

UCM/UCS/UCD COUPLING



- Couplings for UTMIII/UTM II /UTMV
- Connecting to external shafts accurately.
- Preventing rotational resonance, and improving accuracy of torque measurement. (Rubber type)

Structure of product code

UCM15-3*5 G

- Material type (G: Rubber, M: Metal)
- D1+D2
- Diameter ϕA ($\phi 15, \phi 19, \phi 25, \dots$)
- Length type (M: Middle, S: Short, D: Double)

Specifications

Model	Max. diameter (mm)	Rated torque (N m)	Max. rotation speed (rpm)	Inertia moment (kg m ²)	Torsional rigidity (N m/rad)	Allowable eccentricity (mm)	Allowable deflection angle (°)	Allowable endplay (mm)	Weight (g)
UCM15	6	1.1	42000	2.7×10 ⁻⁷	43	0.15	1.5	± 0.2	8
UCS15		0.5		2.0×10 ⁻⁷	25				
UCM19	8	2.1	33000	8.4×10 ⁻⁷	88	0.15	1.5	± 0.2	14
UCS19		0.8		6.2×10 ⁻⁷	63				
UCM25	12	4	25000	3.0×10 ⁻⁶	170	0.15	1.5	± 0.2	28
UCS25		2.3		2.3×10 ⁻⁶	125				
UCM30	15	6.3	21000	6.9×10 ⁻⁶	220	0.20	1.5	± 0.3	45
UCS30		3.3		5.5×10 ⁻⁶	160				
UCM34	16	8	18000	1.3×10 ⁻⁵	390	0.20	1.5	± 0.3	65
UCS34		5.5		1.0×10 ⁻⁵	350				
UCM39	20	13.5	16000	2.7×10 ⁻⁵	520	0.20	1.5	± 0.3	98
UCS39		7		2.1×10 ⁻⁵	440				
UCM44	22	18	14000	4.2×10 ⁻⁵	640	0.20	1.5	± 0.3	136
UCM56	28	35	11000	1.4×10 ⁻⁴	1500	0.20	1.5	± 0.3	276

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UCM65B	I	35	80	10000	2.44×10 ⁻⁴	6.50×10 ⁴	0.02	1.0	± 0.46	0.53
	II				4.01×10 ⁻⁴	8.70×10 ⁴				0.68
UCM80B	I	45	140	10000	7.25×10 ⁻⁴	1.26×10 ⁵	0.02	1.0	± 0.58	0.98
	II				1.15×10 ⁻³	1.57×10 ⁵				1.25
UCM90B	I	50	250	10000	1.43×10 ⁻³	2.17×10 ⁵	0.02	1.0	± 0.64	1.57
	II				2.19×10 ⁻³	2.70×10 ⁵				1.91
UCM125B	I	65	613	10000	0.76×10 ⁻²	0.67×10 ⁶	0.02	1.0	± 0.9	4.64
	II				1.26×10 ⁻²	0.94×10 ⁶				5.91
UCM155B	I	80	1197	8000	2.20×10 ⁻²	1.52×10 ⁶	0.02	1.0	± 1.1	8.4
	II				3.59×10 ⁻²	2.05×10 ⁶				10.8
UCM200B	I	90	3200	8000	7.10×10 ⁻²	3.13×10 ⁶	0.02	1.0	± 1.47	15.1

Model	Max. diameter (mm)	Rated torque (N m)	Max. rotation speed (rpm)	Inertia moment (kg m ²)	Torsional rigidity (N m/rad)	Axial spring constant (N/mm)	Allowable deflection angle (°)	Allowable endplay (mm)	Weight (kg)
UCM260	90	6880	3400	2.49×10 ⁻¹	1.078×10 ⁷	612	1	± 0.7	35.3

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UCD15	6	0.6	42000	3.0×10 ⁻⁷	100	0.10	1.4	± 0.2	9.4
UCD19	8	1.5	33000	8.8×10 ⁻⁷	300	0.12	2.0	± 0.2	17
UCD25	12	3	25000	3.4×10 ⁻⁶	1000	0.15	2.0	± 0.3	35
UCD27	14	3.3	23000	4.4×10 ⁻⁶	1400	0.15	2.0	± 0.4	39
UCD34	16	6.3	18000	1.3×10 ⁻⁵	2500	0.20	2.0	± 0.5	75
UCD39	20	12	16000	2.9×10 ⁻⁵	4700	0.25	2.0	± 0.5	123
UCD44	22	15	14000	4.7×10 ⁻⁵	6400	0.25	2.0	± 0.6	156
UCD56	28	37.5	11000	1.7×10 ⁻⁴	12000	0.30	2.0	± 0.7	340

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UCD65B	I	35	80	10000	3.60×10 ⁻⁴	4.20×10 ⁴	0.2	1.0	± 0.92	0.7
	II				5.17×10 ⁻⁴	5.10×10 ⁴				0.85
UCD80B	I	45	140	10000	1.04×10 ⁻³	7.50×10 ⁴	0.23	1.0	± 1.15	1.28
	II				1.47×10 ⁻³	8.60×10 ⁴				1.55
UCD90B	I	50	250	10000	2.11×10 ⁻³	1.56×10 ⁵	0.3	1.0	± 1.27	2.09
	II				2.86×10 ⁻³	1.89×10 ⁵				2.42
UCD125B	I	65	613	10000	1.25×10 ⁻²	0.55×10 ⁶	0.59	1.0	± 1.8	6.8
	II				1.75×10 ⁻²	0.72×10 ⁶				7.89

About selection

Please select the coupling combination according to the purpose of use as shown in the table below.

	Rubber	Single *1	Double *2	Rigid	Oldham
Rubber	◎	○	×	×	×
Single *1	○	○*3	×	×	×
Double *2	×	×	△*4	○	△*4 *5
Rigid	×	×	○	×	×
Oldham	×	×	△*4 *5	×	△*4 *5

*1 Single flexible coupling

*2 Double flexible coupling

*3 If the main unit vibrates, use rubber couplings or double couplings at both ends.

*4 Please use this combination only when the main unit is fixed.

Do not use this combination if the unit is not fixed.

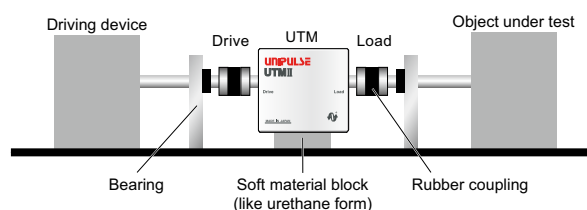
*5 Friction of the Oldham coupling slider due to eccentricity may affect measurement accuracy.

How to use couplings

<Recommended way to install the coupling (UCM/UCS)>

Both ends of UTMⅢ/UTMⅡ are fixed to the DRIVE side and LOAD side shafts with rubber type couplings. In the figure, both sides of the coupling are supported by bearings, but if bearings are built into the driving device or the object to be measured, the bearings in the figure are unnecessary. Fix the main unit of UTMⅢ/UTMⅡ loosely with hard urethane to prevent rotation.

Before actual operation, fix the UTMⅢ/UTMⅡ enclosure with a coupling, rotate it at a low speed with no load, and adjust the alignment so that the torque output fluctuation of the UTMⅢ/UTMⅡ is minimized.

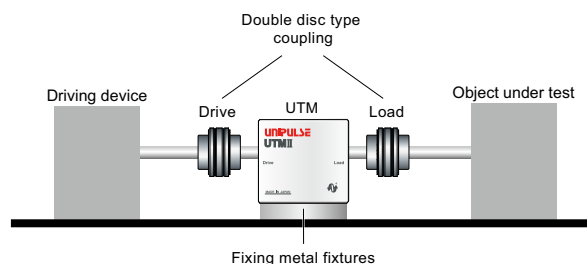


<How to install the coupling when fixing the enclosure (UCD)>

When using UTMⅢ/UTMⅡ with its enclosure fixed, such as when using an encoder option, please connect the torque meter with a coupling that allows both eccentricity and angular deviation such as double disc type.

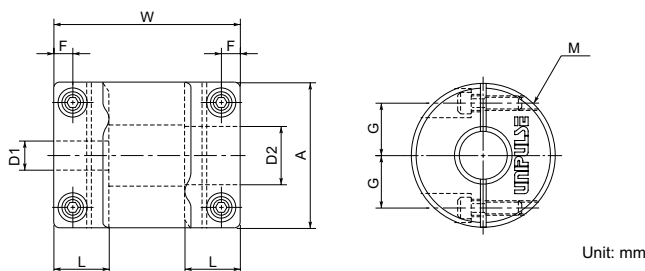
Do not use a single disc type coupling when the enclosure is fixed.

A large eccentric reaction force is transmitted to the shaft, which not only causes measurement errors, but also shortens the life and causes damage of the UTMⅢ/UTMⅡ.



External dimension

■ UCM15 to 56 ■ UCS15 to 39



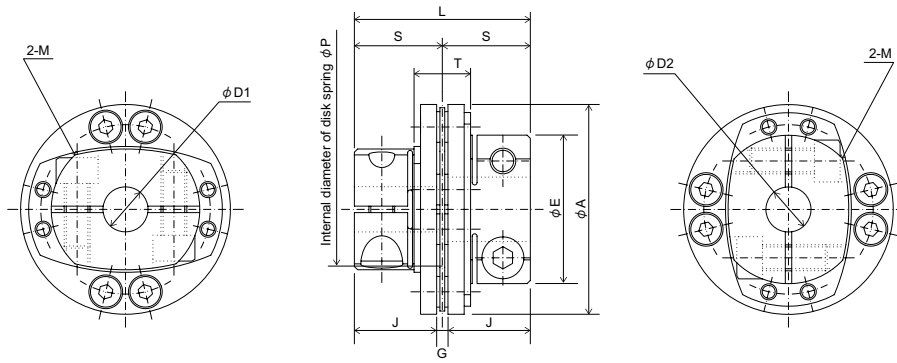
Unit: mm

Supported UTMⅢ/UTMⅡ /UTMV measurement range (N m)	Model	A	L	W	F	G	M	D1*D2	Screw tightening torque (N m)
0.05, 0.1, 0.2	UCM15	15	6.5	23	2.15	5	M1.6	3*5, 4*5, 5*5, 5*6	0.25
	UCS15			18					
0.05, 0.1, 0.2, 0.5, 1, 2	UCM19	19	7.7	26	2.65	6.5	M2	4*5, 4*8, 5*5, 5*6, 5*8, 6*8, 8*8 4*5, 5*5, 5*6, 5*8	0.5
0.05, 0.1, 0.2	UCS19			20					
0.05, 0.1, 0.2, 0.5, 1, 2	UCM25	25	9.5	32	3.25	9	M2.5	5*8, 5*10, 5*11, 5*12, 6*8, 8*8, 8*10, 8*11, 8*12	1
	UCS25			27					
0.5, 1, 2	UCM30	30	11	36	4	11	M3	8*8, 8*10, 8*11, 8*12, 8*14, 8*15	1.5
	UCS30			30					
0.5, 1, 2	UCM34	34	12	38	4	12.25	M3	8*8, 8*10, 8*11, 8*12, 8*14, 8*15, 8*16	1.5
	UCS34			35					
0.5, 1, 2, 5, 10	UCM39	39	15.5	48	4.5	14.5	M4	8*16, 8*18, 8*19, 8*20, 10*12, 12*12, 12*14, 12*15 12*16, 12*19, 12*20	2.5
	UCS39			40					
0.5, 1, 2, 5, 10	UCM44	44	15	48	4.75	16	M4	8*16, 8*18, 8*19, 8*20, 8*22, 12*12, 12*14, 12*16, 12*19 12*12, 12*14, 12*15, 12*16, 12*18, 12*19, 12*20, 19*20	2.5
5, 10, 20	UCM56	56	19.5	60	5.5	20	M5	20*20, 20*22, 20*24, 20*25, 20*28	7

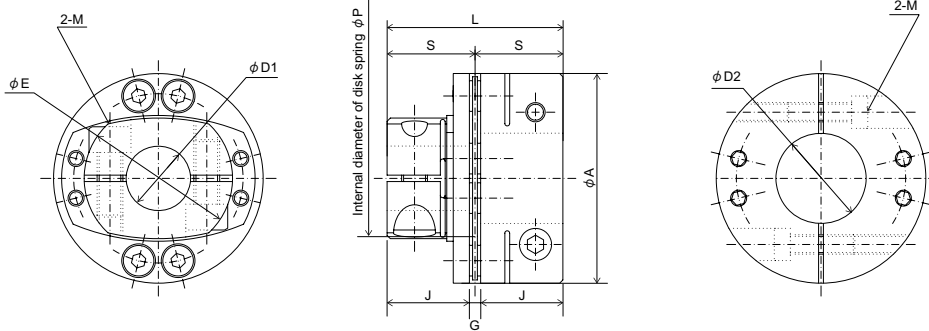
Shaft tolerance should be h6 or h7.

■ UCM65B, 80B, 90B

■ TYPE I



■ TYPE II



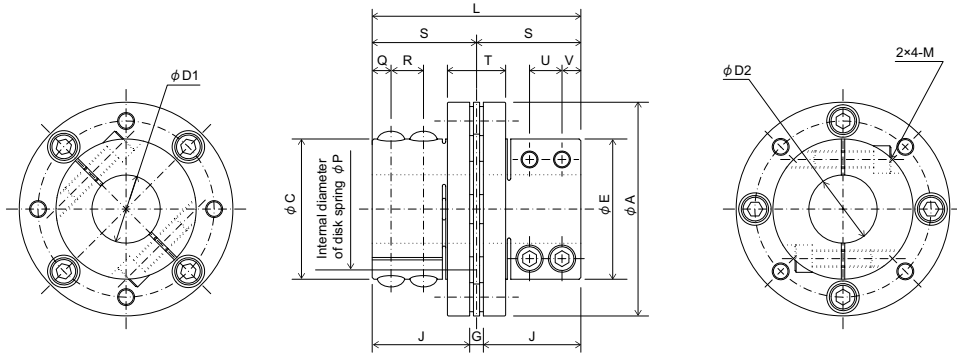
Unit: mm

Supported UTM III/UTM II/UTMV measurement range (N·m)	Model	TYPE	A	E	P	L	S	T	J	G	M	D1*D2	Screw tightening torque (N·m)
20, 50	UCM65B	I	65	46	36	54.5	27.25	17.5	25.5	3.5	φ 20 or less: M8 φ 22 or more: M6	14*20 15*20 16*20 18*20 19*20 20*20 20*22 20*24 20*25	M8: 34.3 M6: 13.7
		II						—				20*28 20*30 20*32 20*35	
100	UCM80B	I	80	59	46	67.5	33.75	20.5	32	3.5	φ 28 or less: M10 φ 30 or more: M8	15*25 16*25 18*25 19*25 20*25 22*25 24*25 25*25 25*28 25*30 25*32 25*35	M10: 67.6 M8: 34.3
		II						—				25*38 25*40 25*42 25*45	
200	UCM90B	I	90	64	51	77	38.5	28	36.5	4	φ 35 or less: M10 φ 38 or more: M8	19*30 20*30 22*30 24*30 25*30 28*30 30*30 30*32 30*35	M10: 67.6 M8: 34.3
		II						—				30*38 30*40 30*42 30*45 30*48 30*50	

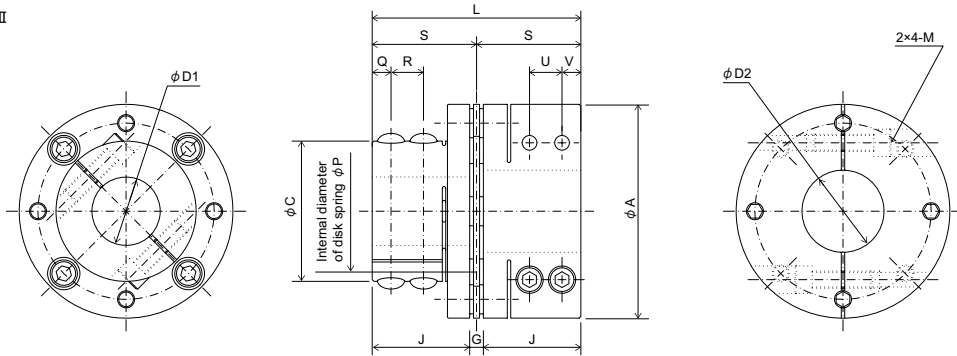
Shaft tolerance should be h6 or h7.

■ UCM125B, 155B, 200B

■ TYPE I



■ TYPE II

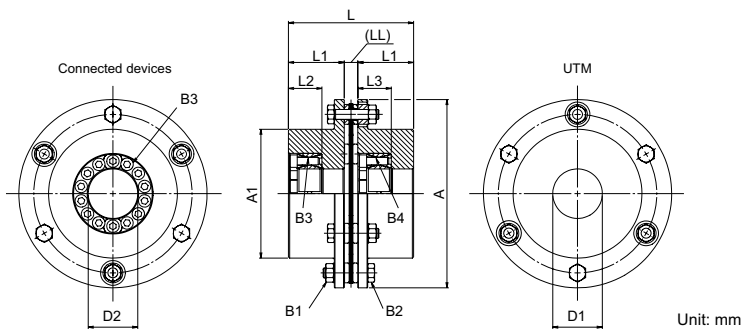


Unit: mm

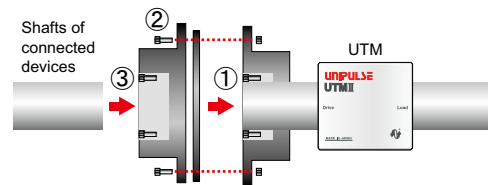
Supported UTM III/UTM II/UTMV measurement range (N m)	Model	TYPE	A	E	C	P	L	S	T	Q	R	U	V	J	G	M	D1*D2	Screw tightening torque (N m)
500	UCM125B	I	125	82	82	66	122	61	34	11	19	19	11	57	8	M10	30*40, 32*40, 35*40, 38*40 40*40, 40*42, 40*45	67.6
		II		-					-								40*48, 40*50, 40*55, 40*60 40*65	
1000	UCM155B	I	155	104	104	86	141	70.5	41	12.5	22	22	12.5	66	9	M12	40*60, 42*60, 45*60, 48*60 50*60, 55*60, 60*60	118
		II		-					-								60*65, 60*70, 60*75, 60*80	
1000, 2000	UCM200B	I	200	138	138	125	168	84	48	15	26	26	15	78	12	M14	60*60, 60*65, 60*70, 60*75 60*80, 60*85, 60*90, 65*70 70*70, 70*75, 70*80, 70*85 70*90	186

Shaft tolerance should be h6 or h7.

■ UCM260



■ Means of attachment

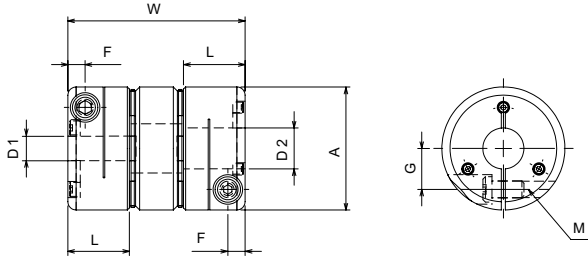


Numbers on figure show the order of fastening bolts of couplings.

Supported UTM III/UTM II/UTMV measurement range (N m)	Model	A	A1	L	L1	L2	L3	LL	Hexagon nuts B1	Reamer bolt B2	Clamping bolt		D1*D2
											B3	B4	
5000	UCM260	262	166	223	100	39	39	23	M20	M20	M10	M10	90*80, 90*85, 90*90

Recommended size tolerance of shaft diameter is h9.

■ UCD15 to 56

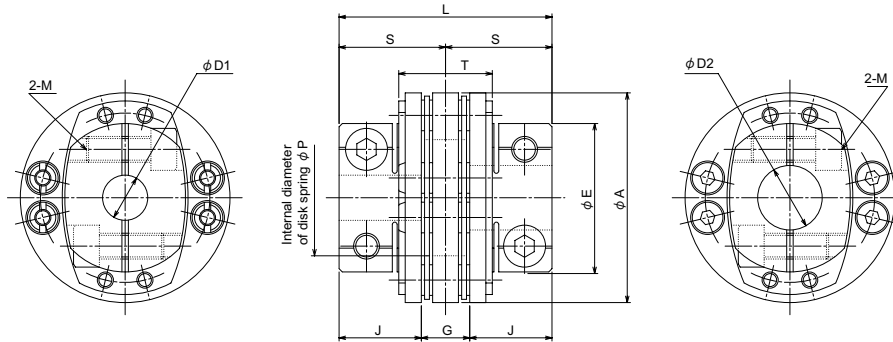


Supported UTMIII/UTMII/UTMV measurement range (N m)	Model	A	L	W	F	G	M	D1*D2	Screw tightening torque (N m)
0.05, 0.1, 0.2	UCD15	15	7.5	21.8	2.1	5	M2	3*5, 4*5, 5*5, 5*6	0.45
0.05, 0.1, 0.2	UCD19	19	9.2	25.7	2.6	7	M2	5*8	0.5
0.05, 0.1, 0.2, 0.5, 1, 2	UCD25	25	11	32.2	3.3	9.25	M2.5	5*8, 6*8, 8*8, 8*10, 8*11, 8*12	1
0.05, 0.1, 0.2, 0.5, 1, 2	UCD27	27	11	32.2	3.3	10.25	M2.5	8*14	1
0.05, 0.1, 0.2, 0.5, 1, 2	UCD34	34	12.5	36.8	3.75	13	M3	8*15, 8*16	1.5
0.5, 1, 2, 5, 10	UCD39	39	15.5	46.6	4.5	14.5	M4	8*18, 8*19, 8*20, 10*12, 11*12, 12*12, 12*14, 12*15, 12*16, 12*18, 12*19, 12*20	3.5
0.5, 1, 2, 5, 10	UCD44	44	15.5	46.6	4.5	17	M4	8*22, 12*22	3.5
0.5, 1, 2, 5, 10, 20	UCD56	56	20.5	61.2	6	21	M5	12*20, 12*24, 12*25, 12*28, 14*20, 15*20, 16*20, 18*20, 19*20, 20*20, 20*22, 20*24, 20*25, 20*28	8

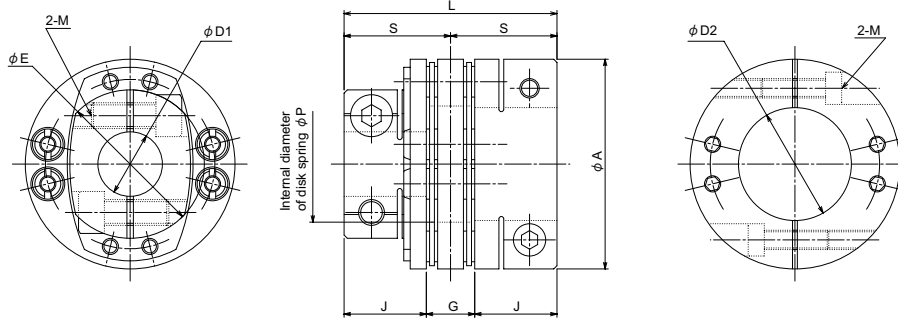
Shaft tolerance should be h6 or h7.

■ UCD65B, 80B, 90B

■ TYPE I



■ TYPE II



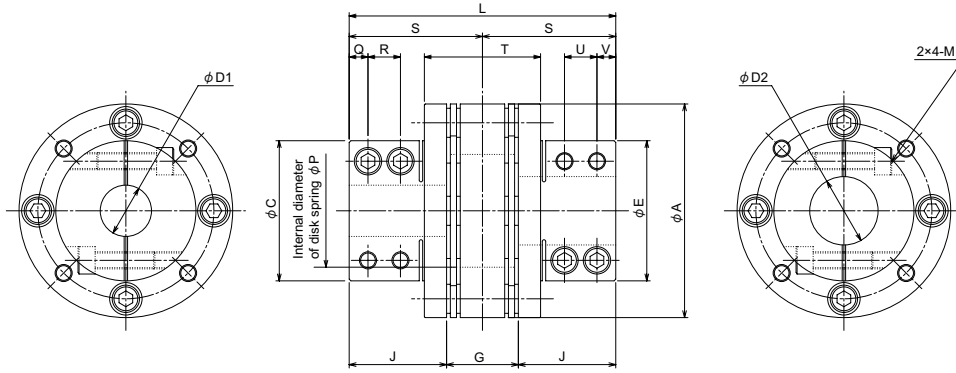
Unit: mm

Supported UTMIII/UTMII/UTMV measurement range (N m)	Model	TYPE	A	E	P	L	S	T	J	G	M	D1*D2	Screw tightening torque (N m)
20, 50	UCD65B	I	65	46	36	66	33	29	25.5	15	φ20 or less: M8 φ22 or more: M6	14*20, 15*20, 16*20, 18*20, 19*20, 20*20, 20*22, 20*24, 20*25	M8: 34.3 M6: 13.7
		—						20*28, 20*30, 20*32, 20*35					
100	UCD80B	I	80	59	46	81	40.5	34	32	17	φ28 or less: M10 φ30 or more: M8	15*25, 16*25, 18*25, 19*25, 20*25, 22*25, 24*25, 25*25, 25*28, 25*30, 25*32, 25*35	M10: 67.6 M8: 34.3
		—						25*38, 25*40, 25*42, 25*45					
200	UCD90B	I	90	64	51	94	47	45	36.5	21	φ35 or less: M10 φ38 or more: M8	19*30, 20*30, 22*30, 24*30, 25*30, 28*30, 30*30, 30*32, 30*35	M10: 67.6 M8: 34.3
		—						30*38, 30*40, 30*42, 30*45, 30*48, 30*50					

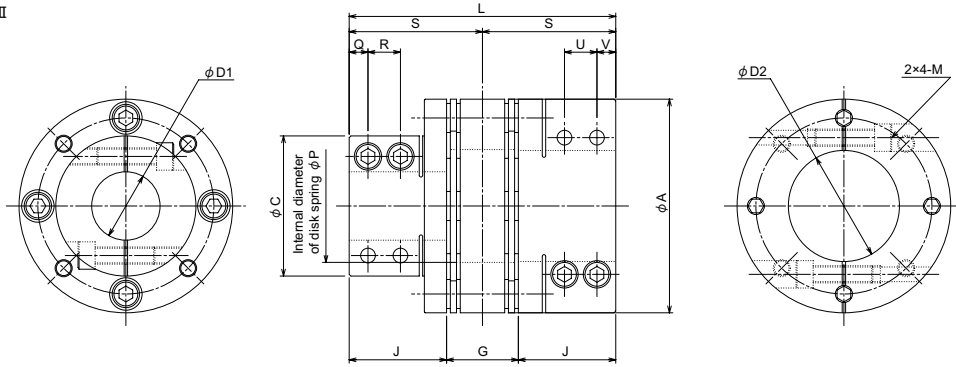
Shaft tolerance should be h6 or h7.

■ UCD125B

■ TYPE I



■ TYPE II



Unit: mm

Supported UTMIII/UTMII/UTMV measurement range (N m)	Model	TYPE	A	E	C	P	L	S	T	Q	R	U	V	J	G	M	D1*D2	Screw tightening torque (N m)
500	UCD125B	I	125	82	82	66	156	78	68	11	19	19	11	57	42	M10	30*40, 32*40, 35*40, 38*40, 40*40, 40*42, 40*45	67.6
		II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40*48, 40*50, 40*55, 40*60, 40*65	

Shaft tolerance should be h6 or h7.