

Band/Barrel Heaters

Mineral Insulated (MI) Band Heaters

The mineral insulated (MI) band heater from Watlow® is a high-performance heater that incorporates Watlow's exclusive mineral insulation. This material offers much higher thermal conductivity than mica and hard ceramic insulators that are used in conventional heaters.

A thin layer of the "high" thermally conductive MI material electrically insulates the element wire from the inside diameter of the heater sheath. A thicker, low thermally conductivity layer backs up the element wire directing the heat inward toward the part being heated. The result is more efficient heat transfer, which lowers element wire temperatures and increases heater life.

Performance Capabilities

- Heater operating temperatures up to 1400°F (760°C)
- Watt densities up to 100 W/in² (15.5 W/cm²) available on large diameter barrel bands
- Maximum voltage to 480V

Features and Benefits

High thermal conductivity of MI and low mass construction

- Provides an almost instant response to temperature control
- Eliminates thermal lag and temperature overshoot associated with ceramic insulated heaters

Operating temperatures up to 1400°F (760°C)

- Allows safe melting of resins such as PEEK™, Teflon®, Ultem® and Zytel®

Higher watt densities

- Contributes to faster heat-up and throughput for increased productivity

Stainless steel cover and side fold design

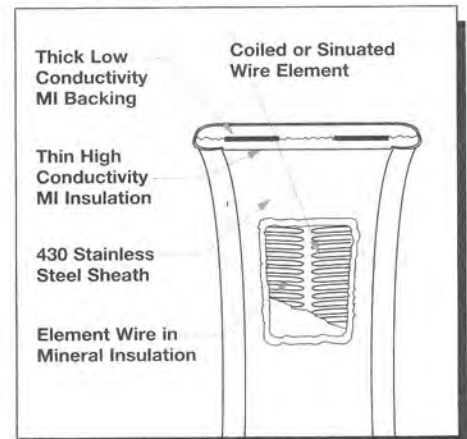
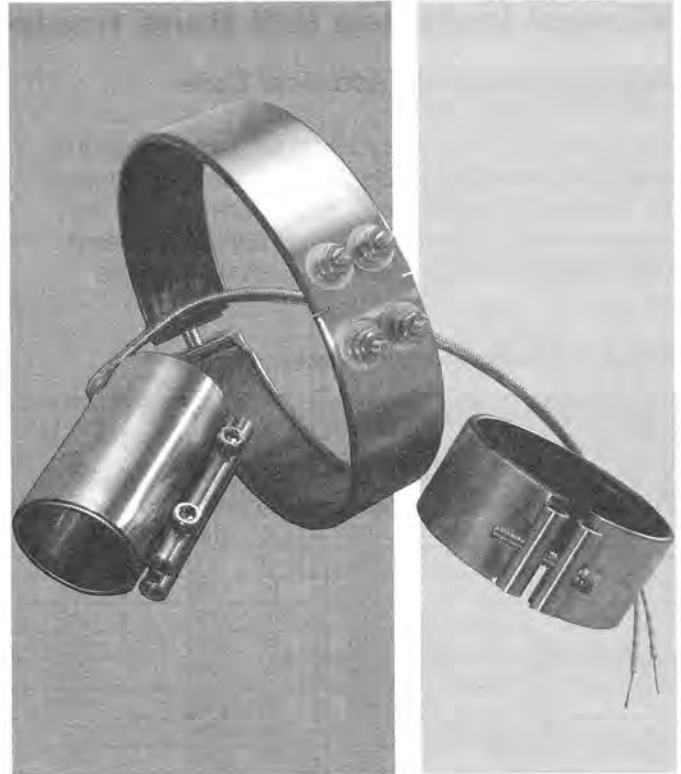
- Resists contamination from overflow of plastic or other free-flowing materials

Attached clamp bars

- Eliminates cumbersome clamping straps to ease installation

Typical Applications

- Extruders
- Blown film dies
- Injection molding machines
- Other cylinder heating applications



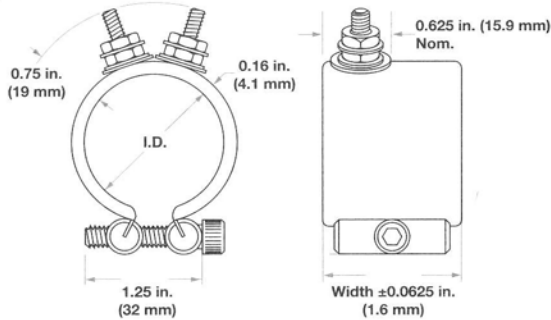
Band/Barrel Heaters

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Termination Variations

Post Terminals

Stock



Post terminals provide optimum connections. Screw thread is 10-24. To order, specify **post terminals** (metric threads available).

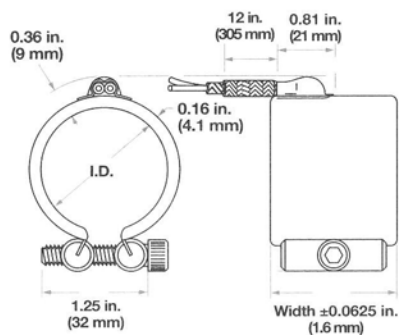
Lead Wire

Heaters rated at less than 250VAC use UL® approved lead insulation for operations to 480°F (250°C) as standard. Lead insulation UL® rated for operation to 840°F (450°C) is available for high-temperature applications where the leads are shrouded or enclosed with the heater. These leads are available in any of the Type B with loose braid as well as Types E, F and H lead configurations. All heaters rated at more than 250VAC use this wire. When ordering, specify **850°F (450°C) wire**.

Leads Type B, Type B - 90° rotation, Type B - 180° rotation or Type C: Two fiberglass-insulated lead wires exit in a single metal braid for good abrasion protection, lead flexibility and wiring convenience. Leads are 2 in. (51 mm) longer than braid. Shipped with 12 in. (305 mm) leads, unless longer length is specified. To order, specify **type** and **length**.

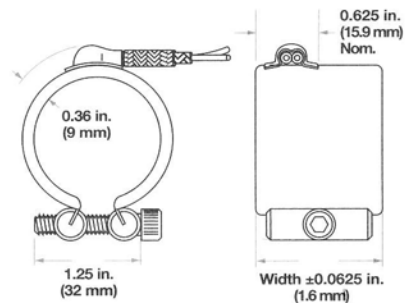
Type B

Stock



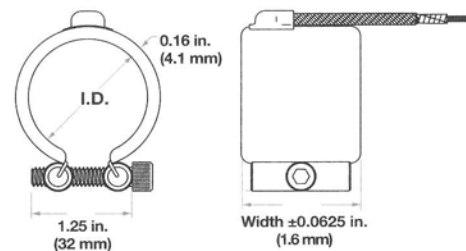
Type B - 90° Rotation

Non-Stock



Type B - 180° Rotation

Stock



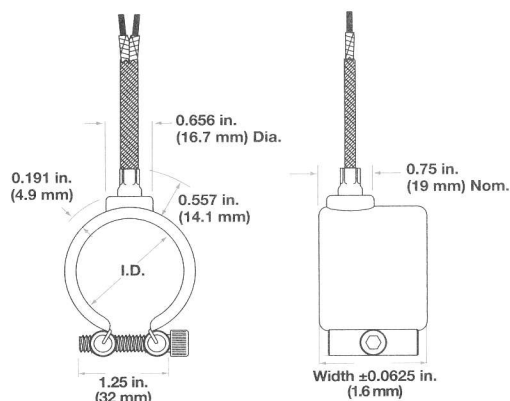
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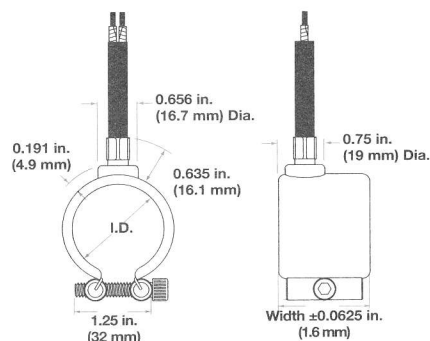
Termination Variations (Continued)

Lead Wire (Continued)

Type C Stock

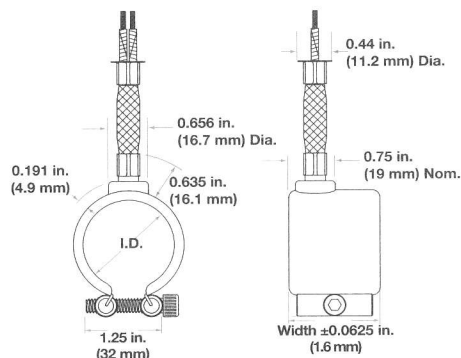


Type F Stock



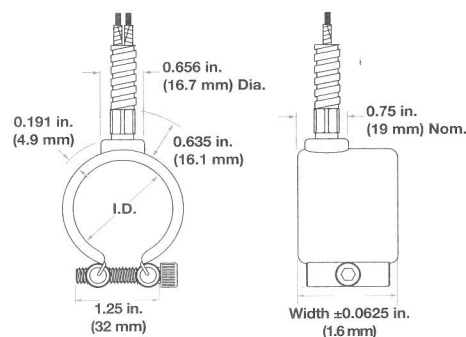
Type F: Loose fiberglass sleeving encloses two fiberglass leads for additional insulation protection where high temperature or minor abrasion is present. Leads are 2 in. (51 mm) longer than the sleeving. To order, specify **Type F** and **length**.

Type E Stock



Type E: Loose metal braid encloses two fiberglass leads for good abrasion protection, lead flexibility and wiring convenience. Leads are 2 in. (51 mm) longer than the braid. Shipped with 12 in. (305 mm) leads, unless longer length is specified. To order, specify **Type E** and **length**.

Type H Stock



Type H: A flexible steel hose encloses the leads for maximum abrasion protection. Leads are 2 in. (51 mm) longer than hose. Shipped with 12 in. (305 mm) leads, unless longer length is specified. To order, specify **Type H** and **length**.

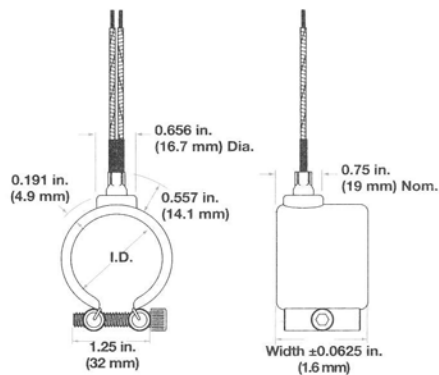
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Termination Variations (Continued)

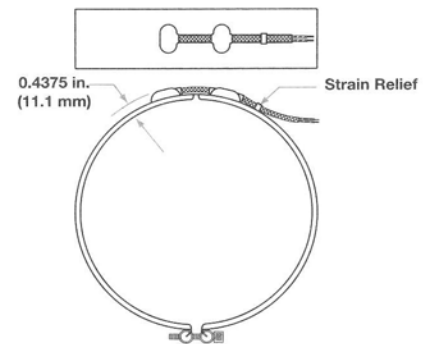
Lead Wire (Continued)

Type K Stock



Type K: Flexible lead wires exit vertically from the heater. These leads can be bent adjacent to the heater for a quick and easy connection. To order, specify **Type K** and **length**.

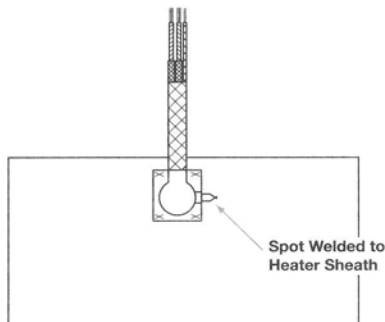
Type SLE



Two fiberglass lead wires exit a single, tightly woven metal braid at a right angle on the expandable construction vs. two sets of leads. The minimum diameter capability is 4 in. (102 mm). Minimum width capability is 1 1/2 in. (38 mm). To order, specify **Type SLE** and **length**.

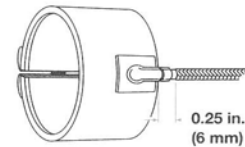
Variations

Thermocouple



ASTM Type J or K thermocouples are available on lead Type B with loose braid and fiberglass sleeving. They are also available on E, F and H leads. The thermocouple junction, spot-welded to the heater sheath, provides a signal for measuring relative heater temperature. A separate thermocouple is available.

Heavy Duty Strain Relief



Heavy duty strain relief is recommended for applications where there is great stress or continued flexing of the leads. The strain relief is available on Type B, Type B - 90° and Type B - 180° leads only. To order, specify **heavy-duty strain relief**. **Note:** not available with loose braid or fiberglass sleeving.

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Heater Part Numbers

I.D. in. (mm)	Width in. (mm)	Construction	Volts	Watts	Watt Density W/in ² (W/cm ²)	Termination	Approx. Net Wt. lbs (kg)	Delivery	Part Number
1 (25)	1 (25)	1 pc	120	150	92 (14.2)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1AN1
	1 (25)	1 pc	120	100	61 (9.4)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1AN2
	1 (25)	1 pc	120	200	122 (18.9)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1AN3
	1 (25)	1 pc	240	200	122 (18.9)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1AN4
	1 1/2 (38)	1 pc	240	300	106 (16.4)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1JN1
	1 1/2 (38)	1 pc	120	300	106 (16.4)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1JN2
	1 1/2 (38)	1 pc	240	200	70 (10.8)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1A1JN3
	1 1/2 (38)	1 pc	120	200	70 (10.8)	Type B,C,E, F or H	0.1 (0.05)	M	MB1A1JN4
1 1/4 (32)	1 (25)	1 pc	240	250	104 (16.1)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1E1AN1
	1 (25)	1 pc	120	250	104 (16.1)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1E1AN2
	1 (25)	1 pc	240	300	124 (19.2)	Type B,C,E, F or H	0.1 (0.05)	M	MB1E1AN3
	1 1/2 (38)	1 pc	240	350	87 (13.5)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1E1JN1
	1 1/2 (38)	1 pc	120	350	87 (13.5)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1E1JN2
	1 1/2 (38)	1 pc	240	450	112 (17.3)	Type B,C,E, F or H	0.2 (0.09)	M	MB1E1JN3
1 1/2 (38)	1 (25)	1 pc	240	300	93 (14.4)	Type B,C,E, F or H	0.1 (0.05)	M	MB1J1AN1
	1 (25)	1 pc	120	300	93 (14.4)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1J1AN2
	1 (25)	1 pc	240	200	62 (9.6)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1J1AN3
	1 (25)	1 pc	120	200	62 (9.6)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1J1AN4
	1 (25)	1 pc	240	400	125 (19.3)	Type B,C,E, F or H	0.1 (0.05)	RS	MB1J1AN5
	1 1/2 (38)	1 pc	120	300	62 (9.6)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1J1JN1
	1 1/2 (38)	1 pc	240	450	87 (13.5)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1J1JN2
	1 1/2 (38)	1 pc	240	300	62 (9.6)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1J1JN3
	1 1/2 (38)	1 pc	240	600	116 (17.9)	Type B,C,E, F or H	0.2 (0.09)	M	MB1J1JN4
	1 1/2 (38)	1 pc	240	300	62 (9.6)	Post	0.2 (0.09)	M	MB1J1JP4
	1 1/2 (38)	1 pc	240	450	96 (14.8)	Post	0.2 (0.09)	RS	MB1J1JP6
	2 (51)	1 pc	240	450	57 (8.8)	Type B,C,E, F or H	0.3 (0.14)	RS	MB1J2AN1
	2 (51)	1 pc	240	300	42 (6.5)	Type B,C,E, F or H	0.3 (0.14)	RS	MB1J2AN2
	2 (51)	1 pc	240	900	125 (19.3)	Type B,C,E, F or H	0.3 (0.14)	RS	MB1J2AN3
	3 (76)	1 pc	240	500	45 (7.0)	Type B,C,E, F or H	0.4 (0.18)	RS	MB1J3AN1
	3 (76)	1 pc	240	350	31 (4.8)	Type B,C,E, F or H	0.4 (0.18)	M	MB1J3AN2
	3 (76)	1 pc	240	1000	104 (16.1)	Type B,C,E, F or H	0.4 (0.18)	M	MB1J3AN3
1 3/4 (45)	1 3/8 (35)	1 pc	240	450	83 (12.9)	36 in. 90° Type B braid w/HD strain relief	0.2 (0.09)	RS	MB1N1GX3A
	1 1/2 (38)	1 pc	240	300	47 (7.3)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1N1JN1
	1 1/2 (38)	1 pc	120	300	50 (7.7)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1N1JN2
	1 1/2 (38)	1 pc	240	700	110 (17.0)	Type B,C,E, F or H	0.2 (0.09)	RS	MB1N1JN3
	2 (51)	1 pc	240	750	86 (13.3)	Type B,C,E, F or H	0.3 (0.14)	M	MB1N2AN1
2 (51)	1 (25)	1 pc	240	350	73 (11.3)	Type B,C,E, F or H	0.2 (0.09)	RS	MB2A1AN1
	1 (25)	1 pc	120	350	73 (11.3)	Type B,C,E, F or H	0.2 (0.09)	RS	MB2A1AN2
	1 (25)	1 pc	240	450	94 (14.5)	Type B,C,E, F or H	0.2 (0.09)	RS	MB2A1AN3
	1 (25)	1 pc	240	350	73 (10.3)	36 in. 90° Type B braid w/HD strain relief	0.2 (0.09)	RS	MB2A1AX6B

CONTINUED

RAPID SHIP

- RS - Next day shipment
- M - Manufacturing lead times

Notes:

All lead units are available with any length Type B, C, E, F or Type H leads. Type B 90° rotation not available as RAPID SHIP.

Band/Barrel Heaters

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Heater Part Numbers (Continued)

I.D. in. (mm)	Width in. (mm)	Construction	Volts	Watts	Watt Density W/in ² (W/cm ²)	Termination	Approx. Net Wt. lbs (kg)	Delivery	Part Number
2 (51)	1 1/2 (38)	1pc	240	400	53 (8.2)	Type B,C,E, F or H	0.3 (0.14)	RS	MB2A1JN1
	1 1/2 (38)	1pc	240	1000	132 (20.4)	Type B,C,E, F or H	0.3 (0.14)	M	MB2A1JN2
	2 (51)	1pc	240	750	75 (11.6)	Type B,C,E, F or H	0.4 (0.18)	M	MB2A2AN1
	2 (51)	1pc	240	1200	125 (19.3)	Type B,C,E, F or H	0.4 (0.18)	RS	MB2A2AN2
	2 (51)	1pc	240	750	75 (11.6)	36 in. 90° Type B braid w/HD strain relief	0.2 (0.09)	RS	MB2A2AX2A
2 1/4 (57)	2 (51)	1pc	240	750	63 (9.7)	120 in. 180° Type B braid w/HD strain relief	0.2 (0.09)	RS	MB2E2AX7
	2 1/2 (64)	1 pc	240	1000	72 (11.2)	Type B,C,E, F or H	0.5 (0.23)	RS	MB2E2JN1
2 1/2 (64)	1 (25)	1 pc	240	400	63 (9.7)	Type B,C,E, F or H	0.2 (0.09)	RS	MB2J1AN1
	1 1/2 (38)	1 pc	240	500	50 (7.7)	Type B,C,E, F or H	0.4 (0.18)	RS	MB2J1JN1
3 (76)	1 (25)	1 pc	240	400	54 (8.4)	Post	0.3 (0.14)	M	MB3A1AP1
	1 1/2 (38)	1 pc	240	500	40 (6.2)	Post	0.4 (0.18)	RS	MB3A1JP1
	1 1/2 (38)	2 pc exp	230/460	525	53 (8.2)	Post	0.4 (0.18)	M	ME3A1JP10
3 1/2 (89)	2 (51)	1 pc	240	800	42 (6.5)	Post	0.7 (0.32)	RS	MB3J2AP2
3 5/8 (92)	1 1/2 (38)	2 pc exp	230/460	650	51 (7.9)	Post	0.5 (0.23)	M	ME3L1JP5
4 (102)	1 (25)	1 pc	240	700	62 (9.6)	Post	0.4 (0.18)	RS	MB4A1AP1
	1 1/2 (38)	1 pc	240	800	48 (7.4)	Post	0.6 (0.27)	RS	MB4A1JP2
	1 1/2 (38)	2 pc exp	230/460	625	43 (6.7)	Post	0.6 (0.27)	RS	ME4A1JP11
	1 1/2 (38)	2 pc exp	230/460	725	50 (7.8)	Post	0.6 (0.27)	RS	ME4A1JP12
4 1/2 (114)	2 1/2 (64)	1pc	240	1250	40 (6.2)	Post	1.0 (0.45)	RS	MB4J2JP1
5 (127)	1 1/2 (38)	2 pc exp	240/480	1000	52 (8.1)	Post	0.8 (0.36)	RS	ME5A1JP8
5 1/4 (133)	1 1/2 (38)	2 pc exp	240/480	1000	48 (7.4)	Post	0.8 (0.36)	M	ME5E1JP1
	1 1/2 (38)	2 pc exp	230/460	600	29 (4.5)	Post	0.7 (0.32)	M	ME5E1JP9
	3 (76)	2 pc exp	230/460	1700	40 (6.2)	Post	1.5 (0.68)	RS	ME5E3AP5
	4 1/2 (114)	2 pc exp	230/460	2400	38 (5.9)	Post	2.2 (1.00)	RS	ME5E4JP2
	4 1/2 (114)	2 pc exp	230/460	2700	43 (6.6)	Post	2.2 (1.00)	M	ME5E4JP3
5 1/2 (140)	1 1/2 (38)	2 pc exp	240/480	1000	46 (7.1)	Post	0.9 (0.40)	RS	ME5J1JP1
6 (152)	1 1/2 (38)	2 pc exp	240/480	1000	41 (6.4)	Post	0.9 (0.40)	M	ME6A1JP2
6 1/2 (165)	1 1/2 (38)	2 pc exp	240/480	1250	47 (7.3)	Post	1.0 (0.45)	RS	ME6J1JP5
6 3/4 (171)	1 1/2 (38)	2 pc exp	230/460	815	29 (4.5)	Post	0.9 (0.40)	M	ME6N1JP6
	1 1/2 (38)	2 pc exp	230/460	1000	36 (5.6)	Post	0.9 (0.40)	M	ME6N1JP7
	4 (102)	2 pc exp	230/460	2600	35 (5.4)	Post	2.5 (1.10)	M	ME6N4AP2
	5 (127)	2 pc exp	230/460	3700	40 (6.2)	Post	3.2 (1.50)	M	ME6N5AP3
	6 (152)	2 pc exp	230/460	3750	33 (5.1)	Post	3.8 (1.70)	M	ME6N6AP5
7 (178)	1 1/2 (38)	2 pc exp	240/480	1250	43 (6.6)	Post	1.1 (0.50)	M	ME7A1JP4
7 1/2 (191)	1 1/2 (38)	2 pc exp	240/480	1500	47 (7.3)	Post	1.1 (0.50)	M	ME7J1JP4
7 5/8 (194)	3 (76)	2 pc exp	230/460	1800	28 (4.3)	Post	2.2 (1.00)	M	ME7L3AP1
8 (203)	1 1/2 (38)	2 pc exp	240/480	1250	37 (5.7)	Post	1.2 (0.54)	M	ME8A1JP4
9 (229)	1 1/2 (38)	2 pc exp	240/480	1500	39 (6.0)	Post	1.4 (0.64)	M	ME9A1JP1
9 1/2 (241)	3 (76)	2 pc exp	230/460	3000	37 (5.7)	Post	2.6 (1.20)	M	ME9J3AP2
11 1/4 (286)	3 (76)	2 pc exp	230/460	2400	24 (3.7)	Post	3.2 (1.50)	M	ME11E3AP2
	5 (127)	2 pc exp	230/460	5100	31 (4.8)	Post	5.2 (2.40)	M	ME11E5AP1

RAPID SHIP

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Notes:

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Type B 90° rotation not available as RAPID SHIP.