



Product Brochure

Couplings and mechanical soft starts





We provide motors, generators and mechanical power transmission products, services and expertise to improve customers' processes and optimize the total cost of ownership over the total life cycle of our products, and beyond.

The Dodge® coupling family

Uniquely engineered to dampen vibration, accommodate shaft misalignment, and eliminate unexpected downtime.

Dodge has manufactured couplings for over 100 years and has earned a reputation for developing innovative products that lower customers' total cost of ownership.

The Dodge coupling product line can offer a solution to almost any customer need. Whether the need is an elastomeric or metallic design, Dodge can provide a coupling with the potential to increase torque capacity, accommodate shaft misalignment, extend life, and put an end to unexpected downtime.

Combining Dodge coupling products with the overall ABB, Baldor, and Dodge product lines, customers can order complete system packages containing a variety of designs, sizes, and options. The large product offering allows pump, conveyor, and fan users to have a drive, motor, coupling, gearbox, bearings, and conveyor pulley from the same manufacturer. This ability to provide a single source system design with the product breadth and depth of Dodge is an advantage shared with no other manufacturer in the marketplace.



Elastomeric, tire style

Dodge Para-Flex flanges

FBX – Finished bore flange

The ductile iron FBX flanges are factory assembled and utilize a setscrew locking mechanism to insure a quick, easy installation.



FBX

BBS – Bored-to-size flange

The BBS steel flange assemblies are finished bore designs. By utilizing steel, this flange is the perfect choice for the highest shock load and vibration applications.



BBS

TL - Taper-Lock flange (standard and metric designs)

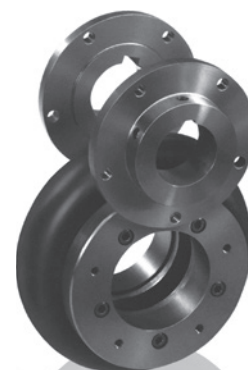
The cast iron TL flange design uses Taper-Lock bushings, which allow for easy installation and removal with minimal shaft damage, reducing maintenance time and costs. Additionally, the metric Para-Flex flanges offer metric hardware for all sizes.



TL

Pre-assembled spacer flange

The factory-assembled spacer center assembly drops in and drops out for easy installation and removal, accommodating a wide range of between-shaft-end lengths for greater versatility.



Pre-assembled spacer
center assembly

Dodge Para-Flex coupling metric and imperial ratings*

Coupling style	Size range	Max torque*		Power per 100 RPM*		Max speed*	Max bore*		Misalignment capability (Angular)	Misalignment capability (Parallel)		Misalignment capability (End-Float)	
		N-m	In-lbs	kW/100	HP/100		mm	Inch		mm	Inch	mm	Inch
PXFBX	PX40 – PX120	1,424	12,605	14	20	4,500	102	3.75	4°	3.175	0.125	7.94	0.3125
PXMTL	PX40 – PX240	17,078	151,200	179.04	240	4,500	127	5.00	4°	3.175	0.125	7.94	0.3125
PXTL	PX40 – PX320	51,180	453,000	535	718	4,500	203	8.00	4°	3.175	0.125	7.94	0.3125
PXBBS	PX40 – PX320	51,180	453,000	535	718	4,500	285	11.00	4°	3.175	0.125	7.94	0.3125

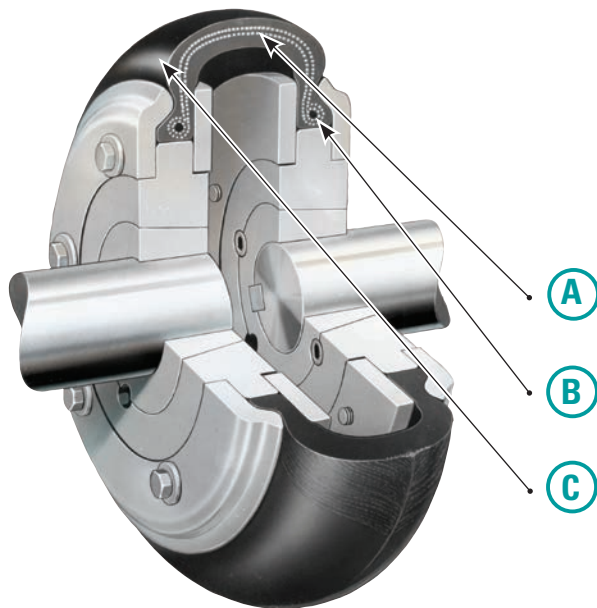
*Listed values represent the range of the entire product line. Ratings listed are the maximum ratings for the largest coupling size. Ratings are dependent upon coupling size. See Dodge engineering catalog and appropriate selection methods during sizing or contact application engineering for assistance.

Elastomeric, tire style

Dodge Para-Flex elements

Superior design provides advantages over other rubber or polyurethane elements

Dodge Para-Flex elements are manufactured with reinforcing fabric tension cords that transmit much of the torque during operation. The uniform and centered bead in the foot of the tyre element prevents it from pulling out during operation. Additionally, the tyre element is reinforced at the split to reduce fatigue and extend life.



- (A)** Fabric centered throughout rubber increases tyre life.
- (B)** Centered bead prevents tyre element from pulling out of flange.
- (C)** Tyre element is reinforced at the split to reduce fatigue and extend life.

Torsionally soft rubber protects connected equipment

The flexible design of the Dodge Para-Flex element is crucial in preventing damage to connected equipment in harsh-running environments. The torsional softness is instrumental in damping vibrations and absorbing shock loads to the system.

Industry leading misalignment capabilities

Dodge Para-Flex elements provide accommodation of shaft misalignment during installation, running-time, and replacement better than other elastomeric elements. With an industry-leading combined 4° angular, 3.17 mm (1/8 in.) parallel, and 7.93 mm (5/16 in.) end-float capability, Para-Flex couplings will perform in difficult applications and reduce valuable time needed for installation and maintenance.

Static conductive

The Dodge Para-Flex natural rubber element is static conductive which provides an insurance policy for customers' equipment. The static conductivity allows current to safely pass from an ungrounded system component to a grounded system component. Allowing current to safely pass through the natural rubber element prevents the possibility of arcing during operation.

Large installed base

With over 50 years of history and development, Dodge Para-Flex elements have the experience of providing reliable solutions in a wide range of industries and applications. Dodge Para-Flex couplings carry an industry-leading 5-Year Limited Warranty.



Elastometric, sleeve style

Dodge D-Flex couplings

Three-way flexing action handles shock, vibration, and misalignment

The Dodge D-Flex™ coupling features molded, non-lubricated, interchangeable elastomeric sleeves of EPDM, Neoprene, or Hytrel. Its three-way flexing action accommodates torsional, angular, and parallel misalignment, as well as axial end float.

Type S coupling

The Type S coupling features high strength cast-iron flanges, that are bored to size for a clearance fit, and balanced to AGMA Class 9 Standards, resulting in smooth operation for pumping applications. With one setscrew over the keyway and the other at 65°, D-Flex S flanges provide optimum shaft attachment. Type S couplings are offered with EPDM, Neoprene, or Hytrel sleeves.

Type SC coupling

Dynamically balanced to AGMA Class 9 Standards, the Type SC spacer coupling accommodates a wide range of shaft spacing. It features a drop-out center assembly for easy equipment maintenance. Additionally, shaft hubs include hub flats for ease of alignment during installation, and are available in either rough stock bore or clearance fit finished bore.

Pump drive package

The Dodge D-Flex coupling is very popular in pumping applications due to the five-piece spacer design's ease of installation and change out. ABB, Baldor Electric, and Dodge can package together the controls, drives, motors, and couplings needed for common pumping applications.

Dodge D-Flex coupling metric and imperial ratings*

Coupling style	Size range	Max torque*		Power per 100 RPM*		Max speed*	Max bore*		Misalignment capability (Angular)	Misalignment capability (Parallel)		Misalignment capability (End-Float)	
		N-m	in-lbs	kW/100	HP/100		mm	Inch		mm	Inch	mm	Inch
D-Flex S Flange													
with EPDM or	5S-16S	5,338	47,250	55	74	7,600	140	6.00	1°	0.254-1.574	0.010-0.062	0.762-3.175	0.03-0.125
Neoprene Sleeve													
D-Flex S Flange													
with	6S-16S	8,189	72,480	85	115	6,000	127	5.00	0.25°	0.254-0.889	0.010-0.035	1.524-3.175	0.06-0.125
Hytrel Sleeve													

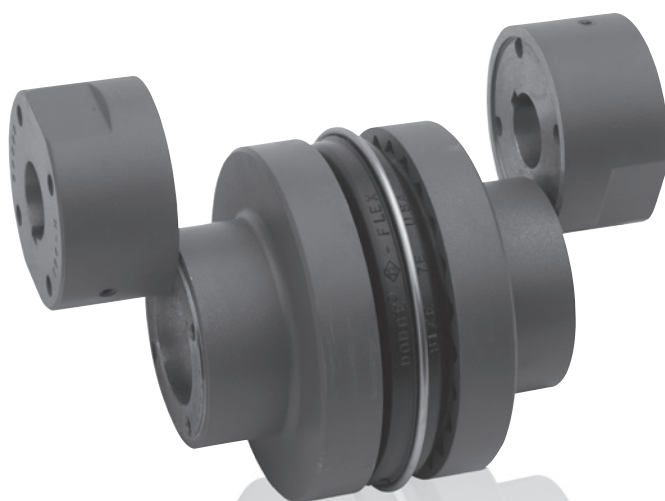
*Listed values represent the range of the entire product line. Ratings listed are the maximum ratings for the largest coupling size. Ratings are dependent upon coupling size. See Dodge engineering catalog and appropriate selection methods during sizing or contact application engineering for assistance.

Elastometric, sleeve style

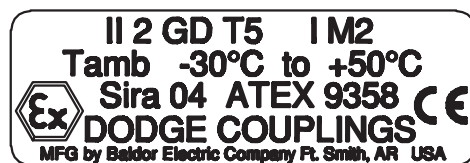
Dodge D-Flex couplings



Dodge D-Flex type S coupling



Dodge D-Flex type SC spacer coupling



Metallic, gear style

Dodge Gear couplings

The most power-dense coupling Dodge offers

Engineered for improved operation, the Dodge gear coupling is manufactured with high-quality forged steel for longer service life, and features high torque capability for efficient downsizing.

Excellent torque/speed ratings

Capable of transmitting high torque high speeds, the Dodge Gear coupling is designed with two flanged sleeves that are bolted together. Each sleeve contains internal gear teeth that transmit torque when meshed with each hub's external gear teeth.

Superior sealing system

Machined flanges offer improved sealing and the coupling's reliable O-ring seal design provides an effective barrier against contaminants. Unlike competitive gear couplings, which use paper gaskets that could become dry or damaged over time, sealing compound is included with every Dodge Gear coupling.

Versatile design

The Dodge Gear coupling's versatile, modular system design is half-for-half interchangeable with competitive AGMA gear couplings.

Largest bore capacity in industry

In most sizes, the Dodge Gear coupling also offers the largest bore capacity in the industry. It's well suited for reversing applications and can be combined with any Dodge speed reducer to achieve a tailored package for maximum results.

Custom capabilities

The Dodge gear coupling product line has cataloged sizes up to AGMA size 9.0; however, manufacturing capabilities also allow for designs requiring:

- Large sizes up to size 30 (rated at 5.34 million N-m with a 1050 mm bore)
- Shrouded bolt
- Spacer couplings
- Floating shaft designs
- Limited end float (LEF)
- Slide gear
- Shear pin
- Metal Labyrith seal
- Made-to-order (MTO) custom designs

Dodge Gear coupling metric and imperial ratings*

Coupling style	Size range	Max torque*		Power per 100 RPM*		Max speed*	Max bore		Misalignment capability (Angular)	Misalignment capability (Parallel)		Misalignment capability (End-Float)	
		N-m	lN-lbs	kW/100	HP/100		mm	Inch		mm	Inch	mm	Inch
Gear (Standard)	1.0 - 9.0	206,400	1,827,000	2161	2899	6,000/9,000**	340	12.5	Size 1.0-5.0 – 1.5° ang. Misalign. per gear mesh Size 6.0-9.0 – 0.75° ang. Misalign. per gear mesh				
Gear (Made-To-Order)	8.0 - 30.0	5,340,000	47,269,000	55916	75000	1,900/2,850**	1050	42.00		Consult Dodge Engineering for misalignment detail.			

*Listed values represent the range of the entire product line. Ratings listed are the maximum ratings for the largest coupling size. Ratings are dependent upon coupling size. See Dodge engineering catalog and appropriate selection methods during sizing or contact application engineering for assistance.

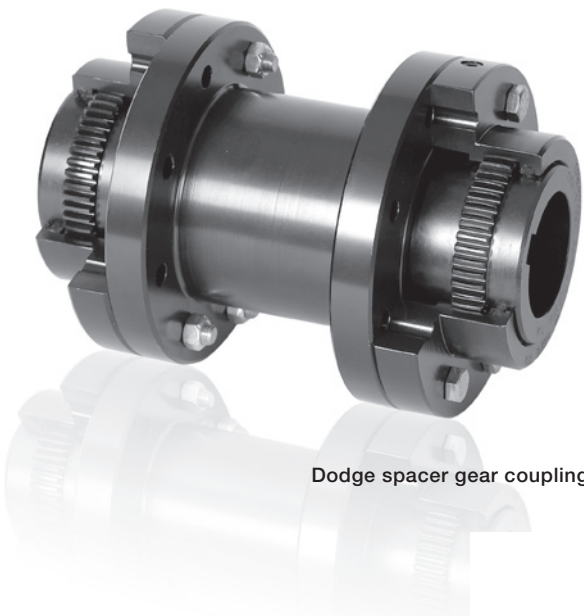
**Balanced

Metallic, gear style

Dodge Gear couplings



Dodge gear coupling



Dodge spacer gear coupling



Dodge floating shaft gear coupling

Metallic, grid style

Dodge Grid-Lign couplings

Compact in size, yet high in torque capability

Dodge Grid-Lign couplings are available in a variety of sizes, in both standard and spacer styles. Every coupling features two steel shaft hubs, a tapered grid element, two seals and a cover assembly. Its versatile design allows for a motor or reducer output speed connection, and its speed capability ranges up to 6,000 RPM dependant on size. Dodge Grid-Lign is also available in both T31 and T35 spacer designs up to size 1200T. This spacer offering can be used as a spacer coupling, or mounted to a brake disc or drum.

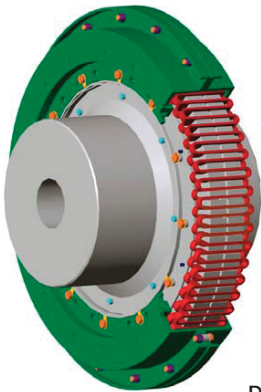
Flexible tapered element

The Dodge Grid-Lign coupling's tapered grid element is engineered with high-strength, spring steel that is quenched and tempered. This feature helps isolate vibration and cushions shock loads. In addition, it allows uniform contact during light, normal, and shock-loading conditions for long machine life.

High torque capability

Torque capabilities on the Dodge Grid-Lign coupling range up to 800,000 N-m (7 million lb-in) dependant on size. Whether it is overland conveyors or underground mines, the high torque ratings allow for customers to specify a Grid-Lign coupling in the largest conveyor applications.

Dodge Grid-Lign coupling



Dodge S-series Grid-Lign coupling

Dodge Grid-Lign coupling metric and imperial ratings*

Coupling style	Size range	Max torque*		Power per 100 RPM*		Max speed*	Max bore		Misalignment capability (Angular)	Misalignment capability (Parallel)		Misalignment capability (End-Float)	
		N-m	In-lbs	kW/100	HP/100		mm	Inch		mm	Inch	mm	Inch
Grid-Lign Straight Bore	1020T – 1200T	186,417	1,650,000	1952	2618	6,000	360	13.00	0.5°	0.304	0.012	9.525	0.375
Grid-Lign S-Series	150 – 480	800,000	7,080,585	8376	11234	320	555	21.85	Consult Dodge Engineering for misalignment detail.				

*Listed values represent the range of the entire product line. Ratings listed are the maximum ratings for the largest coupling size. Ratings are dependent upon coupling size. See Dodge engineering catalog and appropriate selection methods during sizing or contact application engineering for assistance.

Metallic, grid style

Dodge Grid-Lign couplings

System package design

Dodge Grid-Lign couplings are commonly used in conveyor, pump, and fan applications across a variety of industries including mining, aggregate, power generation, oil & gas, steel, and pulp & paper.

The wide breadth and depth of the ABB, Baldor Electric, and Dodge product lines provide users a single source for all electrical and mechanical power transmission products (i.e. controls, drives, motor, coupling, reducer, bearings, and conveyor pulleys). As seen in Figure 1, ABB or Baldor Electric motors, Dodge couplings, and Dodge reducers can easily be combined into one system package.

Custom system engineering capabilities

Baldor-Reliance and Dodge have been designing custom engineered conveyor drive systems for decades. Combining the ABB, Baldor-Reliance, and Dodge product lines into one package allows users to receive a complete, custom designed drive system for bulk material handling applications that include controls, drives, motors, gearing, couplings, bearings, conveyor pulleys, and drive components from a single source. As seen in Figure 2 below, complex packaged drive systems for conveying applications are an absolute core competency of Dodge engineering. Mining, aggregate, power generation, oil & gas, steel, pulp & paper, and general industrial users can all benefit from depending on Dodge as a trusted engineering source for all their design needs.

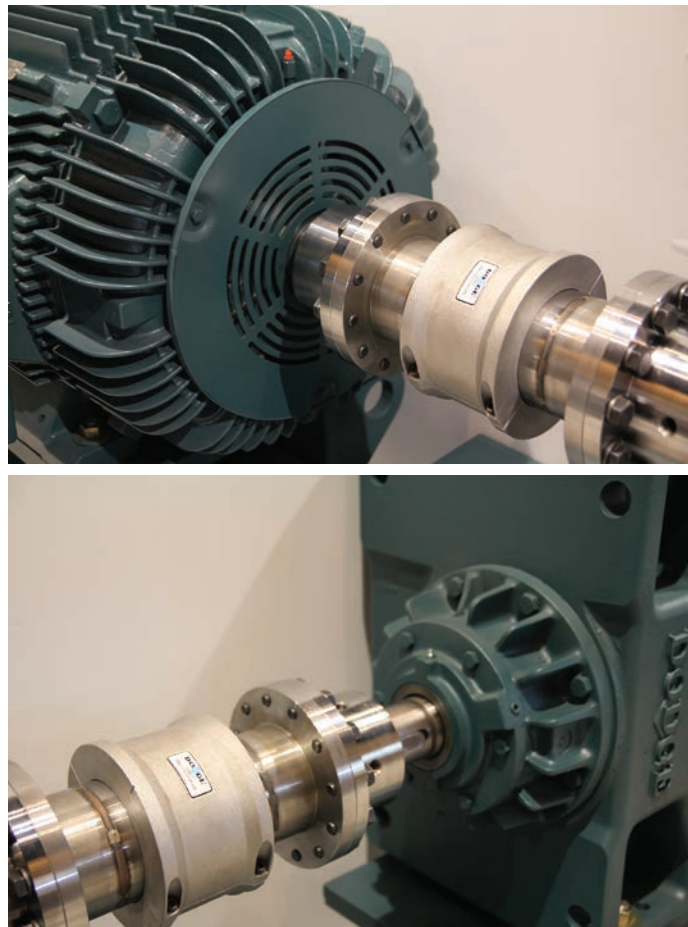
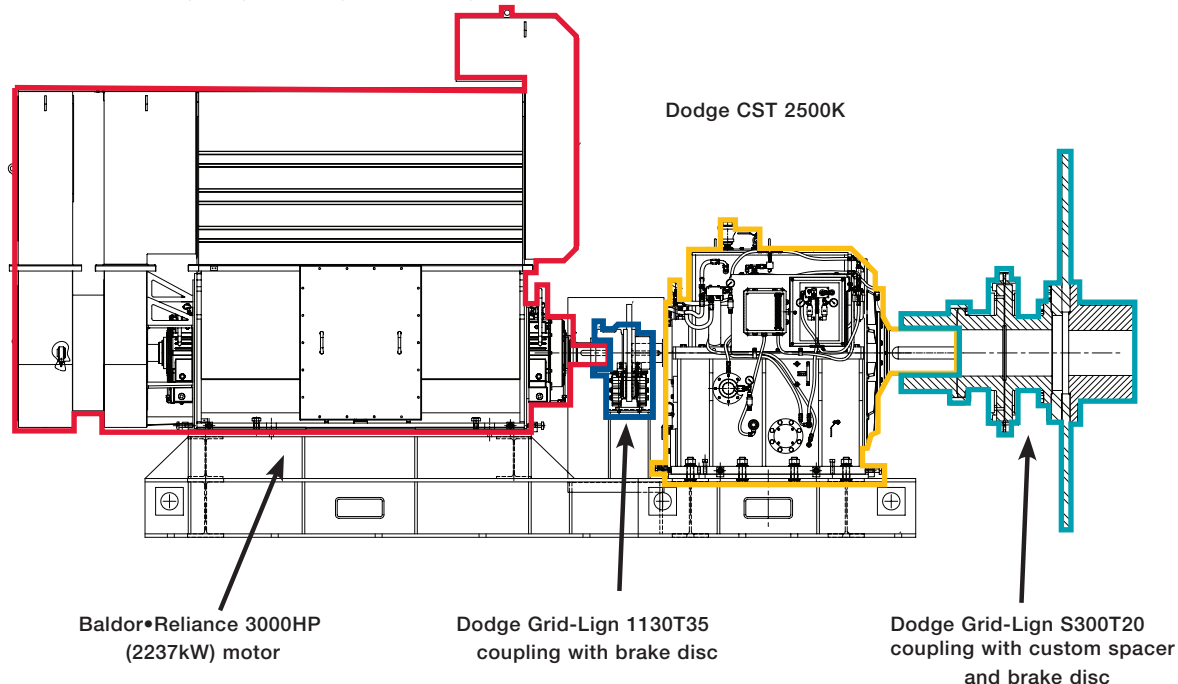


Figure 1
Dodge Grid-Lign spacer coupling mounted between a Baldor-Reliance motor and a Dodge MagnaGear reducer

Figure 2

Baldor•Reliance and Dodge engineered system package



Metallic, disc style

Dodge Disc couplings

Engineered for longer life, improved reliability

The Dodge Disc Coupling offers industry leading torque capacity and misalignment capability, resulting in longer life and improved reliability. In addition to the high torque and misalignment capabilities, the Dodge Disc Coupling also provides features for customers to save money by downsizing with a large hub option, and prevent unexpected downtime costs with strobe light inspection.

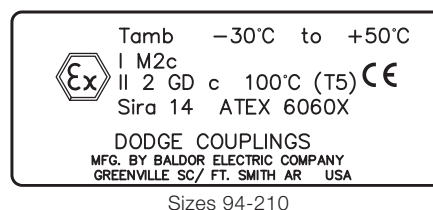
Disc couplings have become the preferred design for pumping and compressor applications used in the chemical, oil and gas industry due to their high torque, speed, misalignment, and maintenance-free features. The advantages of the disc style coupling have also driven the API 610 specification, which can be met by all Dodge Disc Couplings. Additionally, Dodge Disc Couplings meeting API 671 requirements are available upon request

Pumping system packages

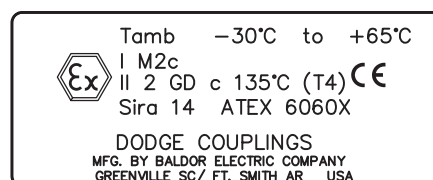
The Dodge Disc coupling can be specified into any API 610 or API 671 pumping application due to its wide range of capabilities. ABB drives, ABB motors, and Baldor•Reliance motors have become the standard in the oil and gas industry due to their reliability and long life. Now oil and gas users can realize the same reliability and long life by packaging Dodge Disc couplings, ABB or Baldor•Reliance motors, and ABB drives, into one complete pump driver system.



Dodge Disc couplings



Sizes 94-210



Sizes 236-310

Dodge Disc coupling metric and imperial ratings*

Coupling style	Size range	Max torque*		Power per 100 RPM*		Max speed*		Max bore	Misalignment capability (Angular)	Misalignment capability (Parallel)		Misalignment capability (End-Float)	
		N-m	In-lbs	kW/100	HP/100			mm	Inch			mm	Inch
Disc (Standard)	94-310	20,000	177,000	209	280	9,100/22,700**		200	7.88	1° - 1.5°		2.714	0.107
Disc (Made-to-Order)	333-702	259,000	2,292,000	2712	3636	1,360/3,400**		385	15.25	0.5° - 1°		N/A	N/A

*Listed values represent the range of the entire product line. Ratings listed are the maximum ratings for the largest coupling size. Ratings are dependent upon coupling size. See Dodge engineering catalog and appropriate selection methods during sizing or contact application engineering for assistance.

**Balanced

Note (1): Anti-corrosive options including Black Oxide, Electroless Nickel, and Stainless Steel are available upon request.

Note (2): Anti-sparking options available upon request.

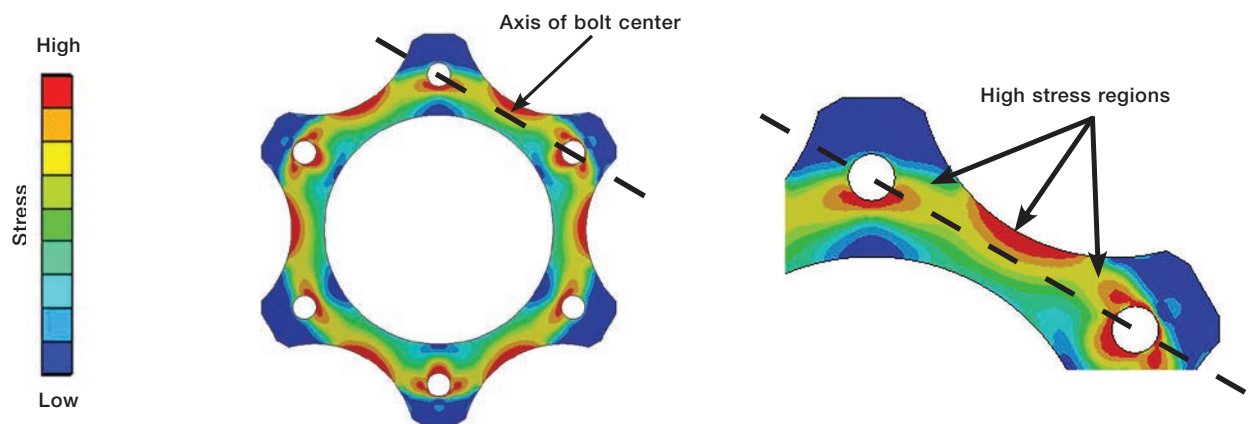
Metallic, disc style

Dodge Disc couplings

Competitor disc geometry

Many disc coupling competitors utilize the disc geometry seen below which features a scalloped outside diameter and circular inside diameter. As seen in Figure 3, this single scalloped design unevenly distributes material along the “axis of bolt center”, which negatively impacts the torque ratings and the misalignment capability of the disc. Figure 3 shows large peak stress areas (shown in red) are created around the bolt holes and along the outside diameter of each leg between bolts, resulting in lower torque ratings. Additionally, the uneven distribution of material along the “axis of bolt center” drastically reduces misalignment capability during operation.

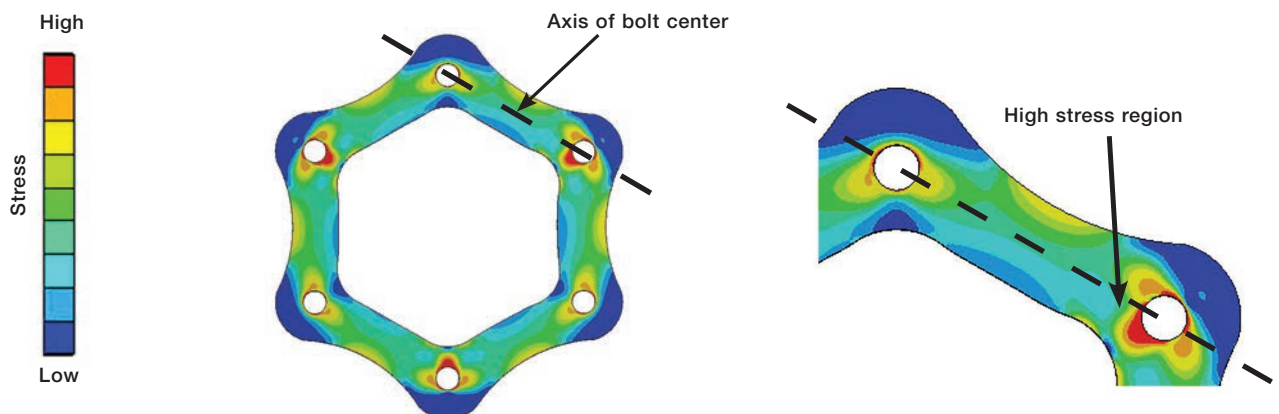
Figure 3
Competitor disc geometry - single scalloped design



Dodge disc geometry

The Dodge Disc coupling utilizes the newest generation of disc geometry, a dual scalloped design, which offers an even distribution of material along the “axis of bolt center”. Figure 4 shows a drastically reduced number of high stress areas within the disc limited to only a small area around the bolt hole. Also, the peak stress shown in the Dodge Disc geometry is 13% less than the competitor’s geometry, resulting in an average of double the torque capacity. Additionally, an even distribution of material along the “axis of bolt center” maximizes misalignment capability and offers up to three times the misalignment of the leading competitor. Industry leading torque ratings and misalignment capability will ultimately lead to longer coupling life, improved reliability, and reduced unexpected downtime.

Figure 4
Dodge disc geometry - dual scalloped design



Mechanical soft starts

Dodge Fluid couplings

Dodge Fluid coupling operation

Dodge Fluid couplings are fixed fill mechanical soft start devices which utilize hydrokinetic energy to transmit torque via a system of impellers. The input impeller functions similar to a centrifugal pump and hydraulic turbine. When the input drive moves, it transmits kinetic energy to the oil which is distributed in the housing and transmits torque by engaging the outer impeller.

The Dodge Fluid coupling allows the driver to start under “no load”, resulting in a smooth start up and reduction of amp draw from the motor. Since there is no physical connection inside the housing, the Dodge Fluid coupling has built-in overload protection and inherent torsional vibration absorption. Additionally, load balancing is possible with the use of asynchronous motors, instead of custom motors, since the Fluid couplings automatically adjust to load speed.

Product line overview

Dodge Fluid couplings can accommodate applications up to 1360 HP at 1750 RPM and 1840 KW at 1450 RPM dependant on size. In addition to the standard housing configuration available, Dodge Fluid couplings also offer single and double delay fill options for longer start up times. Shaft attachment options include:

- Direct Coupled with Dodge gear coupling hubs (KCM)
- Belt driven (KSD)
- Direct coupled with a flexible Para-Flex element and flange (KCP)

Package system solutions

Dodge Fluid couplings are most commonly used on remote location conveyor drive applications in the mining, aggregate, cement, and power generation industries where electronic controls and drives are difficult to power, program, and maintain. The Dodge System-1 group provides the service of packaging Dodge Fluid couplings into a complete, single source conveyor drive system using Baldor Electric motors, Dodge Magnagears, Dodge bearings, and Dodge conveyor pulleys.

Dodge KCM fluid coupling



Dodge KCP fluid coupling



Dodge KSD fluid coupling





Contact:

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