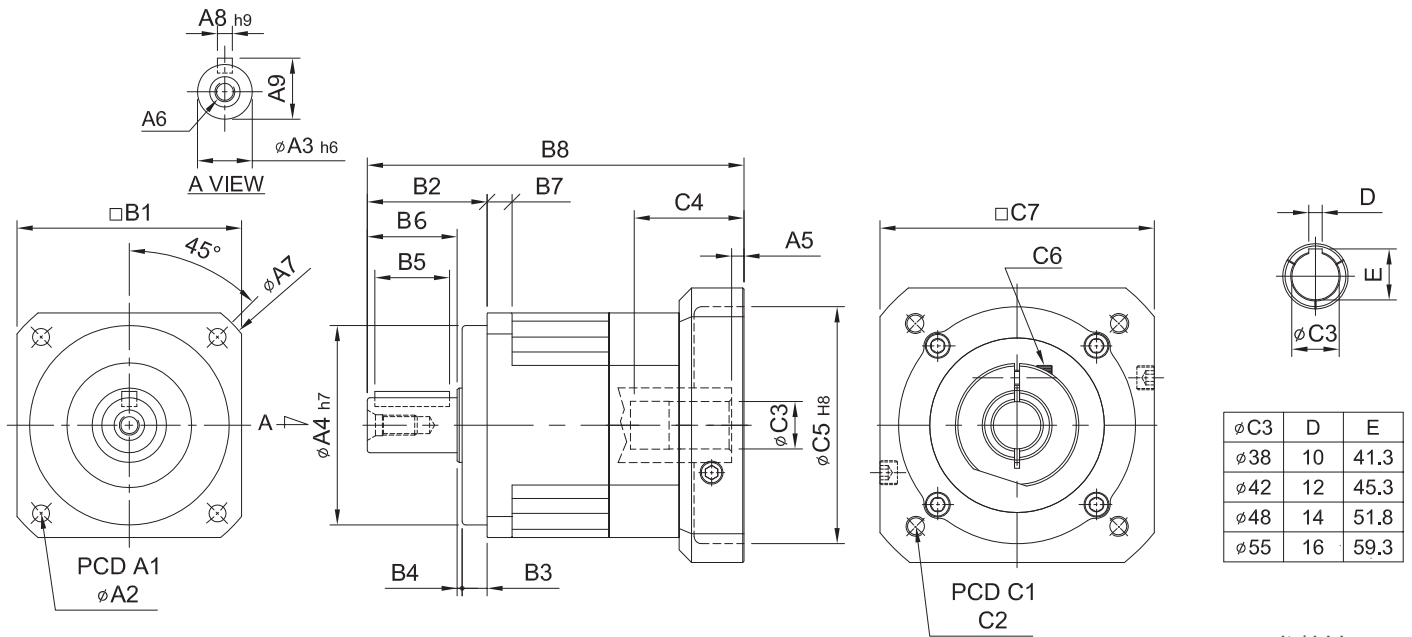


# SERVOBOX

## MODEL : SB

1-Stage / Kademe

RATIO / ÇEVİRİM : 3, 4, 5, 6, 7, 8, 9, 10



$\phi$ C3	D	E
$\phi$ 38	10	41.3
$\phi$ 42	12	45.3
$\phi$ 48	14	51.8
$\phi$ 55	16	59.3

unit / birim: mm

Model Code	44	62	90	120	142	180	220
<b>A</b> 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	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
<b>B</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	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
B8	95	115 · 123	164.5 · 179	205 · 215	260.5	323.5	367.5
<b>C</b> C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	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	14 · 19	19 · 22 · 24	24 · 28 · 32	28 · 32 · 35	38 · 42 · 48 · 55	42 · 48 · 55
C4	26	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5	117.5 · 119.5
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 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265



Model No.		Unit/Birim	Ratio Çevrim	44	62	90	120	142	180	220
Nominal output torque / Nominal Çıkış Torku	$T_{2N}$	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			9	13	44	145	278	516	993	1,694
			10	14	43	141	294	549	1,059	1,779
Max. Acceleration Torque / Max.İvmelenme Torku	$T_{2B}$	Nm	3 ~ 10	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku						
Max. Output Torque / Max.Çıkış Torku	$T_{2NOT}$	Nm	3 ~ 10	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku						
Rated Input Speed / Nominal Giriş Devri	$n_{1N}$	rpm	3 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed / Max.Giriş Devri	$n_{1B}$	rpm	3 ~ 10	6,000	6,000	6,000	5,000	5,000	4,000	3,000
Backlash P <sub>s</sub> / Min.Boşluk Oranı		arcmin	3 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Backlash P <sub>0</sub> / Düşük Boşluk Oranı		arcmin	3 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P <sub>1</sub> / Azaltılmış Boşluk Oranı		arcmin	3 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P <sub>2</sub> / Standart Boşluk Oranı		arcmin	3 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Torsional Rigidity / Burulma Direnci		Nm/arcmin	3 ~ 10	3	6	14	27	60	140	240
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	3 ~ 10	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	3 ~ 10	190	590	1,600	3,400	4,650	7,800	25,500
Service Life / Hizmet Ömrü	$L_H$	hr	3 ~ 10	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency / Verim	$\eta$	%	3 ~ 10	≥ 97						
Operating Temperature / Çalışma Sıcaklığı		°C	3 ~ 10	- 25° C ~ + 90° C						
Lubrication / Yağlama			3 ~ 10	Synthetic Grease / Sentetik Gres						
Protection Class / Koruma Sınıfı			3 ~ 10	IP65						
Mounting Position / Montaj Pozisyonu			3 ~ 10	Any / Her Yönde						
Noise Level / Ses Seviyesi		dB	3 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight / Ağırlık ±3%		Kg	3 ~ 10	0.6	1.28	3.6	8	14.3	28.3	42.5

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

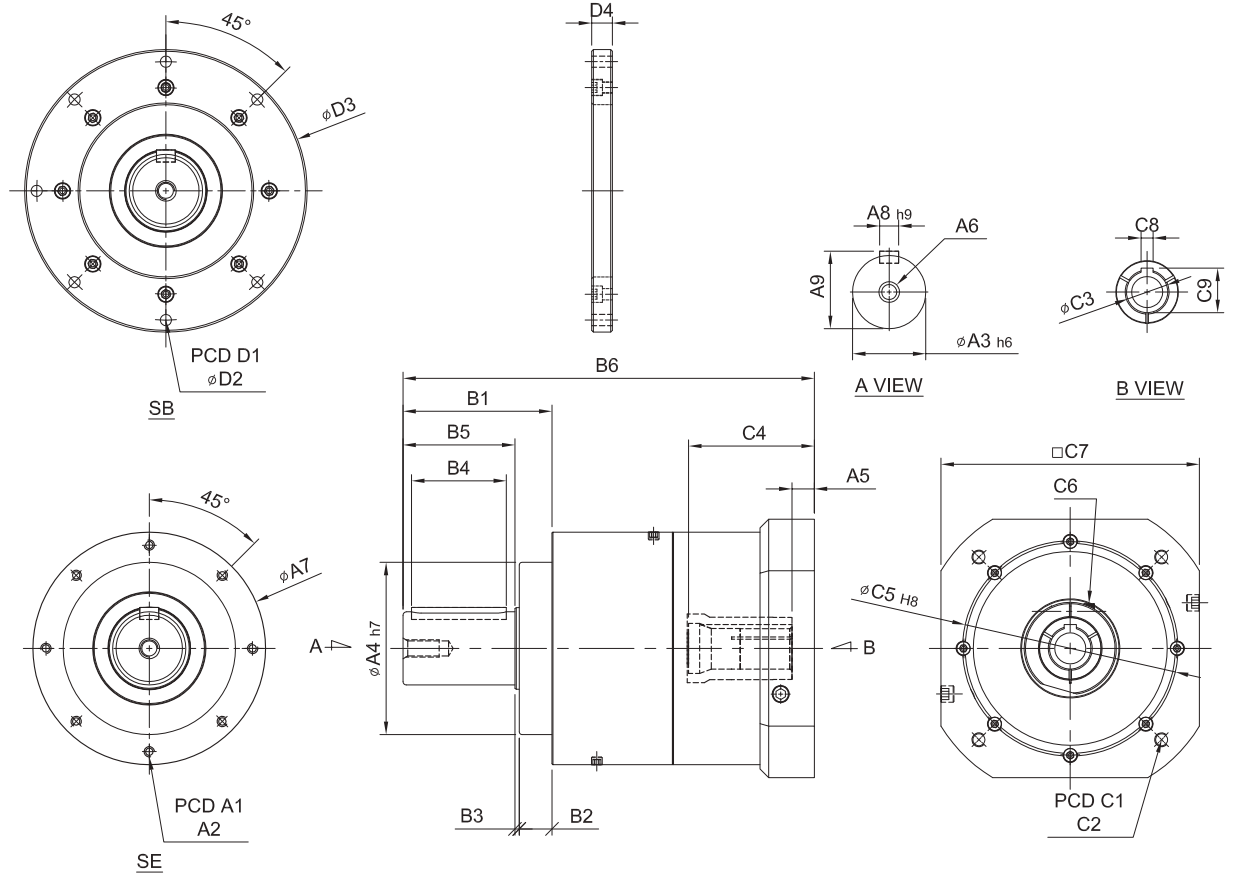
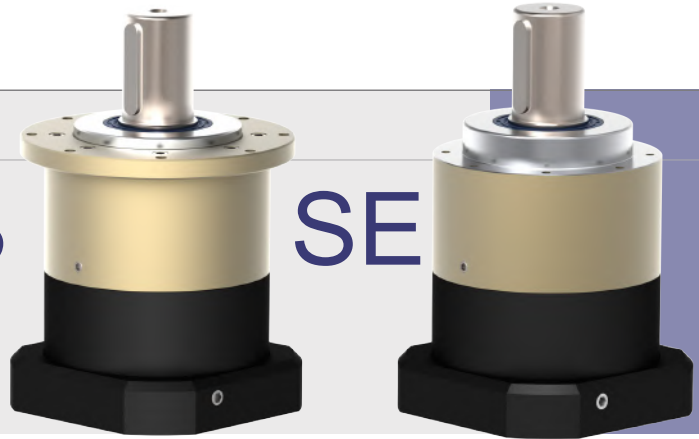
Ratio / Çevrim	44	62	90	120	142	180	220
3	0.03	0.16	0.61	3.25	9.21	28.98	59.61
4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
10	0.03	0.13	0.44	2.57	7.03	22.51	50.56

# SERVOBOX

## MODEL : SB SE

1-Stage / Kademe

RATIO / ÇEVİRİM : 3, 4, 5, 7, 10



unit / birim: mm

Model Code	270	330	
<b>A</b>	A1	240	300
	A2	M12 x P1.75	M16 x P2.0
	A3	85	100
	A4	200	250
	A5	26 · 23	26 · 23
	A6	M20 x P2.5	M24 x P3.0
	A7	270	336
	A8	22	28
	A9	90	106
<b>B</b>	B1	173	187
	B2	38	42
	B3	5	5
	B4	110	120
	B5	130	140
	B6	474.5 · 477.5 · 485	512 · 515

unit / birim: mm

Model Code	270	330	
<b>C</b>	C1	265 · 300 · 350	265 · 300 · 350
	C2	M12 · M16 · M18	M12 · M16 · M18
	C3	48 · 55 · 60 · 70	55 · 60 · 75
	C4	143 · 146	143 · 146
	C5	230 · 250 · 300	230 · 250 · 300
	C6	M12 x P1.75	M12 x P1.75
	C7	280 · 300 · 330	280 · 300 · 330
	C8	14 · 16 · 18 · 20	16 · 18 · 20
	C9	51.8 · 59.3 · 64.4 · 74.8	59.3 · 64.4 · 80
<b>D</b>	D1	300	380
	D2	13	17
	D3	328	416
	D4	24	28



Model No.		Unit/Birim	Ratio Çevrim	270	330
Nominal output torque / Nominal Çıkış Torqu	$T_{2N}$	Nm	3	4,770	8,790
			4	4,730	8,730
			5	4,680	8,660
			7	4,570	8,520
			10	4,420	8,310
Max. Acceleration Torque / Max.İvmelenme Torqu		Nm	3 ~ 10	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torqu	
Max. Output Torque / Max.Çıkış Torqu	$T_{2NOT}$	Nm	3 ~ 10	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torqu	
Rated Input Speed / Nominal Giriş Devri	$n_{1N}$	rpm	3 ~ 10	2,000	2,000
Max. Input Speed / Max. Giriş Devri	$n_{1B}$	rpm	3 ~ 10	3,000	3,000
Backlash Ps / Min.Boşluk Oranı		arcmin	3 ~ 10	$\leq 1$	$\leq 1$
Backlash P0 / Düşük Boşluk Oranı		arcmin	3 ~ 10	$\leq 3$	$\leq 3$
Backlash P1 / Azaltılmış Boşluk Oranı		arcmin	3 ~ 10	$\leq 5$	$\leq 5$
Backlash P2 / Standart Boşluk Oranı		arcmin	3 ~ 10	$\leq 7$	$\leq 7$
Torsional Rigidity / Burulma Direnci		Nm/arcmin	3 ~ 10	510	980
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	3 ~ 10	107,100	224,910
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	3 ~ 10	53,550	112,455
Service Life / Hizmet Ömrü	$L_H$	hr	3 ~ 10	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)	
Efficiency / Verim	$\eta$	%	3 ~ 10	$\geq 97$	
Operating Temperature / Çalışma Sıcaklığı		°C	3 ~ 10	- 25° C ~ + 90° C	
Lubrication / Yağlama			3 ~ 10	Synthetic Grease / Sentetik Gres	
Protection Class / Koruma Sınıfı			3 ~ 10	IP65	
Mounting Position / Montaj Pozisyonu			3 ~ 10	Any / Her Yönde	
Noise Level / Ses Seviyesi		dB	3 ~ 10	$\leq 72$	$\leq 74$
Weight / Ağırlık $\pm 3\%$		Kg	3 ~ 10	SB : 97 · SE : 87.5	SB : 190 · SE : 172

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

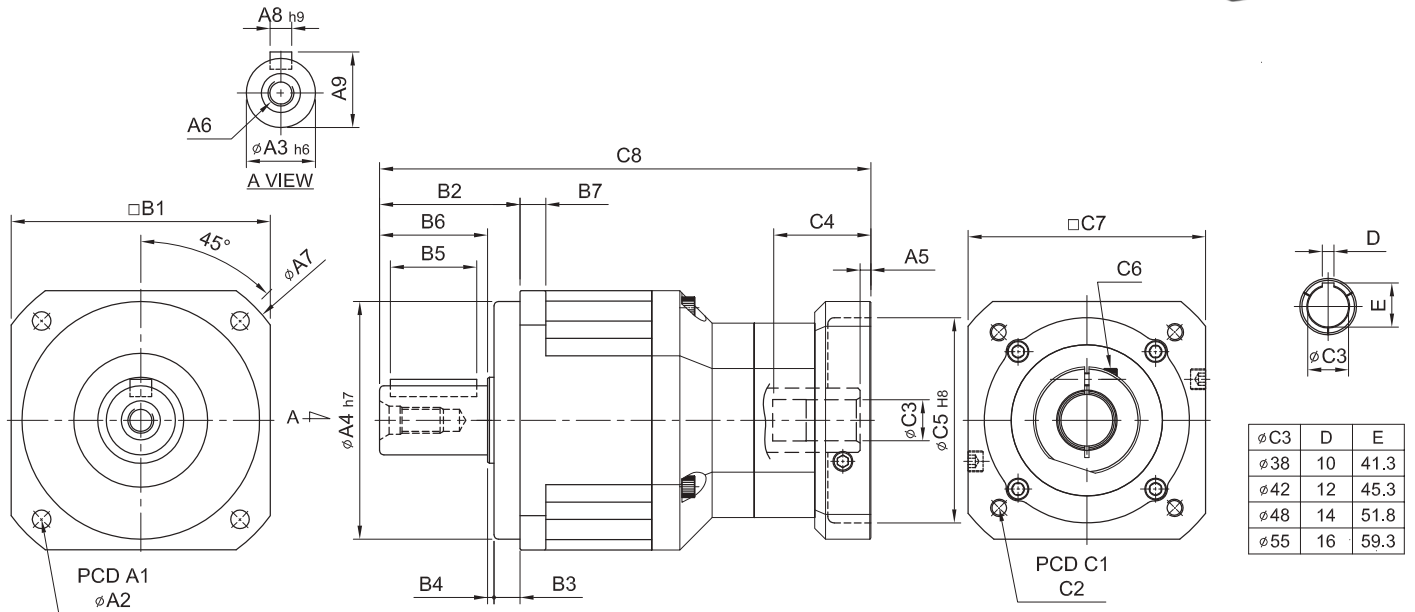
Ratio / Çevrim	270	330
3	122.20	252.96
4	111.46	230.72
5	109.20	226.05
7	104.49	216.29
10	103.65	214.55

# SERVOBOX

## MODEL : SB

2-Stage / Kademe

RATIO / ÇEVİRİM : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



ø C3	D	E
ø38	10	41.3
ø42	12	45.3
ø48	14	51.8
ø55	16	59.3

unit / birim: mm

Model Code	62	90	120	142	180	220
<b>A</b>						
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	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5
A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	80	116	148	186	238	288
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
<b>B</b>						
B1	62	90	120	142	180	220
B2	36	48	65	92	106	139
B3	7	10	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	8	10	12	15	16	20
<b>C</b>						
C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8 · M10	M6 · M8 · M10	M8 · M10 · M12	M10 · M12
C3	8 · 9 · 11	14 · 19	19 · 22 · 24	24 · 28 · 32	28 · 32 · 35	38 · 42 · 48 · 55
C4	26	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	70 · 95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 180 · 190	182 · 200 · 250
C8	139.5	172.5 · 180.5	241 · 255.5	298.5 · 308.5	358.5	446.5



Model No.		Unit/Birim	Ratio Çevrim	62	90	120	142	180	220
Nominal output torque / Nominal Çıkış Torqu	$T_{2N}$	Nm	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
			90	44	145	278	516	993	1,694
100	43	141	294	549	1,059	1,779			
Max. Acceleration Torque / Max. İvmelenme Torqu	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torqu					
Max. Output Torque / Max. Çıkış Torqu	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torqu					
Rated Input Speed / Nominal Giriş Devri	$n_{1N}$	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed / Max. Giriş Devri	$n_{1B}$	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000	3,000
Backlash Ps / Min. Boşluk Oranı		arcmin	15 ~ 100	-	-	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P0 / Düşük Boşluk Oranı		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P1 / Azaltılmış Boşluk Oranı		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P2 / Standart Boşluk Oranı		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Torsional Rigidity / Burulma Direnci		Nm/arcmin	15 ~ 100	6	14	27	60	140	240
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	15 ~ 100	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	15 ~ 100	590	1,600	3,400	4,650	7,800	25,500
Service Life / Hizmet Ömrü	$L_H$	hr	15 ~ 100	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
Efficiency / Verim	$\eta$	%	15 ~ 100	≥ 94					
Operating Temperature / Çalışma Sıcaklığı		°C	15 ~ 100	- 25° C ~ + 90° C					
Lubrication / Yağlama			15 ~ 100	Synthetic Grease / Sentetik Gres					
Protection Class / Koruma Sınıfı			15 ~ 100	IP65					
Mounting Position / Montaj Pozisyonu			15 ~ 100	Any / Her Yönde					
Noise Level / Ses Seviyesi		dB	15 ~ 100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight / Ağırlık ±3%		Kg	15 ~ 100	1.73	4.6	9.42	17.2	34.1	57.3

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

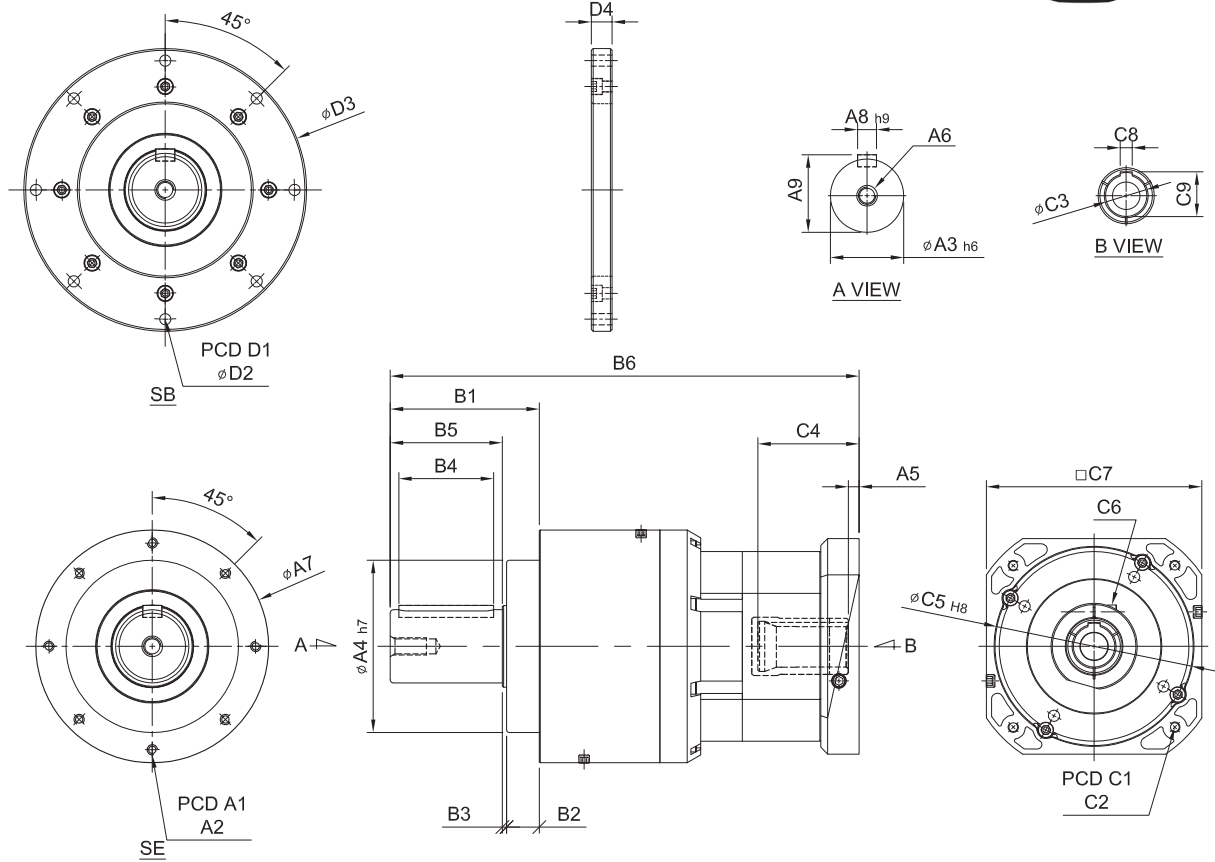
Ratio / Çevrim	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.14	0.40	2.39	6.72	21.60

# SERVOBOX

## MODEL : SB SE

2-Stage / Kademe

RATIO / ÇEVİRİM: 15,20,25,30,35,40,50,70,100



unit / birim: mm

	Model	270	330
	<b>A</b>	Code	
	A1	240	300
	A2	M12 x P1.75	M16 x P2.0
	A3	85	100
	A4	200	250
	A5	12.5	26 · 23
	A6	M20 x P2.5	M24 x P3.0
	A7	270	336
	A8	22	28
	A9	90	106
<b>B</b>	B1	173	187
	B2	38	42
	B3	5	5
	B4	110	120
	B5	130	140
	B6	544 · 547	625 · 632.5 · 635.5

unit / birim: mm

	Model	270	330
	<b>C</b>	Code	
	C1	200 · 265 · 300	265 · 300 · 350
	C2	M12 · M16	M12 · M16 · M18
	C3	42 · 48 · 55	48 · 55 · 60 · 70
	C4	117.5 · 120.5	146 · 149
	C5	114.3 · 230 · 250	230 · 250 · 300
	C6	M10 x P1.5	M12 x P1.75
	C7	222 · 250 · 265	280 · 300 · 330
	C8	12 · 14 · 16	14 · 16 · 18 · 20
	C9	45.3 · 51.8 · 59.3	51.8 · 59.3 · 64.4 · 74.8
<b>D</b>	D1	300	380
	D2	13	17
	D3	328	416
	D4	24	28



Model No.		Unit/Birim	Ratio Çevrim	270	330
Nominal output torque / Nominal Çıkış Torku	$T_{2N}$	Nm	15	4,770	8,790
			20	4,730	8,730
			25	4,680	8,660
			30	4,620	8,610
			35	4,570	8,520
			40	4,520	8,440
			50	4,680	8,660
			70	4,570	8,520
			100	4,420	8,310
Max. Acceleration Torque / Max. İvmelenme Torku	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku	
Max. Output Torque / Max. Çıkış Torku	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku	
Rated Input Speed / Nominal Giriş Devri	$n_{IN}$	rpm	15 ~ 100	2,000	2,000
Max. Input Speed / Max. Giriş Devri	$n_{IB}$	rpm	15 ~ 100	3,000	3,000
Backlash Ps / Min. Boşluk Oranı		arcmin	15 ~ 100	$\leq 3$	$\leq 3$
Backlash P0 / Düşük Boşluk Oranı		arcmin	15 ~ 100	$\leq 5$	$\leq 5$
Backlash P1 / Azaltılmış Boşluk Oranı		arcmin	15 ~ 100	$\leq 7$	$\leq 7$
Backlash P2 / Standart Boşluk Oranı		arcmin	15 ~ 100	$\leq 9$	$\leq 9$
Torsional Rigidity / Burulma Direnci		Nm/arcmin	15 ~ 100	510	980
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	15 ~ 100	107,100	224,910
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	15 ~ 100	53,550	112,455
Service Life / Hizmet Ömrü	$L_H$	hr	15 ~ 100	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)	
Efficiency / Verim	$\eta$	%	15 ~ 100	$\geq 94$	
Operating Temperature / Çalışma Sıcaklığı		°C	15 ~ 100	- 25° C ~ + 90° C	
Lubrication / Yağlama			15 ~ 100	Synthetic Grease / Sentetik Gres	
Protection Class / Koruma Sınıfı			15 ~ 100	IP65	
Mounting Position / Montaj Pozisyonu			15 ~ 100	Any / Her Yönde	
Noise Level / Ses Seviyesi		dB	15 ~ 100	$\leq 72$	$\leq 74$
Weight / Ağırlık $\pm 3\%$		Kg	15 ~ 100	SB : 137 · SE : 127.5	

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

Ratio / Çevrim	270	330
15	63.81	185.05
20	63.81	185.05
25	63.81	185.05
30	63.25	183.43
35	63.25	183.43
40	63.25	183.43
50	63.25	183.43
70	61.12	177.26
100	60.48	175.39

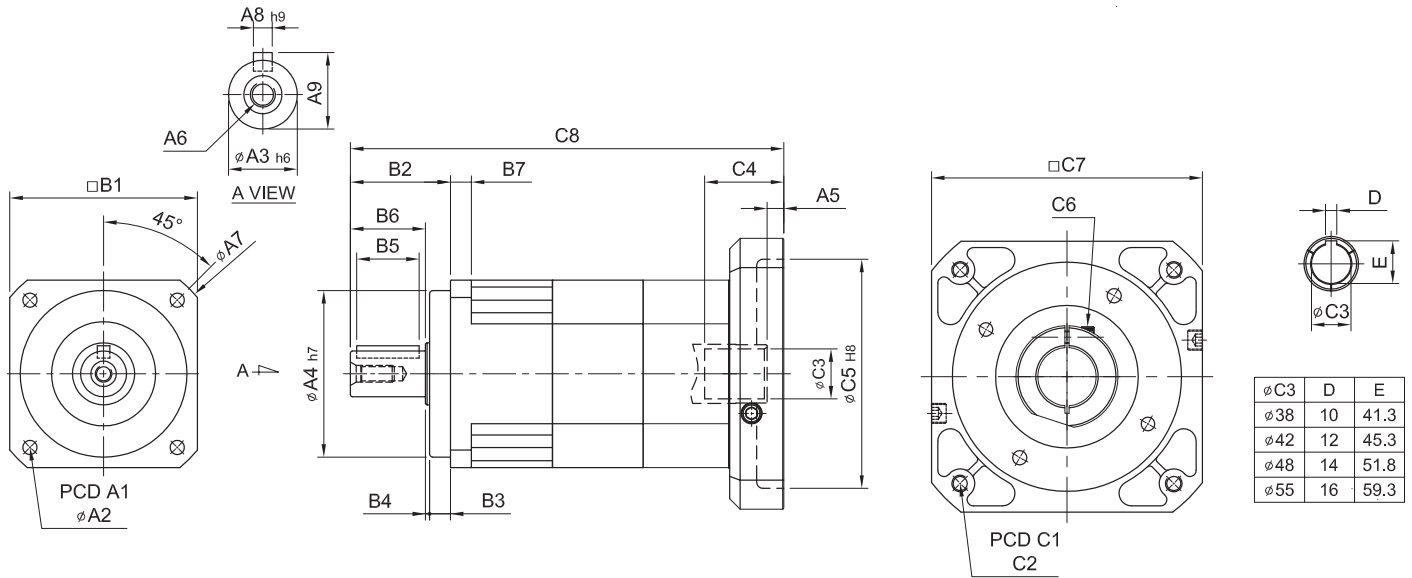


# SERVOBOX

## MODEL : SB-A

2-Stage / Kademe

RATIO / ÇEVİRİM : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



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

unit / birim: mm

Model Code	44A	62A	90A	120A	142A	180A	220A
<b>A</b>							
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	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
<b>B</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	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
<b>C</b>							
C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12	M12 · M16
C3	8 · 9 · 11	14 · 19	19 · 22 · 24	24 · 28 · 32	28 · 32 · 35	38 · 42 · 48 · 55	42 · 48 · 55
C4	26	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5	117.5 · 119.5
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 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265
C8	121	148.8 · 156.8	208 · 222.5	261 · 271	327	404.5	460.5



Model No.		Unit/Birim	Ratio Çevrim	44A	62A	90A	120A	142A	180A	220A
Nominal output torque / Nominal Çıkış Torku	$T_{2N}$	Nm	15	19	59	165	335	625	1,206	2,030
			20	16	51	146	300	555	1,069	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			50	16	48	160	333	618	1,189	2,010
			60	15	45	151	311	583	1,118	1,911
			70	15	45	149	309	573	1,108	1,870
			80	14	43	143	298	553	1,070	1,824
			90	13	44	145	278	516	993	1,694
100	14	43	141	294	549	1,059	1,779			
Max. Acceleration Torque / Max. İvmelenme Torku	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku						
Max. Output Torque / Max. Çıkış Torku	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku						
Rated Input Speed / Nominal Giriş Devri	$n_{1N}$	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed / Max. Giriş Devri	$n_{1B}$	rpm	15 ~ 100	6,000	6,000	6,000	5,000	5,000	4,000	3,000
Backlash Ps / Min. Boşluk Oranı		arcmin	15 ~ 100	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P0 / Düşük Boşluk Oranı		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P1 / Azaltılmış Boşluk Oranı		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P2 / Standart Boşluk Oranı		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Torsional Rigidity / Burulma Direnci		Nm/arcmin	15 ~ 100	3	6	14	27	60	140	240
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	15 ~ 100	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	15 ~ 100	190	590	1,600	3,400	4,650	7,800	25,500
Service Life / Hizmet Ömrü	$L_H$	hr	15 ~ 100	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency / Verim	$\eta$	%	15 ~ 100	≥ 94						
Operating Temperature / Çalışma Sıcaklığı		°C	15 ~ 100	- 25° C ~ + 90° C						
Lubrication / Yağlama			15 ~ 100	Synthetic Grease / Sentetik Gres						
Protection Class / Koruma Sınıfı			15 ~ 100	IP65						
Mounting Position / Montaj Pozisyonu			15 ~ 100	Any / Her Yönde						
Noise Level / Ses Seviyesi		dB	15 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight / Ağırlık ±3%		Kg	15 ~ 100	0.6	2	5.5	11	21	42	59

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

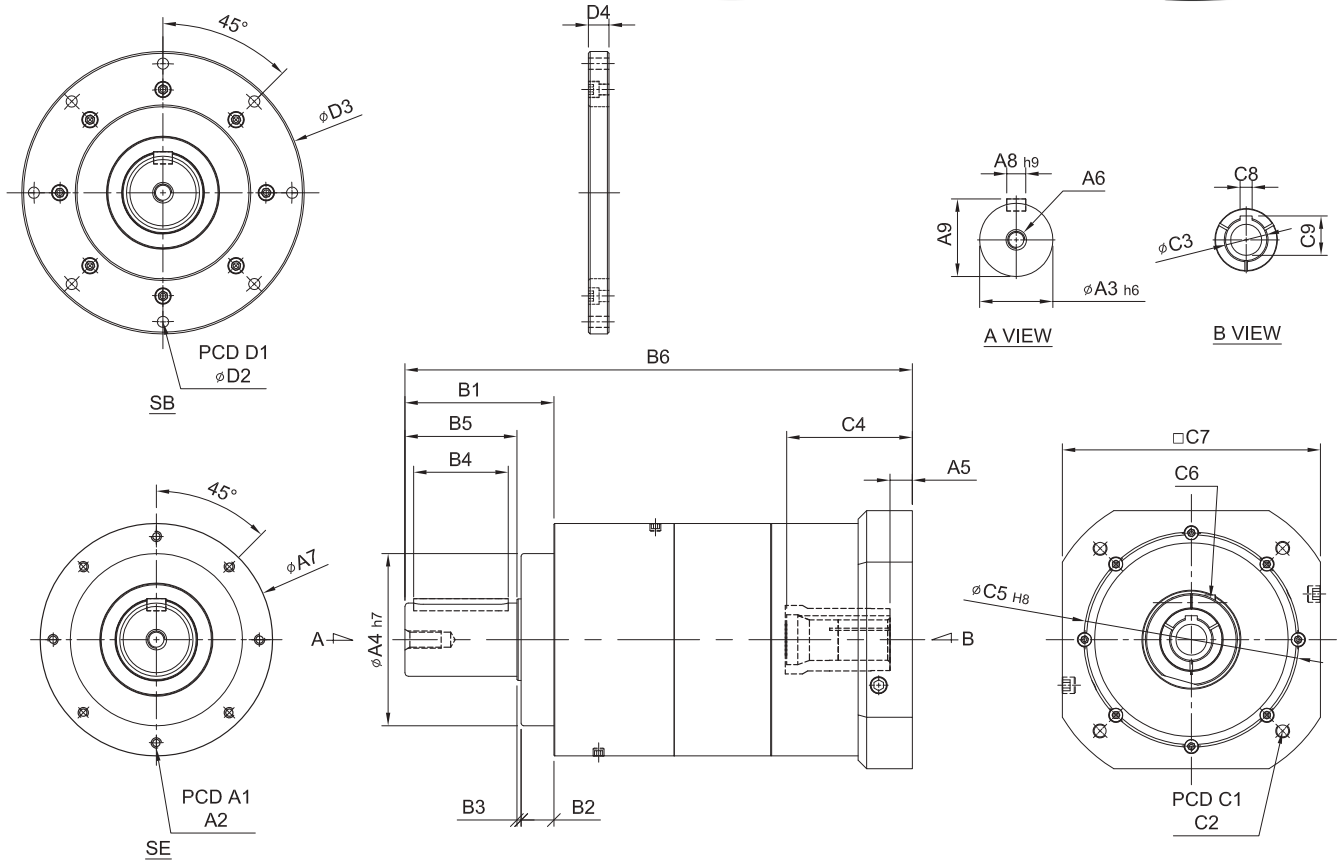
Ratio / Çevrim	44A	62A	90A	120A	142A	180A	220A
15	0.03	0.14	0.46	2.63	7.30	22.79	56.98
20	0.03	0.14	0.46	2.63	7.30	22.79	56.98
25	0.03	0.14	0.46	2.63	7.10	22.79	56.98
30	0.03	0.14	0.46	2.43	7.10	22.59	56.48
35	0.03	0.14	0.44	2.43	7.10	22.59	56.48
40	0.03	0.14	0.44	2.43	6.92	22.59	56.48
50	0.03	0.14	0.44	2.43	6.92	22.59	56.48
60	0.03	0.14	0.43	2.39	6.72	21.83	54.58
70	0.03	0.14	0.43	2.39	6.72	21.83	54.58
80	0.03	0.14	0.43	2.39	6.72	21.83	54.58
90	0.03	0.14	0.40	2.39	6.72	21.60	54.00
100	0.03	0.14	0.43	2.39	6.72	21.83	54.58

# SERVOBOX

## MODEL: SB-A SE-A

2-Stage / Kademe

RATIO / ÇEVİRİM : 15,20,25,30,35,40,50,70,100



unit / birim: mm

Model Code	270A
A1	240
A2	M12 x P1.75
A3	85
A4	200
A5	26 · 23
A6	M20 x P2.5
A7	270
A8	22
A9	90
B1	173
B2	38
B3	5
B4	110
B5	130
B6	586.5 · 589.5

unit / birim: mm

Model Code	270A
C1	265 · 300 · 350
C2	M12 · M16 · M18
C3	48 · 55 · 60
C4	143 · 146 · 149
C5	230 · 250 · 300
C6	M12 x P1.75
C7	280 · 300 · 330
C8	14 · 16 · 18
C9	51.8 · 59.3 · 64.4
D1	300
D2	13
D3	328
D4	24



Model No.	Unit/Birim	Ratio Çevrim	270A	
Nominal output torque / Nominal Çıkış Torqu	$T_{2N}$	Nm	15	4,770
			20	4,730
			25	4,680
			30	4,770
			35	4,570
			40	4,770
			50	4,680
			70	4,570
100	4,220			
Max. Acceleration Torque / Max. İvmelenme Torqu	Nm	15 ~ 100	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torqu	
Max. Output Torque / Max. Çıkış Torqu	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torqu
Rated Input Speed / Nominal Giriş Devri	$n_{IN}$	rpm	15 ~ 100	2,000
Max. Input Speed / Max. Giriş Devri	$n_{IB}$	rpm	15 ~ 100	3,000
Backlash P <sub>s</sub> / Min. Boşluk Oranı		arcmin	15 ~ 100	≤ 3
Backlash P <sub>0</sub> / Düşük Boşluk Oranı		arcmin	15 ~ 100	≤ 5
Backlash P <sub>1</sub> / Azaltılmış Boşluk Oranı		arcmin	15 ~ 100	≤ 7
Backlash P <sub>2</sub> / Standart Boşluk Oranı		arcmin	15 ~ 100	≤ 9
Torsional Rigidity / Burulma Direnci		Nm/arcmin	15 ~ 100	510
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	15 ~ 100	107,100
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	15 ~ 100	53,550
Service Life / Hizmet Ömrü	$L_H$	hr	15 ~ 100	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)
Efficiency / Verim	$\eta$	%	15 ~ 100	≥ 94
Operating Temperature / Çalışma Sıcaklığı		°C	15 ~ 100	- 25° C ~ + 90° C
Lubrication / Yağlama			15 ~ 100	Synthetic Grease / Sentetik Gres
Protection Class / Koruma Sınıfı			15 ~ 100	IP65
Mounting Position / Montaj Pozisyonu			15 ~ 100	Any / Her Yönde
Noise Level / Ses Seviyesi		dB	15 ~ 100	≤ 72
Weight / Ağırlık ±3%		Kg	15 ~ 100	

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

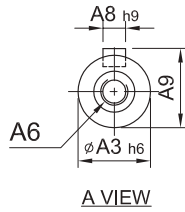
Ratio / Çevrim	270A
15	65.74
20	65.74
25	65.74
30	64.86
35	64.86
40	64.86
50	64.86
70	62.62
100	61.17

# SERVOBOX

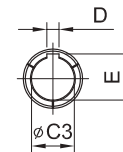
## MODEL : SB

3-Stage / Kademe

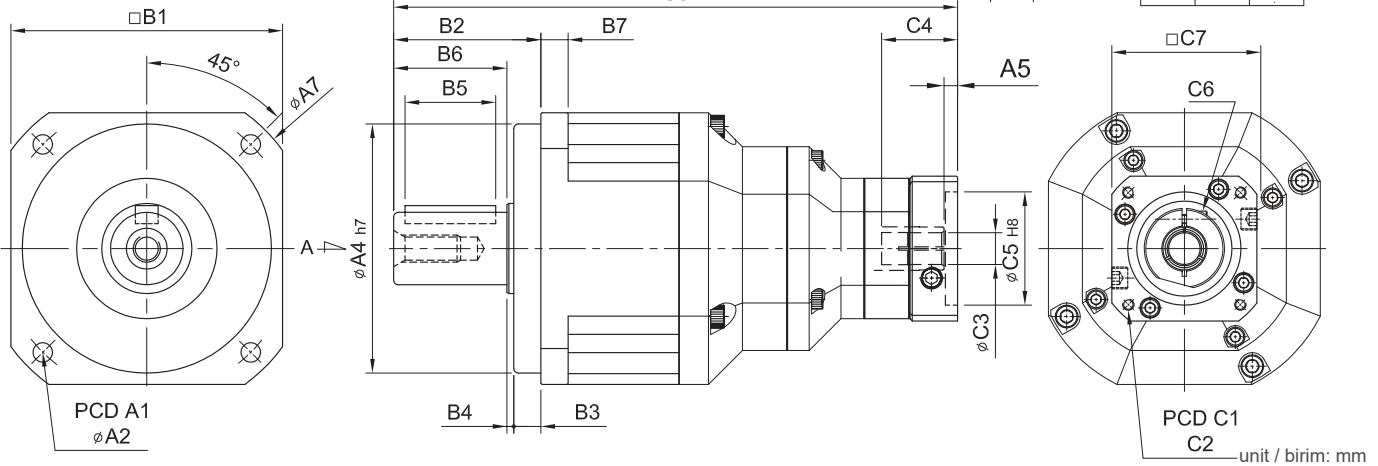
RATIO / ÇEVİRİM : 125,150,175,200,250,300,350,400,  
450,500,600,700,800,900,1000



A VIEW



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



unit / birim: mm

Model Code	90	120	142	180	220
<b>A</b> A1	100	130	165	215	250
A2	6.8	9	11	13	17
A3	22	32	40	55	75
A4	80	110	130	160	180
A5	5	6	9 · 23.5	10 · 20	10
A6	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	116	148	186	238	288
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
<b>B</b> B1	90	120	142	180	220
B2	48	65	92	106	139
B3	10	12	15	20	30
B4	2	3	3	4	5
B5	30	40	65	70	90
B6	36	50	74	82	104
B7	10	12	15	16	20
<b>C</b> C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12
C3	8 · 9 · 11	14 · 19	19 · 22 · 24	24 · 28 · 32	28 · 32 · 35
C4	26	33.5 · 41.5	59 · 73.5	67 · 77	84.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190
C8	197	249 · 257	334.5 · 349	396.5 · 406.5	481.5



Model No.		Unit/Birim	Ratio Çevrim	90	120	142	180	220
Nominal output torque / Nominal Çıkış Torku	$T_{2N}$	Nm	125	160	333	618	1,189	2,010
			150	165	335	625	1,206	2,030
			175	149	309	573	1,108	1,870
			200	146	300	555	1,069	1,804
			250	160	333	618	1,189	2,010
			300	151	311	583	1,118	1,911
			350	149	309	573	1,108	1,870
			400	143	298	553	1,070	1,824
			450	145	278	516	993	1,694
			500	160	333	618	1,189	2,010
			600	151	311	583	1,118	1,911
			700	149	309	573	1,108	1,870
800	143	298	553	1,070	1,824			
900	145	278	516	993	1,694			
1000	141	294	549	1,059	1,779			
Max. Acceleration Torque / Max. İvmelenme Torku	$T_{2B}$	Nm	125 ~ 1000	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku				
Max. Output Torque / Max. Çıkış Torku	$T_{2NOT}$	Nm	125 ~ 1000	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku				
Rated Input Speed / Nominal Giriş Devri	$n_{1N}$	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed / Max. Giriş Devri	$n_{1B}$	rpm	125 ~ 1000	6,000	5,000	5,000	4,000	3,000
Backlash Ps / Min. Boşluk Oranı		arcmin	125 ~ 1000	-	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P0 / Düşük Boşluk Oranı		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P1 / Azaltılmış Boşluk Oranı		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Backlash P2 / Standart Boşluk Oranı		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
Torsional Rigidity / Burulma Direnci		Nm/arcmin	125 ~ 1000	14	27	60	140	240
Max. Radial Force / Max. Radyal Yük	$F_{2RB}$	N	125 ~ 1000	3,200	6,800	9,300	15,600	51,000
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	125 ~ 1000	1,600	3,400	4,650	7,800	25,500
Service Life / Hizmet Ömrü	$L_H$	hr	125 ~ 1000	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
Efficiency / Verim	$\eta$	%	125 ~ 1000	≥ 90				
Operating Temperature / Çalışma Sıcaklığı		°C	125 ~ 1000	- 25° C ~ + 90° C				
Lubrication / Yağlama			125 ~ 1000	Synthetic Grease / Sentetik Gres				
Protection Class / Koruma Sınıfı			125 ~ 1000	IP65				
Mounting Position / Montaj Pozisyonu			125 ~ 1000	Any / Her Yönde				
Noise Level / Ses Seviyesi		dB	125 ~ 1000	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight / Ağırlık ±3%		Kg	125 ~ 1000	5.2	10	18.1	35	63.7

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

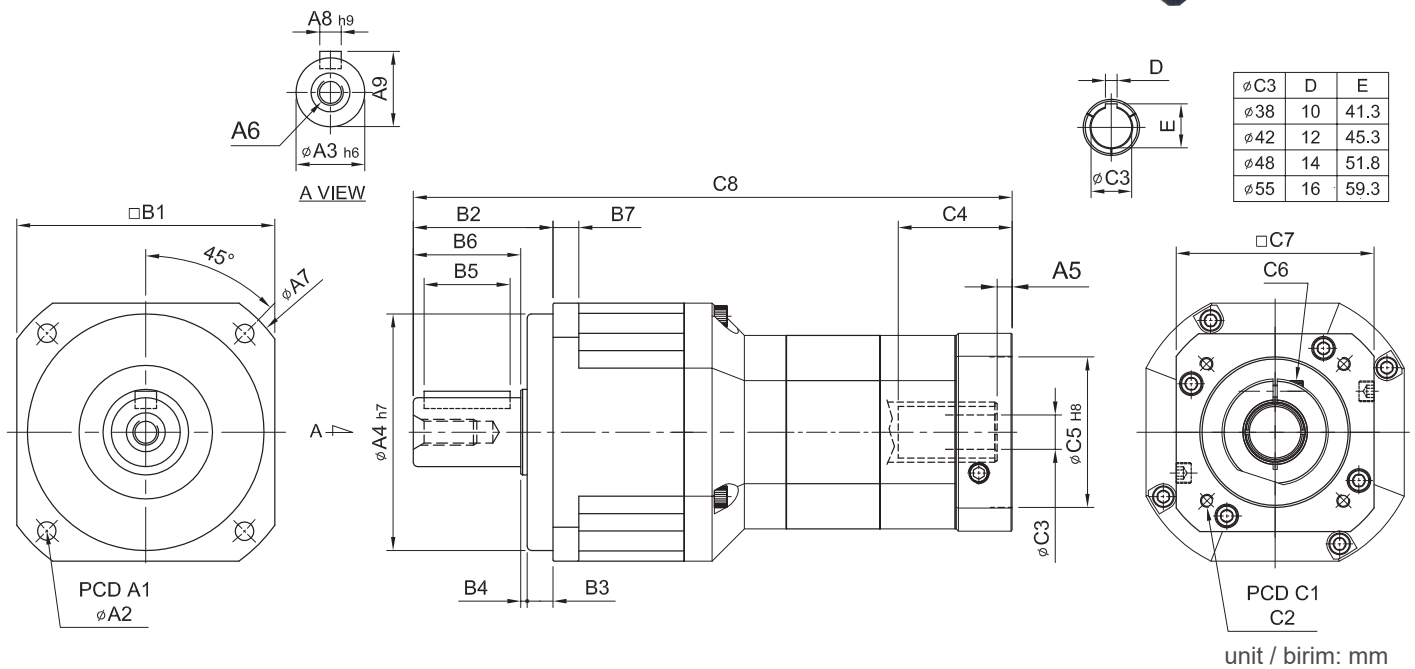
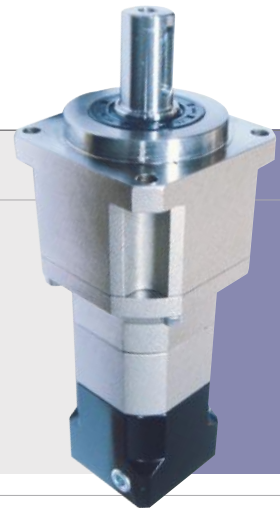
Ratio / Çevrim	90	120	142	180	220
125	0.01	0.04	0.71	1.42	3.29
150	0.01	0.04	0.51	0.92	2.15
175	0.01	0.04	0.40	0.83	1.26
200	0.01	0.04	0.21	0.65	0.98
250	0.01	0.04	0.11	0.52	0.82
300	0.01	0.04	0.09	0.21	0.82
350	0.01	0.04	0.09	0.21	0.82
400	0.01	0.04	0.09	0.21	0.82
450	0.01	0.04	0.09	0.21	0.51
500	0.01	0.04	0.08	0.12	0.51
600	0.01	0.04	0.08	0.12	0.25
700	0.01	0.04	0.08	0.12	0.25
800	0.01	0.04	0.08	0.12	0.25
900	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.04	0.08	0.12	0.25

# SERVOBOX

## MODEL : SB-A

3-Stage / Kademe

RATIO / ÇEVİRİM : 125,150,175,200,250,300,350,400,  
450,500,600,700,800,900,1000



unit / birim: mm

Model Code	62A	90A	120A	142A	180A	220A
<b>A</b>						
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	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5
A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	80	116	148	186	238	288
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
<b>B</b>						
B1	62	90	120	142	180	220
B2	36	48	65	92	106	139
B3	7	10	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	8	10	12	15	16	20
<b>C</b>						
C1	46 · 63 · 60	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12
C3	8 · 9 · 11	14 · 19	19 · 22 · 24	24 · 28 · 32	28 · 32 · 35	38 · 42 · 48 · 55
C4	26	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
C8	165.5	206.3 · 214.3	284.5 · 299	354.5 · 364.5	425	527.5



Model No.		Unit/Birim	Ratio Çevrim	62A	90A	120A	142A	180A	220A
Nominal output torque / Nominal Çıkış Torku	$T_{2N}$	Nm	125	48	160	333	618	1,189	2,010
			150	59	165	335	625	1,206	2,030
			175	45	149	309	573	1,108	1,870
			200	51	146	300	555	1,069	1,804
			250	48	160	333	618	1,189	2,010
			300	45	151	311	583	1,118	1,911
			350	45	149	309	573	1,108	1,870
			400	43	143	298	553	1,070	1,824
			450	44	145	278	516	993	1,694
			500	48	160	333	618	1,189	2,010
			600	45	151	311	583	1,118	1,911
			700	45	149	309	573	1,108	1,870
800	43	143	298	553	1,070	1,824			
900	44	145	278	516	993	1,694			
1000	43	141	294	549	1,059	1,779			
Max. Acceleration Torque / Max. İvmelenme Torku	$T_{2B}$	Nm	125 ~ 1000	1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku					
Max. Output Torque / Max. Çıkış Torku	$T_{2NOT}$	Nm	125 ~ 1000	3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku					
Rated Input Speed / Nominal Giriş Devri	$n_{IN}$	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed / Max. Giriş Devri	$n_{IB}$	rpm	125 ~ 1000	6,000	6,000	5,000	5,000	4,000	3,000
Backlash Ps / Min. Boşluk Oranı		arcmin	125 ~ 1000	-	-	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P0 / Düşük Boşluk Oranı		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P1 / Azaltılmış Boşluk Oranı		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Backlash P2 / Standart Boşluk Oranı		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
Torsional Rigidity / Burulma Direnci		Nm/arcmin	125 ~ 1000	6	14	27	60	140	240
Max. Radial Force / Max. Radyal Yük	$F_{2rB}$	N	125 ~ 1000	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force / Max. Aksiyel Yük	$F_{2aB}$	N	125 ~ 1000	590	1,600	3,400	4,650	7,800	25,500
Service Life / Hizmet Ömrü	$L_H$	hr	125 ~ 1000	S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
Efficiency / Verim	$\eta$	%	125 ~ 1000	≥ 90					
Operating Temperature / Çalışma Sıcaklığı		°C	125 ~ 1000	- 25° C ~ + 90° C					
Lubrication / Yağlama			125 ~ 1000	Synthetic Grease / Sentetik Gres					
Protection Class / Koruma Sınıfı			125 ~ 1000	IP65					
Mounting Position / Montaj Pozisyonu			125 ~ 1000	Any / Her Yönde					
Noise Level / Ses Seviyesi		dB	125 ~ 1000	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight / Ağırlık ±3%		Kg	125 ~ 1000	4	6.5	13	30	57	87

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

Ratio / Çevrim	62A	90A	120A	142A	180A	220A
125	0.01	0.01	0.04	0.71	1.42	3.29
150	0.01	0.01	0.04	0.51	0.92	2.15
175	0.01	0.01	0.04	0.40	0.83	1.26
200	0.01	0.01	0.04	0.21	0.65	0.98
250	0.01	0.01	0.04	0.11	0.52	0.82
300	0.01	0.01	0.04	0.09	0.21	0.82
350	0.01	0.01	0.04	0.09	0.21	0.82
400	0.01	0.01	0.04	0.09	0.21	0.82
450	0.01	0.01	0.04	0.09	0.21	0.51
500	0.01	0.01	0.04	0.08	0.12	0.51
600	0.01	0.01	0.04	0.08	0.12	0.25
700	0.01	0.01	0.04	0.08	0.12	0.25
800	0.01	0.01	0.04	0.08	0.12	0.25
900	0.01	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.01	0.04	0.08	0.12	0.25