

High-Response Direct Drive Motor

NEW

τ DISC HD-4 Series

Surpassing our conventional products
and leading the “industry standard”

Our HD-s Series, long recognized as an industry standard,
has evolved further Achieves a new level of
high torque, high efficiency, and high response

Overwhelming high performance and high efficiency

- ▶ High-end direct drive motor model achieving an outstanding power rate and 4K (high torque/high response/high accuracy/high efficiency)
- ▶ Rated torque increased to approximately 1.75 times compared with the industry standard (our conventional products)!

τ DISC[®]
Servo Motor



Reduced losses (heat generation) and high safety

- ▶ Compared with our conventional products, the ratio of losses (heat generation) to output has been reduced to 50%, achieving higher motor efficiency
- ▶ Compared with conventional natural cooling method, internal forced air cooling (under maximum supply conditions) reduces motor surface temperature by 30%, further suppressing the impact of heat transfer to equipment
- ▶ The new paired driver model VPV Type is equipped with a motor coil temperature monitor function and a collision stop function, ensuring high safety

High-accuracy positioning realized at high speed

- ▶ Low latency achieved through proprietary high-speed serial communication
Encoder resolution and rotation speed fully utilized

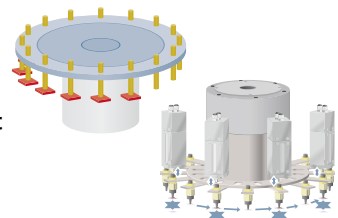
Examples of use

• High-speed index drive

Uses requiring high-tact operation, such as test handlers and taping equipment

• High-speed pick-and-place drive

Uses requiring high-speed and high-accuracy operation, such as die bonders



Individual specifications

Motor Type *1	HD160-195-L4 (HD160-195-L4P)	
Model *1	HD1619L4ZZ-062DAZY (HD1619L4PZ-062DAZY)	
Cooling method	Natural cooling	
Flange	Flange-less	
Power supply used	ACV	200
Outside diameter	mm	165
Height *2	mm	195 (194.8)
Rated torque *3	N·m	63
Maximum torque *3	N·m	154.8 (At 330 rpm) 130 (At 390 rpm)
Rated motor speed *3	rps	6.5
Rated output *3	W	2570
Rated current *3	A	15
Encoder type	Incremental	
Detection pulse	ppr	4,194,304
Detection resolution	arcsec	0.309
Allowable moment load *4	N·m	31.9
Allowable axial load *4	kN	3.2
Table surface rotation accuracy *2	Axial run out (no load)	μm 50 (10)
	Radial run out (no load)	μm 50 (10)
Absolute positioning accuracy	arcsec	±15
Repeated positioning accuracy (when reciprocating/reciprocating)	arcsec	±1
Rotor moment of inertia	kg·m ²	0.0033
Weight	kg	18
Magnetic pole detection method	Selecti on of magnetic pole sensor detection or automatic magnetic pole detection	
Paired driver *5	NCR-V□	2332A-A-0□□ (2222A-A-0□□)

*1 Shown in parentheses are the motor Type and model of the high accuracy Type (option).

*2 Shown in parentheses is the value of the high accuracy specifications (option).

*3 The specification values are those obtained when the motor is mounted on a heat sink (aluminum plate) of 650 mm×650 mm×50 mm and operated at the ambient operating temperature.

*4 The life of the bearing and the run out accuracy differ depending on the load.

*5 Refer to Torque characteristics.

Common specifications

Ambient operating temperature	0~40°C
Ambient operating humidity	85% or less, no condensation allowed
Installation location	Do not install in a harmful atmosphere containing corrosive gas, grinding oil, metal dust, oil, etc.Install in an indoor place not exposed to direct sunlight.
Installation direction *1	Rotor horizontal and facing upward
Cooling method	Natural cooling (cabinet heat dissipation)
Insulation class	Class F
Insulation withstand voltage	AC1500V, 1 minute
Protection class	IP42
Sea level	1000 m or less
Vibration resistance	0.5G (3 directions, 2 hours each)

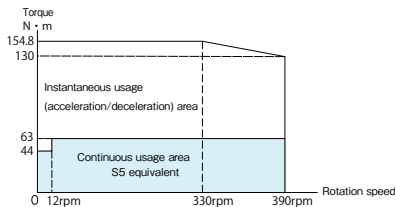
*1 When the installation direction is not horizontal with the rotor facing upward, consult with our sales staff.

Motor internal forced air cooling specifications

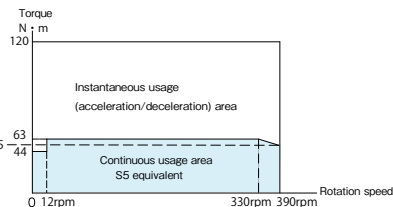
Cooling air flow rate	50 L/min or more and less than 100 L/min
Cooling air pressure	0.2 MPa or less
Cooling air temperature	10~30°C
Cooling air supply tube diameter	φ8mm

*Use compressed air as the supplied fluid, and install a filter to remove moisture, oil, and foreign matter.

Torque characteristics



For the paired driver NCR-V□2332A-A-0□□

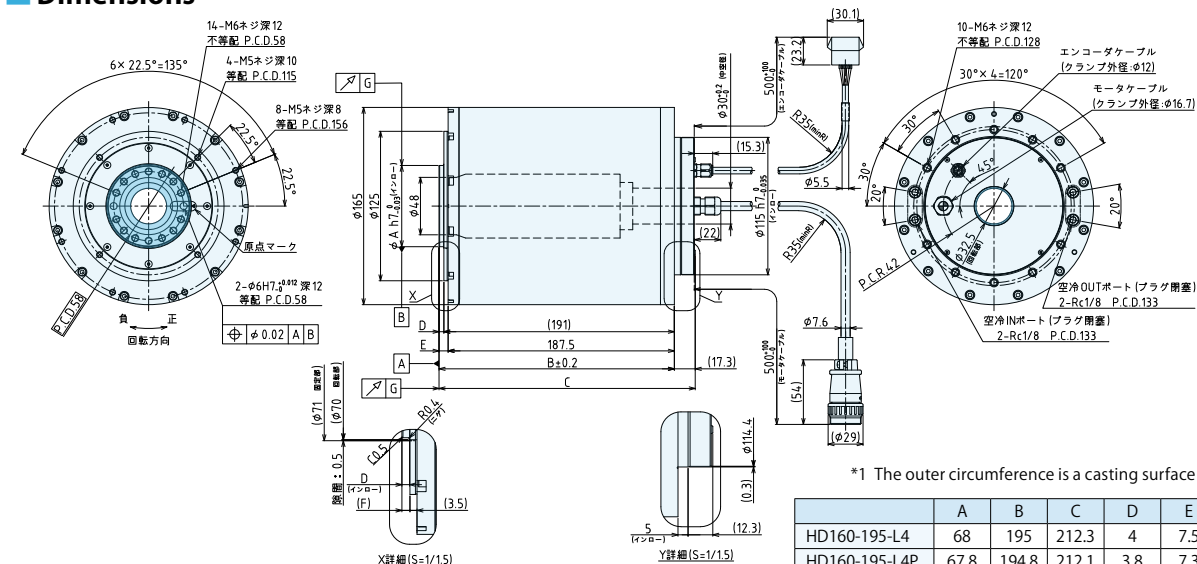


For the paired driver NCR-V□2222A-A-0□□

When constraint and operations equivalent to constraint (ultra-low-speed rotation and minute-angle reciprocating operation) are performed continuously, the electronic thermal setting value may be reduced to protect the motor.

For use in the operations above, contact sales representative.

Dimensions



*1 The outer circumference is a casting surface (inclined).

	A	B	C	D	E	F	G
HD160-195-L4	68	195	212.3	4	7.5	4	0.05
HD160-195-L4P	67.8	194.8	212.1	3.8	7.3	3.8	0.01

Compatible servo drivers

VPV Series

VPV-VA Type (I/O specification)

Speed command operation, torque command operation, and pulse train command operation, and built-in command operation

VPV-VD Type (EtherCAT specification)

Supports EtherCAT communication (CiA402 drive profile).

Speed command operation, torque command operation, and position control operation



Feature

● New servo driver that provides added value beyond existing drivers through software evolution

● Drive simulation mode enables operation simulation on software without connecting a motor.

● Equipped with a consumable replacement notification function, collision stop function, and logging function in case of abnormalities.

Enhanced predictive and preventive maintenance functions, including checking abnormality occurrence history in chronological order.

● The motor internal temperature can be monitored in real time on the editing software. *1

*1 Motor temperature display is currently supported only for HD-4.

The data displayed for Motor temperature 1 and Motor temperature 2 is as follows:

Motor temperature 1: Motor internal coil temperature

Motor temperature 2: Encoder temperature

This function is intended for temperature monitoring of the measurement target section; therefore, no alert output function is provided.

Common specifications

Ambient condition	Temperature	0~55°C (No freezing allowed)
	Humidity	90%RH or less (no condensation allowed)
	Installation location	Do not install in a harmful atmosphere containing corrosive gas, grinding oil, metal dust, oil, etc. Install in an indoor place not exposed to direct sunlight.
	Sea level	1000 m or less
Vibration resistance		5.9m/s ² (10~55Hz) No resonance is allowed.
Drive method		Three-phase sine wavePWM
Brake method		Regenerative brake: External regenerative resistor *1
Mounting type		Panel mounting

Performance			
Speed control	Speed control range *2		1:5000
	Speed variation	Load characteristics	0% to 100% load: ±0.01% or less (at rated speed)
		Voltage characteristics	Rated voltage ±10%: 0% (at rated speed)
		Temperature characteristics	0°C to 40°C: ±0.1% or less (at rated speed)
Torque control	Resolution		1:1000 (Up to the rated torque)
	Reproducibility (repeat accuracy)		±1% (Up to the rated torque)

*1 The regenerative resistor is optional.

*2 It is assumed that the motor does not stop when the load is 100%.

Individual specifications

Model *1	NCR-●	2222A-A-◆0◇	2332A-A-◆0◇
Rated output	kW	2.2	3.3
Main circuit input power supply	Rated voltage	AC200~240 3φ	
	Frequency	50/60	
	Permissible voltage fluctuation	AC170~264	AC170~264
	Input rated current	13.5	17
	Rated capacity	4.2	5.9
Control circuit input power supply	Inrush current *2	33[18ms]	85[10ms]
	Rated voltage	AC200~240 1φ	
	Frequency	50/60	
	Permissible voltage fluctuation	AC170~264	AC170~264
	Input rated current	0.15	0.18
Continuous output current	Power consumption	18	20
	Inrush current *2	17[3ms]	34[2ms]
	Instant output current	16	24(25) *3
Structure (IP code)		Forced cooling (IP20)	Forced cooling (IP20)
Weight		約2.3	約3.7

*1 Each symbol in a model represents the following:

●: Function type ...A (I/O specification), D (EtherCAT specification)

◆: Analog option (supported only by I/O specifications) ...0 (none), 1 (provided)

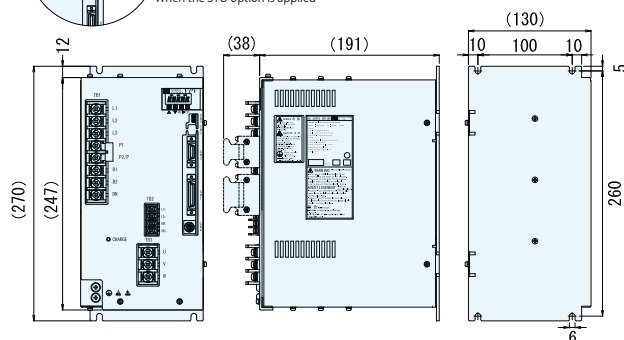
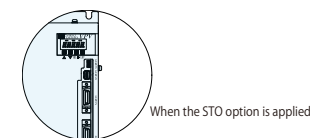
◇: STO option ...0 (none), 1 (provided)

*2 Value at the input voltage of 240 VAC. The value in brackets ([]) indicates the time constant for inrush current.

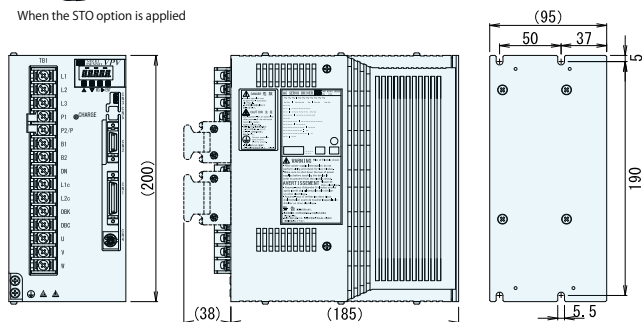
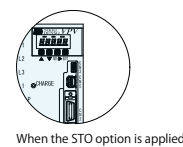
For the time after which inrush current is eliminated, use 3 times the value in brackets ([]) as a rough guide.

*3 Shown in parentheses is the value applicable when UL standard compliance is not required.

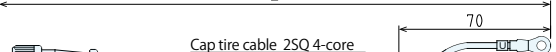
© NCR-V□2332A-A-0□□



© NCR-V□2222A-A-0□□



■ **Power cable (Option)**

Whether shielded	Model	Length (L)	Power cable dimensions (For movable motor)	Connector kit dimensions
Shielded	NCR-XBEGA -030	3m		◎ NCR-XBDSA
	-050	5m		
	-070	7m		
	-100	10m		
	-150	15m		
	-200	20m		
	-250	25m		
-300	30m			

■ Encoder cable(Optional)

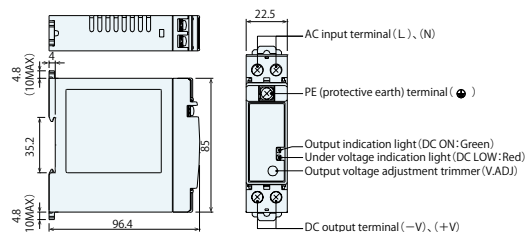
Model	Length (L)	Encoder cable dimensions (For movable motor)
NCR-XBKLA -030	3m	Shielded twisted pair cable $0.5\text{SQ} \times 1\text{P} + 0.25\text{SQ} \times 4\text{P}$ $(\text{AWG}21 \times 1\text{P} + \text{AWG}25 \times 4\text{P})$
-050	5m	
-070	7m	
-100	10m	
-150	15m	
-200	20m	
NCR-XBKLA -250-Z	25m	Shielded twisted pair cable $0.5\text{SQ} \times 1\text{P} + 0.25\text{SQ} \times 4\text{P}$ $(\text{AWG}21 \times 1\text{P} + \text{AWG}25 \times 4\text{P})$ Mark tube 1000 ± 30
-300-Z	30m	

* If the length is 25 m or longer, a separate 5 VDC power supply is required. An external power supply unit, model NCR-XAD1A, is available as an option.

■ External power supply unit

This is an option item for use with NCR-XBKLA-250/300-Z.

Product model
NCR-XAD1A



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