

Specifications / AFX Series

Gearbox Performance

Model No.		Stages	Ratio ^A	AFX042 ^F	AFX060	AFX060A	AFX075	AFX075A	AFX100	AFX100A	AFX140	AFX140A	AFX180
Nominal Output Torque T_{2N}	Nm	1	3	20	55	—	130	—	208	—	342	—	588
			4	19	50	—	140	—	290	—	542	—	1,050
			5	22	60	—	160	—	330	—	650	—	1,200
			6	20	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	—	100	—	230	—	450	—	900
		2	12	19	—	—	140	140	290	290	542	542	1,050
			15	20	55	55	130	130	208	208	342	342	588
			16	19	—	—	140	140	290	290	542	542	1,050
			20	19	50	50	140	140	290	290	542	542	1,050
			25	22	60	60	160	160	330	330	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	1,000
			45	14	40	40	100	100	230	230	450	450	900
			50	22	60	60	160	160	330	330	650	650	1,200
			60	20	55	55	150	150	310	310	600	600	1,100
			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	40	100	100	230	230	450	450	900
Emergency Stop Torque T_{2NOT} ^B	Nm	1,2	3~100	3 times of Nominal Output Torque									
Nominal Input Speed n_{1N}	rpm	1,2	3~100	5,000	5,000	5,000	4,000	4,000	4,000	4,000	3,000	3,000	3,000
Max. Input Speed n_{1B}	rpm	1,2	3~100	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	3~10	—	—	—	≤1	—	≤1	—	≤1	—	≤1
		2	12~100	—	—	—	—	—	≤3	≤3	≤3	≤3	≤3
Reduced Backlash P1	arcmin	1	3~10	≤3	≤3	—	≤3	—	≤3	—	≤3	—	≤3
		2	12~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Standard Backlash P2	arcmin	1	3~10	≤5	≤5	—	≤5	—	≤5	—	≤5	—	≤5
		2	12~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arcmin	1,2	3~100	3	7	7	14	14	25	25	50	50	145
Max. Radial Load F_{2RB} ^C	N	1,2	3~100	610	2,900	2,900	4,500	4,500	7,800	7,800	9,450	9,450	15,600
Max. Axial Load F_{2aB} ^C	N	1,2	3~100	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	3~100	30,000									
Efficiency η	%	1	3~10	≥97%									
		2	12~100	≥94%									
Weight	kg	1	3~10	0.6	1.7	—	3.5	—	7.4	—	15.8	—	32.7
		2	12~100	0.8	2	1.5	4	4.1	9	11.3	19.1	22.5	37.6
Operating Temperature	°C	1,2	3~100	-10°C~+90°C									
Lubrication		1,2	3~100	Synthetic lubrication oils									
Degree of Gearbox Protection		1,2	3~100	IP65									
Mounting Position		1,2	3~100	all directions									
Noise ($n_1=3000\text{rpm}$, $i=10$, No load) ^E	dB	1,2	3~100	≤56	≤58	≤60	≤60	≤63	≤63	≤65	≤65	≤67	≤67

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.

Gearbox Inertia

Model No.	Stages	Ratio ¹	AFX042	AFX060	AFX060A	AFX075	AFX075A	AFX100	AFX100A	AFX140	AFX140A	AFX180
Mass Moments of Inertia J _i	1	3	0.03	0.16	—	0.61	—	3.25	—	9.21	—	28.98
		4	0.03	0.14	—	0.48	—	2.74	—	7.54	—	23.67
		5	0.03	0.13	—	0.47	—	2.71	—	7.42	—	23.29
		6	0.03	0.13	—	0.45	—	2.65	—	7.25	—	22.75
		7	0.03	0.13	—	0.45	—	2.62	—	7.14	—	22.48
		8	0.03	0.13	—	0.44	—	2.58	—	7.07	—	22.59
		9	0.03	0.13	—	0.44	—	2.57	—	7.04	—	22.53
	2	10	0.03	0.13	—	0.44	—	2.57	—	7.03	—	22.51
		12	0.03	—	—	0.16	0.61	0.61	3.25	3.25	9.21	9.21
		15	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		16	0.03	—	—	0.14	0.48	0.48	2.74	2.74	7.54	7.54
		20	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		25	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		28	0.03	—	—	0.14	0.48	0.48	2.74	2.74	7.54	7.54
		30	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		32	0.03	—	—	0.14	0.48	0.48	2.74	2.74	7.54	7.54
		35	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		40	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		45	0.03	0.03	0.13	0.13	0.47	0.47	2.71	2.71	7.42	7.42
		50	0.03	0.03	0.13	0.13	0.44	0.44	2.57	2.57	7.03	7.03
		60	0.03	0.03	0.13	0.13	0.44	0.44	2.57	2.57	7.03	7.03
		70	0.03	0.03	0.13	0.13	0.44	0.44	2.57	2.57	7.03	7.03
		80	0.03	0.03	0.13	0.13	0.44	0.44	2.57	2.57	7.03	7.03
		90	0.03	0.03	0.13	0.13	0.44	0.44	2.57	2.57	7.03	7.03
		100	0.03	0.03	0.13	0.13	0.44	0.44	2.57	2.57	7.03	7.03