XGT/XGL/XGS Flexible coupling - High - gain rubber type

WEB Selection Tool | WEB CAD Download | Zero Backlash | High gain supported | High torque | Vibration absorption

Structure

Set Screw Type
| XGT | Standard type ➡ P.49
| XGS | Short type ➡ P.55

- High-gain rubber
- Hex Socket Set Screw
- Hub

Single Clamping Type
| XGT-CS | Standard type ➡ P.51
| XGS-CS | Short type ➡ P.57

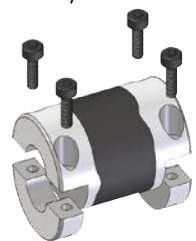- Hex Socket Head Cap Screw

Double Clamping Type
| XGT-C | Standard type ➡ P.53
| XGL-C | Long type ➡ P.61
| XGS-C | Short type ➡ P.59

XGT-C XGS-C XGL-C Split Type
Easy to mount and remove screws.

Material/Finish

	XGT / XGL / XGS
Hub	A2017
Vibration-absorbing rubber	HNBR
Hex Socket Head Cap Screw / Hex Socket Set Screw	SCM435 Ferrosoferric Oxide Film (Black)

- Additional Keyway at Shaft Hole ➡ P.803 — Available / Add'l charge
- Cleanroom Wash & Packaging ➡ P.807 — Available / Add'l charge
- Change to Stainless Steel Screw ➡ P.805 — Available / Add'l charge

Recommended applicable motor

	XGT / XGL / XGS
Servomotor	◎
Stepping Motor	◎
General-Purpose Motor	△

◎: Excellent ○: Very good △: Available

Property

	XGT / XGL / XGS
Zero Backlash	◎
For servomotor high gain	◎
High Torque	◎
High Torsional Stiffness	○
Allowable Misalignment	○
Vibration absorption characteristics	◎
Allowable Operating Temperature	−20℃ to 80℃

◎: Excellent ○: Very good

- This is a high gain rubber type flexible coupling optimized for actuators.
- Enables you to make high precision positioning in a short time.

- A single-piece construction with the two aliminum hubs molded with vibration absorbing rubber.
- About high-gain rubber coupling and reduction of stabilization time
  ➡ P.31

Application

Actuator / Surface-mount machine / High precision XY stage / Index table

Internal Structure

The designed shape of vibration-absorbing rubber achieves high torsional stiffness and high torque according to the newest finite element method. This product also succeeds in elongating its life by evenly dispersing the stress focusing on around the inner diameter of the jaw throughout the entire jaw.
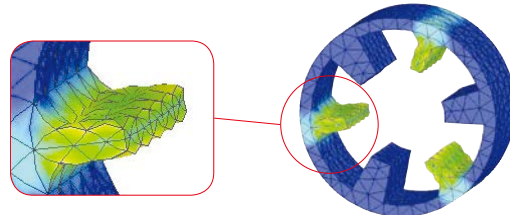
Selection

Selection based on shaft diameter and rated torque

The area bounded by the shaft diameter and rated torque indicates is the selection size.

GOOD DESIGN
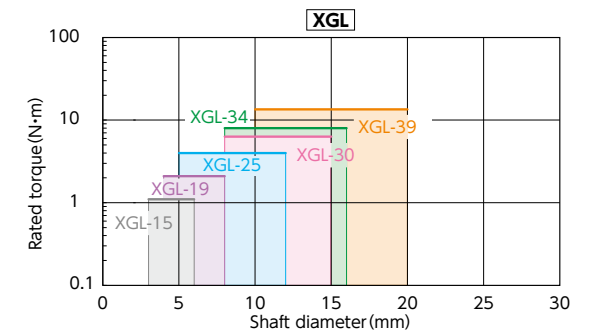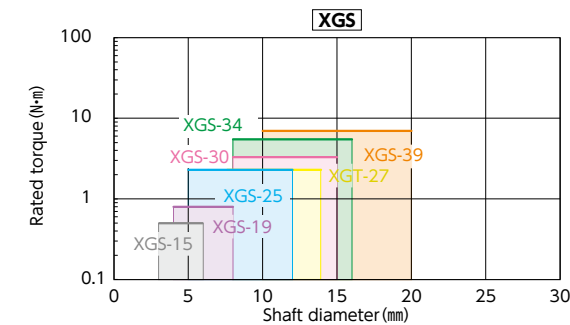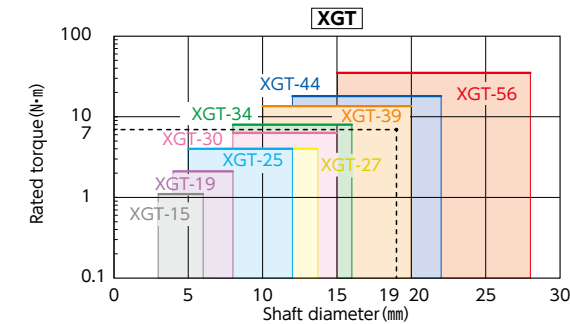
Selection Example
In case of selected parameters of shaft diameter of φ 19 and load torque of 7 N•m, the selected size is XGT-39C.

Selection based on the rated output of the servomotor

Rated Output (W)	Servomotor Specifications[1]			selection size		
	Diameter of Motor Shaft (mm)	Rated Torque (N·m)	Instantaneous Max. Torque (N·m)	XGT	XGL	XGS
10	5 - 6	0.032	0.096	15C	15C	15C
20	5 - 6	0.064	0.19	15C	15C	15C
30	5 - 7	0.096	0.29	19C	19C	19C
50	6 - 8	0.16	0.48	19C	19C	19C
100	8	0.32	0.95	19C	19C	25C
200	9 - 14	0.64	1.9	27C	30C	27C
400	14	1.3	3.8	27C	30C	34C
750	16 - 19	2.4	7.2	39C	39C	−

*1: Motor specifications are based on general values. For details, see the motor manufacturer's catalogs. This is the size for cases where devices such as reduction gears are not used.

Related Products

XGT2 enables further improvement of productivity by adding damping performance to XGT.
➡ P.29
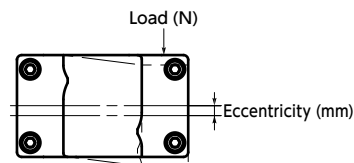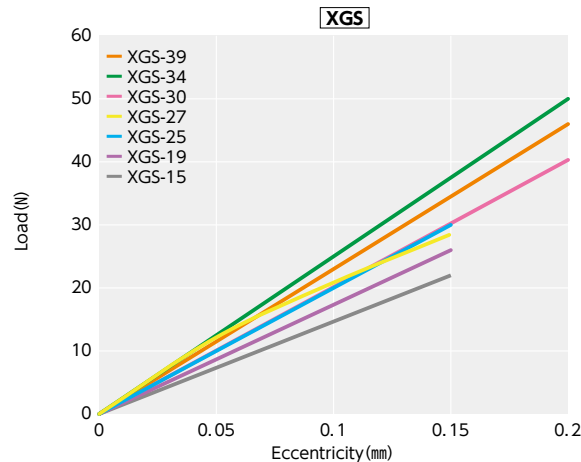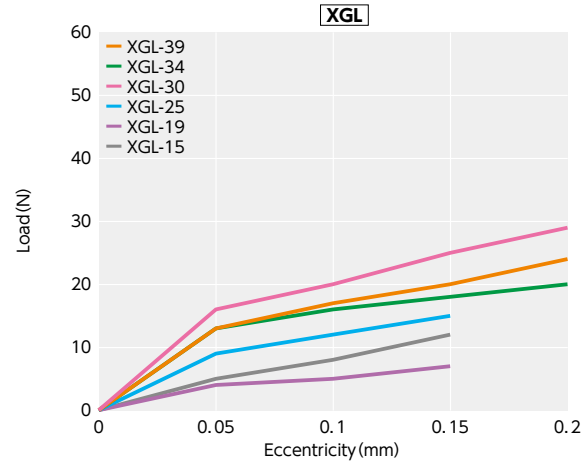
Part number specification

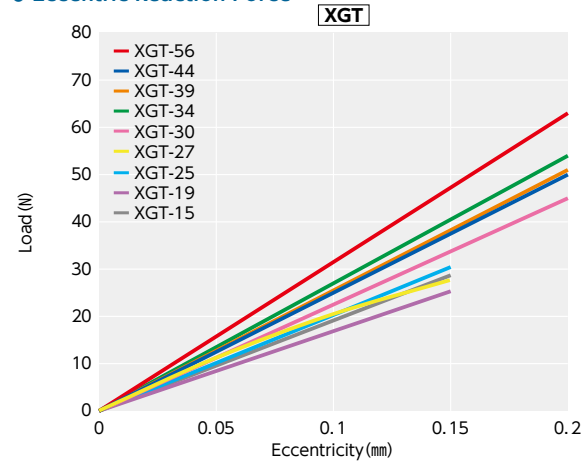**XGT-19C-6-8**

Product code | Size | bore diameter

Please refer to dimensional table for part number specification.

XGT/XGL/XGS Flexible coupling - High-gain rubber type

WEB Selection Tool | WEB CAD Download | Zero Backlash | High gain supported | High torque | Vibration absorption

Technical Information

● Eccentric Reaction Force

XGT

Load (N) vs Eccentricity (mm)
- XGT-56
- XGT-44
- XGT-39
- XGT-34
- XGT-30
- XGT-27
- XGT-25
- XGT-19
- XGT-15

XGL

Load (N) vs Eccentricity (mm)
- XGL-39
- XGL-34
- XGL-30
- XGL-25
- XGL-19
- XGL-15

XGS

Load (N) vs Eccentricity (mm)
- XGS-39
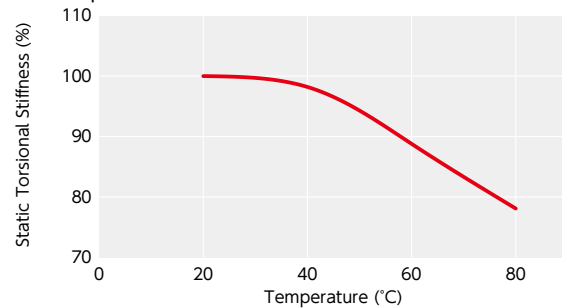- XGS-34
- XGS-30
- XGS-27
- XGS-25
- XGS-19
- XGS-15

The charts show force generated when making **XGT** **XGL** **XGS** in eccentric condition. As the eccentric reaction force becomes smaller, the force acting on the shaft bearing also becomes smaller.

● Thrust Reaction Force

XGT

Load (N) vs Compression (mm)
- XGT-56
- XGT-44
- XGT-39
- XGT-34
- XGT-30
- XGT-27
- XGT-25
- XGT-19
- XGT-15

XGL

Load (N) vs Compression (mm)
- XGL-39
- XGL-34
- XGL-30
- XGL-25
- XGL-19
- XGL-15

XGS

Load (N) vs Compression (mm)
- XGS-39
- XGS-34
- XGS-30
- XGS-27
- XGS-25
- XGS-19
- XGS-15

The charts show force generated when compressing **XGT** **XGL** **XGS** in the shaft direction. As the thrust reaction force becomes smaller, the force acting on the motor also becomes smaller.

● Change in static torsional stiffness due to temperature

This is a value under the condition where the static torsional stiffness at 20℃ is 100%.
The change of torsional stiffness within the range of allowable operating temperature is as shown in the graph.
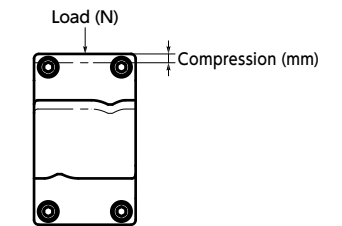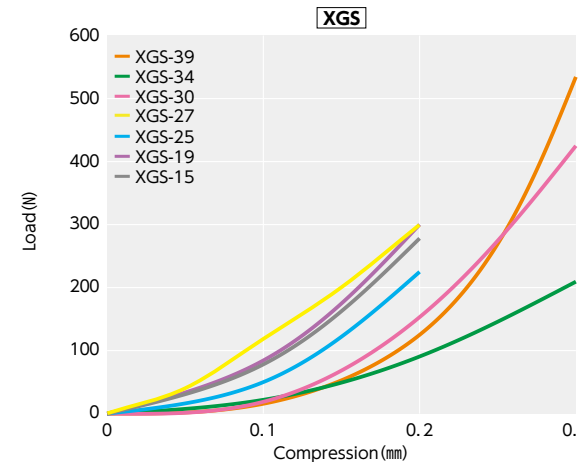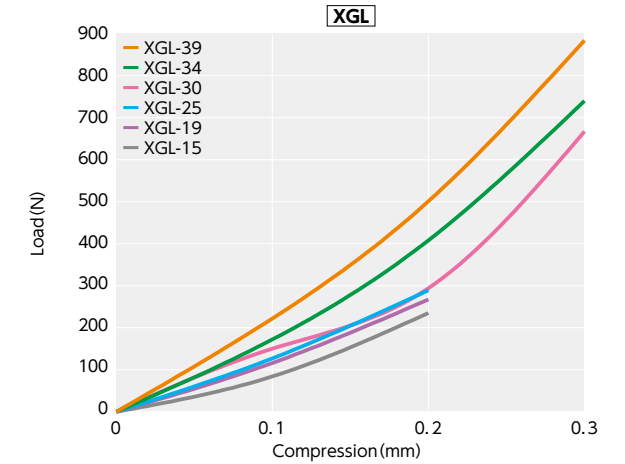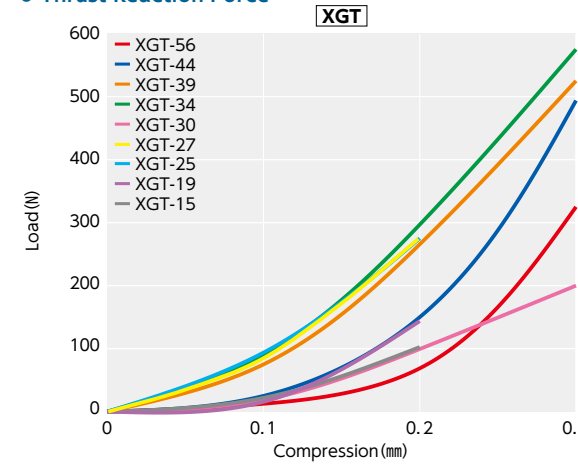Before using the unit, be aware of the deterioration of responsiveness.

Static Torsional Stiffness (%) vs Temperature (℃)

● Physical property and chemical resistance of high-gain type rubber (HNBR)

	Effect
Aging Resistance	◎
Weather Resistance	◎
Ozone Resistance	◎
Gasoline / Gas Oil	○-◎
Benzene / Toluene	△-○
Alcohol	◎
Ether	×-△
Ketone (MEK)	×
Ethyl Acetate	×-△
Water	◎
Organic Acid	◎
High concentration inorganic acid	○
Low concentration inorganic acid	◎
Strong Alkali	◎
Weak Alkali	◎

◎: Very Good ○: Available
△: Fair pending on condition ×: Not available

● Slip Torque

Concerning the sizes shown in the table, please note that the shaft's slip torque is smaller than the rated torque of **XGT-C** **XGT-CS** **XGS-C** **XGS-CS** **XGL-C** .

Unit : N·m

Part Number	Bore diameter (mm)			
	3	5	10	12
XGT-15C, XGL-15C	1			
XGT-15CS	1			
XGT-27CS		3.8		
XGT-39CS			13.3	
XGT-44C				16.3

● These are test values based on the condition of shaft's dimensional allowance: h7, hardness: from 34 - 40 HRC, and screw tightening torque of the values described in **XGT-C** **XGT-CS** **XGS-C** **XGS-CS** **XGL-C** dimensional table.

XGL-C Flexible coupling - High - gain rubber type - Long type

XGL-C
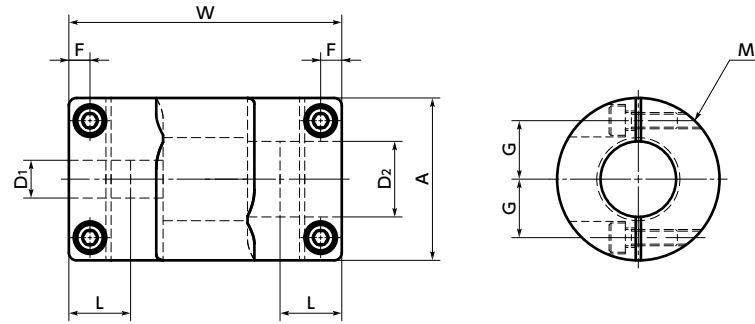
Dimensions

Unit : mm

Part Number [1]	A	L	W	F	G	M	Screw Tightening Torque (N·m)
XGL-15C	15	6.5	30	2.15	5	M1.6	0.25
XGL-19C	19	7.7	34	2.65	6.5	M2	0.5
XGL-25C	25	9.5	42	3.25	9	M2.5	1
XGL-30C	30	11	42	4	11	M3	1.5
XGL-34C	34	12	44	4	12.25	M3	1.5
XGL-39C	39	15.5	55	4.5	14.5	M4	2.5

Part Number	Standard Bore Diameter D1-D2 [2]							
XGL-15C	3 - 5	5 - 5	5 - 6					
XGL-19C	4 - 5 6.35 - 8	5 - 5 8 - 8	5 - 6	5 - 7	5 - 8	6 - 6	6 - 6.35	6 - 8
XGL-25C	5 - 8 10 - 10	6 - 8 10 - 12	6 - 10	6.35 - 8	8 - 8	8 - 10	8 - 11	8 - 12
XGL-30C	8 - 8 10 - 14	8 - 10 11 - 12	8 - 11 12 - 14	8 - 12	8 - 14	8 - 15	10 - 10	10 - 11
XGL-34C	8 - 8 14 - 15	8 - 10	8 - 12	8 - 14	10 - 11	10 - 14	11 - 12	12 - 14
XGL-39C	10 - 10	10 - 12	10 - 14	12 - 14	14 - 15	15 - 19		

● All products are provided with hex socket head cap screw.

● Recommended dimensional allowances of applicable shaft diameter are h6 and h7.

● In case of mounting on D-cut shaft, be careful about the position of the D-cut surface of the shaft. ➡ P.258

Performance

Part Number	Max. Bore Diameter (mm)	Rated[1] torque (N·m)	Max. Rotational Frequency (min⁻¹)	Moment[2] of Inertia (kg·m²)	Static Torsional Stiffness (N·m/rad)	Max. Lateral Misalignment (mm)	Max. Angular Misalignment (°)	Max. Axial Misalignment (mm)	Mass[2] (g)
XGL-15C	6	1.1	42000	3.3×10^{-7}	32	0.15	1.5	±0.2	11
XGL-19C	8	2.1	33000	9.7×10^{-7}	77	0.15	1.5	±0.2	19
XGL-25C	12	4	25000	3.5×10^{-6}	130	0.15	1.5	±0.2	38
XGL-30C	15	6.3	21000	7.3×10^{-6}	200	0.2	1.5	±0.3	53
XGL-34C	16	8	18000	1.3×10^{-5}	280	0.2	1.5	±0.3	73
XGL-39C	20	13.5	16000	2.8×10^{-5}	450	0.2	1.5	±0.3	117

＊1： Correction of rated torque due to load fluctuation is not required.However, if ambient temperature exceeds 30℃, be sure to correct the rated torque with temperature correction factor shown in the following table. The allowable operating temperature of XGL-C is −20℃ to 80℃.

＊2： These are values with max. bore diameter.

● Ambient Temperature / Temperature Correction Factor

Ambient temperature	Temperature correction factor
−20℃ to 30℃	1.00
30℃ to 40℃	0.80
40℃ to 60℃	0.70
60℃ to 80℃	0.55

● Part number specification

XGL-15C - 5-5
[1] [2]

Additional Keyway at Shaft Hole ➡ P.803	Cleanroom Wash & Packaging ➡ P.807	SUS Change to Stainless Steel Screw ➡ P.805
Available / Add'l charge	Available / Add'l charge	Available / Add'l charge