

FJ Series Selection table

Item Name	Allowable rotating speed (min ⁻¹)	Allowable operating angle(°)	Allowable torque(N.m)	Static breaking torque(N.m)	GD ² (kg.cm ²)	Weight (g)
FJ-32	5000	25	29	110	1.5	250
FJ-42	5000	25	78	310	5.2	600
FJ-52	5000	25	140	580	18	1100
FJ-59	5000	25	240	960	40	1500
FJ-70	3500	25	340	1300	77	2700

Relation between rotating speed and angle

$$\text{Rotating speed}(\text{min}^{-1}) \times \text{Angle}(\text{°}) < 18000$$

Calculation formula of life expectancy

$$LH = \frac{1.5 \times 10^6}{N \times \alpha} \times \left(\frac{C}{P}\right)^3$$

$$P = \frac{T \times 10^3}{\cos \alpha \times \ell}$$

LH = Life expectancy (H)

N = Rotating speed (min⁻¹)

α = Angle (°)

C = Load rating of needle bearing (N)

P = Load imposed on needle bearing (N)

T = Shaft torque (N.m)

ℓ = Distance between points of torque application of cross kit (mm)

Calculation example

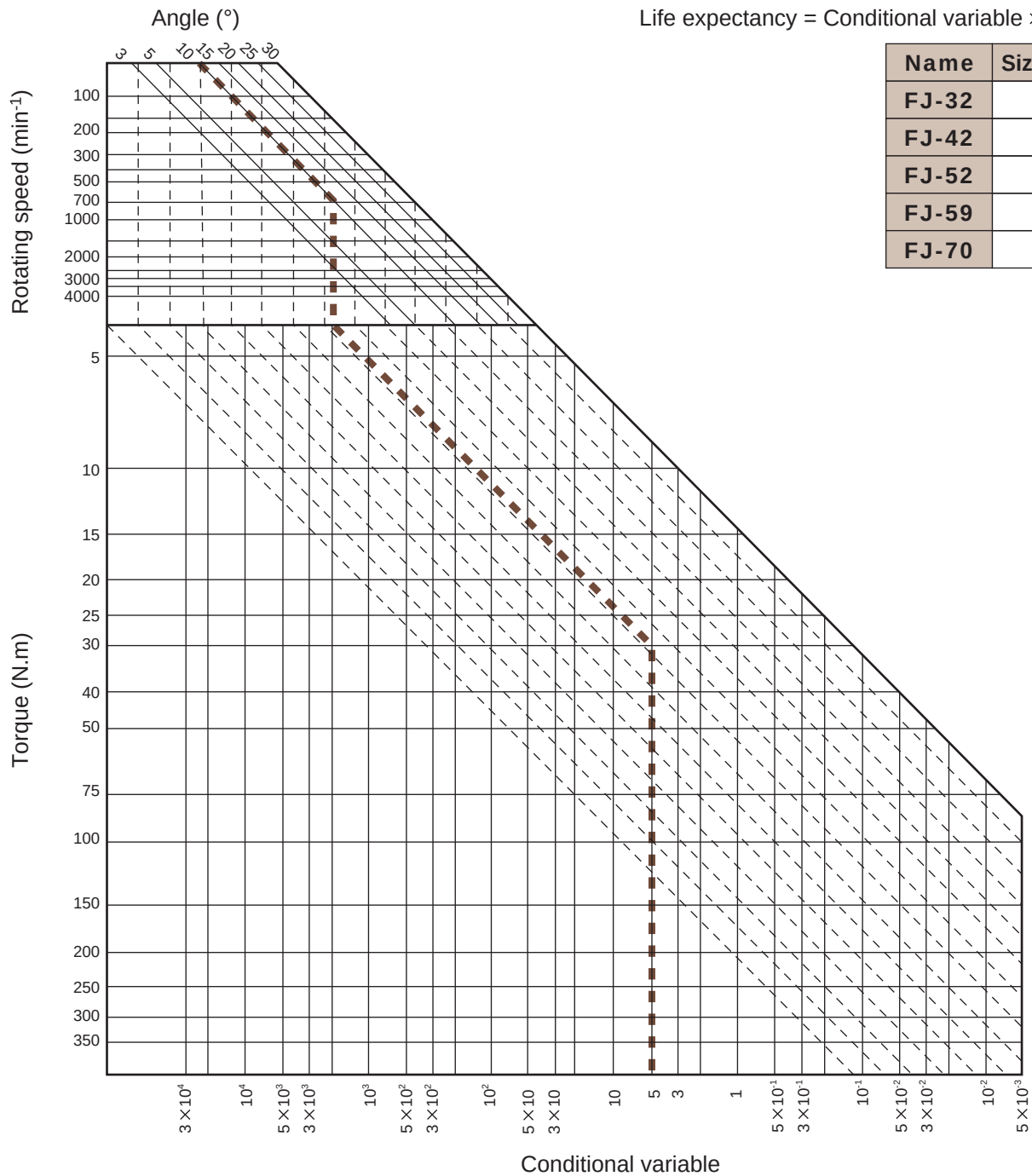
Life of the FJ-42 type under the following conditions, rotating speed 700 min⁻¹, angle 10°, and torque 30 N.m, is calculated below.

$$P = \frac{30 \times 10^3}{\cos 10^\circ \times 29.3} \approx 1040 \text{ N}$$

$$LH = \frac{1.5 \times 10^6}{700 \times 10} \times \left(\frac{3200}{1040}\right)^3 \approx 6200 \text{ h}$$

Name	C(N)	ℓ (mm)
FJ-32	2700	22.15
FJ-42	3200	29.3
FJ-52	5600	35.3
FJ-59	6400	41.4
FJ-70	7000	47.5

Note : NBR (butadiene acrylonitrile rubber) is used for oil seal. Consider secular deterioration which occurs irrespective of calculated life expectancy.



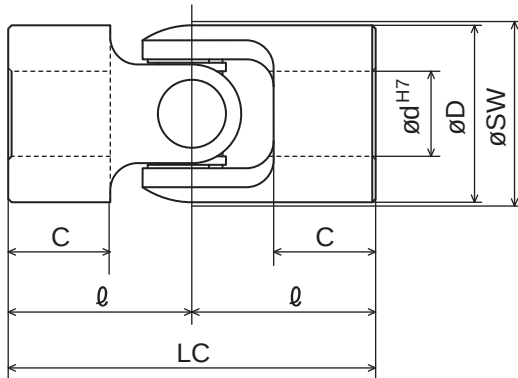
Example

The life expectancy of type FJ-42 under the following condition, refraction angle 10° , rotating speed 700 min^{-1} , torque 30 N.m is obtained as follows.

Descend along the slanting line of 10° to the point where it intersects with the cross line of 700 min^{-1} . From the intersection, vertically descend to the basic heavy line. From the rating line, descend along a 45° slanting line to the point where it intersects the cross line of 30 N.m . Then vertically descend from the intersection to the conditional variable line to get approx. 5. Multiplying size factor 1236 will result in a 6180 hours life expectancy.

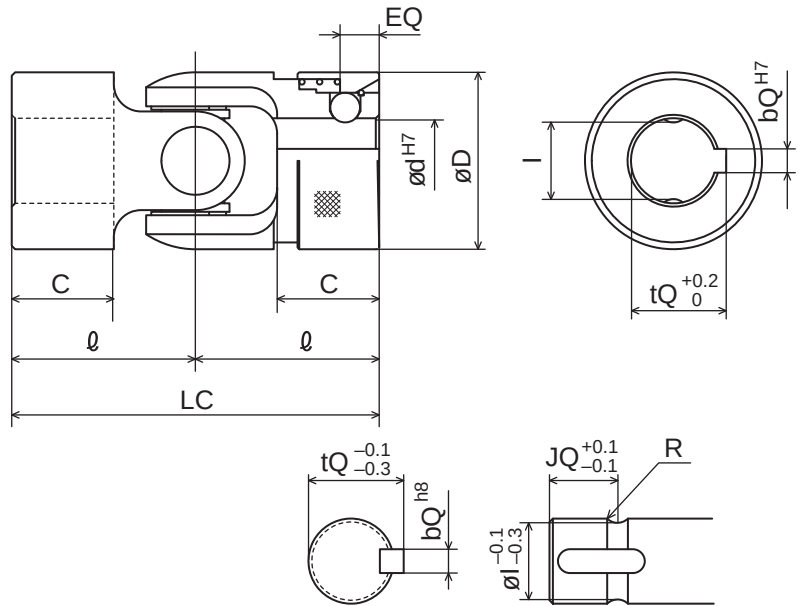
FJ General purpose small cross type

FJ-**-00A



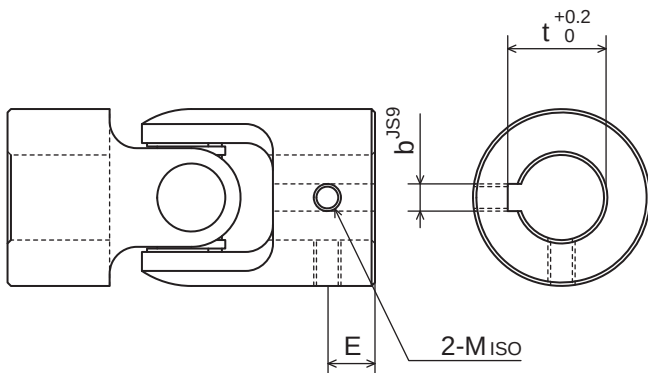
FJ-**-09A

(Quick change type)

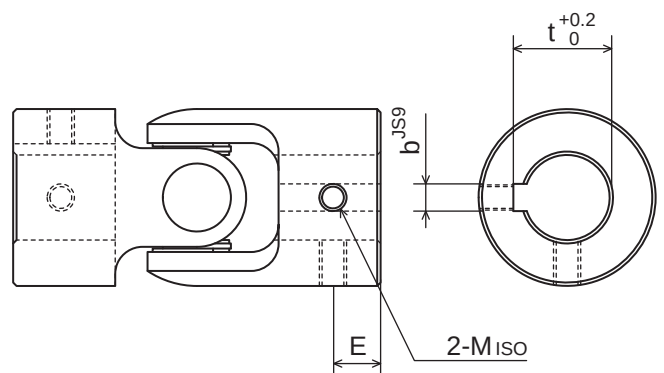


Refer to opposite shaft.

FJ-**-03A (New JIS key)



FJ-**-33A (New JIS key)

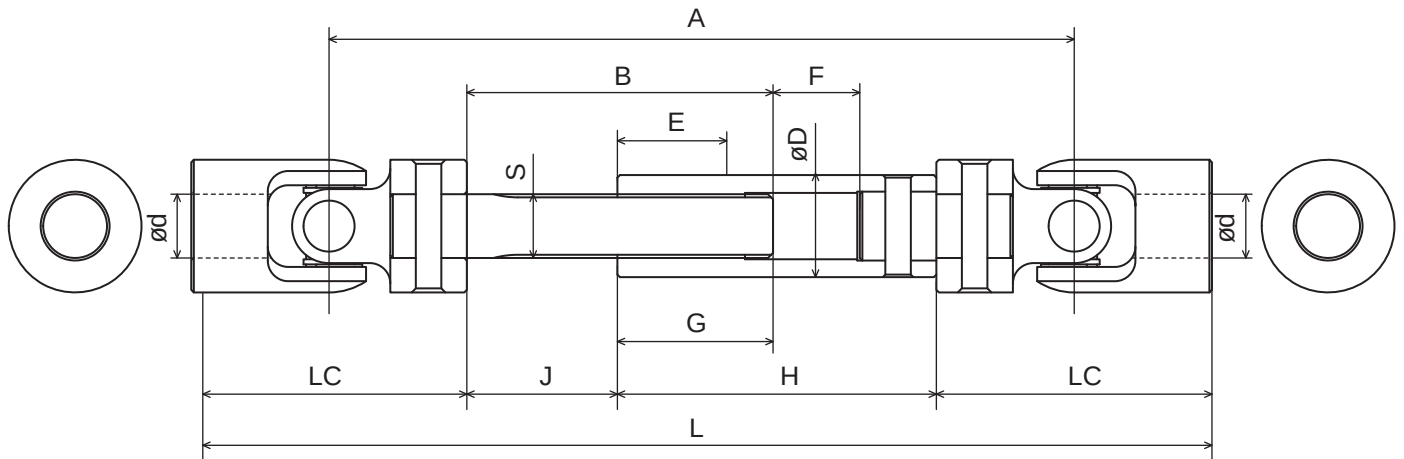


Dimension Name	d	D	LC	l	C	E	b	t	M	EQ	l	R	JQ	bQ	tQ	Rotational diameter SW
FJ-32-**-A	16	32	65	32.5	18	9	5	18.3	6	8	13.3	3.2	10	5	18	33
FJ-42-**-A	20	42	86	43	23	11	6	22.8	8	8	18.3	3.2	15	5	23.1	43
FJ-52-**-A	25	52	108	54	30	14	8	28.3	8	10	22.53	4.4	20	7	28	53
FJ-59-**-A	30	59	140	70	40	20	8	33.3	8	11	26.95	4.8	29	7	33	61
FJ-70-**-A	40	70	160	80	45	22	12	43.3	12	12	37.36	5.2	33	10	43.4	70

Non-hardening of drive yoke body allows additional processing.

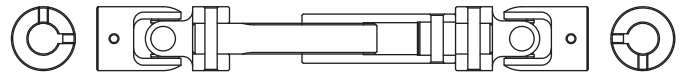
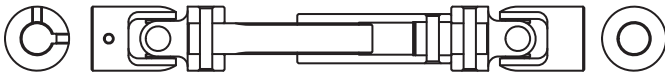
FP TYPE With intermediate spline

FP-**-00A



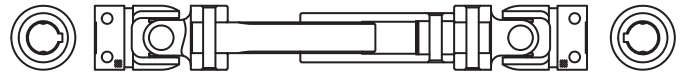
FP-**-03A (New JIS key)

FP-**-33A (New JIS key)



FP-**-39A

FP-**-99A



AS per out of standard items, inquire us with detailed specification or show us a schematic drawing.

Dimension Name	d	L	Telescopic section	A	B	Involute spline item S	E	LC	D	F	G	H	J
FP-32-**-A	16	290	+37 -21	225	117	INVOLUTE Diameter=17 m=1.0 z=15	30	65	26	21	67	110	50
FP-42-**-A	20	340	+34 -26	254	117	INVOLUTE Diameter=20 m=1.0 z=18	40	86	30	26	74	125	43
FP-52-**-A	25	400	+16 -34	292	120	INVOLUTE Diameter=25 m=1.25 z=18	50	108	40	34	61	125	59
FP-59-**-A	30	495	+20 -45	355	135	INVOLUTE Diameter=30 m=1.667 z=16	50	140	44	45	70	150	65
FP-70-**-A	40	570	+20 -50	410	155	INVOLUTE Diameter=40 m=1.667 z=22	60	160	60	50	80	175	75