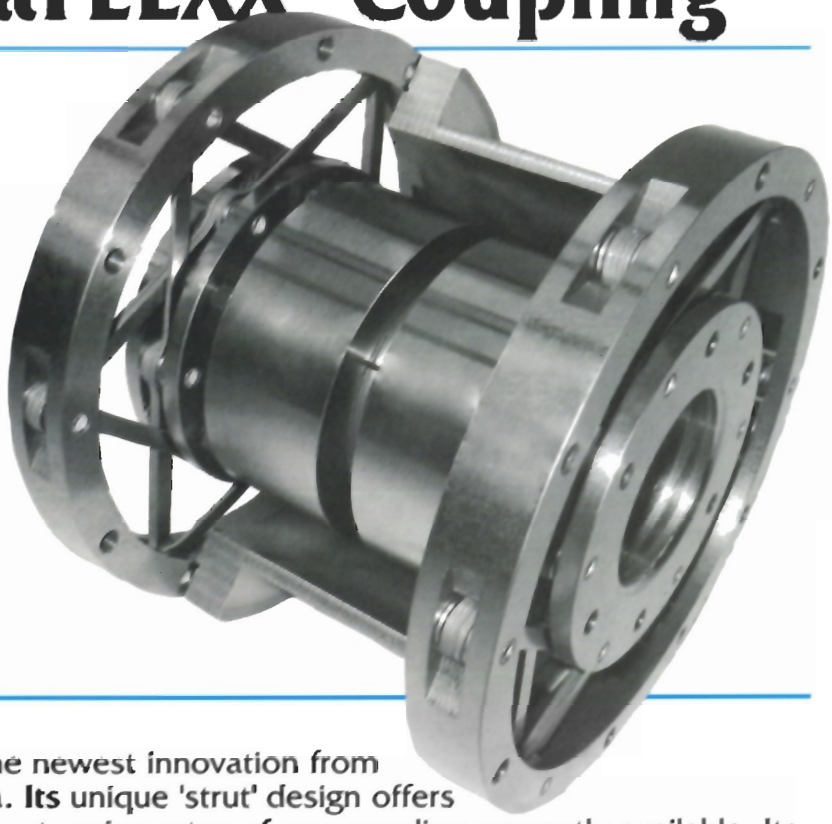
COUPLING CORPORATION OF AMERICA

UltraFLEXX™ Coupling

The Industry's Most Flexible Steel Coupling Featuring the Exclusive "Strut" Design



The UltraFLEXX Coupling is the newest innovation from Coupling Corporation of America. Its unique 'strut' design offers the most flexibility and the lowest spring rates of any coupling presently available. Its exceptionally light-weight design does not compromise performance or reliability.

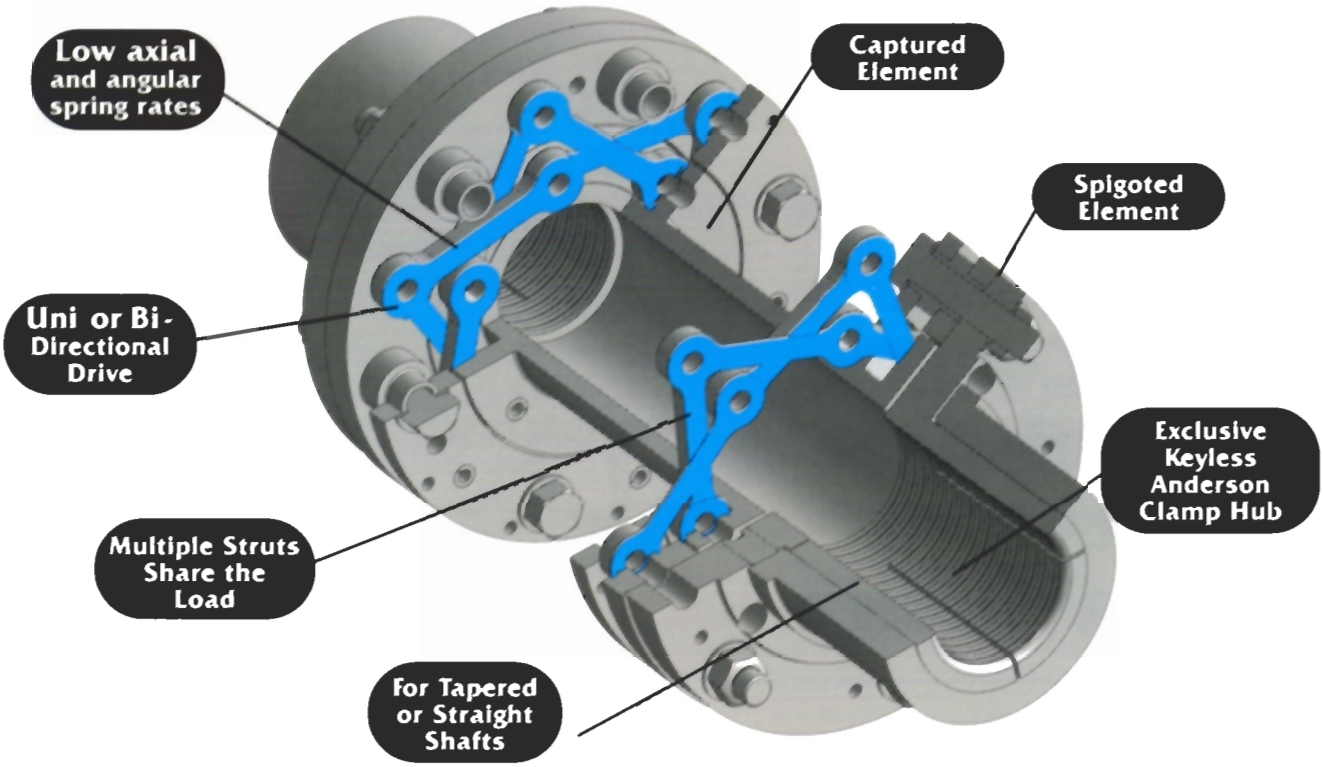
Ideal Applications

- Pumps
- Compressors
- Gas Turbines
- Motor Drives
- Auxiliary Drive Turbines
- Feed Rollers
- Marine Applications
- High Misalignment Areas
- High Thermal Growth Equipment

Since 1968 CCA has been making couplings by focusing on the driving and driven machines, and then designing couplings to complement them. Because the UltraFLEXX has the lowest spring rates in the industry, all coupled machines benefit from longer life and outstanding performance.

UltraFLEXX Spacer Coupling size 200 shown without hubs.

UltraFLEXX Up Close



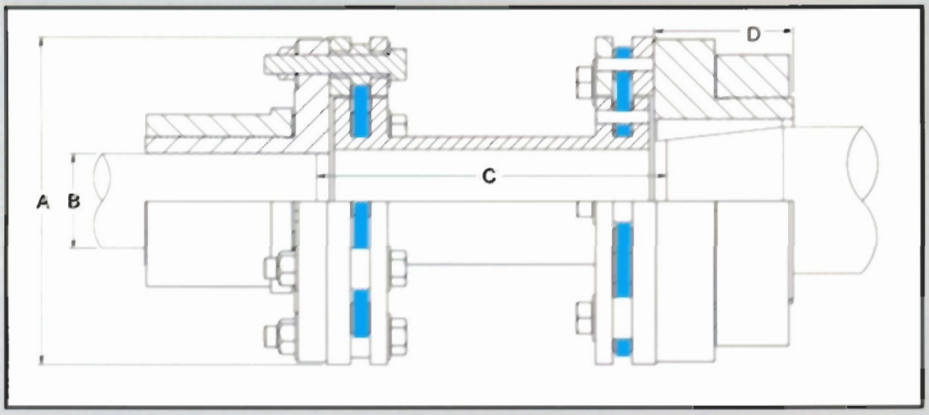
Unmatched Benefits of the UltraFLEXX

Feature	Value to User
Multiple struts share the load	Scratch on a strut will not destroy coupling
High torque capability in small diameter package	Easy replacement for other couplings, including gear couplings
No lubrication	Reduces maintenance cost
Very low axial and angular spring rates	Very low forces exerted on shafts, bearings, and seals so they last longer
Spigoted fit - element to hub	Repeatable assembly and no loose parts
No loose parts	Continual balance
Dynamically balanced	No coupling related vibrations
Captured element	In the unlikely event of a failure, the spacer element is piloted inside the hub rings
Easy hub adjustment for flange to flange spacing	Faster installation and no hot work permits required

UltraFLEXX couplings come standard with Anderson Clamp Hubs for a strong shaft connection with no keys, heat, or hydraulics. See our Anderson Clamp Hub brochure for more details. Other hub styles are available as well.

UltraFLEXX Spacer Coupling

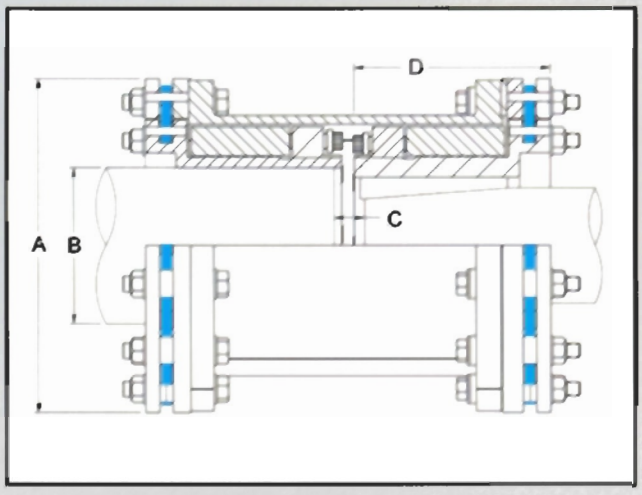
The UltraFLEXX is designed to provide extreme flexibility in most standard applications. The angular and axial spring rates are far lower than any coupling in the industry which means the amount of wear on seals and bearings is dramatically reduced.



Size	Max Cont Torque (in-lbs)	B Max Bore (in)	Max HP/1000 RPM
100	4,260	2.500	68
125	7,280	2.875	116
162	17,800	4.000	282
200	34,200	4.750	543
250	62,400	5.875	990
312	124,500	7.500	1,975
400	263,500	9.000	4,181
500	670,800	10.875	10,643
630	832,800	12.00	13.214
800	1,656,000	14.00	26,276
1000	3,284,400	16.0	52,113
1250	6,416,400	19.0	101,809
1620	12,931,200	22.0	205,179
2000	26,604,000	26.0	422,125
2500	51,324,000	30.0	814,356

Close-Coupled UltraFLEXX

The Close-Coupled UltraFLEXX is ideal for applications in which the shafts are too close for normal spacer couplings. In most cases, an axially split sleeve is used to connect the flexible elements. This allows hub-to-shaft adjustment without moving the machinery. For high speed close-coupled situations, the spacer is split through the center at the shaft gap.



Size	Max Cont Torque (in-lbs)	B Max Bore (in)	Max HP/1000 RPM
100	4,260	1.220	52
125	7,280	2.250	103
162	17,800	2.625	224
200	34,200	3.500	416
250	62,400	4.464	825
312	124,500	5.660	1,600
400	263,500	6.591	3,370
500	520,000	8.00	6,580
630	832,800	9.00	13,214
800	1,656,000	10.00	26,276
1000	3,284,400	11.00	52,113

Materials

Engineering and Dimensional Data

Max RPM	Total Coupling Weight (lbs)	Total WR^2 ($lb\text{-}in^2$)	Coupling Axial Travel +/- (in)	Axial Spring Rate (lb/.001 in)	Angular Misalign. per end +/- (deg)	Angular Spring Rate per end (in-lb/deg)	Torsional Stiffness (in-lb/rad) x 10^6	Spacer Tube Torsional Stiffness (in-lb/rad/in) x 10^6	Spacer Tube weight (lbs/in)	Spacer Tube WR^2 ($lb\text{-}in^2/in$)	A Coupling Outer Dia. (in)	C Std. Dist. Between Shaft Ends (in)	C Min. Dist. Between Shaft Ends (in)	D Std. Hub Length (in)
22,000	11.4	24.2	0.090	0.193	0.5	14.7	0.41	3.76	0.18	0.10	4.333	5.00	3.50	2.50
18,000	18.8	57.2	0.100	0.147	0.5	17.0	0.72	8.13	0.23	0.21	5.192	7.00	3.75	2.75
15,000	42.7	235.8	0.125	0.136	0.5	26.1	1.89	25.1	0.47	0.64	6.831	7.00	4.75	3.75
13,000	69.3	486.7	0.160	0.113	0.5	31.6	3.63	58.3	0.76	1.50	7.908	8.00	5.50	4.50
11,000	130	1,292	0.210	0.125	0.5	43.8	6.05	112	1.7	2.88	9.434	10.00	6.50	5.38
10,000	192	2,575	0.270	0.629	0.5	371	18.5	350	1.6	9.0	10.767	10.00	6.50	5.50
9,000	396	9,754	0.350	0.458	0.5	439	37.6	940	2.7	24.1	14.397	12.00	9.75	8.63
8,000	829	30,578	0.450	0.387	0.5	671	90.9	3,240	5.1	83	18.123	14.00	13.00	11.88
7,500	1,580	48,000	0.500	0.30	0.5	740	170	7,000	8.0	180	21.90	16.00	15.00	14.00
6,000	2,900	190,000	0.562	0.20	0.5	880	340	16,000	14	410	27.50	18.00	18.00	16.00
4,700	5,600	550,000	0.625	0.80	0.5	1,240	670	40,000	22	880	35.80	N/A	24.00	18.00
3,800	9,800	960,000	0.688	0.70	0.5	1,520	1300	90,000	36	1,900	44.00	N/A	24.00	20.00
2,900	16,000	3.8E+06	0.750	0.60	0.5	1,800	2500	210,000	58	4,200	56.00	N/A	36.00	22.00
2,400	28,000	1.1E+07	0.812	1.00	0.5	2,400	5000	500,000	84	8,600	72.00	N/A	36.00	24.00
1,900	52,000	1.9E+07	0.875	0.90	0.5	3,200	10000	1.20E+06	140	17,000	88.00	N/A	36.00	26.00

Weight, inertia and torsional stiffness are given for typical bore and std BSE.
Sizes larger than 500 are application specific: numbers listed are estimates
Values given are subject to change

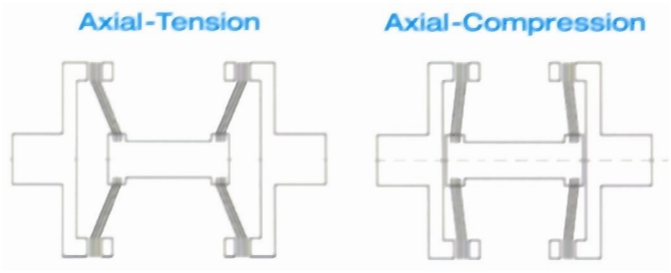
ALWAYS USE A COUPLING GUARD

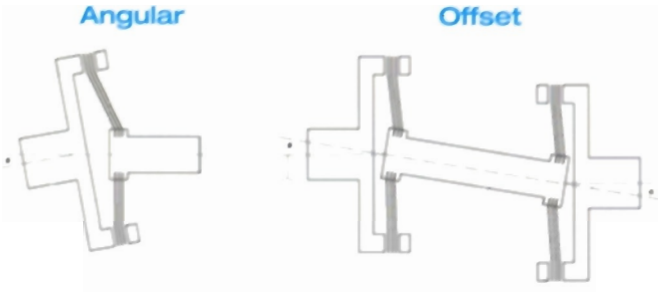
Max RPM	Total Coupling Weight (lbs)	Total WR^2 ($lb\text{-}in^2$)	Coupling Axial Travel +/-(in)	Axial Spring Rate (lb/.001 in)	Angular Misalign. per end +/-(deg)	Angular Spring Rate per end (in-lb/deg)	A Coupling Outer Dia. (in)	C Std. Dist. Between Shaft Ends (in)	C Max. Dist. Between Shaft Ends (in)	D Std Hub Length (in)
8,000	15	52	0.100	0.147	0.5	17	5.192	0.125	2.500	3.50
7,000	22	190	0.125	0.136	0.5	26.1	6.831	0.125	3.500	4.00
5,800	36	426	0.160	0.113	0.5	31.6	7.908	0.188	3.750	5.00
5,500	62	1,080	0.210	0.125	0.5	43.8	9.434	0.25	5.125	5.75
4,200	110	2,476	0.270	0.629	0.5	371	10.767	0.25	7.125	6.50
3,400	180	9,345	0.350	0.458	0.5	439	14.397	0.312	7.500	7.25
3,000	320	24,300	0.450	0.387	0.5	671	18.123	0.375	8.625	10.00
2,600	780	42,000	0.500	0.30	0.5	740	21.90	N/A	9	13.00
2,200	1400	160,000	0.562	0.20	0.5	880	27.50	N/A	10	16.0
1,800	2600	520,000	0.625	0.80	0.5	1240	35.80	N/A	12	18.0
1,500	5200	940,000	0.688	0.70	0.5	1520	44.00	N/A	12	20.00

Weight and inertia are given for typical bore and std BSE.
Sizes larger than 400 are application specific; numbers listed are estimates.
Values given are subject to change.

Anderson Clamp Hubs - 4000 series or equivalent alloy steel heat treated to 130,000 PSI UTS minimum.
Hub rings, sleeves - carbon steel or 4000 series alloy.
Flex elements - 17-7PH, 301 full hard.
Bolts - AISI 4140, 4340, 6150, 8740 alloy steel heat treated to grade 8 minimum.
Locknuts - grade C minimum.
Special materials available such as INCO 718, Beryllium copper, Titanium, Monel.

The UltraFLEXX is specifically engineered to handle misalignments:





UltraFLEXX couplings are a unique assembly of tension struts that transmit torque from the driver to the driven member. Typically, the driver hub connects to an outer ring which is connected through the flexible struts to a center member. The struts are extremely strong and flexible which makes them very efficient in accepting torque and bending with no strain or damage to any part of the system.

INSTALLATION and REMOVAL

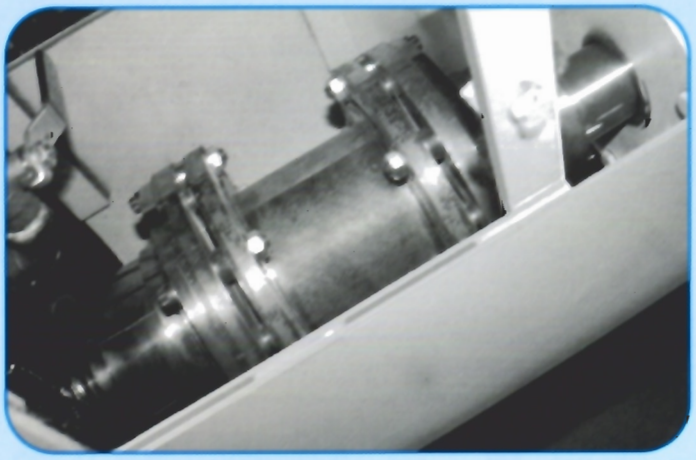
Factory assembled elements simplify installation of UltraFLEXX couplings. Light interference spigoted fits ensure repeatable positions.

Anderson Clamp hubs are self-centering and provide easy repeatable installation and easy removal. Shimming is not necessary for correct flange-to-flange face measurements because the Anderson Clamp hub can be axially positioned very easily.

Push off holes and field balance correction holes are standard on high performance UltraFLEXX couplings.

Installation procedures and dimensional drawings are supplied with all couplings. Pre-stretch and/or special alignment procedures are provided as needed.

ALWAYS USE A COUPLING GUARD



Size 200 UltraFLEXX running a 300 HP water service pump at 3,600 RPM

BALANCING

Balancing is incorporated into the design and manufacture of UltraFLEXX couplings. Parts are tightly assembled. Spigoted fits are light interference for repeatable assembly. There are no loose parts to ensure that UltraFLEXX couplings maintain balance. Bolts are delivered in sets and are weight balanced on high speed or API applications.

For API or special applications, any of the balance procedures are available and are jointly agreed upon by the customer and CCA. CCA minimizes tooling for most effective balance. In addition, CCA can use its proprietary 4 bearing machinery modeling setup on a hard bearing balance machine for ideal machine simulations.

Major components are match-marked after assembly and balanced when appropriate. Field balance correction holes are standard on most high speed and high performance UltraFLEXX couplings.

UltraFLEXX Offers Complete Application Flexibility

Torque release couplings, clutch couplings, low torsional spring rate couplings, special flange adapters, flywheel adapters, solo plates, reversed hub, single hinge point couplings, vertical shaft couplings, cooling tower couplings, and solid shaft couplings are all available.

The low axial and angular spring rates of the FLEXXOR and UltraFLEXX together with the adaptability of the Anderson Clamp hub are unparalleled in design flexibility.

High Speed UltraFLEXX - For applications where weight and diameter need to be minimized, the High Speed UltraFLEXX is the ideal coupling.

Disengaging coupling - A device that normally carries torque but can easily be switched to allow both sides to spin freely.

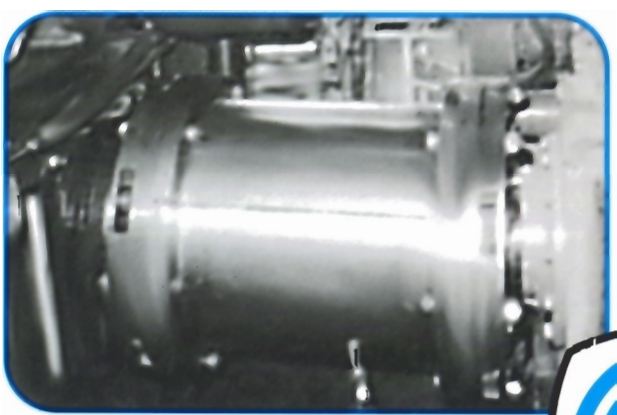
Torque limiting coupling - The UltraFLEXX can be designed to stop transmitting torque at a preset limit by using shear pins or a spring-loaded "breaker" system.

Torsionally soft coupling - Coupling Corporation can design couplings with quill shafts to virtually eliminate all torsional vibrations.

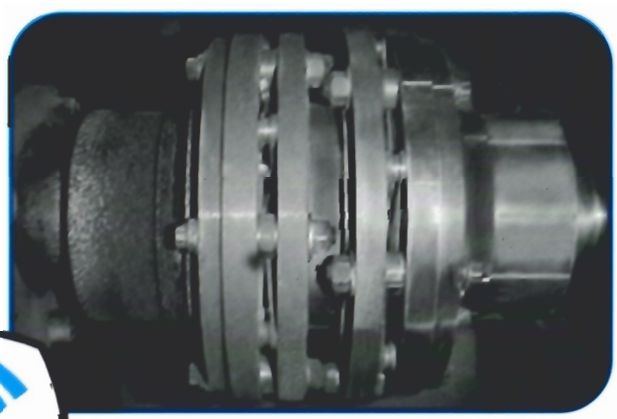
Limited End Float coupling - The UltraFLEXX can be designed so that the axial movement is limited to a small distance.

Flywheel UltraFLEXX - One flexible element can be mounted directly to a flywheel, while the other end has a standard hub.

Cooling Tower coupling - The UltraFLEXX can be made with a long, tubular spacer. The spacer tube is lightweight and very stiff and can be made of stainless steel or a composite material to suit the application. It is capable of large misalignment with low forces on motor and gear shafts for outstanding reliability and performance.



Close-coupled UltraFLEXX-size 800 operating at 6 RPM at 75 HP. Note: This coupling is operating properly even with 4 degrees misalignment.



UltraFLEXX size 250 running a 100 HP pump at 3,600 RPM

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