90         | 20 – 40            | 0.787 – 1.575 | 20                      | 0.787 |
|            | 40.1 – 48          | 1.579 – 1.890 | 28.5                    | 1.122 |
| 115        | 22 – 50            | 0.866 – 1.969 | 24                      | 0.945 |
|            | 50.1 – 61          | 1.972 – 2.402 | 35                      | 1.378 |
| 142        | 26 – 62            | 1.023 – 2.441 | 30                      | 1.181 |
|            | 62.1 – 82          | 2.445 – 3.228 | 50                      | 1.969 |

\* Know your motor and need our mounting kit part number? See page 29 or use our Motor Mounting Search Tool on our website at: [www.parkermotion.com](http://www.parkermotion.com)

## RS Generation II Inertia

All moment of inertia values are as reflected at the input of the gearhead

| Ratio | Units*                 | RS60     | RS90     | RS115    | RS142    |
|-------|------------------------|----------|----------|----------|----------|
| 5     | kg-cm <sup>2</sup>     | 0.2200   | 0.8100   | 2.5000   | 9.4000   |
|       | in-lb-sec <sup>2</sup> | 0.000195 | 0.000717 | 0.002213 | 0.008319 |
| 10    | kg-cm <sup>2</sup>     | 0.1900   | 0.6100   | 1.9000   | 6.7000   |
|       | in-lb-sec <sup>2</sup> | 0.000168 | 0.000540 | 0.001682 | 0.005929 |
| 15    | kg-cm <sup>2</sup>     | 0.1800   | 0.6000   | 1.7000   | 6.6000   |
|       | in-lb-sec <sup>2</sup> | 0.150000 | 0.000531 | 0.001505 | 0.005841 |
| 20    | kg-cm <sup>2</sup>     | 0.1700   | 0.5100   | 1.4000   | 5.2000   |
|       | in-lb-sec <sup>2</sup> | 0.000150 | 0.000451 | 0.001239 | 0.004602 |
| 25    | kg-cm <sup>2</sup>     | 0.1600   | 0.4200   | 1.3000   | 4.5000   |
|       | in-lb-sec <sup>2</sup> | 0.000142 | 0.000372 | 0.001151 | 0.003983 |
| 30    | kg-cm <sup>2</sup>     | 0.1800   | 0.6000   | 1.7000   | 6.7000   |
|       | in-lb-sec <sup>2</sup> | 0.000159 | 0.000531 | 0.001505 | 0.005929 |
| 40    | kg-cm <sup>2</sup>     | 0.1700   | 0.5100   | 1.4000   | 5.2000   |
|       | in-lb-sec <sup>2</sup> | 0.000150 | 0.000451 | 0.001239 | 0.004602 |
| 50    | kg-cm <sup>2</sup>     | 0.1500   | 0.4000   | 1.1000   | 3.4000   |
|       | in-lb-sec <sup>2</sup> | 0.000133 | 0.000354 | 0.000974 | 0.003009 |
| 100   | kg-cm <sup>2</sup>     | 0.1500   | 0.4000   | 1.1000   | 3.4000   |
|       | in-lb-sec <sup>2</sup> | 0.000133 | 0.000354 | 0.000974 | 0.003009 |

\* Note: 1 kg-cm<sup>2</sup> = 0.000885 in-lb-sec<sup>2</sup>