

Precision Right Angle Planetary Gearbox

FBR



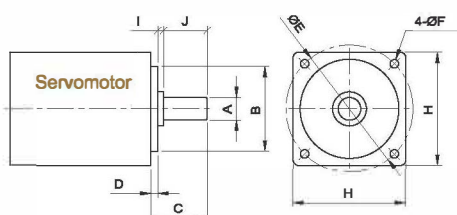
- 1. Space-saving
The straight cross reducer uses spiral bevel gear. The installation of the motor can achieve 90 degree bending and save the installation space.
- 2.High rigidity & torque
The use of integral ball bearings greatly improves the rigidity and torque.
- 3. Connector and shaft sleeve mode
It can be installed on any motor in the world.
- 4. No grease leakage
The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.
- 5.Convenient maintenance
No need to replace the grease in the product life period , and the installation is more convenient.

Model Selection of Speed Reducers

FBR Type

FBR090	10	S1	P1	Motor
Reducer Model FBR040, FBR060, FBR090 FBR120, FBR160		Output Shaft Keyway S1: Solid Output Shaft No Keyway S2: Standard (Keyway) S3: Output for holes		Motor Model Motor Manufacturer & Model
Ratio 1-stage: 3,4,5,6,7,8,9,10 2-stage: 12,15,16,20,25,28,30,35,40,50,70,80,100 3-stage: 60,64,72,80,90,100,120,144,150,160,180,200 240,258,288,320,384,512,600,800,1000			Backlash Grade P0: High precision backlash P1: Precision backlash P2: Standard backlash	

The gearbox matching motor needs to be confirmed with following dimensions :



A	B	C	D	E	F	H	I	J

Naming Scheme:

Type	Model	Ratio	Output Shaft Keyway	Backlash Class	MOTOR NO.

FBR Reducer Specifications

Specs	Unit	Stage	Ratio	FBR040	FBR060	FBR090	FBR120	FBR160
Rated Output Torque / T2N	Nm	1	3	16	45	125	245	615
			4	17	50	135	298	650
			5	18	55	150	300	688
			7	15	50	145	245	645
			10	13	45	135	205	498
		2	15	16	45	120	198	615
			20	16	50	135	245	650
			25	18	55	150	300	688
			30	14	45	125	245	615
			35	18	55	150	300	688
			40	13	50	135	298	650
			50	17	55	140	265	688
			70	14	45	130	256	645
			100	13	40	115	205	498
Max.Output Torque / T2N0T1	Nm	1,2	3~100	3Times of Nominal Output Torque				
Rated Input Speed / n1N	rpm	1,2	3~100	3000	3000	3000	3000	2500
Max.Input Speed / n1s	rpm	1,2	3~100	5000	5000	5000	5000	3600
Precision Backlash P1	arcmin	1	3~10	≦8	≦8	≦8	≦8	≦8
Standard Backlash P2	arcmin	2	12~100	≦10	≦10	≦10	≦10	≦10
		1	3~10	≦11	≦11	≦11	≦11	≦11
Torsional Rigidity	Nm/arcmin	2	12~100	≦13	≦13	≦13	≦13	≦13
		1	3~10	3	6	12	22	50
Max.Radial Force / F2R2	N	1,2	3~100	320	460	1300	3200	6520
Max.Axial Force / F2s1s2	N	1,2	3~100	160	230	660	1600	3260
Service Life	hr	1,2	3~100	20000 h				
Efficiency / η	%	1	3~10	≥97%				
		2	15~100	≥94%				
Weight	kg	1	3~10	0.73	0.99	2.1	4.98	18.2
		2	15~100	1.05	1.46	3.2	6.92	24.9
Operating Temperature	℃	1,2	3~100	-25℃~+90℃				
Lubrication		1,2	3~100	Synthetic Grease				
Protection Class		1,2	3~100	IP65				
Mounting Position		1,2	3~100	Any Direction				
Noise Level (n1=3000rpm , No load)	dB(A)	1,2	3~100	≦62	≦63	≦65	≦67	≦68

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	FBR040	FBR060	FBR090	FBR120	FBR160
Moment of Inertia	kg.cm ²	1	3	0.03	0.16	0.61	3.25	9.21
			4	0.03	0.14	0.48	2.74	7.54
			5	0.03	0.13	0.47	2.71	7.42
			7	0.03	0.13	0.45	2.65	7.25
			10	0.03	0.13	0.45	2.62	7.14
		2	12~40	0.03	0.13	0.44	2.58	7.07
			50~100	0.03	0.13	0.44	2.57	7.04

1. The Max. acceleration torque T2B=60% 2.When output speed is 100rpm, acting on the output shaft center position
3. 3-stage big ratios are not in the above table. There is shaft lengthening and enlarging design. Please tell sales person if you need it.

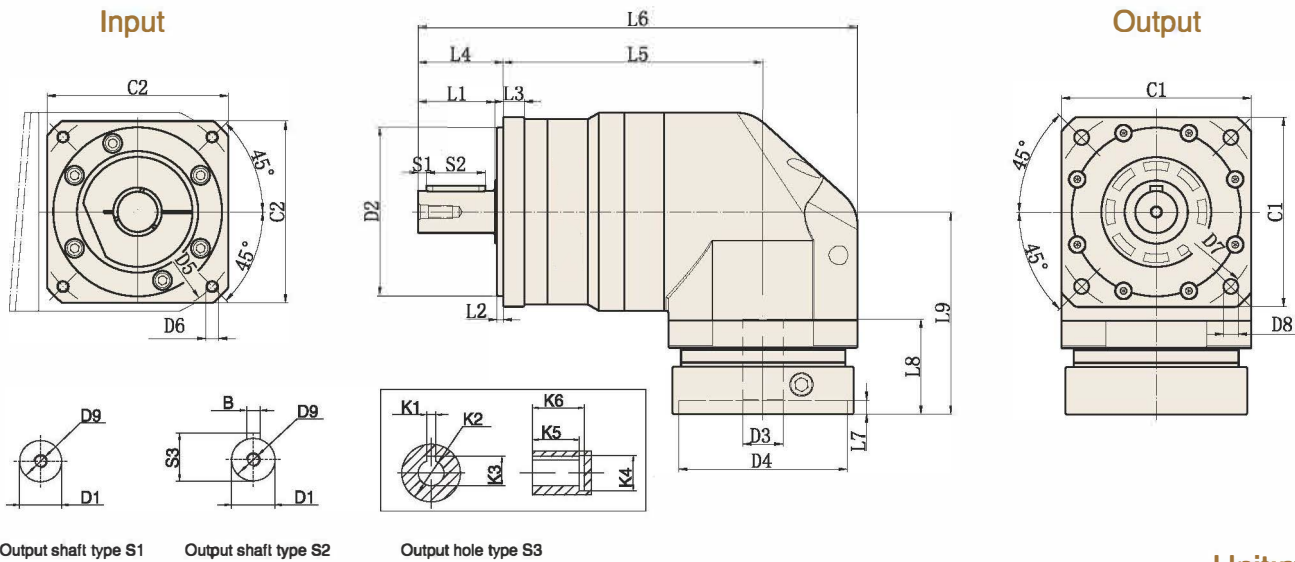
MODEL: FBR

1-Stage

Ratio: 3, 4 , 5, 6, 7, 8, 9, 10



Dimensions:



Unit:mm

Size	FBR060-L1	FBR090-L1	FBR120-L1	FBR160-L1
D1	φ 14	φ 20 (22)	φ 25	φ 40
D2	φ 50	φ 80	φ 110	φ 130
D3	φ 14(6.35-19)	φ 19 (φ 11-24)	φ 22(16-24)	φ 35 (φ 22-38)
D4	φ 50 (50-70)	φ 80 (50-110)	φ 80 (50-110)	φ 114.3 (φ 110-114.3)
D5	φ 70 (70-130)	φ 100 (70-145)	φ 145 (90-155)	φ 200 (φ 145-200)
D6	(4-M4*10L)	(4-M6*14L)	(4-M8*20L)	4-M12 (M8-M12)
D7	φ 70	φ 100	φ 130	φ 185
D8	4- φ 5.5	4- φ 7	4- φ 9	4- φ 11
D9	M5*0.8P*15L	M6*1.0P*16.5L	M10*1.5P*23L	M16X2P
L1	28.5	36.5	50	87
L2	3	3	4	78
L3	8	10	15	5
L4	33	40.5	55	20
L5	90	123.5	146.5	111
L6	153	209	259	295
L7	(5)	(6.5)	(10)	5 (5-7)
L8	(33)	(45)	(64)	86 (62-86)
L9	(77.5)	(96)	(135.5)	165.5 (165.5-189.5)
C1	□62	□90	□120	□160
C2	(□60)	(□86)	(□130)	□175 (142)
S1	3	4	5	5
S2	22	28	40	70
S3	16	22.5	28	43
B	5	6	8	12
K1	3	6	8	10
K2	φ 8	φ 18	φ 28	φ 38
K3	9.2	21	31.3	41.3
K4	φ 11	φ 24	φ 38	φ 48
K5	20	30	27	35
K6	24	35	32	40

MODEL: FBR

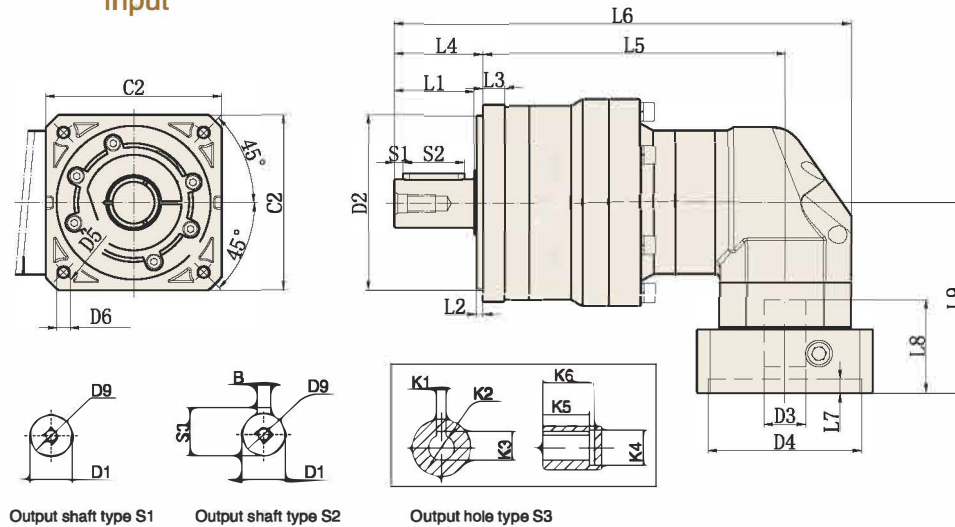
2-Stage

Ratio: 12, 15, 16, 20, 25, 28, 30, 35, 40, 50
70, 80, 100

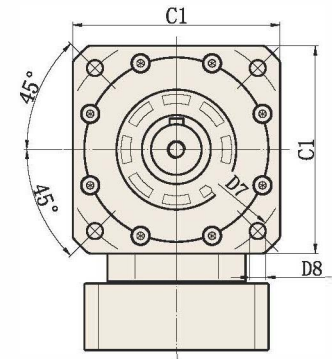


Dimensions:

Input



Output



Unit:mm

Size	FBR060-L2	FBR090-L2	FBR120-L2	FBR160-L2
D1	φ 14	φ 20 (22)	φ 25 (32)	φ 40
D2	φ 50	φ 80	φ 110	φ 130
D3	φ 19(6.35-19)	φ 19 (φ 11-24)	φ 22 (φ 16-24)	φ 35 (φ 22-38)
D4	φ 70 (50-70)	φ 70 (50-110)	φ 110 (φ 55.5-110)	φ 114.3 (φ 110-114.3)
D5	φ 90 (70-130)	φ 90 (70-145)	φ 145 (φ 90-155)	φ 200 (φ 145-200)
D6	(4-M4*10L)	(4-M6*14L)	4-M8 (M6-M12)	4-M12 (M8-M12)
D7	φ 70	φ 100	φ 130	φ 185
D8	4- φ 5.5	4- φ 7	4- φ 8.5	4- φ 11
D9	M5*0.8P*15L	M6*1.0P*16.5L	M10X1.5P	M16X2P
L1	28.5	36.5	55	87
L2	3	3	49	78
L3	8	10	4	5
L4	33	40.5	15	20
L5	119	138	110	149
L6	182	208.5	303	333
L7	(6.5)	(6.5)	8(5-8)	5 (5-7)
L8	(42.5)	(42.5)	70 (59-70)	86 (62-86)
L9	(87)	(87)	130 (119-130)	165.5 (165.5-189.5)
C1	□62	□90	□120	□160
C2	(□80)	(□86)	130 (120)	175 (142)
S1	3	4	5	5
S2	22	28	40	70
S3	16	22.5	28	43
B	5	6	8	12
K1	3	6	8	10
K2	φ 8	φ 18	φ 28	φ 38
K3	9.2	21	31.3	41.3
K4	φ 11	φ 24	φ 38	φ 48
K5	20	30	27	35
K6	24	35	32	40