High Reliability, High Performance and Value βi series SERVO

FANUC AC SERVO MOTOR βi series
FANUC AC SPINDLE MOTOR βi series
FANUC SERVO AMPLIFIER βi series

Specifications & Outline Dimensions

SVPM-βi Spec-06(E)
2011. 09

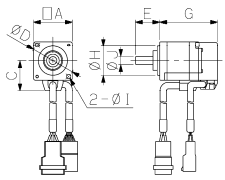
FANUC AC SERVO MOTOR βiS series

Motor Model		βiS series													
		βiS0.2 /5000	βiS0.3 /5000	βiS0.4 /5000	βiS0.5 /6000	βiS 1 /6000	βiS 2 /4000	βiS 4 /4000	βiS 8 /3000	βiS 12 /2000	βiS 12 /3000	βiS 22 /2000	βiS 22 /3000	βiS 30 /2000	βiS 40 /2000
Rated output	(kW)	0.05	0.1	0.13	0.35	0.5	0.5	0.75 *3)	1.2	1.4	1.8	2.5	3	3	3
Stalling torque	(Nm)	0.16	0.32	0.4	0.65	1.2	2	3.5	7	11	11	20	20	27	36
Max.speed	(min^{-1})	5000	5000	5000	6000	6000	4000	4000	3000	2000	3000	2000	3000	2000	2000
Rotor inertia	(kgm^2)	1.9E-06	3.4E-06	0.00001	0.000018	0.000034	0.00029	0.00052	0.0012	0.0023	0.0023	0.0053	0.0053	0.0076	0.0099
Mass	(kg)	0.33	0.44	0.8	1	1.5	3	4	7	12	12	17	17	23	28
Detector	Standard	ABS 64,000/rev.					ABS 128,000/rev.								
	for 0i	-					ABS 128,000/rev.				-				
Servo Amplifier	(βi)	4		20			20				40		80		
Outline		TYPE Ⅰ		TYPE Ⅱ			TYPE Ⅲ		TYPE Ⅳ			TYPE Ⅴ			
Dimensions(mm)	A	40	40	60	60	60	90	90	130	130	130	174	174	174	174
	C	31	31	32	32	32	66	66	75	75	75	105	105	105	105
	D	φ46	φ46	φ70	φ70	φ70	φ100	φ100	φ145	φ145	φ145	φ200	φ200	φ200	φ200
	E	25	25	25	25	30	37	44	58	58	58	102	102	102	102
	F	-	-	34.5	49	78	75	111	108	164	164	141	141	178	215
	G	59.5	73.5	75	89.5	118.5	130	166	166	222	222	202	202	239	276
	H	φ30	φ30	φ50	φ50	φ50	φ80	φ80	φ110	φ110	φ110	φ114.3	φ114.3	φ114.3	φ114.3
	I	φ4.5	φ4.5	φ5.5	φ5.5	φ5.5	φ6.6	φ6.6	φ9	φ9	φ9	φ13.5	φ13.5	φ13.5	φ13.5
	J	φ8	φ8	φ9	φ9	φ14	φ11Taper	φ14Taper	φ16Taper	φ16Taper	φ16Taper	φ32Taper	φ32Taper	φ32Taper	φ32Taper
	K	-	-	-	-	-	-	-	90	90	90	90	90	90	90
	L	-	-	-	-	-	-	-	31	31	31	31	31	31	31
	M	-	-	65	79.5	108.5	119	155	155	211	211	191	191	228	265

∗1) "S" of βiS means "Strong motor with neodymium magnets".
∗2) A servo motor with a detector for 0i don't have temperature and ID information, and it can be selected in CNC 0i system, and some servo parameters are different.
∗3) Rated output of βiS 4/4000 with a detector for 0i is 0.5kW.

Outline Dimensions

TYPE Ⅰ



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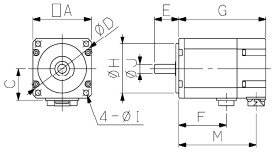

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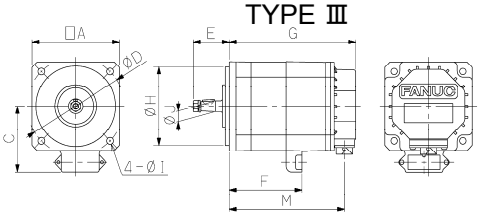

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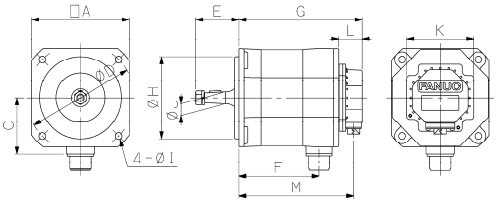

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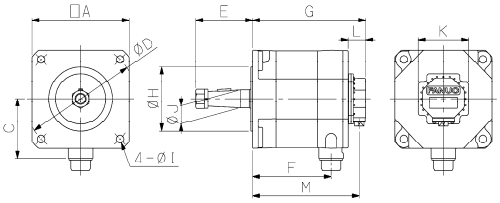


FANUC AC SERVO MOTOR βiSc series

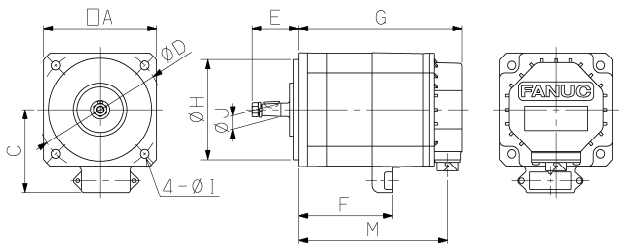
Motor Model		βiSc series				
		βiSc 2/4000	βiSc 4/4000	βiSc 8/3000	βiSc 12/2000	βiSc 22/2000
Rated output	(kW)	0.5	0.75	1.2	1.4	2.5
Stalling torque	(Nm)	2	3.5	7	11	20
Max.speed	(min^{-1})	4000	4000	3000	2000	2000
Rotor inertia	(kgm^2)	0.00029	0.00052	0.0012	0.0023	0.0053
Mass	(kg)	3	4	7	12	17
Detector		ABS 128,000/rev.				
Servo Amplifier	(βi)	20				40
Outline		TYPE Ⅰ		TYPE Ⅱ		TYPE Ⅲ
Dimensions(mm)	A	90	90	130	130	174
	C	66	66	75	75	105
	D	φ100	φ100	φ145	φ145	φ200
	E	37	44	58	58	102
	F	75	111	108	164	141
	G	130	166	166	222	202
	H	φ80	φ80	φ110	φ110	φ114.3
	I	φ6.6	φ6.6	φ9	φ9	φ13.5
	J	φ11Taper	φ14Taper	φ16Taper	φ16Taper	φ32Taper
	K	-	-	90	90	90
	L	-	-	31	31	31
	M	119	155	155	211	191

∗1) "S" of βiSc means "Strong motor with neodymium magnets". "C" of βiSc means "Cost-effective".

∗2) βiSc series doesn't have temperature and ID information, and it can be selected in CNC 0i Mate-TD system, and some servo parameters are different.

Outline Dimensions

TYPE Ⅰ



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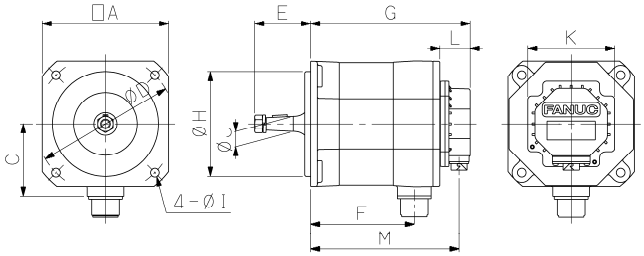

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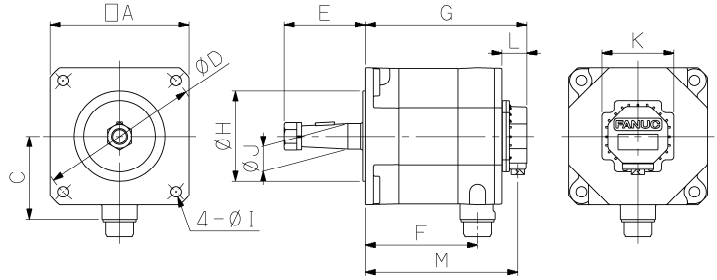


FANUC AC SPINDLE MOTOR βiI series

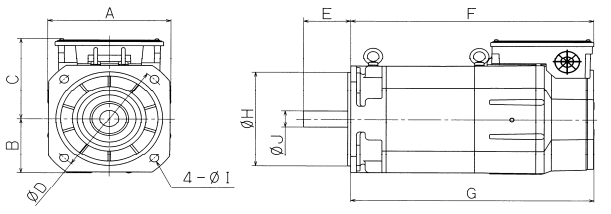
Motor Model				βiI series					βi IP series				
				βiI 3/10000	βiI 6/10000	βiI 8/10000	βiI 12/8000	βiI 15/7000	βi IP 12/6000	βi IP 15/6000	βi IP 18/6000	βi IP 22/6000	βi IP 30/6000
Rated output	Cont. rated (*2)		(kW)	3.7 (2.2)	5.5 (3.7)	7.5 (2.2)	11 (6.5)	15 (9)	5.5 (5.5)	7.5 (7.5)	9 (7.5)	11 (5.5)	15 (7.5)
	15min rated (*2)		(kW)	5.5 (3)	7.5 (5.5)	11 (3.7)	15 (7.5)	18.5 (11)	7.5 (7.5)	9 (9)	11 (9)	15 (7.5)	18.5 (9)
	60min rated		(kW)	3.7	5.5	7.5	11	15	5.5	7.5	9	11	15
Speed	Base speed	Cont. rated	(min^{-1})	2000	2000	2000	2000	2000	1200	1200	1000	1000	1000
		15min rated 60min rated	(min^{-1})	1500	1500	1500	1500	1500	750	750	750	750	750
	Power const. range	Cont. rated 15min rated	(min^{-1})	4500	4500	4500	3500	3500	2500	6000	5000	3000	3000
		60min rated	(min^{-1})	2000	2000	2000	2000	2000	1200	1200	1000	1000	1000
	Max. speed		(min^{-1})	10000	10000	10000	8000	7000	6000	6000	6000	6000	6000
Cont. rated torque at const. torque range			(Nm)	17.7	26.3	35.8	52.5	71.6	43.8	59.7	85.9	105	143
15min. rated torque at const. torque range			(Nm)	35	47.7	70	95.5	117.8	95.5	114.6	140	191	236
Rotor inertia ($GD^2/4$)			(kgm^2)	0.0078	0.0148	0.0179	0.0275	0.07	0.0275	0.07	0.09	0.105	0.128
Weight			(kg)	27	46	51	80	95	80	95	110	125	143
Vibration				V5 (Rotation component)									
Cooilng fan			(W)	38		50		100	50	100			
Outline				Frange mounting type : TYPE Ⅰ, Foot mounting type : TYPE Ⅱ									
Dimensions (mm)			A	182	182	208	208	264	208	264	264	264	264
			B	88	88	104	104	132	104	132	132	132	132
			C	141	141	154	154	181	154	181	181	181	181
			D	ϕ185	ϕ185	ϕ215	ϕ215	ϕ265	ϕ215	ϕ265	ϕ265	ϕ265	ϕ265
			E	60	60	80	110	110	110	110	110	110	110
			F	327	427	411	487	433	487	433	465	495	535
			G	320	420	412	488	432	488	432	464	494	534
			H	ϕ150	ϕ150	ϕ180	ϕ180	ϕ230	ϕ180	ϕ230	ϕ230	ϕ230	ϕ230
			I	ϕ11	ϕ11	ϕ15	ϕ15	ϕ15	ϕ15	ϕ15	ϕ15	ϕ15	ϕ15
			J	ϕ28	ϕ28	ϕ32	ϕ48	ϕ48	ϕ48	ϕ48	ϕ48	ϕ55	ϕ55
			K	188	188	220	220	290	220	290	290	290	290
			L	100	100	112	112	160	112	160	160	160	160
			M	56	56	72	72	95	72	95	95	95	95
			N	80	80	95	95	127	95	127	127	127	127
			P	63	63	70	70	108	70	108	108	108	108
			Q	112	159	114	178	160	178	160	178	140	178
			R	15	15	35	35	50	35	50	50	50	50
			S	214	314	196	272	241	272	241	259	259	299
			Z	ϕ12	ϕ12	ϕ12	ϕ12	ϕ15	ϕ12	ϕ15	ϕ15	ϕ15	ϕ15

*1) "I" of βiI means "Induction". "P" of βi IP means "wide constant Power range"

*2) The values in parenthesis indicate the rated output at the maximum speed.

Outline Dimensions

TYPE Ⅰ



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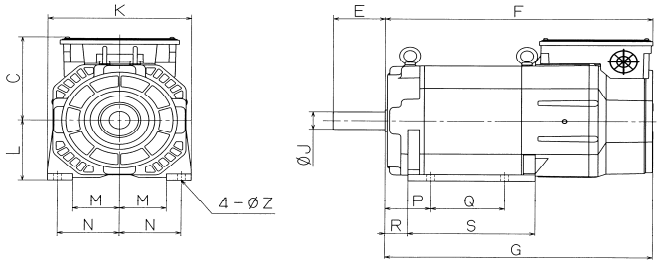


FANUC AC SPINDLE MOTOR βiIc series

Motor Model				βiIc series			
				βiIc 3/6000	βiIc 6/6000	βiIc 8/6000	βiIc 12/6000
Rated output	Cont. rated (*2)		(kW)	3.7 (3.0)	5.5 (4.4)	7.5 (6.0)	11 (7.5)
	15min rated (*2)		(kW)	5.5 (3.7)	7.5 (5.5)	11 (7.5)	15 (9)
	60min rated		(kW)	3.7	5.5	7.5	11
Speed	Base speed	Cont. rated	(min^{-1})	2000	2000	2000	2000
		15min rated 60min rated	(min^{-1})	1500	1500	1500	1500
	Power const. range	Cont. rated 15min rated	(min^{-1})	3500	4500	4000	3500
		60min rated	(min^{-1})	2000	2000	2000	2000
	Max. speed		(min^{-1})	6000	6000	6000	6000
Cont. rated torque at const. torque range			(Nm)	17.7	26.3	35.8	52.5
15min. rated torque at const. torque range			(Nm)	35	47.7	70	95.5
Rotor inertia ($GD^2/4$)			(kgm^2)	0.0078	0.0148	0.0179	0.0275
Weight			(kg)	27	46	51	80
Vibration				V5 (Rotation component)			
Cooilng fan			(W)	38		50	
Outline				Frange mounting type : TYPE Ⅰ, Foot mounting type : TYPE Ⅱ			
Dimensions (mm)			A	182	182	208	208
			B	88	88	104	104
			C	141	141	154	154
			D	φ185	φ185	φ215	φ215
			E	60	60	80	110
			F	327	427	411	487
			G	320	420	412	488
			H	φ150	φ150	φ180	φ180
			I	φ11	φ11	φ15	φ15
			J	φ28	φ28	φ32	φ48
			K	188	188	220	220
			L	100	100	112	112
			M	56	56	72	72
			N	80	80	95	95
			P	63	63	70	70
			Q	112	159	114	178
			R	15	15	35	35
			S	214	314	196	272
			Z	φ12	φ12	φ12	φ12

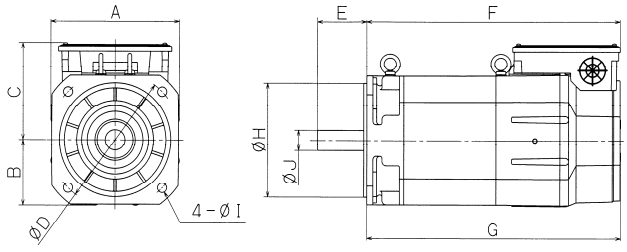
*1) "I" of βiI means "Induction". "C" of βiIc means "Cost-effective"

*2) The values in parenthesis indicate the rated output at the maximum speed.

*3) SPINDLE MOTOR βiIc series is for 0i Mate-TD only.

Outline Dimensions

TYPE Ⅰ



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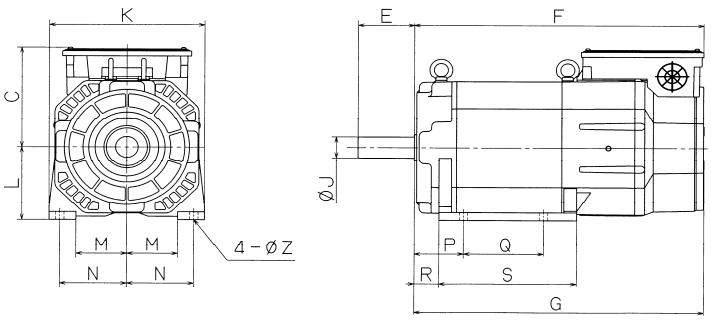


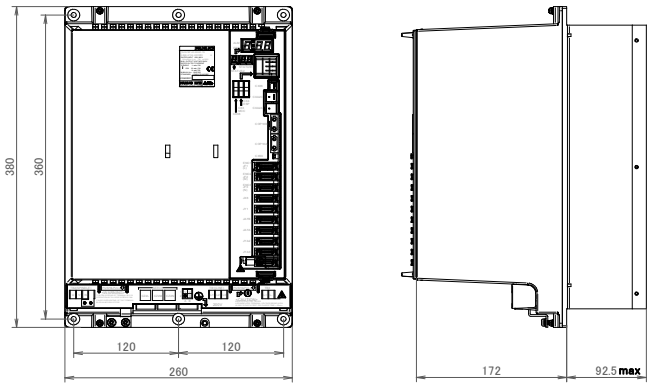
FANUC SERVO AMPLIFIER βiSVSP series

Applied Motor

Model	Servo L axis	Servo M axis	Servo N axis	Spindle
βiSVSP 20/20-7.5	βiS 2/4000	βiS 2/4000		βiI 3/10000
	βiS 4/4000	βiS 4/4000		βiIP 12/6000
βiSVSP 20/20-11 *3)	βiS 8/3000	βiS 8/3000		βiI 6/10000
	βiS 12/2000	βiS 12/2000		βiI 8/10000
				βiIP 15/6000
				βiIP 18/6000
βiSVSP 40/40-15 *3)	βiS 12/3000	βiS 12/3000		βiI 12/8000
	βiS 22/2000	βiS 22/2000		βiIP 22/6000
βiSVSP 40/40-18 *3)	βiS 12/3000	βiS 12/3000		βiI 15/7000
	βiS 22/2000	βiS 22/2000		βiIP 30/6000
βiSVSP 20/20/40-7.5 *3)	βiS 2/4000	βiS 2/4000	βiS 12/3000	βiI 3/10000
	βiS 4/4000	βiS 4/4000	βiS 22/2000	βiIP 12/6000
βiSVSP 20/20/40-11 *3)	βiS 8/3000	βiS 8/3000		βiI 6/10000
	βiS 12/2000	βiS 12/2000		βiI 8/10000
				βiIP 15/6000
				βiIP 18/6000
βiSVSP 40/40/40-15 *3)	βiS 12/3000	βiS 12/3000		βiI 12/8000
	βiS 22/2000	βiS 22/2000		βiIP 22/6000
βiSVSP 40/40/80-15 *3)	βiS 12/3000	βiS 12/3000	βiS 22/3000	
	βiS 22/2000	βiS 22/2000	βiS 30/2000	
			βiS 40/2000	
βiSVSP 40/40/80-18 *3)	βiS 12/3000	βiS 12/3000	βiS 22/3000	βiI 15/7000
	βiS 22/2000	βiS 22/2000	βiS 30/2000	βiIP 30/6000
			βiS 40/2000	
βiSVSP 80/80/80-18 *3)	βiS 22/3000	βiS 22/3000	βiS 22/3000	
	βiS 30/2000	βiS 30/2000	βiS 30/2000	
	βiS 40/2000	βiS 40/2000	βiS 40/2000	

Outline Dimensions

βi SVSP



*1) "SV" of βiSVSP means "SerVo" and "SP" means "SPindle".
*2) Smaller motor model is available by changing parameters.
*3) Separated fan motor from FANUC is required.

Specifications

Item	Specification
Power Supply Voltage (Power)	3φAC200V-240V
Power Supply Voltage (Control)	DC24V/1.5A
Dynamic Brake	Built-in
Applied CNC	0*i*-MODEL D, 0*i* Mate-MODEL D

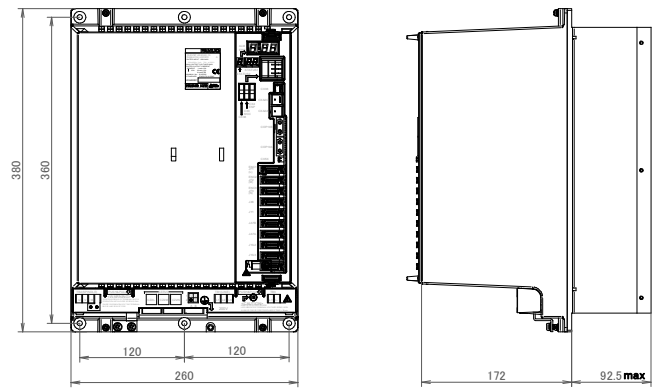
FANUC SERVO AMPLIFIER βiSVSPc series

Applied Motor

Model	Servo L axis	Servo M axis	Servo N axis	Spindle
βiSVSPc 20/20-7.5	βiSc 2/4000	βiSc 2/4000		βiIc 3/6000
	βiSc 4/4000	βiSc 4/4000		
	βiSc 8/3000	βiSc 8/3000		
	βiSc 12/2000	βiSc 12/2000		
βiSVSPc 20/20-7.5L *3)	βiSc 2/4000	βiSc 2/4000		βiIc 6/6000
	βiSc 4/4000	βiSc 4/4000		
	βiSc 8/3000	βiSc 8/3000		
	βiSc 12/2000	βiSc 12/2000		
βiSVSPc 20/20-11 *3)	βiSc 2/4000	βiSc 2/4000		βiIc 8/6000
	βiSc 4/4000	βiSc 4/4000		
	βiSc 8/3000	βiSc 8/3000		
	βiSc 12/2000	βiSc 12/2000		
βiSVSPc 40/40-15 *3)	βiSc 22/2000	βiSc 22/2000		βiIc 12/6000
βiSVSPc 20/20/20-7.5	βiSc 2/4000	βiSc 2/4000	βiSc 2/4000	βiIc 3/6000
	βiSc 4/4000	βiSc 4/4000	βiSc 4/4000	
	βiSc 8/3000	βiSc 8/3000	βiSc 8/3000	
	βiSc 12/2000	βiSc 12/2000	βiSc 12/2000	
βiSVSPc 20/20/20-7.5L *3)	βiSc 2/4000	βiSc 2/4000	βiSc 2/4000	βiIc 6/6000
	βiSc 4/4000	βiSc 4/4000	βiSc 4/4000	
	βiSc 8/3000	βiSc 8/3000	βiSc 8/3000	
	βiSc 12/2000	βiSc 12/2000	βiSc 12/2000	
βiSVSPc 20/20/20-11 *3)	βiSc 2/4000	βiSc 2/4000	βiSc 2/4000	βiIc 8/6000
	βiSc 4/4000	βiSc 4/4000	βiSc 4/4000	
	βiSc 8/3000	βiSc 8/3000	βiSc 8/3000	
	βiSc 12/2000	βiSc 12/2000	βiSc 12/2000	
βiSVSPc 40/40/40-15 *3)	βiSc 22/2000	βiSc 22/2000	βiSc 22/2000	βiIc 12/6000

Outline Dimensions

βi SVSPc



*1) "SV" of βiSVSP means "SerVo" and "SP" means "SPindle".
*2) Smaller motor model is available by changing parameters.
*3) Separated fan motor from FANUC is required.
*4) "C" of βiSVSPc means "Cost-effective".
*5) βiSVSPc series is for CNC 0*i* Mate-TD only.

Specificarion

Item	Specification
Power Supply Voltage (Power)	3φAC200V-240V
Power Supply Voltage (Control)	DC24V/1.5A
Dynamic Brake	Built-in
Applied CNC	0*i* Mate-TD

FANUC SERVO AMPLIFIER βiSV series

1axis 200V type

Model	βi SV 4	βi SV 20 *3)	βi SV 40	βi SV 80 *4)
Interface	FSSB I/O Link			
Applicable motor	βi S0.2/5000 βi S0.3/5000	βi S0.4/5000, βi S0.5/6000 βi S1/6000, βi S2/4000 βi S4/4000, βi S8/3000 βi S12/2000 αi S2/6000, αi S4/5000 αi F1/5000, αi F2/5000	βi S12/3000 βi S22/2000 αi F4/4000, αi F8/3000	βi S22/3000 αi S8/4000, αi S12/4000 αi F12/3000, αi F22/3000
Max current	4Ap	20Ap	40Ap	80Ap
Power supply voltage (Power)	AC200V～AC240V 3φ AC220V～AC240V 1φ *2)		AC200V～AC240V 3φ	
Power supply voltage (Control)	DC24V			
Dynamic brake	Internal			

*1) "SV" of βi SV means "SerVo".
*2) In case of single phase input, applicable motor and output power should be limitec
*3) By a motor model to be driven, separated fan motor from FANUC is required.
*4) Separated fan motor from FANUC is required.

2axis 200V type

Model	βi SV 20/20		βi SV 40/40	
Interface	FSSB			
	SERVO L axis	SERVO M axis	SERVO L axis	SERVO M axis
Applicable motor	βi S0.4/5000, βi S0.5/6000 βi S1/6000, βi S2/4000 βi S4/4000, βi S8/3000 βi S12/2000 αi S2/6000, αi S4/5000 αi F1/5000, αi F2/5000	βi S0.4/5000, βi S0.5/6000 βi S1/6000, βi S2/4000 βi S4/4000, βi S8/3000 βi S12/2000 αi S2/6000, αi S4/5000 αi F1/5000, αi F2/5000	βi S12/3000 βi S22/2000 αi F4/4000 αi F8/3000	βi S12/3000 βi S22/2000 αi F4/4000 αi F8/3000
Max current	20Ap	20Ap	40Ap	40Ap
Power supply voltage (Power)	AC200V～AC240V 3φ			
Power supply voltage (Control)	DC24V			
Dynamic brake	Internal			

*1) "SV" of βi SV means "SerVo".

1axis 400V type

Model	βi SV 10HV	βi SV 20HV	βi SV 40HV *2)
Interface	FSSB I/O Link		
Applicable motor	βi S2/4000HV βi S4/4000HV βi S8/3000HV αi S2/5000HV αi S4/5000HV	βi S12/3000HV βi S22/2000HV αi F4/4000HV, αi F8/3000HV	βi S22/3000HV αi S8/4000HV αi S12/4000HV αi F12/3000HV, αi F22/3000HV
Max current	10Ap	20Ap	40Ap
Power supply voltage (Power)	AC380V～AC480V 3φ		
Power supply voltage (Control)	DC24V		
Dynamic brake	Internal		

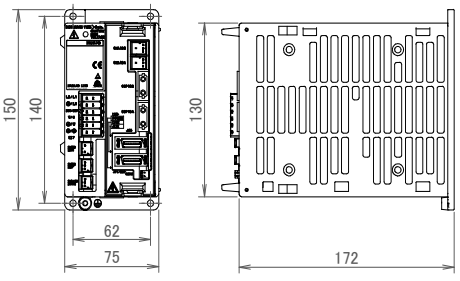
*1) "SV" of βi SV means "SerVo".
*2) Separated fan motor from FANUC is required.

Outline Dimensions

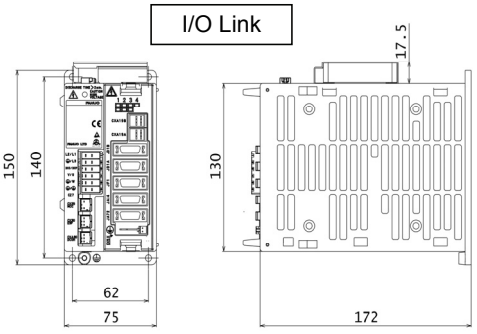
1axis 200V type

βi SV 4
βi SV 20

FSSB



I/O Link



Outline Dimensions

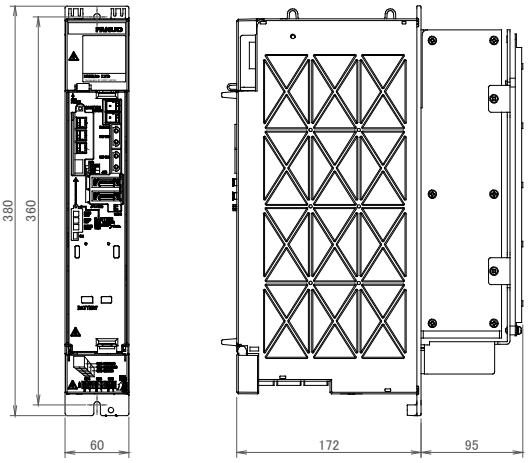
1axis 200V type

βiSV 40
βiSV 80

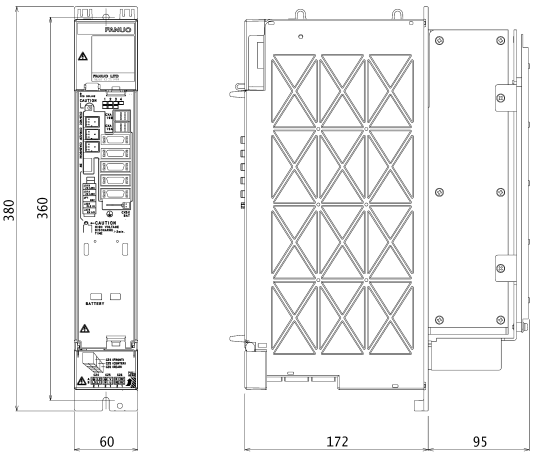
1axis 400V type

βiSV 10HV
βiSV 20HV
βiSV 40HV

FSSB



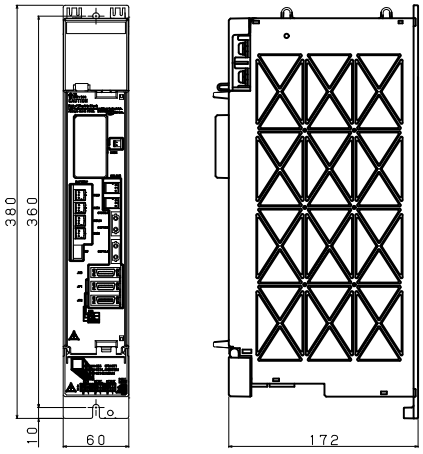
I/O Link



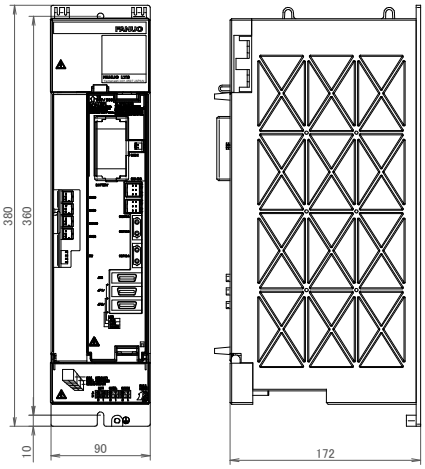
2axis 200V type

βiSV 20/20
βiSV 40/40

FSSB



FSSB



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