

Infrared-Heaters



The 6 second heater **NEW**
RAPIDIUM
powered by TQS



Technical Quartz Solutions

Infrared-Heaters

TQS produces medium-wave infrared heaters with their typical wavelength of 1400 to 4000 nanometers.

According to customers' individual performance requirements TQS calculates the electrical parameters of each heating element and then starts the production of the central components of each heater, the heating coils.

Only European made resistance wires will be used for TQS' production of heating coils.

Decades of experience and self-developed quality standards give TQS the leading edges as a market leader of medium-wave infrared heaters.

All heating elements are subject to a 100% quality control, guaranteeing the same high level of permanent functionality and longevity.

It goes without saying that the selection of TQS' raw materials and components are subject to an equally strict system of quality control.

For highest emission efficiency and IR-transmission only high-purity (99,98% SiO₂) quartz glass tube will be used as protection of the heating coils.

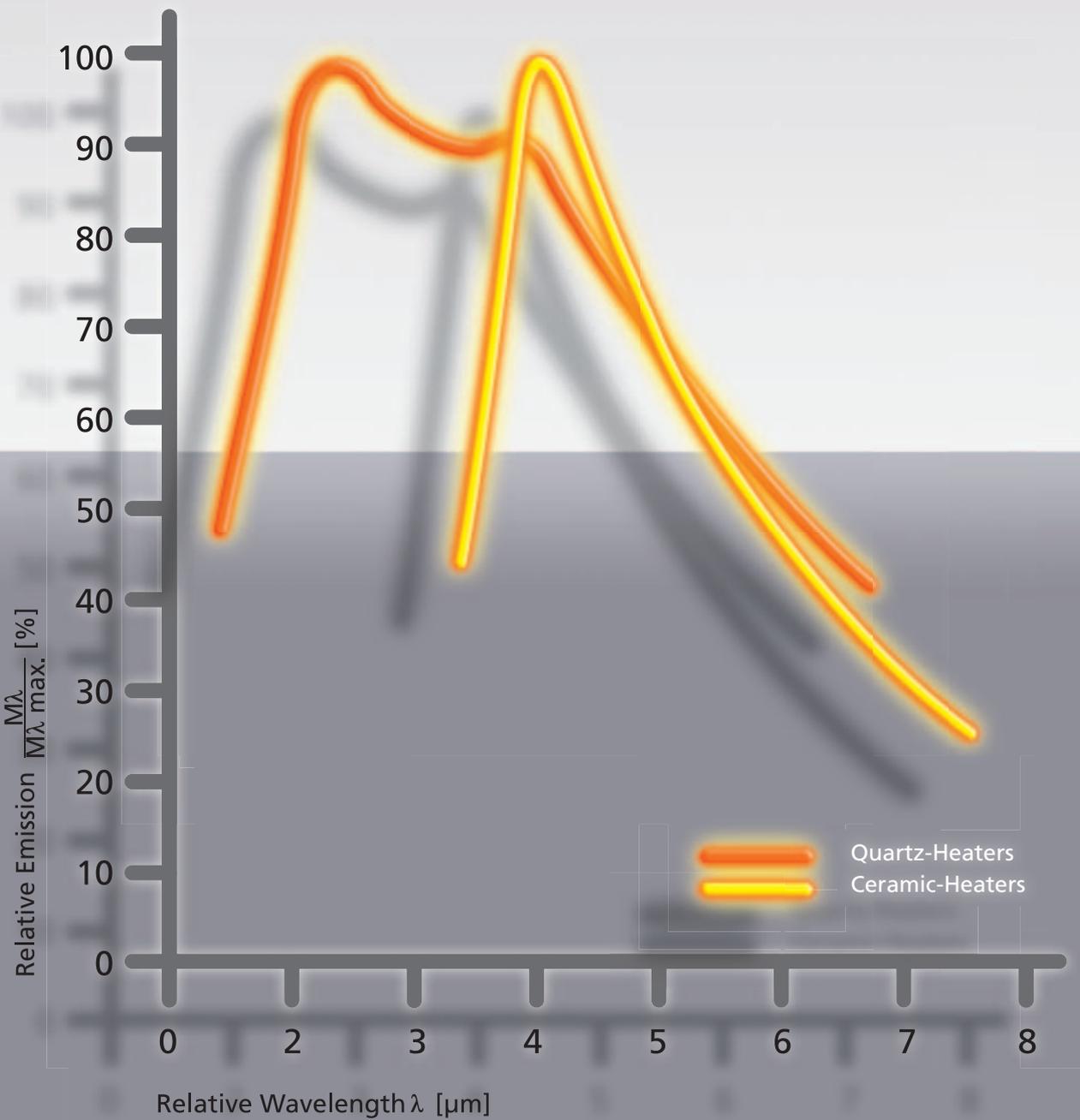
These quartz tubes are used in TQS-cassette heating elements, TQS-single tube heaters, in TQS-twin tube heaters (with gold plating), TQS-square heaters, TQS-omega heaters and in TQS-barrel heating elements.

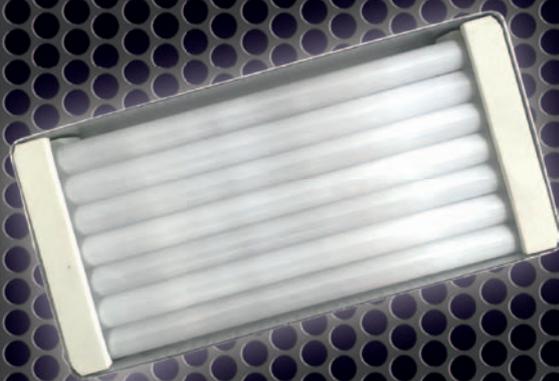
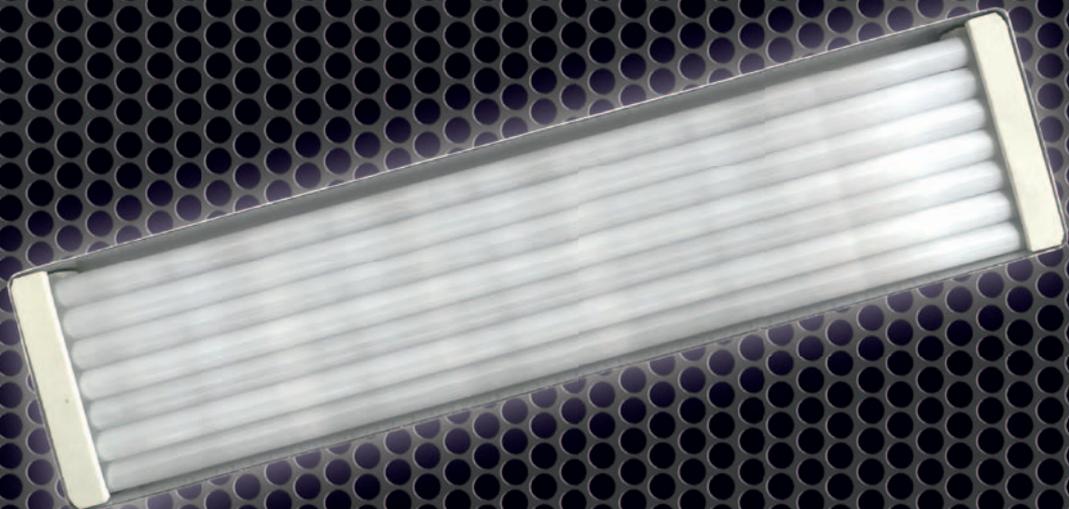
Quartz heaters with special designs/forms, e.g. immersion heaters, can be produced according to customers' own designs.

All TQS infrared heaters are exclusively produced in Wiesbaden/Germany.



Quartz-Heaters vs. Ceramic-Heaters





TQS-Infrared Cassette Heating Elements

...are heating elements for industrial applications, mostly used in thermoforming-machines, packaging machines, wood drying machines as well as paint and lacquer drying plants.

...are always produced as medium-wave quartz infrared heaters with three different heat up time levels:

Classic	– approx. 180 to 300 seconds
Fast	– approx. 120 to 240 seconds
RAPIDIUM	– approx. 6 seconds

... standard voltage is 230 V. Differing voltages can be considered, subject to prior feasibility calculations.

...are available in three different mounting systems:

- with 2 threaded bolts, type H2**
- with center column, type HM**
- with plug-and-play adaptor type ST**

...guarantees a homogenous IR – radiation with their wide emission range.

...feature a highly effective metal reflector, thus avoiding loss of radiation and lowering loss by convection heat.

...3 standard sizes allow the construction and layout of customer specific element panels, with several hundred cassette heating elements per panel.

...provide full radiation fast and homogenous radiation throughout the entire surface of the element.

...are equipped with acid and alkaline resistant quartz tubes.

...in general, are mounted horizontally. However, TQS is one of the few suppliers who is able to provide infrared heating cassettes for vertical applications.

...are suitable for control with transformers, thyristors or other electronic power controllers.

...due to their low thermal inertia TQS infrared cassette heaters react immediately and visibly on changes of voltage.

...are highly insensitive to high temperature changes.

...type „FAST“ achieve a 20% shorter heat up time by short term overvoltage.

...type „RAPIDIUM“ reduce their total heat up time to maximum 6 seconds by short term overvoltage.



TQS-Infrared Cassette Heaters RAPIDIUM

RAPIDIUM are TQS' latest innovation and were introduced to the public during the K Show 2019 in Düsseldorf/Germany.

RAPIDIUM cassette heating elements are the result of consequent development of TQS' decade long proven medium-wave Classic and FAST heating elements. They achieve considerable energy savings as well as reduction of cycle times, resulting into higher production yields.

TQS-RAPIDIUM provides:

- Heating up to 100% full emission in 6 seconds
- shorter production cycles
- Significant energy savings (approx. 30 - 35 %)
- More compact machine design
- Easier control compared to halogen spotlights
- Homogeneous IR emission
- 3 sizes (FS, FSK, FSM)
- 3 mountings (H2, HM, ST)



The 6 second heater

NEW

RAPIDIUM

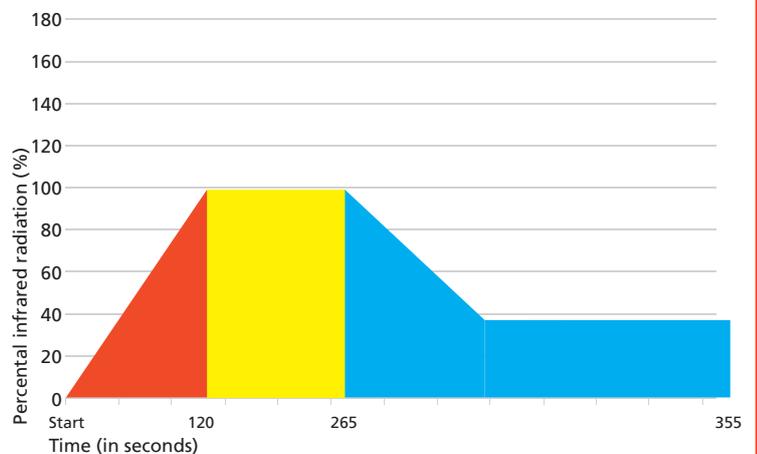
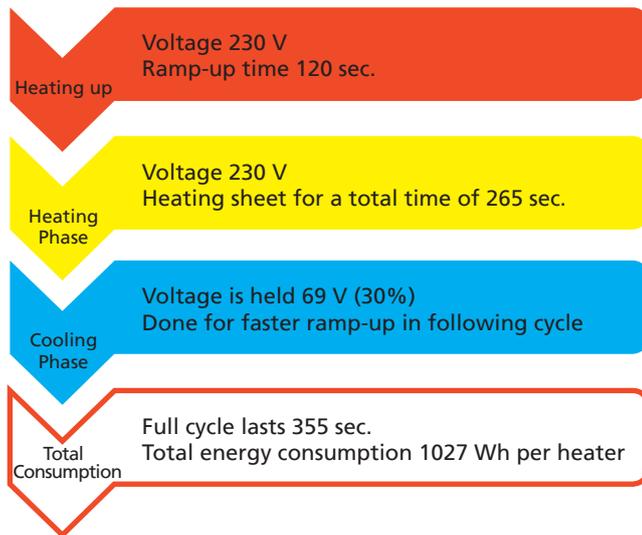
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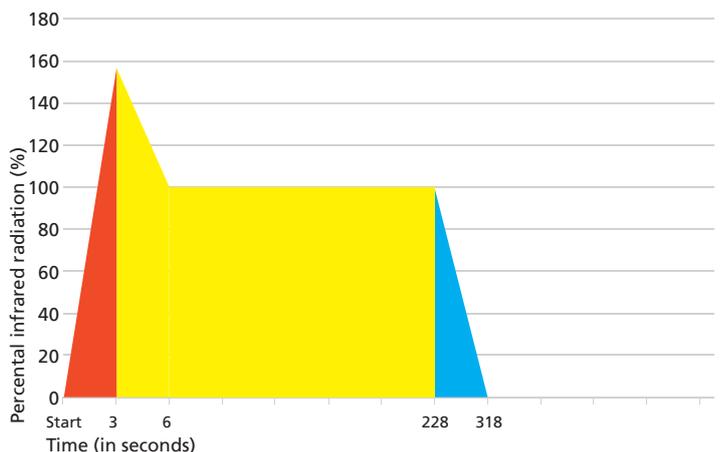
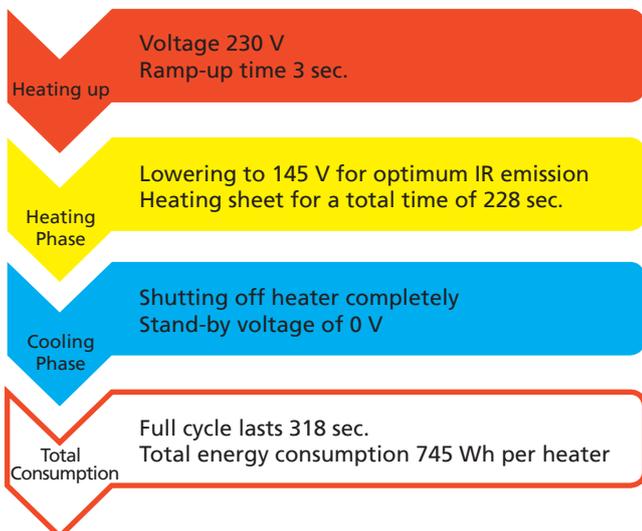
TQS-Infrared Cassette Heaters comparison

Heating a black, 4 mm thick ABS sheet with a Classic- and a RAPIDIUM heater.

Cycle Profile of TQS Classic Heater



Cycle Profile of TQS RAPIDIUM Heater



TQS-Infrared Cassette Heating elements RAPIDIUM Versions

Infrared heating elements RAPIDIUM, sizes FS, FSK and FSM with H2-mounting (230 Volt)

SKU	Element-Size	Wattage	Activating-Voltage	Operating-Voltage	Mounting	Dim. (mm)
65S0301	FS	300	230	130-160	H2	248x63x25
65S0401	FS	400	230	130-160	H2	248x63x25
65S0501	FS	500	230	130-160	H2	248x63x25
65K0201	FSK	150	230	130-160	H2	124x63x25
65K0202	FSK	200	230	130-160	H2	124x63x25
65K0301	FSK	250	230	130-160	H2	124x63x25
65K0302	FSK	300	230	130-160	H2	124x63x25
65K0401	FSK	375	230	130-160	H2	124x63x25
65M0201	FSM	200	230	130-160	H2	80x63x25
65M0301	FSM	250	230	130-160	H2	80x63x25

FS = standard size - FSK = size klein/small - FSM = size mini

Infrared heating elements RAPIDIUM, sizes FS, FSK and FSM with HM-mounting (230 Volt)

SKU	Element-Size	Wattage	Activating-Voltage	Operating-Voltage	Mounting	Dim. (mm)
65S0551	FS	500	230	130-160	HM	248x63x25
65K0351	FSK	250	230	130-160	HM	124x63x25
65K0451	FSK	375	230	130-160	HM	124x63x25

FS = standard size - FSK = size klein/small

Infrared heating elements RAPIDIUM, sizes FS, FSK and FSM with plug-n-play mounting (230 Volt)

SKU	Element-Size	Wattage	Activating-Voltage	Operating-Voltage	Mounting	Dim. (mm)
65S0321	FS	300	230	130-160	ST	248x63x25
65S0421	FS	400	230	130-160	ST	248x63x25
65S0521	FS	500	230	130-160	ST	248x63x25
65K0221	FSK	150	230	130-160	ST	124x63x25
65K0222	FSK	200	230	130-160	ST	124x63x25
65K0321	FSK	250	230	130-160	ST	124x63x25
65K0322	FSK	300	230	130-160	ST	124x63x25
65K0421	FSK	375	230	130-160	ST	124x63x25
65M0221	FSM	200	230	130-160	ST	80x63x25
65M0321	FSM	250	230	130-160	ST	80x63x25

FS = standard size - FSK = size klein/small - FSM = size mini

TQS-Infrared Cassette Heating elements Classic Versions

Infrared heating elements, sizes FS, FSK and FSM with H2-mounting (230 Volt)

SKU	Element-Size	Wattage	Voltage	Mounting	Dim. (mm)
67S3301	FS	300	230	H2	248x63x25
67S3401	FS	400	230	H2	248x63x25
67S3501	FS	500	230	H2	248x63x25
67S3601	FS	600	230	H2	248x63x25
67S3801	FS	750	230	H2	248x63x25
67K3201	FSK	150	230	H2	124x63x25
67K3202	FSK	200	230	H2	124x63x25
67K3301	FSK	250	230	H2	124x63x25
67K3302	FSK	300	230	H2	124x63x25
67K3401	FSK	375	230	H2	124x63x25
67M3201	FSM	200	230	H2	80x63x25

FS = standard size - FSK = size klein/small - FSM = size mini

Infrared heating elements, sizes FS and FSK with HM-mounting /Fast Version (200 Volt)

SKU	Element-Size	Wattage	Voltage	Mounting	Dim. (mm)
67S1551	FS	500	200	HM	248x63x25
67S1873	FS	750	200	HM	248x63x25
67K1351	FSK	250	200	HM	124x63x25
67K1473	FSK	375	200	HM	124x63x25

FS = standard size - FSK = size klein/small

Infrared heating elements, sizes FS, FSK and FSM with plug-n-play mounting (200 Volt)

SKU	Element-Size	Wattage	Voltage	Mounting	Dim. (mm)
67S3321	FS	300	230	ST	248x63x25
67S3421	FS	400	230	ST	248x63x25
67S3521	FS	500	230	ST	248x63x25
67S3621	FS	600	230	ST	248x63x25
67S3821	FS	750	230	ST	248x63x25
67K3222	FSK	150	230	ST	124x63x25
67K3221	FSK	200	230	ST	124x63x25
67K3321	FSK	250	230	ST	124x63x25
67K3322	FSK	300	230	ST	124x63x25
67K3421	FSK	375	230	ST	124x63x25
67M3321	FSM	250	230	ST	80x63x25

FS = standard size - FSK = size klein/small - FSM = size mini

Infrared-Cassette-Mounting Versions

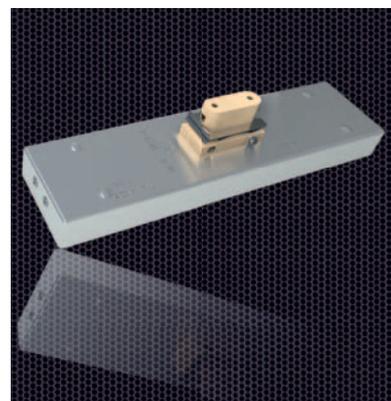
Standard mounting (H2)

Mounting version H2 (with two M6-copper bolts) is the most widely used standard mounting version. The H2-mounting version is the most economical one and has been supplied into thousands of thermoforming machines throughout the last decades. Total mounting time for exchanging TQS heating elements in any given thermoforming-machine will drastically be reduced by ordering the mounting versions „HM“ or „ST/Plug-In“.



HM-Mounting (HM)

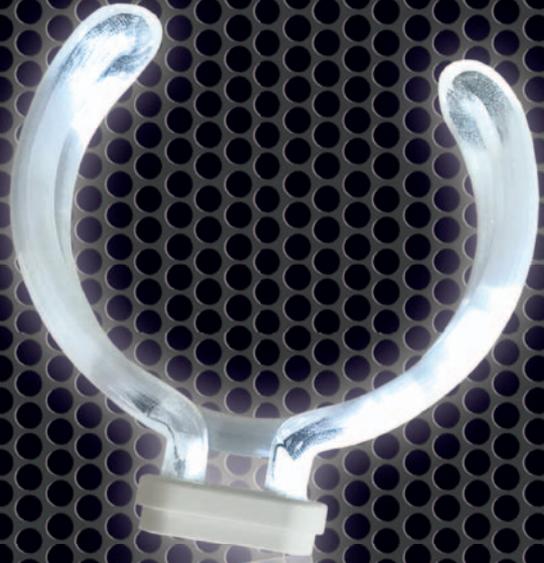
Ceramic heating elements have been using the HM mounting (center pillar mounting) for many years. TQS adapted this proven mounting version to their standard heating elements. Thus, TQS caters to customers' requests regarding the combination of advantages of the center pillar mounting with homogenous radiation of our heating elements. The robust center pillar mounting with its integrated feeder clip guarantees a fast mounting and removal of the heating elements. The HM-mounting is available for TQS elements sizes FS and FSK.



Plug-In-Mounting (ST)

IR elements are also available with the plug-in-mounting for the cassette sizes FS, FSK and FSM. The unique plug-in-mounting provides an even faster mounting and removal of the heating elements as the heating elements are handled from the hot side only. Cooling down phases of the heating panels are no longer necessary, consequently mounting time (and mounting costs) caused by wiring/re-wiring on the back side (= cold side) is no longer necessary. Thus, the total down time of the machines is drastically reduced. Simply "plug and play". The Plug-In-Mounting is available for TQS elements sizes FS, FSK and FSM.





TQS-Infrared Omega Heaters

TQS-Omega-Heaters, due to their perfect Ω -shaped quartz tube, provide a homogeneous central radiation. The nearly perfect radiation efficiency makes TQS-Omega-heaters the main choice for cable shrinking applications. TQS-Omega-heaters are fit for mounting in any position: horizontal, vertical, over-head, upright, in 45 deg. angles, etc. There are no mounting restrictions. TQS-Omega-heaters come complete with beaded connecting wires (100 mm or 150mm long) and forked cable lugs. Available are two Omega-heater sizes:

SKU 66S3900 1200 Watt / 230 Volt – Omega inner diameter 125 mm

SKU 66S3600 600 Watt / 230 Volt – Omega inner diameter 58 mm

Differing lengths of the beaded connecting wires can be provided upon request.



TQS-Infrared Square Tube Heaters

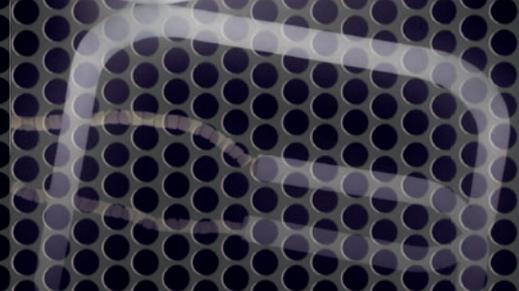
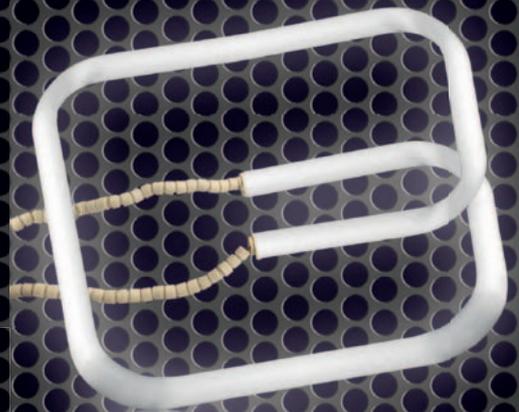
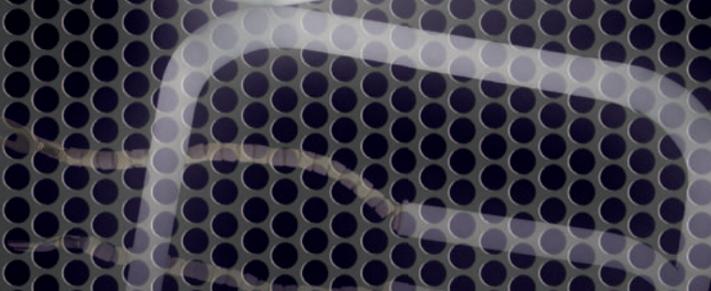
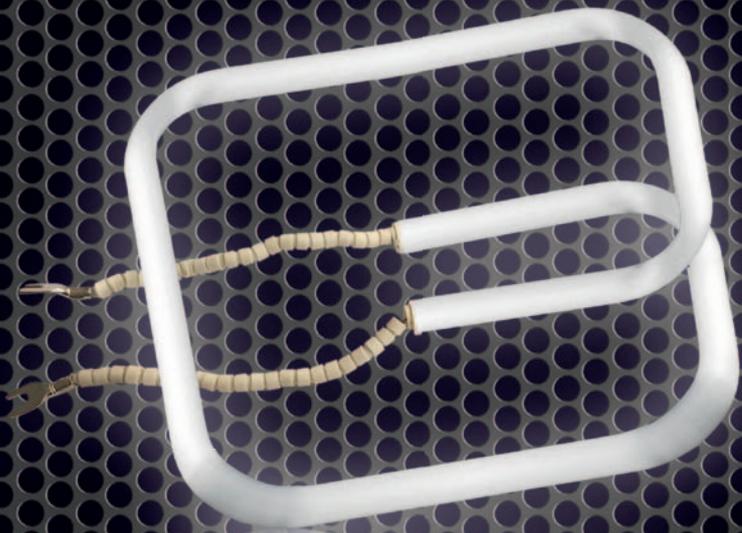
TQS-Square Tube Heaters / QSD, due to their parallel and rectangular shaped quartz tubes, provide a homogeneous radiation over a greater square area, compared to cassette heating elements. In combination with reflectors, the radiation efficiency is even intensified by using the backside radiation of the QSDs. TQS-QSDs are fit for mounting in any position: horizontal, vertical, over-head, upright, in 45 deg. angles, etc. There are no mounting restrictions. TQS-QSDs come complete with beaded connecting wires of 100 mm length and forked cable lugs. Differing lengths of the beaded connecting wires and differing power ratings can be provided upon request.

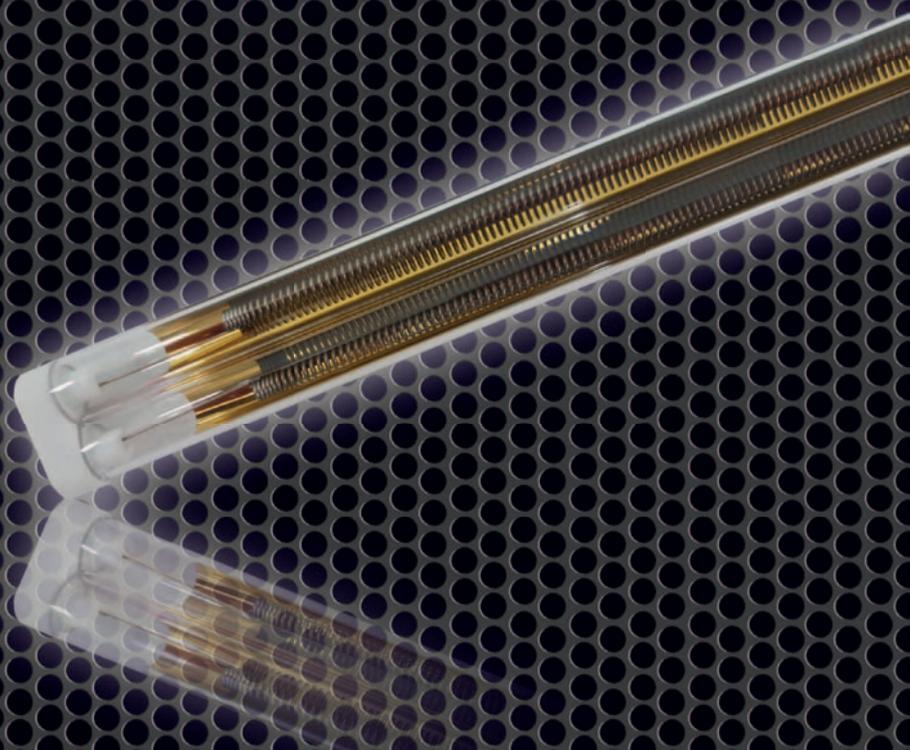
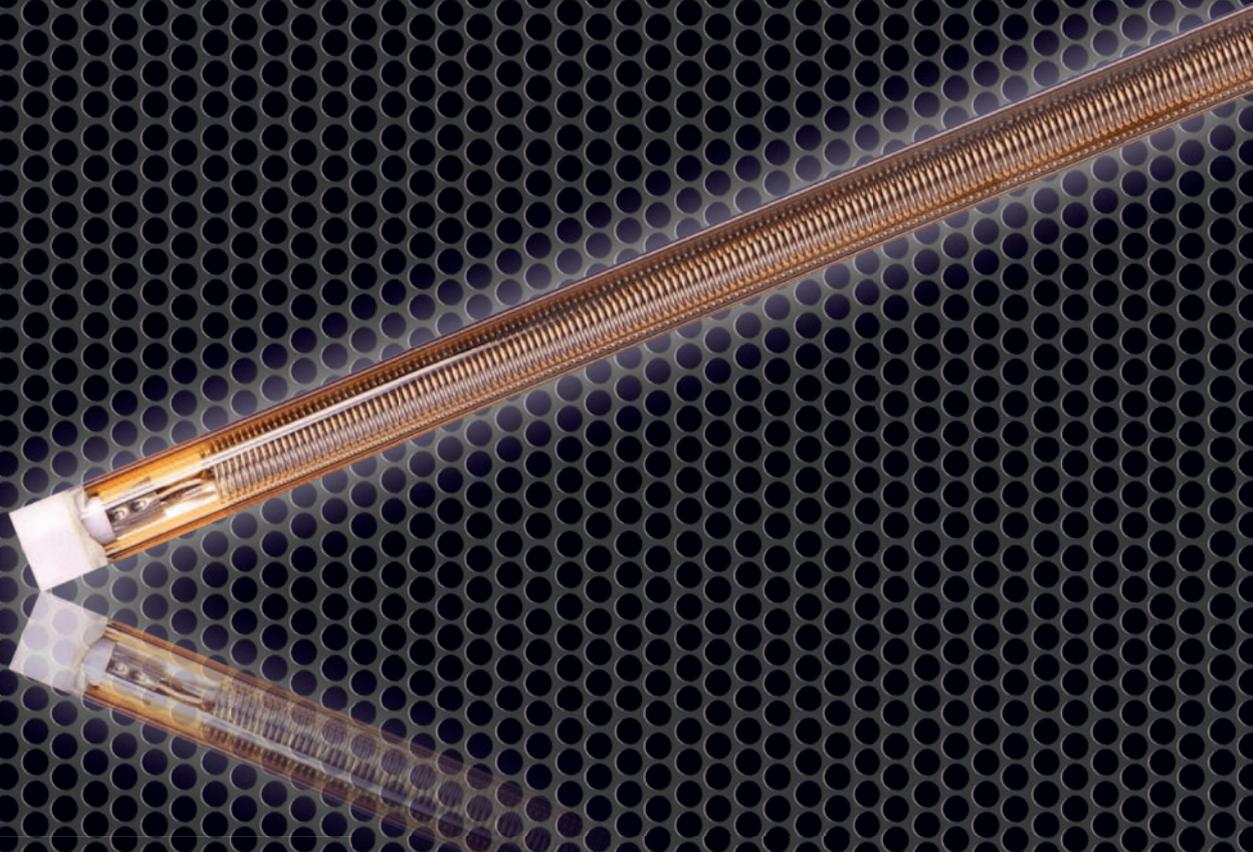
Available are two QSD sizes:

SKU	Wattage	Voltage	Dim. (mm)
66Q1020	200	220	100x100
66Q1025	250	220	100x100
66Q1030	300	220	100x100
66Q1040	400	220	100x100
66Q1050	500	220	100x100
66Q1060	600	220	100x100
66Q1430	300	220	140x140

SKU	Wattage	Voltage	Dim. (mm)
66Q1435	350	220	140x140
66Q1440	400	220	140x140
66Q1445	450	220	140x140
66Q1450	500	220	140x140
66Q1460	600	220	140x140
66Q1480	800	220	140x140
66Q1490	900	220	140x140







TQS-Infrared Monotube Heaters

TQS-Infrared-Monotube-Heaters provide the optimum extended in-line radiation for certain industrial applications, e.g. in thermoforming machines for production of illuminated displays. Also for these TQS-Infrared – Monotube heaters only high-purity (99,98% SiO₂) quartz glass tubes will be used as protection of the heating coils.

Available are two TQS-Infrared-Monotube Heater sizes:

SKU 66R6012 2800 Watt / 400 Volt L 2196 mm x diameter 11 mm

SKU 66R3017 1750 Watt / 230 Volt L 1000 mm x diameter 11 mm

Differing lengths of the beaded connecting wires and differing power ratings can be provided upon request.

TQS-Infrared-Twintube-Heaters with Gold Plating

TQS Infrared Twintube heaters are produced only from high-purity (99,98% SiO₂) quartz glass tubes. Additionally, for highest possible radiation efficiency a golden reflector is applied according to customers' requests. Shape and placement of the reflector can be discussed. The TQS-gold plating reflects the IR-emission optimally onto the product. Thus, resulting into an approximate doubling of IR radiation. The TQS-Infrared Twintube heater design offers a high radiation yield in combination with high mechanical stability – for twin lengths from L 1500 mm to L 6500 mm. The TQS – Infrared-Twintube Heaters with Gold Plating come complete with L 1000 mm leads. Available are three TQS-Infrared-Twintube Heaters with Gold Plating, sizes:

SKU 68D3500 3500 Watt / 400 Volt 1900 Lx33x15 mm

SKU 68D4000 4000 Watt / 400 Volt 1700 Lx33x15 mm

SKU 68D1700 1700 Watt / 230 Volt 2200 Lx18x8 mm

Differing connecting wires lengths and differing power ratings can be provided upon request.



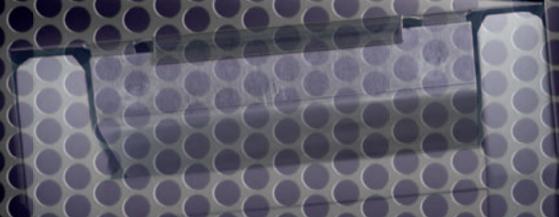
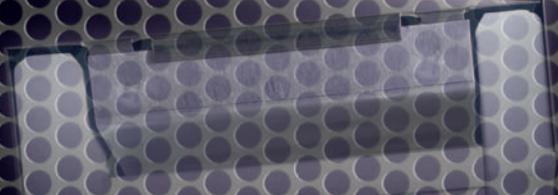
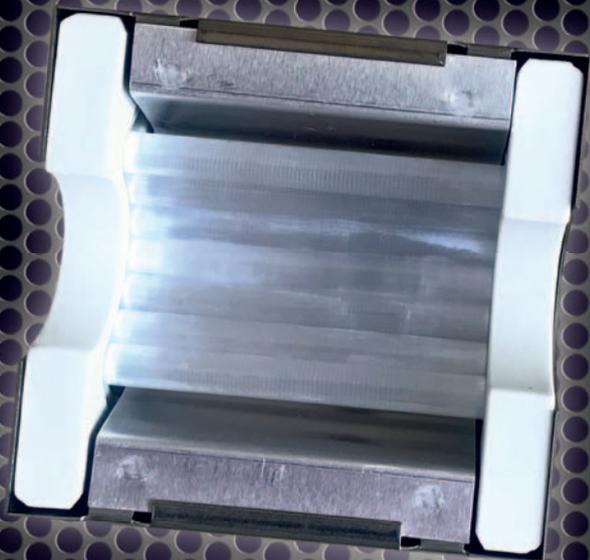
TQS-Infrared-Barrel Heaters

TQS – Infrared-Barrel Heaters pick up the proven design of our cassette heaters, size FSM. Infrared barrel heaters are mainly used in shrinking machines, typical for shrinking automotive cable harnesses. In contrast to the horizontally flat positioned quartz tubes in the FSM heaters, the quartz tubes in the barrel heaters are positioned on a circle segment. Usually two of these barrel heaters are working against each other, guaranteeing maximum IR emission on the shrinking tubes. Due to high IR density in the close-up position, the TQS Infrared barrel heaters need only a relatively modest power rating.

Only one TQS-Infrared-Barrel Heater size is currently available. Different power ratings and barrel sizes can be discussed.

SKU 67T0250 250 Watt / 230 Volt





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