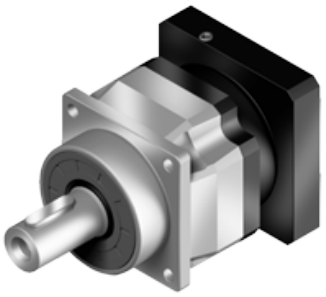
APEX DYNAMICS

Leverancier van spelingsarme reductoren

AFX 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
    - 2-stage : 12 / 15 / 16 / 20 / 25 / 28 / 30 / 32 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100
- Low backlash
    - 1-stage : ≤ 1 arcmin / ≤ 3 arcmin / ≤ 5 arcmin
    - 2-stage : ≤ 3 arcmin / ≤ 5 arcmin / ≤ 7 arcmin
- High efficiency
    - 1-stage : ≥ 97%
    - 2-stage : ≥ 94%
- Easy mount
- Low noise
- Compact structure
- Sizes available: AFX042 / AFX060 / AFX060A / AFX075 / AFX075A / AFX100 / AFX100A / AFX140 / AFX140A / AFX180

Specifications

Model No.		Stage	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	1,00
			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 T_{2N}									
Nominal Input Speed	Nm	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	NM	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_{2r}[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_{2a}[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	%	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 Temerature	°C	1,2	3~100	-10 C~+90 C									
Lubrication		1,2	12~100	Synthetic lubrication oils									
Degree of Gearbox Protection		1,2	3~100	IP65									
Mounting Position		1,2	3~100	all directions									
Noise (n_1=3000rpm, i=10,No load)[E]	dB(A)	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.

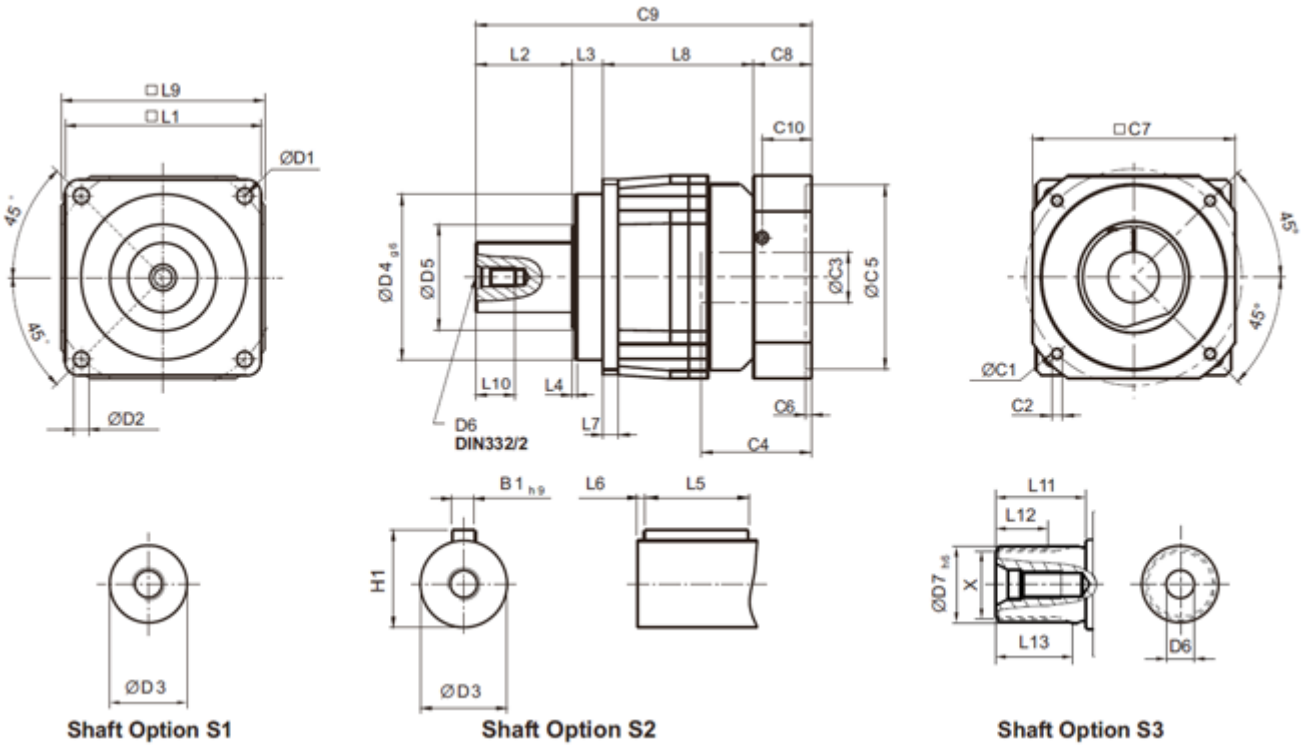
F. Continuous operation is not supported.

Inertia

Model No.		stages	Ratio[1]	AFX042	AFX060	AFX060A	AFX075	AFX075A	AFX100	AFX100A	AFX140	AFX140A	AFX180
Mass Moments of Intertia J_1	kg.cm^2	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
			10	0.03	0.13	-	0.44	-	2.57	-	7.03	-	22.51
		2	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

Sizes

AFX series 1- stage Ratio i=3~10

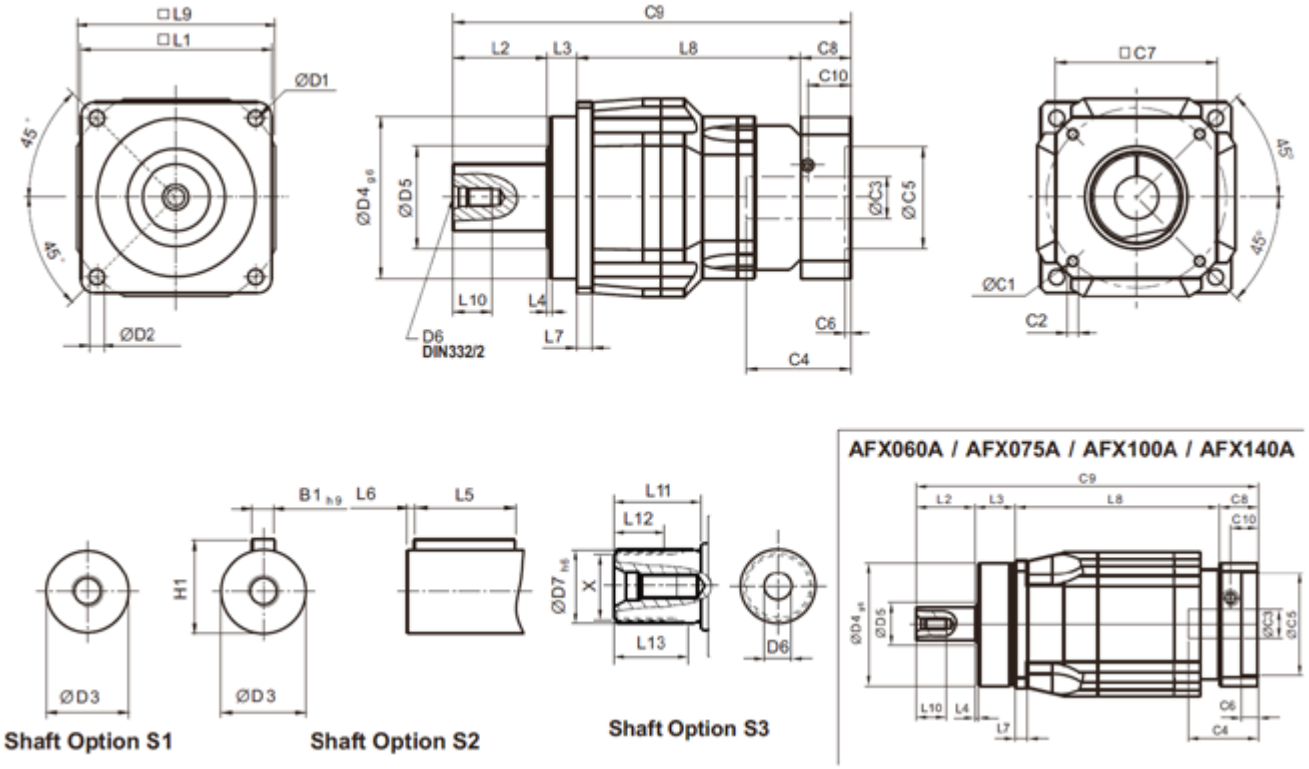


	AFX042	AFX060	AFX075	AFX100	AFX140	AFX180
D1	50	68	85	120	165	215
D2	3.4	5.5	6.8	9	11	13
D3	12_{j6}	16_{h6}	22_{h6}	32_{h6}	40_{h6}	55_{h6}
D4 g6	35	60	70	90	130	160
D5	22	21	30	40	75	95
D6	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P
D7 h6	-	16	22	32	40	55
L1	42	62	76	105	142	180
L2	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 [2]	≤14 / ≤16 [2]	≤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

1. C1~C10 are motor specific dimensions (metric std shown). Refer to www.apexdyna.com and Design Tool to view your specific motor mounting system.
2. AFX042 ratio 5, 10 offers C3 ≤ 12 option. AFX060 ratio 5, 10 offers C3 ≤ 16 option

AFX series 2-stage Ratio i=12~100



Dimension	AFX042	AFX060	AFX060A	AFX075	AFX075A	AFX100	AFX100A	AFX140	AFX140A	AFX180
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	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 [2]	≤11 / ≤12 [2]	≤14 / ≤16 [2]	≤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

3. C1~C10 are motor specific dimensions (metric std shown). Refer to www.apexdyna.com and Design Tool to view your specific motor mounting system.