

AFXR series

Overview



- High speed gearbox
- Special design for continuous (S1) or cyclic (S5) duty operation
- Stainless steel housing, aluminum black anodized motor adapter flange
- Stainless steel output shaft with or without key, or with spline (DIN5480)
- Helical gear design
- Nominal torques:
 - T_{2N} : 14 Nm – 1.200 Nm
- Ratios
 - 1-stage : 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 12 / 14 / 16 / 20
 - 2-stage : 12 / 15 / 16 / 20 / 25 / 28 / 30 / 32 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100 / 120 / 140 / 160 / 180 / 200
- Low backlash
 - 1-stage : ≤ 1 arcmin / ≤ 4 arcmin / ≤ 6 arcmin
 - 2-stage : ≤ 4 arcmin / ≤ 7 arcmin / ≤ 9 arcmin
- High efficiency
 - 1-stage : $\geq 95\%$
 - 2-stage : $\geq 92\%$
- Easy mount
- Low noise
- Compact structure
- Sizes available: AFXR042 / AFXR060 / AFXR060A / AFXR075 / AFXR075A / AFXR100 / AFXR100A / AFXR140 / AFXR140A / AFXR180

Specifications

Model No.	Stage	Ratio ^A	AFXR042 ^F	AFXR060	AFXR060A	AFXR075	AFXR075A	AFXR100	AFXR100A	AFXR140	AFXR140A	AFXR180	
Nominal Output Torque T_{2N}	1	3	9	36	-	90	-	165	-	342	-	588	
		4	12	48	-	120	-	260	-	520	-	1,040	
		5	15	60	-	150	-	325	-	650	-	1,200	
		6	18	55	-	150	-	310	-	600	-	1,100	
		7	19	50	-	140	-	300	-	550	-	1,100	
		8	17	45	-	120	-	260	-	500	-	1,000	
		9	14	40	-	100	-	230	-	450	-	900	
		10	14	40	-	150	-	325	-	650	-	1,200	
		12	-	-	-	150	-	310	-	600	-	1,100	
		14	-	42	-	140	-	300	-	550	-	1,100	
	16	-	-	-	120	-	260	-	500	-	1,000		
	20	-	40	-	100	-	230	-	450	-	900		
	2	12	12	-	-	-	-	-	-	-	-	-	-
		15	14	-	-	-	-	-	-	-	-	-	-
		16	15	-	-	-	-	-	-	-	-	-	-
		20	14	-	-	-	-	-	-	-	-	-	-
		25	15	60	60	150	150	325	325	650	650	1,200	
		28	19	-	-	140	140	300	300	550	550	1,100	
		30	20	55	55	150	150	310	310	600	600	1,100	
		32	17	-	-	120	120	260	260	500	500	1,000	
35		19	50	50	140	140	300	300	550	550	1,100		
40		17	45	45	120	120	260	260	500	500	1,100		
45	14	40	40	100	100	230	230	450	450	900			
48	-	-	-	150	150	310	310	600	600	1,100			
50	14	60	60	100	100	230	230	650	650	1,200			
60	20	55	55	150	150	310	310	600	600	1,100			
64	-	-	-	120	120	260	260	500	500	1,000			
70	19	50	50	140	140	300	300	550	550	1,100			
80	17	45	45	120	120	260	260	500	500	1,000			
90	14	40	40	100	100	230	230	450	450	900			
100	14	40	60	150	150	325	325	650	650	1,200			
120	-	-	55	150	150	310	310	600	600	1,100			
140	-	-	50	140	140	300	300	550	550	1,100			
160	-	-	45	120	120	260	260	550	550	1,100			
180	-	-	40	100	100	230	230	450	450	900			
200	-	-	40	100	100	230	230	450	450	900			
Emergency Stop Torque T_{2st} ^B	Nm	1,2	3~200	3 times of Nominal Output Torque									
Nominal Input Speed	Nm	1,2	3~200	5,000	5,000	5,000	4,000	4,000	4,000	4,000	3,000	3,000	3,000
Max. Input Speed	NM	1,2	3~200	10,000	10,000	10,000	8,000	8,000	8,000	8,000	6,000	6,000	6,000
Micro Backlash P0	arcmin	1	3~20	-	-	-	≤2	-	≤2	-	≤2	-	≤2
		2	12~200	-	-	-	≤4	≤4	≤4	≤4	≤4	≤4	≤4
Reduced Backlash P1	arcmin	1	3~20	≤4	≤4	-	≤4	-	≤4	-	≤4	-	≤4
		2	12~200	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Standard Backlash P2	arcmin	1	3~20	≤6	≤6	-	≤6	-	≤6	-	≤6	-	≤6
		2	12~200	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9
Torsional Rigidity	Nm/arcmin	1,2	3~200	3	7	7	14	14	25	25	50	50	145
Max. Radial Load F_{2r} ^C	N	1,2	3~200	610	2,900	2,900	4,500	4,500	7,800	7,800	9,450	9,450	15,600
Max. Axial Load F_{2a} ^C	N	1,2	3~200	320	1,450	1,450	2,250	2,250	3,900	3,900	4,725	4,725	7,800
Service Life ^D	hr	1,2	3~200	30,000									

Efficiency	%	1	3~20											≥95%
		2	12~200											≥92%
Weight	kg	1	3~20	0.9	2.7	-	6.1	-	12.2	-	25.3	-	50.2	
		2	12~200	1.2	2.4	3.7	4.8	7.9	11.6	16	24	32	47.4	
Operating Temperature	°C	1,2	3~200											-10 C~+90 C
Lubrication		1,2	12~200											Synthetic lubrication oils
Degree of Gearbox Protection		1,2	3~200											IP65
Mounting Position		1,2	3~200											all directions
Noise (n _i =3000rpm, i=10, No load) ¹	dB(A)	1,2	3~200	≤61	≤63	≤65	≤65	≤68	≤68	≤70	≤70	≤72	≤72	

A. Ratio ($i=N_{in} / N_{out}$)

B. Max. acceleration torque $T_{2B} = 60\%$ of T_{2NOT}

C. Applied to the output shaft center at 100 rpm

D. For continuous operation, the service life time is reduced

E. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at 3,000 rpm no loading.

by lower ratio and / or higher RPM, the noise level could be 3 to 5 dB Higher.

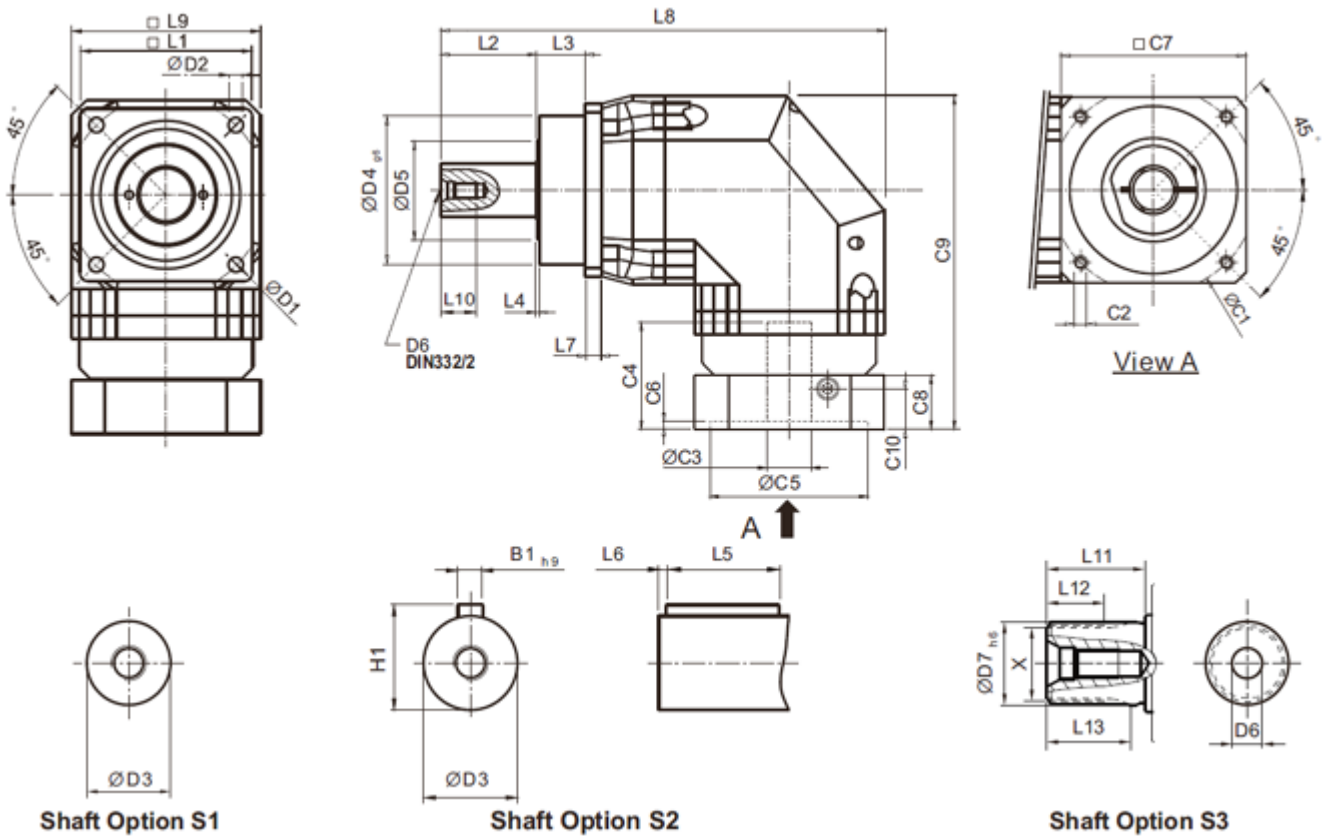
F. Continuous operation is not supported.

Inertia

Model No.	stages	Ratio ¹	AFXR042	AFXR060	AFXR060A	AFXR075	AFXR075A	AFXR100	AFXR100A	AFXR140	AFXR140A	AFXR180	
Mass Moments of Inertia J _i	1	3-10	0.09	0.35	-	2.25	-	6.84	-	23.40	-	68.90	
		12-20	-	0.07	-	1.87	-	6.25	-	21.80	-	65.60	
	kg.cm ²	12-20	0.09	-	-	-	-	-	-	-	-	-	-
			25-90	0.09	0.09	0.35	0.35	2.25	52.25	6.84	6.84	23.40	23.40
		2	48, 64	-	-	0.07	0.31	1.87	1.87	6.25	6.25	21.80	21.80
			100	0.09	0.09	0.07	0.31	1.87	1.87	6.25	6.25	21.80	21.80
		120-200	-	-	0.07	0.31	1.87	1.87	6.25	6.25	21.80	21.80	

Sizes

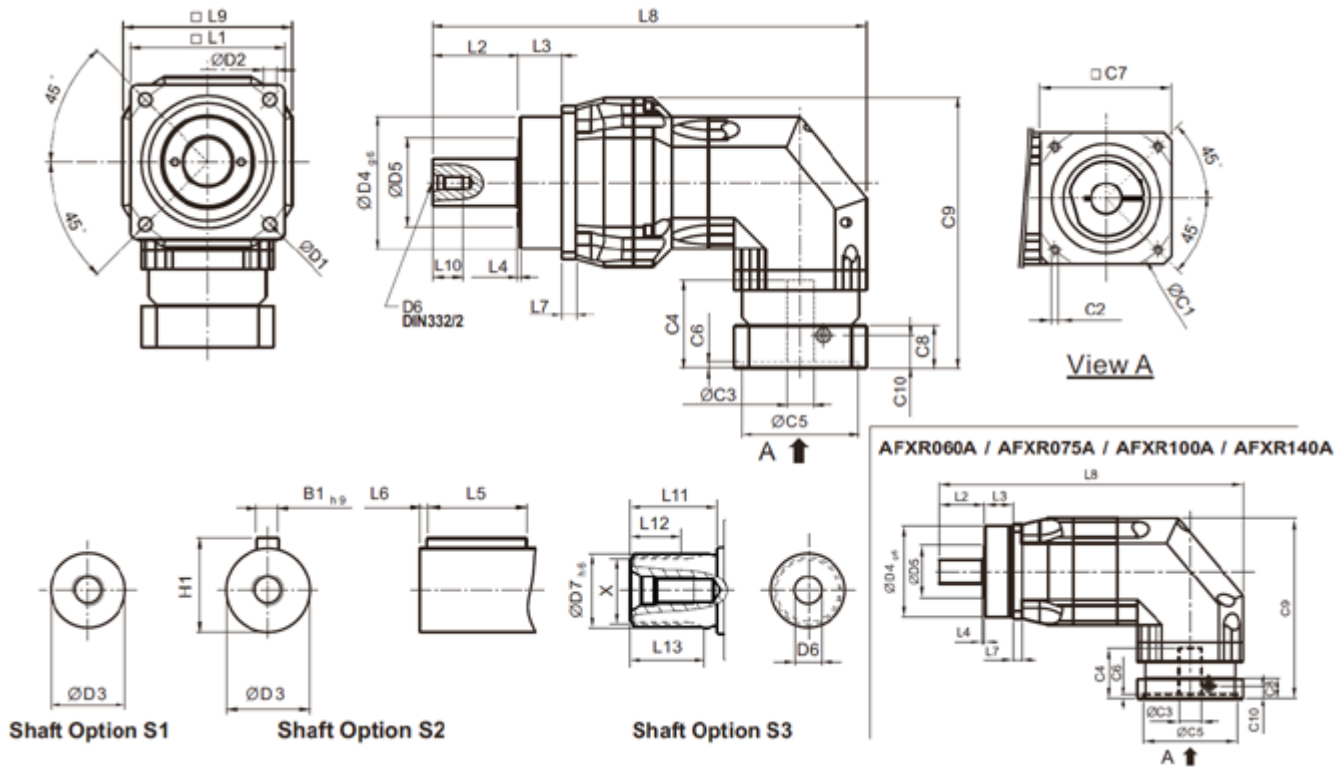
AFXR series 1- stage Ratio $i=3\sim 20$



	AFXR042	AFXR060	AFXR075	AFXR100	AFXR140	AFXR180
D1	50	68	85	120	165	215
D2	3.4	5.5	6.8	9	11	13
D3	12 _{j6}	16 _{h6}	22 _{h6}	32 _{h6}	40 _{h6}	55 _{h6}
D4 g6	35	60	70	90	130	160
D5	22	21	30	40	75	95
D6	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P
D7 h6	-	16	22	32	40	55
L1	42	62	76	105	142	180
L2	19.5	28.5	36.5	58	82	82
L3	6.5	20	19.5	30	30	30
L4	1	1.5	1.5	2	3	3
L5	14	25	32	40	63	70
L6	2	2	3	5	5	6
L7	4	6	7	10	12	15
L8	31	62	84	103.5	132	180.5
L9	42	70	90	115	142	180
L10	10	12.5	19	28	36	42
L11	-	26	26	26	40	41.5

L12	-	15	15	15	20	21.5
L13	-	21	22.5	23	33.5	33.5
C1 ¹	46	70	100	130	165	215
C2 ¹	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P
C3 ¹	≤11 / ≤12	≤14 / ≤16	≤19 / ≤24	≤32	≤38	≤48
C4 ¹	25	34	40	50	60	85
C5 ¹	30	50	80	110	130	180
C6 ¹	3.5	8	4	5	6	6
C7 ¹	42	60	90	115	142	190
C8 ¹	29.5	19	17	19.5	22.5	29
C9 ¹	86.5	129.5	157	211	266.5	321.5
C10 ¹	8.75	13.5	10.75	13	15	20.75
B1 h9	4	5	6	10	12	16
H1	13.5	18	24.5	35	43	59
X DIN5480	-	W16 x 0.8 x 30 x 18 x 6m	W22 x 1.25 x 30 x 16 x 6m	W32 x 1.25 x 30 x 24 x 6m	W40 x 2 x 30 x 18 x 6m	W55 x 2 x 30 x 26 x 6m

AFX series 2-stage Ratio i=12~200



	AFXR042	AFXR060	AFXR060A	AFXR075	AFXR075A	AFXR100	AFXR100A	AFXR140	AFXR140A	AFXR180
D1	50	68		85		120		165		215
D2	3.4	5.5		6.8		9		11		13
D3	12 _{f6}	16 _{h6}		22 _{h6}		32 _{h6}		40 _{h6}		55 _{h6}
D4 g6	35	60		70		90		130		160

D5	22		21		30		40		75		95
D6	M4 x 0.7P		M5 x 0.8P		M8 x 1.25P		M12 x 1.75P		M16 x 2P		M20 x 2.5P
D7 h6	-		16		22		32		40		55
L1	42		62		76		105		142		180
L2	19.5		28.5		36.5		58		82		82
L3	6.5		20		19.5		30		30		30
L4	1		1.5		1.5		2		3		3
L5	14		25		32		40		63		70
L6	2		2		3		5		5		6
L7	4		6		7		10		12		15
L8	58.5	73	99	117	132	145	164.5	188.5	203.5		236
L9	42		70		90		115		142		180
L10	10		12.5		19		28		36		42
L11	-		26		26		26		40		41.5
L12	-		15		15		15		20		21.5
L13	-		21		22.5		23		33.5		33.5
C1 ¹	46	46	70	70	100	100	130	130	165		165
C2 ¹	M4 x 0.7P	M4 x 0.7P	M5 x 0.8P	M5 x 0.8P	M6 x 1P	M6 x 1P	M8 x 1.25P	M8 x 1.25P	M10 x 1.5P		M10 x 1.5P
C3 ¹	≤11 / ≤12	≤11 / ≤12	≤14 / ≤16	≤14 / ≤15.875 / ≤16	≤19 / ≤24	≤19 / ≤24	≤32	≤32	≤38		≤38
C4 ¹	25	25	34	34	40	40	50	50	60		85
C5 ¹	30	30	50	50	80	80	110	110	130		180
C6 ¹	3.5	3.5	8	8	4	4	5	5	6		6
C7 ¹	42	42	60	60	90	90	115	115	142		190
C8 ¹	29.5	29.5	19	19	17	17	19.5	19.5	22.5		29
C9 ¹	86.5	86.5	129.5	129.5	157	157	211	211	266.5		321.5
C10 ¹	8.75	8.75	13.5	13.5	10.75	10.75	13	13	15		20.75
B1 h9	4		5		6		10		12		16
H1	13.5		18		24.5		35		43		59
X DIN5480	-		W16 x 0.8 x 30 x 18 x 6m		W22 x 1.25 x 30 x 16 x 6m		W32 x 1.25 x 30 x 24 x 6m		W40 x 2 x 30 x 18 x 6m		W55 x 2 x 30 x 26 x 6m