

Calamo

TUBES · FITTINGS · SURFACES



ELECTROPOLISHED TUBING
AND SURFACE TUBES

PQB TUBES

Electropolished Quality Heat Exchanger Tubing for the Pharmaceutical and Biochemical industry

Calamo seamless electropolished PQB tubes are excellent products to be used for the transportation of high purity water and liquid solutions. Typical applications are heat exchanger and WFI systems in biochemical and pharmaceutical industry. Well documented processes and established quality control guarantee a stable quality to its final point of use.

Products

Heat exchanger and WFI tubing

- Outside diameter imperial sizes 6,35 – 25,40 mm
- Outside diameter metric sizes 6,00 – 28,00 mm
- Lengths 6000-6096 mm

Standards

Grade: ASTM 316L/EN 1.4404/1.4435/1.4432/Duplex

Seamless: ASME SA 213 AW/ASTM A269/A270

Tolerances: ASTM A 269/A 270, ISO 1127 D4/T3

Summary of specifications

- Raw material
 - Seamless tubes
 - Bright annealed
- Electropolishing
 - Inside electropolished according to CALAMO procedure 1581/227.
 - Outside electropolished on request.
- Surface roughness inside
 - Ra 0,4µm (15µinch). Other Ra values on request.
- Packing
 - Cleaned with 0,5 MΩcm DI water.
 - End capped and packed in polyethylene sleeves.

Certificate

CALAMO is certified in accordance with the following systems (quality) ISO 9001, (environment) ISO 14001 and (Occupational Health & Safety) OHSAS 18001.

Manufacturing

- Raw material tubes are purchased from approved suppliers according to CALAMO purchase specifications.
- Electropolishing process and machines are designed and operated by CALAMO using the latest EP technology.
- Final cleaning is conducted using DI water before final drying.
- Every product is individually visually inspected and controlled.
- Each product is secured with plastic caps and sealed in polyethylene bags.
- Material certificate is supplied according to EN 10204-3.1.

Features

- CALAMO's unique competence in electropolished (EP) surfaces, design and manufacturing of EP equipment and machines makes CALAMO a world leader in electropolishing.
 - in house, raw material stock and receiving inspection.
 - all operations including electropolishing integrated in one location.
 - finished stock of electropolished tubes.
 - daily shipments to all parts of the world.

SQ TUBES

Surface Quality Heat Exchanger Tubing for the Pharmaceutical and Biochemical industry

Calamo seamless SQ tubes are excellent products to be used for the transportation of high purity water and liquid solutions. Typical applications are heat exchanger and WFI systems in biochemical and pharmaceutical industry. Well documented processes and established quality control guarantee a stable quality to its final point of use.

Products

Heat exchanger and WFI tubing

- Outside diameter imperial sizes 6,35 – 25,40 mm
- Outside diameter metric sizes 6,00 – 28,00 mm
- Lengths 6000-6096 mm

Standards

Grade: ASTM A 316L/EN 1.4404/1.4435/1.4432/Duplex

Seamless: ASTM A 269/A 270

Tolerances: ASTM A 269/A 270, ISO 1127 D4/T3

Summary of specifications

- Raw material
 - Seamless tubes
 - Bright annealed
- Surface roughness
 - Ra 0,8µm (30µinch). Other Ra values on request.
- Packing
 - End capped and packed in polyethylene sleeves.

Certificate

CALAMO is certified in accordance with the following systems (quality) ISO 9001, (environment) ISO 14001 and (Occupational Health & Safety) OHSAS 18001.

Manufacturing

- Raw material tubes are purchased from approved suppliers according to CALAMO purchase specifications.
- Every product is individually visually inspected and controlled.
- Ra value is controlled as well as identity and traceability.
- Each product with plastic caps and sealed in polyethylene bags.
- Material certificate is supplied according to EN 10204-3.1.

Features

- CALAMO's unique competence in electropolished (EP) surfaces, design and manufacturing of EP equipment and machines makes CALAMO a world leader in electropolishing as well as other surface requirements.
 - in house raw material stock and receiving inspection.
 - all operations including electropolishing integrated in one location.
 - finished stock of tubular products.
 - daily shipments to all parts of the world.

Size range and stocklist

Nominell lengths 6000 - 6096 mm		PQB Inside electropolished			SQ Surface Quality		
Size range ¹⁾	Weight (Kg/m)	Stock	Ra value	Article number	Stock	Ra value	Article number
6,00 x 1,00 mm	0,124	O	0,4µm	0600040	●	0,8µm	0400036
8,00 x 1,00 mm	0,174	●	0,4µm	0600200	●	0,8µm	0400196
10,00 x 1,00 mm	0,223	●	0,4µm	0600365	●	0,8µm	0400390
12,00 x 1,00 mm	0,273	●	0,4µm	0600445	●	0,8µm	0600470
14,00 x 1,00 mm	0,323	O	0,4µm	0600685	●	0,8µm	0600660
15,00 x 1,00 mm	0,350	O	0,4µm	0600700	●	0,8µm	-
18,00 x 1,50 mm	0,615	O	0,4µm	0600804	●	0,8µm	-
28,00 x 1,50 mm	0,987	O	0,4µm	-	●	0,8µm	-
6,35 x 0,89 mm 1/4 x 0,065"	0,123	O	0,4µm	-	●	0,8µm	0400116
9,53 x 0,89 mm 1/4 x 0,035"	0,195	O	0,4µm	-	●	0,8µm	0400246
12,70 x 1,24 mm 1/2 x 0,049"	0,353	O	0,4µm	0600560	●	0,8µm	0600590
12,70 x 1,65 mm 1/2 x 0,065"	0,453	O	0,4µm	0600600	●	0,8µm	-
15,88 x 1,24 mm 5/8 x 0,049"	0,451	O	0,4µm	0600710	●	0,8µm	-
19,05 x 1,65 mm 3/4 x 0,065"	0,719	O	0,4µm	0600880	●	0,8µm	0600895
25,40 x 1,65 mm 1 x 0,065"	0,974	O	0,4µm	0400196	●	0,8µm	-

¹⁾ Other sizes available on request ²⁾ O-Made to order, ●-Stock standard product