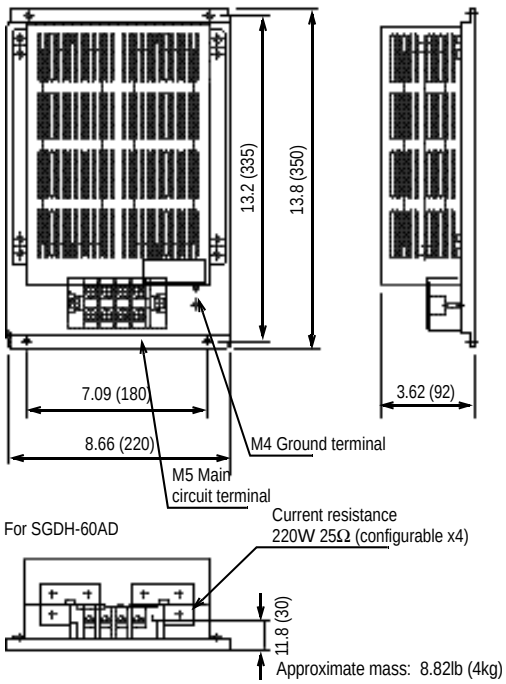
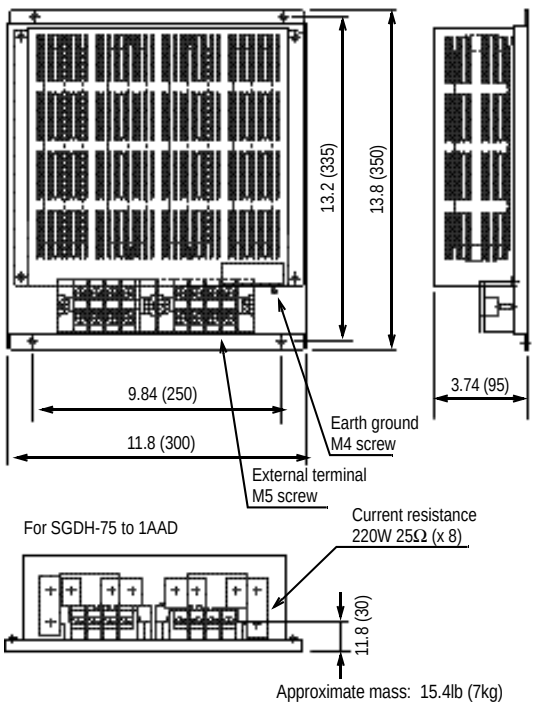
Regenerative Resistor Units (JUSP-RA□□)

- **Type JUSP-RA04**



- **Type JUSP-RA05**



External Regenerative Resistors

Regenerative resistors for servo amplifiers are internally or externally mounted, as shown in the following table. They can be mounted externally on all servo amplifiers, but are especially effective when regenerative energy exceeds the servo amplifier's capacity.

When mounted externally, be sure to remove the jumper between B2 and B3, which deactivates the internal regenerative resistor.

Important: External regeneration resistor sizing and amplifier set-up will be important for proper operation.

Use Yaskawa's SigmaSize and the *Sigma II Series Servo System User's Manual:* YEA-SIA-S800-32.2

Applicable Servo Amplifier		Regenerative Resistor Mounted in a Servo Amplifier		Internal Regeneration Power Capacity (W)	Minimum Allowable Resistance (Ω)
		Resistance (Ω)	Wattage* (W)		
200V Single-phase	SGDH-A3AE	—	—	—	40
	SGDH-A5AE				
	SGDH-01AE				
	SGDH-02AE				
	SGDH-04AE				
	SGDH-08AE-S	50	60	12	
	SGDH-15AE-S	25	140	28	20
200V Three-phase	SGDH-05AE	50	60	12	40
	SGDH-08AE				
	SGDH-10AE				
	SGDH-15AE	30	70	14	20
	SGDH-20AE	25	140	28	12
	SGDH-30AE	12.5			
	SGDH-50AE	8	280	56	8
	SGDH-60AE	6.25**	880**	180	5.8
	SGDH-75AE	3.13***	1760***	350	2.9
	SGDH-1AAE				
	SGDH-1EAE				
100V Single-phase	SGDH-A3BE	—	—	—	40
	SGDH-A5BE				
	SGDH-01BE				
	SGDH-02BE				

* Capacity prior to derating. If regeneration power requirements exceed internal capacity of the amp, install an external regeneration resistor (reference "Minimum Allowable Resistance". Be sure to derate wattage of external resistor to 20% or less (natural convection) and to 50% or less with forced air cooling.

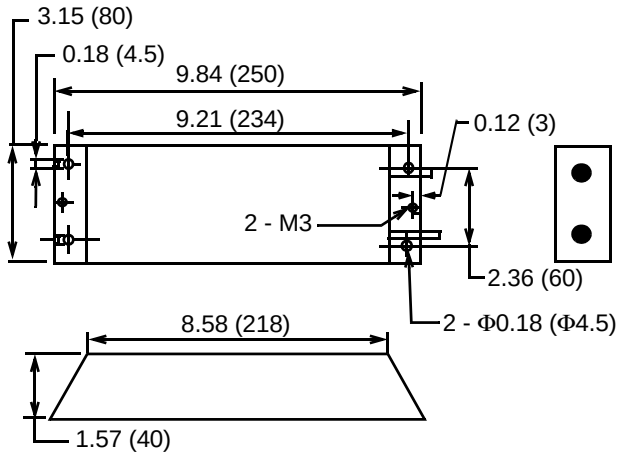
** Provided externally by JUSP-RA04

*** Provided externally by JUSP-RA05

Single Regeneration Resistance Units

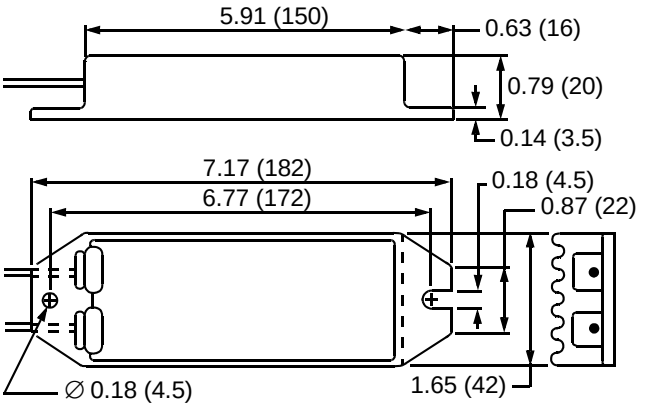
Consult the Design and Maintenance section of the Sigma II Series SGM□H/SGDH User's Manual (No. YEA-SIA-S800-32.2) for a more detailed description of the selection procedure.

Part#RH500N25_OHMK



Lead wire:L = 17.72 (450)
Rated power:300W
Resistance value:25Ω

Part#RH120 50 OHMJ



Lead wire:L = 11.81 (300)
Rated power:70W
Resistance value:50Ω

- **Regenerative Resistor Specifications**

Tolerance	J: ±7%, K: ±10%
Temperature Characteristics	±260PPM/°C (20Ω or higher)
Withstand Voltage	ΔR at 2000V_{ac} applied for one minute: ±(0.1% + 0.05Ω)
Insulation Resistance	20MΩ or higher at 500VDC
Short-term Overload	ΔR with ten times the rated power applied for five seconds (±2% + 0.05Ω)
Service Life	ΔR in 1000 hours at rated power 90 minutes ON and 30 minutes OFF (±5% +0.05Ω)
Inflammability	Fire does not occur with 10 times the rated power applied for one minute.
Ambient Temperature Range	-25 to 150°C

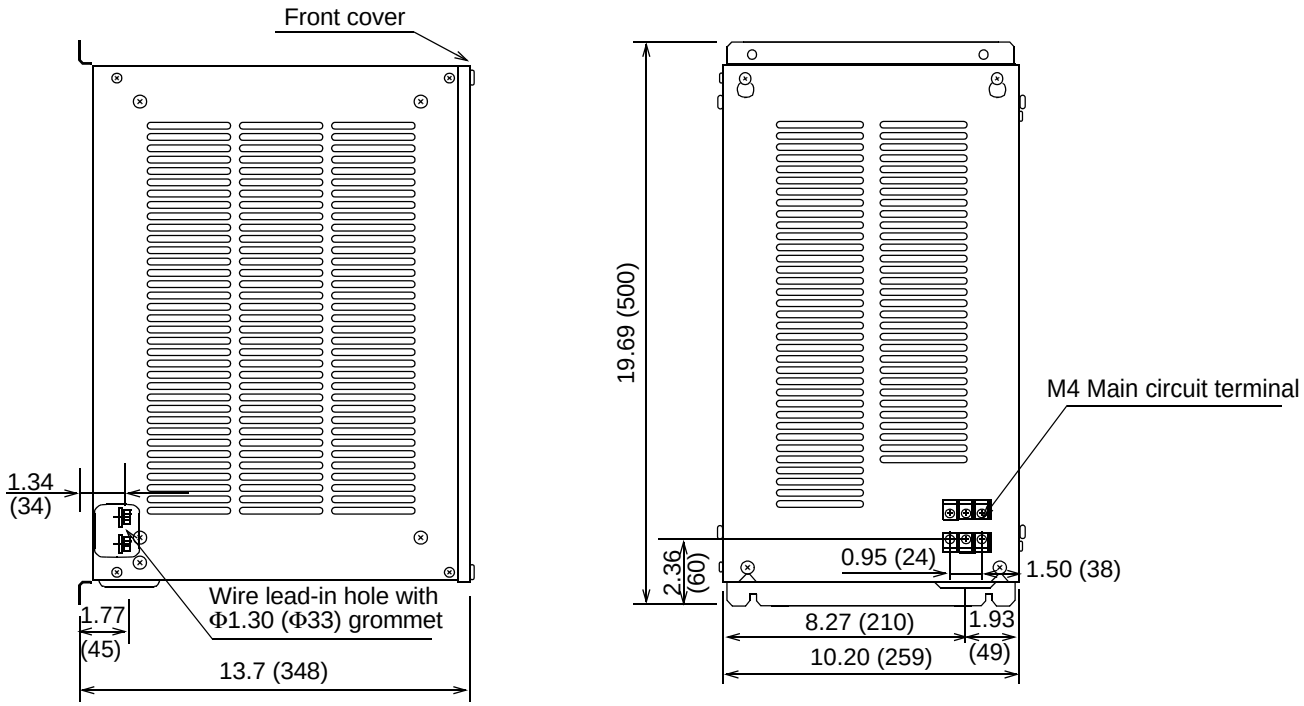
Regenerative Resistor Units (JUSP-RA☐☐)

Externally attach a regenerative resistor to the servopack. This resistor is used for dissipating regenerative energy.

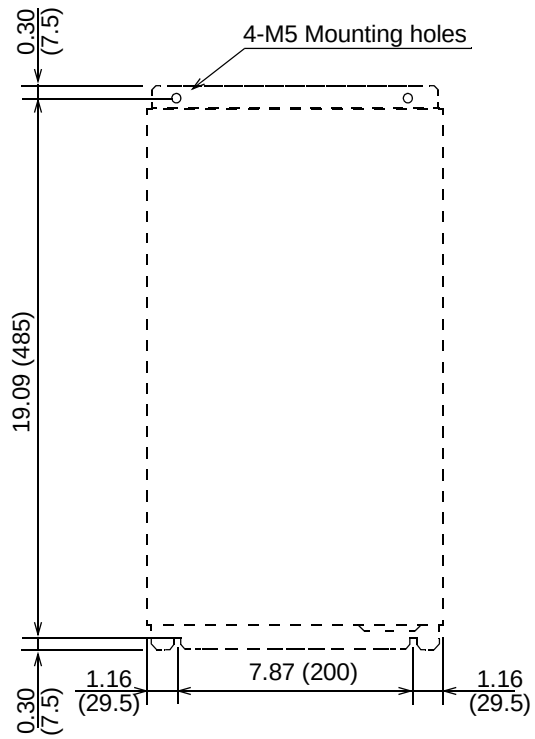
Use one of the following regenerative resistor units according to the servopack model.

Servopack Model SDGH-	2BDE	3ZDE	3GDE	4EDE	5EDE
Regenerative Resistor Unit JUSP-	RA12	RA13	RA14	RA15	RA16
Resistance	9Ω	6.7Ω	5Ω	4Ω	3.8Ω
Resistance Capacity	3600W	3600W	4800W	6000W	7200W
Allowable Load Moment of Inertia	5 times the load moment of inertia at motor shaft.				
Allowable Duty	2% ED at maximum speed and torque deceleration.				

- **JUSP-RA12**

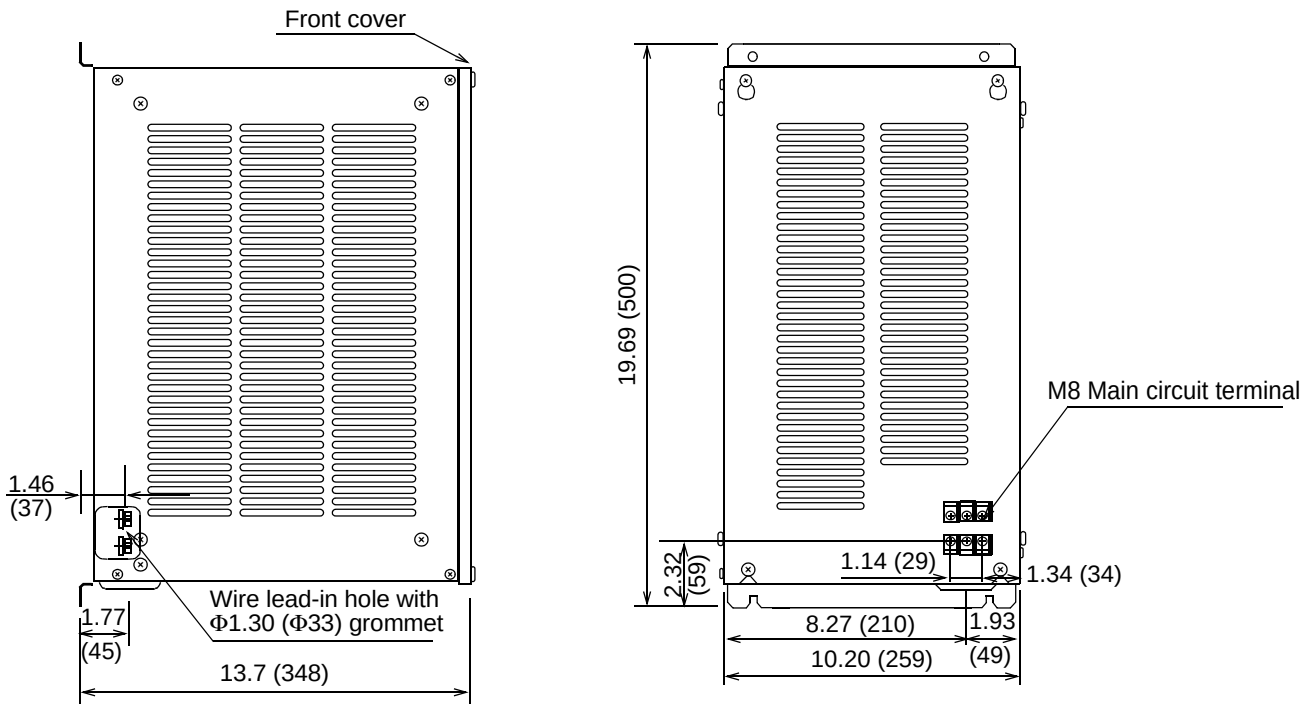


Mounting Hole Diagram

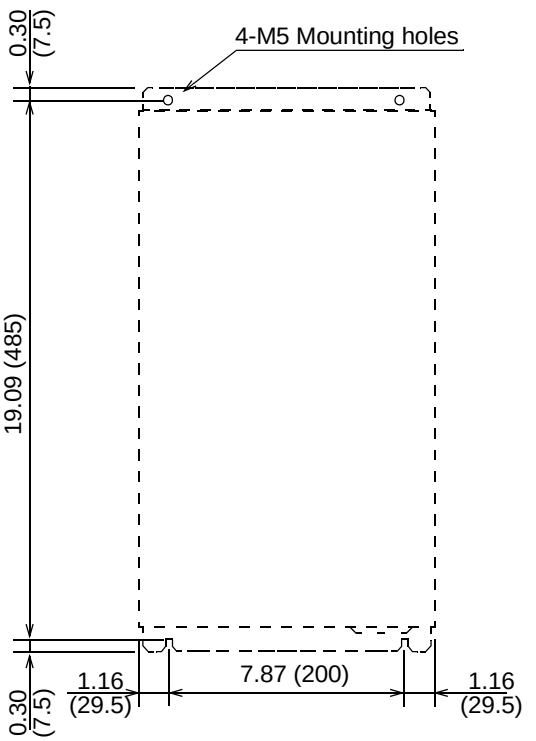


Approximate Mass: 30.9lb (14kg)

- **JUSP-RA13**

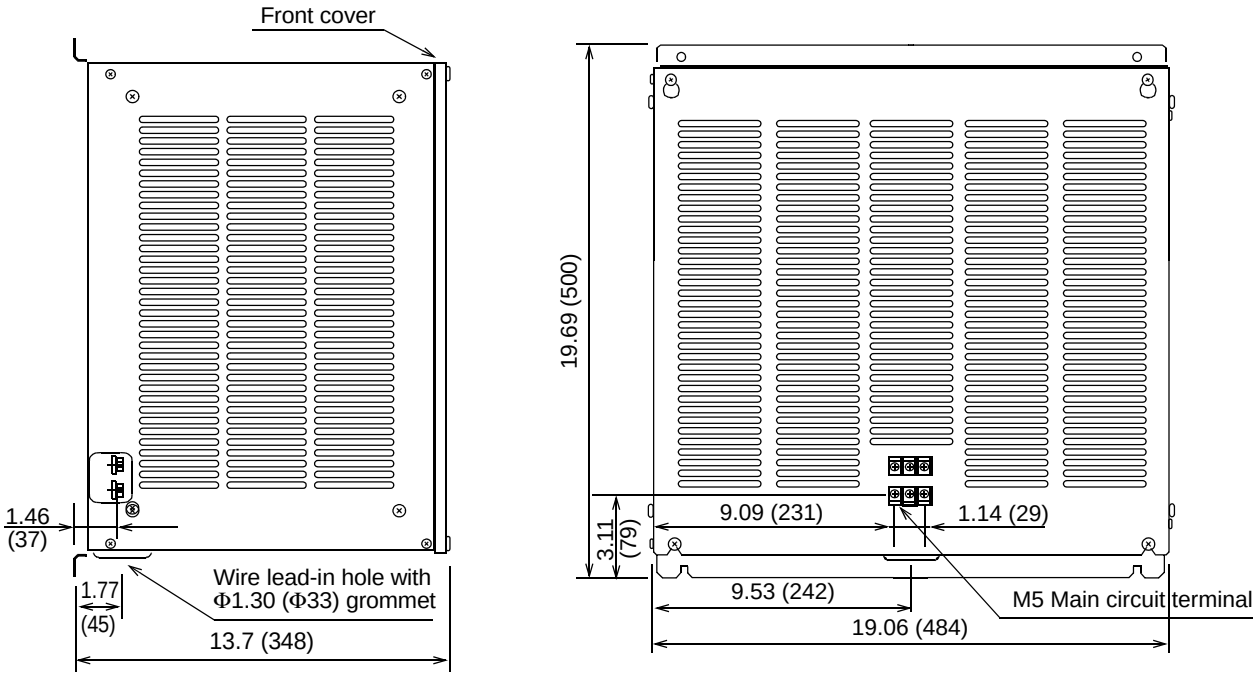


Mounting Hole Diagram

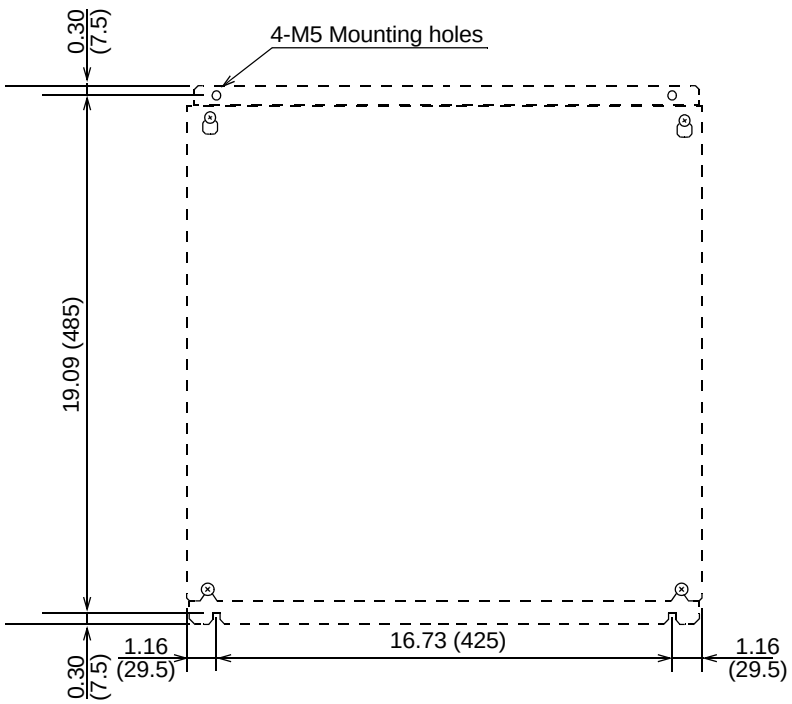


Approximate Mass: 30.9lb (14kg)

- **JUSP-RA14**

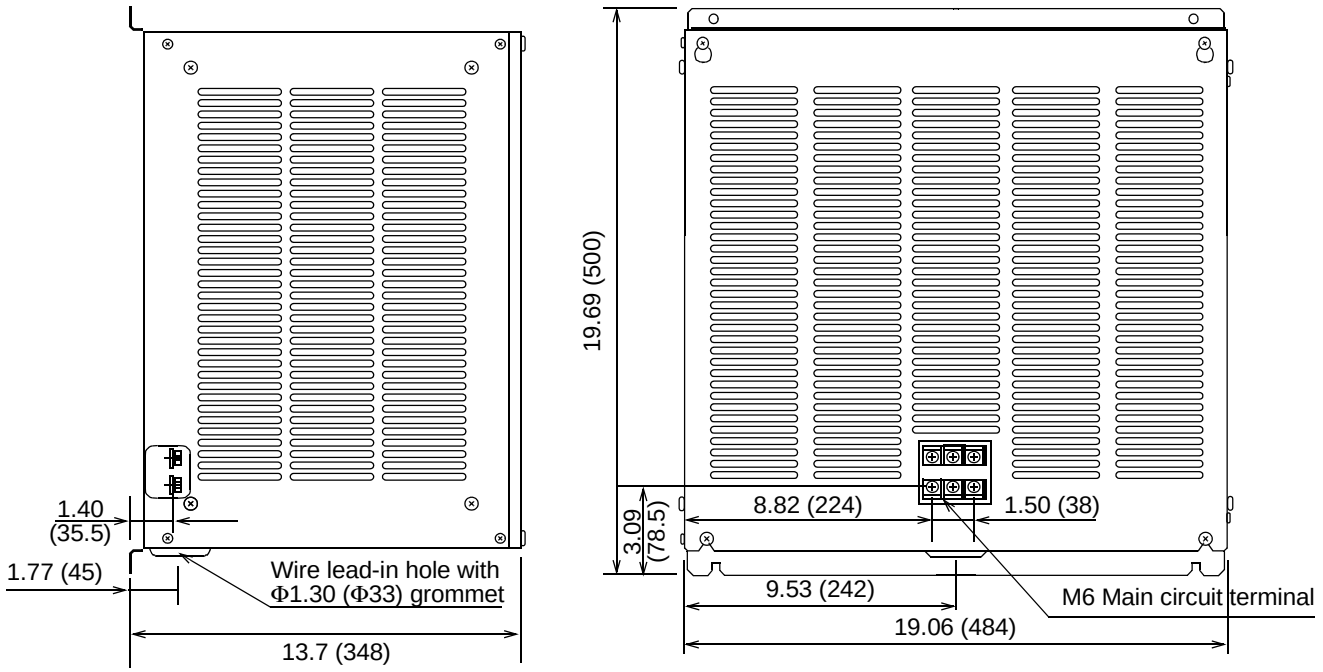


Mounting Hole Diagram

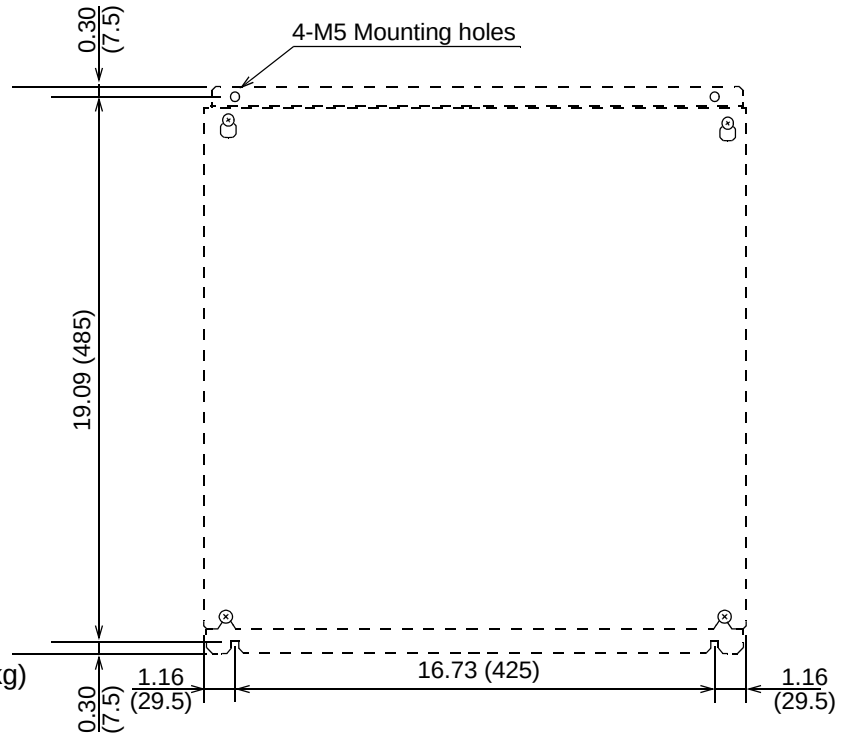


Approximate Mass: 44.1lb (20kg)

- **JUSP-RA15**

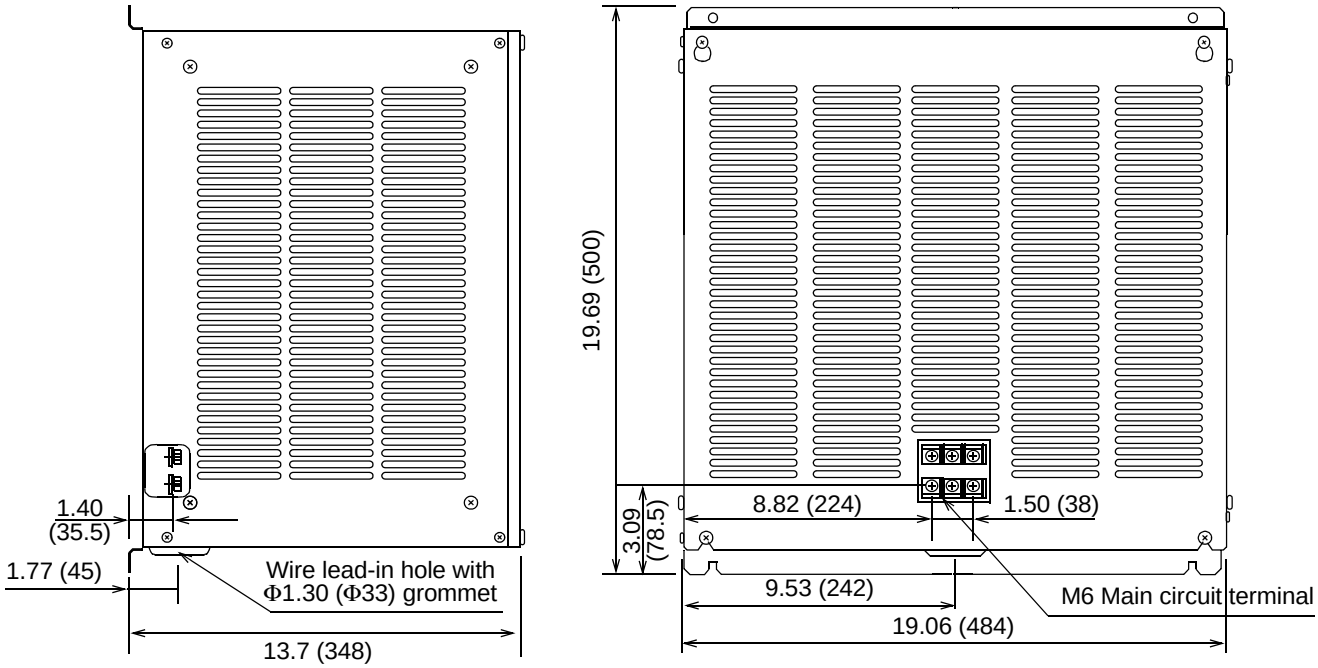


Mounting Hole Diagram

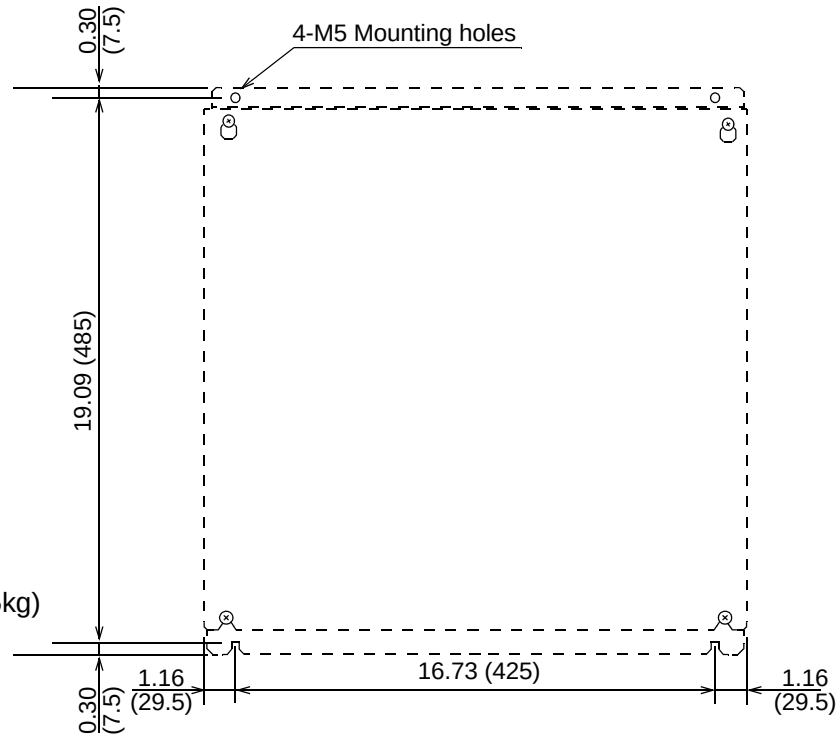


Approximate Mass: 47.4lb (21.5kg)

- **JUSP-RA16**

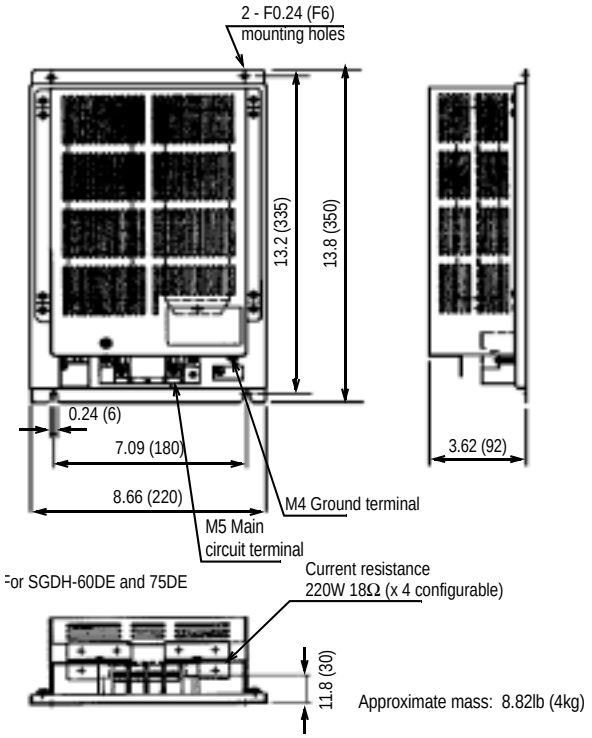


Mounting Hole Diagram

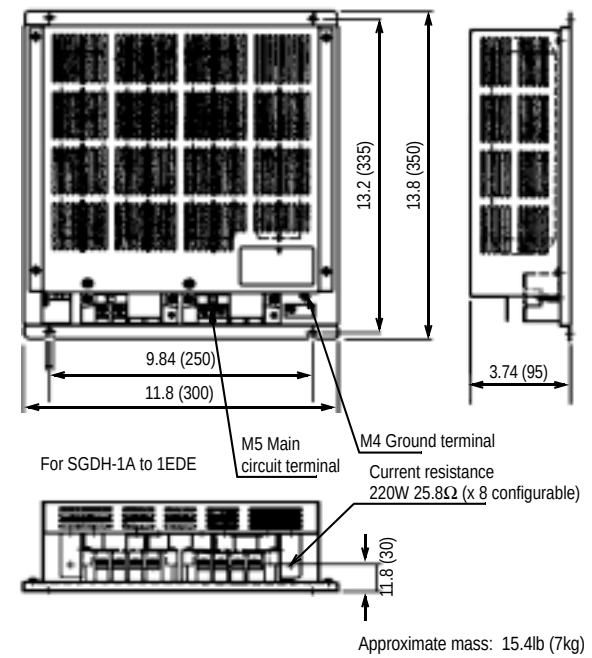


Approximate Mass: 51.8lb (23.5kg)

- **Type JUSP-RA18**



- **Type JUSP-RA19**



External Regenerative Resistors

Regenerative resistors for servo amplifiers are internally or externally mounted, as shown in the following table. They can be mounted externally on all servo amplifiers, but are especially effective when regenerative energy exceeds the servo amplifier's capacity.

When mounted externally, be sure to remove the jumper between B2 and B3, which deactivates the internal regenerative resistor.

Important: External regeneration resistor sizing and amplifier set-up will be important for proper operation.

Use Yaskawa's SigmaSize and the *Sigma II Series Servo System User's Manual:* YEA-SIA-S800-32.2

Applicable Servo Amplifier		Regenerative Resistor Mounted in a Servo Amplifier		Internal Regeneration Power Capacity (W)	Minimum Allowable Resistance (Ω)
		Resistance (Ω)	Wattage* (W)		
400V Three-phase	SGDH-05DE	108	70	14	73
	SGDH-10DE				
	SGDH-15DE				
	SGDH-20DE	45	140	28	44
	SGDH-30DE				
	SGDH-50DE	32	180	36	28
	SGDH-60DE	18**	880**	180	18
	SGDH-75DE				
	SGDH-1ADE	14.25***	1760***	350	14.2
	SGDH-1EDE				

* Capacity prior to derating. If regeneration power requirements exceed internal capacity of the amp, install an external regeneration resistor (reference: Minimum allowable resistance). Be sure to derate wattage of external resistor to 20% or less (natural convection) and of 50% or less with forced air cooling.

** Provided externally by JUSP-RA18

*** Provided externally by JUSP-RA19

DB Units (For large capacity servo systems)

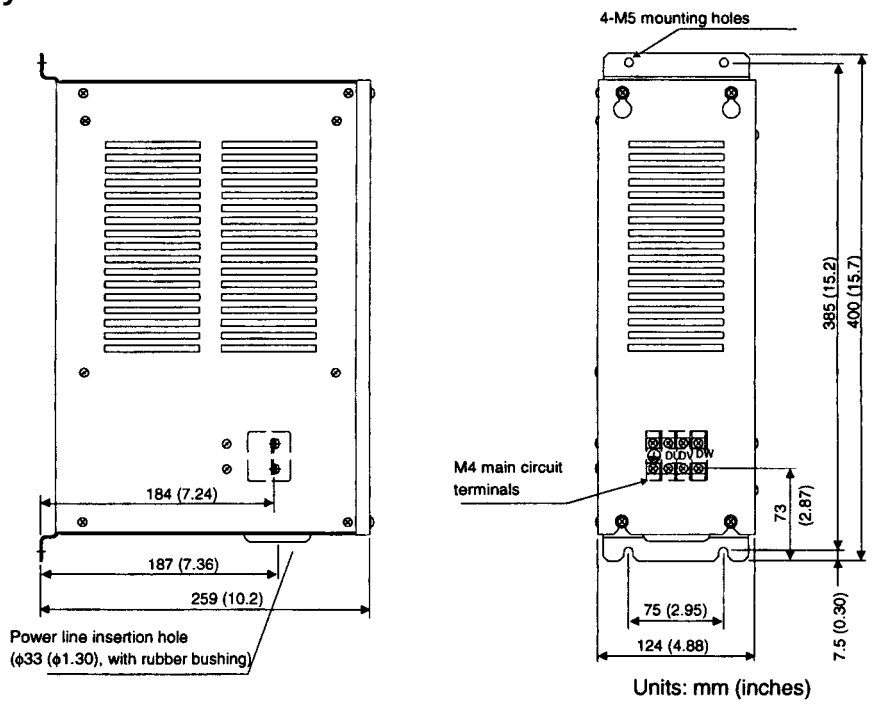
Externally attach a DB unit to the servopack.
This DB unit is used for dissipating motor EMF energy.
The DB unit does not need to be installed if the dynamic brake function is not required.

- **Specifications**

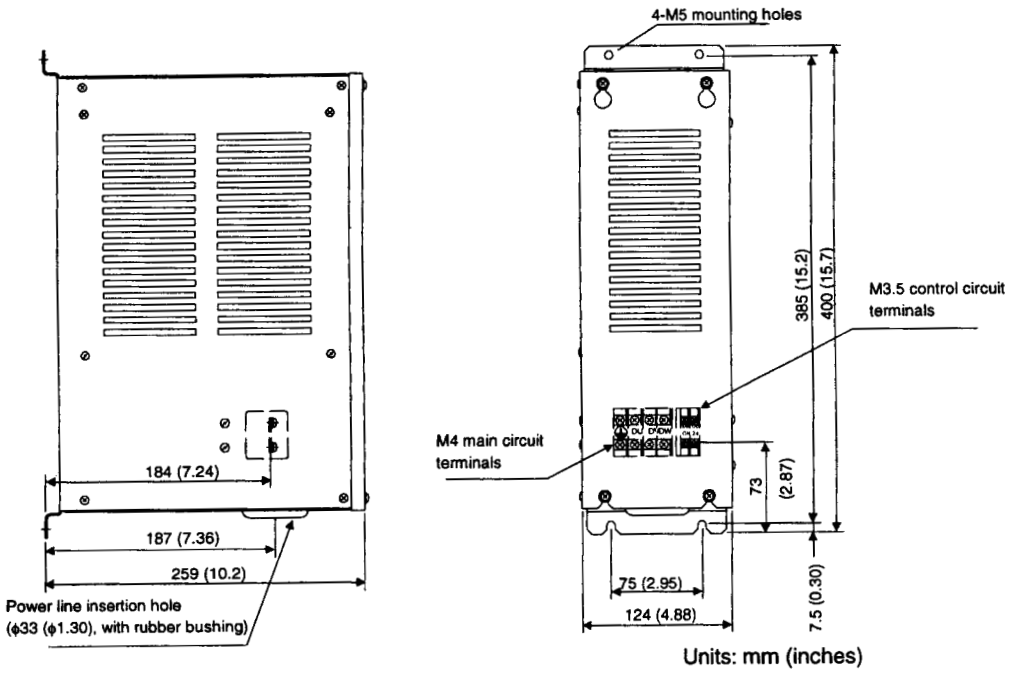
Use one of the following DB units according to the servopack model.

Servopack Model SDGH-	2BDE	3ZDE	3GDE	4EDE	5EDE
Regenerative DB Unit JUSP-	DB03		DB04	DB05	DB06
DB contactor and surge absorption unit	Built into servopack		Built into DB unit		
Resistance	0.8Ω				
Resistance Capacity	180W				300W
Allowable Load Moment of Inertia	5 times the load moment of inertia at motor shaft.				
Allowable Duty	Less than 1 time/H at maximum speed DB operation.				

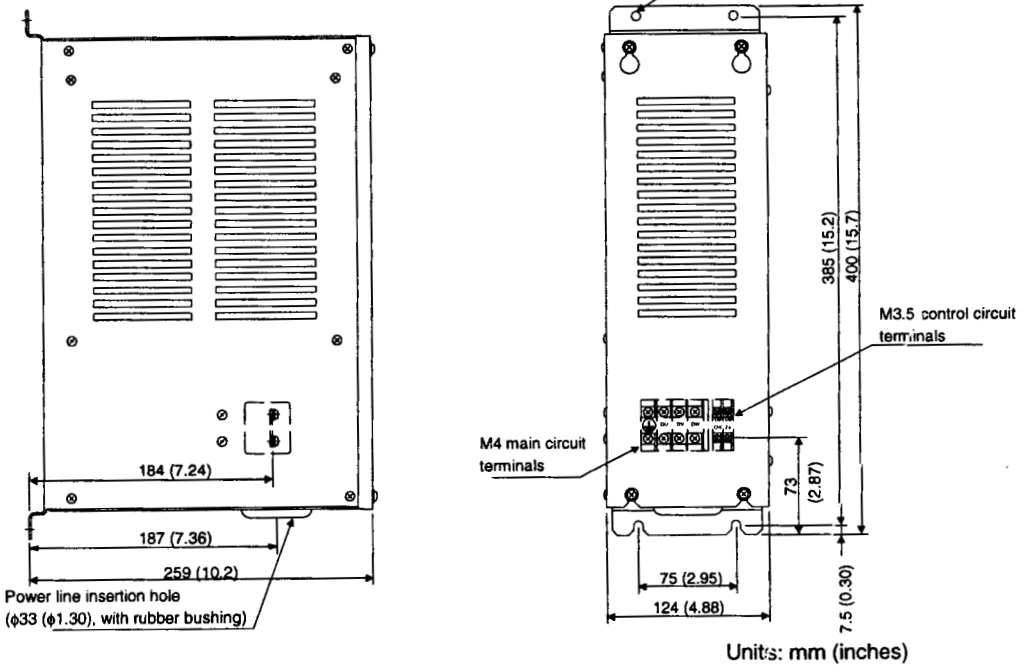
- **JUSP-DB03 Dynamic Brake Unit**



- **JUSP-DB04 Dynamic Brake Unit**



- **JUSP-DB05 Dynamic Brake Unit**



- **JUSP-DB06 Dynamic Brake Unit**