

2017



TUBES AND FITTINGS
FOR HIGH PURITY GAS SYSTEMS

PQE

Super clean Tubes and Fittings for transport of Ultra High Purity Gases used in semiconductor and microelectronic industry. Other typical applications include high purity oxygen and hazardous gases. The products are capped and packed in double polyethylene bags to guarantee quality from delivery to point of use. *Read more on page 4.*

COLOR OF LABEL: 

CQE

Tubes and Fittings with defined surface roughness for transport of High Purity Gases used in laboratories, calibration instruments and transport of pure oxygen and CFOS. Tubes and Fittings are manufactured, cleaned and packed in controlled processes to guarantee the same quality from delivery to point of use. *Read more on page 20.*

COLOR OF LABEL: 

CQ

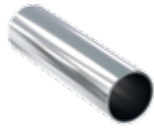
Clean tubes produced for transport of High Purity Gases used in laboratories, calibration instruments and transport of pure oxygen and CFOS. Tubes are manufactured, cleaned and packed in controlled processes to guarantee the same quality from delivery to point of use. *Read more on page 38.*

COLOR OF LABEL: 

CQM

High Purity Tubes and Fittings with guaranteed hydrocarbon content $< 2,5 \text{ mg/m}^2$ in accordance to HB 370 for transport of medical gases in hospitals. Products are cleaned and inspected in controlled processes to guarantee stable and high quality, focusing on patient safety in hospital environment. *Read more on page 42.*

COLOR OF LABEL: 



PAGE 5



PAGE 7



PAGE 9



PAGE 11



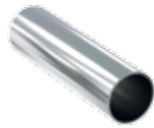
PAGE 13



PAGE 16



PAGE 19



PAGE 21



PAGE 23



PAGE 25



PAGE 27



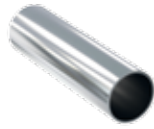
PAGE 29



PAGE 33



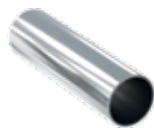
PAGE 36



PAGE 39



PAGE 41



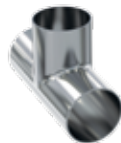
PAGE 43



PAGE 45



PAGE 47



PAGE 49



PAGE 51



PAGE 53



PAGE 55

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.

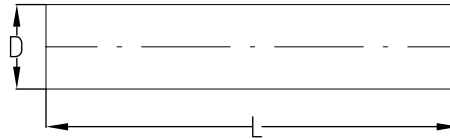
Manufacturing

- 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

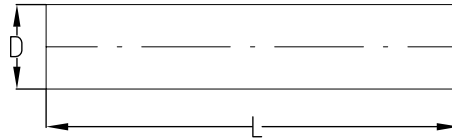


(L) Nominell length 6000 mm

DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ 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

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

³) O = Made to order, ● = Stock standard product



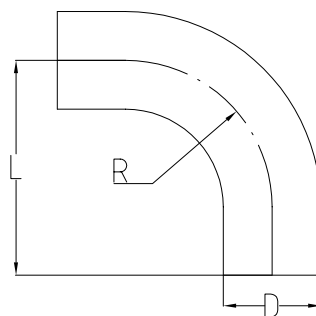
(L) Nominell length 6000 mm

(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ 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	●

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – ELBOW 90°

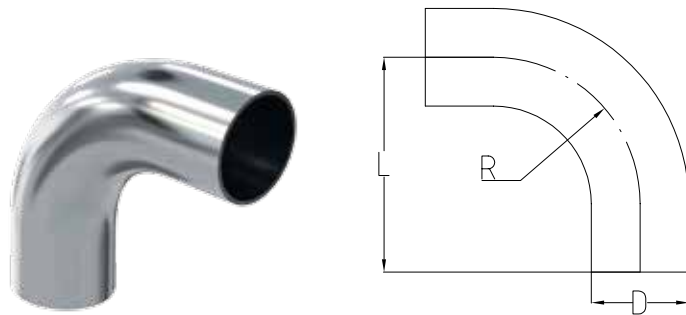


DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,012	299	67	26	1110120	PQE	S	●
10	9,53 x 0,89 mm 3/8 x 0.035"	-	-	-	-	-	PQE	S	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,044	200	76	29	1110560	PQE	S	●
20	19,05 x 1,65 mm 3/4 x 0.065"	0,087	153	76	29	1110880	PQE	S	●
25	25,40x1,65 mm 1 x 0.065"	0,182	113	76	38	1111160	PQE	S	●
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,249	44	95	57	1131480EUS	PQE	W	O
50	50,8 x 1,65 mm 2 x 0.065"	0,424	33	121	76	1131680EUS	PQE	W	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	0,596	31	140	95	1131780NL	PQE	W	O
80	76,2 x 1,65 mm 3 x 0.065"	0,820	25	159	114	1131820EUS	PQE	W	O
100	101,60 x 2,11 mm 4 x 0.083"	1,776	24	203	152	1132000EUS	PQE	W	O
150	152,4 x 2,77 mm 6 x 0.109"	4,998	20	292	229	1132055US	PQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – ELBOW 90°

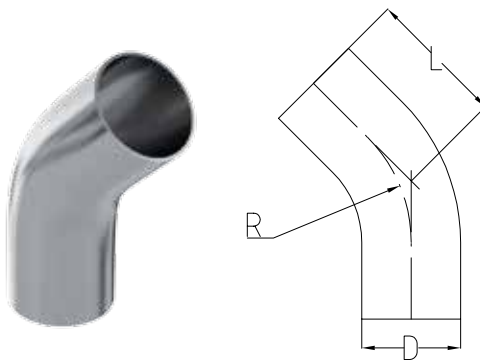


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	-	PQE	S	O
8,00 x 1,00 mm	-	-	-	-	-	PQE	S	O
10,00 x 1,00 mm	-	-	-	-	-	PQE	S	O
12,00 x 1,00 mm	0,025	175	51	26	-	PQE	S	O
18,00 x 1,50 mm	0,056	140	51	26	-	PQE	S	O
28,00 x 1,50mm	0,156	87	90	50	1111320	PQE	S/W	O

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

³⁾ O = Made to order, ● = Stock standard product

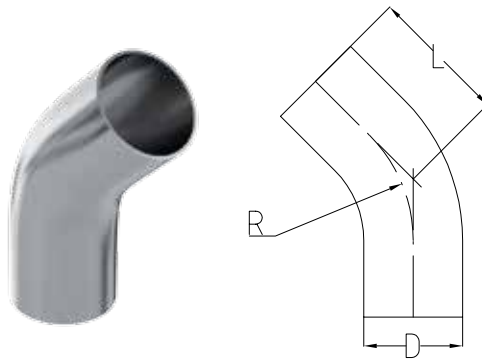
CALAMO - PQE - ELBOW 45°



DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,009	299	51	14	1110120	PQE	S	O
10	9,53 x 0,89 mm 3/8 x 0.035"	0,020	204	51	19	1110280US	PQE	S	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,045	200	57	27	1110560	PQE	S	●
20	19,05 x 1,65 mm 3/4 x 0.065"	0,092	153	57	29	1110880	PQE	S	●
25	25,40x1,65 mm 1 x 0.065"	0,157	113	57	38	1111160	PQE	S	●
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,194	44	64	57	1131480EUS	PQE	W	O
50	50,8 x 1,65 mm 2 x 0.065"	0,312	33	76	76	1131680EUS	PQE	W	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	0,435	33	86	95	1131780NL	PQE	W	O
80	76,2 x 1,65 mm 3 x 0.065"	0,569	27	92	114	1131820EUS	PQE	W	O
100	101,60 x 2,11 mm 4 x 0.083"	1,203	26	114	152	1132000EUS	PQE	W	O
150	152,4 x 2,77 mm 6 x 0.109"	3,318	21	159	229	1132055US	PQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

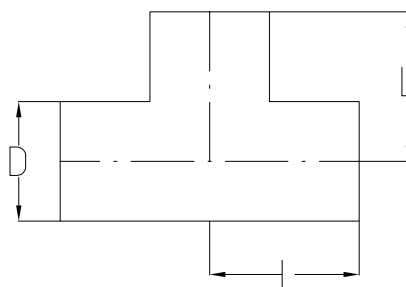


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	-	PQE	S	O
8,00 x 1,00 mm	-	-	-	-	-	PQE	S	O
10,00 x 1,00 mm	-	-	-	-	-	PQE	S	O
12,00 x 1,00 mm	0,019	175	36	26	1110440	PQE	S	O
18,00 x 1,50 mm	0,043	140	36	26	1110800	PQE	S	O
28,00 x 1,50 mm	0,118	87	50	50	1111320	PQE	S	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – EQUAL TEE

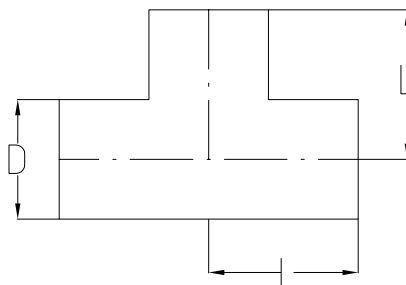


DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,011	215	45	1104120NL	PQE	S	●
10	9,53 x 0,89 mm 3/8 x 0.035"	0,025	123	45	1104280NL	PQE	S	●
15	12,70 x 1,24 mm 1/2 x 0.049"	0,055	131	48	1104560NL	PQE	S	●
20	19,05 x 1,65 mm 3/4 x 0.065"	0,110	111	51	1104880NL	PQE	S	●
25	25,40 x 1,65 mm 1 x 0.065"	0,175	75	54	1105160NL	PQE	S	●
40	38,1 x 1,65 mm 1 1/2 x 0.065"	-	-	-	-	PQE	W	O
50	50,8 x 1,65 mm 2 x 0.065"	0,454	30	73	1135680	PQE	W	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	0,588	22	79	1135780NL	PQE	W	O
80	76,2 x 1,65 mm 3 x 0.065"	0,755	17	86	1135820NL	PQE	W	O
100	101,60 x 2,11 mm 4 x 0.083"	1,423	16	105	1136000NL	PQE	W	O
150	152,4 x 2,77 mm 6 x 0.109"	3,907	14	143	1136025	PQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – EQUAL TEE

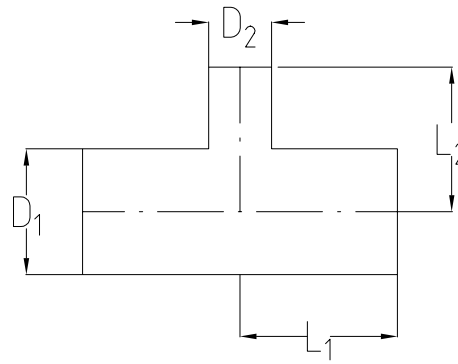


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	0,013	304	30	1104040	PQE	S	●
8,00 x 1,00 mm	0,027	204	30	1104200	PQE	S	●
10,00 x 1,00 mm	0,036	151	30	1104360	PQE	S	O
12,00 x 1,00 mm	0,044	118	35	1104440	PQE	S	●
18,00 x 1,50 mm	0,103	131	35	1104800	PQE	S	●
28,00 x 1,50 mm	0,176	72	50	1105320	PQE	S/W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – UNEQUAL TEE

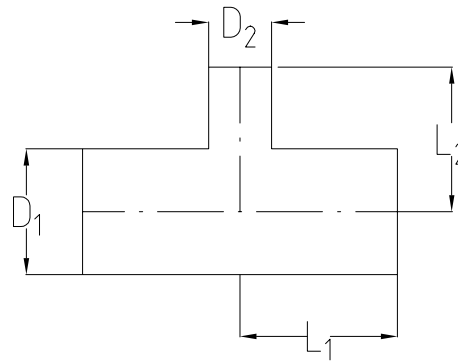


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
10/8	9,53 x 0,89 mm 3/8 x 0.035"	6,35 x 0,89 mm 1/4 x 0.035"	0,022	158	45	45	1104286NL	PQE	S	O
15/8	12,70 x 1,24 mm 1/2 x 0.049"	6,35 x 0,89 mm 1/4 x 0.035"	0,044	163	48	48	1104566NL	PQE	S	●
15/10	12,70 x 1,24 mm 1/2 x 0.049"	9,53 x 0,89 mm 3/8 x 0.035"	0,047	130	48	48	1104568	PQE	S	O
20/8	19,05 x 1,65 mm 3/4 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,083	149	51	51	1104886	PQE	S	O
20/10	19,05 x 1,65 mm 3/4 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,086	123	51	51	1104888	PQE	S	O
20/15	19,05 x 1,65 mm 3/4 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,093	121	51	51	1104890	PQE	S	O
25/8	25,40 x 1,65 mm 1 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,131	115	54	54	1105166	PQE	S	O
25/10	25,40 x 1,65 mm 1 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,135	98	54	64	1105167	PQE	S	O
25/15	25,40 x 1,65 mm 1 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,143	97	54	64	1105168	PQE	S	O
25/20	25,40 x 1,65 mm 1 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,256	91	54	64	1105175	PQE	S	O
40/15	38,1 x 1,65 mm 1 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	-	PQE	W	O
40/20	38,1 x 1,65 mm 1 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	-	PQE	W	O
40/25	38,1 x 1,65 mm 1 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	-	-	-	-	-	PQE	W	O
50/15	50,8 x 1,65 mm 2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	-	PQE	W	O
50/20	50,8 x 1,65 mm 2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	-	PQE	W	O
50/25	50,8 x 1,65 mm 2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	-	-	-	-	-	PQE	W	O
50/40	50,8 x 1,65 mm 2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	-	-	-	-	-	PQE	W	O

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

³ O = Made to order, ● = Stock standard product

CALAMO – PQE – UNEQUAL TEE

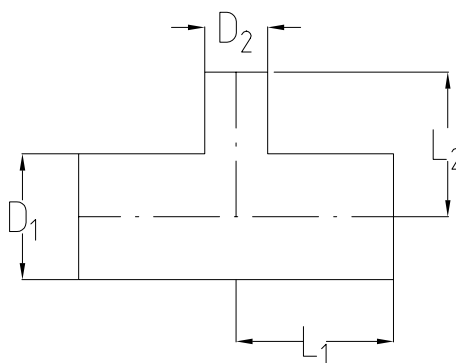


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
65/15	63,5 x 1,65 mm 21/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	-	PQE	W	O
65/20	63,5 x 1,65 mm 21/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	-	PQE	W	O
65/25	63,5 x 1,65 mm 21/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,501	38	73	73	1135785NL	PQE	W	O
65/40	63,5 x 1,65 mm 21/2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	-	-	-	-	-	PQE	W	O
65/50	63,5 x 1,65 mm 21/2 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	-	-	-	-	-	PQE	W	O
80/15	76,2 x 1,65 mm 3 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,601	32	79	79	1135823	PQE	W	O
80/20	76,2 x 1,65 mm 3 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	-	PQE	W	O
80/25	76,2 x 1,65 mm 3 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,636	32	79	79	1135825	PQE	W	O
80/40	76,2 x 1,65 mm 3 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,666	26	79	79	1135826	PQE	W	O
80/50	76,2 x 1,65 mm 3 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,696	22	79	79	1135827NL	PQE	W	O
80/65	76,2 x 1,65 mm 3 x 0.065"	63,5 x 1,65 mm 2 1/2 x 0.065"	-	-	-	-	-	PQE	W	O
100/25	101,60 x 2,11 mm 4 x 0.083"	25,40 x 1,65 mm 1 x 0.065"	1,181	31	92	92	1136010	PQE	W	O
100/40	101,60 x 2,11 mm 4 x 0.083"	38,1 x 1,65 mm 1 1/2 x 0.065"	1,211	26	92	92	1136012	PQE	W	O
100/50	101,60 x 2,11 mm 4 x 0.083"	50,8 x 1,65 mm 2 x 0.065"	1,241	22	98	98	1136018	PQE	W	O
100/65	101,60 x 2,11 mm 4 x 0.083"	63,5 x 1,65 mm 2 1/2 x 0.065"	-	-	-	-	-	PQE	W	O
100/80	101,60 x 2,11 mm 4 x 0.083"	76,2 x 1,65 mm 3 x 0.065"	1,300	17	98	98	1136022	PQE	W	O
150/50	152,4 x 2,77 mm 6 x 0.109"	50,8 x 1,65 mm 2 x 0.065"	-	-	-	-	-	PQE	W	O
150/80	152,4 x 2,77 mm 6 x 0.109"	76,2 x 1,65 mm 3 x 0.065"	-	-	-	-	-	PQE	W	O
150/100	152,4 x 2,77 mm 6 x 0.109"	101,60 x 2,11 mm 4 x 0.083"	3,522	14	130	130	1136050US	PQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – UNEQUAL TEE

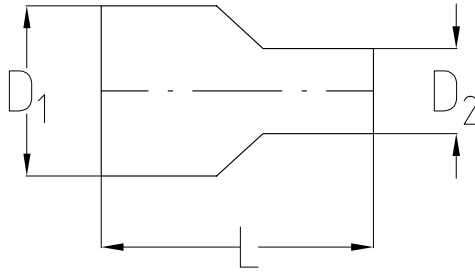


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8,00 x 1,00 mm	6,00 x 1,00 mm	0,025	245	30	30	1104201	PQE	S	O
10,00 x 1,00 mm	6,00 x 1,00 mm	0,031	205	30	30	1104366	PQE	S	O
10,00 x 1,00 mm	8,00 x 1,00 mm	0,033	174	30	30	1304363	PQE	S	●
12,00 x 1,00 mm	6,00 x 1,00 mm	0,037	176	35	35	1104446	PQE	S	●
12,00 x 1,00 mm	8,00 x 1,00 mm	0,039	151	35	35	1104447	PQE	S	O
12,00 x 1,00 mm	10,00 x 1,00 mm	0,042	133	35	35	1104448	PQE	S	O
18,00 x 1,50 mm	6,00 x 1,00 mm	0,079	185	35	35	1104806	PQE	S	●
18,00 x 1,50 mm	8,00 x 1,00 mm	0,081	163	35	35	1104807	PQE	S	O
18,00 x 1,50 mm	10,00 x 1,00 mm	0,084	145	35	35	1104808	PQE	S	O
18,00 x 1,50 mm	12,00 x 1,00 mm	0,086	130	35	35	1104809	PQE	S	●
28,00 x 1,50 mm	12,00 x 1,00 mm	0,140	93	50	50	1105329	PQE	S/W	O
28,00 x 1,50 mm	18,00 x 1,50 mm	0,157	95	50	50	1105332	PQE	S/W	●

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – PQE – CONCENTRIC REDUCER

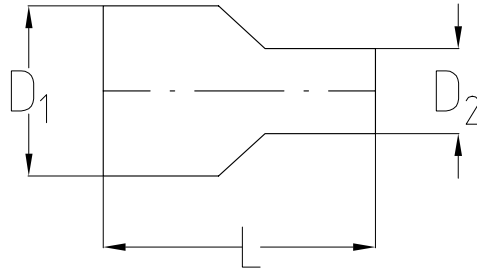


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
10/8	9,53 x 0,89 mm 3/8 x 0.035"	6,35 x 0,89 mm 1/4 x 0.035"	0,050	-	76	1107280	PQE	B	●
15/8	12,70 x 1,24 mm 1/2 x 0.049"	6,35 x 0,89 mm 1/4 x 0.035"	0,050	-	76	1107560	PQE	B	●
15/10	12,70 x 1,24 mm 1/2 x 0.049"	9,53 x 0,89 mm 3/8 x 0.035"	0,050	-	76	1107562	PQE	B	O
20/8	19,05 x 1,65 mm 3/4 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,075	-	76	1107881	PQE	B	O
20/10	19,05 x 1,65 mm 3/4 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,075	-	76	1107893	PQE	B	O
20/15	19,05 x 1,65 mm 3/4 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,075	-	76	1107883	PQE	B	●
25/8	25,40 x 1,65 mm 1 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,100	-	76	1108160	PQE	B	O
25/10	25,40 x 1,65 mm 1 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,100	-	76	1108161	PQE	B	O
25/15	25,40 x 1,65 mm 1 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,100	-	76	1108163	PQE	B	●
25/20	25,40 x 1,65 mm 1 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,100	-	76	1108168	PQE	B	●
40/15	38,1 x 1,65 mm 1 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,125	-	76	1108482	PQE	B	O
40/20	38,1 x 1,65 mm 1 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,125	-	76	1108485	PQE	B	O
40/25	38,1 x 1,65 mm 1 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,125	-	89	1108487	PQE	B	O
50/15	50,8 x 1,65 mm 2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,300	-	89	1108680	PQE	B	O
50/20	50,8 x 1,65 mm 2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,300	-	89	1108685	PQE	B	O
50/25	50,8 x 1,65 mm 2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,300	-	102	1108688	PQE	B	O
50/40	50,8 x 1,65 mm 2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,300	-	102	1108690	PQE	B	O

¹ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ² B = manufactured from solid bar, P = pressed plate

³ O = Made to order, ● = Stock standard product

CALAMO – PQE – CONCENTRIC REDUCER

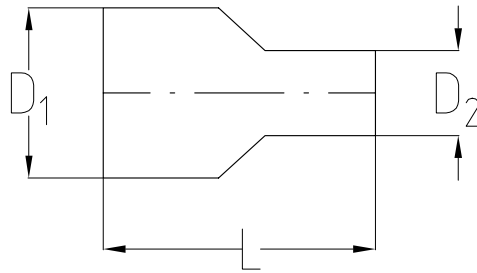


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
65/15	63,5 x 1,65 mm 2 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	PQE	B	O
65/20	63,5 x 1,65 mm 2 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	PQE	B	O
65/25	63,5 x 1,65 mm 2 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,500	-	102	1108812	PQE	B	O
65/40	63,5 x 1,65 mm 2 1/2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	-	-	-	-	PQE	B	O
65/50	63,5 x 1,65 mm 2 1/2 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,500	-	102	1108816	PQE	B	O
80/15	76,2 x 1,65 mm 3 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,750	-	102	1108822	PQE	B	O
80/20	76,2 x 1,65 mm 3 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,750	-	102	1108824	PQE	B	O
80/25	76,2 x 1,65 mm 3 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,750	-	102	1108825	PQE	B	O
80/40	76,2 x 1,65 mm 3 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,750	-	102	1108826	PQE	B	O
80/50	76,2 x 1,65 mm 3 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,750	-	102	1108832	PQE	B	O
80/65	76,2 x 1,65 mm 3 x 0.065"	63,5 x 1,65 mm 2 1/2 x 0.065"	0,750	-	102	1108836	PQE	B	O
100/25	101,60 x 2,11 mm 4 x 0.083"	25,40 x 1,65 mm 1 x 0.065"	0,890	-	102	1109006	PQE	B	O
100/40	101,60 x 2,11 mm 4 x 0.083"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,890	-	102	1109009	PQE	B	O
100/50	101,60 x 2,11 mm 4 x 0.083"	50,8 x 1,65 mm 2 x 0.065"	0,890	-	102	1109013	PQE	B	O
100/65	101,60 x 2,11 mm 4 x 0.083"	63,5 x 1,65 mm 2 1/2 x 0.065"	-	-	-	-	PQE	B	O
100/80	101,60 x 2,11 mm 4 x 0.083"	76,2 x 1,65 mm 3 x 0.065"	0,890	-	102	1109033	PQE	B	O
150/50	152,4 x 2,77 mm 6 x 0.109"	50,8 x 1,65 mm 2 x 0.065"	1,200	-	127	1109045	PQE	B	O
150/80	152,4 x 2,77 mm 6 x 0.109"	76,2 x 1,65 mm 3 x 0.065"	-	-	-	-	PQE	B	O
150/100	152,4 x 2,77 mm 6 x 0.109"	101,60 x 2,11 mm 4 x 0.083"	1,200	-	127	1109050	PQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

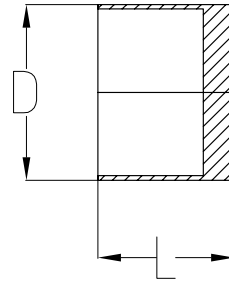
CALAMO – PQE – CONCENTRIC REDUCER



(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
8,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	PQE	B	O
10,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	PQE	B	O
10,00 x 1,00 mm	8,00 x 1,00 mm	-	-	-	-	PQE	B	O
12,00 x 1,00 mm	6,00 x 1,00 mm	0,050	176	75	1107442	PQE	B	●
12,00 x 1,00 mm	8,00 x 1,00 mm	0,050	-	75	1107450	PQE	B	O
12,00 x 1,00 mm	10,00 x 1,00 mm	0,050	-	75	1107452	PQE	B	O
18,00 x 1,50 mm	6,00 x 1,00 mm	-	-	-	-	PQE	B	O
18,00 x 1,50 mm	8,00 x 1,00 mm	-	-	-	-	PQE	B	O
18,00 x 1,50 mm	10,00 x 1,00 mm	-	-	-	-	PQE	B	O
18,00 x 1,50 mm	12,00 x 1,00 mm	0,100	119	75	1107806	PQE	B	●
28,00x 1,50 mm	12,00 x 1,00 mm	0,100	-	75	1108323	PQE	B	O
28,00 x 1,50 mm	18,00 x 1,00 mm	0,100	-	75	1108325	PQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product



DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,050	-	35	1109121	PQE	B	O
10	9,53 x 0,89 mm 3/8 x 0.035"	0,050	-	35	1109280	PQE	B	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,050	-	35	1109566	PQE	B	O
20	19,05 x 1,65 mm 3/4 x 0.065"	0,150	-	38	1109609	PQE	B	O
25	25,40 x 1,65 mm 1 x 0.065"	0,150	-	38	1109640	PQE	B	O
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,400	-	38	1109721	PQE	B	O
50	50,8 x 1,65 mm 2 x 0.065"	0,400	-	38	1109761	PQE	B	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	1,000	-	38	1109780	PQE	B	O
80	76,2 x 1,65 mm 3 x 0.065"	1,500	-	38	1109800	PQE	B	O
100	101,60 x 2,11 mm 4 x 0.083"	2,500	-	38	1109900	PQE	B	O
150	152,4 x 2,77 mm 6 x 0.109"	-	-	-	-	PQE	B	O

(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	PQE	B	O
8,00 x 1,00 mm	-	-	-	-	PQE	B	O
10,00 x 1,00 mm	-	-	-	-	PQE	B	O
12,00 x 1,00 mm	-	-	-	-	PQE	B	O
18,00 x 1,50 mm	-	-	-	-	PQE	B	O
28,00 x 1,50 mm	-	-	-	-	PQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

CQE CLEAN TUBES AND FITTINGS

Stainless steel tube system for High Purity Gas Systems

Calamo stainless steel tube system CQE is manufactured for transporting high purity gases for laboratories, calibration gases or transport of oxygen. The manufacturing process is very controlled to guarantee a stable quality from gas source to point of use.



Products

Stainless steel tubes, tees, elbows and reducers.

- Outside diameter: 6,00 – 152,40 mm

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

- Manufactured in accordance with SP3-007
- Inside surface roughness Ra 0,4 - 0,6 µm



Certificate

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

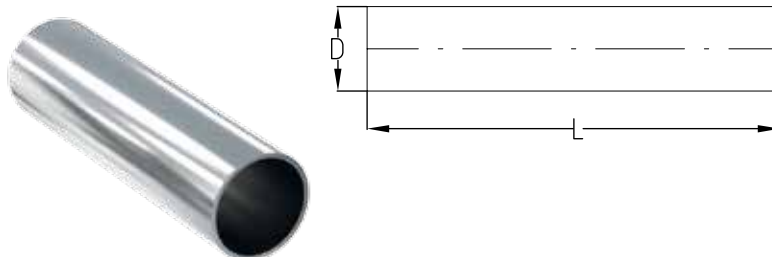
Manufacturing

- Cleanliness achieved through advanced surface treatment and packing technique.
- Final rinsing always using deionized water.
- Tubes are dried with nitrogen from cryo tank.
- Individual surface control of cleanliness and surfaces.
- CQE-products are sealed with polyethylene caps and packed in seals polyethylene sleeve.

Advantages

- Tubes and Fittings are cleaned to transport high purity gases without interference with the process.
- High purity tubes and fittings are protected from contamination.
- Products have full traceability from steel customer to melt. Material certificate according to EN 10204 3.1.
- Each sleeve is marked with a unique label that can be traced back to the certificate.
- The products fulfill the requirements according to PED 97/23/EC and AFS 1999:4.
- A large stock of finished tubes and fittings safeguard short lead times and quick installations.
- CQE is prepared for orbital welding.
- CQE tubes with OD below 6-18 mm can be bent on-site with same cleanliness and durability.
- A large stock of finished tubes and fittings guarantee high service and short lead times.

CALAMO - CQE - TUBE

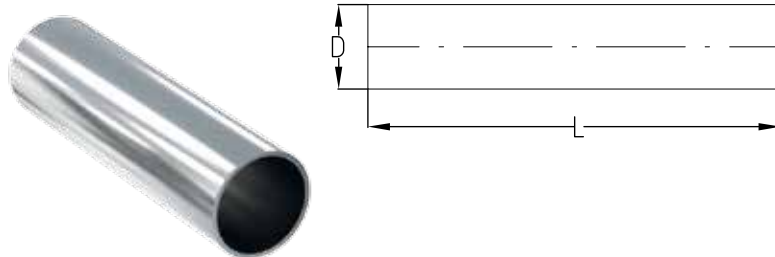


(L) Nominell length 6000 mm

DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,123	331	0300112	CQE	S	●
10	9,53 x 0,89 mm 3/8 x 0.035"	0,195	210	0300280	CQE	S	●
15	12,70 x 1,24 mm 1/2 x 0.049"	0,353	221	0300560	CQE	S	●
20	19,05 x 1,65mm 3/4 x 0.065"	0,719	194	0300880	CQE	S	●
25	25,40 x 1,65mm 1 x 0.065"	0,974	182	0301160	CQE	S	●
40	38,1 x 1,65mm 1 1/2 x 0.065"	1,500	93	0331480	CQE	W	O
50	50,8 x 1,65mm 2 x 0.065"	2,030	69	0331680	CQE	W	O
65	63,5 x 1,65mm 2 1/2 x 0.065"	-	-	-	CQE	W	O
80	76,2 x 1,65mm 3 x 0.065"	3,056	46	0331820	CQE	W	O
100	101,60 x 2,11mm 4 x 0.083"	5,210	31	0332000	CQE	W	O
150	152,4 x 2,77mm 6 x 0.109"	-	-	-	CQE	W	O

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

³) O = Made to order, ● = Stock standard product



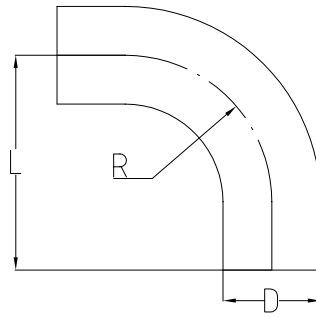
(L) Nominell length 6000 mm

(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	0,124	462	0300040	CQE	S	●
8,00 x 1,00 mm	0,174	333	0300200	CQE	S	●
10,00 x 1,00 mm	0,223	261	0300360	CQE	S	●
12,00 x 1,00 mm	0,273	214	0300440	CQE	S	●
15,00 x 1,00 mm	0,350	125	0300700	CQE	S	●
18,00 x 1,50 mm	0,615	234	0300810SW	CQE	S	●
22,00 x 1,50 mm	0,769	157	0300970	CQE	S	●
28,00 x 1,50 mm	0,987	146	0301321SW	CQE	S	●

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – ELBOW 90°

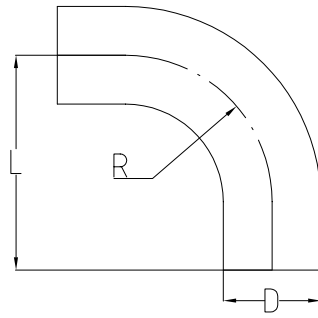


DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,012	299	67	14	1310120US	CQE	S	O
10	9,53 x 0,89 mm 3/8 x 0.035"	0,025	204	67	29	1310280	CQE	S	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,044	200	76	27	1310560	CQE	S	O
20	19,05 x 1,65 mm 3/4 x 0.065"	0,087	153	76	29	1310880	CQE	S	O
25	25,40 x 1,65 mm 1 x 0.065"	0,182	113	76	38	1311160	CQE	S	O
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,249	44	95	57	1331480RB	CQE	W	O
50	50,8 x 1,65 mm 2 x 0.065"	0,424	33	121	76	1331680RB	CQE	W	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	0,596	31	140	95	1331780NL	CQE	W	O
80	76,2 x 1,65 mm 3 x 0.065"	0,820	25	159	114	1331820NL	CQE	W	O
100	101,60 x 2,11 mm 4 x 0.083"	1,776	24	203	152	1332000NL	CQE	W	O
150	152,4 x 2,77 mm 6 x 0.109"	4,998	20	292	229	1332055NL	CQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

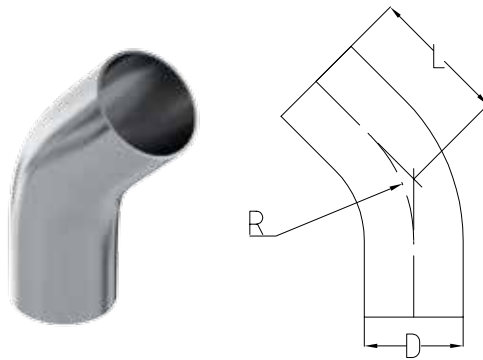
CALAMO – CQE – ELBOW 90°



(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
8,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
10,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
12,00 x 1,00 mm	0,025	175	51	26	1310440	CQE	S	O
15,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
18,00 x 1,50 mm	0,056	140	51	26	1310800	CQE	S	●
22,00 x 1,50 mm	-	-	-	-	-	CQE	S	O
28,00 x 1,50 mm	0,156	87	90	50	1311320	CQE	S	●

¹) Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²) Execution: S = seamless tubes W = manufactured from welded tubes
³) O = Made to order, ● = Stock standard product

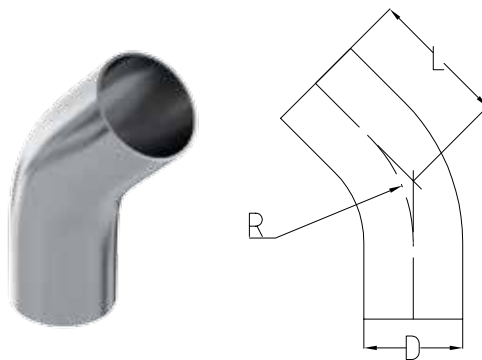
CALAMO - CQE - ELBOW 45°



DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,009	299	51	14	1310121US	CQE	S	O
10	9,53 x 0,89 mm 3/8 x 0.035"	-	-	-	-	-	CQE	S	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,045	200	57	27	1310561	CQE	S	O
20	19,05 x 1,65 mm 3/4 x 0.065"	0,092	153	57	29	1310881	CQE	S	O
25	25,40x1,65 mm 1 x 0.065"	0,157	113	57	38	1311161	CQE	S	O
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,194	44	64	57	1331481RB	CQE	W	O
50	50,8 x 1,65 mm 2 x 0.065"	0,312	33	76	76	1331681RB	CQE	W	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	0,435	33	86	95	1331781NL	CQE	W	O
80	76,2 x 1,65 mm 3 x 0.065"	0,569	27	92	114	1331822NL	CQE	W	O
100	101,60 x 2,11 mm 4 x 0.083"	1,203	26	114	152	1332002NL	CQE	W	O
150	152,4 x 2,77 mm 6 x 0.109"	3,318	21	159	229	1332056NL	CQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

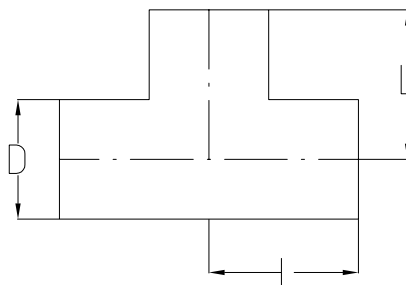


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
8,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
10,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
12,00 x 1,00 mm	-	-	-	-	-	CQE	S	O
18,00 x 1,50 mm	-	-	-	-	-	CQE	S	O
28,00 x 1,50 mm	-	-	-	-	-	CQE	S	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – EQUAL TEE

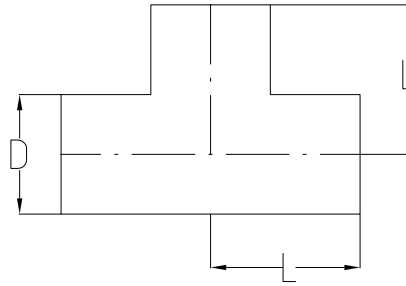


DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,011	215	45	1304120NL	CQE	S	O
10	9,53 x 0,89 mm 3/8 x 0.035"	0,025	123	45	1304280NL	CQE	S	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,055	131	48	1304560NL	CQE	S	O
20	19,05 x 1,65 mm 3/4 x 0.065"	0,110	111	51	1304880NL	CQE	S	O
25	25,40 x 1,65 mm 1 x 0.065"	0,175	75	54	1305160NL	CQE	S	O
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,282	44	60	1335480	CQE	W	O
50	50,8 x 1,65 mm 2 x 0.065"	0,454	30	73	1305680NL	CQE	W	O
65	63,5 x 1,65 mm 2 1/2 x 0.065"	0,588	22	79	1335780NL	CQE	W	O
80	76,2 x 1,65 mm 3 x 0.065"	0,755	17	86	1335820NL	CQE	W	O
100	101,60 x 2,11 mm 4 x 0.083"	1,423	16	105	1336000NL	CQE	W	O
150	152,4 x 2,77 mm 6 x 0.109"	3,907	14	143	1336100NL	CQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – EQUAL TEE

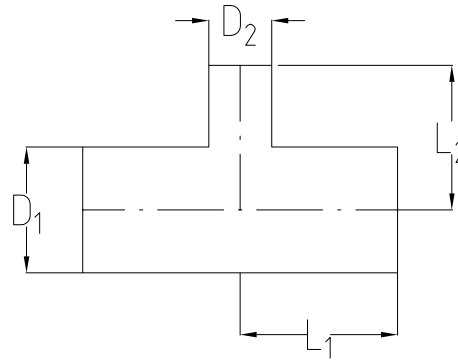


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	0,013	304	30	1304040	CQE	S	●
8,00 x 1,00 mm	0,027	204	30	1304200	CQE	S	●
10,00 x 1,00 mm	0,036	151	30	1304360	CQE	S	●
12,00 x 1,00 mm	0,044	118	35	1304440	CQE	S	●
15,00 x 1,00 mm	0,058	59	35	1304690	CQE	S	O
18,00 x 1,50 mm	0,103	131	35	1304800	CQE	S	●
22,00 x 1,50 mm	0,132	79	40	1304975	CQE	S	O
28,00 x 1,50 mm	0,176	72	50	1305320	CQE	S	●

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

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CALAMO – CQE – UNEQUAL TEE

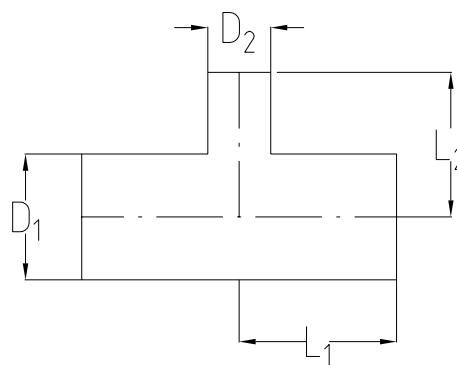


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
10/8	9,53 x 0,89 mm 3/8 x 0.035"	6,35 x 0,89 mm 1/4 x 0.035"	0,222	158	45	45	1304281US	CQE	S	O
15/8	12,70 x 1,24 mm 1/2 x 0.049"	6,35 x 0,89 mm 1/4 x 0.035"	0,044	163	48	48	1304561	CQE	S	O
15/10	12,70 x 1,24 mm 1/2 x 0.049"	9,53 x 0,89 mm 3/8 x 0.035"	0,047	130	48	48	1304562	CQE	S	O
20/8	19,05 x 1,65 mm 3/4 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,083	149	51	51	1304881NL	CQE	S	O
20/10	19,05 x 1,65 mm 3/4 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,086	123	51	51	1304882US	CQE	S	O
20/15	19,05 x 1,65 mm 3/4 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,093	121	51	51	1304883	CQE	S	O
25/8	25,40 x 1,65 mm 1 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,131	115	54	54	1305161	CQE	S	O
25/10	25,40 x 1,65 mm 1 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,131	98	54	54	1304882US	CQE	S	O
25/15	25,40 x 1,65 mm 1 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,135	97	54	54	1304883	CQE	S	O
25/20	25,40 x 1,65 mm 1 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,256	91	54	54	1305166	CQE	S	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – UNEQUAL TEE

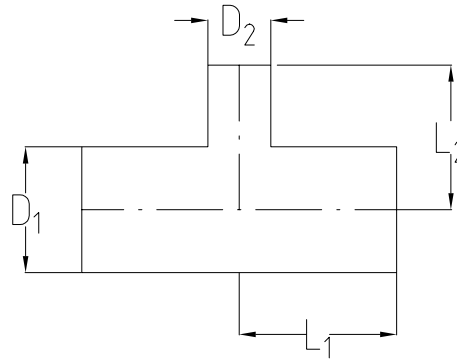


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
40/15	38,1 x 1,65 mm 1 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	-	CQE	W	O
40/20	38,1 x 1,65 mm 1 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	-	CQE	W	O
40/25	38,1 x 1,65 mm 1 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	-	-	-	-	-	CQE	W	O
50/15	50,8 x 1,65 mm 2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	-	CQE	W	O
50/20	50,8 x 1,65 mm 2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	-	CQE	W	O
50/25	50,8 x 1,65 mm 2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	-	-	-	-	-	CQE	W	O
50/40	50,8 x 1,65 mm 2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	-	-	-	-	-	CQE	W	O
65/15	63,5 x 1,65 mm 2 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	-	CQE	W	O
65/20	63,5 x 1,65 mm 2 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,486	38	73	73	1335796	CQE	W	O
65/25	63,5 x 1,65 mm 2 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,501	38	73	73	1335801	CQE	W	O
65/40	63,5 x 1,65 mm 2 1/2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,531	30	73	73	1335804	CQE	W	O
65/50	63,5 x 1,65 mm 2 1/2 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,723	25	73	73	1335807	CQE	W	O
80/15	76,2 x 1,65 mm 3 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,601	32	79	79	1335823NL	CQE	W	O
80/20	76,2 x 1,65 mm 3 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,622	32	79	79	1335824NL	CQE	W	O
80/25	76,2 x 1,65 mm 3 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,636	32	79	79	1335825	CQE	W	O
80/40	76,2 x 1,65 mm 3 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,666	26	79	79	1335826	CQE	W	O
80/50	76,2 x 1,65 mm 3 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,696	22	79	79	1335827NL	CQE	W	O
80/65	76,2 x 1,65 mm 3 x 0.065"	63,5 x 1,65 mm 2 1/2 x 0.065"	0,723	19	79	79	1335839	CQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – UNEQUAL TEE

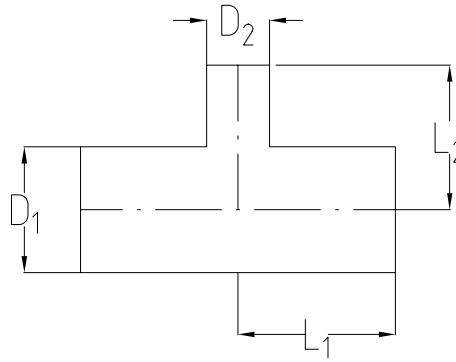


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
100/25	101,60 x 2,11 mm 4 x 0.083"	25,40 x 1,65 mm 1 x 0.065"	1,181	31	108	108	1336011NL	CQE	W	O
100/40	101,60 x 2,11 mm 4 x 0.083"	38,1 x 1,65 mm 1 1/2 x 0.065"	1,211	26	108	108	1336014NL	CQE	W	O
100/50	101,60 x 2,11 mm 4 x 0.083"	50,8 x 1,65 mm 2 x 0.065"	1,241	22	108	108	1336018NL	CQE	W	O
100/65	101,60 x 2,11 mm 4 x 0.083"	63,5 x 1,65 mm 2 1/2 x 0.065"	-	-	-	-	-	CQE	W	O
100/80	101,60 x 2,11 mm 4 x 0.083"	76,2 x 1,65 mm 3 x 0.065"	1,300	17	108	108	1336022NL	CQE	W	O
150/50	152,4 x 2,77 mm 6 x 0.109"	50,8 x 1,65 mm 2 x 0.065"	3,281	21	152	152	1336124NL	CQE	W	O
150/80	152,4 x 2,77 mm 6 x 0.109"	76,2 x 1,65 mm 3 x 0.065"	-	-	-	-	-	CQE	W	O
150/100	152,4 x 2,77 mm 6 x 0.109"	101,60 x 2,11 mm 4 x 0.083"	3,522	14	152	152	1336130NL	CQE	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – UNEQUAL TEE

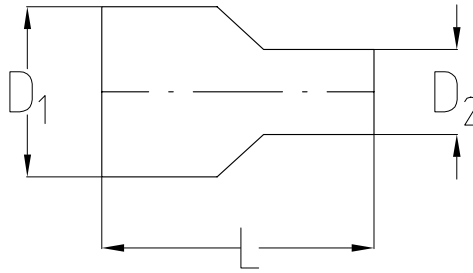


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8,00 x 1,00 mm	6,00 x 1,00 mm	0,025	245	30	30	1304201	CQE	S	O
10,00 x 1,00 mm	6,00 x 1,00 mm	0,031	205	30	30	1304361	CQE	S	O
10,00 x 1,00 mm	8,00 x 1,00 mm	0,033	174	30	30	1304363	CQE	S	●
12,00 x 1,00 mm	6,00 x 1,00 mm	0,037	176	35	35	1304441	CQE	S	●
12,00 x 1,00 mm	8,00 x 1,00 mm	0,039	151	35	35	1304442	CQE	S	●
12,00 x 1,00 mm	10,00 x 1,00 mm	0,042	133	35	35	1304443	CQE	S	●
18,00 x 1,50 mm	6,00 x 1,00 mm	0,079	185	35	35	1304801	CQE	S	●
18,00 x 1,50 mm	8,00 x 1,00 mm	0,081	163	35	35	1304802	CQE	S	O
18,00 x 1,50 mm	10,00 x 1,00 mm	0,084	145	35	35	1304803	CQE	S	O
18,00 x 1,50 mm	12,00 x 1,00 mm	0,086	130	35	35	1304804	CQE	S	●
28,00 x 1,50 mm	12,00 x 1,00 mm	0,140	93	64	64	1305323	CQE	S	O
28,00 x 1,50 mm	18,00 x 1,50 mm	0,157	95	64	64	1305327	CQE	S	●

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – CONCENTRIC REDUCER

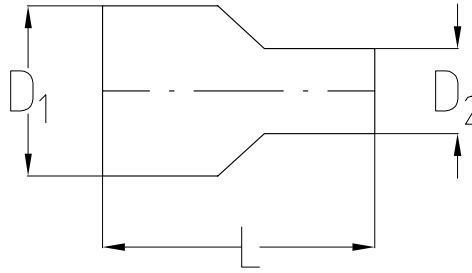


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
10/8	9,53 x 0,89 mm 3/8 x 0.035"	6,35 x 0,89 mm 1/4 x 0.035"	0,050	-	76	1307281	CQE	B	O
15/8	12,70 x 1,24 mm 1/2 x 0.049"	6,35 x 0,89 mm 1/4 x 0.035"	0,050	-	76	1307560	CQE	B	O
15/10	12,70 x 1,24 mm 1/2 x 0.049"	9,53 x 0,89 mm 3/8 x 0.035"	0,050	-	76	1307561	CQE	B	O
20/8	19,05 x 1,65 mm 3/4 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,075	-	76	1307881	CQE	B	O
20/10	19,05 x 1,65 mm 3/4 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,075	-	76	1307882	CQE	B	O
20/15	19,05 x 1,65 mm 3/4 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,075	-	76	1307883	CQE	B	O
25/8	25,40 x 1,65 mm 1 x 0.065"	6,35 x 0,89 mm 1/4 x 0.035"	0,100	-	76	1308160	CQE	B	O
25/10	25,40 x 1,65 mm 1 x 0.065"	9,53 x 0,89 mm 3/8 x 0.035"	0,100	-	76	1308161	CQE	B	O
25/15	25,40 x 1,65 mm 1 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,100	-	76	1308163	CQE	B	O
25/20	25,40 x 1,65 mm 1 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,100	-	76	1308168	CQE	B	O
40/15	38,1 x 1,65 mm 1 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,125	-	76	1308484	CQE	B	O
40/20	38,1 x 1,65 mm 1 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,125	-	76	1308485	CQE	B	O
40/25	38,1 x 1,65 mm 1 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,125	-	89	1308486	CQE	B	O
50/15	50,8 x 1,65 mm 2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	0,300	-	89	1309681	CQE	B	O
50/20	50,8 x 1,65 mm 2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,300	-	89	1309685	CQE	B	O
50/25	50,8 x 1,65 mm 2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,300	-	102	1309687	CQE	B	O
50/40	50,8 x 1,65 mm 2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,300	-	102	1309689	CQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – CONCENTRIC REDUCER

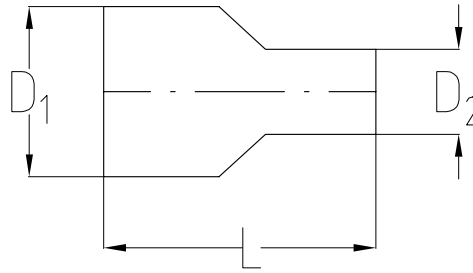


DN	(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
65/15	63,5 x 1,65 mm 2 1/2 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	CQE	B	O
65/20	63,5 x 1,65 mm 2 1/2 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	-	-	-	-	CQE	B	O
65/25	63,5 x 1,65 mm 2 1/2 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,500	-	102	1309810	CQE	B	O
65/40	63,5 x 1,65 mm 2 1/2 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,500	-	102	1309814	CQE	B	O
65/50	63,5 x 1,65 mm 2 1/2 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,500	-	102	1309816	CQE	B	O
80/15	76,2 x 1,65 mm 3 x 0.065"	12,70 x 1,24 mm 1/2 x 0.049"	-	-	-	-	CQE	B	O
80/20	76,2 x 1,65 mm 3 x 0.065"	19,05 x 1,65 mm 3/4 x 0.065"	0,750	-	102	1309821	CQE	B	O
80/25	76,2 x 1,65 mm 3 x 0.065"	25,40 x 1,65 mm 1 x 0.065"	0,750	-	102	1309822	CQE	B	O
80/40	76,2 x 1,65 mm 3 x 0.065"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,750	-	102	1309823	CQE	B	O
80/50	76,2 x 1,65 mm 3 x 0.065"	50,8 x 1,65 mm 2 x 0.065"	0,750	-	102	1309824	CQE	B	O
80/65	76,2 x 1,65 mm 3 x 0.065"	63,5 x 1,65 mm 2 1/2 x 0.065"	0,750	-	102	1309827	CQE	B	O
100/25	101,60 x 2,11 mm 4 x 0.083"	25,40 x 1,65 mm 1 x 0.065"	0,890	-	102	1309910	CQE	B	O
100/40	101,60 x 2,11 mm 4 x 0.083"	38,1 x 1,65 mm 1 1/2 x 0.065"	0,890	-	102	1309912	CQE	B	O
100/50	101,60 x 2,11 mm 4 x 0.083"	50,8 x 1,65 mm 2 x 0.065"	0,890	-	102	1309913	CQE	B	O
100/65	101,60 x 2,11 mm 4 x 0.083"	63,5 x 1,65 mm 2 1/2 x 0.065"	-	-	-	-	CQE	B	O
100/80	101,60 x 2,11 mm 4 x 0.083"	76,2 x 1,65 mm 3 x 0.065"	0,890	-	102	1309917	CQE	B	O
150/50	152,4 x 2,77 mm 6 x 0.109"	50,8 x 1,65 mm 2 x 0.065"	1,200	-	127	1309940	CQE	B	O
150/80	152,4 x 2,77 mm 6 x 0.109"	76,2 x 1,65 mm 3 x 0.065"	-	-	-	-	CQE	B	O
150/100	152,4 x 2,77 mm 6 x 0.109"	101,60 x 2,11 mm 4 x 0.083"	1,200	-	127	1309946	CQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQE – CONCENTRIC REDUCER

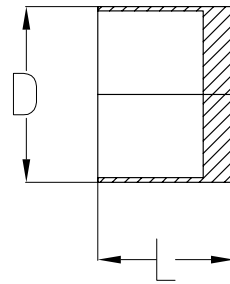


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
8,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	CQE	B	O
10,00 x 1,00 mm	6,00 x 1,00 mm	0,050	221	75	1307340	CQE	B	O
10,00 x 1,00 mm	8,00 x 1,00 mm	0,050	-	75	1307360	CQE	B	O
12,00 x 1,00 mm	6,00 x 1,00 mm	0,050	176	75	1307439	CQE	B	●
12,00 x 1,00 mm	8,00 x 1,00 mm	0,050	-	75	1307442	CQE	B	O
12,00 x 1,00 mm	10,00 x 1,00 mm	0,050	-	75	1307445	CQE	B	O
15,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	CQE	B	O
15,00 x 1,00 mm	10,00 x 1,00 mm	0,050	-	75	1307720	CQE	B	O
15,00 x 1,00 mm	12,00 x 1,00 mm	0,050	-	75	1307722	CQE	B	O
18,00 x 1,50 mm	6,00 x 1,00 mm	0,100	107	75	1307801	CQE	B	O
18,00 x 1,50 mm	8,00 x 1,00 mm	-	-	-	-	CQE	B	O
18,00 x 1,50 mm	10,00 x 1,00 mm	0,100	-	75	1307803	CQE	B	O
18,00 x 1,50 mm	15,00 x 1,00 mm	0,100	119	75	1307810	CQE	B	O
22,00 x 1,50 mm	12,00 x 1,00 mm	-	-	-	-	CQE	B	O
22,00 x 1,50 mm	15,00 x 1,00 mm	0,100	-	75	1307990	CQE	B	O
22,00 x 1,50 mm	18,00 x 1,50 mm	0,100	-	75	1307994	CQE	B	O
28,00 x 1,50 mm	12,00 x 1,00 mm	0,100	61	75	1308324	CQE	B	●
28,00 x 1,50 mm	18,00 x 1,50 mm	0,100	104	75	1308327	CQE	B	●
35,00 x 1,50 mm	15,00 x 1,00 mm	0,100	-	75	1308442	CQE	B	O
35,00 x 1,50 mm	18,00 x 1,50 mm	0,100	-	90	1308443	CQE	B	O
35,00 x 1,50 mm	22,00 x 1,50 mm	0,100	-	90	1308447	CQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

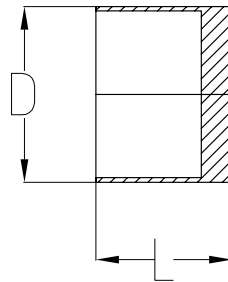
CALAMO – CQE – END CAP



DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,050	-	6	1309950	CQE	B	O
10	9,53 x 0,89 mm 3/8 x 0.035"	0,050	-	6	1309952	CQE	B	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,050	-	6	1309955	CQE	B	O
20	19,05 x 1,65 mm 3/4 x 0.065"	0,150	-	8	1309958	CQE	B	O
25	25,40 x 1,65 mm 1 x 0.065"	0,150	-	8	1309961	CQE	B	O
40	38,1 x 1,65 mm 1 1/2 x 0.065"	0,400	-	11	1309969	CQE	B	O
50	50,8 x 1,65 mm 2 x 0.065"	0,400	-	11	1309975	CQE	B	O
65	63,5 x 1,65mm 2 1/2 x 0.065"	-	-	-	-	CQE	B	O
80	76,2 x 1,65mm 3 x 0.065"	1,500	-	11	1309980	CQE	B	O
100	101,60 x 2,11 mm 4 x 0.083"	2,500	-	13	1309985	CQE	B	O
150	152,4 x 2,77 mm 6 x 0.109"	5,500	-	30	1309991	CQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product



(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	CQE	B	O
8,00 x 1,00 mm	-	-	-	-	CQE	B	O
10,00 x 1,00 mm	-	-	-	-	CQE	B	O
12,00 x 1,00 mm	-	-	-	-	CQE	B	O
18,00 x 1,50 mm	-	-	-	-	CQE	B	O
28,00 x 1,50 mm	-	-	-	-	CQE	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

CQ CLEAN TUBES

Stainless steel tube system for High Purity Gas Systems

Calamo stainless steel tube system CQ is manufactured for transporting high purity gases for laboratories, calibration gases or transport of oxygen. The manufacturing process is very controlled to guarantee a stable quality from gas source to point of use.



Products

Stainless steel tubes

- Outside diameter: 6,00 – 152,40 mm

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

- Manufactured in accordance with SP3-007
- Option: Surface roughness



Certificate

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

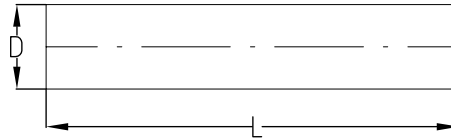
Manufacturing

- Cleanliness achieved through advanced surface treatment and packing technique.
- Final rinsing always using deionized water.
- Tubes are dried with nitrogen from cryo tank.
- Individual surface control of cleanliness and surfaces.
- CQ-products are sealed with polyethylene caps and packed in seals polyethylene sleeve.

Advantages

- Tubes are cleaned to transport high purity gases without interference with the process.
- High purity tubes are protected from contamination.
- Products have full traceability from steel melt to customer. Material certificate according to EN 10204 3.1.
- Each sleeve is marked with a unique label that can be traced back to the certificate.
- The products fulfill the requirements according to PED 97/23/EC and AFS 1999:4.
- A large stock of finished tubes safeguard short lead times and quick installations.
- CQ is prepared for orbital welding.
- CQ tubes with OD below 6-18 mm can be bent on-site with same cleanliness and durability.
- A large stock of finished tubes and fittings guarantee high service and short lead times.

CALAMO - CQ - TUBE



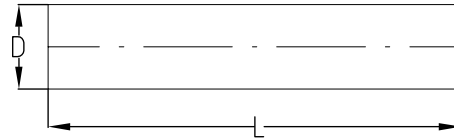
(L) Nominell length 6000 mm

DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8	6,35 x 0,89 mm 1/4 x 0.035"	0,123	331	0400120	CQ	S	●
10	9,53 x 0,89 mm 3/8 x 0.035"	0,195	210	0400240	CQ	S	O
15	12,70 x 1,24 mm 1/2 x 0.049"	0,353	221	0400560	CQ	S	●
20	19,05 x 1,65mm 3/4 x 0.065"	0,719	194	0400880	CQ	S	●
25	25,40 x 1,65mm 1 x 0.065"	0,974	182	0401160	CQ	S	O
25	25,40 x 1,65mm 1 x 0.065"	-	-	-	CQ	W	O
40	38,1 x 1,65mm 1 1/2 x 0.065"	1,500	93	0441480	CQ	W	O
50	50,8 x 1,65mm 2 x 0.065"	2,030	69	0441680	CQ	W	O
65	63,5 x 1,65mm 2 1/2 x 0.065"	2,500	38	0441778	CQ	W	O
80	76,2 x 1,65mm 3 x 0.065"	3,056	46	0441820	CQ	W	O
100	101,60 x 2,11mm 4 x 0.083"	5,210	31	0442000	CQ	W	O
150	152,4 x 2,77mm 6 x 0.109"	10,287	27	0462050	CQ	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO - CQ - TUBE



(L) Nominell length 6000 mm

(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
4,00 x 1,00 mm	0,074	-	0900425	CQ	S	O
6,00 x 1,00 mm	0,124	462	0400040	CQ	S	●
8,00 x 1,00 mm	0,174	333	0400200	CQ	S	●
10,00 x 1,00 mm	0,223	261	0400360	CQ	S	●
12,00 x 1,00 mm	0,273	214	0400440	CQ	S	●
15,00 x 1,00 mm	0,350	125	0400700	CQ	S	●
18,00 x 1,50 mm	0,615	234	0400810	CQ	S	●
22,00 x 1,50 mm	0,769	157	0400990	CQ	S	O
28,00 x 1,50 mm	0,987	146	0401321	CQ	S	●

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

³⁾ O = Made to order, ● = Stock standard product



CQ COILED TUBING ACCORDING TO ASTM G93

Suitable for transport of high purity gases for analyzing, calibration or pure oxygen (CFOS) for laboratories. Tubes are manufactured, cleaned and controlled to safeguard a high quality to point of use. Supplied in fix meter lengths.

DN	(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Utförande ² S/W	Stock ³ O / ●
6	3,18 x 0,51 mm 1/8 x 0.020"	0,034	-	0900320	CQ	S	O

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

³) O = Made to order, ● = Stock standard product

CQM MEDICAL

Stainless steel tube system for Medical Gas Application

Calamo stainless steel tube system CQM is manufactured for transporting medical gases in hospitals. The manufacturing process is very controlled to guarantee a stable quality focusing on patient safety and hospital environment.



Products

Stainless steel tubes, tees, reducers, elbows in stainless steel including adaptors to copper.

- Outside diameter: 6,00 – 139,70 mm

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

- CQM Medical
 - Surface treatment according to SP6-064
 - Hydrocarbon content < 2,5 mg/m²



Certificate

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

Manufacturing

- Cleanliness achieved through advanced surface treatment and packing technique. Analysis of surfaces according to SS-EN 723.
- Final rinsing always using deionized water.
- Tubes are dried with nitrogen from cryo tank.
- CQM-produkts are sealed with polyethylene caps and packed in seals polyethylene sleeve.

Advantages

- Tubes fulfills SIS hand book 370 safety standard applicable to medical gas applications and ISO 7396-1 Medical gas pipe line systems.
- High purity tubes and fittings are protected from contamination.
- Products have full traceability from steel melt to customer. Material certificate according to EN 10204 3.1.
- Each sleeve is marked with a unique label that can be traced back to the certificate.
- The products fulfill the requirements according to PED 97/23/EC and AFS 1999:4.
- A large stock of finished tubes and fittings safeguard short lead times and quick installations.
- CQM Medical is prepared for orbital welding.
- CQM tubes tubes with OD below 6-18 mm can be bent on-site with same cleanliness and durability.
- Products fulfills Locum R3 guidelines for medical gases in Sweden.

CALAMO – CQM MEDICAL – TUBE



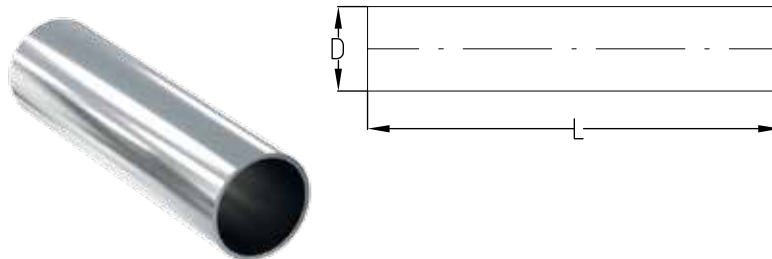
(L) Nominell length 6000 mm

(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	0,124	462	0400030	CQM	S	●
8,00 x 1,00 mm	0,174	333	0400203	CQM	S	●
10,00 x 1,00 mm	0,223	261	0400330	CQM	S	●
12,00 x 1,00 mm	0,273	214	0400430	CQM	S	●
15,00 x 1,00 mm	0,350	125	0400703	CQM	S	O
18,00 x 1,50 mm	0,615	234	0400805	CQM	S	●
22,00 x 1,50 mm	0,769	157	0400985	CQM	S	●
28,00 x 1,50 mm	0,987	146	0401310	CQM	S	●
35,00 x 1,50 mm	1,260	116	0401450	CQM	S/W	●

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – TUBE



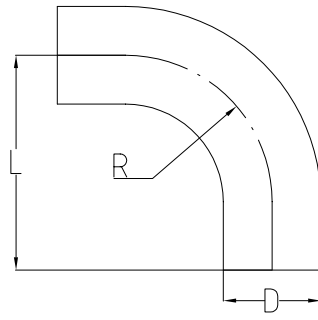
(L) Nominell length 6000 mm

(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
42,40 x 2,00 mm	2,000	133	0441550	CQM	W	●
48,30 x 2,00 mm	2,298	116	0441630	CQM	W	●
76,10 x 2,00 mm	3,678	51	0441860	CQM	W	●
88,90 x 2,00 mm	4,313	67	0441900	CQM	W	●
114,30 x 2,00 mm	5,574	-	0442020	CQM	W	O
139,70 x 2,00 mm	6,835	-	0442040	CQM	W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – ELBOW 90°

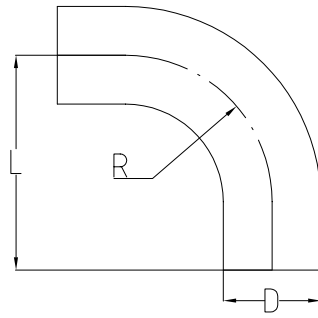


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
8,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
10,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
12,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
15,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
18,00 x 1,50 mm	0,056	140	51	26	1410805	CQM	S	O
22,00 x 1,50 mm	0,067	134	52	40	1410985	CQM	W	O
28,00 x 1,50 mm	0,156	87	90	50	1411310	CQM	W	O
35,00 x 1,50 mm	0,212	-	95	55	1411450	CQM	S/W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – ELBOW 90°

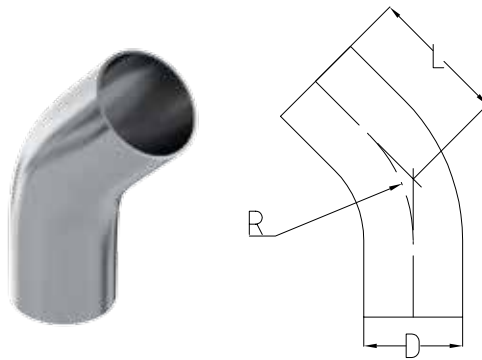


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
42,40 x 2,00 mm	0,311	86	88	48	1441550	CQM	W	O
48,30 x 2,00 mm	-	-	-	-	-	CQM	W	O
76,10 x 2,00 mm	0,953	33	150	95	1441840	CQM	W	O
88,90 x 2,00 mm	1,551	43	95	95	1441850	CQM	W ⁴	O
114,30 x 2,00 mm	2,669	37	114	114	1442020	CQM	W ⁴	O
139,70 x 2,00 mm	4,088	30	152	152	1442040	CQM	W ⁴	O

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

³) O = Made to order; ● = Stock standard product ⁴) No straight ends for orbital welding.

CALAMO – CQM MEDICAL – ELBOW 45°

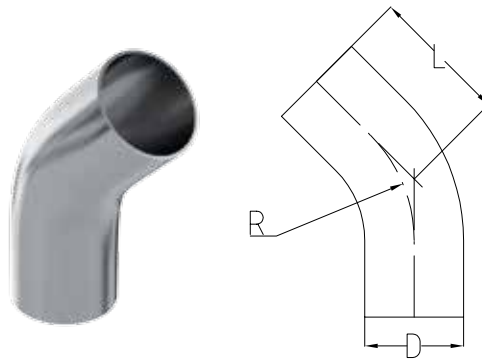


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	-	CQM	W	O
8,00 x 1,00 mm	-	-	-	-	-	CQM	W	O
10,00 x 1,00 mm	-	-	-	-	-	CQM	W	O
12,00 x 1,00 mm	-	-	-	-	-	CQM	W	O
15,00 x 1,00 mm	-	-	-	-	-	CQM	W	O
18,00 x 1,50 mm	0,043	140	51	36	1410808	CQM	W	O
22,00 x 1,50 mm	-	134	-	-	1410988	CQM	W	O
28,00 x 1,50 mm	0,118	87	90	61	1411313	CQM	W	O
35,00 x 1,50 mm	0,163	-	63	55	1411453	CQM	S/W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – ELBOW 45°

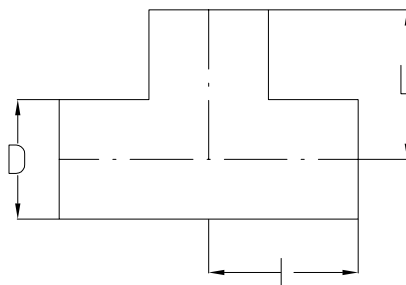


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	(R) Radius (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
42,40 x 2,00 mm	0,315	25	59,7	47,5	1441553	CQM	W	O
48,30 x 2,00 mm	-	-	-	-	-	CQM	W	O
76,10 x 2,00 mm	0,976	25	94,4	95	1441843	CQM	W	O
88,90 x 2,00 mm	0,775	43	-	95	1441853	CQM	W	O
114,30 x 2,00 mm	1,335	37	-	114	1442023	CQM	W	O
139,70 x 2,00 mm	2,044	30	-	152	1442043	CQM	W	O

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

³⁾ O = Made to order, ● = Stock standard product ⁴⁾ No straight ends for orbital welding.

CALAMO – CQM MEDICAL – EQUAL TEE

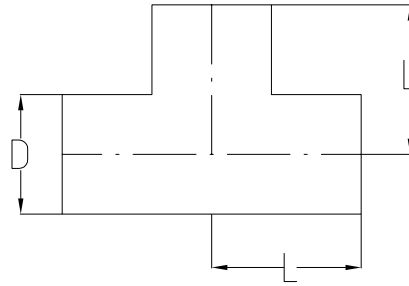


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
6,00 x 1,00 mm	0,013	304	30	1404030	CQM	S	O
8,00 x 1,00 mm	-	-	-	-	CQM	S	O
10,00 x 1,00 mm	-	-	-	-	CQM	S	O
12,00 x 1,00 mm	0,044	118	35	1404430	CQM	S	O
15,00 x 1,00 mm	0,058	59	35	1404713	CQM	S	O
18,00 x 1,50 mm	0,103	131	35	1404780	CQM	S	O
22,00 x 1,50 mm	0,103	79	40	1404990	CQM	S	O
28,00 x 1,50 mm	0,176	72	50	1405310	CQM	S	O
35,00 x 1,50 mm	0,233	54	55	1405460	CQM	S/W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – EQUAL TEE

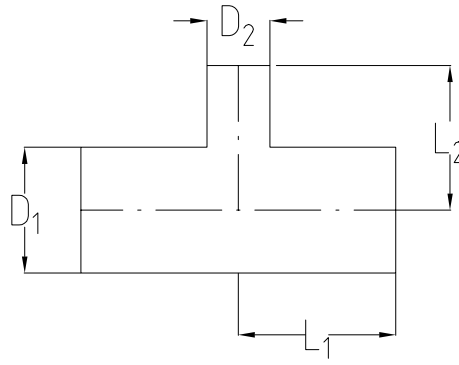


(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
42,40 x 2,00 mm	0,348	64	65	1445550	CQM	S	O
48,30 x 2,00 mm	-	-	-	-	CQM	S	O
76,10 x 2,00 mm	1,074	29	110	1445840	CQM	S	O
88,90 x 2,00 mm	1,490	29	130	1445850	CQM	S	O
114,30 x 2,00 mm	2,357	20	160	1446030	CQM	S	O
139,70 x 2,00 mm	-	-	-	1446040	CQM	S	Special

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – UNEQUAL TEE

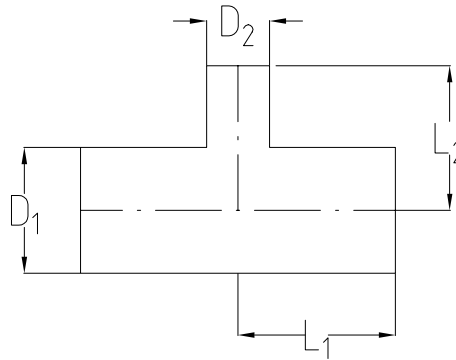


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Längd (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
8,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
10,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
10,00 x 1,00 mm	8,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
12,00 x 1,00 mm	6,00 x 1,00 mm	0,037	176	35	35	1404031	CQM	S	O
12,00 x 1,00 mm	8,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
12,00 x 1,00 mm	10,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
15,00 x 1,00 mm	6,00 x 1,00 mm	0,047	99	35	35	1404714	CQM	S	O
15,00 x 1,00 mm	10,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
15,00 x 1,00 mm	12,00 x 1,00 mm	0,054	68	35	35	1404716	CQM	S	O
18,00 x 1,50 mm	6,00 x 1,00 mm	0,079	185	35	35	1404781	CQM	S	O
18,00 x 1,50 mm	8,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
18,00 x 1,50 mm	10,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
18,00 x 1,50 mm	12,00 x 1,00 mm	0,086	130	35	35	1404784	CQM	S	O
18,00 x 1,50 mm	15,00 x 1,00 mm	-	-	-	-	-	CQM	S	O
22,00 x 1,50 mm	12,00 x 1,00 mm	0,107	86	40	40	1404994	CQM	S	O
22,00 x 1,50 mm	15,00 x 1,00 mm	0,111	75	40	40	1404995	CQM	S	O
22,00 x 1,50 mm	18,00 x 1,50 mm	0,125	91	40	40	1404996	CQM	S	O
28,00 x 1,50 mm	12,00 x 1,00 mm	0,140	93	50	50	1405313	CQM	S	O
28,00 x 1,50 mm	18,00 x 1,50 mm	0,157	95	50	50	1405315	CQM	S	O
35,00 x 1,50 mm	15,00 x 1,00 mm	0,188	-	55	55	1405465	CQM	S/W	O
35,00 x 1,50 mm	18,00 x 1,50 mm	0,201	80	55	55	1405466	CQM	S/W	O
35,00 x 1,50 mm	22,00 x 1,50 mm	0,188	-	55	55	1405467	CQM	S/W	O

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – UNEQUAL TEE

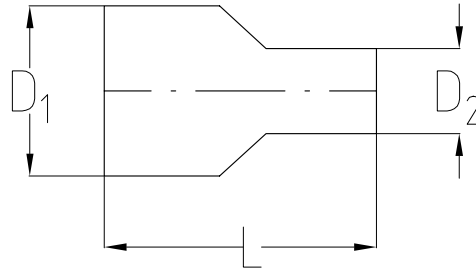


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L1) Length (mm)	(L2) Length (mm)	Article number	Product name	Execution ² S/W	Stock ³ O / ●
42,40 x 2,00 mm	28,00 x 1,50 mm	0,323	-	65	65	1445553	CQM	S	O
42,40 x 2,00 mm	35,00 x 1,50 mm	0,315	-	65	65	1445555	CQM	S	O
48,30 x 2,00 mm	28,00 x 1,50 mm	-	-	-	-	-	CQM	S	O
48,30 x 2,00 mm	35,00 x 1,50 mm	-	-	-	-	-	CQM	S	O
48,30 x 2,00 mm	42,40 x 2,00 mm	-	-	-	-	-	CQM	S	O
76,10 x 2,00 mm	42,40 x 2,00 mm	0,953	42	110	90	1445844	CQM	S	O
76,10 x 2,00 mm	48,30 x 2,00 mm	-	-	-	-	-	CQM	S	O
88,90 x 2,00 mm	48,30 x 2,00 mm	-	-	-	-	-	CQM	S	O
88,90 x 2,00 mm	76,10 x 2,00 mm	1,190	-	130	110	1445858	CQM	S	O
114,30 x 2,00 mm	76,10 x 2,00 mm	2,162	-	160	130	1446038	CQM	S	O
114,30 x 2,00 mm	88,90 x 2,00 mm	2,227	-	160	130	1446039	CQM	S	O
139,70 x 2,00 mm	76,10 x 2,00 mm	-	-	-	-	1446043	CQM	S	Special
139,70 x 2,00 mm	88,90 x 2,00 mm	-	-	-	-	1446049	CQM	S	Special

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

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – CONCENTRIC REDUCER

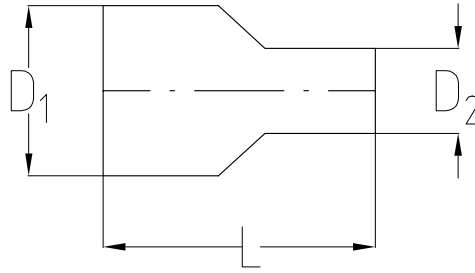


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
8,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	CQM	B	O
10,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	CQM	B	O
10,00 x 1,00 mm	8,00 x 1,00 mm	-	-	-	-	CQM	B	O
12,00 x 1,00 mm	6,00 x 1,00 mm	0,050	176	75	1407431	CQM	B	O
12,00 x 1,00 mm	8,00 x 1,00 mm	-	-	-	-	CQM	B	O
12,00 x 1,00 mm	10,00 x 1,00 mm	-	-	-	-	CQM	B	O
15,00 x 1,00 mm	6,00 x 1,00 mm	-	-	-	-	CQM	B	O
15,00 x 1,00 mm	10,00 x 1,00 mm	-	-	-	-	CQM	B	O
15,00 x 1,00 mm	12,00 x 1,00 mm	-	-	-	-	CQM	B	O
18,00 x 1,50 mm	6,00 x 1,00 mm	0,100	107	75	1407781	CQM	B	O
18,00 x 1,50 mm	8,00 x 1,00 mm	-	-	-	-	CQM	B	O
18,00 x 1,50 mm	10,00 x 1,00 mm	-	-	-	-	CQM	B	O
18,00 x 1,50 mm	12,00x1,00mm	0,100	119	75	1407784	CQM	B	O
18,00 x 1,50 mm	15,00 x 1,00 mm	0,100	-	75	1407785	CQM	B	O
22,00 x 1,50 mm	12,00 x 1,00 mm	-	-	-	-	CQM	B	O
22,00 x 1,50 mm	15,00 x 1,00 mm	0,100	-	75	1407985	CQM	B	O
22,00 x 1,50 mm	18,00 x 1,50 mm	-	-	-	-	CQM	B	O
28,00 x 1,50 mm	12,00 x 1,00 mm	0,100	61	75	1408313	CQM	B	O
28,00 x 1,50 mm	18,00 x 1,50 mm	0,100	104	75	1408315	CQM	B	O
35,00 x 1,50 mm	15,00 x 1,00 mm	-	-	-	-	CQM	B	O
35,00 x 1,50 mm	18,00 x 1,50 mm	-	-	-	-	CQM	B	O
35,00 x 1,50 mm	22,00 x 1,50 mm	-	-	-	-	CQM	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – CONCENTRIC REDUCER

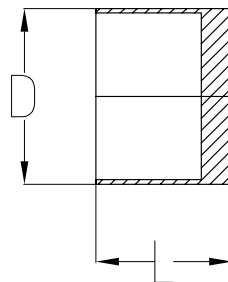


(D1) x wall (mm)	(D2) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
42,40 x 2,00 mm	28,00 x 1,50 mm	-	-	-	-	CQM	B	O
42,40 x 2,00 mm	35,00 x 1,50 mm	-	-	-	-	CQM	B	O
48,30 x 2,00 mm	28,00 x 1,50 mm	-	-	-	-	CQM	B	O
48,30 x 2,00 mm	35,00 x 1,50 mm	-	-	-	-	CQM	B	O
48,30 x 2,00 mm	42,40 x 2,00 mm	-	-	-	-	CQM	B	O
76,10 x 2,00 mm	42,40 x 2,00 mm	-	-	-	-	CQM	B	O
76,10 x 2,00 mm	48,30 x 2,00 mm	-	-	-	-	CQM	B	O
88,90 x 2,00 mm	48,30 x 2,00 mm	-	-	-	-	CQM	B	O
88,90 x 2,00 mm	76,10 x 2,00 mm	-	-	-	-	CQM	B	O
114,30 x 2,00 mm	76,10 x 2,00 mm	-	-	-	-	CQM	B	O
114,30 x 2,00 mm	88,90 x 2,00 mm	-	-	-	-	CQM	B	O
139,70 x 2,00 mm	76,10 x 2,00 mm	-	-	-	-	CQM	B	O
139,70 x 2,00 mm	88,90 x 2,00 mm	-	-	-	-	CQM	B	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

CALAMO – CQM MEDICAL – END CAP



(D) x wall (mm)	Weight (Kg/m)	Pressure ¹ (Bar)	(L) Length (mm)	Article number	Product name	Execution ² B/P	Stock ³ O / ●
6,00 x 1,00 mm	-	-	-	-	CQM	B	O
8,00 x 1,00 mm	-	-	-	-	CQM	B	O
10,00 x 1,00 mm	-	-	-	-	CQM	B	O
12,00 x 1,00 mm	-	-	-	-	CQM	B	O
15,00 x 1,00 mm	-	-	-	-	CQM	B	O
18,00 x 1,50 mm	-	-	-	-	CQM	B	O
22,00 x 1,50 mm	-	-	-	-	CQM	B	O
28,00 x 1,50 mm	-	-	-	-	CQM	B	O
35,00 x 1,50 mm	-	-	-	-	CQM	B	O
42,20 x 2,00 mm	-	-	-	-	CQM	B	O
48,30 x 2,00 mm	-	-	-	-	CQM	P	O
76,10 x 2,00 mm	-	-	-	-	CQM	P	O
88,90 x 2,00 mm	-	-	-	-	CQM	P	O
114,30 x 2,00 mm	-	-	-	-	CQM	P	O
139,70 x 3,00 mm	-	-	-	-	CQM	P	O

¹⁾ Maximum operating pressure at maximum 20 C° according to EN 13480-3 ²⁾ B = manufactured from solid bar, P = pressed plate

³⁾ O = Made to order, ● = Stock standard product

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