

# INVERTER-DRIVEN MOTOR REEL

## ● Protective structure ... equal to IP44 (only reel part)

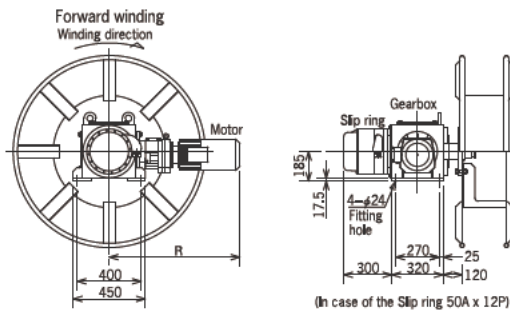
### ■ Features

- Vector inverter system for the driving source provides high efficiency, energy saving and longer life of the cable.
- Applied Totally-enclosed motor for outside use and Able to use in a hostile environment.
- Optimized torque control by the vector inverter system reduces excess tension on the cable and therefore it gets cable life longer comparing the torque motor reel.
- High efficient drive by Inverter system contributes to drastic energy saving.
- On the Cable Replacement Mode, the reel is able to do forward and reverse winding by hand, and it is enable to do easy and safe cable replacement.
- Electric Control Box and Regenerative Resistor Unit are attached separately.

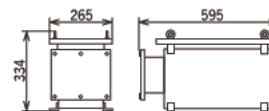
### ■ Applications

- For from small or middle size equipments to large size and high frequency equipments, there is a wide range of acceptable applications.

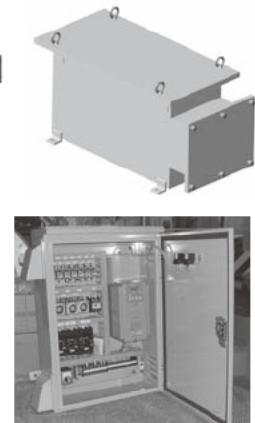
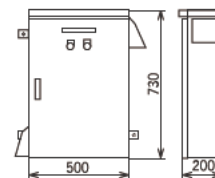
Motor capacity	1.5kW			2.2kW	
Reduction gear	Type 1	Type 2	Type 3	Type 1	Type 3
Reduction ratio	34	47.63.75	85.107.134	32.5	63.74
R(mm)	794	817	819	867	869



Regenerative resistor unit



Electric control box



# SERVOMOTOR CABLE REEL

## ● Protective structure ... equal to IP44

### ■ Features

- Servomotor, the sophisticated driving source, gives more efficiency, energy saving and longer cable life than the vector inverter system.
- Enable to use in a hostile environment.
- Adopted Minimum Tensional Control (\*) uniquely for the higher performance torque control structure than the vector inverter system.
- To generate the gentle winding force, it makes cable's life longer than the inverter system.
- A combination of Permanent Magnet motor and Minimum Tensional Control contributes more efficient saving energy than the inverter system.
- On the Cable Replacement Mode, the reel is able to do forward and reverse winding by hand, and it is enable to do easy and safe cable replacement.
- Embedded control system in the reel body solves the troublesome electric work.

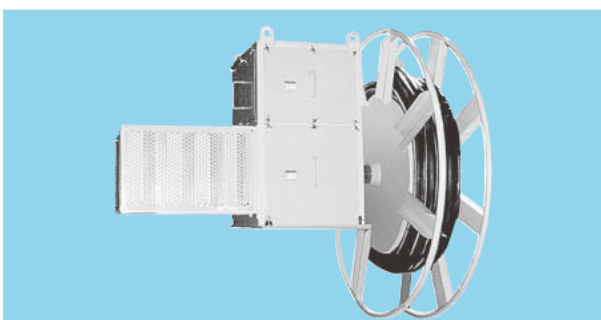
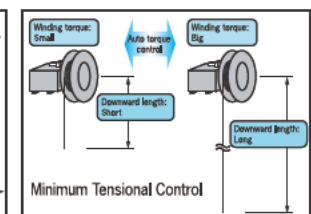
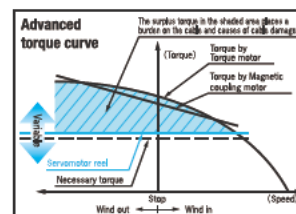
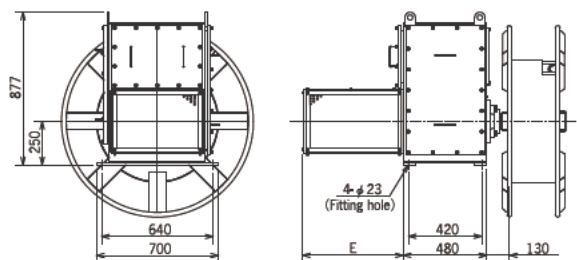
(\*) Minimum tensional control:

The automatic calculation function that adjusts and generates the optimal and minimum winding force in response to the cable winding state.

### ■ Applications

- For from small or middle size equipments to large size and high frequency equipments, there is a wide range of acceptable applications.

Motor capacity	1.5kW	3.6kW
E(mm)	520	590



Built-in control unit



# Motor type Reel's Specifications Comparative Table

Type	Servomotor reel		Inverter-driven motor reel			Torque motor reel		
	SM15**	SM35**	VP15**	VP22**	VP30**	TMX100	TMX200	TME400C
Motor Capacity	1.5kW	3.5kW	1.5kW	2.2kW	3.0kW	9.8 N·m	19.6 N·m	39.2 N·m
Power	φ 3 200 ~230V 50/60Hz	50/60Hz	φ 3 200 ~240V 50/60Hz	50/60Hz	50/60Hz	φ 3 200/220V	50/60Hz	50/60Hz
	φ 3 380 ~480V 50/60Hz	50/60Hz	φ 3 380 ~480V 50/60Hz	50/60Hz	50/60Hz	φ 3 400/440V	50/60Hz	50/60Hz
Rating	Continuous		Continuous			Continuous		
Protective Structure	Equal to IP44		Equal to IP44 (only reel part)			Equal to IP44		Equal to IP33
Torque Control	Torque control by a servo set		Torque control by a vector inverter			Voltage controlled torque motor		
	Minimum tensional control / Stable torque control		Stable torque control					
Slip ring	20. 50. 100A		20. 50. 100. 150. 200. 300A			20. 50. 100. 150. 200. 300A		
Attachment	-		Electric control box Regenerative resistor unit			-		
Main application	Vertical retrieve (Crane etc.)		Horizontal retrieve (Moving trolley etc.)			Vertical retrieve Horizontal retrieve		
Electrical Efficiency (*)	◎ (95%cut)		◎ (90%cut)			△		
Simplified control device	○ (built-in control unit)		△ (built-in control unit)			◎		
Cable life	◎		○			△		
Quietness	◎		◎			△		
Easy torque control	◎		○			◎		
Manual winding in/out	◎		◎			△		
Against a hostile environment	○		◎			○		
High speed winding	◎		◎			○		
Low speed winding	◎		◎			◎		
Heavily loaded winding	◎		◎			○		
Maintenance span	Long		Long			Long		Short

(\*): These percentages are estimated on appropriate conditions based on TME400C as 100% and depend on the customer usage.

NOTE:1. The comparative data above is based on the general usage.

2. Servomotor reel and Inverter-driven motor reel are jointly developed products by Hitachi Plant Technologies, Ltd. and Endo Kogyo Co., Ltd.

## Reference -Excellent Energy-saving Features-

Annual electric consumption of ENDO reel with horizontal recovery at a certain factory

Motor type	Electric consumption (kWh)	Electricity cost (Yen)	CO <sub>2</sub> emission (kg)	Rate
Torque motor reel	28000	318,640	10,920	100%
Magnetic coupling motor Reel	16200	184,356	6,318	58%
Inverter-driven motor reel	3100	35,278	1,209	11%
Servomotor reel	900	10,242	351	3%

● Estimation unit: 1kWh = JPY11.38 (at July 2008)

● Estimated with 12 hours operation in a day, for 365 days a year

● CO<sub>2</sub> emission coefficient: 0.39kg-CO<sub>2</sub>/kWh

【Motor type】

Torque motor reel

Magnetic coupling motor Reel

Inverter-driven motor reel

Servomotor reel

