



Cartridge Heaters

Metric Low to High Watt Density

U.L. Recognized – E56973
C.S.A. Certified 016386-0-000

CARTRIDGE

▼ Manufactured Items ▼

Features:

- Both Standard (MS) and Superwatt® (MH) constructions are available.
- Wattages other than those listed are available.
- Made in U.S.A.

Diameter: 6 MM (5.87-5.97) Maximum Amp. 3.5

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS6-40 | 10 | 30 |
| 50 | MS6-50 | 10 | 40 |
| 60 | MS6-60 | 10 | 50 |
| 70 | MS6-70 | 10 | 60 |
| 80 | MS6-80 | 10 | 70 |
| 90 | MS6-90 | 10 | 80 |
| 100 | MS6-100 | 10 | 90 |
| 110 | MS6-110 | 10 | 100 |
| 120 | MS6-120 | 10 | 110 |
| 130 | MS6-130 | 10 | 120 |
| 140 | MS6-140 | 10 | 130 |
| 150 | MS6-150 | 10 | 140 |

Diameter: 6.5 MM (6.38-6.48) Max. Amps. MS3.5, MH4

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS6.5-40 | 10 | 50 |
| 40 | MH6.5-40 | 60 | * |
| 50 | MS6.5-50 | 10 | 65 |
| 50 | MH6.5-50 | 70 | * |
| 60 | MS6.5-60 | 10 | 75 |
| 60 | MH6.5-60 | 90 | * |
| 70 | MS6.5-70 | 10 | 90 |
| 70 | MH6.5-70 | 105 | * |
| 80 | MS6.5-80 | 10 | 110 |
| 80 | MH6.5-80 | 130 | * |
| 90 | MS6.5-90 | 10 | 125 |
| 90 | MH6.5-90 | 145 | * |
| 100 | MS6.5-100 | 10 | 145 |
| 100 | MH6.5-100 | 165 | * |
| 110 | MS6.5-110 | 10 | 160 |
| 110 | MH6.5-110 | 185 | * |
| 120 | MS6.5-120 | 10 | 170 |
| 120 | MH6.5-120 | 205 | * |
| 130 | MS6.5-130 | 10 | 185 |
| 130 | MH6.5-130 | 225 | * |
| 140 | MS6.5-140 | 10 | 200 |
| 140 | MH6.5-140 | 240 | * |
| 150 | MS6.5-150 | 10 | 215 |
| 150 | MH6.5-150 | 260 | * |

Diameter: 8 MM (7.87-7.98) Max. Amp. 6

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS8-40 | 10 | 60 |
| 50 | MS8-50 | 10 | 75 |
| 60 | MS8-60 | 10 | 95 |
| 70 | MS8-70 | 10 | 115 |
| 80 | MS8-80 | 10 | 135 |
| 90 | MS8-90 | 10 | 155 |
| 100 | MS8-100 | 10 | 170 |
| 110 | MS8-110 | 10 | 190 |
| 120 | MS8-120 | 10 | 215 |
| 130 | MS8-130 | 10 | 230 |
| 140 | MS8-140 | 10 | 250 |
| 150 | MS8-150 | 10 | 270 |

Diameter: 10 MM (9.85-9.96) Max. Amps. 6

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS10-40 | 10 | 65 |
| 40 | MH10-40 | 75 | * |
| 50 | MS10-50 | 10 | 90 |
| 50 | MH10-50 | 105 | * |
| 60 | MS10-60 | 10 | 115 |
| 60 | MH10-60 | 135 | * |
| 70 | MS10-70 | 10 | 135 |
| 70 | MH10-70 | 165 | * |
| 80 | MS10-80 | 10 | 165 |
| 80 | MH10-80 | 195 | * |
| 90 | MS10-90 | 10 | 190 |
| 90 | MH10-90 | 225 | * |
| 100 | MS10-100 | 10 | 210 |
| 100 | MH10-100 | 255 | * |
| 110 | MS10-110 | 10 | 235 |
| 110 | MH10-110 | 285 | * |
| 120 | MS10-120 | 10 | 260 |
| 120 | MH10-120 | 315 | * |
| 130 | MS10-130 | 10 | 285 |
| 130 | MH10-130 | 345 | * |
| 140 | MS10-140 | 10 | 310 |
| 140 | MH10-140 | 370 | * |
| 150 | MS10-150 | 10 | 335 |
| 150 | MH10-150 | 400 | * |
| 160 | MS10-160 | 10 | 355 |
| 160 | MH10-160 | 430 | * |
| 170 | MS10-170 | 10 | 380 |
| 170 | MH10-170 | 460 | * |
| 180 | MS10-180 | 10 | 405 |
| 180 | MH10-180 | 490 | * |

* Maximum wattage is determined by heater fit and operating temperature of the part to be heated using the watt density formula and values from graph A on page 15.



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▼ Manufactured Items ▼

Diameter: 12 MM (11.86-11.96) Max. Amp. 6

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS12-40 | 10 | 75 |
| 50 | MS12-50 | 10 | 105 |
| 60 | MS12-60 | 10 | 135 |
| 70 | MS12-70 | 10 | 165 |
| 80 | MS12-80 | 10 | 190 |
| 90 | MS12-90 | 10 | 220 |
| 100 | MS12-100 | 10 | 250 |
| 110 | MS12-110 | 10 | 280 |
| 120 | MS12-120 | 10 | 310 |
| 130 | MS12-130 | 10 | 335 |
| 140 | MS12-140 | 10 | 365 |
| 150 | MS12-150 | 10 | 395 |
| 160 | MS12-160 | 10 | 420 |
| 170 | MS12-170 | 10 | 450 |
| 180 | MS12-180 | 10 | 480 |

Diameter: 13 MM (12.85-12.98) Max. Amp.10

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MH13-40 | 105 | * |
| 50 | MH13-50 | 140 | * |
| 60 | MH13-60 | 180 | * |
| 70 | MH13-70 | 215 | * |
| 80 | MH13-80 | 255 | * |
| 90 | MH13-90 | 295 | * |
| 100 | MH13-100 | 330 | * |
| 110 | MH13-110 | 370 | * |
| 120 | MH13-120 | 405 | * |
| 130 | MH13-130 | 445 | * |
| 140 | MH13-140 | 480 | * |
| 150 | MH13-150 | 520 | * |
| 160 | MH13-160 | 560 | * |
| 170 | MH13-170 | 600 | * |
| 180 | MH13-180 | 635 | * |
| 190 | MH13-190 | 675 | * |
| 200 | MH13-200 | 710 | * |

Diameter: 12.5 MM (12.34-12.47) Max. Amp.10

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS12.5-40 | 10 | 85 |
| 40 | MH12.5-40 | 100 | * |
| 50 | MS12.5-50 | 10 | 115 |
| 50 | MH12.5-50 | 135 | * |
| 60 | MS12.5-60 | 10 | 145 |
| 60 | MH12.5-60 | 175 | * |
| 70 | MS12.5-70 | 10 | 175 |
| 70 | MH12.5-70 | 210 | * |
| 80 | MS12.5-80 | 10 | 205 |
| 80 | MH12.5-80 | 245 | * |
| 90 | MS12.5-90 | 10 | 235 |
| 90 | MH12.5-90 | 285 | * |
| 100 | MS12.5-100 | 10 | 265 |
| 100 | MH12.5-100 | 325 | * |
| 110 | MS12.5-110 | 10 | 295 |
| 110 | MH12.5-110 | 355 | * |
| 120 | MS12.5-120 | 10 | 335 |
| 120 | MH12.5-120 | 390 | * |
| 130 | MS12.5-130 | 10 | 350 |
| 130 | MH12.5-130 | 430 | * |
| 140 | MS12.5-140 | 10 | 385 |
| 140 | MH12.5-140 | 465 | * |
| 150 | MS12.5-150 | 10 | 415 |
| 150 | MH12.5-150 | 500 | * |
| 160 | MS12.5-160 | 10 | 445 |
| 160 | MH12.5-160 | 535 | * |
| 170 | MS12.5-170 | 10 | 475 |
| 170 | MH12.5-170 | 575 | * |
| 180 | MS12.5-180 | 10 | 500 |
| 180 | MH12.5-180 | 605 | * |

Diameter: 15 MM (14.86-14.99) Max. Amp.10

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS15-40 | 10 | 90 |
| 50 | MS15-50 | 10 | 135 |
| 60 | MS15-60 | 10 | 170 |
| 70 | MS15-70 | 10 | 205 |
| 80 | MS15-80 | 10 | 245 |
| 90 | MS15-90 | 10 | 275 |
| 100 | MS15-100 | 10 | 315 |
| 110 | MS15-110 | 10 | 350 |
| 120 | MS15-120 | 10 | 390 |
| 130 | MS15-130 | 10 | 425 |
| 140 | MS15-140 | 10 | 460 |
| 150 | MS15-150 | 10 | 500 |
| 160 | MS15-160 | 10 | 535 |
| 170 | MS15-170 | 10 | 570 |
| 180 | MS15-180 | 10 | 605 |
| 190 | MS15-190 | 10 | 640 |
| 200 | MS15-200 | 10 | 670 |



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▼ Manufactured Items ▼

Diameter: 16 MM (15.82-15.95) Max. Amps. MS10, MH20

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS16-40 | 10 | 105 |
| 40 | MH16-40 | 130 | * |
| 50 | MS16-50 | 10 | 140 |
| 50 | MH16-50 | 175 | * |
| 60 | MS16-60 | 10 | 180 |
| 60 | MH16-60 | 220 | * |
| 70 | MS16-70 | 10 | 220 |
| 70 | MH16-70 | 270 | * |
| 80 | MS16-80 | 10 | 260 |
| 80 | MH16-80 | 315 | * |
| 90 | MS16-90 | 10 | 300 |
| 90 | MH16-90 | 360 | * |
| 100 | MS16-100 | 10 | 335 |
| 100 | MH16-100 | 410 | * |
| 110 | MS16-110 | 10 | 375 |
| 110 | MH16-110 | 455 | * |
| 120 | MS16-120 | 10 | 415 |
| 120 | MH16-120 | 500 | * |
| 130 | MS16-130 | 10 | 450 |
| 130 | MH16-130 | 550 | * |
| 140 | MS16-140 | 10 | 490 |
| 140 | MH16-140 | 595 | * |
| 150 | MS16-150 | 10 | 530 |
| 150 | MH16-150 | 640 | * |
| 160 | MS16-160 | 10 | 570 |
| 160 | MH16-160 | 690 | * |
| 170 | MS16-170 | 10 | 605 |
| 170 | MH16-170 | 735 | * |
| 180 | MS16-180 | 10 | 645 |
| 180 | MH16-180 | 780 | * |
| 190 | MS16-190 | 10 | 680 |
| 190 | MH16-190 | 830 | * |
| 200 | MS16-200 | 10 | 720 |
| 200 | MH16-200 | 875 | * |

Diameter: 17.5 MM (17.27-17.47) Max. Amp. 15

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS17.5-40 | 10 | 105 |
| 50 | MS17.5-50 | 10 | 155 |
| 60 | MS17.5-60 | 10 | 195 |
| 70 | MS17.5-70 | 10 | 235 |
| 80 | MS17.5-80 | 10 | 280 |
| 90 | MS17.5-90 | 10 | 315 |
| 100 | MS17.5-100 | 10 | 360 |
| 110 | MS17.5-110 | 10 | 400 |
| 120 | MS17.5-120 | 10 | 440 |
| 130 | MS17.5-130 | 10 | 485 |
| 140 | MS17.5-140 | 10 | 525 |
| 150 | MS17.5-150 | 10 | 565 |
| 160 | MS17.5-160 | 10 | 605 |
| 170 | MS17.5-170 | 10 | 650 |
| 180 | MS17.5-180 | 10 | 690 |
| 190 | MS17.5-190 | 10 | 730 |
| 200 | MS17.5-200 | 10 | 770 |

Diameter: 20 MM (19.76-19.96) Max. Amp. 15

| Length/mm | Catalog No. | Min. Watts | Max. Watts |
|-----------|-------------|------------|------------|
| 40 | MS20-40 | 40 | 120 |
| 50 | MS20-50 | 40 | 180 |
| 60 | MS20-60 | 40 | 225 |
| 70 | MS20-70 | 40 | 275 |
| 80 | MS20-80 | 40 | 320 |
| 90 | MS20-90 | 40 | 365 |
| 100 | MS20-100 | 40 | 420 |
| 110 | MS20-110 | 40 | 465 |
| 120 | MS20-120 | 40 | 515 |
| 130 | MS20-130 | 40 | 560 |
| 140 | MS20-140 | 40 | 610 |
| 150 | MS20-150 | 40 | 660 |
| 160 | MS20-160 | 40 | 705 |
| 170 | MS20-170 | 40 | 755 |
| 180 | MS20-180 | 40 | 800 |
| 190 | MS20-190 | 40 | 840 |
| 200 | MS20-200 | 40 | 900 |

* Maximum wattage is determined by heater fit and operating temperature of the part to be heated using the watt density formula and values from graph A on page 15.

Wattage

Wattages other than those listed are available. Consult factory.

Voltage

Standard voltages are either 120V or 240V. Other voltages are available.

Tolerances

Wattage tolerance is +5%, -10% at rated voltage.

Diameter is always .001" less, but not more than .009" less, than the nominal (fractional) heater diameter.

Length tolerances are ±2% with a ±1/16" minimum. Should tighter dimensions be required, Hotwatt can provide closer control.

How to Order

After determining the wattage required and the line voltage available, determine the physical space available for heaters and the numbers of heaters required.

Review Special Features, see page 22-27.

Specify: catalog number, wattage, voltage, lead length and special features required.

Example: MS17.5-110/400W220V/SF1-6.