TECO ELECTRO DEVICES CO., LTD.

AC SERVO MOTORS

Profile

TECO Electro Devices Co., Ltd. is a family member of the world motor giant TECO Electric & Machinery Co., Ltd. It was founded in 1985 as a department of TECO in producing of stepping motor, in 1998 it was spurn off from TECO to be a professional stepping motor producer. In last 23 years, TED has successfully sold its products worldwide in large number, mainly it goes through the cooperation of OEM, ODM with or for U.S.A. and European customers. TED has strong capability in R&D to produce highly advanced product to meet with customer's critical requirement and leading the highest level of international standard as well.

Based on its solid expertise, TED has expanded its production lines to offer customers a wider range of selections and the system solution. Hybrid Stepping Motor, Servo Motor, Servo Motor's Driver, Controller, PMDC/BLDC, PM Stepping Motor, Stepping Driver are TED's major products.

TECO has devoted itself to the motor industry for more than 52 years, now it is the world 5th largest motor manufacturer. As a member of this motor family, TED is doing its utmost to keep the good name of TECO in both quality and reliability. Offering the best product and quick service to the customer is the commitment and guideline of TED.

TED's precise motor is made of high magnetic-inductive parts and unique magnetic-resistance technology, featuring low noise, low vibration, proper torque, and smooth run. These products, which are of high quality and high reliability, can fully satisfy customers. In quality assurance, most of the products of TED have been evidenced with major international certifications - as zero-defect products that fulfill the customers' satisfaction and requirements:

1996	**ISO-9002 certified**
1996	**Won ROC National Quality Award Session 7**
1997	**ISO-14001 certified**
2001	**ISO-9001 certified**
2002	**Stepping Motors Won Taiwan's Prestigious Symbol of Excellence Awards**
2005	**RoHS Stepping Motors certified**
2006	**RoHS DC Motors and Drivers certified**

●TED offers customization on the following items:

Shaft modification：hollow shafts、flats、cross pin holes、through shaft tapped holes、keyways. single-sided or double-sided、length、diameter、pinions.

Winding：Resistance、Inductance.

Rotor：Stack configuration.

Lead wires：Length、Lead configuration、connector.

Index

AC SERVO MOTORS

TSB 07/08 SERIES

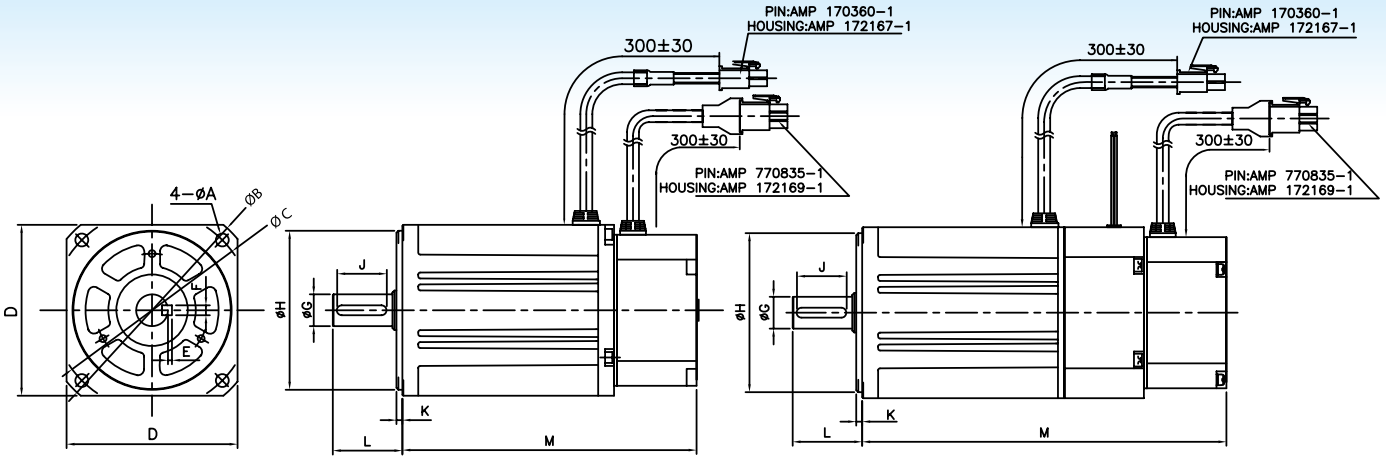
SPECIFICATION

1 (kgf · cm) =0.0980665 (N · m) 1 (gf · cm · s^2) =0.980665 (kg · cm^2)

Item / Motor Type			Unit	TSB07301C	TSB08751C
Rated Output		PR	W	300	750
Driver Set				TSTA15C	TSTA20C
Rated Terminal Voltage		VT	V	107.7	149.4
Rated Torque		TR	N · m	0.95	2.391
Rated Current		IR	A	2.0	3.4
Rated Speed		NR	rpm	3000	3000
Peak Torque		TP (N)	N · m	2.861	7.164
Peak Current		IP	A	6.0	10.2
Torque Constant		KT	N · m/A	0.524	0.776
Voltage Constant		KE	V/k rpm	54.9	81.4
Rotor Intertia		JM	kg · cm^2	0.6773	2.459
Resistance		Ra	Ω	8.37	3.27
Inductance		La	mH	17.4	10.2
Mechanical Time Constant		Tm	ms	1.96	1.032
Electrical Time Constant		Te	ms	2.05	3.12
Weight			kgf	1.82	3.41
Insulation Class				F class (155℃)	
BRAKE	Rated Voltage		V	VDC 24V ±10%	
	Static Rubbing Torque		N · m	2	3
	Inertia		kg · cm^2	0.098	0.225
	Consume Current		A	0.358	0.44
	Weight		kgf	0.6	1.94
Ambient Temperature			℃	0~40	

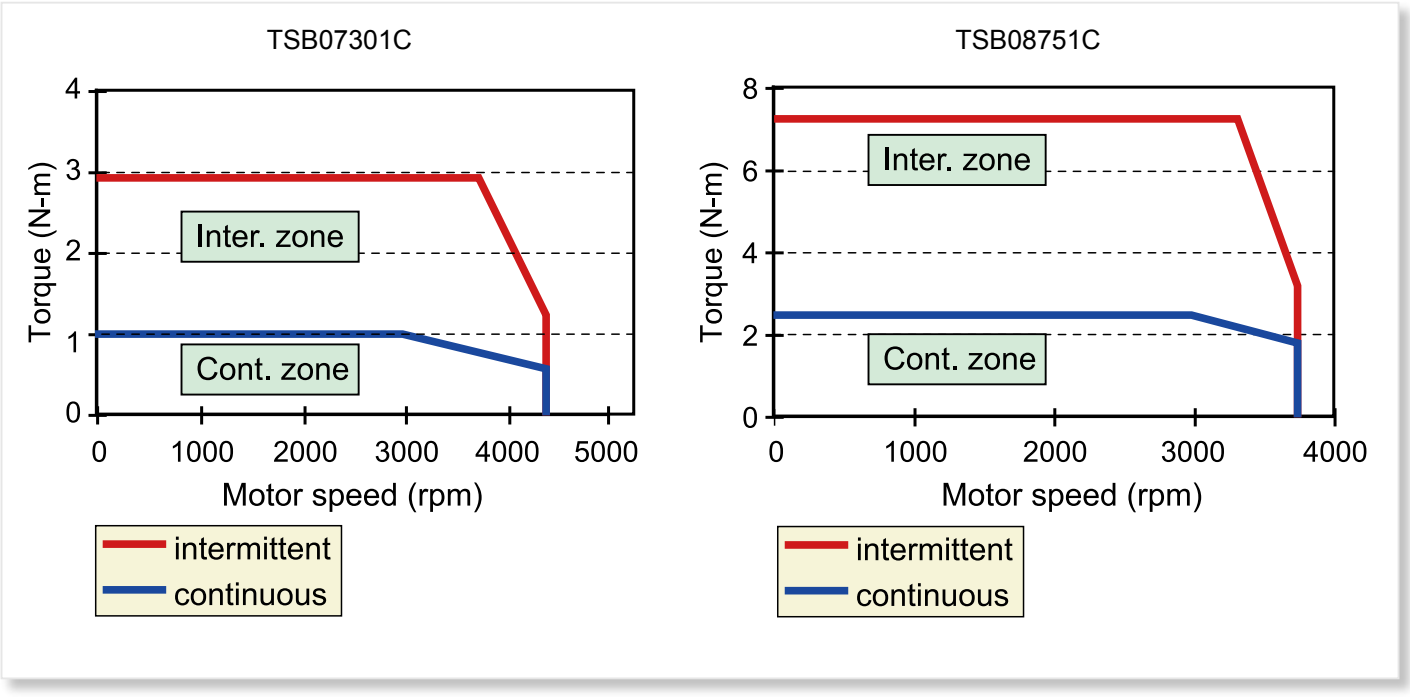
● To customize motors, please contact with us or our agent.

DIMENSION



	Motor Type	A	B	C	D	E	F	G	H	J	K	L	M
With Brake	TSB07301C	ϕ 5.5	ϕ 100	ϕ 90	76	2	5	ϕ 14	ϕ 70	20	3	30	147.8
	TSB08751C	ϕ 6.5	ϕ 112	ϕ 100	86	2	5	ϕ 16	ϕ 80	25	3	35	183.2
Non Brake	TSB07301C	ϕ 5.5	ϕ 100	ϕ 90	76	2	5	ϕ 14	ϕ 70	20	3	30	113.5
	TSB08751C	ϕ 6.5	ϕ 112	ϕ 100	86	2	5	ϕ 16	ϕ 80	25	3	35	148

PERFORMANCE CURVE



TSB 13 SERIES

SPECIFICATION

1 (kgf · cm) =0.0980665 (N · m) 1 (gf · cm · s^2) =0.980665 (kg · cm^2)

Item / Motor Type			Unit	TSB13551A	TSB13102A	TSB13102B	TSB13152A	TSB13152B
Rated Output		PR	W	550	1000	1000	1500	1500
Driver Set				TSTA20C	TSTA30C	TSTA30C	TSTA50D	TSTA50D
Rated Terminal Voltage		VT	V	162.3	188.7	185.3	194.4	189.1
Rated Torque		TR	N · m	5.252	9.545	4.782	14.327	7.164
Rated Current		IR	A	3.43	5.16	5.16	7.45	7.57
Rated Speed		NR	rpm	1000	1000	2000	1000	2000
Peak Torque		TP (N)	N · m	15.758	28.645	14.327	42.963	21.492
Peak Current		IP	A	10.3	15.5	15.5	22.35	22.71
Torque Constant		KT	N · m/A	1.679	2.039	1.019	2.26	1.06
Voltage Constant		KE	V/k rpm	175.9	213.6	106.8	236.6	108.7
Rotor Intertia		JM	kg · cm^2	6.26	12.14	6.26	17.92	8.88
Resistance		Ra	Ω	5.37	2.78	1.82	1.785	1.185
Inductance		La	mH	27.5	18.21	10.05	12.66	7.11
Mechanical Time Constant		Tm	ms	1.21	0.82	1.11	0.454	1.02
Electrical Time Constant		te	ms	5.12	6.55	5.52	7.092	6
Weight			kgf	6.47	10.16	6.47	13.87	8.08
Insulation Class				B class (130℃)				
BRAKE	Rated Voltage		V	VDC 24V ±10%				
	Static Rubbing Torque		N · m	15	15	15	15	15
	Inertia		kg · cm^2	0.725	0.725	0.725	0.725	0.725
	Consume Current		A	1	1	1	1	1
	Weight		kgf	1.7	1.7	1.7	1.7	1.7
Ambient Temperature			℃	0~40				

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1（kgf · cm）=0.0980665（N · m）　1（gf · cm · s²）=0.980665（kg · cm²）

Item / Motor Type		Unit	TSB13152C	TSB13202B	TSB13302B	TSB13302C
Rated Output	PR	W	1500	2000	3000	3000
Driver Set			TSTA50D	TSTA50D	TSTA75D	TSTA75D
Rated Terminal Voltage	VT	V	200.3	205.4	189.4	199.7
Rated Torque	TR	N · m	4.782	9.545	14.327	9.545
Rated Current	IR	A	7.06	9.18	14	14
Rated Speed	NR	rpm	3000	2000	2000	3000
Peak Torque	TP（N）	N · m	14.327	28.645	42.963	28.645
Peak Current	IP	A	21.2	27.5	42	42
Torque Constant	KT	N · m/A	0.74	1.139	1.13	0.75
Voltage Constant	KE	V/k rpm	77.5	119.4	118.3	78.5
Inertia	JM	kg · cm²	6.26	12.14	17.92	12.14
Resistance	Ra	Ω	0.98	0.86	0.5	0.37
Inductance	La	mH	5.37	5.67	3.54	2.43
Mechanical Time Constant	Tm	ms	1.14	0.81	0.71	0.81
Electrical Time Constant	TE	ms	5.48	6.59	7.08	6.57
Weight		kgf	6.47	10.16	13.87	10.16
Insulation Class			B class（130℃）			
BRAKE Rated Voltage		V	VDC 24V ±10%			
BRAKE Static Rubbing Torque		N · m	30	30	30	30
BRAKE Inertia		kg · cm²	0.725	0.725	0.725	0.725
BRAKE Consume Current		A	0.816	0.816	0.816	0.816
BRAKE Weight		kgf	1.1	1.1	1.1	1.1
Ambient Temperature		℃	0~40			

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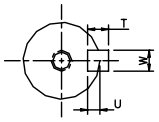
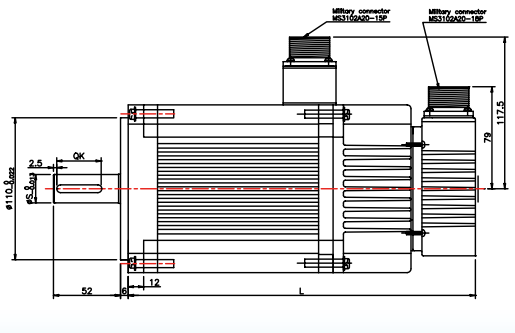
DIMENSION

Motor Type	With Brake L（mm）	Without Brake L（mm）
TSB13551A	219.3	164.8
TSB13102A	269.3	214.8
TSB13152A	319.3	264.8
TSB13102B	219.3	164.8
TSB13152B	239.3	184.8
TSB13202B	269.3	214.8
TSB13302B	319.3	264.8
TSB13152C	219.3	164.8
TSB13302C	269.3	214.8

Dimension of Shaft and Key Size

	S	QK	U	W	T
Option 1	22	36	3.5	6	6
Option 2	24	35	4	8	7





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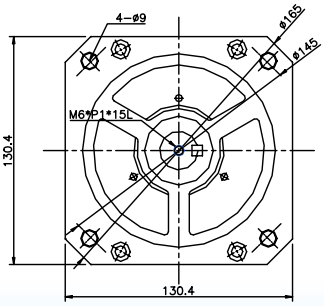
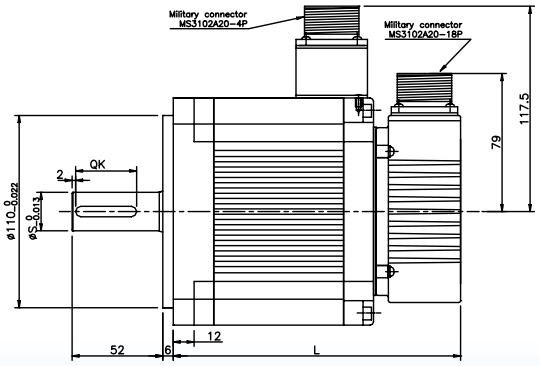
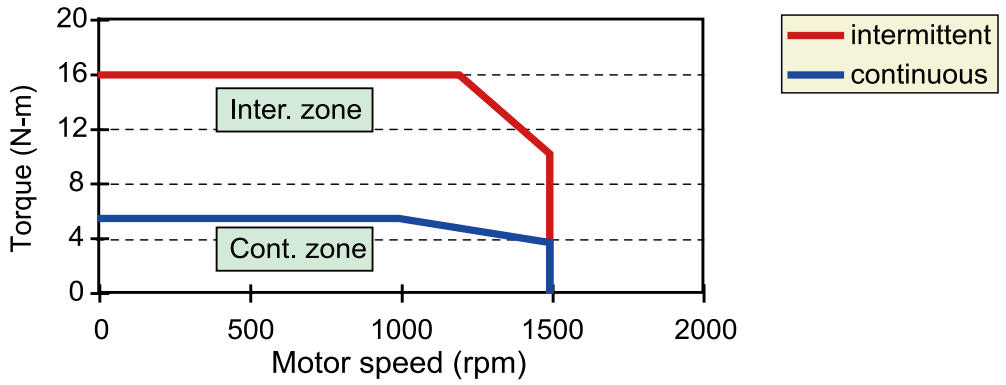




W/O Brake

PERFORMANCE CURVE

TSB13551A



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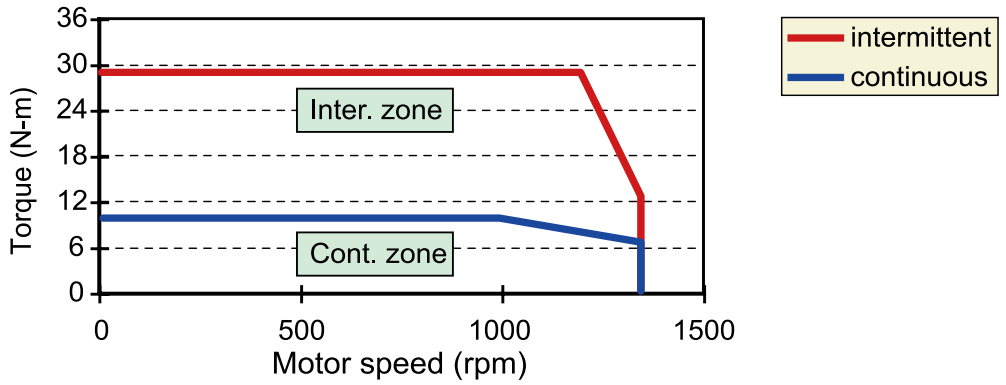

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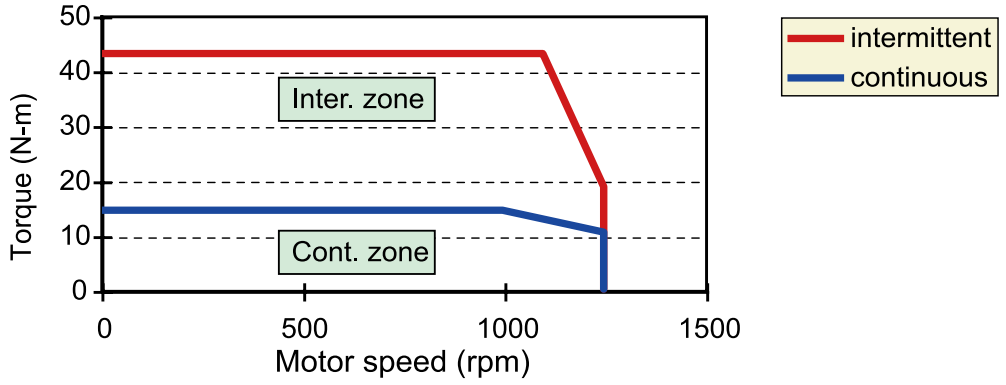

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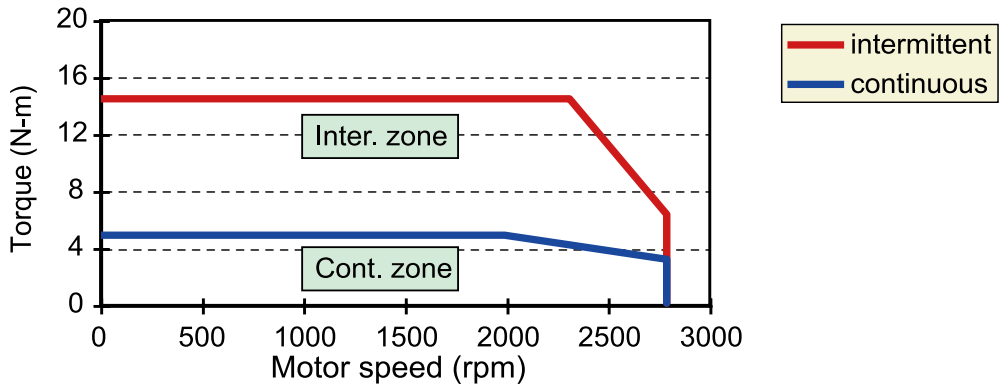

PERFORMANCE CURVE

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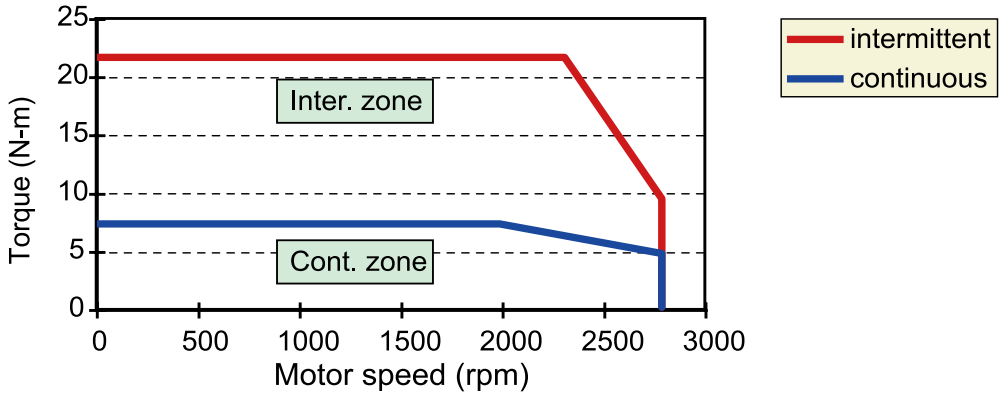
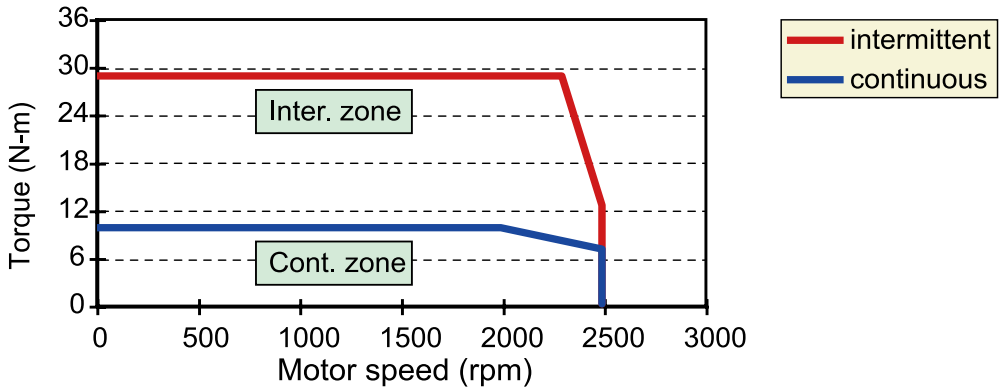


TSB13202B



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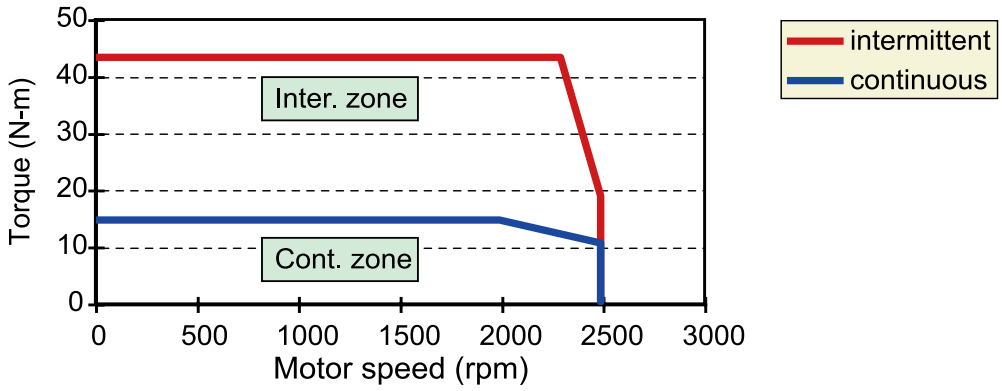

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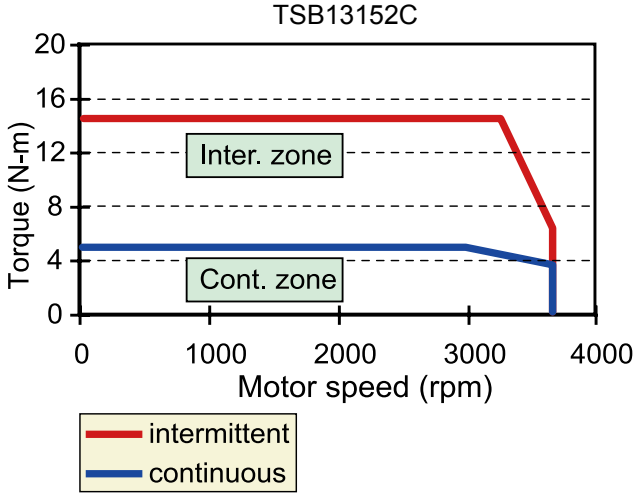

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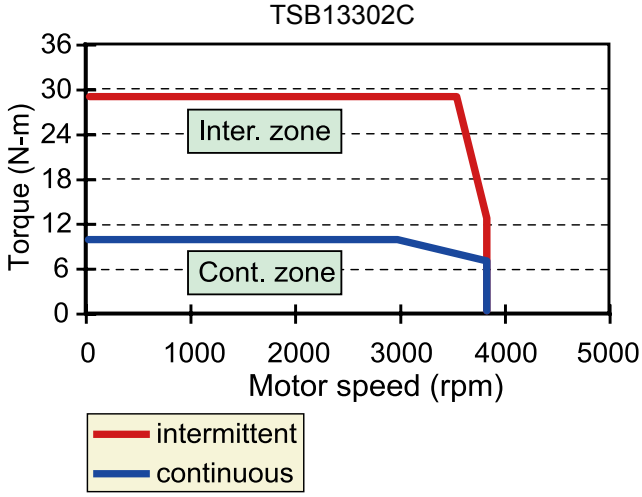

TSC 04/06/08 SERIES

SPECIFICATION

1 (kgf · cm) =0.0980665 (N · m) 1 (gf · cm · s^2) =0.980665 (kg · cm^2)

Item / Motor Type		Unit	TSC04051C	TSC04101C	TSC06401C	TSC08751C
Rated Output	PR	W	50	100	400	750
Driver Set			TSTA15C	TSTA15C	TSTA20C	TSTA30C
Rated Terminal Voltage	VT	V	114.96	148.7	77.53	105.3
Rated Torque	TR	N · m	0.16	0.32	1.274	2.49
Rated Current	IR	A	0.65	0.94	3.5	3.2
Rated Speed	NR	rpm	3000	3000	3000	3000
Peak Torque	TP (N)	N · m	0.48	0.96	3.822	7.47
Peak Current	IP	A	1.95	2.8	10.5	9.6
Torque Constant	KT	N · m/A	0.38	0.38	0.39	0.81
Voltage Constant	KE	V/k rpm	39.8	39.8	40.4	87.7
Inertia	JM	kg · cm^2	0.029	0.036	0.277	0.94
Resistance	Ra	Ω	117	37.5	2.94	6
Inductance	La	mH	117	52.5	5.7	21
Mechanical Time Constant	Tm	ms	2.63	0.94	0.555	0.568
Electrical Time Constant	Te	ms	1.0	1.4	1.94	3.5
Weight		kgw	0.48	0.7	1.44	2.472
Insulation Class			B class (130℃)		F class (155℃)	
Ambient Temperature		℃	0~40			

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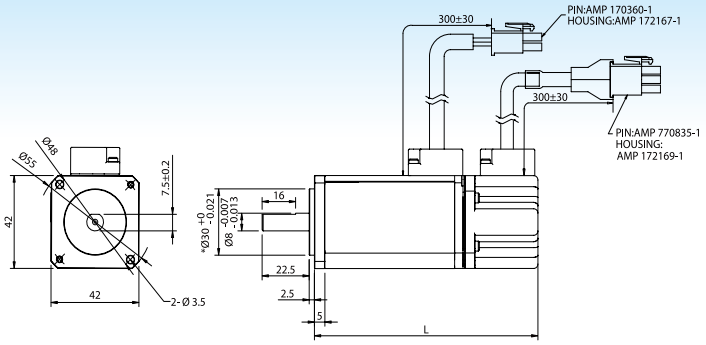
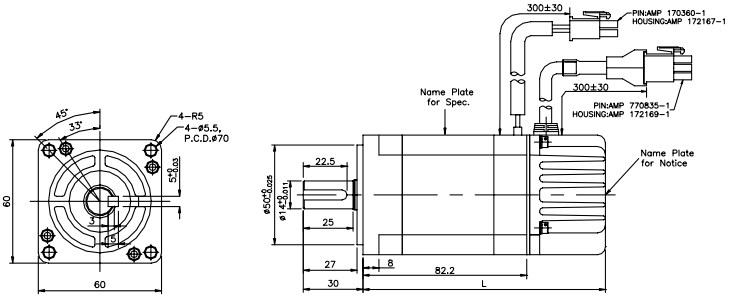
DIMENSION

TSC04



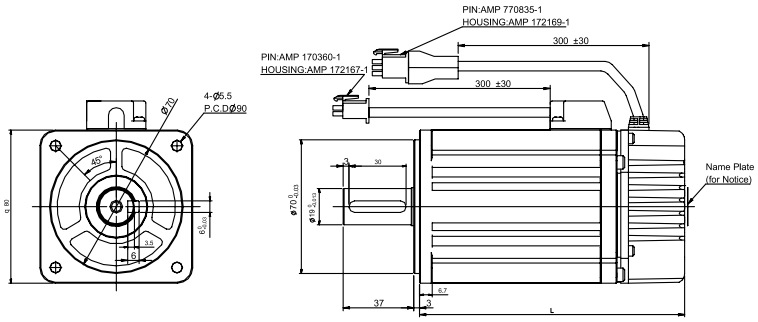
MODEL	L（mm）
TSC04051C	85.8
TSC04101C	106.8

TSC06



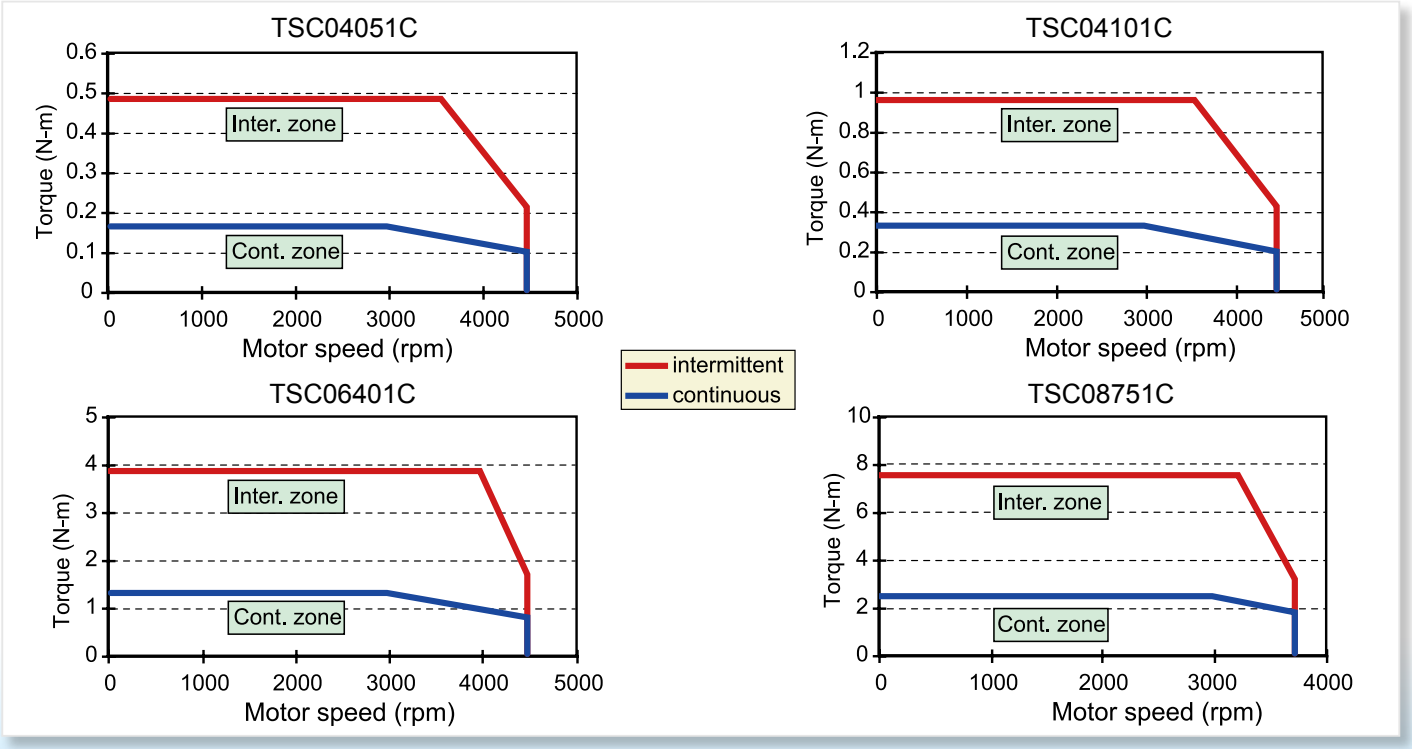
MODEL	L(mm)
TSC06-W/O brake	121.7
TSC06-With brake	157.1

TSC08



MODEL	L(mm)
TSC08-W/O brake	139
TSC08-With brake	174

PERFORMANCE CURVE



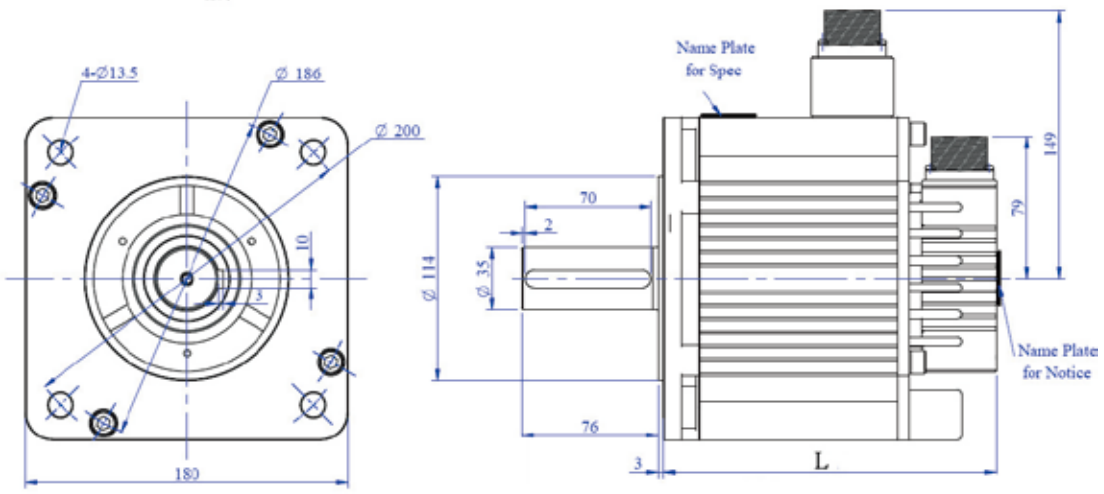
TSC 18 SERIES

SPECIFICATION

1 (kgf · cm) =0.0980665 (N · m) 1 (gf · cm · s^2) =0.980665 (kg · cm^2)

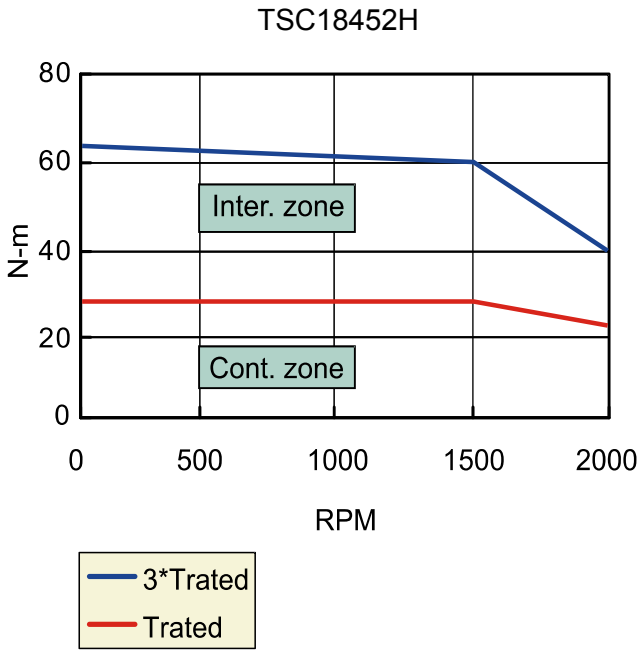
Item / Motor Type		Unit	TSC18452H	TSC18562H
Rated Output	P_R	W	4.5	5.6
Driver Set			TSTA100D	TSTA150D
Rated Terminal Voltage	V_T	V	218.4	204.11
Rated Torque	T_R	N · m	28.6	34.7
Rated Current	I_R	A	25.2	33.2
Rated Speed	N_R	rpm	1500	1500
Peak Torque	T_P (N)	N · m	62.9	86.4
Peak Current	I_P	A	56.5	84.5
Torque Constant	K_T	N · m/A	1.20	1.15
Voltage Constant	K_E	V/k rpm	126	118
Inertia	J_M	kg · cm^2	31.6	41.5
Resistance	Ra	Ω	0.27	0.18
Inductance	La	mH	3.75	2.37
Mechanical Time Constant	Tm	ms	0.526	0.442
Electrical Time Constant	Te	ms	15.6	17.2
Weight		kgw	15.7	18.3
Insulation Class			F class (155℃)	

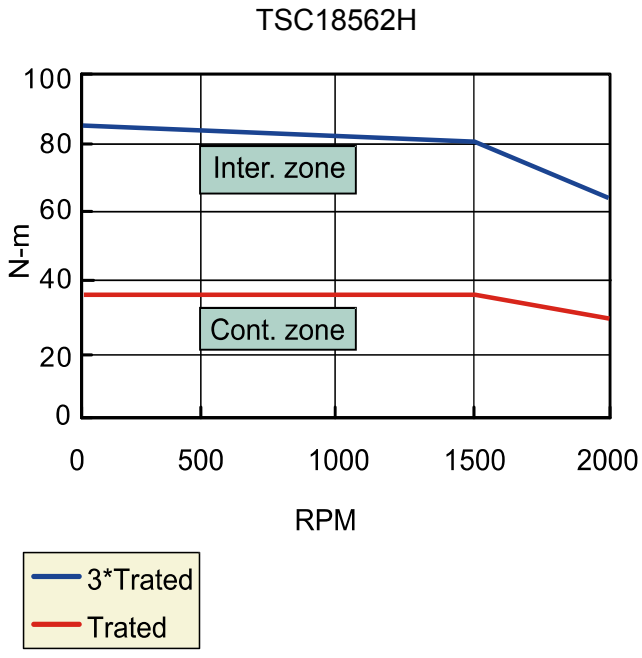
DIMENSION



MODEL	L（mm）
TSC18452H	185. 4
TSC18562H	201. 4

PERFORMANCE CURVE





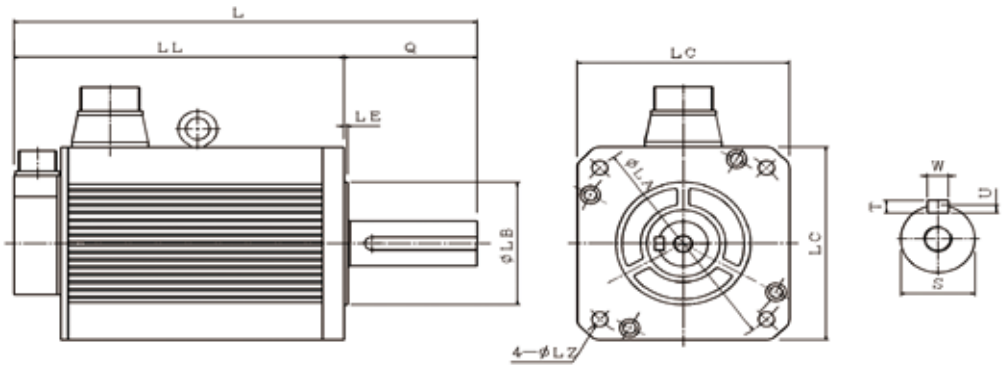
TSA 18/22 SERIES

SPECIFICATION

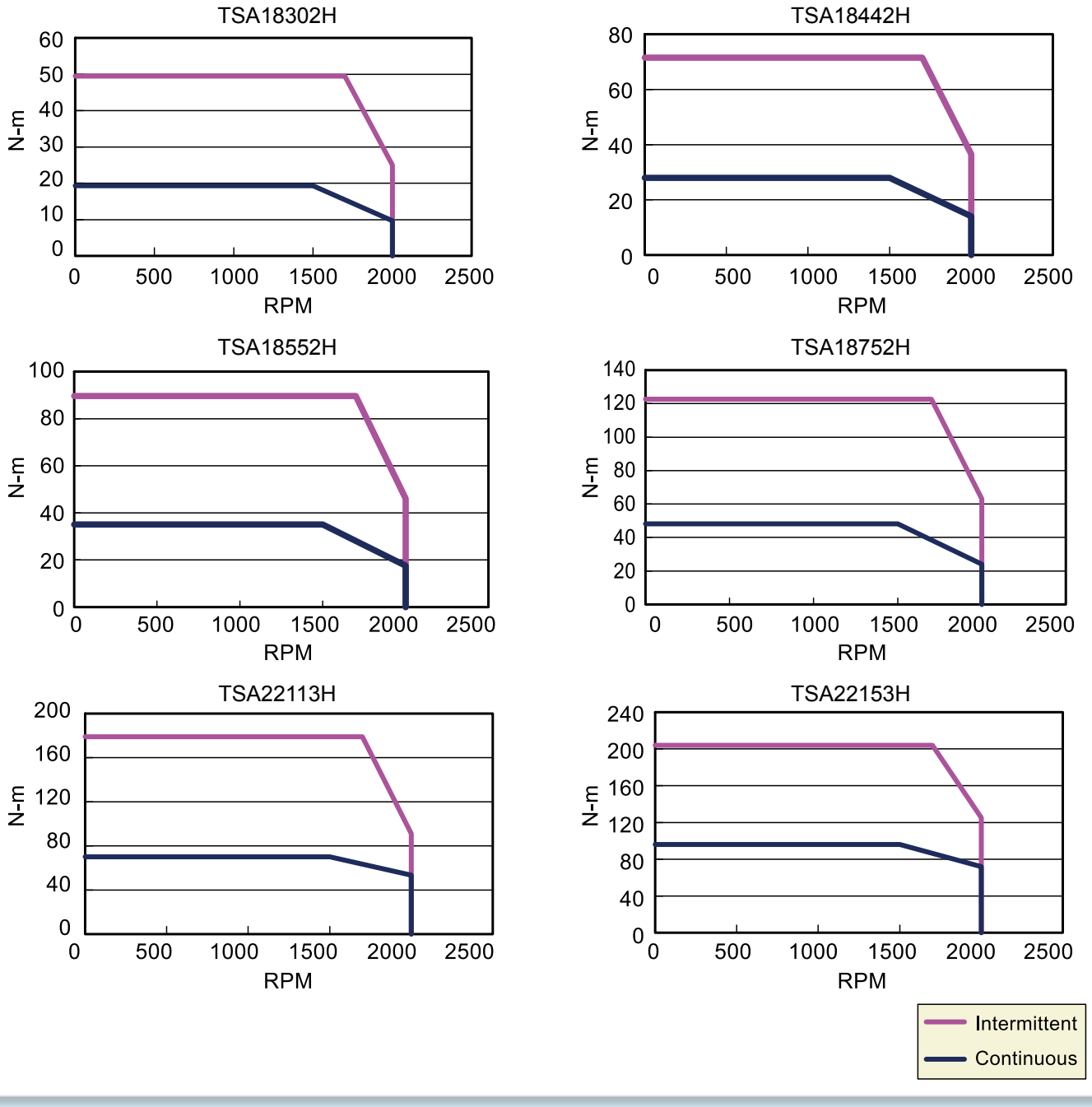
1 (kgf · cm) =0.0980665 (N · m) 1 (gf · cm · s^2) =0.980665 (kg · cm^2)

Motor Type			TSA18302H	TSA18442H	TSA18552H	TSA18752H	TSA22113H	TSA22153H
Rate Output		kW	3	4.4	5.5	7.5	11	15
Applicable Servo Motors			TSTA 75D	TSTA 100D	TSTA 150D	TSTA 200D	TSTA 300D	TSTA 300D
Voltage		V	220	220	220	220	220	220
Rated Torque		N · m	19.1	28.0	35.1	47.8	70.1	95.5
Rated Current		A(rms)	15.0	22.5	28.5	38.0	58.0	78.0
Rated Speed		rpm	1500					
Max. Torque		N · m	49.5	71.5	89.6	122.6	179.0	204.0
Max. Armature Current		A(rms)	39.0	58.5	74.1	98.8	152.0	170.0
Torque Constant		N-m/Arms	1.27	1.24	1.23	1.26	1.21	1.22
Induced Voltage Constant		Vrms/krpm	140.84	142.43	140.64	141.37	144.45	143.93
Rotor Moment of Inertia		x10^{-4}(kg · m^2)	39.99	51.44	63.52	93.94	160.94	222.20
Armature Resistance		Ω	0.54	0.35	0.26	0.16	0.09	0.05
Armature Inductance		mH	8.66	5.95	4.55	3.07	2.41	1.49
Mechanical Time Constant		ms	0.691	0.593	0.559	0.494	0.479	0.371
Electrical Time Constant		ms	16.12	16.81	17.24	18.96	26.77	29.12
Insulation Class			F Class (155℃)					
Weight (standard)		kgw	19.5	26.2	28.5	42.0	46.0	58.0
Frame	LA	mm	200	200	200	200	235	235
	LB	mm	114.3	114.3	114.3	114.3	200	200
	LC	mm	180	180	180	180	220	220
	LZ	mm	13.5	13.5	13.5	13.5	13.5	13.5
Length	L	mm	323	351.5	394.5	483	458	534
	LL	mm	244	272.5	281.5	370	341.5	417.5
	Q	mm	79	79	113	113	116	116
	LE	mm	3.2	3.2	3.2	3.2	4	4
Shaft	S	mm	35	35	42	42	42	42
	W	mm	10	10	12	12	12	12
	T	mm	8	8	8	8	8	8
	U	mm	5	5	5	5	5	5
	DH	mm	M12x24	M12x24	M16x32	M16x32	M16x32	M16x32

DIMENSION



PERFORMANCE CURVE



TSTA SERIES

SPECIFICATION

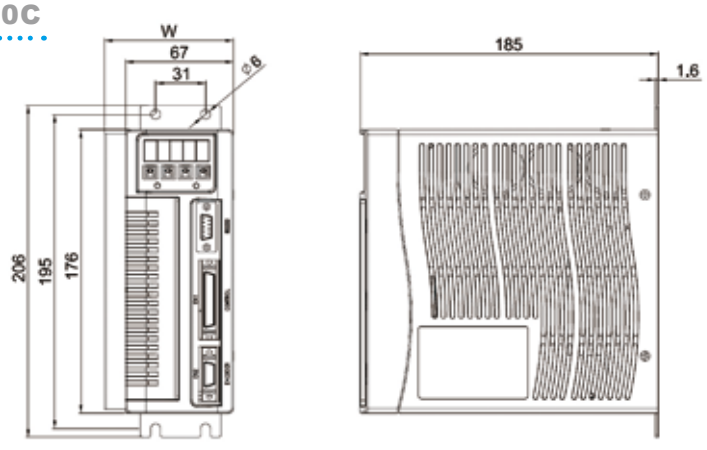
Servo Pack Model			TSTA15C	TSTA20C	TSTA30C	TSTA50D	TSTA75D	TSTA100D	TSTA150D	TSTA200D	TSTA300D
Applicable Servo Motors			TSB07301	TSB0B751	TSB13102	TSB13202	TSB13302	TSC18452	TSC18562	TSA18752	TSA22113
			TSC04101	TSB13551	TSC08751	TSB13152	TSA18302	TSA18442	TSA18552	—	TSA22153
			TSC06401	TSB08751	—	—	—	—	—	—	—
Basic Specifications	Max. Applicable Servo Motor Capacity [KW]		0.4	0.8	1.0	2.0	3.0	4.5	5.6	7.5	15.0
	Continuous Output Current [A rms]		3.5	4.4	5.16	9.5	14.0	23.0	33.2	42.1	78.0
	Max. Output Current [A rms]		10.5	13.2	15.5	28.5	42.0	59.8	86.3	109.5	170.0
	Input Power Supply	Main Circuit R、S、T	Single-phase / Three-phase 170 ~ 253Vac			Three-phase 170 ~ 253Vac					
			50 / 60Hz ±5%								
		Control Circuit r、s	Single-phase 170 ~ 253Vac								
			50 / 60Hz ±5%								
	Cooling System		Natural Air Circulation			Fan Cooling					
	Control Method		Three-phase full-wave rectification IGBT-PWM (sine-wave driven)								
	Feedback[Encoder Resolution]		Incremental Encoder：2000ppr / 2500ppr / 8192ppr								
Internal Functions	LED Display		Charge / Power lamps；Five 7-segment LEDs；Four function keys								
	Control Mode		Postion (External or Internal)、Speed、Torque and Dual control mode (P/S、S/T、P/T)								
	Regenerative Discharge		Built-in braking transistor and resistor (External braking resistor connectable)							Built-in braking transistor (External braking resistor connectable)	
	Dynamic Brake		Active after Power-off、Servo-off、Limit switch and Protective function								
	Protective Functions		Under voltage、Over voltage、Over load、Over current、Encoder error、 Abnormal DI/DO programming、Memory abnormal、Emergency stop、 Pulse deviation value、Over speed、CPU abnormal、Limit switch error、Over heat								
	Communication Interface		RS-232 / RS-485 (Modbus protocol)								
Position Control Mode	Command Source		External pulse train / Internal parameters (16 programmable position settings)								
	Input Signals	Type	Positive/Negative edge triggered：Sign + Pulse train、CCW + CW pulse train、 90° phase difference 2-phase pulse (phase A + phase B)								
		Form	Line Driver (+5V level)、Open Collector (+5 ~ +24V level)								
		Frequency	Maximum 500 / 200 kpps (line driver/open collector)								
	Electronic Gear Ratio		1/200 ≦ A/B ≦ 200 (A=1 ~ 50000；B=1 ~ 50000)								
	Position Time Constant		Smoothing：0 ~ 10sec								
	Final Position Tolerance		0 ~ 50000 Pulse								
	Feed Forward Compensation		0 ~ 100 %								
	Homing Function		Set by parameters								

SPECIFICATION

Speed Control Mode	Command Source		External analog signal / Internal parameters (3 speeds set-up)
	Analog Input Signals	Voltage Range	0 ~ ±10Vdc / 0 ~ 4500rpm (set by parameters)
		Impedance	10KΩ
	Speed Control Range		1 : 5000 (Internal) / 1 : 2000 (External)
	Speed Fluctuation Rate		0.03% or less at load fluctuation 0 ~ 100% (at rated speed)
			0.2% or less at power fluctuation ±10% (at rated speed)
			0.5% or less at ambient temperature fluctuation 0 ~ 50℃ (at rated speed)
	Accel./Decel. Time Constant		Linear : 0 ~ 50sec ; S curve : 0 ~ 5sec ; Smoothing : 0 ~ 10sec
	Frequency Characteristics		Maximum 400Hz (at JL=JM)
	Torque Limit Operation		External analog signal / Internal parameters
	Zero Speed / Speed Reach Range		0 ~ 4500rpm (set by parameters)
Torque Control Mode	Command Source		External analog signal
	Analog Input Signals	Voltage Range	0 ~ ±10Vdc / 0 ~ ±300%
		Impedance	10KΩ
	Accel./Decel. Time Constant		Linear : 0 ~ 50sec
	Speed Limit Operation		External analog signal / Internal parameters
	Torque Reach Range		0 ~ 300% (set by parameters)
Input/Output Signals	Position Output	Form	Phase A、B、Z Line Driver / Phase Z Open Collector
		Frequency Dividing Ratio	1 ~ 8192 (Rotation resolution) any arbitray value
	Digital Input [NPN/PNP]	13 ports Signal allocation can be modified.	Servo on、Alarm reset、P/PI switching、Forward/Reverse limit switch、External torque limit、Pulse deviation clear、Servo lock、Emergency stop、Speed command selection、Control mode switching、Pulse command inhibit、Gain switching、Electronic gear ratio setting、Internal pulse command trigger、Internal pulse command pause、Homing mode positioning、External reference signal、Internal position command switching、Speed/Torque command reverse、Torque mode forward/reverse start
	Digital Output [Photocoupler]	4 ports Fixed Output	Servo alarm code、Torque limit、Limit switch、Base block
		4 ports Signal allocation can be modified.	Servo ready、Servo alarm、Zero speed、Brake interlock、Speed reach、Positioning completed、Homing completed、Torque reach
	Analog Monitor Output	2 ports Signal allocation can be modified.	Speed feedback、Torque / Speed / Position command、Pulse deviation value、electrical angel、Main circuit voltage (Vdc Bus)
Environment	Installation Site		Indoor location (avoiding direct sunshine) No corrosive liquid and gas (avoiding oil mist、flammable gas、dust)
	Altitude		Altitude 1000M or lower above sea level
	Temperature		Operating temperature : 0 ~ 50℃ ; Storage temperature : -20 ~ +85℃
	Humidity		90%RH or less (with no condensation)
	Vibration		10 ~ 57Hz : 20m/s^2 ; 57 ~ 150Hz : 2G

DIMENSION

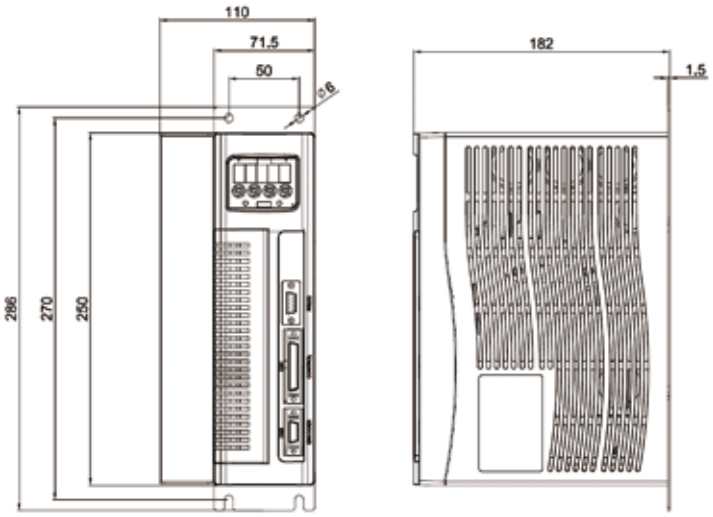
TSTA15C/20C/30C



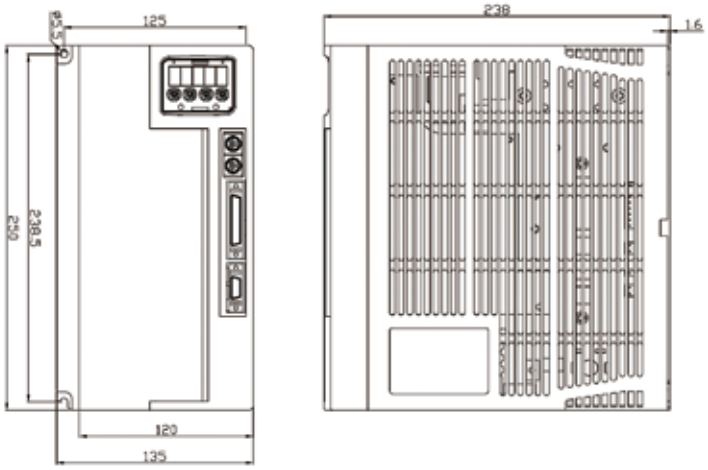
	W
TSTA15C/20C	69
TSTA30C	80

DIMENSION

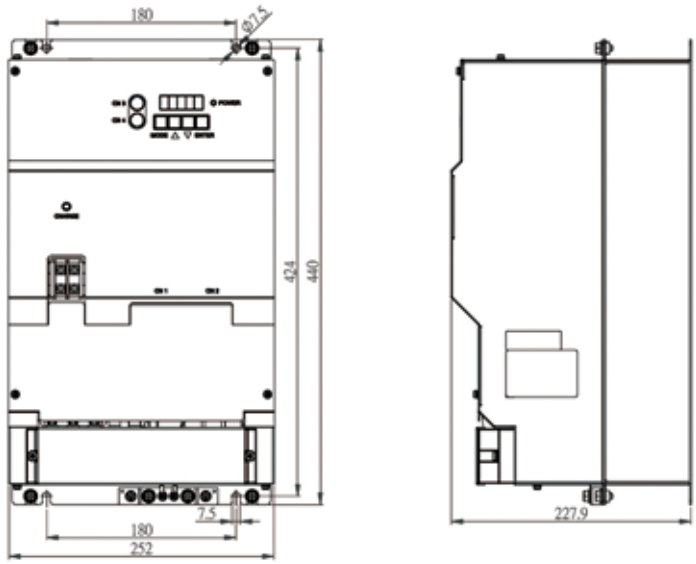
TSTA50D/75D/100D



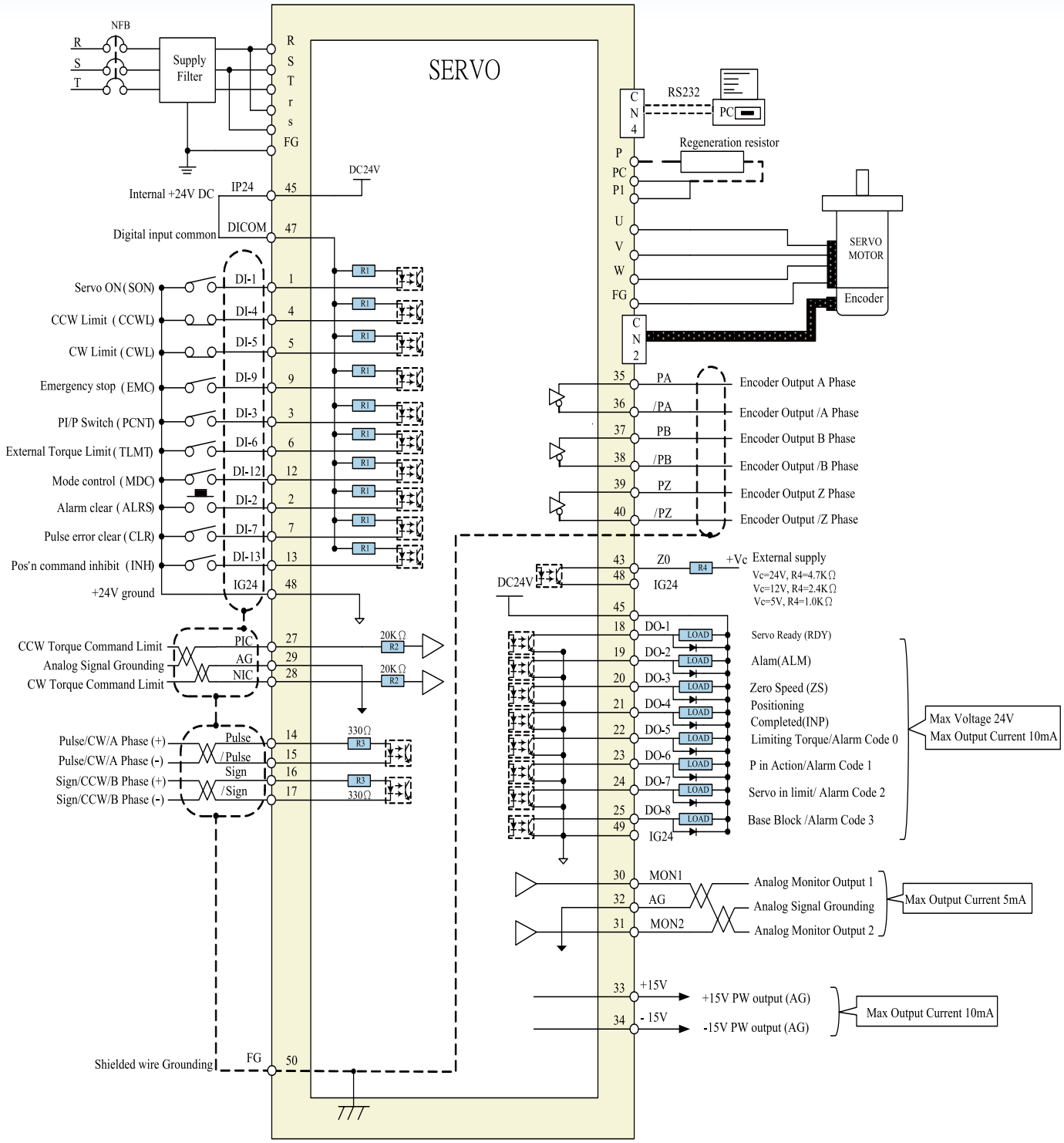
TSTA150D



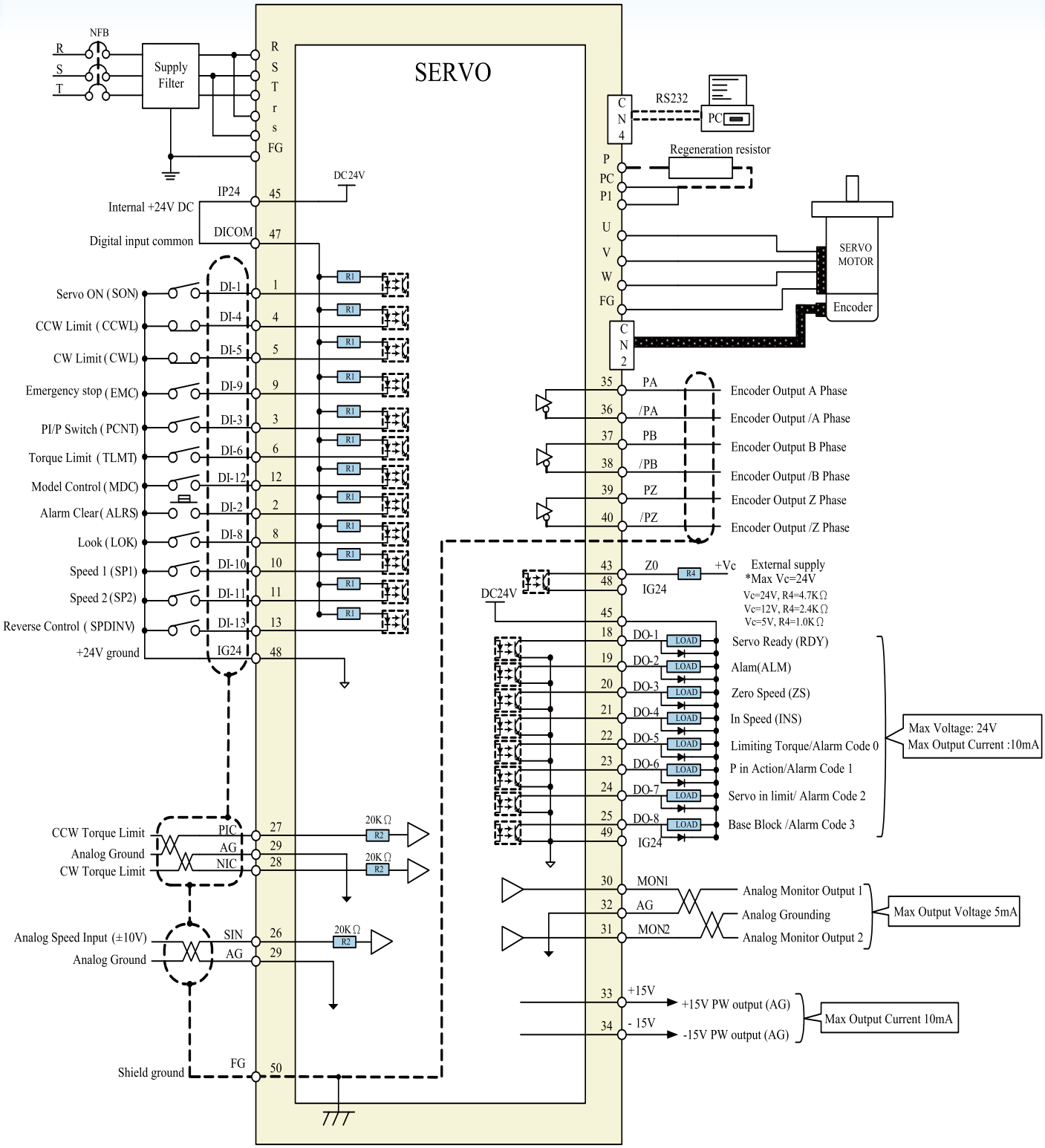
TSTA200D/300D



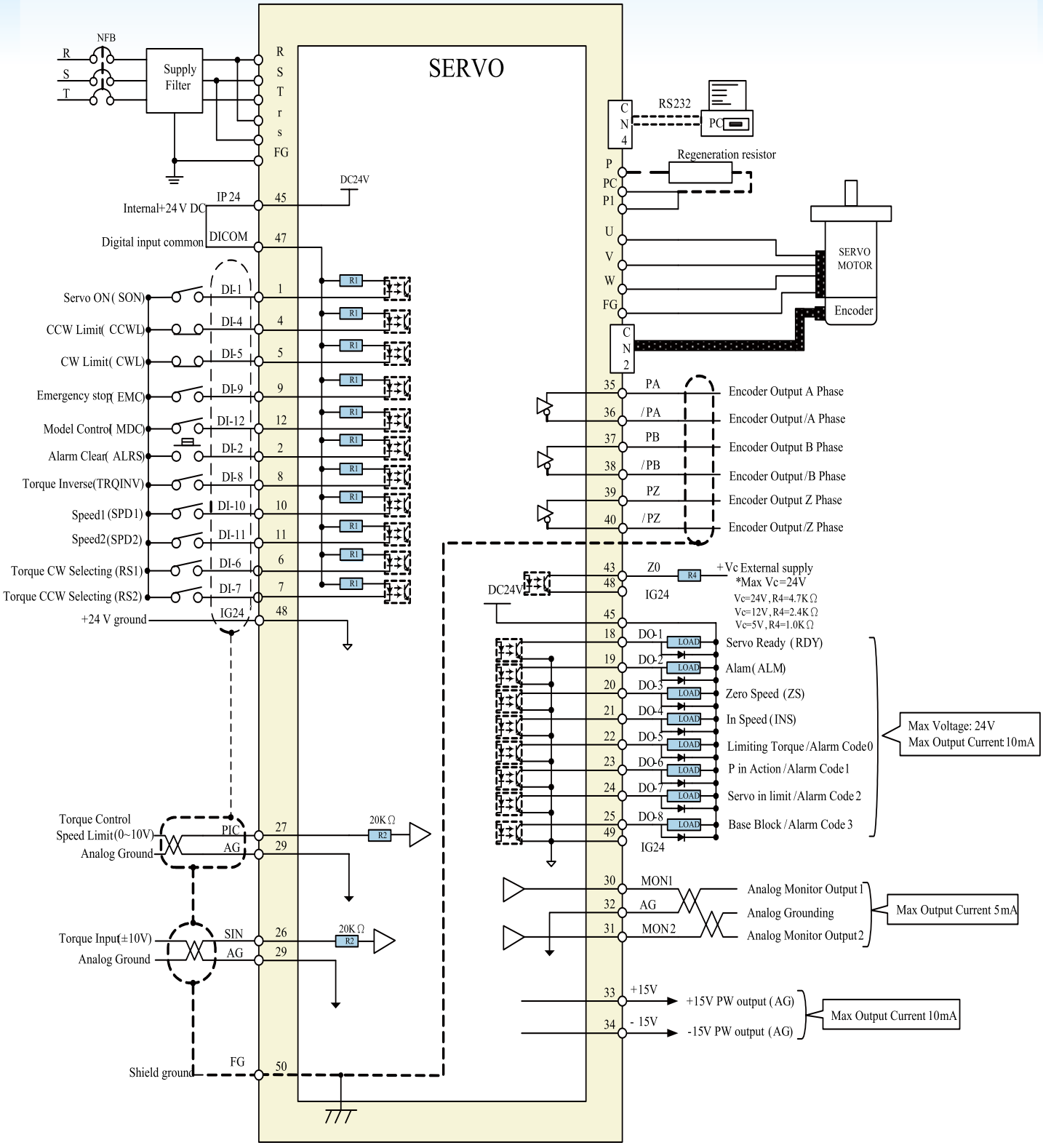
POSITION CONTROL MODE— (PE MODE) (LINE DRIVER)



SPEED CONTROL MODE—(S MODE)



TORQUE CONTROL MODE — (T MODE)



TSTE SERIES

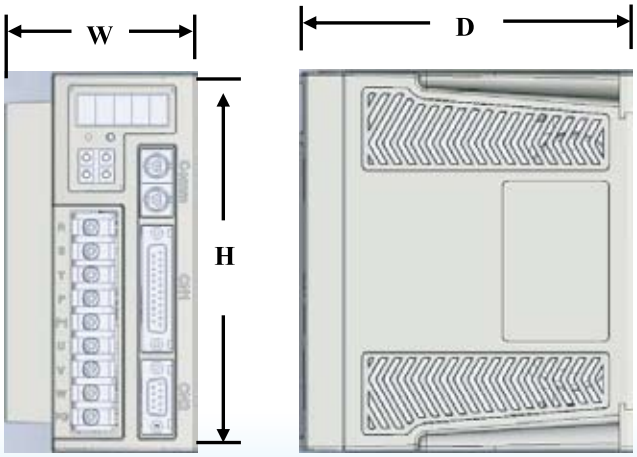
SPECIFICATION

Servo Pack Model			TSTE10C	TSTE15C	TSTE20C	TSTE30C
Applicable Servo Motors			TSC04051	TSB07301	TSB08751	TSB13102
			TSC04101	—	TSB13551	—
			—	TSC06401	TSC08751	—
Basic Specifications	Max. Applicable Servo Motor Capacity [KW]		0.1	0.4	0.8	1.0
	Continuous Output Current [A rms]		0.94	3.5	4.4	5.16
	Max. Output Current [A rms]		2.82	10.5	13.2	15.5
	Input Power Supply	Main Circuit R、S、T	Single-phase / Three-phase 170 ~ 253Vac			
			50 / 60Hz ±5%			
	Cooling System		Natural Air Circulation		Fan Cooling	
	Control Method		Three-phase full-wave rectification IGBT-PWM (sine-wave driven)			
	Feedback[Encoder Resolution]		Incremental Encoder：2000ppr / 2500ppr			
Internal Functions	LED Display		Power lamps；Five 7-segment LEDs；Four function keys			
	Control Mode		Postion (External or Internal)、Speed、Torque and Dual control mode (P/S、S/T、P/T)			
	Regenerative Discharge		Built-in braking transistor (External braking resistor connectable)			
	Protective Functions		Under voltage、Over voltage、Over load、Over current、Encoder error、 Abnormal DI/DO programming、Memory abnormal、Emergency stop、 Pulse deviation value、Over speed、CPU abnormal、Limit switch error、Over heat			
	Communication Interface		RS-232 / RS-485 (Modbus protocol)			
Position Control Mode	Command Source		External pulse train / Internal parameters (16 programmable position settings)			
	Input Signals	Type	Positive/Negative edge triggered：Sign + Pulse train、CCW + CW pulse train、 90° phase difference 2-phase pulse (phase A + phase B)			
		Form	Line Driver (+5V level)、Open Collector (+5 ~ +24V level)			
		Frequency	Maximum 500 / 200 kpps (line driver/open collector)			
	Electronic Gear Ratio		1/200 ≦ A/B ≦ 200 (A=1 ~ 50000；B=1 ~ 50000)			
	Position Time Constant		Smoothing：0 ~ 10sec			
	Final Position Tolerance		0 ~ 50000 Pulse			
	Feed Forward Compensation		0 ~ 100 %			
	Homing Function		Set by parameters			

SPECIFICATION

Speed Control Mode	Command Source		External analog signal / Internal parameters (3 speeds set-up)
	Analog Input Signals	Voltage Range	0 ~ ±10Vdc / 0 ~ 4500rpm (set by parameters)
		Impedance	10KΩ
	Speed Control Range		1：5000 (Internal) / 1：2000 (External)
	Speed Fluctuation Rate		0.03% or less at load fluctuation 0 ~ 100% (at rated speed)
			0.2% or less at power fluctuation ±10% (at rated speed)
			0.5% or less at ambient temperature fluctuation 0 ~ 50℃ (at rated speed)
	Accel./Decel. Time Constant		Linear：0 ~ 50sec；S curve：0 ~ 5sec；Smoothing：0 ~ 10sec
	Frequency Characteristics		Maximum 300Hz (at JL=JM)
	Torque Limit Operation		External analog signal / Internal parameters
	Zero Speed / Speed Reach Range		0 ~ 4500rpm (set by parameters)
Torque Control Mode	Command Source		External analog signal
	Analog Input Signals	Voltage Range	0 ~ ±10Vdc / 0 ~ ±300%
		Impedance	10KΩ
	Accel./Decel. Time Constant		Linear：0 ~ 50sec
	Speed Limit Operation		External analog signal / Internal parameters
	Torque Reach Range		0 ~ 300% (set by parameters)
Input/Output Signals	Position Output	Form	Phase A、B、Z Line Driver / Phase Z Open Collector
		Frequency Dividing Ratio	Rotation resolution Devided by 1 ~ 63
	Digital Input [NPN/PNP]	6 ports Signal allocation can be modified.	Servo on、Alarm reset、P/PI switching、Forward/Reverse limit switch、External torque limit、Pulse deviation clear、Servo lock、Emergency stop、Speed command selection、Control mode switching、Pulse command inhibit、Gain switching、Electronic gear ratio setting、Internal pulse command trigger、Internal pulse command pause、Homing mode positioning、External reference signal、Internal position command switching、Speed/Torque command reverse、Torque mode forward/reverse start
	Digital Output [Photocoupler]	3 ports Signal allocation can be modified.	Servo ready、Servo alarm、Zero speed、Brake interlock、Speed reach、Positioning completed、Homing completed、Torque reach
Environment	Installation Site		Indoor location (avoiding direct sunshine) No corrosive liquid and gas (avoiding oil mist、flammable gas、dust)
	Altitude		Altitude 1000M or lower above sea level
	Temperature		Operating temperature：0 ~ 50℃；Storage temperature：-20 ~ +85℃
	Humidity		90%RH or less (with no condensation)
	Vibration		10 ~ 57Hz：20m/s^2；57 ~ 150Hz：2G

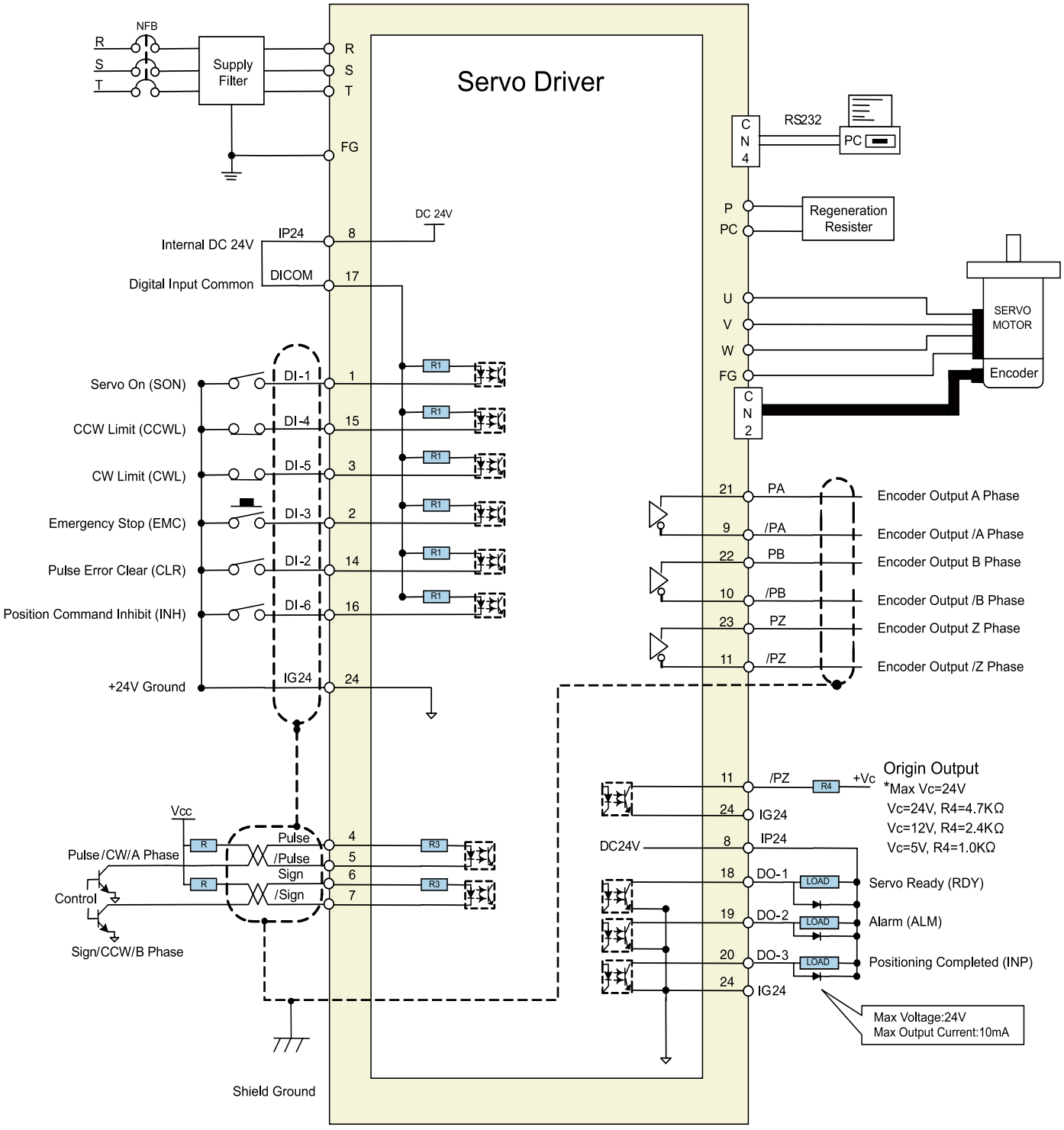
DIMENSION



TSTE	W (mm)	H (mm)	D (mm)
10C/15C	67	160	140
20C/30C	80	160	140

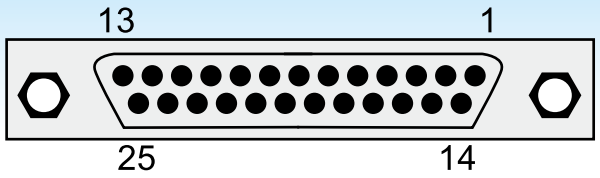
POSITION CONTROL MODE (Pe Mode) (Open Collector)

PS: For other control modes, please refer to the TSTE manual



CONTROL SIGNAL CONNECTOR SPECIFICATION

PS: For CN2 connector specification, please refer to the TSTE manual



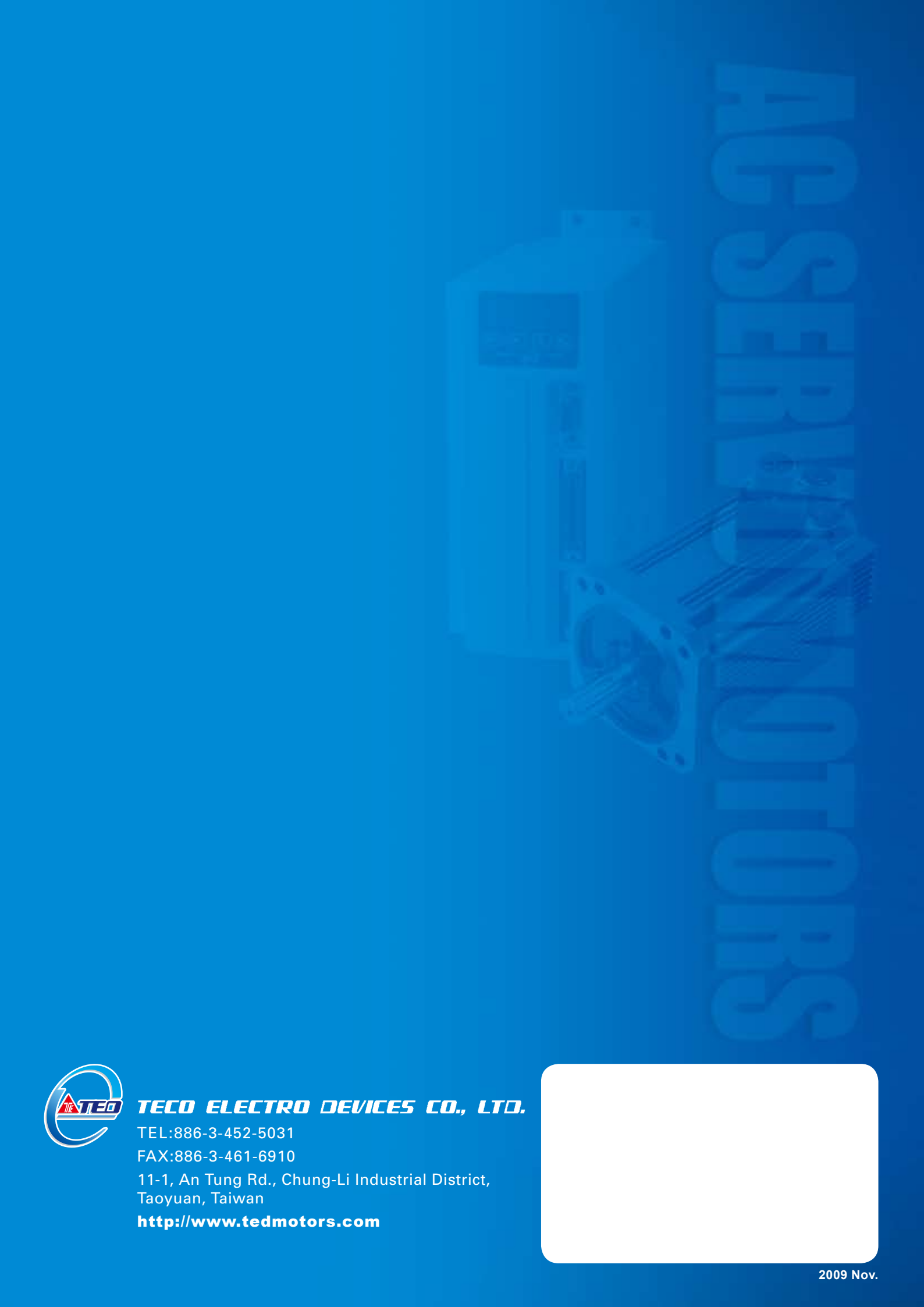
Pin No.	Wiring Diagram	Signal
1	DI-I	Digital Input 1 (Servo On)
2	DI-3	Digital Input 3 (PI/P Switch)
3	DI-5	Digital Input 5 (CW Limit)
4	Pulse	Pulse Input (+)
5	/Pulse	Pulse Input (-)
6	Sign	Director Input (+)
7	/Sign	Director Input (-)
8	IP24	+24V Power Output
9	/PA	Encoder Output /A Phase
10	/PB	Encoder Output /B Phase
11	/PZ	Encoder Output /Z Phase
12	SIN	Analog Input Speed/Torque Input
13	AG	Analog Ground

Pin No.	Wiring Diagram	Signal
14	DI-2	Digital Input 2 (Alarm Clear)
15	DI-4	Digital Input 4 (CCW Limit)
16	DI-6	Digital Input 6 (Torque Control)
17	DICOM	+24V Power Input
18	DO-1	Digital Output 1 (Servo Ready)
19	DO-2	Digital Output 2 (Alarm)
20	DO-3	Digital Output 3 (Zero Speed)
21	PA	Encoder Output A Phase
22	PB	Encoder Output B Phase
23	PZ	Encoder Output Z Phase
24	IG24	+24V Ground
25	PIC	Analog Input Speed/Torque Limit Input

PERIPHERAL

Part Number	Description	Applicable Motor	Applicable Driver
DTY2C3MMDR20P0000	3M Connector 20pin		TSTA
DTY2C3MMDR50P0000	3M Connector 50pin		TSTA
DTY3FAMPUVW000000	UVW Connector Cap:AMP 172159-1 Socket: AMP 170362-1	TSC04/06/08, TSB07/08 Series	
DTY3FAMP0PG000000	PG Connector Cap:AMP 172161-1 Socket: AMP 170361-1	TSC04/06, TSB07/08 Series	
0Y303A3104PS1	UVW L Military Connector (MS3108A20-4S)	TSB13 Series (W/O Brake)	
0Y303A3107PS1	UVW L Military Connector (MS3108A20-15S)	TSB13 Series (With Brake)	
0Y303A5504RA1	UVW L Military Connector (MS3108A32-17S)	TSA18/TSC18 Series (W/O Brake)	
0Y303A1903PS1	UVW L Military Connector (MS3108A10SL-3S)	TSA18 Series (With Brake)	
0Y303A3109PS1	PG L Military Connector (MS3108A20-18S)	TSB13/TSA18/TSC18 Series	
DTY3FCB01MUVWCB00	1M UVW Cable (AMP 4 PIN)	TSC04/06/08, TSB07/08 Series	TSTA TSTE
DTY3FCB03MUVWCB00	3M UVW Cable (AMP 4 PIN)		
DTY3FCB05MUVWCB00	5M UVW Cable (AMP 4 PIN)		
DTY3FCB10MUVWCB00	10M UVW Cable (AMP 4 PIN)		
DTY3FCB01MUVWMB00	1M UVW Cable (Military Connector 4PIN)	TSB13 Series	TSTA TSTE
DTY3FCB03MUVWMB00	3M UVW Cable (Military Connector 4PIN)		
DTY3FCB05MUVWMB00	5M UVW Cable (Military Connector 4PIN)		
DTY3FCB10MUVWMB00	10M UVW Cable (Military Connector 4PIN)		
DTY3FCB01M0PGCB00	1M PG Cable (AMP 9 PIN+3M 20PIN)	TSC04/06/08, TSB07/08	TSTA
DTY3FCB03M0PGCB00	3M PG Cable (AMP 9 PIN+3M 20PIN)		
DTY3FCB05M0PGCB00	5M PG Cable (AMP 9 PIN+3M 20PIN)		
DTY3FCB10M0PGCB00	10M PG Cable (AMP 9 PIN+3M 20PIN)		
DTY3FCB01M0PGMB00	1M PG Cable (Military 9 PIN+3M 20PIN)	TSB13, TSA18. TSC18	TSTA
DTY3FCB03M0PGMB00	3M PG Cable (Military 9 PIN+3M 20PIN)		
DTY3FCB05M0PGMB00	5M PG Cable (Military 9 PIN+3M 20PIN)		
DTY3FCB10M0PGMB00	10M PG Cable (Military 9 PIN+3M 20PIN)		
DTY3FCB01M0PGCBPT	1M PG Cable (AMP 9PIN+D-SUB 9PIN)	TSC04/06/08, TSB07/08	TSTE
DTY3FCB03M0PGCBPT	3M PG Cable (AMP 9PIN+D-SUB 9PIN)		
DTY3FCB05M0PGCBPT	5M PG Cable (AMP 9PIN+D-SUB 9PIN)		
DTY3FCB10M0PGCBPT	10M PG Cable (AMP 9PIN+D-SUB 9PIN)		
DTY3FCB01M0PGMBPT	1M LType PG Cable (Military 9 PIN +D-SUB 9PIN)	TSB13, TSA18. TSC18	TSTE
DTY3FCB03M0PGMBPT	3M LType PG Cable (Military 9 PIN +D-SUB 9PIN)		
DTY3FCB05M0PGMBPT	5M LType PG Cable (Military 9 PIN +D-SUB 9PIN)		
DTY3FCB10M0PGMBPT	10M LType PG Cable (Military 9 PIN +D-SUB 9PIN)		

Memo



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