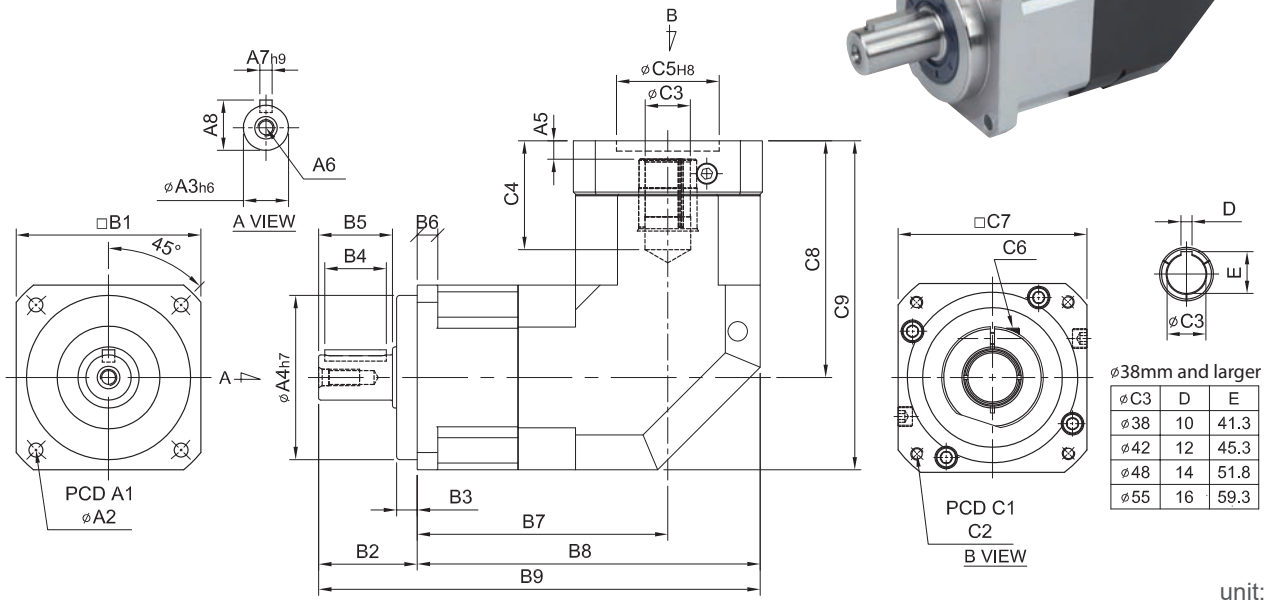
PBL Series

1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20



ø38mm and larger

øC3	D	E
ø38	10	41.3
ø42	12	45.3
ø48	14	51.8
ø55	16	59.3

unit: mm

Code	Model	44	62	90	120	142	180	220
A	A1	50	70	100	130	165	215	250
	A2	4.5	5.5	6.8	9	11	13	17
	A3	13	16	22	32	40	55	75
	A4	35	50	80	110	130	160	180
	A5	6	6	9, 23.5	10, 20	10	12.5, 14.5	12.5, 14.5
	A6	M4 × P0.7	M5 × P0.8	M8 × P1.25	M10 × P1.5	M12 × P1.75	M14 × P2.0	M16 × P2.0
	A7	5	5	6	10	12	16	20
	A8	15	18	24.5	35	43	59	79.5
B	B1	44	62	90	120	142	180	220
	B2	26	36	48	65	92	106	139
	B3	5	7	10	12	15	20	30
	B4	15	20	30	40	65	70	90
	B5	20	28	36	50	74	82	104
	B6	5	8	10	12	15	16	20
	B7	76	84.5	122.1	148	165.5	223.6	231.6
	B8	98	115.5	167.1	208	236.5	313.6	341.6
	B9	124	151.5	215.1	273	328.5	419.6	480.6
C	C1	46, 60, 63	70, 75, 90	90, 100, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265	200, 265, 300
	C2	M3, M4, M5	M4, M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16	M12, M16
	C3	8, 9, 11	11, 14, 16, 19	16, 19, 22, 24	24, 28, 32	28, 32, 35, 38	35, 38, 42, 48, 55	38, 42, 48, 55
	C4	27	33.5, 42	53, 67.5	67, 77	85	117, 119	117, 119
	C5	30, 40, 50	50, 60, 70	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230	114.3, 230, 250
	C6	M4 × P0.7	M5 × P0.8	M6 × P1.0	M8 × P1.25	M10 × P1.5	M10 × P1.5	M10 × P1.5
	C7	46, 55	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250	222, 250, 265
	C8	61	77, 85	115.3, 129.8	141, 151	165.7	235, 237	235, 237
	C9	83	108, 116	160.3, 174.8	201, 211	236.7	325, 327	345, 347

PBL Series 1-Stage Specifications

Performance

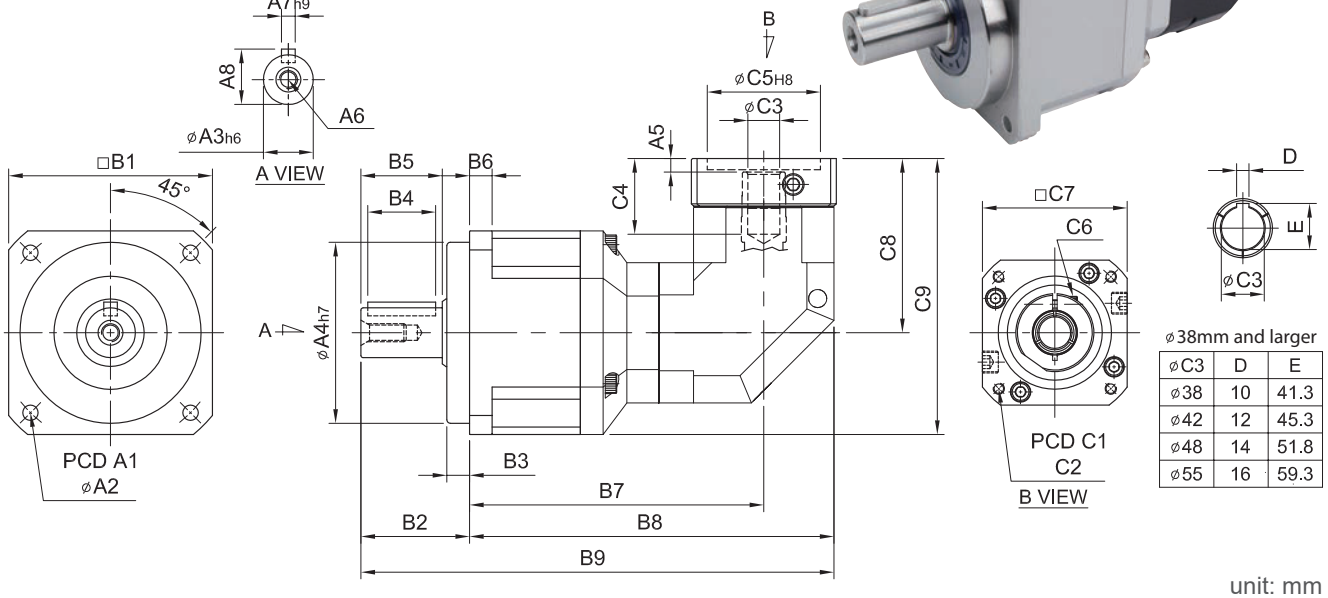
Parameter \ Model No.	Sym	Unit	Ratio	44	62	90	120	142	180	220
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	17	54	145	301	553	1,067	1,786
			4	15	48	128	269	491	940	1,587
			5	14	45	132	278	510	1,050	1,770
			6	13	41	125	252	466	985	1,680
			7	13	41	123	258	473	975	1,645
			8	12	39	115	241	442	942	1,605
			9	11	40	120	227	412	875	1,490
			10	12	40	116	246	452	930	1,565
			12	13	41	125	252	466	985	1,680
			14	13	41	123	258	473	975	1,645
			16	12	39	115	241	442	942	1,605
			18	11	40	120	227	412	875	1,490
			20	12	40	116	246	452	930	1,565
Max. Acceleration Torque	T_{2B}	Nm	3~20	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	3~20	3 Times of Rated Output Torque						
Rated Input Speed	n_{1N}	rpm	3~20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	n_{1B}	rpm	3~20	6,000	6,000	6,000	5,000	5,000	4,000	3,000
Torsional Rigidity		Nm/arcmin	3~20	3	6	14	27	60	140	240
Max. Radial Force	F_{2rB}	N	3~20	360	1,120	3,040	6,460	8,830	14,820	48,450
Max. Axial Force	F_{2aB}	N	3~20	180	560	1,520	3,230	4,410	7,410	24,225
Service Life	L_H	hr	3~20	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	η	%	3~20	≧ 95%						
Operating Temperature		℃	3~20	-25° C ~ +90° C						
Lubrication			3~20	Synthetic Grease						
Protection Class			3~20	IP65						
Mounting Position			3~20	Any						
Noise Level		dB	3~20	≦ 65	≦ 68	≦ 70	≦ 72	≦ 74	≦ 76	≦ 78
Weight ±3%		Kg	3~20	0.99	2.1	6.88	12.5	23.16	51	75.2

Mass Moments of Inertia ($kg.cm^2$)

Ratio	44	62	90	120	142	180	220
3	0.09	0.36	2.28	6.85	23.5	68.2	135.0
4	0.09	0.36	2.28	6.85	23.5	68.2	135.0
5	0.09	0.36	2.28	6.85	23.5	68.2	135.0
6	0.09	0.36	2.28	6.85	23.5	68.2	135.0
7	0.09	0.36	2.28	6.85	23.5	68.2	135.0
8	0.09	0.36	2.28	6.85	23.5	68.2	135.0
9	0.09	0.36	2.28	6.85	23.5	68.2	135.0
10	0.09	0.36	2.28	6.85	23.5	68.2	135.0
12	0.03	0.08	1.88	6.20	21.8	65.5	119.2
14	0.03	0.08	1.88	6.20	21.8	65.5	119.2
16	0.03	0.08	1.88	6.20	21.8	65.5	119.2
18	0.03	0.08	1.88	6.20	21.8	65.5	119.2
20	0.03	0.08	1.88	6.20	21.8	65.5	119.2

PBL Series

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200 (2-Stage)



ø38mm and larger

øC3	D	E
ø38	10	41.3
ø42	12	45.3
ø48	14	51.8
ø55	16	59.3

unit: mm

Code	Model	62	90	120	142	180	220
A	A1	70	100	130	165	215	250
	A2	5.5	6.8	9	11	13	17
	A3	16	22	32	40	55	75
	A4	50	80	110	130	160	180
	A5	6	6	9, 23.5	10, 20	10	12.5, 14.5
	A6	M5 × P0.8	M8 × P1.25	M10 × P1.5	M12 × P1.75	M14 × P2.0	M16 × P2.0
	A7	5	6	10	12	16	20
	A8	18	24.5	35	43	59	79.5
B	B1	62	90	120	142	180	220
	B2	36	48	65	92	106	139
	B3	7	10	12	15	20	30
	B4	20	30	40	65	70	90
	B5	28	36	50	74	82	104
	B6	8	10	12	15	16	20
	B7	110.5	130	181.6	214.5	249.5	313.6
	B8	132.5	161	266.6	274.5	320.5	403.6
	B9	168.5	209	291.6	366.5	426.5	542.6
C	C1	46, 60, 63	70, 75, 90	90, 110, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265
	C2	M3, M4, M5	M4, M5, M6	M5, M6, M8, M10	M6, M8, M10	M8, M10, M12	M10, M12, M16
	C3	8, 9, 11	11, 14, 16, 19	16, 19, 22, 24	24, 28, 32	28, 32, 35, 38	35, 38, 42, 48, 55
	C4	27	33.5, 42	53, 67.5	67, 77	85	117, 119
	C5	30, 40, 50	50, 60, 70	70, 80, 95, 110	70, 95, 110, 130	110, 130, 180	114.3, 180, 230
	C6	M4 × P0.7	M5 × P0.8	M6 × P1.0	M8 × P1.25	M10 × P1.5	M10 × P1.5
	C7	46, 55	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250
	C8	61	77, 85	115.3, 129.8	141, 151	165.7	235, 237
	C9	92	122, 130	175.3, 189.8	212, 222	255.7	345, 347

PBL Series 2-Stage Specifications

Performance

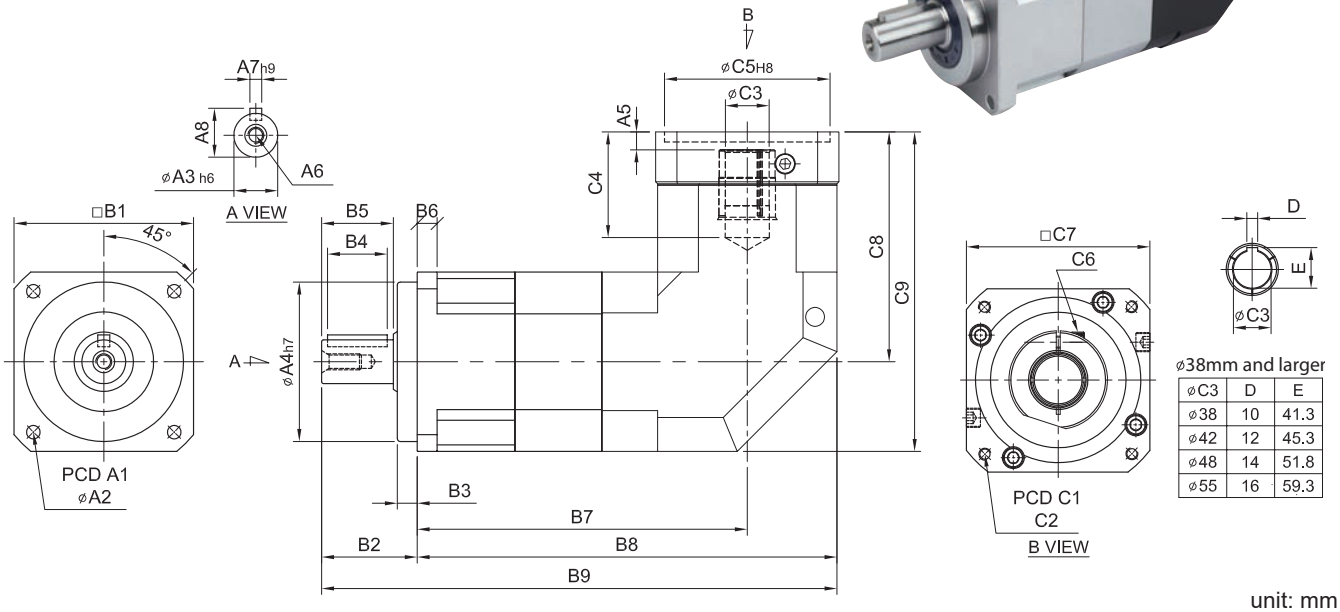
Parameter \ No.	Sym	Unit	Ratio	62	90	120	142	180	220
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	54	145	301	553	1,067	1,786
			20	48	128	269	491	940	1,587
			25	45	132	278	510	1,050	1,770
			30	41	125	252	466	985	1,680
			35	41	123	258	473	975	1,645
			40	39	115	241	442	942	1,605
			50	45	132	278	510	1,050	1,770
			60	41	125	252	466	985	1,680
			70	41	123	258	473	975	1,645
			80	40	115	241	442	942	1,605
			90	40	120	227	412	875	1,490
			100	40	116	246	452	930	1,565
			120	41	125	252	466	985	1,680
			140	41	123	258	473	975	1,645
			160	40	115	241	442	942	1,605
			180	40	120	227	412	875	1,490
			200	40	116	246	452	930	1,565
Max. Acceleration Torque	T_{2B}	Nm	15~200	1.8 Times of Rated Output Torque					
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	15~200	3 Times of Rated Output Torque					
Rated Input Speed	n_{1N}	rpm	15~200	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	n_{1B}	rpm	15~200	6,000	6,000	5,000	5,000	4,000	3,000
Torsional Rigidity		Nm/arcmin	15~200	6	14	27	60	140	240
Max. Radial Force	F_{2rB}	N	15~200	1,120	3,040	6,460	8,830	14,820	48,450
Max. Axial Force	F_{2aB}	N	15~200	560	1,520	3,230	4,410	7,410	24,225
Service Life	L_H	hr	15~200	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
Efficiency	η	%	15~200	≧ 92%					
Operating Temperature		℃	15~200	-25° C ~ +90° C					
Lubrication			15~200	Synthetic Grease					
Protection Class			15~200	IP65					
Mounting Position			15~200	Any					
Noise Level		dB	15~200	≦ 68	≦ 70	≦ 72	≦ 74	≦ 76	≦ 78
Weight ±3%		Kg	15~200	2	6.1	12.5	23.2	41.4	73

Mass Moments of Inertia ($kg.cm^2$)

Ratio	62	90	120	142	180	220
15	0.09	0.36	2.28	6.85	26.2	70.1
20	0.09	0.36	2.28	6.85	26.2	70.1
25	0.09	0.36	2.28	6.85	23.1	68.2
30	0.09	0.36	2.28	6.85	23.1	68.2
35	0.09	0.36	2.28	6.85	23.1	68.2
40	0.09	0.36	2.28	6.85	23.1	68.2
50	0.09	0.36	2.28	6.85	23.1	68.2
60	0.09	0.36	2.28	6.85	23.1	68.2
70	0.09	0.36	2.28	6.85	23.1	68.2
80	0.09	0.36	2.28	6.85	23.1	68.2
90	0.09	0.36	2.28	6.85	23.1	68.2
100	0.09	0.36	2.28	6.85	23.1	68.2
120	0.03	0.10	1.88	6.20	21.2	65.1
140	0.03	0.10	1.88	6.20	21.2	65.1
160	0.03	0.10	1.88	6.20	21.2	65.1
180	0.03	0.10	1.88	6.20	21.2	65.1
200	0.03	0.10	1.88	6.20	21.2	65.1

PBL-A Series

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200 (2-Stage)



øC3 and larger

øC3	D	E
ø38	10	41.3
ø42	12	45.3
ø48	14	51.8
ø55	16	59.3

unit: mm

Code \ Model		44A	62A	90A	120A	142A	180A	220A
A	A1	50	70	100	130	165	215	250
	A2	4.5	5.5	6.8	9	11	13	17
	A3	13	16	22	32	40	55	75
	A4	35	50	80	110	130	160	180
	A5	6	6	9, 23.5	10, 20	10	12.5, 14.5	12.5, 14.5
	A6	M4 × P0.7	M5 × P0.8	M8 × P1.25	M10 × P1.5	M12 × P1.75	M14 × P2.0	M16, P2.0
	A7	5	5	6	10	12	16	20
	A8	15	18	24.5	35	43	59	79.5
B	B1	44	62	90	120	142	180	220
	B2	26	36	48	65	92	106	139
	B3	5	7	10	12	15	20	30
	B4	15	20	30	40	65	70	90
	B5	20	28	36	50	74	82	104
	B6	5	8	10	12	15	16	20
	B7	102	118.3	165.6	204	232	304.6	324.6
	B8	124	149.3	210.6	264	303	394.6	434.6
	B9	150	185.3	258.6	329	395	500.6	573.6
C	C1	46, 60, 63	70, 75, 90	90, 100, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265	200, 265, 300
	C2	M3, M4, M5	M4, M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16	M12, M16
	C3	8, 9, 11	11, 14, 16, 19	16, 19, 22, 24	24, 28, 32	28, 32, 35, 38	35, 38, 42, 48, 55	38, 42, 48, 55
	C4	27	33.5, 42	53, 67.5	67, 77	85	117, 119	117, 119
	C5	30, 40, 50	50, 60, 70	70, 80, 95, 110	95, 110, 130	110 , 130, 180	114.3, 180, 230	114.3, 230, 250
	C6	M4 × P0.7	M5 × P0.8	M6 × P1.0	M8 × P1.25	M10 × P1. 5	M10 × P1.5	M10, P1.5
	C7	46, 55	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250	220, 250, 265
	C8	61	77, 85	115.3, 129.8	141, 151	165.7	235, 237	235, 237
	C9	83	108, 116	160.3, 174.8	201, 211	236.7	325, 327	345, 34

PBL-A Series 2-Stage Specifications

Performance

Parameter \ Model No.	Sym	Unit	Ratio	44A	62A	90A	120A	142A	180A	220A
Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	17	54	145	301	553	1,067	1,786
			20	15	48	128	269	491	940	1,587
			25	14	45	132	278	510	1,050	1,770
			30	13	41	125	252	466	985	1,680
			35	13	41	123	258	473	975	1,645
			40	12	39	115	241	442	942	1,605
			50	11	45	132	278	510	1,050	1,770
			60	12	41	125	252	466	985	1,680
			70	13	41	123	258	473	975	1,645
			80	13	40	115	241	442	942	1,605
			90	12	40	120	227	412	875	1,490
			100	11	40	116	246	452	930	1,565
			120	12	41	125	252	466	985	1,680
			140	13	41	123	258	473	975	1,645
			160	13	39	115	241	442	942	1,605
			180	12	40	120	227	412	875	1,490
			200	11	40	116	246	452	930	1,565
Max. Acceleration Torque	T_{2B}	Nm	15~200	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T_{2NOT}	Nm	15~200	3 Times of Rated Output Torque						
Rated Input Speed	n_{1N}	rpm	15~200		3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	n_{1B}	rpm	15~200		6,000	6,000	5,000	5,000	4,000	3,000
Torsional Rigidity		Nm/arcmin	15~200		6	14	27	60	140	240
Max. Radial Force	F_{2rB}	N	15~200		1,120	3,040	6,460	8,830	14,820	48,450
Max. Axial Force	F_{2aB}	N	15~200		560	1,520	3,230	4,410	7,410	24,225
Service Life	L_H	hr	15~200	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	η	%	15~200	≧ 92%						
Operating Temperature		℃	15~200	-25° C ~ +90° C						
Lubrication			15~200	Synthetic Grease						
Protection Class			15~200	IP65						
Mounting Position			15~200	Any						
Noise Level		dB	15~200	≦ 65	≦ 68	≦ 70	≦ 72	≦ 74	≦ 76	≦ 78
Weight ±3%		Kg	15~200	1.5	3	8.15	13.9	29.4	52.4	94.5

Mass Moments of Inertia ($kg.cm^2$)

Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.09	0.36	2.28	6.85	23.50	55.2	80.2
20	0.09	0.36	2.28	6.85	23.50	55.2	80.2
25	0.09	0.36	2.28	6.85	23.50	50.4	76.5
30	0.09	0.36	2.28	6.85	23.50	50.4	76.5
35	0.09	0.36	2.28	6.85	23.50	50.4	76.5
40	0.09	0.36	2.28	6.85	23.50	50.4	76.5
50	0.09	0.36	2.28	6.85	23.50	50.4	76.5
60	0.09	0.36	2.28	6.85	23.50	50.4	76.5
70	0.09	0.36	2.28	6.85	23.50	50.4	76.5
80	0.09	0.36	2.28	6.85	23.50	50.4	76.5
90	0.09	0.36	2.28	6.85	23.50	50.4	76.5
100	0.09	0.36	2.28	6.85	23.50	50.4	76.5
120	0.03	0.08	1.88	6.20	21.80	48.7	74.2
140	0.03	0.08	1.88	6.20	21.80	48.7	74.2
160	0.03	0.08	1.88	6.20	21.80	48.7	74.2
180	0.03	0.08	1.88	6.20	21.80	48.7	74.2
200	0.03	0.08	1.88	6.20	21.80	48.7	74.2