

AF Series

Specifications

Gearbox Performance

Model No.	Stages	Ratio ¹	AF042	AF060	AF060A	AF075	AF075A	AF100	AF140	AF180	AF220
Nominal Output Torque T_{2N}	1	3	20	55	—	130	—	208	342	588	1,140
		4	19	50	—	140	—	290	542	1,050	1,700
		5	22	60	—	160	—	330	650	1,200	2,000
		6	20	55	—	150	—	310	600	1,100	1,900
		7	19	50	—	140	—	300	550	1,100	1,800
		8	17	45	—	120	—	260	500	1,000	1,600
		9	14	40	—	100	—	230	450	900	1,500
		10	14	40	—	100	—	230	450	900	1,500
	2	15	20	55	55	130	130	208	342	588	1,140
		20	19	50	50	140	140	290	542	1,050	1,700
		25	22	60	60	160	160	330	650	1,200	2,000
		30	20	55	55	150	150	310	600	1,100	1,900
		35	19	50	50	140	140	300	550	1,100	1,800
		40	17	45	45	120	120	260	500	1,000	1,600
		45	14	40	40	100	100	230	450	900	1,500
		50	22	60	60	160	160	330	650	1,200	2,000
		60	20	55	55	150	150	310	600	1,100	1,900
		70	19	50	50	140	140	300	550	1,100	1,800
		80	17	45	45	120	120	260	500	1,000	1,600
		90	14	40	40	100	100	230	450	900	1,500
		100	14	40	40	100	100	230	450	900	1,500
Emergency Stop Torque T_{2NOT} ²	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	3,000	2,000
Max. Input Speed n_{1B}	rpm	1,2	3~100	10,000	10,000	10,000	8,000	8,000	8,000	6,000	4,000
Micro Backlash P_0	arcmin	1	3~10	—	—	—	≤1	—	≤1	≤1	≤1
		2	15~100	—	—	—	—	—	≤3	≤3	≤3
Reduced Backlash P_1	arcmin	1	3~10	≤3	≤3	—	≤3	—	≤3	≤3	≤3
		2	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Standard Backlash P_2	arcmin	1	3~10	≤5	≤5	—	≤5	—	≤5	≤5	≤5
		2	15~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arcmin	1,2	3~100	3	7	7	14	14	25	50	145
Max. Radial Load F_{2rB} ³	N	1,2	3~100	610	1,400	1,400	4,100	4,100	9,200	14,000	18,000
Max. Axial Load F_{2aB} ³	N	1,2	3~100	320	1,100	1,100	3,700	3,700	5,820	11,400	19,500
Service Life	hr	1,2	3~100	30,000*							
Efficiency η	%	1	3~10	≥97%							
		2	15~100	≥94%							
Weight	kg	1	3~10	0.6	1.3	—	3.7	—	6.9	13.7	28
		2	15~100	0.8	1.5	2	4.1	5.5	8.1	16.6	33
Operating Temperature	°C	1,2	3~100	-10°C~90°C							
Lubrication				Synthetic lubrication oils							
Degree of Gearbox Protection		1,2	3~100	IP65							
Mounting Position		1,2	3~100	all directions							
Noise Level ($n_1=3000\text{rpm}$, No Load)	dB(A)	1,2	3~100	≤56	≤58	≤60	≤60	≤63	≤63	≤65	≤67

Gearbox Inertia

Model No.	Stages	Ratio ¹	AF042	AF060	AF060A	AF075	AF075A	AF100	AF140	AF180	AF220
Mass Moments of Inertia J_1	1	3	0.03	0.16	—	0.61	—	3.25	9.21	28.98	69.61
		4	0.03	0.14	—	0.48	—	2.74	7.54	23.67	54.37
		5	0.03	0.13	—	0.47	—	2.71	7.42	23.29	53.27
		6	0.03	0.13	—	0.45	—	2.65	7.25	22.75	51.72
		7	0.03	0.13	—	0.45	—	2.62	7.14	22.48	50.97
		8	0.03	0.13	—	0.44	—	2.58	7.07	22.59	50.84
		9	0.03	0.13	—	0.44	—	2.57	7.04	22.53	50.63
		10	0.03	0.13	—	0.44	—	2.57	7.03	22.51	50.56
	2	15	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		20	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		25	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		30	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		35	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		40	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		45	0.03	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29
		50	0.03	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51
		60	0.03	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51
		70	0.03	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51
		80	0.03	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51
		90	0.03	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51
		100	0.03	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51

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

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

3. Applied to the output shaft center @ 100 rpm

★ S1 service life 15,000 hrs (Consult us)