

Dodge® StratoLink™ D71 Disc 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.

INTRODUCTION

This installation manual is intended for explicit use to aid in the installation of Dodge StratoLink D71 series disc couplings. StratoLink D71 disc couplings are designed to provide reliable torque transmission in the toughest environments. It is important to follow the instructions in this manual to ensure the longest lifecycle possible. StratoLink D71 disc couplings consist of two hubs of either standard or large block type, and one center member assembly, as shown in Figure 1.

A center member assembly consists of one center member, two adapters, two disc packs, and fasteners shown in Figure 2. Disc pack hardware has been tightened at the factory to the torque specified in Table 4. The center member assembly arrives ready for installation. Hub fasteners will need to be installed and tightened during installation. Replacement component part numbers can be found in Table 1.

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.

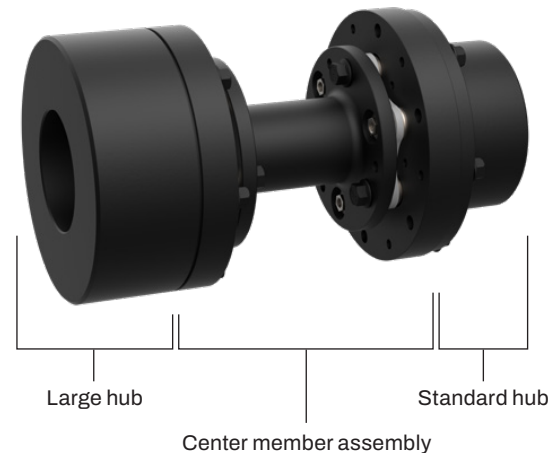
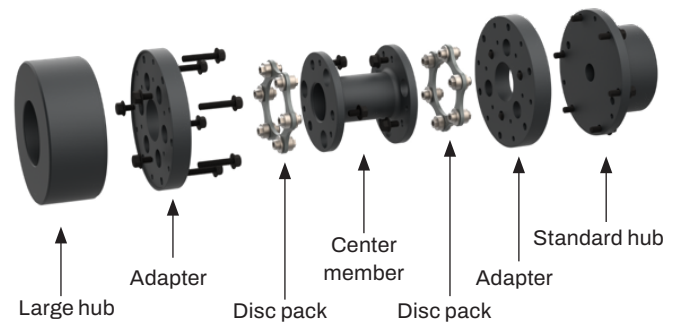


Figure 1: StratoLink D71 Assembly Components



**Figure 2: StratoLink D71 Components
(Exploded View)**

Table 1: Component Part Numbers										
Coupling Size	Rough Stock Bore Hubs		Disc Pack Repair Kit*	Hardware Kit		Center Member Assembly**				
	Standard Hub	Large Hub		Standard Hub	Large Hub***	"C" Dimension	Part Number			
D71-225	026738	026751	026764	026773	026787	3.5	026709			
						5	026710			
						5.5	026711			
						7	026712			
D71-300	026739	026752	026765	026774	026788	5	026713			
						5.5	026714			
						7	026715			
D71-350	026740	026753		026775	026789	5	026716			
						5.5	026717			
						7	026718			
D71-375	026741	026754	026766	026776	026790	5	026719			
						5.5	026720			
						7	026721			
D71-412	026742	026755				7	026722			
D71-462	026743	026756				026767	026778	026791	7	026723
									7.5	026724
			8	026725						
D71-512	026744	026757	026768	026779	026792	7	026726			
						8	026727			
D71-562	026745	026758	026769	026780	026793	8	026728			
D71-600	026746	026759				9	026729			
D71-425-8	026747	---	026770	026782	---	8	026731			
D71-450-8	026748	---	026771	026783	---	9	026732			
D71-500-8	026749	---	026772	026784	---	11	026735			
D71-550-8	026750	---		026785	---	12	026737			

* One disc pack and set of mounting hardware. Qty. (2) needed for a complete center member assembly.

** Center member assemblies are supplied with compression fasteners and standard hub hardware for installation.

*** If ordering a Large hub, a large hub hardware kit must be purchased separately.

INSTALLATION

Step 1: Pre-Assembly Inspection

All parts should be examined for any damage during the shipping and handling process. Measurements should be taken to ensure parts meet application requirements, such as hub and shaft fits, shaft separation, etc. All parts must be clean and free of any foreign material before installation.

Step 2: Installation of Keys

Install keys in respective shafts. Keys should fit keyseat with a tight fit on the sides and slight clearance over the key.

Step 3: Mounting Hubs

Mount hubs flush with the ends of shaft per the following recommendations.

NOTE: For applications operating above 3600 rpm, it is recommended to mount the hubs with keyways facing 180 degrees apart as shown in Figure 3.

A. Interference Fit: Use a scribe to mark the desired hub location on shafts. Using an oven or oil bath, heat hubs evenly to between 350 °F and 450 °F (175 °C and 232 °C). Slide heated hubs onto shafts and align with the scribed marks. Allow the hubs to cool to room temperature before installing center member assembly.

CAUTION: To avoid distortion, do not exceed 450 °F (232 °C)

B. Clearance Fit: Loosen set screws and ensure set screws do not protrude into the keyway or bore. Slip hub onto shaft to desired position and tighten set screws to the value listed in Table 2. Set screws should be checked periodically during operation for tightness.

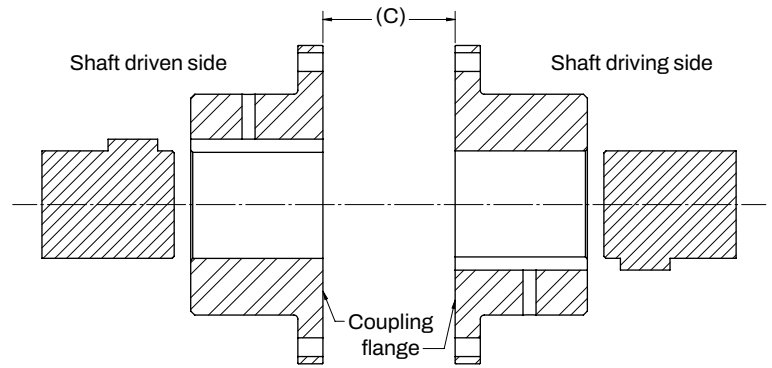


Figure 3: Hub and keyway orientation for applications above 3600 RPM

Table 2: Set Screw Tightening Torque									
Set Screw Size	#8-32	#10-24	1/4-20	5/16-18	3/8-16	1/2-13	5/8-11	3/4-10	1-8
Hex Head Key Size	5/64	3/32	1/8	5/32	3/16	1/4	5/16	3/8	9/16
Tightening Torque	(Nm)	2.6	4.5	10.6	20.3	35	84	165	285
	(ft-lb)	1.9	3.3	7.8	15	26	62	122	210

Set Screw Size	M4	M5	M6	M8	M10	M12	M16	M20	M24
Hex Head Key Size	2	2.5	3	4	5	6	8	10	12
Tightening Torque	(Nm)	2.1	4.7	7.7	17.8	35	55	125	250
	(ft-lb)	1.5	3.5	5.7	13	26	41	92	184

Step 4: Set Shaft Spacing

Shaft separation for StratoLink D71 couplings should be set per appropriate DBSE or “C” dimension for your application.

Step 5: Shaft Alignment

To improve the life of the coupling, the shafts must be aligned to minimize distortion of the flexing elements. Shaft alignment is required in the axial, angular, and parallel directions, with each of these values not exceeding the recommended ratings for the coupling and the alignment values shown in Table 3.

Table 3: Alignment Values											
Coupling Size	Hub Flange Diameter		DBSE	Installation Alignment Limits***							
	(in)	(mm)	STD "C" (in)	Parallel Misalignment				Angular Misalignment		Axial Misalignment +/-	
				TIR (in)*	TIR (mm)*	P (in)**	P (mm)**	(in)	(mm)	(in)	(mm)
225	4.81	122.2	3.50	0.005	0.13	0.002	0.05	0.010	0.27	0.024	0.61
			5.00	0.008	0.20	0.004	0.10				
			5.50	0.009	0.23	0.005	0.13				
			7.00	0.013	0.33	0.006	0.15				
300	5.84	148.3	5.00	0.008	0.20	0.004	0.10	0.013	0.32	0.030	0.76
			5.50	0.009	0.23	0.004	0.10				
			7.00	0.012	0.30	0.006	0.15				
350	6.63	168.4	5.00	0.008	0.20	0.004	0.10	0.014	0.37	0.030	0.76
			5.50	0.009	0.23	0.004	0.10				
			7.00	0.012	0.30	0.006	0.15				
375	7.50	190.5	5.00	0.007	0.18	0.004	0.10	0.016	0.42	0.042	1.07
			5.50	0.008	0.20	0.004	0.10				
			7.00	0.012	0.30	0.006	0.15				
412	7.88	200.2	7.00	0.012	0.30	0.006	0.15	0.017	0.44	0.042	1.07
462	8.88	225.6	7.00	0.011	0.28	0.005	0.13	0.019	0.49	0.060	1.52
			7.50	0.012	0.30	0.006	0.15				
			8.00	0.013	0.33	0.006	0.15				
512	9.91	251.7	7.00	0.010	0.25	0.005	0.13	0.022	0.55	0.076	1.93
			8.00	0.012	0.30	0.006	0.15				
562	10.84	275.3	8.00	0.011	0.28	0.006	0.15	0.024	0.60	0.086	2.18
600	11.60	294.6	9.00	0.014	0.36	0.007	0.18	0.025	0.64	0.086	2.18
425-8	10.75	273.1	8.00	0.008	0.20	0.004	0.10	0.016	0.40	0.070	1.78
450-8	11.56	293.6	9.00	0.009	0.23	0.004	0.10	0.017	0.43	0.084	2.13
500-8	13.13	333.5	11.00	0.011	0.28	0.006	0.15	0.019	0.49	0.120	3.05
550-8	14.69	373.1	12.00	0.013	0.33	0.006	0.15	0.021	0.54	0.120	3.05

* Parallel misalignment measured by rotating the hubs with a dial indicator on the outside hub diameter will result in a maximum Total-Indicated-Reading of 0.0012 inch per inch of “C” dimension (or 0.0012 mm per mm of “C” dimension. For non-standard “C” dimensions, multiply “C” x 0.0012 to dimension).

** Parallel offset “P” is equivalent to one-half of the TIR measurement using dial indicators.

*** During installation and/or operation, do not exceed the maximum misalignment capacity of coupling. For sizes 225-562, maximum misalignment capacity of coupling is 1/2° per disc pack. For sizes 562 and above, maximum misalignment capacity of coupling is 1/3° per disc pack.

Axial Alignment

The axial misalignment in Table 3 is the allowable axial offset in the positive and negative directions around the DBSE or “C” dimension. Using calipers, measure the distance between hubs at four points, 90° apart. Move equipment until all four readings are within the axial misalignment capacity.

Angular Alignment

To check for angular misalignment, use one of the two methods below to measure the distance between the faces of the coupling hubs. The maximum difference between these two measurements is recorded as (X-Y), as shown in Figure 4.

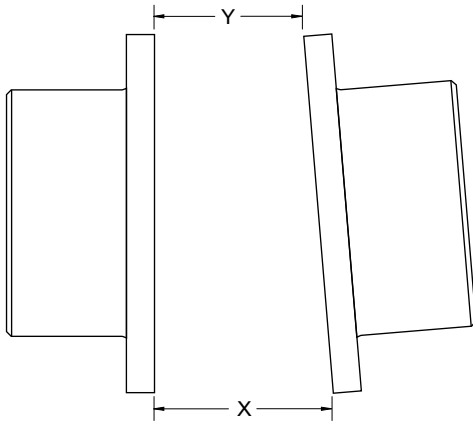


Figure 4: Angular Misalignment

A. Instrument Method of checking alignment is recommended since it is the most accurate. Rigidly attach dial base to one of the hubs and indicator needle against the flange face of the other hub. Rotate each hub 360°. Take indicator reading at four points, 90° apart. Adjust equipment until all four readings are within angular misalignment limits given in Table 3. To check alignment, relocate the dial base to the opposite hub and repeat the procedure.

B. Caliper Method may be used if dial indicator is not available or shaft gap is too small; however, it is not the recommended method of checking alignment. Check with calipers at four points, 90° apart. Adjust equipment until all four readings are within angular misalignment limits as shown in Table 3.

Parallel Alignment

The parallel misalignment value “P” is the offset between the centers of the hubs as shown in Figure 5. Misalignment can be measured using a dial indicator or laser alignment tool. If using a dial indicator, the total indicated reading should be divided by 2 to calculate “P”. TIR limits are also shown in Table 3.

Instrument Method of checking alignment is recommended since it is the most accurate. Rigidly attach dial base to one of the hubs and indicator needle against the flange outer diameter of the other hub. Rotate each hub and take indicator readings (TIR) at four points, 90° apart. Adjust alignment until all four readings are within parallel misalignment limits given in Table 3. To check alignment, relocate the dial base to the opposite hub and repeat the procedure.

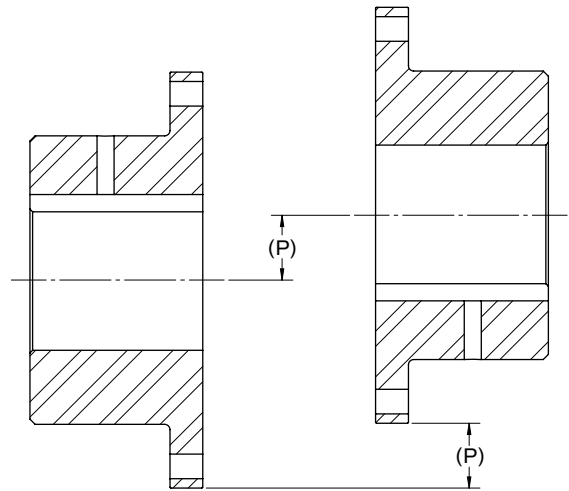


Figure 5: Parallel Misalignment

Step 6: Final Assembly

StratoLink D71 series disc couplings are delivered from the factory with a fully assembled center member assembly with disc pack fasteners tightened to the torque specified in Table 4. The center member assembly is ready for field installation.

- A.** Verify that the hubs have been mounted as shown in Figure 3 to the correct DBSE or “C” dimension.
 - B.** Use the compression fasteners provided to compress the center member assembly by inserting them through the holes in the flanges of the center member and threading them into the adapter tapped holes as shown in Figure 6. Tighten the fasteners equally on both sides to compress only enough to allow the center member assembly to fit between the hubs.
- CAUTION: Do not compress the center member assembly for any extended period of time as this may cause permanent disc pack distortion.**
- C.** Place the compressed center member assembly between the coupling hubs, lining up the holes in the adapter with the holes in the hub. If the coupling was assembly balanced, align match marks.
 - D.** Install hub-to-adapter fasteners.

- a.** For standard hubs, lubricate the fastener threads with clean motor oil and insert the fasteners through the hub flange clearance holes and into the threaded mating holes in the adapter. Hand-tighten all fasteners. Fully support the weight of the center assembly until all fasteners are installed.
- b.** For large hubs, lubricate the fastener threads with clean motor oil and insert the fasteners through the adapter clearance holes and into the threaded mating holes in the reverse block hub. Hand-tighten all fasteners. Fully support the weight of the center assembly until all fasteners are installed.

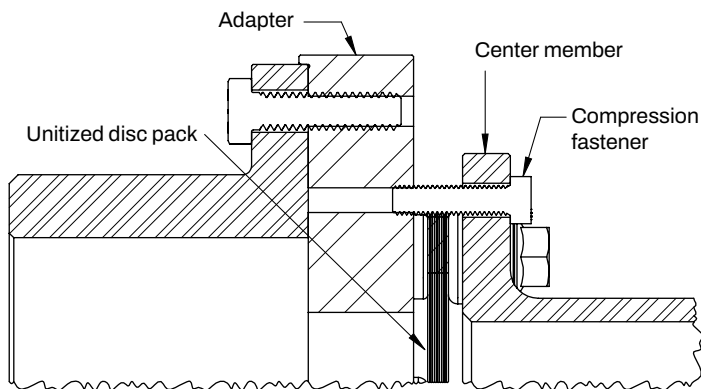


Figure 6: Compression Fasteners

E. Remove the compression fasteners from the center member flange to adapter, allowing the hub outside diameter to contact the pilot diameter of the adapter.

CAUTION: Remove the compression fasteners before operation.

F. Tighten each fastener to the torque as listed in Table 4.

NOTE: All fastener threads must be lubricated with a light oil prior to assembly.

CAUTION: Remove any dust deposits from the coupling components and the coupling elements in an appropriate way for explosive environments.

Table 4: Hub and Adapter Fastener Tightening Torque

Coupling Size	Disc Pack Fasteners				Hub/Adapter Fasteners					Compression Fasteners	
	Fastener Size	Torque		Wrench Size	Fastener Size (Standard)	Fastener Size (Large)	Torque		Wrench Size	Fastener Size	Wrench Size
	(mm)	(ft-lb)	(Nm)	(mm)	(in)	(in)	(ft-lb)	(Nm)	(in)	(in)	(in)
225	M6 x 10	8	11	10	1/4-20 x 0.75	1/4-20 x 1.25	9	12	3/8	1/4-20 x 1.00	3/8
300	M8 x 14	20	27	13	1/4-20 x 1.00	1/4-20 x 1.25	9	12	3/8	1/4-20 x 1.25	3/8
350	M8 x 14	20	27	13	5/16-18 x 1.25	5/16-18 x 1.25	18	24	1/2	1/4-20 x 1.25	3/8
375	M10 x 16	40	54	15	5/16-18 x 1.25	5/16-18 x 1.50	18	24	1/2	1/4-20 x 1.25	3/8
412	M10 x 16	40	54	15	5/16-18 x 1.25	5/16-18 x 1.50	18	24	1/2	1/4-20 x 1.25	3/8
462	M12 x 16	70	95	16	3/8-16 x 1.50	3/8-16 x 1.75	33	45	9/16	1/4-20 x 1.50	3/8
512	M14 x 30	110	149	18	7/16-14 x 1.50	7/16-14 x 2.00	52	71	5/8	5/16-18 x 1.75	1/2
562	M16 x 30	170	230	24	1/2-13 x 1.75	1/2-13 x 2.25	80	108	3/4	5/16-18 x 2.00	1/2
600	M16 x 30	170	230	24	1/2-13 x 1.75	1/2-13 x 2.25	80	108	3/4	3/8-16 x 2.00	9/16
425-8	M18 x 35	240	325	27	7/16-20 x 1.50	---	58	79	5/8	3/8-16 x 2.25	9/16
450-8	M20 x 35	335	454	30	7/16-20 x 1.50	---	58	79	5/8	7/16-14 x 2.75	5/8
500-8	M24 x 40	580	786	36	1/2-20 x 1.75	---	90	122	3/4	7/16-14 x 2.75	5/8
550-8	M24 x 40	580	786	36	5/8-18 x 2.00	---	180	244	15/16	7/16-14 x 2.75	5/8

Note: These torque values are for steel fasteners with lubricated threads.

Step 7: Final Alignment Verification

When well aligned, the disc packs will be centered and approximately parallel to their mating flange faces and the disc packs will have little to no visible waves when viewed from the side. As a guide, the maximum and minimum values for the disc gap, shown in Figure 7, are provided in Table 5. Verify that the disc gap or "N" dimension measures within acceptable limits. Using a set of calipers, measure the distance "N" at four places, 90° apart. If the disc gap falls outside of the acceptable limits, remove the center member assembly and verify that the DBSE or "C" dimension is correct, and that parallel, axial, and angular alignment is within allowable limits. Repeat alignment and installation of the center member assembly until the "N" dimension falls within allowable limits.

NOTE: The values for the "N" dimension are suggested for initial installation. Additional capacity is available to compensate for thermal expansion and structural equipment movement during operation.

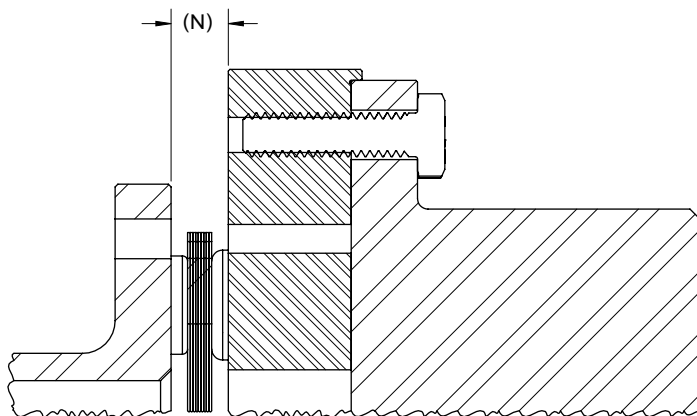


Figure 7: Disc Gap

Table 5: Misalignment Check "N" Dimension						
Coupling Size	Hub Flange Diameter		"N" Dimension (Gap between Hub Flange & CM Flange)			
	(in)	(mm)	N min (in)	N max (in)	N min (mm)	N max (mm)
225	4.81	122.2	0.322	0.334	8.18	8.48
300	5.84	148.3	0.427	0.442	10.83	11.21
350	6.63	168.4	0.427	0.442	10.83	11.21
375	7.50	190.5	0.486	0.507	12.33	12.87
412	7.88	200.2	0.486	0.507	12.33	12.87
462	8.88	225.6	0.589	0.619	14.96	15.72
512	9.91	251.7	0.694	0.732	17.63	18.59
562	10.84	275.3	0.768	0.811	19.49	20.59
600	11.60	294.6	0.768	0.811	19.49	20.59
425-8	10.75	273.1	0.788	0.823	20.00	20.89
450-8	11.56	293.6	0.862	0.904	21.89	22.96
500-8	13.13	333.5	1.225	1.285	31.12	32.64
550-8	14.69	373.1	1.225	1.285	31.12	32.64

Disc Pack Replacement

The StratoLink D71 series disc coupling is designed to allow disc pack replacement without moving the connected equipment or coupling hubs.

- A.** Remove all fasteners from the hubs and compress the center member assembly by inserting the compression fasteners through the holes in the flanges of the center member and threading them into the adapter tapped holes as shown in Figure 6. Tighten the fasteners equally on both sides to compress only enough to allow the center member assembly to fit between the hubs.
- B.** Drop the center member assembly out from between the hubs. If necessary, there are jacking fastener tapped holes in each hub to disengage the pilots between the hubs and adapters. Use the hub to adapter fasteners as defined in Table 4 to separate the adapter from the hub.
- C.** Remove all disc pack fasteners and disc packs.
- D.** Clean each adapter and the center member and remove any nicks and burrs.

- E.** Install the disc packs into the center member as shown in Figure 8. Insert the disc pack fasteners through the fastener holes and into the disc pack.
- F.** Tighten all disc pack fasteners using an alternating progressive pattern as shown in Figure 9, making sure all the fasteners are fully seated. At this stage, the installer will only be working with half of the fasteners on the disc pack.
- G.** Install the disc packs into the adapters as shown in Figure 8. Insert the fasteners through the adapter fastener holes and into the disc pack.
- H.** Tighten all disc pack fasteners using an alternating progressive pattern as shown in Figure 9, making sure all the fasteners are fully seated. At this stage, the installer will only be working with half of the fasteners on the disc pack.
- I.** Now tighten each disc pack fastener to the appropriate torque value shown in Table 4, using incremental torque in a progressive alternating pattern as shown in Figure 9.
- J.** Proceed to install the center member assembly as outlined in Step 6 above.

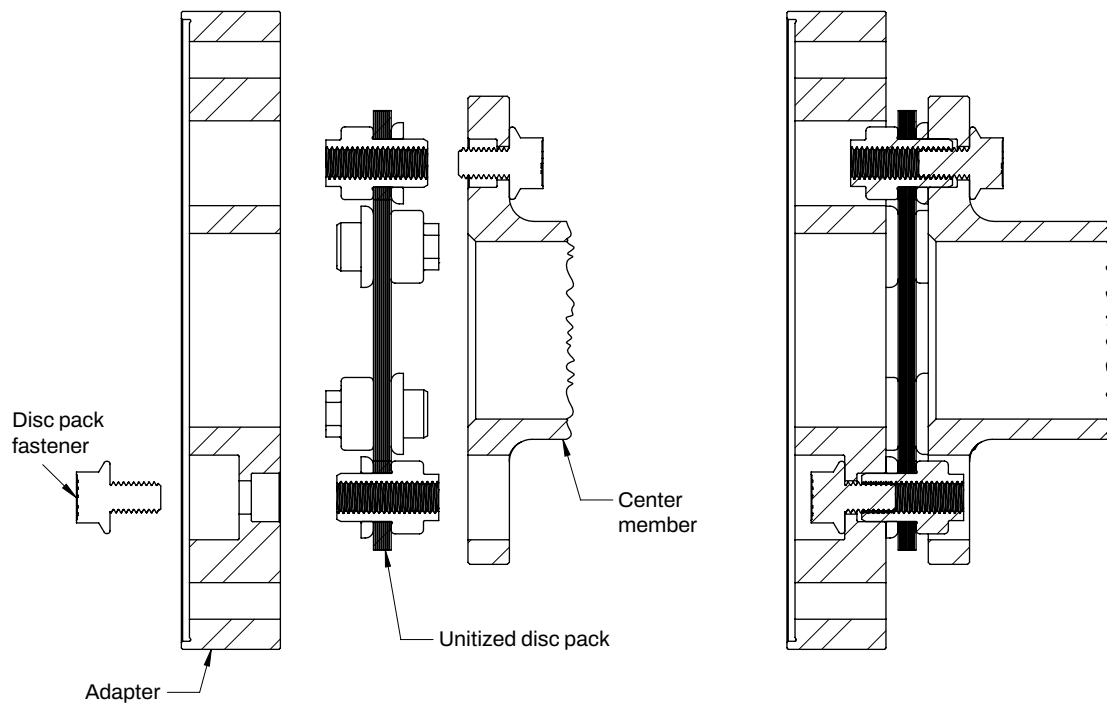


Figure 8: Disc Pack Assembly

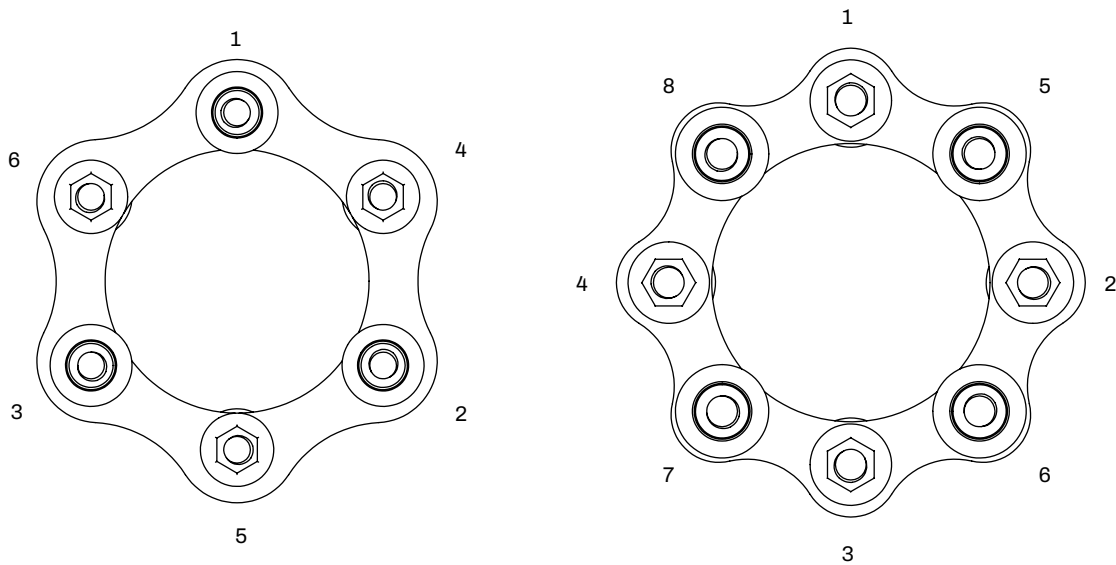


Figure 9: Disc Pack Torque Pattern

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