

HLQ 210

Electrically melted multi-step quartz tube



Product Overview

HLQ210 is an electrically fused quartz made from natural quartz sand, which is purified by the Heraeus refinement process. HLQ210 is designed for very high efficiency lamp applications. The tube is fabricated using the unique Heraeus multi-step process (S-ZUG).

Key Features

- very low bubble content
- nearly blemish free surface
- wide range of geometries

Applications (e.g.)

- medium pressure lamp
- metal halide lamp
- laser excitation lamp
- short-arc lamp

Geometrical Data

Outer Diameter (OD) [mm]	Tolerance [mm] ¹	Wall Thickness Range [mm]
2 - ≤ 8	± 0.2	≥ 0.4 - ≤ 2.0
> 8 - ≤ 17	± 0.3	≥ 0.8 - ≤ 3.5
> 17 - ≤ 25	± 0.4	≥ 1.0 - ≤ 4.5
> 25 - ≤ 30	± 0.5	≥ 1.2 - ≤ 4.5
> 30 - ≤ 35	± 0.6	> 1.2 - ≤ 4.5
> 35 - ≤ 40	± 0.8	> 1.2 - ≤ 4.5
> 40 - ≤ 50	± 1.0	> 1.2 - ≤ 4.5
> 50 - ≤ 60	± 1.3	> 1.2 - ≤ 4.5
> 60 - ≤ 90	± 2.0	> 1.2 - ≤ 4.5

Wall Thickness (WT) [mm]	Tolerance [mm]	Cumulative length of bubbles ²
≥ 0.8 - ≤ 1.2	± 0.2	< 2.0%
> 1.2 - ≤ 1.8	± 0.3	< 2.5%
> 1.8 - ≤ 2.5	± 0.5	< 3.0%
> 2.5 - ≤ 3.0	± 0.6	< 3.5%
> 3.0 - ≤ 4.0	± 0.8	< 4.0%
> 4.0 - ≤ 4.5	± 1.0	< 4.5%

Feature	Area	Tolerance	Note
Ovality	manufactured length	< ½ OD tolerance	(e.g. ± 0.20 OD tolerance = ovality of 0.20)
Siding	manufactured length	< ½ WT tolerance	(e.g. ± 0.20 WT = siding of 0.20)
Bow	all dimensions	< 1.0mm / 1m < 1.5mm / 1m	not annealed annealed
Length	-	+ 20mm / - 0mm	snip cut ³

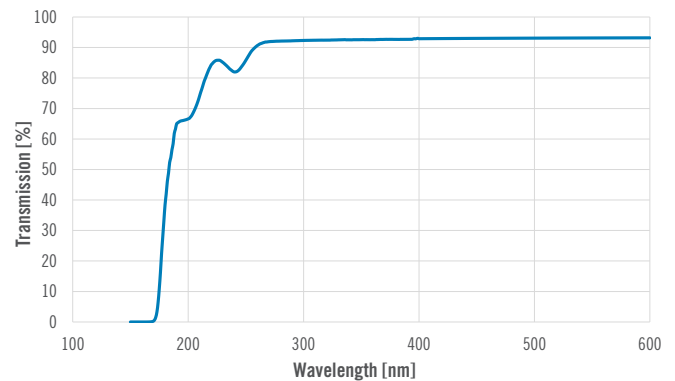
¹ Additional sizes and tolerances are available on request

² Bubbles < 0.5 mm length and < 0.08 mm width are not counted

³ Other cutting methods on request

Optical Properties

Typical transmission values for 2mm wall thickness



Wavelength [nm]	200	215	225	254	360
Transmission [%]	78	85	89	90	93

Visual Features

Tolerance

Outside Surface Distortion	none
Inclusions	none
Surface Impurities (adherent)	none
Discoloration	none

Chemical Properties

Typical OH Content [ppm]	~ 30	as drawn, reducible through vacuum annealing – <5 / <1									
Chemical Impurities [ppm]	Li	Na	K	Mg	Ca	Fe	Cu	Cr	Mn	Al	Ti
	0.6	0.1	0.2	0.03	0.6	0.1	<0.05	<0.05	<0.05	14	1.3

Physical Properties

Softening Temperature	~ 1710°C
Annealing Temperature	~ 1220°C
Strain Temperature	~ 1125°C
Viscosity at 1300°C	~ 11.95 dPas
Maximum Working Temperature	continuous operation ~ 1150°C short-term operation ~ 1300°C
Density	2.2 g/cm ³

CONTACT

Germany

Heraeus Quarzglas GmbH & Co. KG
Heraeus Conamic
+49 (6181) 35-6234
conamic.lampmaterials@heraeus.com
heraeus-conamic.com

USA

Heraeus Quartz North America LLC
Heraeus Conamic
+1 (240) 690-3852
conamic.lampmaterials@heraeus.com
heraeus-conamic.com

The data given here is correct as of July 2021 and is subject to change.

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