



# PQE ELECTROPOLISHED TUBES AND FITTINGS

## *Stainless steel tube system* for Ultra Clean Gassystems

CALAMO PQE products are suitable for transport of Ultra High Purity Gas Systems in semiconductor and microchip manufacturing using corrosive or hazardous gases. Other examples are high purity oxygen. Tubes and Fittings are electropolished, clean room treated and packed to guarantee a high quality until the final installation.



### Products

Stainless steel tubes, tees, elbows, reducers and caps.

- Outside diameter: 6,00 – 152,40 mm
- Available as coaxial system

### Standard

Steel grade: EN 1.4404/1.4435/1.4432, ASTM 316L

Seamless: EN 10216-5 TC1, ASTM A269/A270, ASME SA213

Welded: EN 10217-7 TC1, ASTM A270/A269, ASME SA 249

Tolerances: ISO 1127 D4/T3, D3/T3, D2/T3, D2/T2, ASTM A269/A270

### Specification

- Raw material
  - Seamless and welded tubes and fittings
  - Bright annealed
- Electropolishing
  - Electropolished inside in accordance with SP3-039/40
- Surface roughness
  - Ra inside 0,25µm (10µinch)
- Cleanroom treated in accordance with SP3-060
  - Class ISO 4/5, FED 209 10/100
  - Rinsing with de-ionized water 18 MΩcm
  - Dried with hot nitrogen gas
  - End capped and protected in double polyethylene bags



### Certificate

CALAMO is certified in accordance with the following system (quality) ISO 9001, (environment) ISO 14001 och (Occupational healthy and safety) OHSAS 18001.

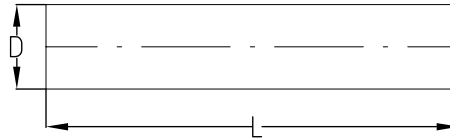
### Manufacturing

- Raw material manufactured only from selected and approved suppliers according to CALAMO specifications.
- Electropolishing processes and machines are developed and built with CALAMO technology.
- Final cleaning with operation inside clean room using 70° C hot de-ionized water. Drying with filtered heated nitrogen.
- Each sleeve is marked with a unique label that can be traced back to the certificate.
- A clean nylon film is placed over each end prior to ends are capped. Finally products are packed in double polyethylene bags.

### Advantages

- CALAMO has a unique quality and service due to an integrated value chain.
  - Receiving inspection and a large raw material stock to safeguard stable deliveries and short project lead time.
  - Electropolishing, cleaning, packing and inspection is conducted in the same facility creating stability in quality and short lead time.
  - Daily deliveries from our stock of finished products.
  - PQE products are end treated and ready for orbital welding.
  - Direct sales from mill for quick service and short response time.

# CALAMO - PQE - TUBE

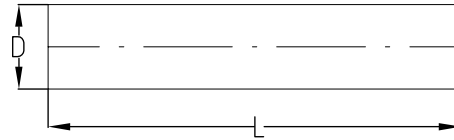


(L) Nominell length 6000 mm

DN	(D) x wall (mm)	Weight (Kg/m)	Pressure <sup>1</sup> (Bar)	Article number	Product name	Execution <sup>2</sup> S/W	Stock <sup>3</sup> O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,123	331	0100118	PQE	S	●
10	9,53 x 0,89 mm 3/8 x 0.035"	0,195	210	0100278	PQE	S	●
15	12,70 x 1,24 mm 1/2 x 0.049"	0,353	221	0100558	PQE	S	●
20	19,05 x 1,65mm 3/4 x 0.065"	0,719	194	0100893	PQE	S	●
25	25,40 x 1,65mm 1 x 0.065"	0,974	182	0101170	PQE	S	●
40	38,1 x 1,65mm 1 1/2 x 0.065"	1,500	93	0131480	PQE	W	●
50	50,8 x 1,65mm 2 x 0.065"	2,030	69	0131680	PQE	W	●
65	63,5 x 1,65mm 2 1/2 x 0.065"	2,500	38	0131780	PQE	W	O
80	76,2 x 1,65mm 3 x 0.065"	3,056	46	0131820	PQE	W	●
100	101,60 x 2,11mm 4 x 0.083"	5,210	31	0132000	PQE	W	●
150	152,4 x 2,77mm 6 x 0.109"	10,287	27	0132055	PQE	W	O

<sup>1</sup>) Maximum operating pressure at maximum 20 C° according to EN 13480-3 <sup>2</sup>) Execution: S = seamless tubes W = manufactured from welded tubes

<sup>3</sup>) O = Made to order, ● = Stock standard product



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(D) x wall (mm)	Weight (Kg/m)	Pressure <sup>1</sup> (Bar)	Article number	Product name	Execution <sup>2</sup> S/W	Stock <sup>3</sup> O / ●
6,00 x 1,00 mm	0,124	462	0100040	PQE	S	●
8,00 x 1,00 mm	0,174	333	0100200	PQE	S	●
10,00 x 1,00 mm	0,223	261	0100360	PQE	S	●
12,00 x 1,00 mm	0,273	214	0100440	PQE	S	●
18,00 x 1,50 mm	0,615	234	0100810	PQE	S	●
28,00 x 1,50 mm	0,987	146	0101321	PQE	S/W	●

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