

Standard Duct Heaters Open Coil

QUA Slip-In and QUZ Flanged Heaters

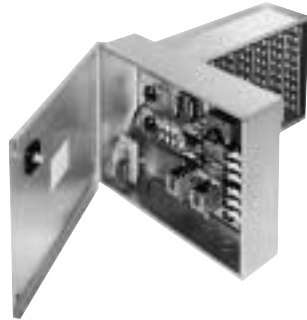


Figure 42.

INDEECO has developed QUA (Figure 42) and QUZ (Figure 44) heater lines to satisfy most typical space heating requirements, simplifying specification, ordering and delivery.

Both standard and quick ship delivery programs are available for the full line of QUA and QUZ heaters.

KW Ratings

QUA and QUZ heaters are available up to 458 KW. The KW ratings are limited both by frame size and electrical characteristics. Heater availability can be determined by contacting an INDEECO representative, who can provide a computerized heater selection with exact heater dimensions in minutes.

Frame Sizes

The use of a standard QUA frame size will both reduce cost and permit rapid shipment. The 240 QUA frame sizes match popular duct sizes. For other duct sizes, INDEECO can either manufacture a custom frame size, or the heater's width and height dimensions can be determined using the 80% Rule, which in most cases will allow the use of a standard QUA frame size.

The 80% Rule – INDEECO recommends the heater should occupy at least 80% of the actual inside area of the duct as shown in Figure 43. Only small amounts of air will bypass the heater around its perimeter and normal turbulence will rapidly mix this unheated air with heated air downstream.

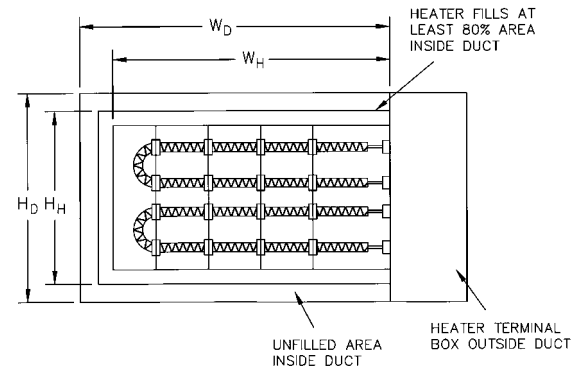


Figure 43.

All QUA heaters may be installed in ducts with up to 1" of interior lining, but the heater must be selected to fit the inside duct dimensions. For example, to fit a duct with 36" x 16" outside dimensions, but with 1" of interior insulation, specify a 35" x 14" heater.

QUZ flanged type heaters are available to fit 216 duct sizes. QUZ cannot be used with interior lined ducts. INDEECO can manufacture a custom frame size to meet virtually any application.



Figure 44.

Standard Duct Heaters

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Table VII
Sizes and Maximum KW Ratings

| | | Duct Height | | | | | | | | | |
|------------|-----|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" | 30" |
| Duct Width | 8" | 7 | 10 | 14 | 17 | 21 | 23 | 26 | 29 | 36 | 46 |
| | 10" | 9 | 13 | 17 | 22 | 26 | 29 | 34 | 38 | 46 | 59 |
| | 12" | 11 | 16 | 21 | 27 | 32 | 36 | 41 | 46 | 56 | 72 |
| | 14" | 13 | 18 | 25 | 31 | 37 | 42 | 48 | 54 | 67 | 85 |
| | 16" | 15 | 21 | 28 | 36 | 43 | 49 | 56 | 63 | 77 | 98 |
| | 18" | 17 | 24 | 32 | 40 | 48 | 55 | 63 | 71 | 87 | 111 |
| | 20" | 19 | 27 | 36 | 45 | 54 | 61 | 70 | 79 | 97 | 123 |
| | 22" | 21 | 29 | 39 | 49 | 59 | 68 | 78 | 87 | 107 | 136 |
| | 24" | 23 | 32 | 43 | 54 | 65 | 74 | 85 | 96 | 117 | 149 |
| | 26" | 25 | 35 | 47 | 59 | 71 | 81 | 92 | 104 | 127 | 162 |
| | 28" | 27 | 38 | 51 | 63 | 76 | 87 | 100 | 112 | 137 | 175 |
| | 30" | 29 | 41 | 54 | 68 | 82 | 94 | 107 | 121 | 147 | 188 |
| | 32" | 31 | 43 | 58 | 72 | 87 | 100 | 114 | 129 | 158 | 201 |
| | 34" | 32 | 46 | 62 | 77 | 93 | 107 | 122 | 137 | 168 | 214 |
| | 36" | 34 | 49 | 65 | 82 | 98 | 113 | 129 | 145 | 178 | 226 |
| | 38" | 36 | 52 | 69 | 86 | 104 | 119 | 136 | 154 | 188 | 239 |
| | 40" | 38 | 54 | 73 | 91 | 109 | 126 | 144 | 162 | 198 | 252 |
| | 42" | 45 | 57 | 76 | 95 | 115 | 132 | 151 | 170 | 208 | 265 |
| | 44" | 47 | 60 | 80 | 100 | 120 | 139 | 159 | 178 | 218 | 278 |
| | 48" | 52 | 65 | 87 | 109 | 131 | 152 | 173 | 195 | 238 | 304 |
| 54" | 58 | 74 | 98 | 123 | 148 | 171 | 195 | 220 | 269 | 342 | |
| 60" | 65 | 82 | 109 | 137 | 164 | 190 | 217 | 245 | 299 | 381 | |
| 66" | 71 | 90 | 120 | 151 | 181 | 209 | 239 | 269 | 329 | 419 | |
| 72" | 78 | 98 | 131 | 164 | 197 | 229 | 262 | 294 | 360 | 458 | |

Type QUA
Slip-in Heater

Maximum KW ratings in available frame sizes shown at left.

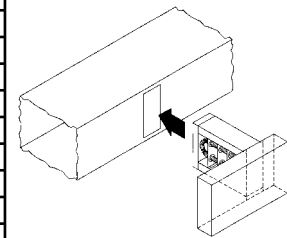


Figure 45.
 Installation of Slip-in Heater

| | | Duct Height | | | | | | | | |
|------------|-----|-------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 22" | 28" |
| Duct Width | 8" | 11 | 14 | 18 | 22 | 25 | 29 | 33 | 40 | 51 |
| | 10" | 13 | 18 | 22 | 27 | 32 | 36 | 41 | 50 | 64 |
| | 12" | 16 | 22 | 27 | 33 | 38 | 44 | 49 | 60 | 77 |
| | 14" | 19 | 25 | 32 | 38 | 45 | 51 | 57 | 70 | 90 |
| | 16" | 22 | 29 | 36 | 44 | 51 | 58 | 66 | 80 | 102 |
| | 18" | 24 | 33 | 41 | 49 | 57 | 66 | 74 | 91 | 115 |
| | 20" | 27 | 36 | 45 | 55 | 64 | 73 | 82 | 101 | 128 |
| | 22" | 30 | 40 | 50 | 60 | 70 | 80 | 91 | 111 | 141 |
| | 24" | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 121 | 154 |
| | 26" | 35 | 47 | 59 | 71 | 83 | 95 | 107 | 131 | 167 |
| | 28" | 38 | 51 | 64 | 77 | 90 | 102 | 115 | 141 | 180 |
| | 30" | 41 | 55 | 68 | 82 | 96 | 110 | 124 | 151 | 193 |
| | 32" | 44 | 58 | 73 | 88 | 102 | 117 | 132 | 161 | 205 |
| | 34" | 46 | 62 | 78 | 93 | 109 | 125 | 140 | 171 | 218 |
| | 36" | 49 | 66 | 82 | 99 | 115 | 132 | 148 | 182 | 231 |
| | 38" | 52 | 69 | 87 | 104 | 122 | 139 | 157 | 192 | 244 |
| | 40" | 55 | 73 | 91 | 110 | 128 | 147 | 165 | 202 | 257 |
| | 42" | 57 | 77 | 96 | 115 | 135 | 154 | 173 | 212 | 270 |
| | 44" | 60 | 80 | 101 | 121 | 141 | 161 | 182 | 222 | 283 |
| | 48" | 66 | 88 | 110 | 132 | 154 | 176 | 198 | 242 | 308 |
| 54" | 74 | 99 | 124 | 148 | 173 | 198 | 223 | 273 | 347 | |
| 60" | 82 | 110 | 137 | 165 | 193 | 220 | 248 | 303 | 386 | |
| 66" | 91 | 121 | 151 | 182 | 212 | 242 | 273 | 333 | 424 | |
| 72" | 99 | 132 | 165 | 198 | 231 | 264 | 297 | 364 | 458 | |

Type QUZ
Flanged Heater

Maximum KW ratings in available frame sizes shown at left.

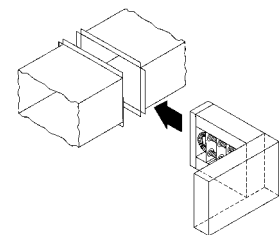


Figure 46.
 Installation of Flanged Heater

Note: Maximum KW ratings may vary based on voltage and phase combination.

Standard Duct Heaters

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Detail Dimensions

The wide variety of QUA and QUZ (Figures 45 and 46) heaters makes it impractical to list the exact heater dimensions for every possible heater. For dimensional details, contact your local INDEECO representative.

Voltage and Phase

Heaters are available in the voltage and phase combinations shown below. All are for operation at 50 or 60 Hz.

When three-phase is specified, each heating stage will be furnished with a multiple of three elements to give a balanced three-phase load.

| | | |
|---------|-----------------|-----------------------------|
| Voltage | 120 208 240 277 | 208 240 380 400 415 480 600 |
| Phase | 1 | 3 |

Control Circuit Options & Special Features

QUA and QUZ heaters are available with Control Options G, J and K and a full range of Special Features. These are described briefly in **Table VIII** and in more detail in the standard Control Options section of this catalog, pages 10 and 11.

Number of Heating Stages

Single and three-phase QUA and QUZ heaters are available with multiple heating stages. To comply with our UL and NEC maximum circuit sizes, no stage is rated at more than 48 amps.

Table VIII
Control Options

| Control Option | Disconnect Switch | Thermal Cutouts | Airflow Switch | Contactors | Control Transformer | Fuses | PE Switches | SCR | Thermostat |
|-------------------|-------------------|-----------------|----------------|----------------|---------------------|----------------|-------------|-----|----------------|
| G Basic | ■ | ■ | ■ | ■ | ■ | ■ ¹ | | | |
| J Pneumatic | ■ | ■ | ■ | ■ ² | ■ ³ | ■ ¹ | ■ | | |
| K Proportional | ■ | ■ | ■ | ■ ² | ■ | ■ ¹ | | ■ | ■ ⁴ |

- Notes: 1. Fuses supplied only on heaters over 48 amps.
 2. Contactors supplied only when other devices cannot carry heater load.
 3. Transformer only supplied on heaters rated higher than 277 volts.
 4. Choice of room or duct thermostat, 135 ohms, 2200 ohms, 0-10 VDC or 4-20 mA inputs.
 See pages 12 and 13 for full description of thermostats.