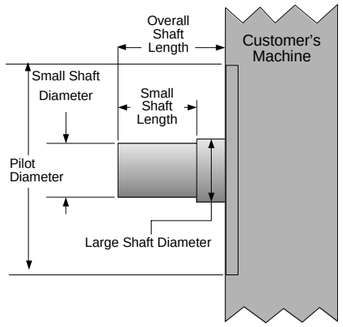
Kollmorgen Cartridge DDR®

Small Frame Motor Mounting Instructions

Step 1 Check Machine Mounting Dimensions



CAUTION

Incorrect mounting dimensions can damage Motor and/or Machine.

Model	Pilot Diameter	Shaft Diameter		Shaft Length		Check Here
		Small Shaft	Large Shaft	Small Shaft	Overall	
C041	92.040 mm – 92.090 mm [3.6237 in – 3.6255 in]	31.985 mm – 32.000 mm [1.2593 in – 1.2598 in]	32.985 mm – 33.000 mm [1.2987 in – 1.2992 in]	17.0 mm ±0.4 [0.67 in ±0.015]	61.3 mm ±1.5 [2.41 in ±0.059]	☐
C042	92.040 mm – 92.090 mm [3.6237 in – 3.6255 in]	31.985 mm – 32.000 mm [1.2593 in – 1.2598 in]	32.985 mm – 33.000 mm [1.2987 in – 1.2992 in]	48.0 mm ±0.4 [1.89 in ±0.015]	92.3 mm ±1.5 [3.63 in ±0.059]	☐
C043	92.040 mm – 92.090 mm [3.6237 in – 3.6255 in]	31.985 mm – 32.000 mm [1.2593 in – 1.2598 in]	32.985 mm – 33.000 mm [1.2987 in – 1.2992 in]	79.0 mm ±0.4 [3.11 in ±0.015]	123.3 mm ±1.5 [4.85 in ±0.059]	☐
C044	92.040 mm – 92.090 mm [3.6237 in – 3.6255 in]	31.985 mm – 32.000 mm [1.2593 in – 1.2598 in]	32.985 mm – 33.000 mm [1.2987 in – 1.2992 in]	110.0 mm ±0.4 [4.33 in ±0.015]	154.3 mm ±1.5 [6.07 in ±0.059]	☐
C051	118.040 mm – 118.090 mm [4.6473 in – 4.6492 in]	44.985mm – 45.000 mm [1.7715 in – 1.772 in]	45.985 mm – 46.000 mm [1.8105 in – 1.811 in]	35.0 mm ±0.4 [1.38 in ±0.015]	82.0 mm ±1.5 [3.23 in ±0.059]	☐
C052	118.040 mm – 118.090 mm [4.6473 in – 4.6492 in]	44.985 mm – 45.000 mm [1.7715 in – 1.772 in]	45.985 mm – 46.000 mm [1.8105 in – 1.811 in]	60.0 mm ±0.4 [2.36 in ±0.015]	107.0 mm ±1.5 [4.21 in ±0.059]	☐
C053	118.040 mm – 118.090 mm [4.6473 in – 4.6492 in]	44.985 mm – 45.000 mm [1.7715 in – 1.772 in]	45.985 mm – 46.000 mm [1.8105 in – 1.811 in]	85.0 mm ±0.4 [3.35 in ±0.015]	132.0 mm ±1.5 [5.20 in ±0.059]	☐
C054	118.040 mm – 118.090 mm [4.6473 in – 4.6492 in]	44.985 mm – 45.000 mm [1.7715 in – 1.772 in]	45.985 mm – 46.000 mm [1.8105 in – 1.811 in]	110.0 mm ±0.4 [4.33 in ±0.015]	157.0 mm ±1.5 [6.18 in ±0.059]	☐

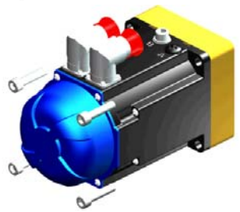
Model	Pilot Diameter	Shaft Diameter		Shaft Length		Check
		Small Shaft	Large Shaft	Small Shaft	Overall	
C061	164.040 mm – 164.090 mm [6.4583 in – 6.4602 in]	70.985 mm – 71.000 mm [2.7945 in – 2.795 in]	71.985 mm – 72.000 mm [2.8345 in – 2.835 in]	49.0 mm ±0.4 [1.93 in ±0.015]	104.0 mm ±1.5 [4.09 in ±0.059]	☐
C062	164.040 mm – 164.090 mm [6.4583 in – 6.4602 in]	70.985 mm – 71.000 mm [2.7945 in – 2.795 in]	71.985 mm – 72.000 mm [2.8345 in – 2.835 in]	83.0 mm ±0.4 [3.27 in ±0.015]	138.0 mm ±1.5 [5.43 in ±0.059]	☐
C063	164.040 mm – 164.090 mm [6.4583 in – 6.4602 in]	70.985 mm – 71.000 mm [2.7945 in – 2.795 in]	71.985 mm – 72.000 mm [2.8345 in – 2.835 in]	117.0 mm ±0.4 [4.61 in ±0.015]	172.0 mm ±1.5 [6.77 in ±0.059]	☐

With a dial indicator, measure shaft runout 0.13 mm (0.005 in) TIR ☐

With a dial indicator mounted to the shaft, measure Pilot Concentricity 0.10 mm (0.004 in) TIR ☐

With a dial indicator mounted to the shaft, measure Mounting Surface Perpendicularity 0.10 mm (0.004 in) TIR ☐

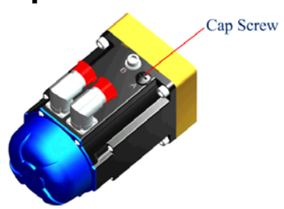
Step 2 Secure Motor to Machine Frame



Wipe down shaft and motor's rotor hub bore. Light oil residue is acceptable, but remove grease and other contaminates. ☐

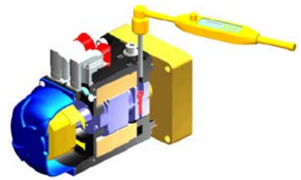
Slide motor onto the shaft. Install four (4) mounting bolts (customer supplied). Tighten bolts in an alternating pattern to fully secure motor to machine frame. ☐

Step 3 Access Compression Coupling



Remove the Black Phillips Screw from the hole labeled "A" to access the compression coupling. ☐

Step 4 Tighten Compression Coupling



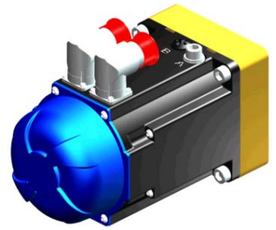
Insert a hex bit attached to a torque wrench into the hole labeled "A" and tighten the compression coupling:

C04x: Use a 5 mm hex bit and torque to 12.4 N-m [110 lb-in].
C05x & C06x: Use a 6 mm hex bit and torque to 30 N-m [264 lb-in]. ☐

CAUTION

Failure to properly torque the compression coupling can allow the shaft to slip in the hub. This relative motion can generate enough heat to permanently weld the hub and shaft together!

Step 5 Secure Hardware for Run Configuration



Remove Silver Hex Alignment Screw from the hole labeled "B" and secure it into the hole labeled "A".

C04x: Use a 6mm hex bit and torque to 9 N-m [80 lb-in]. ☐
C05x & C06x: Use a 8mm hex bit and torque to 18 N-m [160 in-lb].

CAUTION

Torque specification in Step 5 must be followed to ensure IP-65 compliance.

Secure the Black, Phillips Screw into the hole labeled "B". Torque the Phillips head screw to 3.4 N-m [30 lb-in]. ☐

Step 6 Confirm Free Rotation

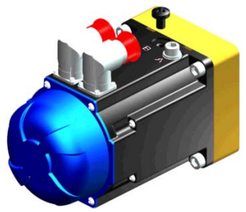
Rotate shaft or load by hand to ensure free rotation. ☐

Congratulations!
Your Kollmorgen Cartridge DDR® motor is ready for operation.

Kollmorgen Cartridge DDR®

Small Frame Motor Removal Instructions

Step 1 Align Rotor

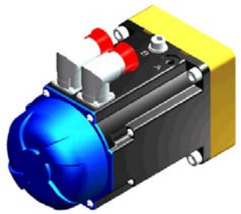


Remove the Black Phillips Screw from the hole labeled "B" ☐

Insert a 5 mm hex bit (C04X) or 6 mm hex bit (C05X/C06X) into the hole labeled “B” and rotate the shaft until the hex bit falls into the alignment hole in the rotor. Rotate shaft gently by hand. Rotating the shaft under the motor's power or forcibly rotating a large inertia may damage the rotor hub, housing, or hex bit when the bit drops into place. ☐

Remove the hex bit without rotating the shaft.

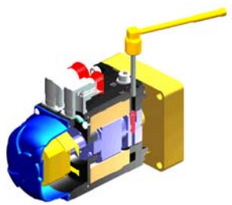
Step 2 Install Alignment Screw



Remove Silver Hex Alignment Screw from the hole labeled "A" and secure it into the hole labeled "B". The Alignment screw must fully engage the rotor such that the shoulder of the Alignment screw is against the motor housing Motor rotor will not rotate once this pin is properly engaged. ☐

C04X: Use a 6 mm hex bit.
C05X & C06X: Use a 8 mm hex bit.

Step 3 Loosen Compression Coupling



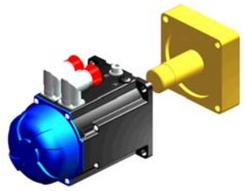
Insert a hex bit attached to a wrench into the hole labeled "A" and loosen the compression coupling. To insure the compression coupling is released, loosen the bolt one complete revolution passed finger tight. ☐

C04X: Use a 5 mm hex bit.
C05X & C06X: Use a 6 mm hex bit.

Step 4 Install Phillips Head Screw

Secure the Black, Phillips Screw into the hole labeled "A". ☐

Step 5 Remove Motor from Machine



Remove the (4) mounting bolts securing the motor frame to the machine and slide the motor off the shaft.

The notches at the mounting face in the top and bottom surfaces of the housing provide a means of GENTLY prying the motor loose from the machine using a screw driver tip. ☐

Sales and Service

Kollmorgen is committed to quality customer service. Our products are available world-wide through an extensive authorized distributor network. To serve in the most effective way, please contact your local sales representative for assistance. If you are unaware of your local sales representative, please contact us.

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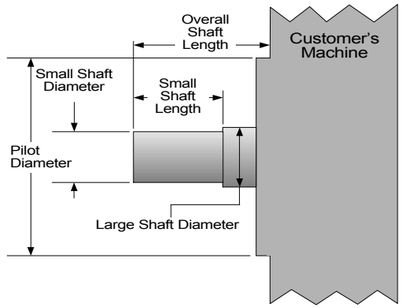
CARTRIDGE DDR™
Motor Mounting Instructions

Step 1 Check Machine Mounting Dimensions

CAUTION

Incorrect mounting dimensions can damage Motor and/or Machine.



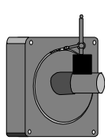
Check Here

Diameter	C(H)09X	C(H)13X
Pilot	9.170 - 9.172 [232.92 - 232.96]	13.147 - 13.149 [333.94 - 333.98]
Large Shaft	2.7554 - 2.7559 [69.988 - 69.999]	3.1491 - 3.1496 [79.988 - 79.999]
Small Shaft	2.3617 - 2.3622 [59.988 - 59.999]	2.7554 - 2.7559 [69.988 - 69.999]

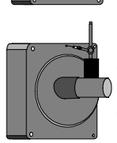
Shaft Length	C(H)091	C(H)092	C(H)093
Small ± 0.005 [0.13]	1.730 [43.94]	3.470 [88.14]	4.910 [124.71]
Overall ± 0.06 [1.5]	3.540 [89.92]	5.280 [134.11]	6.720 [170.69]

Shaft Length	C(H)131	C(H)132	C(H)133
Small ± 0.005 [0.13]	1.590 [40.39]	3.300 [83.82]	4.670 [118.62]
Overall ± 0.06 [1.5]	4.490 [114.05]	6.610 [167.89]	9.980 [253.49]

With a dial indicator measure shaft runout.
0.038 mm (0.0015 in) TIR



With a dial indicator mounted to the shaft, measure Pilot Concentricity.
0.05mm (0.002 in) TIR



With a dial indicator mounted to the shaft, measure Mounting Surface Perpendicularity.
0.05 mm (0.002 in) TIR

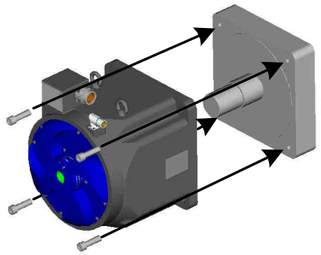
Solutions by DANAHER MOTION

Step 2 Secure Motor to Machine Frame

Check Here

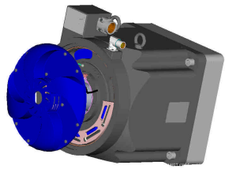
Wipe down shaft and motor's rotor hub bore. Light oil residue is acceptable, but remove grease and other contaminates.

Insert the provided key into the keyway in the shaft with the point toward the end of the shaft.



Slide motor onto the shaft. Secure the motor to machine frame using four (4) bolts (not included).

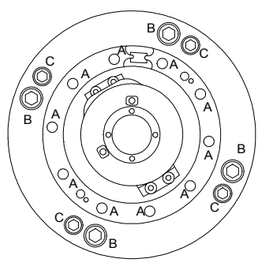
Step 3 Remove End Cover



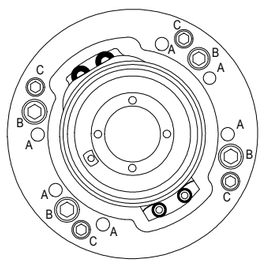
Using a Phillips screw driver, remove the blue end cover by loosening the pan head screws (eight (8) on the C(H)09 and twelve (12) on the C(H)13.

Step 4 Tighten Compression Coupling

Access compression coupling bolts through holes labeled "A". Use 6 mm hex bit attached to a torque wrench. There are (6) compression coupling bolts on C(H)09 motor and (10) on the C(H)13.



C13



C09

Hand tighten each bolt in a circular pattern to approximately 0.1 N-m (1 lb-in.).

Tighten each bolt in a circular pattern, twice around to 13 N-m (10 lb-ft).

Retighten each bolt in a circular pattern, twice around to 20 N-m (15 lb-ft).

Retighten each bolt in a circular pattern, twice around to 30 N-m (22 lb-ft).

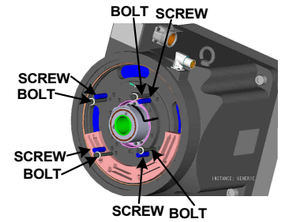
Go around, tightening each bolt to 30 N-m (22 lb-ft) until no bolt moves (may take up to 8 complete revolutions).

CAUTION

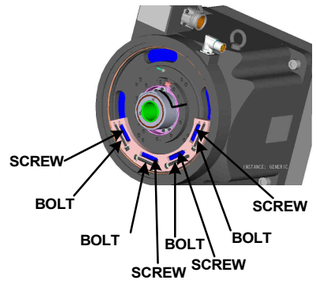
Properly torque the compression coupling to avoid significant damage to the motor and the machine to which it is mounted.

Step 5 Remove and Secure Shipping Hardware

Check Here



Remove (4) shipping bolts "B" and (4) set screws "C" using 6 mm hex wrench.

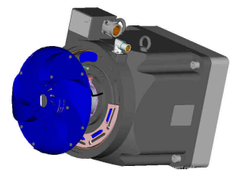


Place shipping bolts and set screws into foam holder.

Step 6 Confirm Free Rotation

Rotate load by hand to insure free movement.

Step 7 Replace End Cover



Ensure the O-ring on the outside of the end cover is in place.

Rotate the end cover until the alignment mark matches the corresponding mark on the housing.

Secure the end cover by tightening the pan head screws (eight (8) on the C(H)09 and twelve (12) on the C(H)13).

Congratulations!

Your CARTRIDGE DDR™ motor is ready for operation.

KOLLMORGEN

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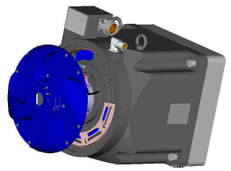
CARTRIDGE DDR™ Motor Removal Instructions

Step 1 Remove End Cover

Check Here



Using a Phillips screw driver, remove the blue end cover by loosening the pan head screws (8 screws on the C(H)09 and (12) screws on the C(H)13). ☐

Step 2 Align Rotor

Through Bore Motors

Turn Motor shaft by hand until the index mark on the rotor and stator of the encoder line up together. ☐

Solid Shaft Motors

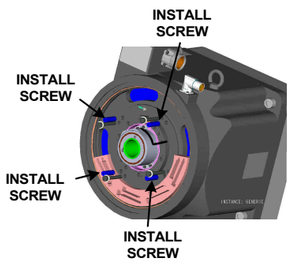
Use a flashlight to look into the holes labeled "B". Turn the Motor shaft by hand until there is a threaded hole directly behind each of the four holes labeled "B". ☐

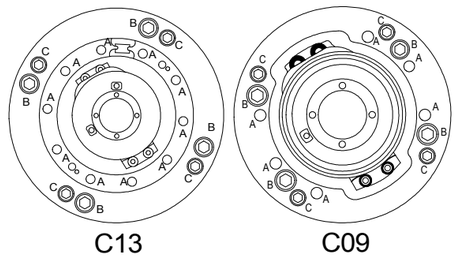
Step 3 Install Set Screws

Do not use any type of Loctite or thread lock on the shipping hardware.

CAUTION

Remove the (4) set screws from the foam holder and thread them onto the holes labeled "C". Using a 6 mm hex driver on a torque wrench, tighten each set screw to 0.1 N-m (1 lb-in). ☐





Step 4 Install Shipping Bolts

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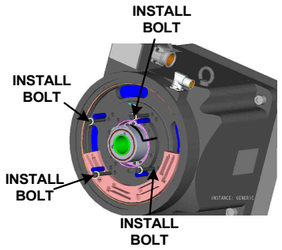
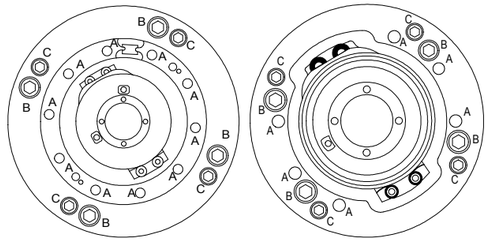


Remove the (4) shipping bolts from the foam holder and thread them into the holes labeled "B". Using a 6 mm hex driver on a torque wrench, tighten each shipping bolt to 16 N-m (12 lb-ft). ☐



Step 5 Loosen Compression Coupling Bolts

Using a 6 mm hex driver, loosen the compression coupling bolts through the holes labeled "A". There are six (6) compression coupling bolts on the C(H)09 motor and ten (10) on the C(H)13. Loosen the bolts in a circular pattern. Loosen 2 revolutions past the point where the bolts are finger tight. Check each bolt a second time to insure it is loose. ☐

Step 6 Release Compression Coupling

Insert the 6 mm hex driver into one of the compression coupling bolt holes labeled "A" and seat it into the head of the bolt. Lightly tap it with a hammer to release the compression coupling. Repeat this step with another compression coupling bolt exactly opposite the one just tapped. ☐

On C(H)133 models only, to release the rear compression coupling, insert a M6 x 1 x 120 screw or threaded rod into the holes labeled "D" and tighten until the part breaks loose. ☐

Step 7 Replace End Cover

Ensure the O-ring on the outside of the end cover is in place. ☐

Rotate the end cover until the alignment mark matches the corresponding mark on the housing. ☐

Check Here

Secure the end cover by tightening the pan head screws (eight (8) on the C(H)09 and twelve (12) on the C(H)13). ☐

Step 8 Remove Motor From Machine

Remove the (4) mounting bolts securing the motor frame to the machine and slide the motor off the shaft. The threaded holes (M10 on C(H)09x or M12 on C(H)13x) beside the mounting holes are provided for jacking purposes, if necessary. ☐

Step 9 Cover Mounting End

Secure a cardboard cover to the open mounting end of the motor. ☐

CAUTION ***The mounting end of the motor is magnetized and will attract magnetic material. This end of the motor must be covered to insure proper cleanliness.***

Customer Support

Danaher Motion products are available worldwide through an extensive authorized distributor network. These distributors offer literature, technical assistance, and a wide range of models off the shelf for the fastest possible delivery.

Danaher Motion sales engineers are conveniently located to provide prompt attention to customer needs. Call the nearest office for ordering and application information or for the address of the closest authorized distributor. If you do not know who your sales representative is, contact us:

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