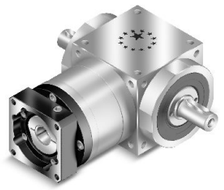
Gearbox Series - AT / ATB

Features:

- Various housing design
  - Stainless - AT
  - Carbon Steel - ATB
- Various output options
- High torque
- High efficiency
- Long service life
- Reduced backlash
- Maintenance free
- Flexible mounting dimensions

AT-L/-L1/-R1

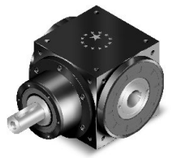
ATB-L/-L1/-R1



AT-FL/-FL1/-FR1

ATB-FL/-FL1/-FR1

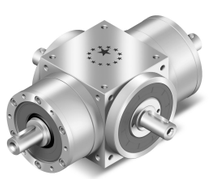
AT-H/-C



ATB-H/-C

AT-FH/-FC

ATB-FH/-FC



AT-4M/-LM/-RM

ATB-4M/-LM/-RM

Ordering code

AT065 / ATB065	L	001.5	S1	MOTOR

Gearbox Size :
AT065, AT075, AT090, AT110, AT140,
AT170, AT210, AT240, AT280
ATB065, ATB075, ATB090, ATB110, ATB140,
ATB170, ATB210, ATB240, ATB280

Ratio :
1 Stage: 1, 1.5, 2, 3, 4, 5

Motor Designation :
Manufacturer Type
And Model

Gearbox :
L / L1 / H / C / R1 / LM / RM / 4M

Shaft Option :
S1: Smooth Output Shaft
S2: Output Shaft with Key

Ordering Example: AT065-L-001.5-S1 / SIEMENS 1FK6 032-6AK71
ATB065-L-001.5-S1 / SIEMENS 1FK6 032-6AK71

AT210 / ATB210	FL1	200	S1	MOTOR

Gearbox Size :
AT065, AT075, AT090, AT110, AT140,
AT170, AT210, AT240, AT280
ATB065, ATB075, ATB090, ATB110, ATB140,
ATB170, ATB210, ATB240, ATB280

Ratio :
1 Stage: 1, 1.5, 2, 3, 4, 5
2 Stage: 7, 10, 15, 20, 25, 35, 50
3 Stage: 75, 100, 125, 150, 200,
250, 350, 500

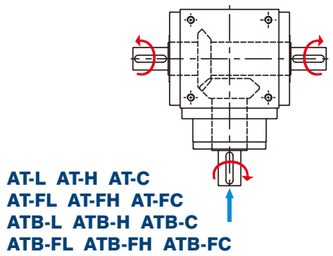
Motor Designation :
Manufacturer Type
And Model

Gearbox :
FL / FLM1 / FLM2 / FL1 / FL1M1 / FL1M2 /
FR1 / FR1M1 / FR1M2 / FH / FHM1 / FHM2 /
FC / FCM1 / FCM2

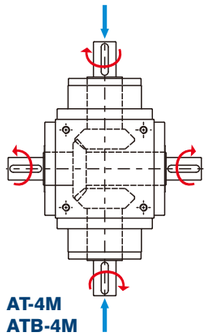
Shaft Option :
S1: Smooth Output Shaft
S2: Output Shaft with Key

Ordering Example: AT210-FL1-200-S1 / SIEMENS 1FK6 032-6AK71
ATB210-FL1-200-S1 / SIEMENS 1FK6 032-6AK71

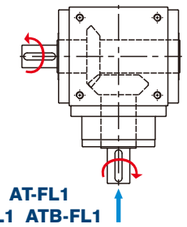
Rotate Directions of AT / ATB Series



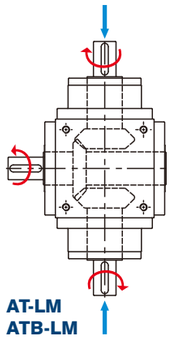
AT-L AT-H AT-C
AT-FL AT-FH AT-FC
ATB-L ATB-H ATB-C
ATB-FL ATB-FH ATB-FC



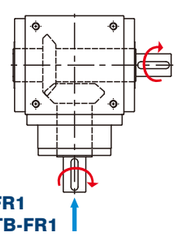
AT-4M
ATB-4M



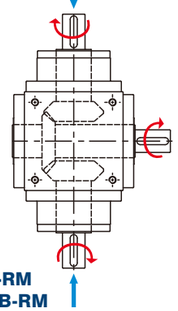
AT-L1 AT-FL1
ATB-L1 ATB-FL1



AT-LM
ATB-LM

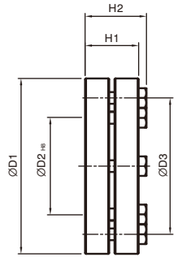


AT-R1 AT-FR1
ATB-R1 ATB-FR1



AT-RM
ATB-RM

Accessories - Shrink Disc Power Lock



C / FC Series	D1	D2	D3	H1	H2
SSD-d16xdw14	41	16	26	15	18.5
SSD-d22xdw18	50	22	36	19.5	23
SSD-d25xdw22	50	25	38	19.5	23
SSD-d44xdw32	80	44	61	25.5	29.5
SSD-d50xdw40	90	50	70	27.5	31.5
SSD-d62xdw50	110	62	86	30.5	34.5
SSD-d68xdw55	115	68	86	30.5	34.5
SSD-d75xdw60	138	75	100	32.5	38

Specifications
AT / ATB Shaft Type Series

Gearbox Performance (The performance and specification of ATB series are identical to AT series.)

Model No.		Stage	Ratio[A]	AT065 L / AT065 L1 / AT065 H / AT065 C / AT065 R1 / AT065 LM / AT065 RM / AT065 4M	AT075 L / AT075 L1 / AT075 H / AT075 C / AT075 R1 / AT075 LM / AT075 RM / AT075 4M	AT090 L / AT090 L1 / AT090 H / AT090 C / AT090 R1 / AT090 LM / AT090 RM / AT090 4M	AT110 L / AT110 L1 / AT110 H / AT110 C / AT110 R1 / AT110 LM / AT110 RM / AT110 4M	AT140 L / AT140 L1 / AT140 H / AT140 C / AT140 R1 / AT140 LM / AT140 RM / AT140 4M	AT170 L / AT170 L1 / AT170 H / AT170 C / AT170 R1 / AT170 LM / AT170 RM / AT170 4M	AT210 L / AT210 L1 / AT210 H / AT210 C / AT210 R1 / AT210 LM / AT210 RM / AT210 4M	AT240 L / AT240 L1 / AT240 H / AT240 C / AT240 R1 / AT240 LM / AT240 RM / AT240 4M	AT280 L / AT280 L1 / AT280 H / AT280 C / AT280 R1 / AT280 LM / AT280 RM / AT280 4M
Nominal Output Torque T_{2N}	Nm	1	1	25	45	78	150	360	585	1,300	2,150	3,200
			1.5	25	45	78	150	360	585	1,300	2,150	3.200
			2	24	42	68	150	330	544	1,220	2,010	3,050
			3	18	33	54	120	270	450	1,020	1,650	2,850
			4	13	28	48	100	224	376	860	1,410	2,300
			5	12	25	40	85	196	320	740	1,210	2,000
Max. Acceleration Torque T_{2B}	Nm	1	1~5	1.5 times of Nominal Output Torque								
Max. Acceleration Input Speed n_{1B}	rpm	1	1~5	7,500	6,500	5,500	4,500	3,500	3,000	2,200	2,000	1,700
Standard Backlash[B]	arcmin	1	1~5	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6
Max. Radial Load F_{1rB}[C] Input d1	N	1	1~5	700	950	1,450	2,100	2,700	3,800	7,800	9,600	10,500
Max. Radial Load F_{2rB}[D] Output d2	N	1	1~5	900	1,100	1,700	2,700	4,800	6,600	11,500	16,000	18,000
Max. Axial Load F_{1aB}[C] Input d1	N	1	1~5	350	425	725	1,050	1,350	1,900	3,900	4,800	5,250
Max. Axial Load F_{2aB}[D] Output d2	N	1	1~5	450	550	850	1,350	2,400	3,300	5,750	8,500	9,000
Service Life[E]	hr	1	1~5	20,000								
Efficiency η	%	1	1~5	≥98%								
Operating Temp	°C	1	1~5	-10°C ~ 90°C								
Lubrication				Synthetic lubrication oils								
Noise Level (n_1=1500rpm, No Load)[F]	dB (A)	1	1~5	≤68	≤70	≤74	≤76	≤77	≤78	≤80	≤82	≤83

Gearbox Inertia (The performance and specification of ATB series are identical to AT series.)

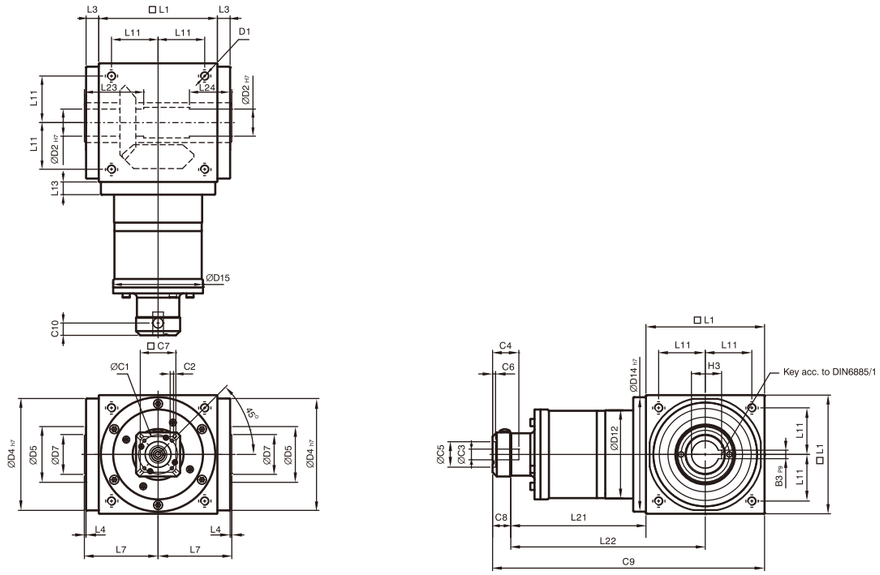
Model No.		Stage	Ratio[A]	AT065 L / AT065 L1 / AT065 H / AT065 C / AT065 R1 / AT065 LM / AT065 RM / AT065 4M	AT075 L / AT075 L1 / AT075 H / AT075 C / AT075 R1 / AT075 LM / AT075 RM / AT075 4M	AT090 L / AT090 L1 / AT090 H / AT090 C / AT090 R1 / AT090 LM / AT090 RM / AT090 4M	AT110 L / AT110 L1 / AT110 H / AT110 C / AT110 R1 / AT110 LM / AT110 RM / AT110 4M	AT140 L / AT140 L1 / AT140 H / AT140 C / AT140 R1 / AT140 LM / AT140 RM / AT140 4M	AT170 L / AT170 L1 / AT170 H / AT170 C / AT170 R1 / AT170 LM / AT170 RM / AT170 4M	AT210 L / AT210 L1 / AT210 H / AT210 C / AT210 R1 / AT210 LM / AT210 RM / AT210 4M	AT240 L / AT240 L1 / AT240 H / AT240 C / AT240 R1 / AT240 LM / AT240 RM / AT240 4M	AT280 L / AT280 L1 / AT280 H / AT280 C / AT280 R1 / AT280 LM / AT280 RM / AT280 4M
Mass Moments of Inertia J_1	kg・cm²	1	1	0.51	1.30	3.16	7.70	23.57	58.99	195.40	369.34	799.12
			1.5	0.64	1.16	2.82	6.74	19.37	49.28	155.45	283.58	595.78
			2	0.44	1.11	2.70	6.31	17.75	45.35	140.24	249.74	511.76
			3	0.43	1.09	2.66	6.17	17.18	44.01	134.95	237.71	483.06
			4	0.43	1.09	2.65	6.13	17.06	43.70	133.58	234.72	476.26
			5	0.43	1.09	2.65	6.12	17.02	43.60	133.14	233.67	473.58

Weight

Model No.		Stage	Ratio[A]	AT065	AT075	AT090	AT110	AT140	AT170	AT210	AT240	AT280
L Series	kg	1	1~5	2.6	4.2	6.8	11.6	19.8	34.8	66.2	98.1	155.7
L1 Series		1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
H Series		1	1~5	2.5	3.9	6.4	11.0	18.1	31.6	60.0	89.4	143.4
C Series		1	1~5	2.8	4.2	6.9	11.4	19.6	33.7	63.3	97.9	149.1
R1 Series		1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
LM Series		1	1	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
RM Series		1	1	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
4M Series		1	1	3.5	5.6	9.1	15.4	24.8	42.6	82.5	123.5	193.3

A. Ratio (i= N_{in} / N_{out}). AT-LM / RM / 4M offer ratio 1 : 1 only.
B. Backlash is measured at 2% Nominal Torque T_{2N}.
C. Apply to the input shaft center at n_{1B}.
D. Apply to the output shaft center at n_{1B}.
E. S1 service life 10,000 hrs.
F. The dB value will be higher by lower ratio and/or with high PRM.

Dimensions (3-stage, Ratio i=75~500)
AT-FH / ATB-FH Series



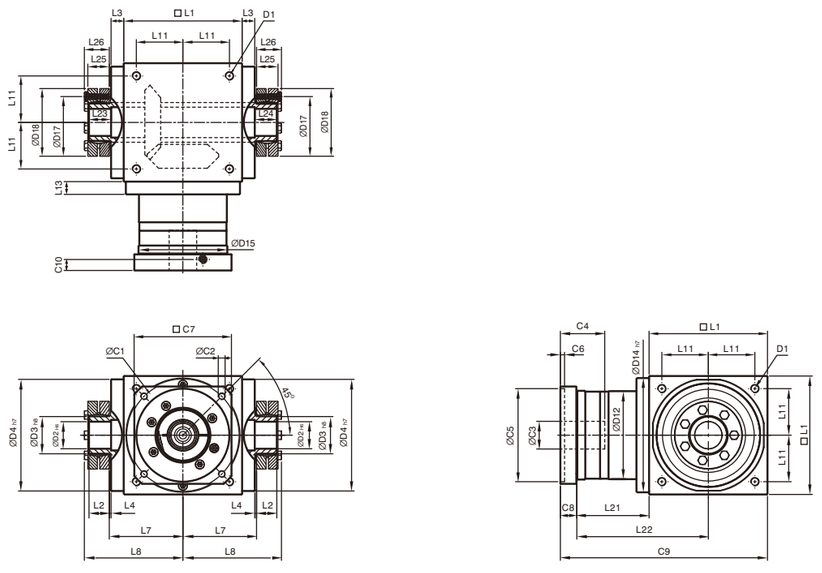
* The dimensions of ATB series are identical to AT series.

[unit: mm]

Dimension	AT110FH	AT140FH	AT170FH	AT210FH	AT240FH	AT280FH
D1	M8	M10	M12	M16	M16	M16
D2 H7	22	32	40	50	55	60
D4 h7	108	135	165	205	235	275
D5	53	68	83	104	124	144
D7	33	47	55	75	85	110
D12	106	104	128	160	180	200
D14 h7	108	135	165	205	235	275
D15	107	106	130	158	178	198
L1	110	140	170	210	240	280
L3	15	15	15	20	25	25
L4	2	2	2	2	2	2
L7	72	87	102	127	147	167
L11	44	55	67	85	95	110
L13	15	15	15	20	25	25
L21	136.5	159.5	183.5	226	269	278
L22	191.5	229.5	268.5	331	389	418
L23	53	70	80	95	115	115
L24	35	50	55	65	80	80
C1[12]	46	46	70	70	100	100
C2[12]	M4	M4	M5	M5	M6	M6
C3[12]	≤12	≤12	≤16	≤16	≤24	≤24
C4[12]	30	30	34	34	40	40
C5[12]	30	30	50	50	80	80
C6[12]	3.5	3.5	8	8	4	4
C7[12]	42	42	60	60	92	92
C8[12]	21.5	21.5	21.5	21.5	20	20
C9[12]	268	321	375	457.5	529	578
C10[12]	14.5	14.5	15.5	15.5	13	13
B3 P9	6	10	12	14	16	18
H3	24.8	35.3	43.3	53.8	59.3	64.4

12. C1~C10 are motor specific dimensions (metric std shown). Refer to www.apexdyna.com and design tool to view your specific motor mounting system.

Dimensions (1-stage, Ratio i=1~5)
AT-FC / ATB-FC Series



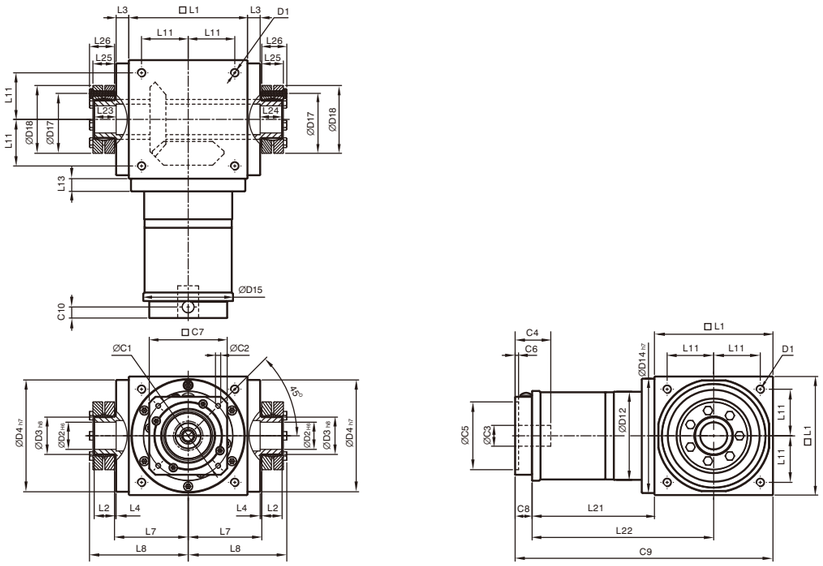
* The dimensions of ATB series are identical to AT series.

[unit: mm]

Dimension	AT065FC	AT075FC	AT090FC	AT110FC	AT140FC	AT170FC	AT210FC	AT240FC	AT280FC
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	105	130	158	178	198
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	133.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	49	60.5	63	69.5	85.5	95	130	144.5	135
L22	81.5	98	108	124.5	155.5	180	235	264.5	275
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
C1[13]	46	70	100	100	130	165	215	215	235
C2[13]	M4	M5	M6	M6	M8	M10	M12	M12	M12
C3[13]	≤11 / ≤12[14]	≤14 / ≤15.875 / ≤16[14]	≤19	≤24	≤32	≤38	≤42	≤48	≤55
C4[13]	30	34	40	40	50	60	85	85	116
C5[13]	30	50	80	80	110	130	180	180	200
C6[13]	3.5	8	4	4	5	6	6	6	6
C7[13]	42	60	90	90	115	142	190	190	220
C8[13]	19.5	19	17	17	19.5	22.5	29	29	63
C9[13]	133.5	154.5	170	196.5	245	287.5	369	413.5	478
C10[13]	13.25	13.5	10.75	10.75	13	15	20.75	20.75	53.5

13. C1~C10 are motor specific dimensions (metric std shown). Refer to www.apexdyna.com and design tool to view your specific motor mounting system.
14. AT065FCM1 offers C3 ≤12 option; AT075FCM1 offers C3 ≤16 option; AT075FCM2 offers C3 ≤15.875 option.

Dimensions (2-stage, Ratio i=7~50)
AT-FC / ATB-FC Series



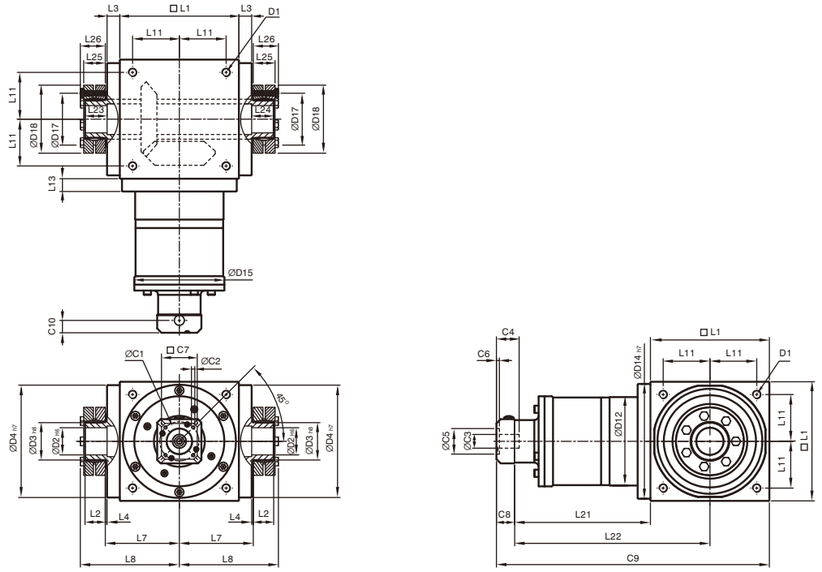
* The dimensions of ATB series are identical to AT series.

[unit: mm]

Dimension	AT065FC	AT075FC	AT090FC	AT110FC	AT140FC	AT170FC	AT210FC	AT240FC	AT280FC
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	106	130	158	178	198
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	133.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	75	84.5	99	122	144.5	157.5	206.5	239	248
L22	107.5	122	144	177	214.5	242.5	311.5	359	388
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
C1[15]	46	46	70	100	100	100	130	165	165
C2[15]	M4	M4	M5	M6	M6	M6	M8	M10	M10
C3[15]	≤12	≤12	≤16	≤24	≤24	≤24	≤32	≤38	≤38
C4[15]	30	30	34	40	40	40	50	60	60
C5[15]	30	30	50	80	80	80	110	130	130
C6[15]	3.5	3.5	8	4	4	4	5	6	6
C7[15]	42	42	60	92	92	92	115	142	142
C8[15]	21.5	21.5	21.5	20	20	20	24	31	31
C9[15]	161.5	181	210.5	252	304.5	347.5	440.5	510	559
C10[15]	14.5	14.5	15.5	13	13	13	16	21	21

15. C1~C10 are motor specific dimensions (metric std shown). Refer to www.apexdyna.com and design tool to view your specific motor mounting system.

Dimensions (3-stage, Ratio i=75~500)
AT-FC / ATB-FC Series



* The dimensions of ATB series are identical to AT series.

[unit: mm]

Dimension	AT110FC	AT140FC	AT170FC	AT210FC	AT240FC	AT280FC
D1	M8	M10	M12	M16	M16	M16
D2 H6	22	32	40	50	55	60
D3 h8	25	44	50	62	68	75
D4 h7	108	135	165	205	235	275
D12	106	104	128	160	180	200
D14 h7	108	135	165	205	235	275
D15	107	106	130	158	178	198
D17	38	61	70	86	86	100
D18	50	80	90	110	115	138
L1	110	140	170	210	240	280
L2	18	24	26	29	29	30.5
L3	15	15	15	20	25	25
L4	2	2	2	2	2	2
L7	72	87	102	127	147	167
L8	95	116.5	133.5	161.5	181.5	205
L11	44	55	67	85	95	110
L13	15	15	15	20	25	25
L21	136.5	159.5	183.5	226	269	278
L22	191.5	229.5	268.5	331	389	418
L23	20	26	28	31	31	32.5
L24	20	26	28	31	31	32.5
L25	19.5	25.5	27.5	30.5	30.5	32.5
L26	23	29.5	31.5	34.5	34.5	38
C1[16]	46	46	70	70	100	100
C2[16]	M4	M4	M5	M5	M6	M6
C3[16]	≤12	≤12	≤16	≤16	≤24	≤24
C4[16]	30	30	34	34	40	40
C5[16]	30	30	50	50	80	80
C6[16]	3.5	3.5	8	8	4	4
C7[16]	42	42	60	60	92	92
C8[16]	21.5	21.5	21.5	21.5	20	20
C9[16]	268	321	375	457.5	529	578
C10[16]	14.5	14.5	15.5	15.5	13	13

16. C1~C10 are motor specific dimensions (metric std shown). Refer to www.apexdyna.com and design tool to view your specific motor mounting system.