# Raptor Spacer Extension Kit Couplings
## Instruction Manual

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see **dodgeindustrial.com** for updated instruction manuals.

**WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.**

**WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for these products.**

This manual provides instructions for both full spacer and half spacer installation.

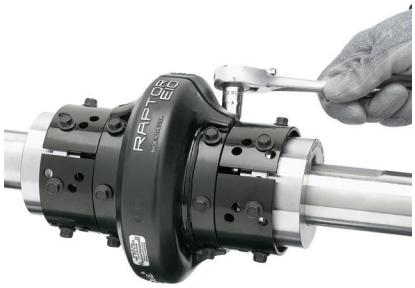

Full Spacer


Half Spacer

Install Hubs

Set Spacing and Install Spacers

Install Element Offset from Spacers




Tighten Set Screws

**WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Dodge® nor are the responsibility of Dodge. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.**

# INSTALLATION INSTRUCTIONS

## STEP 1 - HUB INSTALLATION

Before installing the hubs, ensure that shafts have been cleaned and are free of dirt, grease, and burrs. Verify that keys fit shafts properly.

### Finished Bore Clearance Fit

1. Hubs may be oriented as seen in Figure 5. Depending on shaft spacing requirements, determine the best hub orientation using Table 5.
2. If needed, hubs can be mounted with the shaft extending past the hub, flush, or recessed within the hub as seen in Figure 4.
3. Use a half element to set proper hub spacing (with or without spacer extensions), or reference Table 1 to set appropriate shaft spacing. Depending upon shaft spacing requirements, hubs may be oriented as seen in Figure 1 where C is the dimension between hub faces.
4. When hubs are properly spaced, tighten set screws to the torque value given in Table 2.

### Finished Bore Interference Fit

1. Hubs may be oriented as seen in Figure 5. Depending on shaft spacing requirements, determine the best hub orientation using Table 5.
2. If needed, hubs can be mounted with the shaft extending past the hub, flush, or recessed within the hub as seen in Figure 4.
3. Use a scribe to mark the desired hub location on shafts.
   a. Using an oven or oil bath, heat hubs evenly to 350°F (204°C) Do NOT exceed 450°F (232°C).
   b. An open flame or torch does not provide even heating and is NOT recommended.
3. Slide heated hubs onto shafts and align with the scribed marks.
4. Allow the hubs to cool to room temperature before installing element halves.

### Taper-Lock & QD Bushed Hubs

1. Hubs may be oriented as seen in Figure 6 for Taper-Lock and Figure 7 for QD. Depending on shaft spacing requirements, determine the best hub orientation using Table 6 for Taper-Lock and Table 7 for QD.
2. Hubs must be mounted with 100% keyseat and shaft engagement, as seen in “A” or B” of Figure 4.
3. Install bushings in hubs per bushing instructions:
   a. Taper-Lock – MN4044
   b. QD – MN4049

## STEP 2 - VERIFY ALIGNMENT

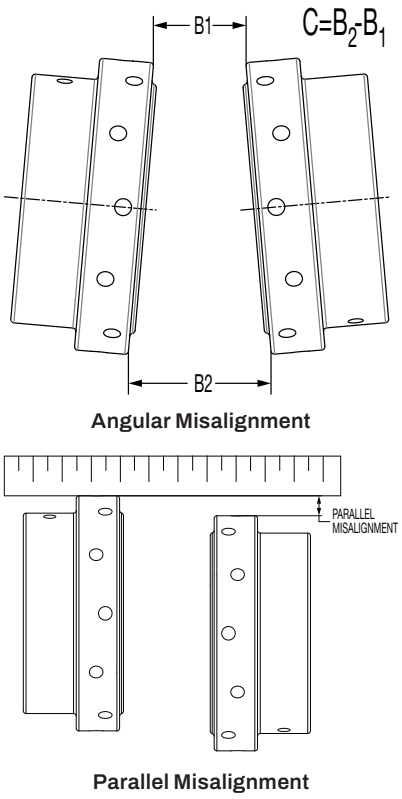



**Figure 1 - Misalignment**

Coupling hubs should be aligned using scales, straight edges, or calipers. Dial indicators, laser alignment tools, or other precision alignment equipment can be used but are not required.

1. Using scales or calipers, check the angular misalignment by measuring dimension “B” at four places on the outer diameter of the hub 90° apart, as seen in Figure 1. Use the “B2” and “B1” measurements to calculate “C”. Adjust the equipment until the “C” measurements do not exceed the value in Table 3.
2. Check parallel misalignment by placing a straight edge across the outside diameter of the hubs and measuring the gap between the straight edge and the hub at four locations 90° apart, as seen in Figure 1. Adjust equipment until the gap does not exceed the value shown in Table 3.

## STEP 3 - ELEMENT INSTALLATION

1. Place one spacer extension on each hub and adjust the distance between the threaded mounting holes to dimension G in Table 1. For a half spacer coupling, use a spacer extension on only one hub, then measure dimension G from the mounting hole in the open hub. Use any combination of mounting positions between the hubs and spacer extensions to get the proper spacing.

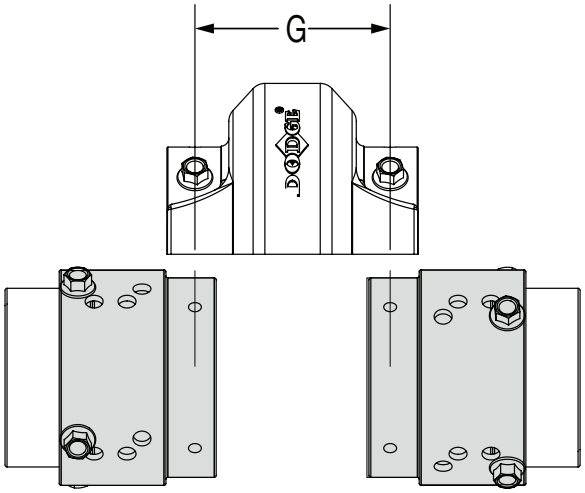



Figure 2a - Full Spacer

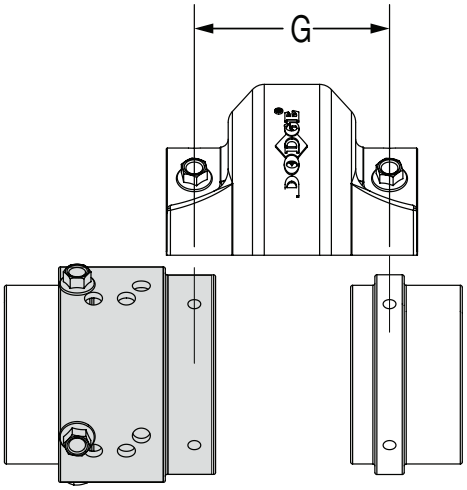



Figure 2b - Half Spacer

**Figure 2 - Example of Spacer Element Assembly**

| Table 1–Spacer Element Mounting Distance | |
|---|---|
| **Coupling Size** | **G (inches)** |
| ES2 | 2.56 |
| ES3 | 2.56 |
| ES4 | 2.56 |
| ES5 | 3.06 |
| ES10 | 3.06 |
| ES20 | 3.50 |
| ES30 | 3.81 |
| ES40 | 4.13 |
| ES50 | 4.75 |
| ES60 | 5.31 |
| ES70 | 5.88 |
| ES80 | 7.75 |

2. Install the spacer extensions on the hubs with the standard flange-head bolts. Use a torque wrench to tighten all fasteners to the torque values listed in Table 2.
3. Position the first element half such that the split in the rubber element is offset from the split in the spacer extensions, per Figure 3. On each hub side, one end of the element half will be bolted to one spacer extension and the other end bolted to the other. Hand tighten the flange-head bolts to secure the element to the spacer extensions.

   **NOTE: When tightening the bolts, start at the center bolt hole and then install the bolts on the neighboring holes.**
4. Place the second element half on he spacer extensions following the directions of Step 3.
5. Tighten all fasteners to the torque values listed in Table 2 in order to install the rubber element onto the spacer extensions.

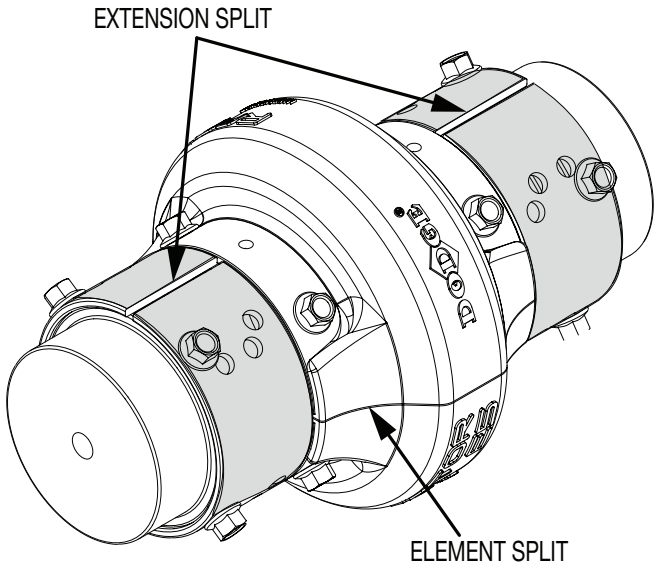
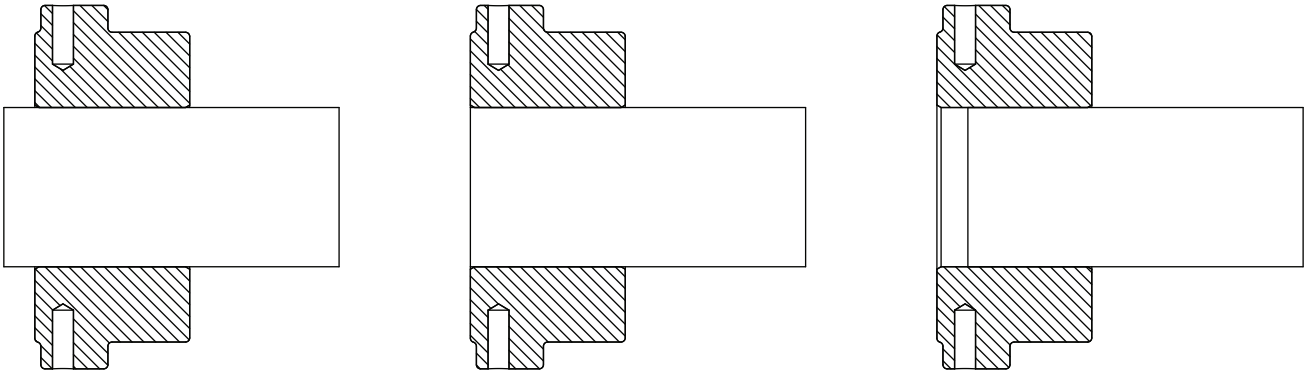



**Figure 3 - Example of Raptor Spacer Coupling Assembly**

**NOTE: When replacing a spacer element be sure to replace all bolts to ensure the element is properly secured to the hubs. If only the elastomeric element is being replaced and not the spacer extensions, the bolts connecting the element to the spacer extensions should be replaced.**



A - Shaft Extended Past Hub (without contacting other shaft)

B - Shaft Flush with Hub

C - Shaft Recessed in Hub (requires 80% keyseat and shaft engagement)

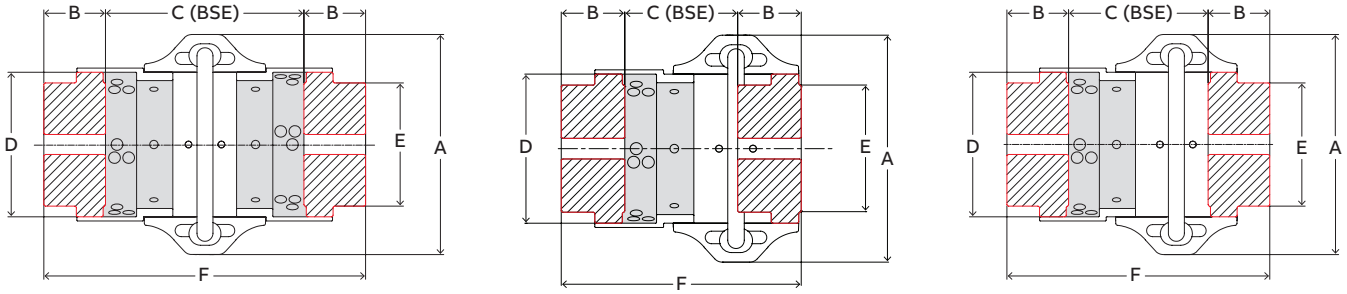
**Figure 4 - Hub Mounting Options**

| Table 2–Set Screw Installation Torque for Clearance Fit Hubs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch Bores (inches) | | | | | | | Metric Bores (mm) | | | |
| **Bore Size** | **0.500-0.5625** | **0.625-0.875** | **0.9375-1.25** | **1.3125-1.75** | **1.8125-2.75** | **2.8125-3.25** | **3.3125-4.000** | **11-34** | **35-47** | **48-69** | **70-100** |
| **Setscrew Size** | **10-24NC** | **1/4-20NC** | **5/16-18NC** | **3/8-16NC** | **1/2-13NC** | **5/8-11NC** | **3/4-10NC** | **M6x1.0** | **M8x1.25** | **M12x1.75** | **M16x2.0** |
| Torque (in-lb) | 36 | 87 | 165 | 290 | 620 | 1325 | 2400 | 64 | 150 | 480 | 1185 |
| Torque (ft-lb) | 3 | 7 | 14 | 24 | 52 | 110 | 200 | 5 | 13 | 40 | 100 |
| Torque (Nm) | 4 | 9.8 | 19 | 33 | 70 | 150 | 271 | 7.2 | 17 | 54 | 134 |

| Table 3–Angular and Parallel Misalignment (inches) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coupling Size** | **E2** | **E3** | **E4** | **E5** | **E10** | **E20** | **E30** | **E40** | **E50** | **E60** | **E70** | **E80** |
| Angular (C) | .129 | .162 | .182 | .219 | .255 | .235 | .284 | .347 | .426 | .306 | .323 | .393 |
| Parallel | .188 | .188 | .188 | .188 | .188 | .188 | .188 | .188 | .188 | .188 | .188 | .188 |

| Table 4–Hardware | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Size** | **Capscrew Torque** | | | | | | | | **Hardware Quantity** | **Imperial Hardware Kit** | **Metric Hardware Kit** |
| | **Imperial Hardware** | | | | **Metric Hardware** | | | | | | |
| | **Bolt Size (inches)** | **in-lbs** | **ft-lbs** | **Nm** | **Bolt Size (mm)** | **in-lbs** | **ft-lbs** | **Nm** | | | |
| E2 | 1/4 | 147 | 12 | 17 | M6 | 126 | 11 | 14 | 8 | 017000 | 017008 |
| E3-E5 | 1/4 | 147 | 12 | 17 | M6 | 126 | 11 | 14 | 8 | 017001 | 017009 |
| E10 | 1/4 | 147 | 12 | 17 | M6 | 126 | 11 | 14 | 12 | 017180 | 017181 |
| E20-E30 | 3/8 | 502 | 42 | 57 | M10 | 603 | 50 | 68 | 12 | 017002 | 017010 |
| E40-E50 | 3/8 | 502 | 42 | 57 | M10 | 603 | 50 | 68 | 16 | 017003 | 017011 |
| E60-E80 | 1/2 | 1,178 | 98 | 133 | M12 | 1,022 | 85 | 115 | 16 | 017004 | 017012 |

# SPACER - FINISHED BORE




Full Spacer - Outboard | Half Spacer Hybrid | Half Spacer Outboard

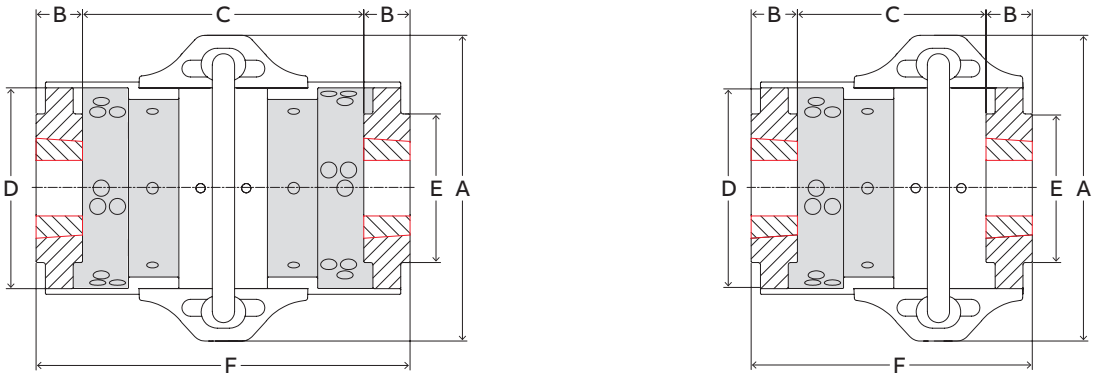
Figure 5 - Hub Orientation Options for Finished Bore

| Table 5–Finished Bore Spacer Lengths - "C" ① | | | | |
|---|---|---|---|---|
| Coupling size | A | B | D | E |
| ES2 | 3.5 | 0.94 | 1.85 | 1.65 |
| ES3 | 4 | 1.5 | 2.32 | 2 |
| ES4 | 4.56 | 1.69 | 2.6 | 2.36 |
| ES5 | 5.38 | 1.75 | 3.13 | 2.8 |
| ES10 | 6.38 | 1.88 | 3.65 | 3.3 |
| ES20 | 7.25 | 2.06 | 4.48 | 4 |
| ES30 | 8.25 | 2.31 | 5.42 | 4.62 |
| ES40 | 9.5 | 2.5 | 6.63 | 5.75 |
| ES50 | 11 | 2.75 | 8.13 | 6.13 |
| ES60 | 12.5 | 3.25 | 8.75 | 6.5 |
| ES70 | 14 | 3.62 | 9.25 | 6.99 |
| ES80 | 16 | 4.87 | 11.25 | 9.49 |
| ① All dimensions in inches. | | | | |

| Finished Bore Spacer Length Options | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coupling size | Standard (natural rubber) element part number | | Armored element part number | | C (BSE)④⑤ | | | | F④⑤ | | | |
| | Full spacer | Half spacer | Full spacer | Half spacer | Half spacer | | Full spacer | | Half spacer | | Full spacer | |
| | | | | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| ES2 | 17064 | 17182 | 17156 | 17218 | 2.51 | 3.01 | 3.5 | 4.12 | 4.39 | 4.89 | 5.38 | 6 |
| ES3 | 17065 | 17183 | 17157 | 17219 | 2.14 | 3.43 | 3.5 | 5.51 | 5.14 | 6.43 | 6.5 | 8.51 |
| ES4 | 17066 | 17184 | 17158 | 17220 | 1.96 | 3.43 | 3.5 | 5.51 | 5.34 | 6.81 | 6.88 | 8.89 |
| ES5 | 17067 | 17185 | 17159 | 17221 | 2.14 | 3.68 | 3.5 | 5.51 | 5.64 | 7.18 | 7 | 9.01 |
| ES10 | 17068 | 17186 | 17160 | 17222 | 2.01 | 3.68 | 3.5 | 5.51 | 5.77 | 7.44 | 7.26 | 9.27 |
| ES20 | 17069 | 17187 | 17161 | 17223 | 2.38 | 5.2 | 4.54 | 7.74 | 6.5 | 9.32 | 8.66 | 11.86 |
| ES30 | 17070 | 17188 | 17162 | 17224 | 2.24 | 5.42 | 4.44 | 7.86 | 6.86 | 10.04 | 9.06 | 12.48 |
| ES40 | 17071 | 17189 | 17163 | 17225 | 2.51 | 5.46 | 5.04 | 7.63 | 7.51 | 10.46 | 10.04 | 12.63 |
| ES50 | 17072 | 17190 | 17164 | 17226 | 2.94 | 6.32 | 5.76 | 8.72 | 8.44 | 11.82 | 11.26 | 14.22 |
| ES60 | 17073 | 17191 | 17165 | 17227 | 3.13 | 7.38 | 6.37 | 10.52 | 9.63 | 13.88 | 12.87 | 17.02 |
| ES70 | 17074 | 17192 | 17166 | 17228 | 3.36 | 7.8 | 7 | 10.8 | 10.6 | 15.04 | 14.24 | 18.04 |
| ES80 | 17075 | 17193 | 17167 | 17229 | 4.04 | 11.28 | 8.98 | 15.88 | 13.78 | 21.02 | 18.82 | 25.62 |

② Element and spacer assembly includes Imperial hardware.
③ Table shows largest space length options.
④ Hubs are reversible and will accommodate different shaft spacing requirements.
⑤ Consult Mechanical Power Transmission Support for minimum shaft spacing

# SPACER - TAPER-LOCK BUSHED




Full Spacer - Taper-Lock Bushed

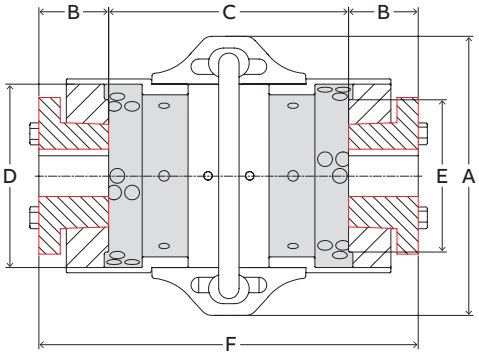
Half Spacer - Taper-Lock Bushed

Figure 6 - Hub Orientation Options for Spacer Taper-Lock Bushed

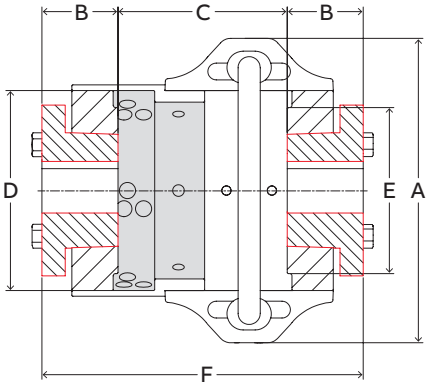
| Table 6–Taper-Lock Bushed Spacer Length Options "C" ① | | | | |
|---|---|---|---|---|
| **Coupling size** | **A** | **B** | **D** | **E** |
| ES3 | 4 | 0.88 | 2.32 | 2 |
| ES4 | 4.56 | 0.88 | 2.6 | 2.36 |
| ES5 | 5.38 | 0.88 | 3.13 | 2.8 |
| ES10 | 6.38 | 1 | 3.65 | 3.3 |
| ES20 | 7.25 | 1 | 4.48 | 4 |
| ES30 | 8.25 | 1.25 | 5.42 | 4.62 |
| ES40 | 9.5 | 1.75 | 6.63 | 5.75 |
| ES50 | 11 | 1.75 | 8.13 | 6.13 |
| ES60 | 12.5 | 2 | 8.75 | 6.5 |
| ES70 | 14 | 3.5 | 9.25 | 6.99 |
| ES80 | 16 | 4 | 11.25 | 9.49 |
| ① All dimensions in inches | | | | |

| Taper-Lock bushed spacer length options | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coupling size** | **Standard (natural rubber) element part number** | | **Armored element part number** | | **C (BSE)②③** | | | | **F②③** | | | |
| | | | | | **Half spacer** | | **Full spacer** | | **Half spacer** | | **Full spacer** | |
| | **Full spacer** | **Half spacer** | **Full spacer** | **Half spacer** | **Min.** | **Max.** | **Min.** | **Max.** | **Min.** | **Max.** | **Min.** | **Max.** |
| ES3 | 17065 | 17183 | 17157 | 17219 | 2.76 | 3.77 | 3.84 | 5.85 | 4.52 | 5.53 | 5.6 | 7.61 |
| ES4 | 17066 | 17184 | 17158 | 17220 | 2.76 | 3.77 | 3.84 | 5.85 | 4.52 | 5.53 | 5.6 | 7.61 |
| ES5 | 17067 | 17185 | 17159 | 17221 | 3.01 | 4.02 | 3.84 | 5.85 | 4.77 | 5.78 | 5.6 | 7.61 |
| ES10 | 17068 | 17186 | 17160 | 17222 | 2.89 | 3.9 | 3.72 | 5.73 | 4.89 | 5.9 | 5.72 | 7.73 |
| ES20 | 17069 | 17187 | 17161 | 17223 | 3.54 | 5.04 | 4.58 | 7.58 | 5.54 | 7.04 | 6.58 | 9.58 |
| ES30 | 17070 | 17188 | 17162 | 17224 | 3.51 | 5.01 | 4.45 | 7.45 | 6.01 | 7.51 | 6.95 | 9.95 |
| ES40 | 17071 | 17189 | 17163 | 17225 | 3.49 | 4.55 | 4.59 | 6.72 | 6.99 | 8.05 | 8.09 | 10.22 |
| ES50 | 17072 | 17190 | 17164 | 17226 | 4.15 | 5.41 | 5.29 | 7.81 | 7.65 | 8.91 | 8.79 | 11.31 |
| ES60 | 17073 | 17191 | 17165 | 17227 | 4.68 | 6.46 | 6.05 | 9.6 | 8.68 | 10.46 | 10.05 | 13.6 |
| ES70 | 17074 | 17192 | 17166 | 17228 | 3.88 | 5.38 | 5.38 | 8.38 | 10.88 | 12.38 | 12.38 | 15.38 |
| ES80 | 17075 | 17193 | 17167 | 17229 | 5.74 | 8.36 | 7.72 | 12.96 | 13.74 | 16.36 | 15.72 | 20.96 |
| ② Element assemblies include imperial hardware.<br>③ Table shows actual spacer lengths. | | | | | | | | | | | | |

# SPACER - QD BUSHED




Full Spacer - QD Bushed




Half Spacer - QD Bushed

Figure 7 - Hub Orientation Options for Spacer - QD Bushed

| Table 7–QD Bushed Spacer Length Options - "C (BSE)" ① | | | | |
|---|---|---|---|---|
| **Coupling size** | **A** | **B** | **D** | **E** |
| ES4 | 4.56 | 1 | 2.6 | 2.36 |
| ES5 | 5.38 | 1.25 | 3.13 | 2.8 |
| ES10 | 6.38 | 1.31 | 3.65 | 3.3 |
| ES20 | 7.25 | 1.88 | 4.48 | 4 |
| ES30 | 8.25 | 2 | 5.42 | 4.62 |
| ES40 | 9.5 | 2.63 | 6.63 | 5.75 |
| ES50 | 11 | 2.63 | 8.13 | 6.13 |
| ES60 | 12.5 | 3.63 | 8.75 | 6.5 |
| ES70 | 14 | 4.5 | 9.25 | 6.99 |
| ES80 | 16 | 6.75 | 11.25 | 9.49 |
| ① All dimensions in inches | | | | |

| QD bushed spacer length options | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coupling size** | **Standard (natural rubber) element part number ②** | | **Armored element part number ②** | | **C (BSE) ④** | | | | **F ④** | | | |
| | | | | | **Half spacer** | | **Full spacer** | | **Half spacer** | | **Full spacer** | |
| | **Full spacer** | **Half spacer** | **Full spacer** | **Half spacer** | **Min.** | **Max.** | **Min.** | **Max.** | **Min.** | **Max.** | **Min.** | **Max.** |
| ES4 | 17066 | 17184 | 17158 | 17220 | 2.64 | 3.99 | 4.06 | 6.07 | 4.64 | 5.99 | 6.06 | 8.07 |
| ES5 | 17067 | 17185 | 17159 | 17221 | 2.64 | 3.72 | 3.54 | 5.55 | 5.14 | 6.22 | 6.04 | 8.05 |
| ES10 | 17068 | 17186 | 17160 | 17222 | 2.58 | 4.16 | 3.98 | 5.99 | 5.2 | 6.78 | 6.6 | 8.61 |
| ES20 | 17069 | 17187 | 17161 | 17223 | 2.66 | 5.16 | 4.7 | 7.7 | 6.42 | 8.92 | 8.46 | 11.46 |
| ES30 | 17070 | 17188 | 17162 | 17224 | 2.76 | 4.88 | 4.32 | 7.32 | 6.76 | 8.88 | 8.32 | 11.32 |
| ES40 | 17071 | 17189 | 17163 | 17225 | 2.61 | 4.17 | 4.21 | 6.34 | 7.78 | 9.43 | 9.47 | 11.6 |
| ES50 | 17072 | 17190 | 17164 | 17226 | 3.27 | 5.54 | 5.42 | 7.94 | 8.53 | 10.8 | 10.68 | 13.2 |
| ES60 | 17073 | 17191 | 17165 | 17227 | 3.05 | 5.28 | 4.87 | 8.42 | 10.31 | 12.54 | 12.13 | 15.68 |
| ES70 | 17074 | 17192 | 17166 | 17228 | 2.88 | 4.7 | 4.7 | 7.7 | 11.88 | 13.7 | 13.7 | 16.7 |
| ES80 | 17075 | 17193 | 17167 | 17229 | 2.99 | 6.1 | 5.46 | 10.7 | 16.49 | 19.6 | 18.98 | 24.2 |

② Element assemblies include imperial hardware.
③ Table shows actual spacer lengths.
④ Hubs are reversible and will accommodate different shaft spacing requirements.
⑤ Consult Mechanical Power Transmission Support for minimum shaft spacing.

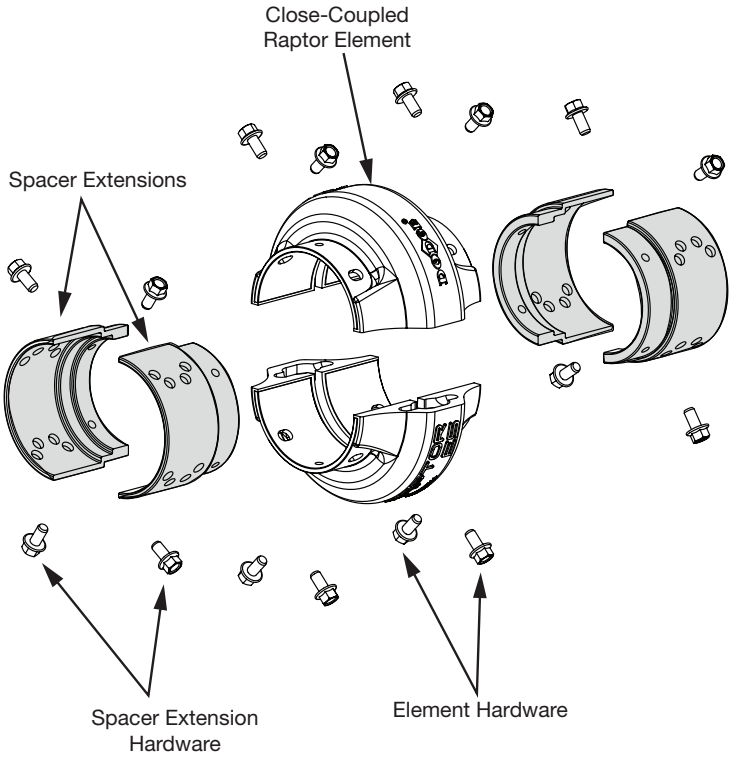



**Figure 8 - Spacer Element Component Details**

**Table 8–Raptor spacer element component part numbers**

| Coupling size | Complete spacer element assemblies | | Replacement components | | | |
|---|---|---|---|---|---|---|
| | Standard (natural rubber) elements | | Close-coupled elements ① ② | | Spacer extension kit ③ ④ | Replacement Hardware |
| | Full spacer | Half spacer | Standard (natural rubber) | Armored elements | | |
| ES2 | 017064 | 017182 | 015843 | 017126 | 017040 | 017000 |
| ES3 | 017065 | 017183 | 015844 | 017127 | 017041 | 017001 |
| ES4 | 017066 | 017184 | 015845 | 017128 | 017042 | |
| ES5 | 017067 | 017185 | 015846 | 017129 | 017043 | |
| ES10 | 017068 | 017186 | 015847 | 017130 | 017044 | 017180 |
| ES20 | 017069 | 017187 | 015848 | 017131 | 017045 | 017002 |
| ES30 | 017070 | 017188 | 015849 | 017132 | 017046 | |
| ES40 | 017071 | 017189 | 015850 | 017133 | 017047 | 017003 |
| ES50 | 017072 | 017190 | 015851 | 017134 | 017048 | |
| ES60 | 017073 | 017191 | 015852 | 017135 | 017049 | 017004 |
| ES70 | 017074 | 017192 | 015853 | 017136 | 017050 | |
| ES80 | 017075 | 017193 | 015854 | 017137 | 017051 | |

① For replacement on existing Raptor half or full spacer couplings, purchase only close-coupled element if spacer extensions remain on shaft hubs
② For replacement on existing Raptor half or full spacer couplings, purchase close-coupled element and one set of replacement hardware if spacer extensions have been removed from shaft hubs
③ To convert an existing close-coupled Raptor element into a half spacer element, purchase one spacer extension kit
④ To convert an existing close-coupled Raptor element into a full spacer element, purchase two spacer extension kits

## ATEX CERTIFICATION

These instructions do not cover all details or variations in equipment nor provide every possible contingency or hazard to be met in connection with installation, operation, and maintenance. Should further information be desired, or should particular problems arise which are not covered in this manual, the matter should be referred to your local Dodge representative for mechanical power transmission products.

Dodge Raptor couplings are manufactured under guidelines of the ATEX directive 2014/34/EU. Dodge Raptor couplings are suitable for ATEX category 2 and M2, Group II and I for gas and dust environments and are also suitable for ATEX category 3 for all gas or dust environments with ignition temperatures higher than T5 = 100°C. A UL Certified adhesive label indicating ATEX certification will be attached to the product and will contain the following depending on size and ambient temperature:

### ATEX Marking Information

- I M2
- Ex h I Mb
- II 2GD
- Ex h IIC T5 Gb
- Ex h IIIC T100ºC Db
- Tamb -30ºC to + 50ºC
- SIRA 15 ATEX 6170X
- MFG by Dodge Industrial, Inc.
- 1061 Holland Road, Simpsonville, SC 29681 USA

Products manufactured prior to November 2021 may be marked as ABB Motors and Mechanical, Inc., Baldor, Reliance, etc.

### ATTENTION – HAZARDOUS AREA USE

For Hazardous Area Use, the following potential ignition hazards have been identified:

- Heat Generation
- Contact of rotating parts with stationary parts

These potential hazards have been addressed by the materials and design of the coupling and rely on correct installation and maintenance, as detailed in the equipment instructions.

**WARNING: These couplings are designed to operate with surface temperatures below 100°C when properly installed and selected. Excessive temperatures greater than 80°C is a result of an abnormal operating condition caused by:**

**Improper Installation – refer to installation manual for proper procedures**

1. **Excessive misalignment – re-align coupling/shafts**
2. **Failure of the element – replace element assembly**
3. **Excessive speed – re-evaluate application and selection**
4. **Excessive vibration – determine source, re-evaluate application**

If applied in a Division 1 or Zone 1 environment, the excessive temperature may cause ignition of hazardous materials.

In hazardous environments, Dodge Raptor Couplings should not be considered fail safe or “break-away” power transmission devices. Overloads imposed to these devices could cause irreparable damage, should be considered a potential source of ignition, could create projectiles, and/or could cause torque transmission interruptions. The coupling shall be sized and used to the stated torque ratings of the unit as published in the appropriate Dodge Engineering Catalog. Any assistance needed in selection shall be referred to Mechanical Power Transmission support.

### ADDITIONAL INSTRUCTION FOR SAFE INSTALLATION AND USE

1. All rotating parts should be guarded to prevent contact with foreign objects which could result in sparks, ignition, or damage to the coupling. **Coupling guards should have a minimum of 1” radial clearance over Raptor Couplings up to size E20. Sizes E30 and above require 2” minimum radial clearance.**
2. Couplings should be periodically inspected for normal wear, dust/dirt buildup, cracks or tears in the element assembly or any similar scenario that would impede heat dissipation.
3. Increasing levels of vibration and noise could indicate the need for inspection, repair or replacement of the coupling or element.
4. Electrical sparks are a source of ignition. To reduce the risk, proper electrical bonding and grounding is recommended.
5. Overloading may result in tearing or damage to the coupling element or other equipment. Damaged coupling components must not be operated in hazardous environments.
6. Raptor Couplings are not intended to be used as thrust bearing members.
7. The coupling shall be suitably protected from falling objects.

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