



Metal Bellows

Elastomer Insert

Torque Limiters

Line Shafts



PRECISION COUPLINGS

QUICK SELECT GUIDE



DieQua Corporation is a manufacturer and supplier of a wide range of motion control and power transmission drive components. Our focus has always been to provide products that offer superior value, the highest quality, the most unique designs, and the most reliable performance. DieQua continues to develop innovative products to meet the changing technological needs of the industries and customers we serve.

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The DieQua Process

DieQua has an enormous product offering. Making a proper selection, or even knowing what is possible can be daunting. Our staff is specifically trained to first listen, and then ask questions, to gain a thorough understanding of your specific and unique application. Then, we help you navigate to the specific product, or even a special design, that will meet or exceed your needs. It is through our consultative approach that we are most helpful to our customers in finding the best design solution.

A Perfect Precision Coupling

DieQua has created a precision coupling offering to include Bellow couplings, Precision Elastomer couplings, Torque Limiters and Line Shaft couplings. These products offer a perfect range of precision, torsional stiffness, torque capacity, and protection from misalignment. These couplings are a perfect adjunct to the many gearbox, gearmotor, and mechanical components technologies we offer to the market.



Trust our knowledge and experience in a wide range of industries...

With more than 50 years of product engineering expertise under our belts, we know how to get you the product you need, when you need it. We aren't limited to a handful of industries, we work with companies in virtually every market. Let DieQua show you how what we know, makes your business better.



AEROSPACE AND MILITARY

- Aircraft manufacturing
- Space travel / exploration
- Defense and security



ENERGY

- Renewable energy
- Fossil fuel exploration / refining
- Power generation



ENTERTAINMENT

- Theater, platforms and stages
- Sound and lighting systems
- Monitors and scoreboards



ENVIRONMENTAL / CIVIL

- Waste management and recycling
- Freshwater and wastewater
- Flood control



FOOD AND BEVERAGE

- Processing
- Filling / sorting
- Packaging equipment



FORESTRY

- Timber harvesting and processing
- Pulp, paper, lumber, millwork
- Furniture manufacturing



MATERIAL HANDLING

- Robotics
- Conveyors
- Overhead cranes



MEDICAL AND HEALTHCARE

- Laboratory automation and testing
- Patient mobility and handling
- Medical equipment & machinery



MINING / TUNNELING

- Mineral, metal and aggregate
- Material processing and control
- Transportation infrastructure



SEMI-CONDUCTOR

- Wafer handling
- FOUP handling
- Wafer elevator



STEEL

- Smelting and refining
- Metal forming and fabrication
- Reclamation



TRANSPORTATION

- Auto / truck assembly and testing
- Transportation, rail and marine
- Container and cargo handling

Coupling Pre-Selection Guide

Type	Model	Torque Range (Nm)		Overall Length (mm)		Shaft Diameter (mm)		Fit Length (mm)		Zero Backlash	Torsionally Stiff	Damping	Low Moment of Inertia	Easy to Install
		Min	Max	Min	Max	Min	Max	Min	Max					
Bellows	BC	10	500	59	169	8	60	22	51	X	X		X	X
	BCS	15	500	59	146	8	60	22	51	X	X		X	X
	BCE	4.5	500	40	114	6	62	13	42.5	X	X		X	X
	BCC	15	500	48	100	8	75	16.5	34	X	X		X	X
	BCB	15	500	60	149	8	60	22	51	X	X		X	X
Elastomers	EC	6	660	66	126	8	60	25	50	X		X		X
	ECC	2	660	26	94	4	60	8	34	X		X		X
	ECS	4	660	53	126	6	60	20	50	X		X		X
	ECX	2	660	26	86	15	60	N/A	N/A	X		X		X
Torque Limiters	TH	5	650	40	84	8	56	19	41	X		X	X	
	THK	5	650	34	71.5	8	58	27	59	X			X	
	TB	5	500	75	177	10	60	22	51	X			X	X
	TE	9	1350	50	164	4	60	14	51	X		X		
	TA	10	700	45	72	12	60	15	24	X				X
	TAE	60	1350	85	135	12	60	20	34	X		X		X
Line Shafts	LB	10	500	110	6000	5	60	16	50	X	X			X
	LBS	10	500	100	6000	5	60	16	50	X	X			X
	LE	12.5	1350	95	4000	5	60	20	65	X		X	X	

Please refer to the full DieQua couplings catalog for proper selection and sizing.

If you have any questions, please contact DieQua's engineering support team and we would be happy to assist.

Metal Bellows Couplings

From 4.5 – 500 Nm

The Series BC Bellows Couplings provide zero backlash and high torsional rigidity, perfect for servo and other precision applications.

Features:

- **Low Inertia:** Allows faster acceleration and deceleration with lower torque
- **Compensates Misalignment:** Allows axial, lateral, and angular misalignment for easier mounting
- **Non-Standard Applications:** Custom designs, with varied tolerances, keyways, non standard material and bellows, are available upon request. Also available with ATEX certification for explosion proof application requirements
- **Maintenance Free:** No moving parts means an unlimited life with proper mounting
- **All models rated for speeds up to 10,000 rpm**
- **Temperature Range:** -30° C to +120° C (-22° F to +270° F). High temperature options available
- **Bore diameter ranges from 6 mm to 75 mm**
- **Up to nine sizes available, depending on type**
- **Additional sizes available upon request**



MODEL BC

With clamping hub from 15-500 Nm

- Easy to mount
- Available in multiple lengths
- Low moment of inertia



MODEL BCS

With split clamping hub from 15-500 Nm

- Radial mounting possible
- Easy to install onto pre-aligned shafts
- Low moment of inertia



MODEL BCE

Economy class with clamping hub from 4.5-500 Nm

- Easy to mount
- Optional self-opening clamp system
- Low moment of inertia



MODEL BCC

Compact design with clamping hub from 15-500 Nm

- for space restricted installations
- light weight, easy to mount
- low moment of inertia



MODEL BCB

With clamping hub and blind mate connection from 15-500 Nm

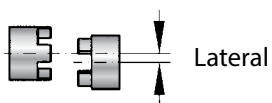
- Backlash free with two-piece design
- Easy installation and removal
- Available as separate components



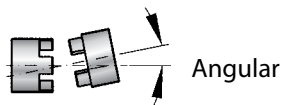
About Elastomer Insert Couplings

Elastomer Insert Couplings

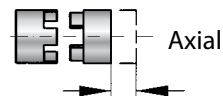
AXES OF MISALIGNMENT



Lateral



Angular



Axial

FUNCTION

The equalizing element of the EC coupling is the elastomer insert. It transmits torque without backlash or vibration. The elastomer insert defines the characteristics of the entire drive system.

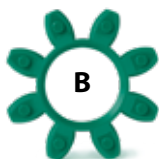
Backlash is eliminated by the press fit of the elastomer into the hubs. Through variation of the Shore hardness of the elastomer insert, the coupling system can be optimized for the ideal torsional characteristics.

SIZES 2 - 450



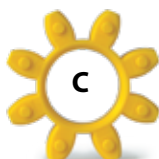
A

Shore hardness
98 Sh A



B

Shore hardness
64 Sh D



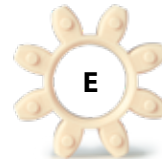
C

Shore hardness
80 Sh A



D

Shore hardness
65 Sh D



E

Shore hardness
64 Sh D

DESCRIPTION OF THE ELASTOMER INSERTS

Type	Shore hardness	Color	Material	Relative damping ()	Temperature range	Features
A	98 Sh A	blue	TPU	0.4 - 0.5	-30°C to +100°C	high damping
B	64 Sh d	green	TPU	0.3 - 0.45	-30°C to +120°C	high torsional stiffness
C	80 Sh A	yellow	TPU	0.3 - 0.4	-30°C to +100°C	very high damping
D*	65 Sh D	black	TPU	0.3 - 0.45	-30°C to +70°C	electrically conductive
E	64 Sh D	beige	Hytrel	0.3 - 0.45	-50°C to +150°C	temperature resistant

*The electrical conductivity of the elastomer material is to prevent the electrostatic charging of the elastomer coupling system, to reduce the risk of sparking in operation. ATEX technical data is available upon request.

The values of the relative damping were determined at 10 Hz and +20° C.

Elastomer Insert Couplings

From 2 – 600 Nm

Provides zero backlash and vibration damping with four elastomer insert options. Ideal for both servo and general power transmission applications.

Features:

- Variable Torsional Rigidity: Five different elastomer inserts which provide different shore hardness.
- Low Inertia: Allows faster acceleration and deceleration with lower torque.
- Compensates Misalignment: Allows axial, lateral, and angular misalignment for easier mounting.
- Precision Jaws: Concave design concentrically machined.
- Electrical Properties: Insulating or conductive options are available.
- Design Versatility: Mixing and matching hub styles are possible for optimal design solutions.
- Stainless Steel Optional: Stainless steel hubs and bolts available.
- Non-Standard Applications: Custom designs, with varied dimensions, tolerances, and keyways are available upon request. Also available with ATEX certification for explosion proof application requirements.
- Backlash-free
- Lateral or Hollow Shaft mounting



MODEL EC

With clamping hub from 6-660 Nm

- High concentricity
- Backlash free
- Easy mounting



MODEL ECC

With compact clamping hub from 2-660 Nm

- Compact design
- Low moment of inertia
- Easy mounting



MODEL ECS

With split clamping hub from 4-660 Nm

- For lateral installation
- Allows for pre-aligned shafts
- Easy mounting



MODEL ECX

With intermediate spacer from 2-660 Nm

- High lateral misalignment
- Easy to mount
- Vibration damping



About Torque Limiters

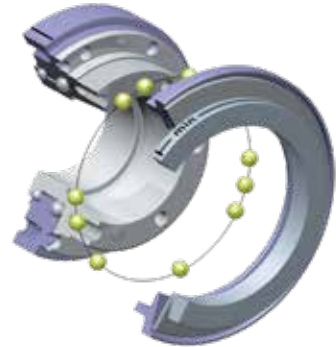
Available Function Systems

SINGLE POSITION - W

Provides zero backlash and vibration dampening with 4 elastomer insert options. Ideal for both servo and general power transmission applications.

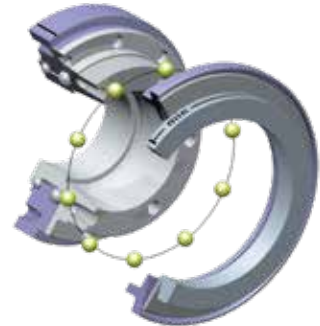
Standard Version

- After the overload condition has been removed the clutch will automatically
- Re-engage precisely at its original orientation.
- Maintains synchronous shaft positioning.
- Switch plate moves at disengagement to signal overload.
- Patented preload for zero backlash; suitable for high precision drives.



MULTI-POSITION 60° - D

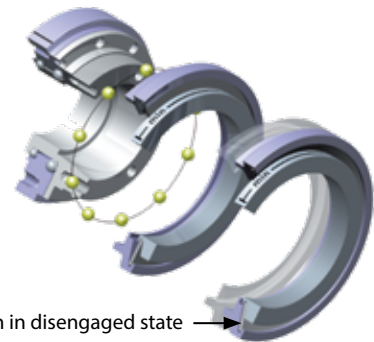
- After the overload condition has been removed the clutch will automatically
- Re-engage at one of multiple angular intervals, standard is every 60°.
- Immediate availability of the machine after overload disengagement.
- Switch plate moves at disengagement to signal overload.
- Optional re-engagement intervals of 30, 45, 90, 120°.
- Patented preload for zero backlash; suitable for high precision drives.



FULL DISENGAGEMENT - F

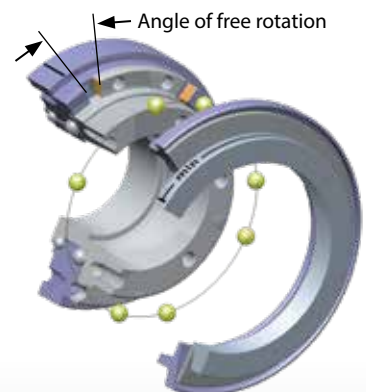
- Spring snaps over center, eliminating residual force on the ball-detent system.
- Complete separation at overload, allowing shafts to spin freely until they are stopped.
- Switch plate moves at disengagement to signal overload.
- Coupling requires manual re-engagement at multiple available intervals (60 degrees standard; alternate engagement intervals on request).
- Well suited for higher speed applications.

Note: Coupling can be disengaged manually. Contact DieQua for details.



LOAD HOLDING / LOAD BLOCKING - G

- Overload detection device.
- Only limited free rotation after overload disengagement, beyond which the clutch remains engaged and will continue to drive.
- Re-engages automatically when reversed back into original disengagement position.
- Switch plate moves at disengagement to signal overload.
- Useful in lift systems and other applications where the load must be supported after a brief torque release.



Torque Limiters

Provides zero backlash and fast disengagement for mechanical torque overload protection. Available in four different re-engagement designs.

Features:

- Bore Diameter ranges between 3 mm to 100 mm
- Temperature range from -30° C up to 120° C
- 6 Models: Provides a variety of load connection options, including 3 shaft coupling and 3 pulley/gear hub versions, for maximum design versatility.
- Low Inertia: Ideal for servo or ball screw drive applications requiring quick acceleration.
- Adjustable Settings: A wide torque range is available on each model, which can be field adjusted for the optimal setting.
- Disengagement Detection: An actuation ring can be sensed, with a separate proximity switch, for automated machine shut-off.
- Low Residual Torque: Only 2.5% residual torque, after disengagement, reduces torque limiter wear.
- Non-Standard Applications: Modifications, custom designs, and different materials, including stainless steel, are available upon request.



1 – 650 Nm Models

MODEL TH

With conical clamping bushing for indirect drives from 5 - 650 Nm

- Integral bearing to support sprockets, gears, and other drive elements
- Compact simple design
- Adjustable torque settings



MODEL THK

With keyway connection for indirect drives from 5 - 650 Nm

- Integral bearing to support sprockets, gears, and other drive elements
- Compact simple design
- Adjustable torque settings



MODEL TB

With clamping hubs and bellows coupling for direct drives from 5 - 500 Nm

- Easy to mount
- Compensation for shaft misalignment
- Adjustable torque settings



MODEL TE

With clamping hubs and elastomer coupling for direct drives from 1 - 500 Nm

- Easy to mount
- Vibration damping
- Compensation for shaft misalignment
- Adjustable torque settings



10 – 700 Nm Models

MODEL TA

With clamping hub for indirect drives from 10 - 700 Nm

- integral bearing to support sprockets, gears, and other drive elements
- adjustable torque settings
- ultra compact, low inertia version



MODEL TAE

With clamping hubs and elastomer coupling for direct drives from 10-700 Nm

- Easy to mount
- Vibration damping
- Compensation for shaft misalignment
- Adjustable torque settings
- Ultra compact, low inertia version



SERIES L

Line Shafts

From 10 – 660 Nm

Our Series L lineshafts and spacer couplings offer zero backlash torque transmissions over long spans, without the need for intermediate support.

Features:

- Radial installation & removal possible
- Low moment of inertia
- 3 Models: Provides a variety of connection options to maximize performance and design versatility.
- Customized Lengths: Provides the specific span necessary for each individual application.
- Zero Backlash: Provides exact position for precise rotary motion.
- Low Inertia: Torque tube design reduces weight for faster acceleration with less torque.
- Misalignment Compensation: Allows for angular, axial, and parallel misalignment between the connected shafts.
- Torsional Rigidity Control: Alternate flexible elements and torque tube materials increase or decrease torsional rigidity as required.
- Maintenance Free: No moving parts means virtually unlimited life with proper mounting.
- Non-Standard Applications: Customized designs with dimension variances, different tolerances, or alternate materials are available upon request.



MODEL LB

**With clamping hub
from 10-500 Nm**

- Installation and removal possible without disturbing other machine components
- Standard lengths range from 110 to 6000mm
- No intermediate support bearings required



MODEL LBS

**With split clamping hub
from 10-500 Nm**

- Complete coupling system mounts laterally for very easy installation and removal
- Standard lengths range from 100 to 6000mm
- No intermediate support bearings required



MODEL LE

**with split clamping hub
from 12.5 - 660 Nm**

- Standard lengths range from 95 to 4000mm
- No intermediate support bearings required
- Complete coupling system mounts laterally for very easy installation and removal



Line Shafts

Custom Line Shafts with mixed end caps

DieQua Line shafts are much like precision couplings in their structure, meaning the main elements are end hubs of varying designs, and flexible joints consisting of bellow or elastomer insert ends. DieQua produces both flexible bellows and elastomer type ends. They can be mixed and matched depending on the application.

Product highlights:

- Can cut to any length
- Max length: 6000mm
- Any bore diameters same or opposite on both ends (metric and inch)
- Once a overall length is selected, contact DieQua for maximum rotational speed for line shafts



ABOUT DIEQUA

Founded in 1980 by Dietmar Quaas, and now owned by his sons, DieQua Corporation has expanded from a single product line to become a leading manufacturer and supplier of an extensive line of high-quality power transmission and precision motion control products, including gearboxes, servo gearheads, screw jack systems, speed reducers, cycloidal reducers, and connecting components. The company also offers custom product modifications and complete design solutions for virtually any application. DieQua Corporation serves a wide range

of industries, including medical and health care, marine engineering, renewable energy, mining, transportation, steel, forestry and lumber, water and wastewater, automotive, and factory automation, to name a few.

An experienced and knowledgeable technical sales, customer service, and engineering support staff, as well as local distributors, ensure that DieQua customers in North America, Mexico and South America select the optimum components, systems, and best design solutions for their specific requirements.

The DieQua family of products



Spiral Bevel Gearboxes



Servo Gearheads



Cycloidal Reducers & Positioners



Screw Jack Systems



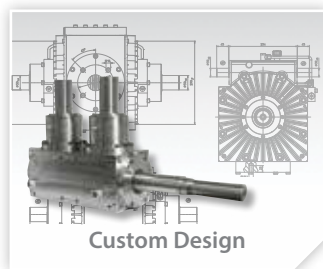
Helical Speed Reducers



Speed Modulating Gearboxes



Zero Backlash Couplings and Line Shafts



Custom Design

The DieQua Advantage

Engineering Support

DieQua Corporation has several decades of combined experience specifying power transmission and motion control components. This assures proper selection of components and systems to suit your unique requirements.

Warehousing

We pride ourselves for our extensive in-stock inventory. For fast product turnaround, DieQua Corporation stocks many components of various ratios and sizes, ready to ship fast.

Manufacturing and Assembly

DieQua Corporation now manufactures or assembles most of the products, for on-time delivery of standard orders as well as prototypes. We are ISO 9001 certified and are constantly improving our quality systems to ensure our customers receive the best products.



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