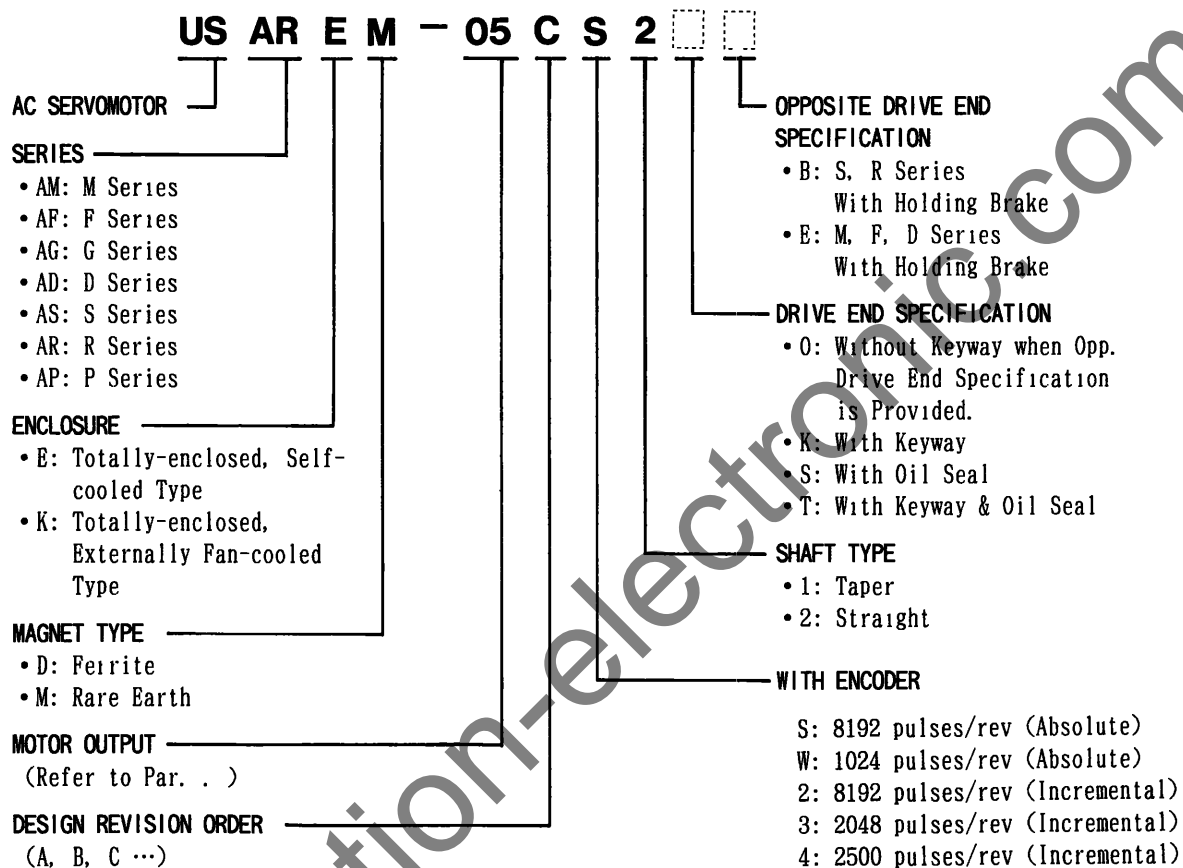
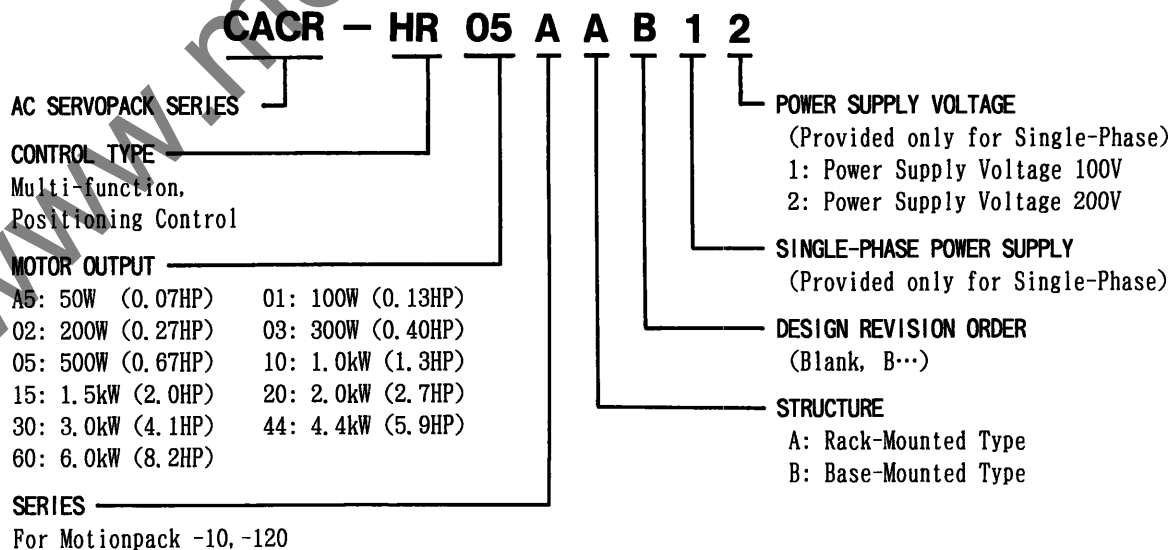


1.1 TYPE DESIGNATION

(1) Servomotor



(2) Servopack



2.1.2 F Series

(1) Ratings

Time Rating: Continuous

Insulation: Class F

Isolation Voltage: 1500 VAC, one minute

Insulation Resistance: 500 VDC, 10MΩ or more

Enclosure: Totally-enclosed, self-cooled

Equivalent to IP55

(Shaft penetrating section excluded)

Ambient Temperature: 0 to + 40°C

Ambient Humidity: 20% to 80%

(non-condensing)

Vibration: 15μm or below

Finish in Munsell Notation: N1.5

Excitation: Permanent magnet

Mounting: Flange mounted

Drive Method: Direct drive

(2) Combination with encoder

• Standard

USAFED- [] CS [] : With absolute encoder (8192 pulses/rev)

USAFED- [] C2 [] : With incremental encoder (8192 pulses/rev)

• Semi-Standard

USAFED- [] CW [] : With absolute encoder (1024 pulses/rev)

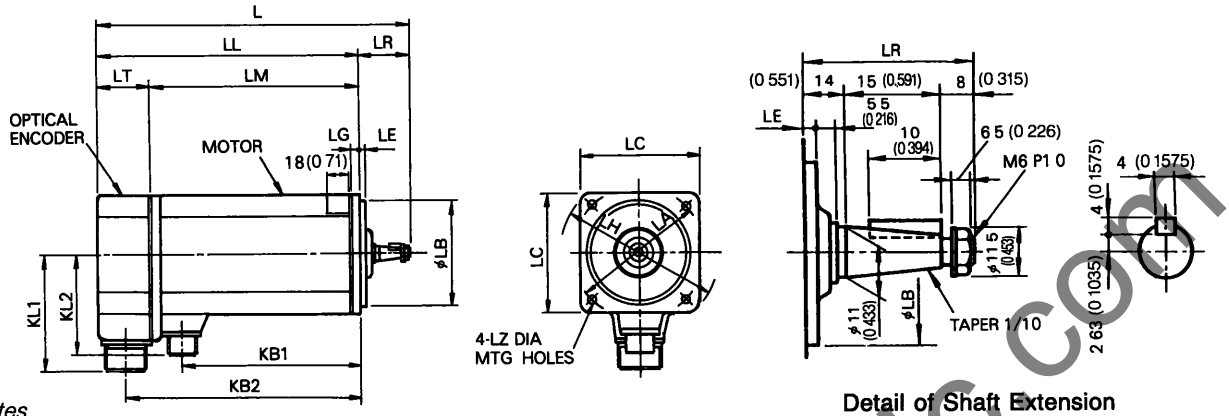
USAFED- [] C3 [] : With incremental encoder (2048 pulses/rev)

Table 2.2 Ratings and Specifications of F Series AC Servomotors

Item	Motor Type USAFED-	02C [] 1	03C [] 1	05C [] 1	09C [] 1	13C [] 2	20C [] 2	30C [] 2	44C [] 2
Rated Output*	kW (HP)	0.15 (0.2)	0.3 (0.4)	0.45 (0.6)	0.85 (1.1)	1.3 (1.7)	1.8 (2.4)	2.9 (3.9)	4.4 (5.9)
Rated Torque*	N·m (lb·in)	0.98 (8.7)	1.96 (17)	2.84 (25)	5.39 (48)	8.34 (74)	11.5 (102)	18.6 (165)	28.4 (252)
Continuous Max Torque*	N·m (lb·in)	1.08 (10)	2.16 (19)	2.94 (26)	5.88 (52)	8.83 (78)	11.8 (104)	22.6 (200)	37.3 (330)
Instantaneous Peak Torque*	N·m (lb·in)	2.91 (26)	5.82 (52)	8.92 (79)	15.2 (135)	24.7 (219)	34.0 (301)	54.1 (479)	76.2 (675)
Rated Current*	A	3.0	3.0	3.8	6.2	9.7	15	20	30
Rated Speed*	r/min	1500							
Instantaneous Max. Speed*	r/min	2500							
Torque Constant	N·m/A (lb·in/A)	0.36 (3.2)	0.72 (6.3)	0.8 (7.1)	0.92 (8.2)	0.92 (8.2)	0.82 (7.3)	0.98 (8.7)	1.02 (9.0)
Moment of Motor Inertia $J_M (=GD^2/4)$	Kg·m ² × 10 ⁻⁴ (lb·in·S ² × 10 ⁻³)	1.30 (1.2)	2.06 (1.8)	13.5 (12.0)	24.3 (21.5)	36.7 (32.5)	58 (51.2)	110 (97.2)	143 (126.7)
Power Rate*	kW/s	7.4	18.3	6.0	12	18.9	22.7	31.5	57.0
Inertia Time Constant	ms	3.9	2.5	10.9	6.0	4.4	5.9	5.2	3.7
Inductive Time Constant	ms	3.4	4.3	3.2	5.2	6.1	10.4	13.0	15.2

* Typical value at armature winding temperature of 20°C, in combination with Servopack

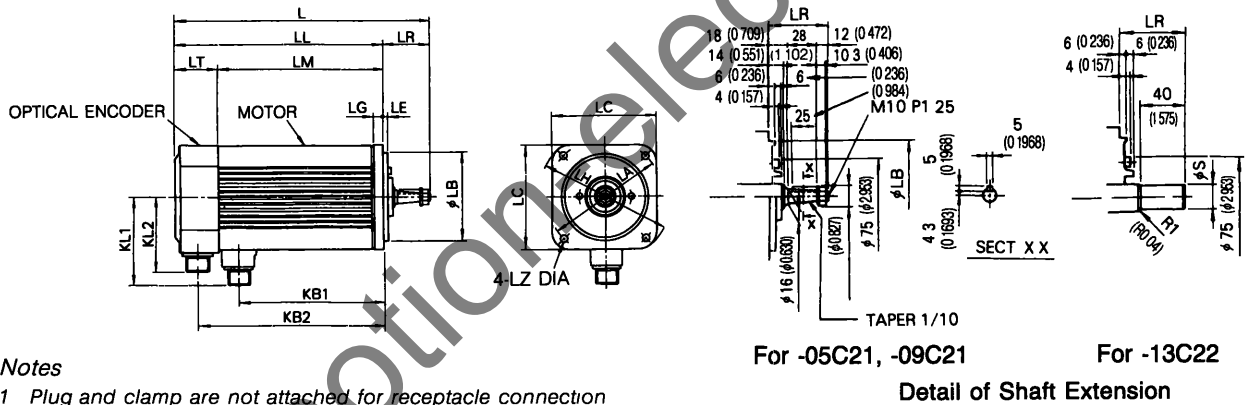
Drawing 1 USAFED-02C21, -03C21 (Taper Shaft)



Notes

- 1 Plug and clamp are not attached for receptacle connection
- 2 Key and keyway comply with JIS B 1301-1976 (Parallel key, keyway common class)
- 3 Motor should be mounted with connectors down

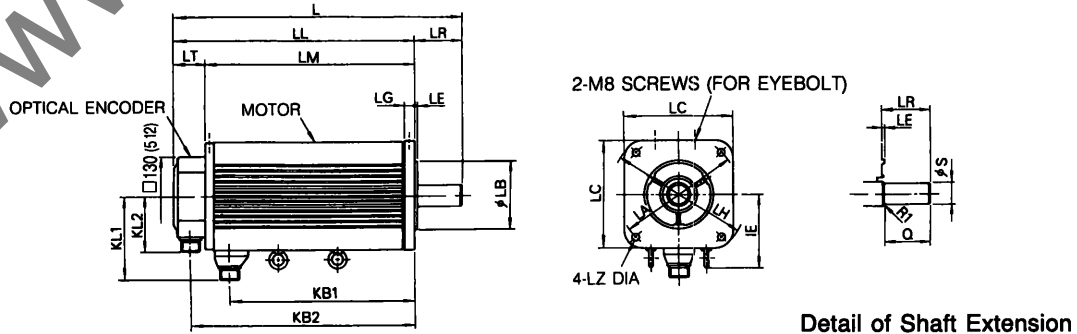
Drawing 2 USAFED-05C21, -09C21 (Taper Shaft), -13C22 (Straight Shaft)



Notes

- 1 Plug and clamp are not attached for receptacle connection
- 2 Key and keyway comply with JIS B 1301-1976 (Parallel key, keyway common class)
- 3 Motor should be mounted with connectors down

Drawing 3 USAFED-20C22 to -44C22 (Straight Shaft)



Notes

- 1 Plug and clamp are not attached for receptacle connection
- 2 Motor should be mounted with connectors down