

# **TRAIDAMID®**

***HIGH QUALITY  
ENGINEERING PLASTICS***





TRAIDAMID®

*Being a part of the TVH® group of companies, since 1968, we have been working for giving top quality and service to our customers, now we present you our new **TRAIDAMID®** top quality casted plastic products programme.*

*Our brand new production and stocking facilities enable us to provide probably the best material in the world.*

*When decisions are critical, when uncertainty adds risk, we help you form a better basis for your decisions. **TRAIDAMID®** products offers the broadest range of materials, sizes, formats and services available, from exploration and appraisal of new applications through development and production.*

*Combining field-proven testing experience with reservoir-domain expertise, **TRAIDAMID®** teams work with you to prove reservoir potential, confirm performance, and improve field productivity.*

*Knowledge, technical innovation and teamwork are at the center of who we are. For more than 40 years, we have focused on leveraging these assets to deliver solutions that improve our customers' performance.*



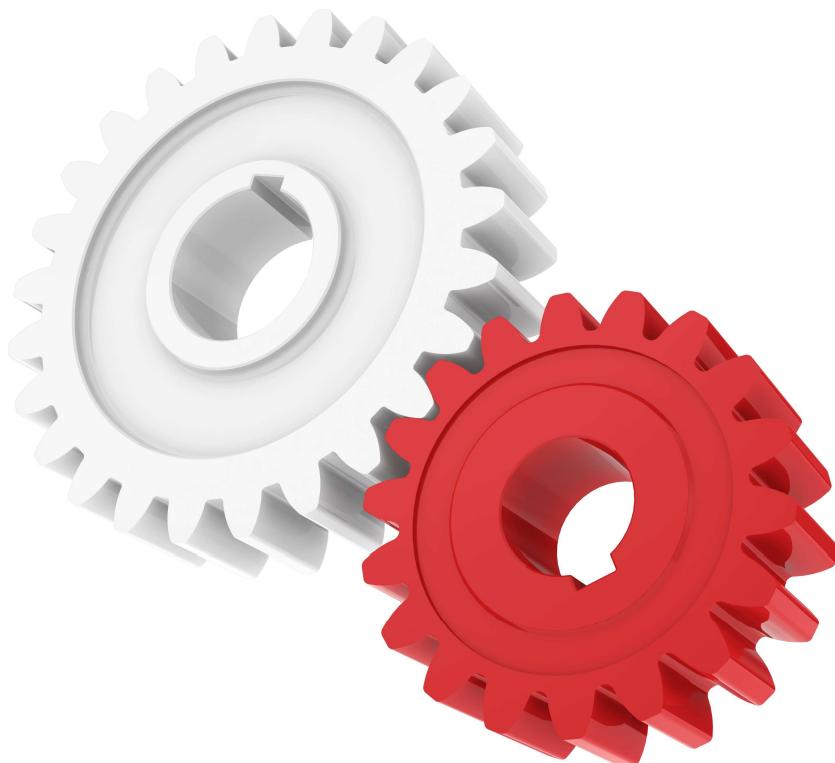


TRAIDAMID®

We place strong emphasis on developing innovative technology that adds value for our customers.

Reflecting our belief that diversity spurs creativity, collaboration, and understanding of customers' needs, our group employ over 500 people of more than 20 nationalities working in approximately 42 countries. Our employees are committed to working with our customers to create the highest level of added value. Knowledge communities and special interest groups with our organization enable teamwork and knowledge sharing unencumbered by geographic boundaries.

**TRAIDAMID®** materials operate in many varied and often challenging applications. An unwavering commitment has always been maintained to the highest standards of the quality, as well as for the protection of the environment in the communities in which we live and work. The long-term business success of **TRAIDAMID®** products depends on our ability to ensure that our quality remains a top priority for the management and each employee.



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## INTRODUCTION TO MATERIALS

### TRAIDAMID® G

Natural cast nylon 6. The manufacturing process of this polyamide (polymerization of caprolactam directly in the mold) allows the production of stock shapes in larger than normal dimensions, such as big rings or very thick sheets.

Key Characteristics:

- Various FDA compliant grades available.
- Good dimensional stability, largely free from internal stresses.
- Excellent wear and abrasion resistance.
- Excellent mechanical, thermal and chemical resistance.

### TRAIDAMID® G + COLOR

Coloured (black, yellow, green, red, blue) **TRAIDAMID® G**.

Key Characteristics:

- Good dimensional stability, largely free from internal stresses.
- Excellent wear and abrasion resistance.
- Excellent mechanical, thermal and chemical resistance.

### TRAIDAMID® G MOS2

**TRAIDAMID® G** Additivated with Molibdene Bisulfure (Mos2).

Key Characteristics:

- Very high UV resistance..
- Good sliding properties and high wear resistance.
- Able to resist high mechanical loads and very high impact loads.
- Low distorsion under mechanical loads and high mechanical strength.

### TRAIDAMID® G OIL

**TRAIDAMID® G** additivated with oil lubricant (yellow or green).

Key Characteristics:

- High UV resistance.
- Can absorb up to 2% moisture at 50% humidity..
- Able to resist high mechanical loads and very high impact loads.
- Low distorsion under mechanical loads and high mechanical strength.

### TRAIDAMID® 901

MC Nylon produced with a heat stabilizer in blue color. The heat stabilizer reduces oxidation and molecular degradation at high temperatures, extending the lifetime of the material at high temperatures. Although it retains the general features of **TRAIDAMID® G** it is easier to machine and U.V. ray resistance is better.

Key Characteristics:

- Self-lubricating with low friction coefficient.
- Heat resistance better than natural **TRAIDAMID® G**.
- Greater fatigue resistance than natural **TRAIDAMID® G**.
- Weatherproof and good resistance at low temperature.



TRAIDAMID®

## **INTRODUCTION TO MATERIALS**

### **TRAIDAMID® FV30**

This product filled with glass balls shows higher dimensional stability, higher rigidity and less water absorption, but also applications at higher service temperature are possible. The standard proportion for the glass balls is 30%, whereas customized proportion can be produced. Applications are highly stressed engineering parts, carrying roller, coupling flange and guide elements.

### **TRAIDAMID® IMPACT**

Special formulation modified to reach a greater impact resistance.

### **TRAIDAMID® SUPERGLIDE**

Especially developed for construction parts. It has extremely important sliding and friction properties to provide the function over a longer period. Non-operation periods and associated costs for replacing broken parts occur significantly less frequently.

**TRAIDAMID® SUPERGLIDE** shows better tribological properties than unfilled polyamides. **TRAIDAMID® SUPERGLIDE** is the ideal material to combine the sliding properties of UHMWPE and the good wear resistance and the high mechanical stability of **TRAIDAMID® G**. Applications are sliding bearings, wear plates, but also heavily loaded rolls for mechanical engineering, crane construction and conveyor technique. Further applications are chain wheels or gearwheels.

### **TRAIDAMID® EXCEL**

**TRAIDAMID® EXCEL** is the newest development of Traid Villarroya Hnos. It shows the best sliding properties of all types of Polyamides. This modified polyamide type has been especially developed for construction parts, having extremely important sliding and friction properties to provide the function over a longer period. It can be used where an external lubrication (oil or lubricant) is not possible or not wanted. Applications are sliding bearings, wear plates, but also heavily loaded rolls for mechanical engineering, crane construction and conveyor technique. Further applications are chain wheels or gearwheels.

### **TRAIDAMID® ILENE**

Special formulation of our **TRAIDAMID® G** modified with Polyethylene so that shows better sliding properties than unfilled material. Applications are sliding bearings, guide rails and different sliding bars.

### **TRAIDAMID® 612**

This material is a polyamide mix on the basis of Caprolactam (raw material for **TRAIDAMID® G**) and Laurinlactam (raw material for **TRAIDAMID® 12**). The casting process is also pressureless. Compared to pure **TRAIDAMID® G**, this material shows less water absorption and improved impact resistance. Applications are gearwheels and sheaves.

### **TRAIDAMID® 12**

Nylon 12 produced from Laurinlactam.

Key Characteristics:

- Good sliding properties.
- Can absorb up to 1% moisture at 50% humidity..
- Resistant to very high impact loads.
- High surface hardness.

# Rods

Diameter mm. Ø	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. Ø	Tolerance mm.	Apr. weight Kg/m.
50	+1 / +3	2,5	330	+4 / +11	105,7
55	+1 / +3	3,1	340	+4 / +11	111,8
60	+1 / +4	3,6	350	+4 / +11	118,7
65	+1 / +4	4,2	360	+4 / +11	125,1
70	+1 / +4	4,9	370	+4 / +11	132,4
75	+1 / +4	5,4	375	+4 / +11	135,7
80	+1 / +4	6,6	380	+4 / +11	139,1
85	+1 / +4	7,2	390	+4 / +11	146,8
90	+1 / +4	8,0	400	+4 / +11	154
95	+1 / +4	8,8	410	+5 / +13	163,5
100	+1 / +4	9,9	420	+5 / +13	171
105	+1,5 / +5	11,1	425	+5 / +13	174,9
110	+1,5 / +5	12,2	430	+5 / +13	179,5
115	+1,5 / +5	12,6	440	+5 / +13	187,4
120	+1,5 / +5	13,7	450	+5 / +13	195,5
125	+1,5 / +5	15,2	460	+5 / +13	204,5
130	+1,5 / +5	16,6	470	+5 / +13	212,9
135	+1,5 / +5	18,1	475	+5 / +13	218,1
140	+1,5 / +5	19,1	480	+5 / +13	222,4
150	+1,5 / +5	21,7	490	+5 / +13	231,2
160	+2 / +7	24,5	500	+5 / +13	241
170	+2 / +7	28,7	550	+10 / +15	289,3
175	+2 / +7	30,6	600	+10 / +15	343,8
180	+2 / +7	31,3	650	+10 / +15	403,2
190	+2 / +7	34,6	700	+10 / +15	467,1
200	+2 / +7	39,5	750	+10 / +20	535,8
210	+3 / +9	43,3	800	+10 / +20	609,3
220	+3 / +9	44,5	850	+10 / +20	687,4
225	+3 / +9	49,2	900	+10 / +20	770,2
230	+3 / +9	51,8	950	+12 / +25	857,8
240	+3 / +9	56,0	1000	+12 / +25	950,1
250	+3 / +9	60,9	1100	+12 / +25	1148,7
260	+3 / +9	65,6	1200	+12 / +25	1366,2
270	+3 / +9	70,9	1300	+12 / +25	1602,6
275	+3 / +9	72,6	1400	+12 / +25	1857,8
280	+3 / +9	75,8	1500	+12 / +25	2131,9
290	+3 / +9	81,0	1600	+15 / +30	2424,8
300	+3 / +9	86,9	1700	+15 / +30	2736,6
310	+4 / +11	94,1	1800	+15 / +30	3067,2
320	+4 / +11	99,8	1900	+15 / +30	3416,7
325	+4 / +11	102,7	2000	+15 / +30	3785,1

Standard lengths: 3.000 mm. (up to diameter 180 mm.) / 2.000 mm. / 1.000 mm.

Other lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

## Sheets

Dimension mm. ≠	Tolerance mm.	Apr. weight Kg/Pc.	Dimension mm. ≠	Tolerance mm.	Apr. weight Kg/Pc.
1000 x 500 x 20	+0.5 / +2.5	13,1	2000 x 1000 x 20	+0.5 / +2.5	52,3
1000 x 500 x 25	+0.5 / +2.5	16,4	2000 x 1000 x 25	+0.5 / +2.5	64,4
1000 x 500 x 30	+0.5 / +2.5	19,65	2000 x 1000 x 30	+0.5 / +2.5	76,6
1000 x 500 x 35	+0.5 / +2.5	22,9	2000 x 1000 x 35	+0.5 / +2.5	88,7
1000 x 500 x 40	+0.5 / +3.5	26,2	2000 x 1000 x 40	+0.5 / +3.5	102,1
1000 x 500 x 45	+0.5 / +3.5	29,5	2000 x 1000 x 45	+0.5 / +3.5	114,2
1000 x 500 x 50	+0.5 / +3.5	32,8	2000 x 1000 x 50	+0.5 / +3.5	126,4
1000 x 500 x 55	+0.5 / +3.5	36	2000 x 1000 x 55	+0.5 / +3.5	138,5
1000 x 500 x 60	+1 / +5	38,3	2000 x 1000 x 60	+1 / +5	153,1
1000 x 500 x 65	+1 / +5	41,5	2000 x 1000 x 65	+1 / +5	165,3
1000 x 500 x 70	+1 / +5	44,7	2000 x 1000 x 70	+1 / +5	177,4
1000 x 500 x 75	+1 / +5	47,9	2000 x 1000 x 75	+1 / +5	189,6
1000 x 500 x 80	+1 / +6	51,1	2000 x 1000 x 80	+1 / +6	203
1000 x 500 x 85	+1 / +6	54,3	2000 x 1000 x 85	+1 / +6	215,1
1000 x 500 x 90	+1 / +6	57,4	2000 x 1000 x 90	+1 / +6	227,3
1000 x 500 x 95	+1 / +6	60,6	2000 x 1000 x 95	+1 / +6	239,4
1000 x 500 x 100	+1 / +6	63,8	2000 x 1000 x 100	+1 / +6	251,6
1000 x 500 x 105	+1 / +6	67	2000 x 1000 x 105	+1 / +6	264,2
1000 x 500 x 110	+1 / +6	70,2	2000 x 1000 x 110	+1 / +6	276,8
1000 x 500 x 115	+1 / +6	73,4	2000 x 1000 x 115	+1 / +6	289,3
1000 x 500 x 120	+1 / +8	76,6	2000 x 1000 x 120	+1 / +8	301,92
1000 x 1000 x 20	+0.5 / +2.5	26,2	3050 x 1250 x 20	+0.5 / +2.5	99,7
1000 x 1000 x 25	+0.5 / +2.5	32,8	3050 x 1250 x 25	+0.5 / +2.5	124,6
1000 x 1000 x 30	+0.5 / +2.5	39,3	3050 x 1250 x 30	+0.5 / +2.5	149,6
1000 x 1000 x 35	+0.5 / +2.5	45,8	3050 x 1250 x 35	+0.5 / +2.5	174,5
1000 x 1000 x 40	+0.5 / +3.5	52,4	3050 x 1250 x 40	+0.5 / +3.5	199,4
1000 x 1000 x 45	+0.5 / +3.5	59	3050 x 1250 x 45	+0.5 / +3.5	224,3
1000 x 1000 x 50	+0.5 / +3.5	65,6	3050 x 1250 x 50	+0.5 / +3.5	249,3
1000 x 1000 x 55	+0.5 / +3.5	72	3050 x 1250 x 55	+0.5 / +3.5	274,2
1000 x 1000 x 60	+1 / +5	76,6	3050 x 1250 x 60	+1 / +5	299,1
1000 x 1000 x 65	+1 / +5	83			
1000 x 1000 x 70	+1 / +5	89,4			
1000 x 1000 x 75	+1 / +5	95,8			
1000 x 1000 x 80	+1 / +6	102,2			
1000 x 1000 x 85	+1 / +6	108,6			
1000 x 1000 x 90	+1 / +6	114,8			
1000 x 1000 x 95	+1 / +6	121,2			
1000 x 1000 x 100	+1 / +6	127,6			
1000 x 1000 x 105	+1 / +6	134			
1000 x 1000 x 110	+1 / +6	140,4			
1000 x 1000 x 115	+1 / +6	146,8			
1000 x 1000 x 120	+1 / +8	153,2			

Production up to maximum thickness 500 mm. is possible.  
 Other formats are available on request.  
 All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
50 x 25	+2/+5 / -2/-5	2,16	85 x 35	+3.6/+1.2 / -1.6/-5.0	6,31
50 x 30	+3/+0.8 / -0.8/-4.5	1,95	85 x 40	+3.6/+1.2 / -1.6/-5.0	6,02
50 x 35	+3/+0.8 / -0.8/-4.5	1,69	85 x 45	+3.6/+1.2 / -1.6/-5.0	5,68
50 x 40	+3/+0.8 / -0.8/-4.5	1,38	85 x 50	+3.6/+1.2 / -1.6/-5.0	5,3
55 x 25	+3/+0.8 / -0.8/-4.5	2,16	85 x 55	+3.6/+1.2 / -1.6/-5.0	4,86
55 x 30	+3/+0.8 / -0.8/-4.5	1,95	85 x 60	+3.6/+1.2 / -1.6/-5.0	4,39
55 x 35	+3/+0.8 / -0.8/-4.5	2,16	85 x 65	+3.6/+1.2 / -1.6/-5.0	3,86
55 x 40	+3/+0.8 / -0.8/-4.5	1,85	85 x 70	+3.6/+1.2 / -1.6/-5.0	3,29
55 x 45	+3/+0.8 / -0.8/-4.5	1,5	85 x 75	+3.6/+1.2 / -1.6/-5.0	2,67
60 x 25	+3/+0.8 / -0.8/-4.5	3,31	90 x 35	+3.6/+1.2 / -1.6/-5.0	7,17
60 x 30	+3/+0.8 / -0.8/-4.5	3,1	90 x 40	+3.6/+1.2 / -1.6/-5.0	6,87
60 x 35	+3/+0.8 / -0.8/-4.5	2,84	90 x 45	+3.6/+1.2 / -1.6/-5.0	6,53
60 x 40	+3/+0.8 / -0.8/-4.5	2,53	90 x 50	+3.6/+1.2 / -1.6/-5.0	6,15
60 x 45	+3/+0.8 / -0.8/-4.5	2,18	90 x 55	+3.6/+1.2 / -1.6/-5.0	5,72
60 x 50	+3/+0.8 / -0.8/-4.5	1,78	90 x 60	+3.6/+1.2 / -1.6/-5.0	5,24
65 x 25	+3/+0.8 / -0.8/-4.5	3,88	90 x 65	+3.6/+1.2 / -1.6/-5.0	4,71
65 x 30	+3/+0.8 / -0.8/-4.5	3,67	90 x 70	+3.6/+1.2 / -1.6/-5.0	4,14
65 x 35	+3/+0.8 / -0.8/-4.5	3,41	90 x 75	+3.6/+1.2 / -1.6/-5.0	3,52
65 x 40	+3/+0.8 / -0.8/-4.5	3,1	90 x 80	+3.6/+1.2 / -1.6/-5.0	2,86
65 x 45	+3/+0.8 / -0.8/-4.5	2,75	95 x 35	+3.6/+1.2 / -1.6/-5.0	8,26
65 x 50	+3/+0.8 / -0.8/-4.5	2,35	95 x 40	+3.6/+1.2 / -1.6/-5.0	7,97
65 x 55	+3/+0.8 / -0.8/-4.5	1,9	95 x 45	+3.6/+1.2 / -1.6/-5.0	7,63
70 x 25	+3/+0.8 / -0.8/-4.5	4,54	95 x 50	+3.6/+1.2 / -1.6/-5.0	7,24
70 x 30	+3/+0.8 / -0.8/-4.5	4,32	95 x 55	+3.6/+1.2 / -1.6/-5.0	6,81
70 x 35	+3/+0.8 / -0.8/-4.5	4,06	95 x 60	+3.6/+1.2 / -1.6/-5.0	6,33
70 x 40	+3/+0.8 / -0.8/-4.5	3,76	95 x 65	+3.6/+1.2 / -1.6/-5.0	5,81
70 x 45	+3/+0.8 / -0.8/-4.5	3,4	95 x 70	+3.6/+1.2 / -1.6/-5.0	5,24
70 x 50	+3/+0.8 / -0.8/-4.5	3	95 x 75	+3.6/+1.2 / -1.6/-5.0	4,62
70 x 55	+3/+0.8 / -0.8/-4.5	2,56	95 x 80	+3.6/+1.2 / -1.6/-5.0	3,95
70 x 60	+3/+0.8 / -0.8/-4.5	2,06	95 x 85	+3.6/+1.2 / -1.6/-5.0	3,24
75 x 25	+3/+0.8 / -0.8/-4.5	5,22	100 x 35	+3.6/+1.2 / -1.6/-5.0	8,88
75 x 30	+3/+0.8 / -0.8/-4.5	5	100 x 40	+3.6/+1.2 / -1.6/-5.0	8,58
75 x 35	+3/+0.8 / -0.8/-4.5	4,74	100 x 45	+3.6/+1.2 / -1.6/-5.0	8,24
75 x 40	+3/+0.8 / -0.8/-4.5	4,44	100 x 50	+3.6/+1.2 / -1.6/-5.0	7,86
75 x 45	+3/+0.8 / -0.8/-4.5	4,08	100 x 55	+3.6/+1.2 / -1.6/-5.0	7,43
75 x 50	+3/+0.8 / -0.8/-4.5	3,68	100 x 60	+3.6/+1.2 / -1.6/-5.0	6,95
75 x 55	+3/+0.8 / -0.8/-4.5	3,24	100 x 65	+3.6/+1.2 / -1.6/-5.0	6,42
75 x 60	+3/+0.8 / -0.8/-4.5	2,74	100 x 70	+3.6/+1.2 / -1.6/-5.0	5,85
75 x 65	+3/+0.8 / -0.8/-4.5	2,2	100 x 75	+3.6/+1.2 / -1.6/-5.0	5,23
80 x 30	+3.6/+1.2 / -1.6/-5.0	5,83	100 x 80	+3.6/+1.2 / -1.6/-5.0	4,57
80 x 35	+3.6/+1.2 / -1.6/-5.0	5,57	100 x 85	+3.6/+1.2 / -1.6/-5.0	3,86
80 x 40	+3.6/+1.2 / -1.6/-5.0	5,27	100 x 90	+3.6/+1.2 / -1.6/-5.0	3,1
80 x 45	+3.6/+1.2 / -1.6/-5.0	4,91	105 x 35	+3.6/+1.2 / -1.6/-5.0	9,82
80 x 50	+3.6/+1.2 / -1.6/-5.0	4,51	105 x 40	+3.6/+1.2 / -1.6/-5.0	9,53
80 x 55	+3.6/+1.2 / -1.6/-5.0	4,07	105 x 45	+3.6/+1.2 / -1.6/-5.0	9,19
80 x 60	+3.6/+1.2 / -1.6/-5.0	3,58	105 x 50	+3.6/+1.2 / -1.6/-5.0	8,8
80 x 65	+3.6/+1.2 / -1.6/-5.0	3,04	105 x 55	+3.6/+1.2 / -1.6/-5.0	8,37
80 x 70	+3.6/+1.2 / -1.6/-5.0	2,45	105 x 60	+3.6/+1.2 / -1.6/-5.0	7,89

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
105 x 65	+3.6/+1.2 / -1.6/-5.0	7,36	120 x 110	+5.4/+1.8 / -2.2/-7.5	4,08
105 x 70	+3.6/+1.2 / -1.6/-5.0	6,79	125 x 40	+5.4/+1.8 / -2.2/-7.5	14,5
105 x 75	+3.6/+1.2 / -1.6/-5.0	6,18	125 x 45	+5.4/+1.8 / -2.2/-7.5	14,16
105 x 80	+3.6/+1.2 / -1.6/-5.0	5,51	125 x 50	+5.4/+1.8 / -2.2/-7.5	13,78
105 x 85	+3.6/+1.2 / -1.6/-5.0	4,8	125 x 55	+5.4/+1.8 / -2.2/-7.5	13,35
105 x 90	+3.6/+1.2 / -1.6/-5.0	4,04	125 x 60	+5.4/+1.8 / -2.2/-7.5	12,87
105 x 95	+3.6/+1.2 / -1.6/-5.0	3,24	125 x 65	+5.4/+1.8 / -2.2/-7.5	12,34
110 x 40	+3.6/+1.2 / -1.6/-5.0	10,71	125 x 70	+5.4/+1.8 / -2.2/-7.5	11,77
110 x 45	+3.6/+1.2 / -1.6/-5.0	10,37	125 x 75	+5.4/+1.8 / -2.2/-7.5	11,15
110 x 50	+3.6/+1.2 / -1.6/-5.0	9,99	125 x 80	+5.4/+1.8 / -2.2/-7.5	10,49
110 x 55	+3.6/+1.2 / -1.6/-5.0	9,56	125 x 85	+5.4/+1.8 / -2.2/-7.5	9,78
110 x 60	+3.6/+1.2 / -1.6/-5.0	9,08	125 x 90	+5.4/+1.8 / -2.2/-7.5	9,02
110 x 65	+3.6/+1.2 / -1.6/-5.0	8,55	125 x 95	+5.4/+1.8 / -2.2/-7.5	8,22
110 x 70	+3.6/+1.2 / -1.6/-5.0	7,98	125 x 100	+5.4/+1.8 / -2.2/-7.5	7,37
110 x 75	+3.6/+1.2 / -1.6/-5.0	7,36	125 x 105	+5.4/+1.8 / -2.2/-7.5	6,47
110 x 80	+3.6/+1.2 / -1.6/-5.0	6,7	125 x 110	+5.4/+1.8 / -2.2/-7.5	5,53
110 x 85	+3.6/+1.2 / -1.6/-5.0	5,99	125 x 115	+5.4/+1.8 / -2.2/-7.5	4,54
110 x 90	+3.6/+1.2 / -1.6/-5.0	5,23	130 x 40	+5.4/+1.8 / -2.2/-7.5	15,37
110 x 95	+3.6/+1.2 / -1.6/-5.0	4,43	130 x 45	+5.4/+1.8 / -2.2/-7.5	15,03
110 x 100	+3.6/+1.2 / -1.6/-5.0	3,58	130 x 50	+5.4/+1.8 / -2.2/-7.5	14,64
115 x 40	+5.4/+1.8 / -2.2/-7.5	11,96	130 x 55	+5.4/+1.8 / -2.2/-7.5	14,21
115 x 45	+5.4/+1.8 / -2.2/-7.5	11,63	130 x 60	+5.4/+1.8 / -2.2/-7.5	13,73
115 x 50	+5.4/+1.8 / -2.2/-7.5	11,24	130 x 65	+5.4/+1.8 / -2.2/-7.5	13,21
115 x 55	+5.4/+1.8 / -2.2/-7.5	10,81	130 x 70	+5.4/+1.8 / -2.2/-7.5	12,64
115 x 60	+5.4/+1.8 / -2.2/-7.5	10,33	130 x 75	+5.4/+1.8 / -2.2/-7.5	12,02
115 x 65	+5.4/+1.8 / -2.2/-7.5	9,8	130 x 80	+5.4/+1.8 / -2.2/-7.5	11,35
115 x 70	+5.4/+1.8 / -2.2/-7.5	9,23	130 x 85	+5.4/+1.8 / -2.2/-7.5	10,64
115 x 75	+5.4/+1.8 / -2.2/-7.5	8,61	130 x 90	+5.4/+1.8 / -2.2/-7.5	9,88
115 x 80	+5.4/+1.8 / -2.2/-7.5	7,95	130 x 95	+5.4/+1.8 / -2.2/-7.5	9,08
115 x 85	+5.4/+1.8 / -2.2/-7.5	7,24	130 x 100	+5.4/+1.8 / -2.2/-7.5	8,23
115 x 90	+5.4/+1.8 / -2.2/-7.5	6,48	130 x 105	+5.4/+1.8 / -2.2/-7.5	7,33
115 x 95	+5.4/+1.8 / -2.2/-7.5	5,68	130 x 110	+5.4/+1.8 / -2.2/-7.5	6,39
115 x 100	+5.4/+1.8 / -2.2/-7.5	4,83	130 x 115	+5.4/+1.8 / -2.2/-7.5	5,4
115 x 105	+5.4/+1.8 / -2.2/-7.5	3,93	130 x 120	+5.4/+1.8 / -2.2/-7.5	4,36
120 x 40	+5.4/+1.8 / -2.2/-7.5	13,06	135 x 40	+5.4/+1.8 / -2.2/-7.5	16,84
120 x 45	+5.4/+1.8 / -2.2/-7.5	12,72	135 x 45	+5.4/+1.8 / -2.2/-7.5	16,5
120 x 50	+5.4/+1.8 / -2.2/-7.5	12,33	135 x 50	+5.4/+1.8 / -2.2/-7.5	16,12
120 x 55	+5.4/+1.8 / -2.2/-7.5	11,9	135 x 55	+5.4/+1.8 / -2.2/-7.5	15,68
120 x 60	+5.4/+1.8 / -2.2/-7.5	11,42	135 x 60	+5.4/+1.8 / -2.2/-7.5	15,2
120 x 65	+5.4/+1.8 / -2.2/-7.5	10,89	135 x 65	+5.4/+1.8 / -2.2/-7.5	14,68
120 x 70	+5.4/+1.8 / -2.2/-7.5	10,32	135 x 70	+5.4/+1.8 / -2.2/-7.5	14,11
120 x 75	+5.4/+1.8 / -2.2/-7.5	9,7	135 x 75	+5.4/+1.8 / -2.2/-7.5	13,49
120 x 80	+5.4/+1.8 / -2.2/-7.5	9,04	135 x 80	+5.4/+1.8 / -2.2/-7.5	12,82
120 x 85	+5.4/+1.8 / -2.2/-7.5	8,33	135 x 85	+5.4/+1.8 / -2.2/-7.5	12,11
120 x 90	+5.4/+1.8 / -2.2/-7.5	7,57	135 x 90	+5.4/+1.8 / -2.2/-7.5	11,36
120 x 95	+5.4/+1.8 / -2.2/-7.5	6,77	135 x 95	+5.4/+1.8 / -2.2/-7.5	10,55
120 x 100	+5.4/+1.8 / -2.2/-7.5	5,92	135 x 100	+5.4/+1.8 / -2.2/-7.5	9,7
120 x 105	+5.4/+1.8 / -2.2/-7.5	5,02	135 x 105	+5.4/+1.8 / -2.2/-7.5	8,81

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
135 x 110	+5.4/+1.8 / -2.2/-7.5	7,86	150 x 75	+5.4/+1.8 / -2.2/-7.5	18
135 x 115	+5.4/+1.8 / -2.2/-7.5	6,87	150 x 80	+5.4/+1.8 / -2.2/-7.5	17,34
135 x 120	+5.4/+1.8 / -2.2/-7.5	5,84	150 x 85	+5.4/+1.8 / -2.2/-7.5	16,63
135 x 125	+5.4/+1.8 / -2.2/-7.5	4,75	150 x 90	+5.4/+1.8 / -2.2/-7.5	15,87
140 x 40	+5.4/+1.8 / -2.2/-7.5	17,61	150 x 95	+5.4/+1.8 / -2.2/-7.5	15,07
140 x 45	+5.4/+1.8 / -2.2/-7.5	17,27	150 x 100	+5.4/+1.8 / -2.2/-7.5	14,21
140 x 50	+5.4/+1.8 / -2.2/-7.5	16,89	150 x 105	+5.4/+1.8 / -2.2/-7.5	13,32
140 x 55	+5.4/+1.8 / -2.2/-7.5	16,46	150 x 110	+5.4/+1.8 / -2.2/-7.5	12,37
140 x 60	+5.4/+1.8 / -2.2/-7.5	15,98	150 x 115	+5.4/+1.8 / -2.2/-7.5	11,38
140 x 65	+5.4/+1.8 / -2.2/-7.5	15,45	150 x 120	+5.4/+1.8 / -2.2/-7.5	10,35
140 x 70	+5.4/+1.8 / -2.2/-7.5	14,88	150 x 125	+5.4/+1.8 / -2.2/-7.5	9,27
140 x 75	+5.4/+1.8 / -2.2/-7.5	14,26	150 x 130	+5.4/+1.8 / -2.2/-7.5	8,14
140 x 80	+5.4/+1.8 / -2.2/-7.5	13,6	150 x 135	+5.4/+1.8 / -2.2/-7.5	6,96
140 x 85	+5.4/+1.8 / -2.2/-7.5	12,89	150 x 140	+5.4/+1.8 / -2.2/-7.5	5,74
140 x 90	+5.4/+1.8 / -2.2/-7.5	12,13	160 x 50	+5.4/+1.8 / -2.2/-7.5	23,68
140 x 95	+5.4/+1.8 / -2.2/-7.5	11,32	160 x 60	+5.4/+1.8 / -2.2/-7.5	22,8
140 x 100	+5.4/+1.8 / -2.2/-7.5	10,47	160 x 70	+5.4/+1.8 / -2.2/-7.5	21,75
140 x 105	+5.4/+1.8 / -2.2/-7.5	9,58	160 x 80	+5.4/+1.8 / -2.2/-7.5	20,5
140 x 110	+5.4/+1.8 / -2.2/-7.5	8,63	160 x 90	+5.4/+1.8 / -2.2/-7.5	19,07
140 x 115	+5.4/+1.8 / -2.2/-7.5	7,64	160 x 100	+5.4/+1.8 / -2.2/-7.5	17,45
140 x 120	+5.4/+1.8 / -2.2/-7.5	6,61	160 x 110	+5.4/+1.8 / -2.2/-7.5	15,65
140 x 125	+5.4/+1.8 / -2.2/-7.5	5,53	160 x 120	+5.4/+1.8 / -2.2/-7.5	13,66
140 x 130	+5.4/+1.8 / -2.2/-7.5	4,4	160 x 130	+5.4/+1.8 / -2.2/-7.5	11,48
145 x 40	+5.4/+1.8 / -2.2/-7.5	19,7	160 x 140	+5.4/+1.8 / -2.2/-7.5	9,12
145 x 45	+5.4/+1.8 / -2.2/-7.5	19,36	160 x 150	+5.4/+1.8 / -2.2/-7.5	6,58
145 x 50	+5.4/+1.8 / -2.2/-7.5	18,98	170 x 50	+5.4/+1.8 / -2.2/-7.5	26,74
145 x 55	+5.4/+1.8 / -2.2/-7.5	18,54	170 x 60	+5.4/+1.8 / -2.2/-7.5	25,87
145 x 60	+5.4/+1.8 / -2.2/-7.5	18,07	170 x 70	+5.4/+1.8 / -2.2/-7.5	24,81
145 x 65	+5.4/+1.8 / -2.2/-7.5	17,54	170 x 80	+5.4/+1.8 / -2.2/-7.5	23,57
145 x 70	+5.4/+1.8 / -2.2/-7.5	16,97	170 x 90	+5.4/+1.8 / -2.2/-7.5	22,13
145 x 75	+5.4/+1.8 / -2.2/-7.5	16,35	170 x 100	+5.4/+1.8 / -2.2/-7.5	20,52
145 x 80	+5.4/+1.8 / -2.2/-7.5	15,69	170 x 110	+5.4/+1.8 / -2.2/-7.5	18,71
145 x 85	+5.4/+1.8 / -2.2/-7.5	14,98	170 x 120	+5.4/+1.8 / -2.2/-7.5	16,73
145 x 90	+5.4/+1.8 / -2.2/-7.5	14,22	170 x 130	+5.4/+1.8 / -2.2/-7.5	14,55
145 x 95	+5.4/+1.8 / -2.2/-7.5	13,41	170 x 140	+5.4/+1.8 / -2.2/-7.5	12,19
145 x 100	+5.4/+1.8 / -2.2/-7.5	12,56	170 x 150	+5.4/+1.8 / -2.2/-7.5	9,64
145 x 105	+5.4/+1.8 / -2.2/-7.5	11,67	170 x 160	+5.4/+1.8 / -2.2/-7.5	6,91
145 x 110	+5.4/+1.8 / -2.2/-7.5	10,72	180 x 50	+6.0/+2.0 / -2.5/-8.5	30,15
145 x 115	+5.4/+1.8 / -2.2/-7.5	9,73	180 x 60	+6.0/+2.0 / -2.5/-8.5	29,28
145 x 120	+5.4/+1.8 / -2.2/-7.5	8,7	180 x 70	+6.0/+2.0 / -2.5/-8.5	28,22
145 x 125	+5.4/+1.8 / -2.2/-7.5	7,62	180 x 80	+6.0/+2.0 / -2.5/-8.5	26,97
145 x 130	+5.4/+1.8 / -2.2/-7.5	6,49	180 x 90	+6.0/+2.0 / -2.5/-8.5	25,54
145 x 135	+5.4/+1.8 / -2.2/-7.5	5,31	180 x 100	+6.0/+2.0 / -2.5/-8.5	23,93
150 x 50	+5.4/+1.8 / -2.2/-7.5	20,63	180 x 110	+6.0/+2.0 / -2.5/-8.5	22,12
150 x 55	+5.4/+1.8 / -2.2/-7.5	20,2	180 x 120	+6.0/+2.0 / -2.5/-8.5	20,13
150 x 60	+5.4/+1.8 / -2.2/-7.5	19,72	180 x 130	+6.0/+2.0 / -2.5/-8.5	17,96
150 x 65	+5.4/+1.8 / -2.2/-7.5	19,19	180 x 140	+6.0/+2.0 / -2.5/-8.5	15,6
150 x 70	+5.4/+1.8 / -2.2/-7.5	18,62	180 x 150	+6.0/+2.0 / -2.5/-8.5	13,05

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
180 x 160	+6.0/+2.0 / -2.5/-8.5	10,32	220 x 140	+9.0/+3.0 / -3.0/-10	31,74
180 x 170	+6.0/+2.0 / -2.5/-8.5	7,4	220 x 150	+9.0/+3.0 / -3.0/-10	29,19
190 x 60	+6.0/+2.0 / -2.5/-8.5	32,53	220 x 160	+9.0/+3.0 / -3.0/-10	26,46
190 x 70	+6.0/+2.0 / -2.5/-8.5	31,47	220 x 170	+9.0/+3.0 / -3.0/-10	23,54
190 x 80	+6.0/+2.0 / -2.5/-8.5	30,22	220 x 180	+9.0/+3.0 / -3.0/-10	20,44
190 x 90	+6.0/+2.0 / -2.5/-8.5	28,79	220 x 190	+9.0/+3.0 / -3.0/-10	17,15
190 x 100	+6.0/+2.0 / -2.5/-8.5	27,18	220 x 200	+9.0/+3.0 / -3.0/-10	13,67
190 x 110	+6.0/+2.0 / -2.5/-8.5	25,37	220 x 210	+9.0/+3.0 / -3.0/-10	10,01
190 x 120	+6.0/+2.0 / -2.5/-8.5	23,38	230 x 80	+9.0/+3.0 / -3.0/-10	48,79
190 x 130	+6.0/+2.0 / -2.5/-8.5	21,21	230 x 90	+9.0/+3.0 / -3.0/-10	47,36
190 x 140	+6.0/+2.0 / -2.5/-8.5	18,85	230 x 100	+9.0/+3.0 / -3.0/-10	45,74
190 x 150	+6.0/+2.0 / -2.5/-8.5	16,3	230 x 110	+9.0/+3.0 / -3.0/-10	43,94
190 x 160	+6.0/+2.0 / -2.5/-8.5	13,57	230 x 120	+9.0/+3.0 / -3.0/-10	41,95
190 x 170	+6.0/+2.0 / -2.5/-8.5	10,65	230 x 130	+9.0/+3.0 / -3.0/-10	39,77
190 x 180	+6.0/+2.0 / -2.5/-8.5	7,55	230 x 140	+9.0/+3.0 / -3.0/-10	37,41
200 x 60	+6.0/+2.0 / -2.5/-8.5	36,12	230 x 150	+9.0/+3.0 / -3.0/-10	34,87
200 x 70	+6.0/+2.0 / -2.5/-8.5	35,06	230 x 160	+9.0/+3.0 / -3.0/-10	32,13
200 x 80	+6.0/+2.0 / -2.5/-8.5	33,82	230 x 170	+9.0/+3.0 / -3.0/-10	29,22
200 x 90	+6.0/+2.0 / -2.5/-8.5	32,38	230 x 180	+9.0/+3.0 / -3.0/-10	26,11
200 x 100	+6.0/+2.0 / -2.5/-8.5	30,77	230 x 190	+9.0/+3.0 / -3.0/-10	22,82
200 x 110	+6.0/+2.0 / -2.5/-8.5	28,96	230 x 200	+9.0/+3.0 / -3.0/-10	19,35
200 x 120	+6.0/+2.0 / -2.5/-8.5	26,98	230 x 210	+9.0/+3.0 / -3.0/-10	15,68
200 x 130	+6.0/+2.0 / -2.5/-8.5	24,8	230 x 220	+9.0/+3.0 / -3.0/-10	11,84
200 x 140	+6.0/+2.0 / -2.5/-8.5	22,44	240 x 80	+9.0/+3.0 / -3.0/-10	53,37
200 x 150	+6.0/+2.0 / -2.5/-8.5	19,89	240 x 90	+9.0/+3.0 / -3.0/-10	51,94
200 x 160	+6.0/+2.0 / -2.5/-8.5	17,16	240 x 100	+9.0/+3.0 / -3.0/-10	50,32
200 x 170	+6.0/+2.0 / -2.5/-8.5	14,24	240 x 110	+9.0/+3.0 / -3.0/-10	48,52
200 x 180	+6.0/+2.0 / -2.5/-8.5	11,14	240 x 120	+9.0/+3.0 / -3.0/-10	46,53
200 x 190	+6.0/+2.0 / -2.5/-8.5	7,85	240 x 130	+9.0/+3.0 / -3.0/-10	44,35
210 x 80	+6.0/+2.0 / -2.5/-8.5	38,97	240 x 140	+9.0/+3.0 / -3.0/-10	41,99
210 x 90	+6.0/+2.0 / -2.5/-8.5	37,53	240 x 150	+9.0/+3.0 / -3.0/-10	39,45
210 x 100	+6.0/+2.0 / -2.5/-8.5	35,92	240 x 160	+9.0/+3.0 / -3.0/-10	36,71
210 x 110	+6.0/+2.0 / -2.5/-8.5	34,11	240 x 170	+9.0/+3.0 / -3.0/-10	33,8
210 x 120	+6.0/+2.0 / -2.5/-8.5	32,13	240 x 180	+9.0/+3.0 / -3.0/-10	30,69
210 x 130	+6.0/+2.0 / -2.5/-8.5	29,95	240 x 190	+9.0/+3.0 / -3.0/-10	27,4
210 x 140	+6.0/+2.0 / -2.5/-8.5	27,59	240 x 200	+9.0/+3.0 / -3.0/-10	23,93
210 x 150	+6.0/+2.0 / -2.5/-8.5	25,04	240 x 210	+9.0/+3.0 / -3.0/-10	20,26
210 x 160	+6.0/+2.0 / -2.5/-8.5	22,31	240 x 220	+9.0/+3.0 / -3.0/-10	16,42
210 x 170	+6.0/+2.0 / -2.5/-8.5	19,39	240 x 230	+9.0/+3.0 / -3.0/-10	12,38
210 x 180	+6.0/+2.0 / -2.5/-8.5	16,29	250 x 90	+9.0/+3.0 / -3.5/-14	56,71
210 x 190	+6.0/+2.0 / -2.5/-8.5	13	250 x 100	+9.0/+3.0 / -3.5/-14	55,09
210 x 200	+6.0/+2.0 / -2.5/-8.5	9,52	250 x 110	+9.0/+3.0 / -3.5/-14	53,28
220 x 80	+9.0/+3.0 / -3.0/-10	43,11	250 x 120	+9.0/+3.0 / -3.5/-14	51,3
220 x 90	+9.0/+3.0 / -3.0/-10	41,68	250 x 130	+9.0/+3.0 / -3.5/-14	49,12
220 x 100	+9.0/+3.0 / -3.0/-10	40,07	250 x 140	+9.0/+3.0 / -3.5/-14	46,76
220 x 110	+9.0/+3.0 / -3.0/-10	38,26	250 x 150	+9.0/+3.0 / -3.5/-14	44,21
220 x 120	+9.0/+3.0 / -3.0/-10	36,27	250 x 160	+9.0/+3.0 / -3.5/-14	41,48
220 x 130	+9.0/+3.0 / -3.0/-10	34,1	250 x 170	+9.0/+3.0 / -3.5/-14	38,56

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
250 x 180	+9.0/+3.0 / -3.5/-14	35,46	280 x 180	+9.0/+3.0 / -3.5/-14	51,21
250 x 190	+9.0/+3.0 / -3.5/-14	32,17	280 x 190	+9.0/+3.0 / -3.5/-14	47,93
250 x 200	+9.0/+3.0 / -3.5/-14	28,69	280 x 200	+9.0/+3.0 / -3.5/-14	44,48
250 x 210	+9.0/+3.0 / -3.5/-14	25,03	280 x 210	+9.0/+3.0 / -3.5/-14	40,83
250 x 220	+9.0/+3.0 / -3.5/-14	21,18	280 x 220	+9.0/+3.0 / -3.5/-14	37
250 x 230	+9.0/+3.0 / -3.5/-14	17,15	280 x 230	+9.0/+3.0 / -3.5/-14	32,99
250 x 240	+9.0/+3.0 / -3.5/-14	12,93	280 x 240	+9.0/+3.0 / -3.5/-14	28,79
260 x 100	+9.0/+3.0 / -3.5/-14	60,21	280 x 250	+9.0/+3.0 / -3.5/-14	24,4
260 x 110	+9.0/+3.0 / -3.5/-14	58,43	280 x 260	+9.0/+3.0 / -3.5/-14	19,83
260 x 120	+9.0/+3.0 / -3.5/-14	56,46	280 x 270	+9.0/+3.0 / -3.5/-14	15,07
260 x 130	+9.0/+3.0 / -3.5/-14	54,3	290 x 100	+9.0/+3.0 / -3.5/-14	76,2
260 x 140	+9.0/+3.0 / -3.5/-14	51,96	290 x 110	+9.0/+3.0 / -3.5/-14	74,42
260 x 150	+9.0/+3.0 / -3.5/-14	49,43	290 x 120	+9.0/+3.0 / -3.5/-14	72,45
260 x 160	+9.0/+3.0 / -3.5/-14	46,72	290 x 130	+9.0/+3.0 / -3.5/-14	70,29
260 x 170	+9.0/+3.0 / -3.5/-14	43,82	290 x 140	+9.0/+3.0 / -3.5/-14	67,95
260 x 180	+9.0/+3.0 / -3.5/-14	40,73	290 x 150	+9.0/+3.0 / -3.5/-14	65,42
260 x 190	+9.0/+3.0 / -3.5/-14	37,46	290 x 160	+9.0/+3.0 / -3.5/-14	62,71
260 x 200	+9.0/+3.0 / -3.5/-14	34	290 x 170	+9.0/+3.0 / -3.5/-14	59,81
260 x 210	+9.0/+3.0 / -3.5/-14	30,36	290 x 180	+9.0/+3.0 / -3.5/-14	56,72
260 x 220	+9.0/+3.0 / -3.5/-14	26,53	290 x 190	+9.0/+3.0 / -3.5/-14	53,45
260 x 230	+9.0/+3.0 / -3.5/-14	22,52	290 x 200	+9.0/+3.0 / -3.5/-14	50
260 x 240	+9.0/+3.0 / -3.5/-14	18,32	290 x 210	+9.0/+3.0 / -3.5/-14	46,35
260 x 250	+9.0/+3.0 / -3.5/-14	13,93	290 x 220	+9.0/+3.0 / -3.5/-14	42,52
270 x 100	+9.0/+3.0 / -3.5/-14	63,79	290 x 230	+9.0/+3.0 / -3.5/-14	38,51
270 x 110	+9.0/+3.0 / -3.5/-14	62,01	290 x 240	+9.0/+3.0 / -3.5/-14	34,31
270 x 120	+9.0/+3.0 / -3.5/-14	60,04	290 x 250	+9.0/+3.0 / -3.5/-14	29,92
270 x 130	+9.0/+3.0 / -3.5/-14	57,88	290 x 260	+9.0/+3.0 / -3.5/-14	25,35
270 x 140	+9.0/+3.0 / -3.5/-14	55,54	290 x 270	+9.0/+3.0 / -3.5/-14	20,59
270 x 150	+9.0/+3.0 / -3.5/-14	53,01	290 x 280	+9.0/+3.0 / -3.5/-14	15,64
270 x 160	+9.0/+3.0 / -3.5/-14	50,3	300 x 100	+11/+3.0 / -3.5/-14	81,9
270 x 170	+9.0/+3.0 / -3.5/-14	47,4	300 x 110	+11/+3.0 / -3.5/-14	80,32
270 x 180	+9.0/+3.0 / -3.5/-14	44,31	300 x 120	+11/+3.0 / -3.5/-14	78,16
270 x 190	+9.0/+3.0 / -3.5/-14	41,04	300 x 130	+11/+3.0 / -3.5/-14	76
270 x 200	+9.0/+3.0 / -3.5/-14	37,58	300 x 140	+11/+3.0 / -3.5/-14	73,66
270 x 210	+9.0/+3.0 / -3.5/-14	33,94	300 x 150	+11/+3.0 / -3.5/-14	71,13
270 x 220	+9.0/+3.0 / -3.5/-14	30,11	300 x 160	+11/+3.0 / -3.5/-14	68,42
270 x 230	+9.0/+3.0 / -3.5/-14	26,09	300 x 170	+11/+3.0 / -3.5/-14	65,52
270 x 240	+9.0/+3.0 / -3.5/-14	21,89	300 x 180	+11/+3.0 / -3.5/-14	62,43
270 x 250	+9.0/+3.0 / -3.5/-14	17,51	300 x 190	+11/+3.0 / -3.5/-14	59,16
270 x 260	+9.0/+3.0 / -3.5/-14	12,93	300 x 200	+11/+3.0 / -3.5/-14	55,7
280 x 100	+9.0/+3.0 / -3.5/-14	70,69	300 x 210	+11/+3.0 / -3.5/-14	52,06
280 x 110	+9.0/+3.0 / -3.5/-14	68,9	300 x 220	+11/+3.0 / -3.5/-14	48,23
280 x 120	+9.0/+3.0 / -3.5/-14	66,93	300 x 230	+11/+3.0 / -3.5/-14	44,21
280 x 130	+9.0/+3.0 / -3.5/-14	64,78	300 x 240	+11/+3.0 / -3.5/-14	40,01
280 x 140	+9.0/+3.0 / -3.5/-14	62,43	300 x 250	+11/+3.0 / -3.5/-14	35,63
280 x 150	+9.0/+3.0 / -3.5/-14	59,91	300 x 260	+11/+3.0 / -3.5/-14	31,05
280 x 160	+9.0/+3.0 / -3.5/-14	57,19	300 x 270	+11/+3.0 / -3.5/-14	26,29
280 x 170	+9.0/+3.0 / -3.5/-14	54,29	300 x 280	+11/+3.0 / -3.5/-14	21,35

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
300 x 290	+11/+3.0 / -3.5/-14	16,22	330 x 170	+11/+3.0 / -3.5/-14	85,04
310 x 110	+11/+3.0 / -3.5/-14	87,52	330 x 180	+11/+3.0 / -3.5/-14	81,95
310 x 120	+11/+3.0 / -3.5/-14	85,25	330 x 190	+11/+3.0 / -3.5/-14	78,68
310 x 130	+11/+3.0 / -3.5/-14	83,09	330 x 200	+11/+3.0 / -3.5/-14	75,22
310 x 140	+11/+3.0 / -3.5/-14	80,75	330 x 210	+11/+3.0 / -3.5/-14	71,58
310 x 150	+11/+3.0 / -3.5/-14	78,22	330 x 220	+11/+3.0 / -3.5/-14	67,75
310 x 160	+11/+3.0 / -3.5/-14	75,51	330 x 230	+11/+3.0 / -3.5/-14	63,73
310 x 170	+11/+3.0 / -3.5/-14	72,61	330 x 240	+11/+3.0 / -3.5/-14	59,53
310 x 180	+11/+3.0 / -3.5/-14	69,52	330 x 250	+11/+3.0 / -3.5/-14	55,15
310 x 190	+11/+3.0 / -3.5/-14	66,25	330 x 260	+11/+3.0 / -3.5/-14	50,57
310 x 200	+11/+3.0 / -3.5/-14	62,8	330 x 270	+11/+3.0 / -3.5/-14	45,81
310 x 210	+11/+3.0 / -3.5/-14	59,15	330 x 280	+11/+3.0 / -3.5/-14	40,87
310 x 220	+11/+3.0 / -3.5/-14	55,32	330 x 290	+11/+3.0 / -3.5/-14	35,74
310 x 230	+11/+3.0 / -3.5/-14	51,31	330 x 300	+11/+3.0 / -3.5/-14	30,42
310 x 240	+11/+3.0 / -3.5/-14	47,11	330 x 310	+11/+3.0 / -3.5/-14	24,92
310 x 250	+11/+3.0 / -3.5/-14	42,72	330 x 320	+11/+3.0 / -3.5/-14	19,23
310 x 260	+11/+3.0 / -3.5/-14	38,15	340 x 110	+11/+3.0 / -3.5/-14	105,54
310 x 270	+11/+3.0 / -3.5/-14	33,39	340 x 120	+11/+3.0 / -3.5/-14	104,17
310 x 280	+11/+3.0 / -3.5/-14	28,45	340 x 130	+11/+3.0 / -3.5/-14	102,01
310 x 290	+11/+3.0 / -3.5/-14	23,31	340 x 140	+11/+3.0 / -3.5/-14	99,67
310 x 300	+11/+3.0 / -3.5/-14	18	340 x 150	+11/+3.0 / -3.5/-14	97,14
320 x 110	+11/+3.0 / -3.5/-14	92,64	340 x 160	+11/+3.0 / -3.5/-14	94,43
320 x 120	+11/+3.0 / -3.5/-14	91,37	340 x 170	+11/+3.0 / -3.5/-14	91,53
320 x 130	+11/+3.0 / -3.5/-14	89,21	340 x 180	+11/+3.0 / -3.5/-14	88,44
320 x 140	+11/+3.0 / -3.5/-14	86,87	340 x 190	+11/+3.0 / -3.5/-14	85,17
320 x 150	+11/+3.0 / -3.5/-14	84,34	340 x 200	+11/+3.0 / -3.5/-14	81,72
320 x 160	+11/+3.0 / -3.5/-14	81,63	340 x 210	+11/+3.0 / -3.5/-14	78,07
320 x 170	+11/+3.0 / -3.5/-14	78,73	340 x 220	+11/+3.0 / -3.5/-14	74,24
320 x 180	+11/+3.0 / -3.5/-14	75,64	340 x 230	+11/+3.0 / -3.5/-14	70,23
320 x 190	+11/+3.0 / -3.5/-14	72,37	340 x 240	+11/+3.0 / -3.5/-14	66,03
320 x 200	+11/+3.0 / -3.5/-14	68,91	340 x 250	+11/+3.0 / -3.5/-14	61,64
320 x 210	+11/+3.0 / -3.5/-14	65,27	340 x 260	+11/+3.0 / -3.5/-14	57,07
320 x 220	+11/+3.0 / -3.5/-14	61,44	340 x 270	+11/+3.0 / -3.5/-14	52,31
320 x 230	+11/+3.0 / -3.5/-14	57,43	340 x 280	+11/+3.0 / -3.5/-14	47,36
320 x 240	+11/+3.0 / -3.5/-14	53,23	340 x 290	+11/+3.0 / -3.5/-14	42,23
320 x 250	+11/+3.0 / -3.5/-14	48,84	340 x 300	+11/+3.0 / -3.5/-14	36,92
320 x 260	+11/+3.0 / -3.5/-14	44,27	340 x 310	+11/+3.0 / -3.5/-14	31,42
320 x 270	+11/+3.0 / -3.5/-14	39,51	340 x 320	+11/+3.0 / -3.5/-14	25,73
320 x 280	+11/+3.0 / -3.5/-14	34,56	340 x 330	+11/+3.0 / -3.5/-14	19,85
320 x 290	+11/+3.0 / -3.5/-14	29,43	350 x 110	+11/+3.0 / -3.5/-14	112,28
320 x 300	+11/+3.0 / -3.5/-14	24,12	350 x 120	+11/+3.0 / -3.5/-14	110,28
320 x 310	+11/+3.0 / -3.5/-14	18,62	350 x 130	+11/+3.0 / -3.5/-14	108,08
330 x 110	+11/+3.0 / -3.5/-14	99	350 x 140	+11/+3.0 / -3.5/-14	106,35
330 x 120	+11/+3.0 / -3.5/-14	97,68	350 x 150	+11/+3.0 / -3.5/-14	103,83
330 x 130	+11/+3.0 / -3.5/-14	95,52	350 x 160	+11/+3.0 / -3.5/-14	101,11
330 x 140	+11/+3.0 / -3.5/-14	93,18	350 x 170	+11/+3.0 / -3.5/-14	98,21
330 x 150	+11/+3.0 / -3.5/-14	90,65	350 x 180	+11/+3.0 / -3.5/-14	95,13
330 x 160	+11/+3.0 / -3.5/-14	87,94	350 x 190	+11/+3.0 / -3.5/-14	91,85

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
350 x 200	+11/+3.0 / -3.5/-14	88,4	370 x 200	+11/+3.0 / -3.5/-14	102,32
350 x 210	+11/+3.0 / -3.5/-14	84,75	370 x 210	+11/+3.0 / -3.5/-14	98,68
350 x 220	+11/+3.0 / -3.5/-14	80,92	370 x 220	+11/+3.0 / -3.5/-14	94,85
350 x 230	+11/+3.0 / -3.5/-14	76,91	370 x 230	+11/+3.0 / -3.5/-14	90,84
350 x 240	+11/+3.0 / -3.5/-14	72,71	370 x 240	+11/+3.0 / -3.5/-14	86,64
350 x 250	+11/+3.0 / -3.5/-14	68,32	370 x 250	+11/+3.0 / -3.5/-14	82,25
350 x 260	+11/+3.0 / -3.5/-14	63,75	370 x 260	+11/+3.0 / -3.5/-14	77,68
350 x 270	+11/+3.0 / -3.5/-14	58,99	370 x 270	+11/+3.0 / -3.5/-14	72,92
350 x 280	+11/+3.0 / -3.5/-14	54,05	370 x 280	+11/+3.0 / -3.5/-14	67,97
350 x 290	+11/+3.0 / -3.5/-14	48,92	370 x 290	+11/+3.0 / -3.5/-14	62,84
350 x 300	+11/+3.0 / -3.5/-14	43,6	370 x 300	+11/+3.0 / -3.5/-14	57,53
350 x 310	+11/+3.0 / -3.5/-14	38,1	370 x 310	+11/+3.0 / -3.5/-14	52,02
350 x 320	+11/+3.0 / -3.5/-14	32,41	370 x 320	+11/+3.0 / -3.5/-14	46,34
350 x 330	+11/+3.0 / -3.5/-14	26,54	370 x 330	+11/+3.0 / -3.5/-14	40,46
350 x 340	+11/+3.0 / -3.5/-14	20,48	370 x 340	+11/+3.0 / -3.5/-14	34,4
360 x 110	+11/+3.0 / -3.5/-14	119,22	370 x 350	+11/+3.0 / -3.5/-14	28,16
360 x 120	+11/+3.0 / -3.5/-14	117,2	370 x 360	+11/+3.0 / -3.5/-14	21,73
360 x 130	+11/+3.0 / -3.5/-14	115	380 x 120	+11/+3.0 / -3.5/-14	131,64
360 x 140	+11/+3.0 / -3.5/-14	113,22	380 x 130	+11/+3.0 / -3.5/-14	129,44
360 x 150	+11/+3.0 / -3.5/-14	110,69	380 x 140	+11/+3.0 / -3.5/-14	127,53
360 x 160	+11/+3.0 / -3.5/-14	107,98	380 x 150	+11/+3.0 / -3.5/-14	125
360 x 170	+11/+3.0 / -3.5/-14	105,08	380 x 160	+11/+3.0 / -3.5/-14	122,28
360 x 180	+11/+3.0 / -3.5/-14	102	380 x 170	+11/+3.0 / -3.5/-14	119,38
360 x 190	+11/+3.0 / -3.5/-14	98,72	380 x 180	+11/+3.0 / -3.5/-14	116,3
360 x 200	+11/+3.0 / -3.5/-14	95,27	380 x 190	+11/+3.0 / -3.5/-14	113,03
360 x 210	+11/+3.0 / -3.5/-14	91,62	380 x 200	+11/+3.0 / -3.5/-14	109,57
360 x 220	+11/+3.0 / -3.5/-14	87,79	380 x 210	+11/+3.0 / -3.5/-14	105,93
360 x 230	+11/+3.0 / -3.5/-14	83,78	380 x 220	+11/+3.0 / -3.5/-14	102,1
360 x 240	+11/+3.0 / -3.5/-14	79,58	380 x 230	+11/+3.0 / -3.5/-14	98,08
360 x 250	+11/+3.0 / -3.5/-14	75,19	380 x 240	+11/+3.0 / -3.5/-14	93,88
360 x 260	+11/+3.0 / -3.5/-14	70,62	380 x 250	+11/+3.0 / -3.5/-14	89,49
360 x 270	+11/+3.0 / -3.5/-14	65,86	380 x 260	+11/+3.0 / -3.5/-14	84,92
360 x 280	+11/+3.0 / -3.5/-14	60,92	380 x 270	+11/+3.0 / -3.5/-14	80,16
360 x 290	+11/+3.0 / -3.5/-14	55,79	380 x 280	+11/+3.0 / -3.5/-14	75,22
360 x 300	+11/+3.0 / -3.5/-14	50,47	380 x 290	+11/+3.0 / -3.5/-14	70,09
360 x 310	+11/+3.0 / -3.5/-14	44,97	380 x 300	+11/+3.0 / -3.5/-14	64,77
360 x 320	+11/+3.0 / -3.5/-14	39,28	380 x 310	+11/+3.0 / -3.5/-14	59,27
360 x 330	+11/+3.0 / -3.5/-14	33,41	380 x 320	+11/+3.0 / -3.5/-14	53,58
360 x 340	+11/+3.0 / -3.5/-14	27,35	380 x 330	+11/+3.0 / -3.5/-14	47,71
360 x 350	+11/+3.0 / -3.5/-14	21,1	380 x 340	+11/+3.0 / -3.5/-14	41,65
370 x 120	+11/+3.0 / -3.5/-14	124,32	380 x 350	+11/+3.0 / -3.5/-14	35,4
370 x 130	+11/+3.0 / -3.5/-14	122,12	380 x 360	+11/+3.0 / -3.5/-14	28,97
370 x 140	+11/+3.0 / -3.5/-14	120,28	380 x 370	+11/+3.0 / -3.5/-14	22,35
370 x 150	+11/+3.0 / -3.5/-14	117,75	390 x 120	+11/+3.0 / -3.5/-14	139,14
370 x 160	+11/+3.0 / -3.5/-14	115,04	390 x 130	+11/+3.0 / -3.5/-14	136,94
370 x 170	+11/+3.0 / -3.5/-14	112,14	390 x 140	+11/+3.0 / -3.5/-14	134,96
370 x 180	+11/+3.0 / -3.5/-14	109,05	390 x 150	+11/+3.0 / -3.5/-14	132,43
370 x 190	+11/+3.0 / -3.5/-14	105,78	390 x 160	+11/+3.0 / -3.5/-14	129,72

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
390 x 170	+11/+3.0 / -3.5/-14	126,82	400 x 390	+13/+3.0 / -3.5/-16	23,61
390 x 180	+11/+3.0 / -3.5/-14	123,73	410 x 130	+13/+3.0 / -3.5/-16	153,54
390 x 190	+11/+3.0 / -3.5/-14	120,46	410 x 140	+13/+3.0 / -3.5/-16	151,16
390 x 200	+11/+3.0 / -3.5/-14	117	410 x 150	+13/+3.0 / -3.5/-16	148,62
390 x 210	+11/+3.0 / -3.5/-14	113,36	410 x 160	+13/+3.0 / -3.5/-16	147,01
390 x 220	+11/+3.0 / -3.5/-14	109,53	410 x 170	+13/+3.0 / -3.5/-16	144,13
390 x 230	+11/+3.0 / -3.5/-14	105,51	410 x 180	+13/+3.0 / -3.5/-16	141,06
390 x 240	+11/+3.0 / -3.5/-14	101,31	410 x 190	+13/+3.0 / -3.5/-16	137,81
390 x 250	+11/+3.0 / -3.5/-14	96,93	410 x 200	+13/+3.0 / -3.5/-16	134,37
390 x 260	+11/+3.0 / -3.5/-14	92,35	410 x 210	+13/+3.0 / -3.5/-16	130,74
390 x 270	+11/+3.0 / -3.5/-14	87,6	410 x 220	+13/+3.0 / -3.5/-16	126,93
390 x 280	+11/+3.0 / -3.5/-14	82,65	410 x 230	+13/+3.0 / -3.5/-16	122,94
390 x 290	+11/+3.0 / -3.5/-14	77,52	410 x 240	+13/+3.0 / -3.5/-16	118,75
390 x 300	+11/+3.0 / -3.5/-14	72,2	410 x 250	+13/+3.0 / -3.5/-16	114,39
390 x 310	+11/+3.0 / -3.5/-14	66,7	410 x 260	+13/+3.0 / -3.5/-16	109,83
390 x 320	+11/+3.0 / -3.5/-14	61,01	410 x 270	+13/+3.0 / -3.5/-16	105,09
390 x 330	+11/+3.0 / -3.5/-14	55,14	410 x 280	+13/+3.0 / -3.5/-16	100,17
390 x 340	+11/+3.0 / -3.5/-14	49,08	410 x 290	+13/+3.0 / -3.5/-16	95,05
390 x 350	+11/+3.0 / -3.5/-14	42,84	410 x 300	+13/+3.0 / -3.5/-16	89,76
390 x 360	+11/+3.0 / -3.5/-14	36,4	410 x 310	+13/+3.0 / -3.5/-16	84,27
390 x 370	+11/+3.0 / -3.5/-14	29,79	410 x 320	+13/+3.0 / -3.5/-16	78,6
390 x 380	+11/+3.0 / -3.5/-14	22,98	410 x 330	+13/+3.0 / -3.5/-16	72,75
400 x 130	+13/+3.0 / -3.5/-16	144,62	410 x 340	+13/+3.0 / -3.5/-16	66,71
400 x 140	+13/+3.0 / -3.5/-16	142,24	410 x 350	+13/+3.0 / -3.5/-16	60,48
400 x 150	+13/+3.0 / -3.5/-16	140,05	410 x 360	+13/+3.0 / -3.5/-16	54,07
400 x 160	+13/+3.0 / -3.5/-16	137,34	410 x 370	+13/+3.0 / -3.5/-16	47,47
400 x 170	+13/+3.0 / -3.5/-16	134,44	410 x 380	+13/+3.0 / -3.5/-16	40,68
400 x 180	+13/+3.0 / -3.5/-16	131,35	410 x 390	+13/+3.0 / -3.5/-16	33,71
400 x 190	+13/+3.0 / -3.5/-16	128,08	410 x 400	+13/+3.0 / -3.5/-16	26,56
400 x 200	+13/+3.0 / -3.5/-16	124,62	420 x 130	+13/+3.0 / -3.5/-16	161,64
400 x 210	+13/+3.0 / -3.5/-16	120,98	420 x 140	+13/+3.0 / -3.5/-16	159,26
400 x 220	+13/+3.0 / -3.5/-16	117,15	420 x 150	+13/+3.0 / -3.5/-16	156,7
400 x 230	+13/+3.0 / -3.5/-16	113,13	420 x 160	+13/+3.0 / -3.5/-16	153,96
400 x 240	+13/+3.0 / -3.5/-16	108,93	420 x 170	+13/+3.0 / -3.5/-16	152,16
400 x 250	+13/+3.0 / -3.5/-16	104,55	420 x 180	+13/+3.0 / -3.5/-16	149,09
400 x 260	+13/+3.0 / -3.5/-16	99,97	420 x 190	+13/+3.0 / -3.5/-16	145,84
400 x 270	+13/+3.0 / -3.5/-16	95,22	420 x 200	+13/+3.0 / -3.5/-16	142,4
400 x 280	+13/+3.0 / -3.5/-16	90,27	420 x 210	+13/+3.0 / -3.5/-16	138,78
400 x 290	+13/+3.0 / -3.5/-16	85,14	420 x 220	+13/+3.0 / -3.5/-16	134,97
400 x 300	+13/+3.0 / -3.5/-16	79,82	420 x 230	+13/+3.0 / -3.5/-16	130,97
400 x 310	+13/+3.0 / -3.5/-16	74,32	420 x 240	+13/+3.0 / -3.5/-16	126,79
400 x 320	+13/+3.0 / -3.5/-16	68,63	420 x 250	+13/+3.0 / -3.5/-16	122,42
400 x 330	+13/+3.0 / -3.5/-16	62,76	420 x 260	+13/+3.0 / -3.5/-16	117,87
400 x 340	+13/+3.0 / -3.5/-16	56,7	420 x 270	+13/+3.0 / -3.5/-16	113,13
400 x 350	+13/+3.0 / -3.5/-16	50,46	420 x 280	+13/+3.0 / -3.5/-16	108,2
400 x 360	+13/+3.0 / -3.5/-16	44,02	420 x 290	+13/+3.0 / -3.5/-16	103,09
400 x 370	+13/+3.0 / -3.5/-16	37,41	420 x 300	+13/+3.0 / -3.5/-16	97,79
400 x 380	+13/+3.0 / -3.5/-16	30,6	420 x 310	+13/+3.0 / -3.5/-16	92,31

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
420 x 320	+13/+3.0 / -3.5/-16	86,64	440 x 210	+13/+3.0 / -3.5/-16	155,41
420 x 330	+13/+3.0 / -3.5/-16	80,78	440 x 220	+13/+3.0 / -3.5/-16	151,6
420 x 340	+13/+3.0 / -3.5/-16	74,74	440 x 230	+13/+3.0 / -3.5/-16	147,6
420 x 350	+13/+3.0 / -3.5/-16	68,51	440 x 240	+13/+3.0 / -3.5/-16	143,42
420 x 360	+13/+3.0 / -3.5/-16	62,1	440 x 250	+13/+3.0 / -3.5/-16	139,05
420 x 370	+13/+3.0 / -3.5/-16	55,5	440 x 260	+13/+3.0 / -3.5/-16	134,49
420 x 380	+13/+3.0 / -3.5/-16	48,72	440 x 270	+13/+3.0 / -3.5/-16	129,75
420 x 390	+13/+3.0 / -3.5/-16	41,75	440 x 280	+13/+3.0 / -3.5/-16	124,83
420 x 400	+13/+3.0 / -3.5/-16	34,59	440 x 290	+13/+3.0 / -3.5/-16	119,72
420 x 410	+13/+3.0 / -3.5/-16	27,25	440 x 300	+13/+3.0 / -3.5/-16	114,42
430 x 130	+13/+3.0 / -3.5/-16	169,92	440 x 310	+13/+3.0 / -3.5/-16	108,94
430 x 140	+13/+3.0 / -3.5/-16	167,56	440 x 320	+13/+3.0 / -3.5/-16	103,27
430 x 150	+13/+3.0 / -3.5/-16	165	440 x 330	+13/+3.0 / -3.5/-16	97,41
430 x 160	+13/+3.0 / -3.5/-16	162,24	440 x 340	+13/+3.0 / -3.5/-16	91,37
430 x 170	+13/+3.0 / -3.5/-16	159,3	440 x 350	+13/+3.0 / -3.5/-16	85,14
430 x 180	+13/+3.0 / -3.5/-16	157,31	440 x 360	+13/+3.0 / -3.5/-16	78,73
430 x 190	+13/+3.0 / -3.5/-16	154,06	440 x 370	+13/+3.0 / -3.5/-16	72,13
430 x 200	+13/+3.0 / -3.5/-16	150,62	440 x 380	+13/+3.0 / -3.5/-16	65,35
430 x 210	+13/+3.0 / -3.5/-16	147	440 x 390	+13/+3.0 / -3.5/-16	58,38
430 x 220	+13/+3.0 / -3.5/-16	143,19	440 x 400	+13/+3.0 / -3.5/-16	51,22
430 x 230	+13/+3.0 / -3.5/-16	139,19	440 x 410	+13/+3.0 / -3.5/-16	43,88
430 x 240	+13/+3.0 / -3.5/-16	135,01	440 x 420	+13/+3.0 / -3.5/-16	36,35
430 x 250	+13/+3.0 / -3.5/-16	130,64	440 x 430	+13/+3.0 / -3.5/-16	28,64
430 x 260	+13/+3.0 / -3.5/-16	126,09	450 x 140	+13/+3.0 / -3.5/-16	184,7
430 x 270	+13/+3.0 / -3.5/-16	121,35	450 x 150	+13/+3.0 / -3.5/-16	182,14
430 x 280	+13/+3.0 / -3.5/-16	116,42	450 x 160	+13/+3.0 / -3.5/-16	179,4
430 x 290	+13/+3.0 / -3.5/-16	111,31	450 x 170	+13/+3.0 / -3.5/-16	176,46
430 x 300	+13/+3.0 / -3.5/-16	106,01	450 x 180	+13/+3.0 / -3.5/-16	173,32
430 x 310	+13/+3.0 / -3.5/-16	100,53	450 x 190	+13/+3.0 / -3.5/-16	170
430 x 320	+13/+3.0 / -3.5/-16	94,86	450 x 200	+13/+3.0 / -3.5/-16	167,63
430 x 330	+13/+3.0 / -3.5/-16	89	450 x 210	+13/+3.0 / -3.5/-16	164
430 x 340	+13/+3.0 / -3.5/-16	82,96	450 x 220	+13/+3.0 / -3.5/-16	160,19
430 x 350	+13/+3.0 / -3.5/-16	76,73	450 x 230	+13/+3.0 / -3.5/-16	156,2
430 x 360	+13/+3.0 / -3.5/-16	70,32	450 x 240	+13/+3.0 / -3.5/-16	152,01
430 x 370	+13/+3.0 / -3.5/-16	63,72	450 x 250	+13/+3.0 / -3.5/-16	147,64
430 x 380	+13/+3.0 / -3.5/-16	56,94	450 x 260	+13/+3.0 / -3.5/-16	143,09
430 x 390	+13/+3.0 / -3.5/-16	49,97	450 x 270	+13/+3.0 / -3.5/-16	138,35
430 x 400	+13/+3.0 / -3.5/-16	42,81	450 x 280	+13/+3.0 / -3.5/-16	133,43
430 x 410	+13/+3.0 / -3.5/-16	35,47	450 x 290	+13/+3.0 / -3.5/-16	128,31
430 x 420	+13/+3.0 / -3.5/-16	27,94	450 x 300	+13/+3.0 / -3.5/-16	123,02
440 x 130	+13/+3.0 / -3.5/-16	178,4	450 x 310	+13/+3.0 / -3.5/-16	117,53
440 x 140	+13/+3.0 / -3.5/-16	176,02	450 x 320	+13/+3.0 / -3.5/-16	111,86
440 x 150	+13/+3.0 / -3.5/-16	173,48	450 x 330	+13/+3.0 / -3.5/-16	106,01
440 x 160	+13/+3.0 / -3.5/-16	170,72	450 x 340	+13/+3.0 / -3.5/-16	99,97
440 x 170	+13/+3.0 / -3.5/-16	167,78	450 x 350	+13/+3.0 / -3.5/-16	93,74
440 x 180	+13/+3.0 / -3.5/-16	164,66	450 x 360	+13/+3.0 / -3.5/-16	87,33
440 x 190	+13/+3.0 / -3.5/-16	162,47	450 x 370	+13/+3.0 / -3.5/-16	80,73
440 x 200	+13/+3.0 / -3.5/-16	159,03	450 x 380	+13/+3.0 / -3.5/-16	73,94

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
450 x 390	+13/+3.0 / -3.5/-16	66,97	470 x 240	+13/+3.0 / -3.5/-16	169,77
450 x 400	+13/+3.0 / -3.5/-16	59,82	470 x 250	+13/+3.0 / -3.5/-16	165,4
450 x 410	+13/+3.0 / -3.5/-16	52,47	470 x 260	+13/+3.0 / -3.5/-16	160,85
450 x 420	+13/+3.0 / -3.5/-16	44,95	470 x 270	+13/+3.0 / -3.5/-16	156,11
450 x 430	+13/+3.0 / -3.5/-16	37,23	470 x 280	+13/+3.0 / -3.5/-16	151,18
450 x 440	+13/+3.0 / -3.5/-16	29,33	470 x 290	+13/+3.0 / -3.5/-16	146,07
460 x 140	+13/+3.0 / -3.5/-16	193,56	470 x 300	+13/+3.0 / -3.5/-16	140,77
460 x 150	+13/+3.0 / -3.5/-16	191	470 x 310	+13/+3.0 / -3.5/-16	135,29
460 x 160	+13/+3.0 / -3.5/-16	188,26	470 x 320	+13/+3.0 / -3.5/-16	129,62
460 x 170	+13/+3.0 / -3.5/-16	185,32	470 x 330	+13/+3.0 / -3.5/-16	123,76
460 x 180	+13/+3.0 / -3.5/-16	182,18	470 x 340	+13/+3.0 / -3.5/-16	117,72
460 x 190	+13/+3.0 / -3.5/-16	178,86	470 x 350	+13/+3.0 / -3.5/-16	111,5
460 x 200	+13/+3.0 / -3.5/-16	175,36	470 x 360	+13/+3.0 / -3.5/-16	105,08
460 x 210	+13/+3.0 / -3.5/-16	171,66	470 x 370	+13/+3.0 / -3.5/-16	98,48
460 x 220	+13/+3.0 / -3.5/-16	168,98	470 x 380	+13/+3.0 / -3.5/-16	91,7
460 x 230	+13/+3.0 / -3.5/-16	164,98	470 x 390	+13/+3.0 / -3.5/-16	84,73
460 x 240	+13/+3.0 / -3.5/-16	160,8	470 x 400	+13/+3.0 / -3.5/-16	77,57
460 x 250	+13/+3.0 / -3.5/-16	156,43	470 x 410	+13/+3.0 / -3.5/-16	70,23
460 x 260	+13/+3.0 / -3.5/-16	151,87	470 x 420	+13/+3.0 / -3.5/-16	62,7
460 x 270	+13/+3.0 / -3.5/-16	147,13	470 x 430	+13/+3.0 / -3.5/-16	54,99
460 x 280	+13/+3.0 / -3.5/-16	142,21	470 x 440	+13/+3.0 / -3.5/-16	47,09
460 x 290	+13/+3.0 / -3.5/-16	137,1	470 x 450	+13/+3.0 / -3.5/-16	39
460 x 300	+13/+3.0 / -3.5/-16	131,8	470 x 460	+13/+3.0 / -3.5/-16	30,73
460 x 310	+13/+3.0 / -3.5/-16	126,32	480 x 140	+13/+3.0 / -3.5/-16	211,8
460 x 320	+13/+3.0 / -3.5/-16	120,65	480 x 150	+13/+3.0 / -3.5/-16	209,2
460 x 330	+13/+3.0 / -3.5/-16	114,79	480 x 160	+13/+3.0 / -3.5/-16	206,52
460 x 340	+13/+3.0 / -3.5/-16	108,75	480 x 170	+13/+3.0 / -3.5/-16	203,6
460 x 350	+13/+3.0 / -3.5/-16	102,52	480 x 180	+13/+3.0 / -3.5/-16	200,48
460 x 360	+13/+3.0 / -3.5/-16	96,11	480 x 190	+13/+3.0 / -3.5/-16	197,12
460 x 370	+13/+3.0 / -3.5/-16	89,51	480 x 200	+13/+3.0 / -3.5/-16	193,66
460 x 380	+13/+3.0 / -3.5/-16	82,73	480 x 210	+13/+3.0 / -3.5/-16	189,96
460 x 390	+13/+3.0 / -3.5/-16	75,76	480 x 220	+13/+3.0 / -3.5/-16	186,08
460 x 400	+13/+3.0 / -3.5/-16	68,6	480 x 230	+13/+3.0 / -3.5/-16	182
460 x 410	+13/+3.0 / -3.5/-16	61,26	480 x 240	+13/+3.0 / -3.5/-16	177,74
460 x 420	+13/+3.0 / -3.5/-16	53,73	480 x 250	+13/+3.0 / -3.5/-16	173,28
460 x 430	+13/+3.0 / -3.5/-16	46,02	480 x 260	+13/+3.0 / -3.5/-16	170,01
460 x 440	+13/+3.0 / -3.5/-16	38,12	480 x 270	+13/+3.0 / -3.5/-16	165,27
460 x 450	+13/+3.0 / -3.5/-16	30,03	480 x 280	+13/+3.0 / -3.5/-16	160,34
470 x 140	+13/+3.0 / -3.5/-16	202,6	480 x 290	+13/+3.0 / -3.5/-16	155,23
470 x 150	+13/+3.0 / -3.5/-16	200,06	480 x 300	+13/+3.0 / -3.5/-16	149,93
470 x 160	+13/+3.0 / -3.5/-16	197,27	480 x 310	+13/+3.0 / -3.5/-16	144,45
470 x 170	+13/+3.0 / -3.5/-16	194,36	480 x 320	+13/+3.0 / -3.5/-16	138,78
470 x 180	+13/+3.0 / -3.5/-16	191,2	480 x 330	+13/+3.0 / -3.5/-16	132,92
470 x 190	+13/+3.0 / -3.5/-16	187,92	480 x 340	+13/+3.0 / -3.5/-16	126,88
470 x 200	+13/+3.0 / -3.5/-16	184,42	480 x 350	+13/+3.0 / -3.5/-16	120,65
470 x 210	+13/+3.0 / -3.5/-16	180,72	480 x 360	+13/+3.0 / -3.5/-16	114,24
470 x 220	+13/+3.0 / -3.5/-16	176,84	480 x 370	+13/+3.0 / -3.5/-16	107,64
470 x 230	+13/+3.0 / -3.5/-16	172,76	480 x 380	+13/+3.0 / -3.5/-16	100,86

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
480 x 390	+13/+3.0 / -3.5/-16	93,89	500 x 190	+15/+4.0 / -4.0/-18	216,22
480 x 400	+13/+3.0 / -3.5/-16	86,73	500 x 200	+15/+4.0 / -4.0/-18	212,71
480 x 410	+13/+3.0 / -3.5/-16	79,39	500 x 210	+15/+4.0 / -4.0/-18	209,02
480 x 420	+13/+3.0 / -3.5/-16	71,86	500 x 220	+15/+4.0 / -4.0/-18	205,14
480 x 430	+13/+3.0 / -3.5/-16	64,15	500 x 230	+15/+4.0 / -4.0/-18	201,06
480 x 440	+13/+3.0 / -3.5/-16	56,25	500 x 240	+15/+4.0 / -4.0/-18	196,8
480 x 450	+13/+3.0 / -3.5/-16	48,16	500 x 250	+15/+4.0 / -4.0/-18	192,34
480 x 460	+13/+3.0 / -3.5/-16	39,89	500 x 260	+15/+4.0 / -4.0/-18	187,7
480 x 470	+13/+3.0 / -3.5/-16	31,43	500 x 270	+15/+4.0 / -4.0/-18	182,86
490 x 140	+13/+3.0 / -3.5/-16	221,28	500 x 280	+15/+4.0 / -4.0/-18	177,84
490 x 150	+13/+3.0 / -3.5/-16	218,72	500 x 290	+15/+4.0 / -4.0/-18	172,64
490 x 160	+13/+3.0 / -3.5/-16	215,98	500 x 300	+15/+4.0 / -4.0/-18	168,81
490 x 170	+13/+3.0 / -3.5/-16	213,04	500 x 310	+15/+4.0 / -4.0/-18	163,33
490 x 180	+13/+3.0 / -3.5/-16	209,92	500 x 320	+15/+4.0 / -4.0/-18	157,66
490 x 190	+13/+3.0 / -3.5/-16	206,6	500 x 330	+15/+4.0 / -4.0/-18	151,8
490 x 200	+13/+3.0 / -3.5/-16	203,1	500 x 340	+15/+4.0 / -4.0/-18	145,76
490 x 210	+13/+3.0 / -3.5/-16	199,4	500 x 350	+15/+4.0 / -4.0/-18	139,54
490 x 220	+13/+3.0 / -3.5/-16	195,52	500 x 360	+15/+4.0 / -4.0/-18	133,12
490 x 230	+13/+3.0 / -3.5/-16	191,44	500 x 370	+15/+4.0 / -4.0/-18	126,52
490 x 240	+13/+3.0 / -3.5/-16	187,18	500 x 380	+15/+4.0 / -4.0/-18	119,74
490 x 250	+13/+3.0 / -3.5/-16	182,72	500 x 390	+15/+4.0 / -4.0/-18	112,77
490 x 260	+13/+3.0 / -3.5/-16	178,08	500 x 400	+15/+4.0 / -4.0/-18	105,61
490 x 270	+13/+3.0 / -3.5/-16	173,24	500 x 410	+15/+4.0 / -4.0/-18	98,27
490 x 280	+13/+3.0 / -3.5/-16	169,69	500 x 420	+15/+4.0 / -4.0/-18	90,74
490 x 290	+13/+3.0 / -3.5/-16	164,58	500 x 430	+15/+4.0 / -4.0/-18	83,03
490 x 300	+13/+3.0 / -3.5/-16	159,28	500 x 440	+15/+4.0 / -4.0/-18	75,13
490 x 310	+13/+3.0 / -3.5/-16	153,79	500 x 450	+15/+4.0 / -4.0/-18	67,04
490 x 320	+13/+3.0 / -3.5/-16	148,12	500 x 460	+15/+4.0 / -4.0/-18	58,77
490 x 330	+13/+3.0 / -3.5/-16	142,27	500 x 470	+15/+4.0 / -4.0/-18	50,31
490 x 340	+13/+3.0 / -3.5/-16	136,23	500 x 480	+15/+4.0 / -4.0/-18	41,67
490 x 350	+13/+3.0 / -3.5/-16	130	500 x 490	+15/+4.0 / -4.0/-18	32,84
490 x 360	+13/+3.0 / -3.5/-16	123,59	510 x 300	+15/+4.0 / -4.0/-18	181,92
490 x 370	+13/+3.0 / -3.5/-16	116,99	510 x 310	+15/+4.0 / -4.0/-18	176,53
490 x 380	+13/+3.0 / -3.5/-16	110,21	510 x 320	+15/+4.0 / -4.0/-18	170,95
490 x 390	+13/+3.0 / -3.5/-16	103,23	510 x 330	+15/+4.0 / -4.0/-18	165,19
490 x 400	+13/+3.0 / -3.5/-16	96,08	510 x 340	+15/+4.0 / -4.0/-18	159,24
490 x 410	+13/+3.0 / -3.5/-16	88,74	510 x 350	+15/+4.0 / -4.0/-18	153,11
490 x 420	+13/+3.0 / -3.5/-16	81,21	510 x 360	+15/+4.0 / -4.0/-18	146,79
490 x 430	+13/+3.0 / -3.5/-16	73,49	510 x 370	+15/+4.0 / -4.0/-18	140,28
490 x 440	+13/+3.0 / -3.5/-16	65,59	510 x 380	+15/+4.0 / -4.0/-18	133,59
490 x 450	+13/+3.0 / -3.5/-16	57,51	510 x 390	+15/+4.0 / -4.0/-18	126,71
490 x 460	+13/+3.0 / -3.5/-16	49,24	510 x 400	+15/+4.0 / -4.0/-18	119,65
490 x 470	+13/+3.0 / -3.5/-16	40,78	510 x 410	+15/+4.0 / -4.0/-18	112,4
490 x 480	+13/+3.0 / -3.5/-16	32,14	510 x 420	+15/+4.0 / -4.0/-18	104,97
500 x 150	+15/+4.0 / -4.0/-18	228,36	510 x 430	+15/+4.0 / -4.0/-18	97,35
500 x 160	+15/+4.0 / -4.0/-18	225,6	510 x 440	+15/+4.0 / -4.0/-18	89,54
500 x 170	+15/+4.0 / -4.0/-18	222,66	510 x 450	+15/+4.0 / -4.0/-18	81,55
500 x 180	+15/+4.0 / -4.0/-18	219,54	510 x 460	+15/+4.0 / -4.0/-18	73,37

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
510 x 470	+15/+4.0 / -4.0/-18	65	530 x 520	+15/+4.0 / -4.0/-18	40,38
510 x 480	+15/+4.0 / -4.0/-18	56,45	540 x 300	+15/+4.0 / -4.0/-18	216,34
510 x 490	+15/+4.0 / -4.0/-18	47,72	540 x 310	+15/+4.0 / -4.0/-18	210,84
510 x 500	+15/+4.0 / -4.0/-18	38,79	540 x 320	+15/+4.0 / -4.0/-18	201,21
520 x 300	+15/+4.0 / -4.0/-18	191,82	540 x 330	+15/+4.0 / -4.0/-18	195,45
520 x 310	+15/+4.0 / -4.0/-18	186,43	540 x 340	+15/+4.0 / -4.0/-18	189,5
520 x 320	+15/+4.0 / -4.0/-18	180,85	540 x 350	+15/+4.0 / -4.0/-18	183,37
520 x 330	+15/+4.0 / -4.0/-18	175,09	540 x 360	+15/+4.0 / -4.0/-18	177,05
520 x 340	+15/+4.0 / -4.0/-18	169,14	540 x 370	+15/+4.0 / -4.0/-18	170,54
520 x 350	+15/+4.0 / -4.0/-18	163,01	540 x 380	+15/+4.0 / -4.0/-18	163,85
520 x 360	+15/+4.0 / -4.0/-18	156,69	540 x 390	+15/+4.0 / -4.0/-18	156,97
520 x 370	+15/+4.0 / -4.0/-18	150,18	540 x 400	+15/+4.0 / -4.0/-18	149,91
520 x 380	+15/+4.0 / -4.0/-18	143,49	540 x 410	+15/+4.0 / -4.0/-18	142,66
520 x 390	+15/+4.0 / -4.0/-18	136,61	540 x 420	+15/+4.0 / -4.0/-18	135,23
520 x 400	+15/+4.0 / -4.0/-18	129,55	540 x 430	+15/+4.0 / -4.0/-18	127,6
520 x 410	+15/+4.0 / -4.0/-18	122,3	540 x 440	+15/+4.0 / -4.0/-18	119,8
520 x 420	+15/+4.0 / -4.0/-18	114,87	540 x 450	+15/+4.0 / -4.0/-18	111,8
520 x 430	+15/+4.0 / -4.0/-18	107,24	540 x 460	+15/+4.0 / -4.0/-18	103,63
520 x 440	+15/+4.0 / -4.0/-18	99,44	540 x 470	+15/+4.0 / -4.0/-18	95,26
520 x 450	+15/+4.0 / -4.0/-18	91,45	540 x 480	+15/+4.0 / -4.0/-18	86,71
520 x 460	+15/+4.0 / -4.0/-18	83,27	540 x 490	+15/+4.0 / -4.0/-18	77,97
520 x 470	+15/+4.0 / -4.0/-18	74,9	540 x 500	+15/+4.0 / -4.0/-18	69,05
520 x 480	+15/+4.0 / -4.0/-18	66,35	540 x 510	+15/+4.0 / -4.0/-18	59,94
520 x 490	+15/+4.0 / -4.0/-18	57,61	540 x 520	+15/+4.0 / -4.0/-18	50,65
520 x 500	+15/+4.0 / -4.0/-18	48,69	540 x 530	+15/+4.0 / -4.0/-18	41,17
520 x 510	+15/+4.0 / -4.0/-18	39,58	550 x 300	+15/+4.0 / -4.0/-18	225
530 x 300	+15/+4.0 / -4.0/-18	201,91	550 x 310	+15/+4.0 / -4.0/-18	221,4
530 x 310	+15/+4.0 / -4.0/-18	196,52	550 x 320	+15/+4.0 / -4.0/-18	215,8
530 x 320	+15/+4.0 / -4.0/-18	190,94	550 x 330	+15/+4.0 / -4.0/-18	205,91
530 x 330	+15/+4.0 / -4.0/-18	185,18	550 x 340	+15/+4.0 / -4.0/-18	199,96
530 x 340	+15/+4.0 / -4.0/-18	179,23	550 x 350	+15/+4.0 / -4.0/-18	193,83
530 x 350	+15/+4.0 / -4.0/-18	173,1	550 x 360	+15/+4.0 / -4.0/-18	187,51
530 x 360	+15/+4.0 / -4.0/-18	166,78	550 x 370	+15/+4.0 / -4.0/-18	181
530 x 370	+15/+4.0 / -4.0/-18	160,27	550 x 380	+15/+4.0 / -4.0/-18	174,31
530 x 380	+15/+4.0 / -4.0/-18	153,58	550 x 390	+15/+4.0 / -4.0/-18	167,43
530 x 390	+15/+4.0 / -4.0/-18	146,7	550 x 400	+15/+4.0 / -4.0/-18	160,37
530 x 400	+15/+4.0 / -4.0/-18	139,64	550 x 410	+15/+4.0 / -4.0/-18	153,12
530 x 410	+15/+4.0 / -4.0/-18	132,39	550 x 420	+15/+4.0 / -4.0/-18	145,69
530 x 420	+15/+4.0 / -4.0/-18	124,95	550 x 430	+15/+4.0 / -4.0/-18	138,06
530 x 430	+15/+4.0 / -4.0/-18	117,33	550 x 440	+15/+4.0 / -4.0/-18	130,26
530 x 440	+15/+4.0 / -4.0/-18	109,52	550 x 450	+15/+4.0 / -4.0/-18	122,26
530 x 450	+15/+4.0 / -4.0/-18	101,53	550 x 460	+15/+4.0 / -4.0/-18	114,09
530 x 460	+15/+4.0 / -4.0/-18	93,35	550 x 470	+15/+4.0 / -4.0/-18	105,72
530 x 470	+15/+4.0 / -4.0/-18	84,99	550 x 480	+15/+4.0 / -4.0/-18	97,17
530 x 480	+15/+4.0 / -4.0/-18	76,44	550 x 490	+15/+4.0 / -4.0/-18	88,43
530 x 490	+15/+4.0 / -4.0/-18	67,7	550 x 500	+15/+4.0 / -4.0/-18	79,51
530 x 500	+15/+4.0 / -4.0/-18	58,78	550 x 510	+15/+4.0 / -4.0/-18	70,4
530 x 510	+15/+4.0 / -4.0/-18	49,67	550 x 520	+15/+4.0 / -4.0/-18	61,11

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
550 x 530	+15/+4.0 / -4.0/-18	51,63	570 x 500	+15/+4.0 / -4.0/-18	100,99
550 x 540	+15/+4.0 / -4.0/-18	41,96	570 x 510	+15/+4.0 / -4.0/-18	91,88
560 x 300	+15/+4.0 / -4.0/-18	237,86	570 x 520	+15/+4.0 / -4.0/-18	82,59
560 x 310	+15/+4.0 / -4.0/-18	232,36	570 x 530	+15/+4.0 / -4.0/-18	73,11
560 x 320	+15/+4.0 / -4.0/-18	226,68	570 x 540	+15/+4.0 / -4.0/-18	63,44
560 x 330	+15/+4.0 / -4.0/-18	220,8	570 x 550	+15/+4.0 / -4.0/-18	53,59
560 x 340	+15/+4.0 / -4.0/-18	214,6	570 x 560	+15/+4.0 / -4.0/-18	43,55
560 x 350	+15/+4.0 / -4.0/-18	204,48	580 x 300	+15/+4.0 / -4.0/-18	260,14
560 x 360	+15/+4.0 / -4.0/-18	198,16	580 x 310	+15/+4.0 / -4.0/-18	254,64
560 x 370	+15/+4.0 / -4.0/-18	191,65	580 x 320	+15/+4.0 / -4.0/-18	248,96
560 x 380	+15/+4.0 / -4.0/-18	184,96	580 x 330	+15/+4.0 / -4.0/-18	243,08
560 x 390	+15/+4.0 / -4.0/-18	178,08	580 x 340	+15/+4.0 / -4.0/-18	237,02
560 x 400	+15/+4.0 / -4.0/-18	171,02	580 x 350	+15/+4.0 / -4.0/-18	230,76
560 x 410	+15/+4.0 / -4.0/-18	163,77	580 x 360	+15/+4.0 / -4.0/-18	224,32
560 x 420	+15/+4.0 / -4.0/-18	156,33	580 x 370	+15/+4.0 / -4.0/-18	217,68
560 x 430	+15/+4.0 / -4.0/-18	148,71	580 x 380	+15/+4.0 / -4.0/-18	206,81
560 x 440	+15/+4.0 / -4.0/-18	140,9	580 x 390	+15/+4.0 / -4.0/-18	199,93
560 x 450	+15/+4.0 / -4.0/-18	132,91	580 x 400	+15/+4.0 / -4.0/-18	192,87
560 x 460	+15/+4.0 / -4.0/-18	124,73	580 x 410	+15/+4.0 / -4.0/-18	185,62
560 x 470	+15/+4.0 / -4.0/-18	116,37	580 x 420	+15/+4.0 / -4.0/-18	178,19
560 x 480	+15/+4.0 / -4.0/-18	107,82	580 x 430	+15/+4.0 / -4.0/-18	170,56
560 x 490	+15/+4.0 / -4.0/-18	99,08	580 x 440	+15/+4.0 / -4.0/-18	162,76
560 x 500	+15/+4.0 / -4.0/-18	90,16	580 x 450	+15/+4.0 / -4.0/-18	154,76
560 x 510	+15/+4.0 / -4.0/-18	81,05	580 x 460	+15/+4.0 / -4.0/-18	146,59
560 x 520	+15/+4.0 / -4.0/-18	71,76	580 x 470	+15/+4.0 / -4.0/-18	138,22
560 x 530	+15/+4.0 / -4.0/-18	62,28	580 x 480	+15/+4.0 / -4.0/-18	129,67
560 x 540	+15/+4.0 / -4.0/-18	52,61	580 x 490	+15/+4.0 / -4.0/-18	120,93
560 x 550	+15/+4.0 / -4.0/-18	42,76	580 x 500	+15/+4.0 / -4.0/-18	112,01
570 x 300	+15/+4.0 / -4.0/-18	248,9	580 x 510	+15/+4.0 / -4.0/-18	102,9
570 x 310	+15/+4.0 / -4.0/-18	243,42	580 x 520	+15/+4.0 / -4.0/-18	93,61
570 x 320	+15/+4.0 / -4.0/-18	237,72	580 x 530	+15/+4.0 / -4.0/-18	84,13
570 x 330	+15/+4.0 / -4.0/-18	231,84	580 x 540	+15/+4.0 / -4.0/-18	74,46
570 x 340	+15/+4.0 / -4.0/-18	225,78	580 x 550	+15/+4.0 / -4.0/-18	64,61
570 x 350	+15/+4.0 / -4.0/-18	219,54	580 x 560	+15/+4.0 / -4.0/-18	54,58
570 x 360	+15/+4.0 / -4.0/-18	213,08	580 x 570	+15/+4.0 / -4.0/-18	44,35
570 x 370	+15/+4.0 / -4.0/-18	202,48	590 x 300	+15/+4.0 / -4.0/-18	271,58
570 x 380	+15/+4.0 / -4.0/-18	195,79	590 x 310	+15/+4.0 / -4.0/-18	266,08
570 x 390	+15/+4.0 / -4.0/-18	188,91	590 x 320	+15/+4.0 / -4.0/-18	260,38
570 x 400	+15/+4.0 / -4.0/-18	181,85	590 x 330	+15/+4.0 / -4.0/-18	254,52
570 x 410	+15/+4.0 / -4.0/-18	174,6	590 x 340	+15/+4.0 / -4.0/-18	248,44
570 x 420	+15/+4.0 / -4.0/-18	167,17	590 x 350	+15/+4.0 / -4.0/-18	242,2
570 x 430	+15/+4.0 / -4.0/-18	159,54	590 x 360	+15/+4.0 / -4.0/-18	235,74
570 x 440	+15/+4.0 / -4.0/-18	151,74	590 x 370	+15/+4.0 / -4.0/-18	229,12
570 x 450	+15/+4.0 / -4.0/-18	143,74	590 x 380	+15/+4.0 / -4.0/-18	222,3
570 x 460	+15/+4.0 / -4.0/-18	135,57	590 x 390	+15/+4.0 / -4.0/-18	215,28
570 x 470	+15/+4.0 / -4.0/-18	127,2	590 x 400	+15/+4.0 / -4.0/-18	204,08
570 x 480	+15/+4.0 / -4.0/-18	118,65	590 x 410	+15/+4.0 / -4.0/-18	196,83
570 x 490	+15/+4.0 / -4.0/-18	109,91	590 x 420	+15/+4.0 / -4.0/-18	189,39

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
590 x 430	+15/+4.0 / -4.0/-18	181,77	610 x 320	+15/+4.0 / -4.0/-18	283,82
590 x 440	+15/+4.0 / -4.0/-18	173,96	610 x 330	+15/+4.0 / -4.0/-18	277,94
590 x 450	+15/+4.0 / -4.0/-18	165,97	610 x 340	+15/+4.0 / -4.0/-18	271,88
590 x 460	+15/+4.0 / -4.0/-18	157,79	610 x 350	+15/+4.0 / -4.0/-18	265,62
590 x 470	+15/+4.0 / -4.0/-18	149,43	610 x 360	+15/+4.0 / -4.0/-18	259,18
590 x 480	+15/+4.0 / -4.0/-18	140,88	610 x 370	+15/+4.0 / -4.0/-18	252,54
590 x 490	+15/+4.0 / -4.0/-18	132,14	610 x 380	+15/+4.0 / -4.0/-18	245,72
590 x 500	+15/+4.0 / -4.0/-18	123,22	610 x 390	+15/+4.0 / -4.0/-18	238,7
590 x 510	+15/+4.0 / -4.0/-18	114,11	610 x 400	+15/+4.0 / -4.0/-18	231,5
590 x 520	+15/+4.0 / -4.0/-18	104,82	610 x 410	+15/+4.0 / -4.0/-18	224,12
590 x 530	+15/+4.0 / -4.0/-18	95,34	610 x 420	+15/+4.0 / -4.0/-18	216,54
590 x 540	+15/+4.0 / -4.0/-18	85,67	610 x 430	+15/+4.0 / -4.0/-18	204,75
590 x 550	+15/+4.0 / -4.0/-18	75,82	610 x 440	+15/+4.0 / -4.0/-18	196,94
590 x 560	+15/+4.0 / -4.0/-18	65,78	610 x 450	+15/+4.0 / -4.0/-18	188,95
590 x 570	+15/+4.0 / -4.0/-18	55,56	610 x 460	+15/+4.0 / -4.0/-18	180,77
590 x 580	+15/+4.0 / -4.0/-18	45,15	610 x 470	+15/+4.0 / -4.0/-18	172,4
600 x 300	+15/+4.0 / -4.0/-18	283,18	610 x 480	+15/+4.0 / -4.0/-18	163,85
600 x 310	+15/+4.0 / -4.0/-18	277,7	610 x 490	+15/+4.0 / -4.0/-18	155,12
600 x 320	+15/+4.0 / -4.0/-18	272	610 x 500	+15/+4.0 / -4.0/-18	146,19
600 x 330	+15/+4.0 / -4.0/-18	266,12	610 x 510	+15/+4.0 / -4.0/-18	137,09
600 x 340	+15/+4.0 / -4.0/-18	260,06	610 x 520	+15/+4.0 / -4.0/-18	127,79
600 x 350	+15/+4.0 / -4.0/-18	253,82	610 x 530	+15/+4.0 / -4.0/-18	118,31
600 x 360	+15/+4.0 / -4.0/-18	247,36	610 x 540	+15/+4.0 / -4.0/-18	108,65
600 x 370	+15/+4.0 / -4.0/-18	240,74	610 x 550	+15/+4.0 / -4.0/-18	98,79
600 x 380	+15/+4.0 / -4.0/-18	233,92	610 x 560	+15/+4.0 / -4.0/-18	88,76
600 x 390	+15/+4.0 / -4.0/-18	226,9	610 x 570	+15/+4.0 / -4.0/-18	78,53
600 x 400	+15/+4.0 / -4.0/-18	219,7	610 x 580	+15/+4.0 / -4.0/-18	68,12
600 x 410	+15/+4.0 / -4.0/-18	212,3	610 x 590	+15/+4.0 / -4.0/-18	57,53
600 x 420	+15/+4.0 / -4.0/-18	200,7	610 x 600	+15/+4.0 / -4.0/-18	46,75
600 x 430	+15/+4.0 / -4.0/-18	193,17	620 x 300	+15/+4.0 / -4.0/-18	307
600 x 440	+15/+4.0 / -4.0/-18	185,36	620 x 310	+15/+4.0 / -4.0/-18	301,5
600 x 450	+15/+4.0 / -4.0/-18	177,37	620 x 320	+15/+4.0 / -4.0/-18	295,82
600 x 460	+15/+4.0 / -4.0/-18	169,19	620 x 330	+15/+4.0 / -4.0/-18	289,94
600 x 470	+15/+4.0 / -4.0/-18	160,82	620 x 340	+15/+4.0 / -4.0/-18	283,88
600 x 480	+15/+4.0 / -4.0/-18	152,27	620 x 350	+15/+4.0 / -4.0/-18	277,62
600 x 490	+15/+4.0 / -4.0/-18	143,54	620 x 360	+15/+4.0 / -4.0/-18	271,18
600 x 500	+15/+4.0 / -4.0/-18	134,61	620 x 370	+15/+4.0 / -4.0/-18	264,54
600 x 510	+15/+4.0 / -4.0/-18	125,51	620 x 380	+15/+4.0 / -4.0/-18	257,72
600 x 520	+15/+4.0 / -4.0/-18	116,21	620 x 390	+15/+4.0 / -4.0/-18	250,7
600 x 530	+15/+4.0 / -4.0/-18	106,73	620 x 400	+15/+4.0 / -4.0/-18	243,5
600 x 540	+15/+4.0 / -4.0/-18	97,07	620 x 410	+15/+4.0 / -4.0/-18	236,12
600 x 550	+15/+4.0 / -4.0/-18	87,21	620 x 420	+15/+4.0 / -4.0/-18	228,52
600 x 560	+15/+4.0 / -4.0/-18	77,18	620 x 430	+15/+4.0 / -4.0/-18	220,76
600 x 570	+15/+4.0 / -4.0/-18	66,95	620 x 440	+15/+4.0 / -4.0/-18	212,8
600 x 580	+15/+4.0 / -4.0/-18	56,54	620 x 450	+15/+4.0 / -4.0/-18	200,71
600 x 590	+15/+4.0 / -4.0/-18	45,95	620 x 460	+15/+4.0 / -4.0/-18	192,54
610 x 300	+15/+4.0 / -4.0/-18	295	620 x 470	+15/+4.0 / -4.0/-18	184,17
610 x 310	+15/+4.0 / -4.0/-18	289,5	620 x 480	+15/+4.0 / -4.0/-18	175,62

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
620 x 490	+15/+4.0 / -4.0/-18	166,88	640 x 320	+15/+4.0 / -4.0/-18	320,38
620 x 500	+15/+4.0 / -4.0/-18	157,96	640 x 330	+15/+4.0 / -4.0/-18	314,5
620 x 510	+15/+4.0 / -4.0/-18	148,85	640 x 340	+15/+4.0 / -4.0/-18	308,44
620 x 520	+15/+4.0 / -4.0/-18	139,56	640 x 350	+15/+4.0 / -4.0/-18	302,18
620 x 530	+15/+4.0 / -4.0/-18	130,08	640 x 360	+15/+4.0 / -4.0/-18	295,74
620 x 540	+15/+4.0 / -4.0/-18	120,41	640 x 370	+15/+4.0 / -4.0/-18	289,1
620 x 550	+15/+4.0 / -4.0/-18	110,56	640 x 380	+15/+4.0 / -4.0/-18	282,28
620 x 560	+15/+4.0 / -4.0/-18	100,52	640 x 390	+15/+4.0 / -4.0/-18	275,28
620 x 570	+15/+4.0 / -4.0/-18	90,3	640 x 400	+15/+4.0 / -4.0/-18	268,06
620 x 580	+15/+4.0 / -4.0/-18	79,89	640 x 410	+15/+4.0 / -4.0/-18	260,68
620 x 590	+15/+4.0 / -4.0/-18	69,3	640 x 420	+15/+4.0 / -4.0/-18	253,1
620 x 600	+15/+4.0 / -4.0/-18	58,52	640 x 430	+15/+4.0 / -4.0/-18	245,32
620 x 610	+15/+4.0 / -4.0/-18	47,55	640 x 440	+15/+4.0 / -4.0/-18	237,36
630 x 300	+15/+4.0 / -4.0/-18	319,18	640 x 450	+15/+4.0 / -4.0/-18	229,22
630 x 310	+15/+4.0 / -4.0/-18	313,68	640 x 460	+15/+4.0 / -4.0/-18	220,88
630 x 320	+15/+4.0 / -4.0/-18	308	640 x 470	+15/+4.0 / -4.0/-18	208,27
630 x 330	+15/+4.0 / -4.0/-18	302,12	640 x 480	+15/+4.0 / -4.0/-18	199,72
630 x 340	+15/+4.0 / -4.0/-18	296,06	640 x 490	+15/+4.0 / -4.0/-18	190,98
630 x 350	+15/+4.0 / -4.0/-18	289,8	640 x 500	+15/+4.0 / -4.0/-18	182,06
630 x 360	+15/+4.0 / -4.0/-18	283,36	640 x 510	+15/+4.0 / -4.0/-18	172,95
630 x 370	+15/+4.0 / -4.0/-18	276,72	640 x 520	+15/+4.0 / -4.0/-18	163,65
630 x 380	+15/+4.0 / -4.0/-18	269,9	640 x 530	+15/+4.0 / -4.0/-18	154,17
630 x 390	+15/+4.0 / -4.0/-18	262,9	640 x 540	+15/+4.0 / -4.0/-18	144,51
630 x 400	+15/+4.0 / -4.0/-18	255,7	640 x 550	+15/+4.0 / -4.0/-18	134,66
630 x 410	+15/+4.0 / -4.0/-18	248,3	640 x 560	+15/+4.0 / -4.0/-18	124,62
630 x 420	+15/+4.0 / -4.0/-18	240,72	640 x 570	+15/+4.0 / -4.0/-18	114,4
630 x 430	+15/+4.0 / -4.0/-18	232,94	640 x 580	+15/+4.0 / -4.0/-18	103,99
630 x 440	+15/+4.0 / -4.0/-18	224,98	640 x 590	+15/+4.0 / -4.0/-18	93,39
630 x 450	+15/+4.0 / -4.0/-18	216,84	640 x 600	+15/+4.0 / -4.0/-18	82,61
630 x 460	+15/+4.0 / -4.0/-18	204,49	640 x 610	+15/+4.0 / -4.0/-18	71,64
630 x 470	+15/+4.0 / -4.0/-18	196,12	640 x 620	+15/+4.0 / -4.0/-18	60,49
630 x 480	+15/+4.0 / -4.0/-18	187,57	640 x 630	+15/+4.0 / -4.0/-18	49,15
630 x 490	+15/+4.0 / -4.0/-18	178,84	650 x 300	+15/+4.0 / -4.0/-18	344,14
630 x 500	+15/+4.0 / -4.0/-18	169,92	650 x 310	+15/+4.0 / -4.0/-18	338,64
630 x 510	+15/+4.0 / -4.0/-18	160,81	650 x 320	+15/+4.0 / -4.0/-18	332,94
630 x 520	+15/+4.0 / -4.0/-18	151,51	650 x 330	+15/+4.0 / -4.0/-18	327,08
630 x 530	+15/+4.0 / -4.0/-18	142,03	650 x 340	+15/+4.0 / -4.0/-18	321
630 x 540	+15/+4.0 / -4.0/-18	132,37	650 x 350	+15/+4.0 / -4.0/-18	314,76
630 x 550	+15/+4.0 / -4.0/-18	122,52	650 x 360	+15/+4.0 / -4.0/-18	308,3
630 x 560	+15/+4.0 / -4.0/-18	112,48	650 x 370	+15/+4.0 / -4.0/-18	301,68
630 x 570	+15/+4.0 / -4.0/-18	102,25	650 x 380	+15/+4.0 / -4.0/-18	294,86
630 x 580	+15/+4.0 / -4.0/-18	91,85	650 x 390	+15/+4.0 / -4.0/-18	287,84
630 x 590	+15/+4.0 / -4.0/-18	81,25	650 x 400	+15/+4.0 / -4.0/-18	280,64
630 x 600	+15/+4.0 / -4.0/-18	70,47	650 x 410	+15/+4.0 / -4.0/-18	273,24
630 x 610	+15/+4.0 / -4.0/-18	59,5	650 x 420	+15/+4.0 / -4.0/-18	265,66
630 x 620	+15/+4.0 / -4.0/-18	48,35	650 x 430	+15/+4.0 / -4.0/-18	257,9
640 x 300	+15/+4.0 / -4.0/-18	331,56	650 x 440	+15/+4.0 / -4.0/-18	249,94
640 x 310	+15/+4.0 / -4.0/-18	326,06	650 x 450	+15/+4.0 / -4.0/-18	241,78

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
650 x 460	+15/+4.0 / -4.0/-18	220	675 x 520	+15/+4.0 / -4.0/-18	198
650 x 470	+15/+4.0 / -4.0/-18	212	675 x 530	+15/+4.0 / -4.0/-18	193
650 x 480	+15/+4.0 / -4.0/-18	203	675 x 540	+15/+4.0 / -4.0/-18	184
650 x 490	+15/+4.0 / -4.0/-18	194	675 x 550	+15/+4.0 / -4.0/-18	174
650 x 500	+15/+4.0 / -4.0/-18	185	675 x 560	+15/+4.0 / -4.0/-18	164
650 x 510	+15/+4.0 / -4.0/-18	180	675 x 570	+15/+4.0 / -4.0/-18	153
650 x 520	+15/+4.0 / -4.0/-18	171	675 x 580	+15/+4.0 / -4.0/-18	145
650 x 530	+15/+4.0 / -4.0/-18	162	675 x 590	+15/+4.0 / -4.0/-18	135
650 x 540	+15/+4.0 / -4.0/-18	152	675 x 600	+15/+4.0 / -4.0/-18	124
650 x 550	+15/+4.0 / -4.0/-18	142	675 x 610	+15/+4.0 / -4.0/-18	113
650 x 560	+15/+4.0 / -4.0/-18	134	675 x 620	+15/+4.0 / -4.0/-18	101
650 x 570	+15/+4.0 / -4.0/-18	124	675 x 630	+15/+4.0 / -4.0/-18	90
650 x 580	+15/+4.0 / -4.0/-18	113	675 x 640	+15/+4.0 / -4.0/-18	81
650 x 590	+15/+4.0 / -4.0/-18	103	675 x 650	+15/+4.0 / -4.0/-18	69
650 x 600	+15/+4.0 / -4.0/-18	92	675 x 660	+15/+4.0 / -4.0/-18	57
650 x 610	+15/+4.0 / -4.0/-18	81	700 x 230	+15/+4.0 / -4.0/-18	423
650 x 620	+15/+4.0 / -4.0/-18	72	700 x 240	+15/+4.0 / -4.0/-18	419
650 x 630	+15/+4.0 / -4.0/-18	60	700 x 250	+15/+4.0 / -4.0/-18	414
675 x 220	+15/+4.0 / -4.0/-18	393	700 x 260	+15/+4.0 / -4.0/-18	410
675 x 230	+15/+4.0 / -4.0/-18	389	700 x 270	+15/+4.0 / -4.0/-18	405
675 x 240	+15/+4.0 / -4.0/-18	385	700 x 280	+15/+4.0 / -4.0/-18	400
675 x 250	+15/+4.0 / -4.0/-18	381	700 x 290	+15/+4.0 / -4.0/-18	395
675 x 260	+15/+4.0 / -4.0/-18	376	700 x 300	+15/+4.0 / -4.0/-18	390
675 x 270	+15/+4.0 / -4.0/-18	372	700 x 310	+15/+4.0 / -4.0/-18	385
675 x 280	+15/+4.0 / -4.0/-18	367	700 x 320	+15/+4.0 / -4.0/-18	379
675 x 290	+15/+4.0 / -4.0/-18	362	700 x 330	+15/+4.0 / -4.0/-18	373
675 x 300	+15/+4.0 / -4.0/-18	357	700 x 340	+15/+4.0 / -4.0/-18	367
675 x 310	+15/+4.0 / -4.0/-18	351	700 x 350	+15/+4.0 / -4.0/-18	361
675 x 320	+15/+4.0 / -4.0/-18	345	700 x 360	+15/+4.0 / -4.0/-18	355
675 x 330	+15/+4.0 / -4.0/-18	340	700 x 370	+15/+4.0 / -4.0/-18	348
675 x 340	+15/+4.0 / -4.0/-18	334	700 x 380	+15/+4.0 / -4.0/-18	341
675 x 350	+15/+4.0 / -4.0/-18	327	700 x 390	+15/+4.0 / -4.0/-18	334
675 x 360	+15/+4.0 / -4.0/-18	321	700 x 400	+15/+4.0 / -4.0/-18	327
675 x 370	+15/+4.0 / -4.0/-18	315	700 x 410	+15/+4.0 / -4.0/-18	320
675 x 380	+15/+4.0 / -4.0/-18	308	700 x 420	+15/+4.0 / -4.0/-18	312
675 x 390	+15/+4.0 / -4.0/-18	301	700 x 430	+15/+4.0 / -4.0/-18	305
675 x 400	+15/+4.0 / -4.0/-18	294	700 x 440	+15/+4.0 / -4.0/-18	297
675 x 410	+15/+4.0 / -4.0/-18	286	700 x 450	+15/+4.0 / -4.0/-18	289
675 x 420	+15/+4.0 / -4.0/-18	279	700 x 460	+15/+4.0 / -4.0/-18	281
675 x 430	+15/+4.0 / -4.0/-18	271	700 x 470	+15/+4.0 / -4.0/-18	272
675 x 440	+15/+4.0 / -4.0/-18	263	700 x 480	+15/+4.0 / -4.0/-18	264
675 x 450	+15/+4.0 / -4.0/-18	255	700 x 490	+15/+4.0 / -4.0/-18	255
675 x 460	+15/+4.0 / -4.0/-18	247	700 x 500	+15/+4.0 / -4.0/-18	246
675 x 470	+15/+4.0 / -4.0/-18	239	700 x 510	+15/+4.0 / -4.0/-18	242
675 x 480	+15/+4.0 / -4.0/-18	235	700 x 520	+15/+4.0 / -4.0/-18	232
675 x 490	+15/+4.0 / -4.0/-18	226	700 x 530	+15/+4.0 / -4.0/-18	223
675 x 500	+15/+4.0 / -4.0/-18	217	700 x 540	+15/+4.0 / -4.0/-18	213
675 x 510	+15/+4.0 / -4.0/-18	208	700 x 550	+15/+4.0 / -4.0/-18	203

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
700 x 560	+15/+4.0 / -4.0/-18	198	725 x 590	+15/+4.0 / -4.0/-18	201
700 x 570	+15/+4.0 / -4.0/-18	188	725 x 600	+15/+4.0 / -4.0/-18	190
700 x 580	+15/+4.0 / -4.0/-18	177	725 x 610	+15/+4.0 / -4.0/-18	179
700 x 590	+15/+4.0 / -4.0/-18	166	725 x 620	+15/+4.0 / -4.0/-18	168
700 x 600	+15/+4.0 / -4.0/-18	156	725 x 630	+15/+4.0 / -4.0/-18	159
700 x 610	+15/+4.0 / -4.0/-18	147	725 x 640	+15/+4.0 / -4.0/-18	147
700 x 620	+15/+4.0 / -4.0/-18	136	725 x 650	+15/+4.0 / -4.0/-18	135
700 x 630	+15/+4.0 / -4.0/-18	124	725 x 660	+15/+4.0 / -4.0/-18	124
700 x 640	+15/+4.0 / -4.0/-18	113	725 x 670	+15/+4.0 / -4.0/-18	111
700 x 650	+15/+4.0 / -4.0/-18	101	725 x 680	+15/+4.0 / -4.0/-18	99
700 x 660	+15/+4.0 / -4.0/-18	89	725 x 690	+15/+4.0 / -4.0/-18	89
700 x 670	+15/+4.0 / -4.0/-18	79	725 x 700	+15/+4.0 / -4.0/-18	76
700 x 680	+15/+4.0 / -4.0/-18	67	725 x 710	+15/+4.0 / -4.0/-18	64
725 x 240	+15/+4.0 / -4.0/-18	452	750 x 240	+25/+5.0 / -5.0/-25	488
725 x 250	+15/+4.0 / -4.0/-18	448	750 x 250	+25/+5.0 / -5.0/-25	484
725 x 260	+15/+4.0 / -4.0/-18	443	750 x 260	+25/+5.0 / -5.0/-25	479
725 x 270	+15/+4.0 / -4.0/-18	439	750 x 270	+25/+5.0 / -5.0/-25	475
725 x 280	+15/+4.0 / -4.0/-18	434	750 x 280	+25/+5.0 / -5.0/-25	470
725 x 290	+15/+4.0 / -4.0/-18	429	750 x 290	+25/+5.0 / -5.0/-25	465
725 x 300	+15/+4.0 / -4.0/-18	424	750 x 300	+25/+5.0 / -5.0/-25	460
725 x 310	+15/+4.0 / -4.0/-18	418	750 x 310	+25/+5.0 / -5.0/-25	454
725 x 320	+15/+4.0 / -4.0/-18	412	750 x 320	+25/+5.0 / -5.0/-25	449
725 x 330	+15/+4.0 / -4.0/-18	407	750 x 330	+25/+5.0 / -5.0/-25	443
725 x 340	+15/+4.0 / -4.0/-18	401	750 x 340	+25/+5.0 / -5.0/-25	437
725 x 350	+15/+4.0 / -4.0/-18	394	750 x 350	+25/+5.0 / -5.0/-25	431
725 x 360	+15/+4.0 / -4.0/-18	388	750 x 360	+25/+5.0 / -5.0/-25	424
725 x 370	+15/+4.0 / -4.0/-18	382	750 x 370	+25/+5.0 / -5.0/-25	418
725 x 380	+15/+4.0 / -4.0/-18	375	750 x 380	+25/+5.0 / -5.0/-25	411
725 x 390	+15/+4.0 / -4.0/-18	368	750 x 390	+25/+5.0 / -5.0/-25	404
725 x 400	+15/+4.0 / -4.0/-18	361	750 x 400	+25/+5.0 / -5.0/-25	397
725 x 410	+15/+4.0 / -4.0/-18	353	750 x 410	+25/+5.0 / -5.0/-25	390
725 x 420	+15/+4.0 / -4.0/-18	346	750 x 420	+25/+5.0 / -5.0/-25	382
725 x 430	+15/+4.0 / -4.0/-18	338	750 x 430	+25/+5.0 / -5.0/-25	375
725 x 440	+15/+4.0 / -4.0/-18	330	750 x 440	+25/+5.0 / -5.0/-25	367
725 x 450	+15/+4.0 / -4.0/-18	322	750 x 450	+25/+5.0 / -5.0/-25	359
725 x 460	+15/+4.0 / -4.0/-18	314	750 x 460	+25/+5.0 / -5.0/-25	351
725 x 470	+15/+4.0 / -4.0/-18	306	750 x 470	+25/+5.0 / -5.0/-25	342
725 x 480	+15/+4.0 / -4.0/-18	297	750 x 480	+25/+5.0 / -5.0/-25	334
725 x 490	+15/+4.0 / -4.0/-18	288	750 x 490	+25/+5.0 / -5.0/-25	325
725 x 500	+15/+4.0 / -4.0/-18	279	750 x 500	+25/+5.0 / -5.0/-25	316
725 x 510	+15/+4.0 / -4.0/-18	270	750 x 510	+25/+5.0 / -5.0/-25	307
725 x 520	+15/+4.0 / -4.0/-18	261	750 x 520	+25/+5.0 / -5.0/-25	298
725 x 530	+15/+4.0 / -4.0/-18	257	750 x 530	+25/+5.0 / -5.0/-25	288
725 x 540	+15/+4.0 / -4.0/-18	247	750 x 540	+25/+5.0 / -5.0/-25	279
725 x 550	+15/+4.0 / -4.0/-18	237	750 x 550	+25/+5.0 / -5.0/-25	269
725 x 560	+15/+4.0 / -4.0/-18	227	750 x 560	+25/+5.0 / -5.0/-25	264
725 x 570	+15/+4.0 / -4.0/-18	217	750 x 570	+25/+5.0 / -5.0/-25	254
725 x 580	+15/+4.0 / -4.0/-18	211	750 x 580	+25/+5.0 / -5.0/-25	244

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
750 x 590	+25/+5.0 / -5.0/-25	233	775 x 580	+25/+5.0 / -5.0/-25	280
750 x 600	+25/+5.0 / -5.0/-25	222	775 x 590	+25/+5.0 / -5.0/-25	269
750 x 610	+25/+5.0 / -5.0/-25	217	775 x 600	+25/+5.0 / -5.0/-25	258
750 x 620	+25/+5.0 / -5.0/-25	206	775 x 610	+25/+5.0 / -5.0/-25	247
750 x 630	+25/+5.0 / -5.0/-25	194	775 x 620	+25/+5.0 / -5.0/-25	236
750 x 640	+25/+5.0 / -5.0/-25	183	775 x 630	+25/+5.0 / -5.0/-25	231
750 x 650	+25/+5.0 / -5.0/-25	171	775 x 640	+25/+5.0 / -5.0/-25	219
750 x 660	+25/+5.0 / -5.0/-25	162	775 x 650	+25/+5.0 / -5.0/-25	208
750 x 670	+25/+5.0 / -5.0/-25	150	775 x 660	+25/+5.0 / -5.0/-25	196
750 x 680	+25/+5.0 / -5.0/-25	138	775 x 670	+25/+5.0 / -5.0/-25	184
750 x 690	+25/+5.0 / -5.0/-25	125	775 x 680	+25/+5.0 / -5.0/-25	174
750 x 700	+25/+5.0 / -5.0/-25	113	775 x 690	+25/+5.0 / -5.0/-25	162
750 x 710	+25/+5.0 / -5.0/-25	100	775 x 700	+25/+5.0 / -5.0/-25	149
750 x 720	+25/+5.0 / -5.0/-25	90	775 x 710	+25/+5.0 / -5.0/-25	136
750 x 730	+25/+5.0 / -5.0/-25	76	775 x 720	+25/+5.0 / -5.0/-25	123
775 x 250	+25/+5.0 / -5.0/-25	520	775 x 730	+25/+5.0 / -5.0/-25	110
775 x 260	+25/+5.0 / -5.0/-25	515	775 x 740	+25/+5.0 / -5.0/-25	100
775 x 270	+25/+5.0 / -5.0/-25	510	775 x 750	+25/+5.0 / -5.0/-25	86
775 x 280	+25/+5.0 / -5.0/-25	506	775 x 760	+25/+5.0 / -5.0/-25	73
775 x 290	+25/+5.0 / -5.0/-25	501	800 x 310	+25/+5.0 / -5.0/-25	527
775 x 300	+25/+5.0 / -5.0/-25	495	800 x 320	+25/+5.0 / -5.0/-25	521
775 x 310	+25/+5.0 / -5.0/-25	490	800 x 330	+25/+5.0 / -5.0/-25	516
775 x 320	+25/+5.0 / -5.0/-25	484	800 x 340	+25/+5.0 / -5.0/-25	510
775 x 330	+25/+5.0 / -5.0/-25	479	800 x 350	+25/+5.0 / -5.0/-25	503
775 x 340	+25/+5.0 / -5.0/-25	473	800 x 360	+25/+5.0 / -5.0/-25	497
775 x 350	+25/+5.0 / -5.0/-25	466	800 x 370	+25/+5.0 / -5.0/-25	491
775 x 360	+25/+5.0 / -5.0/-25	460	800 x 380	+25/+5.0 / -5.0/-25	484
775 x 370	+25/+5.0 / -5.0/-25	454	800 x 390	+25/+5.0 / -5.0/-25	477
775 x 380	+25/+5.0 / -5.0/-25	447	800 x 400	+25/+5.0 / -5.0/-25	470
775 x 390	+25/+5.0 / -5.0/-25	440	800 x 410	+25/+5.0 / -5.0/-25	463
775 x 400	+25/+5.0 / -5.0/-25	433	800 x 420	+25/+5.0 / -5.0/-25	455
775 x 410	+25/+5.0 / -5.0/-25	426	800 x 430	+25/+5.0 / -5.0/-25	448
775 x 420	+25/+5.0 / -5.0/-25	418	800 x 440	+25/+5.0 / -5.0/-25	440
775 x 430	+25/+5.0 / -5.0/-25	411	800 x 450	+25/+5.0 / -5.0/-25	432
775 x 440	+25/+5.0 / -5.0/-25	403	800 x 460	+25/+5.0 / -5.0/-25	424
775 x 450	+25/+5.0 / -5.0/-25	395	800 x 470	+25/+5.0 / -5.0/-25	415
775 x 460	+25/+5.0 / -5.0/-25	387	800 x 480	+25/+5.0 / -5.0/-25	407
775 x 470	+25/+5.0 / -5.0/-25	378	800 x 490	+25/+5.0 / -5.0/-25	398
775 x 480	+25/+5.0 / -5.0/-25	370	800 x 500	+25/+5.0 / -5.0/-25	389
775 x 490	+25/+5.0 / -5.0/-25	361	800 x 510	+25/+5.0 / -5.0/-25	380
775 x 500	+25/+5.0 / -5.0/-25	352	800 x 520	+25/+5.0 / -5.0/-25	371
775 x 510	+25/+5.0 / -5.0/-25	343	800 x 530	+25/+5.0 / -5.0/-25	361
775 x 520	+25/+5.0 / -5.0/-25	334	800 x 540	+25/+5.0 / -5.0/-25	351
775 x 530	+25/+5.0 / -5.0/-25	324	800 x 550	+25/+5.0 / -5.0/-25	342
775 x 540	+25/+5.0 / -5.0/-25	314	800 x 560	+25/+5.0 / -5.0/-25	332
775 x 550	+25/+5.0 / -5.0/-25	305	800 x 570	+25/+5.0 / -5.0/-25	321
775 x 560	+25/+5.0 / -5.0/-25	295	800 x 580	+25/+5.0 / -5.0/-25	311
775 x 570	+25/+5.0 / -5.0/-25	284	800 x 590	+25/+5.0 / -5.0/-25	300

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
800 x 600	+25/+5.0 / -5.0/-25	289	825 x 660	+25/+5.0 / -5.0/-25	266
800 x 610	+25/+5.0 / -5.0/-25	285	825 x 670	+25/+5.0 / -5.0/-25	254
800 x 620	+25/+5.0 / -5.0/-25	274	825 x 680	+25/+5.0 / -5.0/-25	248
800 x 630	+25/+5.0 / -5.0/-25	262	825 x 690	+25/+5.0 / -5.0/-25	236
800 x 640	+25/+5.0 / -5.0/-25	251	825 x 700	+25/+5.0 / -5.0/-25	223
800 x 650	+25/+5.0 / -5.0/-25	239	825 x 710	+25/+5.0 / -5.0/-25	210
800 x 660	+25/+5.0 / -5.0/-25	234	825 x 720	+25/+5.0 / -5.0/-25	197
800 x 670	+25/+5.0 / -5.0/-25	221	825 x 730	+25/+5.0 / -5.0/-25	187
800 x 680	+25/+5.0 / -5.0/-25	209	825 x 740	+25/+5.0 / -5.0/-25	174
800 x 690	+25/+5.0 / -5.0/-25	197	825 x 750	+25/+5.0 / -5.0/-25	160
800 x 700	+25/+5.0 / -5.0/-25	184	825 x 760	+25/+5.0 / -5.0/-25	147
800 x 710	+25/+5.0 / -5.0/-25	174	825 x 770	+25/+5.0 / -5.0/-25	133
800 x 720	+25/+5.0 / -5.0/-25	161	825 x 780	+25/+5.0 / -5.0/-25	118
800 x 730	+25/+5.0 / -5.0/-25	148	825 x 790	+25/+5.0 / -5.0/-25	108
800 x 740	+25/+5.0 / -5.0/-25	135	825 x 800	+25/+5.0 / -5.0/-25	93
800 x 750	+25/+5.0 / -5.0/-25	121	825 x 810	+25/+5.0 / -5.0/-25	78
800 x 760	+25/+5.0 / -5.0/-25	107	850 x 430	+25/+5.0 / -5.0/-25	525
800 x 770	+25/+5.0 / -5.0/-25	97	850 x 440	+25/+5.0 / -5.0/-25	517
800 x 780	+25/+5.0 / -5.0/-25	83	850 x 450	+25/+5.0 / -5.0/-25	509
825 x 370	+25/+5.0 / -5.0/-25	529	850 x 460	+25/+5.0 / -5.0/-25	501
825 x 380	+25/+5.0 / -5.0/-25	522	850 x 470	+25/+5.0 / -5.0/-25	493
825 x 390	+25/+5.0 / -5.0/-25	515	850 x 480	+25/+5.0 / -5.0/-25	484
825 x 400	+25/+5.0 / -5.0/-25	508	850 x 490	+25/+5.0 / -5.0/-25	475
825 x 410	+25/+5.0 / -5.0/-25	501	850 x 500	+25/+5.0 / -5.0/-25	466
825 x 420	+25/+5.0 / -5.0/-25	493	850 x 510	+25/+5.0 / -5.0/-25	457
825 x 430	+25/+5.0 / -5.0/-25	486	850 x 520	+25/+5.0 / -5.0/-25	448
825 x 440	+25/+5.0 / -5.0/-25	478	850 x 530	+25/+5.0 / -5.0/-25	438
825 x 450	+25/+5.0 / -5.0/-25	470	850 x 540	+25/+5.0 / -5.0/-25	429
825 x 460	+25/+5.0 / -5.0/-25	462	850 x 550	+25/+5.0 / -5.0/-25	419
825 x 470	+25/+5.0 / -5.0/-25	453	850 x 560	+25/+5.0 / -5.0/-25	409
825 x 480	+25/+5.0 / -5.0/-25	445	850 x 570	+25/+5.0 / -5.0/-25	399
825 x 490	+25/+5.0 / -5.0/-25	436	850 x 580	+25/+5.0 / -5.0/-25	388
825 x 500	+25/+5.0 / -5.0/-25	427	850 x 590	+25/+5.0 / -5.0/-25	378
825 x 510	+25/+5.0 / -5.0/-25	418	850 x 600	+25/+5.0 / -5.0/-25	367
825 x 520	+25/+5.0 / -5.0/-25	409	850 x 610	+25/+5.0 / -5.0/-25	356
825 x 530	+25/+5.0 / -5.0/-25	399	850 x 620	+25/+5.0 / -5.0/-25	345
825 x 540	+25/+5.0 / -5.0/-25	390	850 x 630	+25/+5.0 / -5.0/-25	333
825 x 550	+25/+5.0 / -5.0/-25	380	850 x 640	+25/+5.0 / -5.0/-25	322
825 x 560	+25/+5.0 / -5.0/-25	370	850 x 650	+25/+5.0 / -5.0/-25	310
825 x 570	+25/+5.0 / -5.0/-25	359	850 x 660	+25/+5.0 / -5.0/-25	305
825 x 580	+25/+5.0 / -5.0/-25	349	850 x 670	+25/+5.0 / -5.0/-25	293
825 x 590	+25/+5.0 / -5.0/-25	338	850 x 680	+25/+5.0 / -5.0/-25	281
825 x 600	+25/+5.0 / -5.0/-25	328	850 x 690	+25/+5.0 / -5.0/-25	269
825 x 610	+25/+5.0 / -5.0/-25	317	850 x 700	+25/+5.0 / -5.0/-25	256
825 x 620	+25/+5.0 / -5.0/-25	305	850 x 710	+25/+5.0 / -5.0/-25	250
825 x 630	+25/+5.0 / -5.0/-25	301	850 x 720	+25/+5.0 / -5.0/-25	237
825 x 640	+25/+5.0 / -5.0/-25	289	850 x 730	+25/+5.0 / -5.0/-25	224
825 x 650	+25/+5.0 / -5.0/-25	278	850 x 740	+25/+5.0 / -5.0/-25	211

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
850 x 750	+25/+5.0 / -5.0/-25	197	900 x 530	+25/+5.0 / -5.0/-25	521
850 x 760	+25/+5.0 / -5.0/-25	187	900 x 540	+25/+5.0 / -5.0/-25	511
850 x 770	+25/+5.0 / -5.0/-25	173	900 x 550	+25/+5.0 / -5.0/-25	501
850 x 780	+25/+5.0 / -5.0/-25	159	900 x 560	+25/+5.0 / -5.0/-25	491
850 x 790	+25/+5.0 / -5.0/-25	144	900 x 570	+25/+5.0 / -5.0/-25	481
850 x 800	+25/+5.0 / -5.0/-25	130	900 x 580	+25/+5.0 / -5.0/-25	470
850 x 810	+25/+5.0 / -5.0/-25	115	900 x 590	+25/+5.0 / -5.0/-25	460
850 x 820	+25/+5.0 / -5.0/-25	104	900 x 600	+25/+5.0 / -5.0/-25	449
850 x 830	+25/+5.0 / -5.0/-25	89	900 x 610	+25/+5.0 / -5.0/-25	438
875 x 480	+25/+5.0 / -5.0/-25	525	900 x 620	+25/+5.0 / -5.0/-25	427
875 x 490	+25/+5.0 / -5.0/-25	516	900 x 630	+25/+5.0 / -5.0/-25	415
875 x 500	+25/+5.0 / -5.0/-25	507	900 x 640	+25/+5.0 / -5.0/-25	404
875 x 510	+25/+5.0 / -5.0/-25	498	900 x 650	+25/+5.0 / -5.0/-25	392
875 x 520	+25/+5.0 / -5.0/-25	488	900 x 660	+25/+5.0 / -5.0/-25	380
875 x 530	+25/+5.0 / -5.0/-25	479	900 x 670	+25/+5.0 / -5.0/-25	368
875 x 540	+25/+5.0 / -5.0/-25	469	900 x 680	+25/+5.0 / -5.0/-25	356
875 x 550	+25/+5.0 / -5.0/-25	459	900 x 690	+25/+5.0 / -5.0/-25	343
875 x 560	+25/+5.0 / -5.0/-25	449	900 x 700	+25/+5.0 / -5.0/-25	331
875 x 570	+25/+5.0 / -5.0/-25	439	900 x 710	+25/+5.0 / -5.0/-25	326
875 x 580	+25/+5.0 / -5.0/-25	429	900 x 720	+25/+5.0 / -5.0/-25	313
875 x 590	+25/+5.0 / -5.0/-25	418	900 x 730	+25/+5.0 / -5.0/-25	300
875 x 600	+25/+5.0 / -5.0/-25	407	900 x 740	+25/+5.0 / -5.0/-25	286
875 x 610	+25/+5.0 / -5.0/-25	396	900 x 750	+25/+5.0 / -5.0/-25	273
875 x 620	+25/+5.0 / -5.0/-25	385	900 x 760	+25/+5.0 / -5.0/-25	267
875 x 630	+25/+5.0 / -5.0/-25	374	900 x 770	+25/+5.0 / -5.0/-25	253
875 x 640	+25/+5.0 / -5.0/-25	362	900 x 780	+25/+5.0 / -5.0/-25	239
875 x 650	+25/+5.0 / -5.0/-25	351	900 x 790	+25/+5.0 / -5.0/-25	225
875 x 660	+25/+5.0 / -5.0/-25	339	900 x 800	+25/+5.0 / -5.0/-25	210
875 x 670	+25/+5.0 / -5.0/-25	327	900 x 810	+25/+5.0 / -5.0/-25	199
875 x 680	+25/+5.0 / -5.0/-25	322	900 x 820	+25/+5.0 / -5.0/-25	185
875 x 690	+25/+5.0 / -5.0/-25	309	900 x 830	+25/+5.0 / -5.0/-25	169
875 x 700	+25/+5.0 / -5.0/-25	297	900 x 840	+25/+5.0 / -5.0/-25	154
875 x 710	+25/+5.0 / -5.0/-25	284	900 x 850	+25/+5.0 / -5.0/-25	139
875 x 720	+25/+5.0 / -5.0/-25	271	900 x 860	+25/+5.0 / -5.0/-25	123
875 x 730	+25/+5.0 / -5.0/-25	265	900 x 870	+25/+5.0 / -5.0/-25	111
875 x 740	+25/+5.0 / -5.0/-25	252	900 x 880	+25/+5.0 / -5.0/-25	95
875 x 750	+25/+5.0 / -5.0/-25	238	925 x 580	+25/+5.0 / -5.0/-25	513
875 x 760	+25/+5.0 / -5.0/-25	225	925 x 590	+25/+5.0 / -5.0/-25	502
875 x 770	+25/+5.0 / -5.0/-25	211	925 x 600	+25/+5.0 / -5.0/-25	492
875 x 780	+25/+5.0 / -5.0/-25	200	925 x 610	+25/+5.0 / -5.0/-25	481
875 x 790	+25/+5.0 / -5.0/-25	186	925 x 620	+25/+5.0 / -5.0/-25	470
875 x 800	+25/+5.0 / -5.0/-25	171	925 x 630	+25/+5.0 / -5.0/-25	458
875 x 810	+25/+5.0 / -5.0/-25	157	925 x 640	+25/+5.0 / -5.0/-25	447
875 x 820	+25/+5.0 / -5.0/-25	142	925 x 650	+25/+5.0 / -5.0/-25	435
875 x 830	+25/+5.0 / -5.0/-25	127	925 x 660	+25/+5.0 / -5.0/-25	423
875 x 840	+25/+5.0 / -5.0/-25	115	925 x 670	+25/+5.0 / -5.0/-25	411
875 x 850	+25/+5.0 / -5.0/-25	100	925 x 680	+25/+5.0 / -5.0/-25	399
875 x 860	+25/+5.0 / -5.0/-25	84	925 x 690	+25/+5.0 / -5.0/-25	386

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
925 x 700	+25/+5.0 / -5.0/-25	374	950 x 880	+25/+5.0 / -5.0/-25	180
925 x 710	+25/+5.0 / -5.0/-25	361	950 x 890	+25/+5.0 / -5.0/-25	164
925 x 720	+25/+5.0 / -5.0/-25	348	950 x 900	+25/+5.0 / -5.0/-25	148
925 x 730	+25/+5.0 / -5.0/-25	343	950 x 910	+25/+5.0 / -5.0/-25	131
925 x 740	+25/+5.0 / -5.0/-25	329	950 x 920	+25/+5.0 / -5.0/-25	119
925 x 750	+25/+5.0 / -5.0/-25	316	950 x 930	+25/+5.0 / -5.0/-25	102
925 x 760	+25/+5.0 / -5.0/-25	302	975 x 660	+25/+5.0 / -5.0/-25	512
925 x 770	+25/+5.0 / -5.0/-25	288	975 x 670	+25/+5.0 / -5.0/-25	500
925 x 780	+25/+5.0 / -5.0/-25	283	975 x 680	+25/+5.0 / -5.0/-25	488
925 x 790	+25/+5.0 / -5.0/-25	268	975 x 690	+25/+5.0 / -5.0/-25	475
925 x 800	+25/+5.0 / -5.0/-25	254	975 x 700	+25/+5.0 / -5.0/-25	462
925 x 810	+25/+5.0 / -5.0/-25	239	975 x 710	+25/+5.0 / -5.0/-25	450
925 x 820	+25/+5.0 / -5.0/-25	224	975 x 720	+25/+5.0 / -5.0/-25	437
925 x 830	+25/+5.0 / -5.0/-25	213	975 x 730	+25/+5.0 / -5.0/-25	423
925 x 840	+25/+5.0 / -5.0/-25	198	975 x 740	+25/+5.0 / -5.0/-25	410
925 x 850	+25/+5.0 / -5.0/-25	183	975 x 750	+25/+5.0 / -5.0/-25	396
925 x 860	+25/+5.0 / -5.0/-25	167	975 x 760	+25/+5.0 / -5.0/-25	383
925 x 870	+25/+5.0 / -5.0/-25	151	975 x 770	+25/+5.0 / -5.0/-25	369
925 x 880	+25/+5.0 / -5.0/-25	135	975 x 780	+25/+5.0 / -5.0/-25	364
925 x 890	+25/+5.0 / -5.0/-25	123	975 x 790	+25/+5.0 / -5.0/-25	350
925 x 900	+25/+5.0 / -5.0/-25	107	975 x 800	+25/+5.0 / -5.0/-25	335
925 x 910	+25/+5.0 / -5.0/-25	90	975 x 810	+25/+5.0 / -5.0/-25	320
950 x 620	+25/+5.0 / -5.0/-25	513	975 x 820	+25/+5.0 / -5.0/-25	306
950 x 630	+25/+5.0 / -5.0/-25	502	975 x 830	+25/+5.0 / -5.0/-25	300
950 x 640	+25/+5.0 / -5.0/-25	491	975 x 840	+25/+5.0 / -5.0/-25	285
950 x 650	+25/+5.0 / -5.0/-25	479	975 x 850	+25/+5.0 / -5.0/-25	269
950 x 660	+25/+5.0 / -5.0/-25	467	975 x 860	+25/+5.0 / -5.0/-25	254
950 x 670	+25/+5.0 / -5.0/-25	455	975 x 870	+25/+5.0 / -5.0/-25	238
950 x 680	+25/+5.0 / -5.0/-25	443	975 x 880	+25/+5.0 / -5.0/-25	227
950 x 690	+25/+5.0 / -5.0/-25	430	975 x 890	+25/+5.0 / -5.0/-25	210
950 x 700	+25/+5.0 / -5.0/-25	417	975 x 900	+25/+5.0 / -5.0/-25	194
950 x 710	+25/+5.0 / -5.0/-25	405	975 x 910	+25/+5.0 / -5.0/-25	177
950 x 720	+25/+5.0 / -5.0/-25	392	975 x 920	+25/+5.0 / -5.0/-25	161
950 x 730	+25/+5.0 / -5.0/-25	378	975 x 930	+25/+5.0 / -5.0/-25	144
950 x 740	+25/+5.0 / -5.0/-25	365	975 x 940	+25/+5.0 / -5.0/-25	131
950 x 750	+25/+5.0 / -5.0/-25	351	975 x 950	+25/+5.0 / -5.0/-25	114
950 x 760	+25/+5.0 / -5.0/-25	347	975 x 960	+25/+5.0 / -5.0/-25	97
950 x 770	+25/+5.0 / -5.0/-25	333	1000 x 700	+25/+5.0 / -5.0/-25	513
950 x 780	+25/+5.0 / -5.0/-25	318	1000 x 710	+25/+5.0 / -5.0/-25	500
950 x 790	+25/+5.0 / -5.0/-25	304	1000 x 720	+25/+5.0 / -5.0/-25	487
950 x 800	+25/+5.0 / -5.0/-25	290	1000 x 730	+25/+5.0 / -5.0/-25	474
950 x 810	+25/+5.0 / -5.0/-25	284	1000 x 740	+25/+5.0 / -5.0/-25	460
950 x 820	+25/+5.0 / -5.0/-25	269	1000 x 750	+25/+5.0 / -5.0/-25	447
950 x 830	+25/+5.0 / -5.0/-25	254	1000 x 760	+25/+5.0 / -5.0/-25	433
950 x 840	+25/+5.0 / -5.0/-25	239	1000 x 770	+25/+5.0 / -5.0/-25	419
950 x 850	+25/+5.0 / -5.0/-25	223	1000 x 780	+25/+5.0 / -5.0/-25	405
950 x 860	+25/+5.0 / -5.0/-25	212	1000 x 790	+25/+5.0 / -5.0/-25	391
950 x 870	+25/+5.0 / -5.0/-25	196	1000 x 800	+25/+5.0 / -5.0/-25	376

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
1000 x 810	+25/+5.0 / -5.0/-25	372	1050 x 800	+30/+6.0 / -6.0/-30	472
1000 x 820	+25/+5.0 / -5.0/-25	357	1050 x 810	+30/+6.0 / -6.0/-30	458
1000 x 830	+25/+5.0 / -5.0/-25	342	1050 x 820	+30/+6.0 / -6.0/-30	443
1000 x 840	+25/+5.0 / -5.0/-25	327	1050 x 830	+30/+6.0 / -6.0/-30	428
1000 x 850	+25/+5.0 / -5.0/-25	311	1050 x 840	+30/+6.0 / -6.0/-30	413
1000 x 860	+25/+5.0 / -5.0/-25	305	1050 x 850	+30/+6.0 / -6.0/-30	397
1000 x 870	+25/+5.0 / -5.0/-25	290	1050 x 860	+30/+6.0 / -6.0/-30	393
1000 x 880	+25/+5.0 / -5.0/-25	274	1050 x 870	+30/+6.0 / -6.0/-30	377
1000 x 890	+25/+5.0 / -5.0/-25	258	1050 x 880	+30/+6.0 / -6.0/-30	361
1000 x 900	+25/+5.0 / -5.0/-25	241	1050 x 890	+30/+6.0 / -6.0/-30	345
1000 x 910	+25/+5.0 / -5.0/-25	230	1050 x 900	+30/+6.0 / -6.0/-30	328
1000 x 920	+25/+5.0 / -5.0/-25	213	1050 x 910	+30/+6.0 / -6.0/-30	323
1000 x 930	+25/+5.0 / -5.0/-25	196	1050 x 920	+30/+6.0 / -6.0/-30	306
1000 x 940	+25/+5.0 / -5.0/-25	179	1050 x 930	+30/+6.0 / -6.0/-30	289
1000 x 950	+25/+5.0 / -5.0/-25	162	1050 x 940	+30/+6.0 / -6.0/-30	272
1000 x 960	+25/+5.0 / -5.0/-25	145	1050 x 950	+30/+6.0 / -6.0/-30	255
1000 x 970	+25/+5.0 / -5.0/-25	132	1050 x 960	+30/+6.0 / -6.0/-30	243
1000 x 980	+25/+5.0 / -5.0/-25	114	1050 x 970	+30/+6.0 / -6.0/-30	225
1025 x 740	+25/+5.0 / -5.0/-25	508	1050 x 980	+30/+6.0 / -6.0/-30	208
1025 x 750	+25/+5.0 / -5.0/-25	494	1050 x 990	+30/+6.0 / -6.0/-30	190
1025 x 760	+25/+5.0 / -5.0/-25	480	1050 x 1000	+30/+6.0 / -6.0/-30	171
1025 x 770	+25/+5.0 / -5.0/-25	467	1050 x 1010	+30/+6.0 / -6.0/-30	153
1025 x 780	+25/+5.0 / -5.0/-25	452	1050 x 1020	+30/+6.0 / -6.0/-30	140
1025 x 790	+25/+5.0 / -5.0/-25	438	1050 x 1030	+30/+6.0 / -6.0/-30	121
1025 x 800	+25/+5.0 / -5.0/-25	424	1075 x 810	+30/+6.0 / -6.0/-30	507
1025 x 810	+25/+5.0 / -5.0/-25	409	1075 x 820	+30/+6.0 / -6.0/-30	493
1025 x 820	+25/+5.0 / -5.0/-25	394	1075 x 830	+30/+6.0 / -6.0/-30	478
1025 x 830	+25/+5.0 / -5.0/-25	386	1075 x 840	+30/+6.0 / -6.0/-30	462
1025 x 840	+25/+5.0 / -5.0/-25	374	1075 x 850	+30/+6.0 / -6.0/-30	447
1025 x 850	+25/+5.0 / -5.0/-25	359	1075 x 860	+30/+6.0 / -6.0/-30	431
1025 x 860	+25/+5.0 / -5.0/-25	343	1075 x 870	+30/+6.0 / -6.0/-30	416
1025 x 870	+25/+5.0 / -5.0/-25	328	1075 x 880	+30/+6.0 / -6.0/-30	411
1025 x 880	+25/+5.0 / -5.0/-25	322	1075 x 890	+30/+6.0 / -6.0/-30	395
1025 x 890	+25/+5.0 / -5.0/-25	306	1075 x 900	+30/+6.0 / -6.0/-30	379
1025 x 900	+25/+5.0 / -5.0/-25	290	1075 x 910	+30/+6.0 / -6.0/-30	362
1025 x 910	+25/+5.0 / -5.0/-25	273	1075 x 920	+30/+6.0 / -6.0/-30	345
1025 x 920	+25/+5.0 / -5.0/-25	257	1075 x 930	+30/+6.0 / -6.0/-30	340
1025 x 930	+25/+5.0 / -5.0/-25	245	1075 x 940	+30/+6.0 / -6.0/-30	323
1025 x 940	+25/+5.0 / -5.0/-25	228	1075 x 950	+30/+6.0 / -6.0/-30	306
1025 x 950	+25/+5.0 / -5.0/-25	211	1075 x 960	+30/+6.0 / -6.0/-30	288
1025 x 960	+25/+5.0 / -5.0/-25	193	1075 x 970	+30/+6.0 / -6.0/-30	271
1025 x 970	+25/+5.0 / -5.0/-25	176	1075 x 980	+30/+6.0 / -6.0/-30	259
1025 x 980	+25/+5.0 / -5.0/-25	158	1075 x 990	+30/+6.0 / -6.0/-30	241
1025 x 990	+25/+5.0 / -5.0/-25	145	1075 x 1000	+30/+6.0 / -6.0/-30	222
1025 x 1000	+25/+5.0 / -5.0/-25	127	1075 x 1010	+30/+6.0 / -6.0/-30	204
1025 x 1010	+25/+5.0 / -5.0/-25	108	1075 x 1020	+30/+6.0 / -6.0/-30	185
1050 x 780	+30/+6.0 / -6.0/-30	501	1075 x 1030	+30/+6.0 / -6.0/-30	167
1050 x 790	+30/+6.0 / -6.0/-30	487	1075 x 1040	+30/+6.0 / -6.0/-30	154

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
1075 x 1050	+30/+6.0 / -6.0/-30	134	1125 x 1100	+30/+6.0 / -6.0/-30	142
1075 x 1060	+30/+6.0 / -6.0/-30	115	1125 x 1110	+30/+6.0 / -6.0/-30	122
1100 x 850	+30/+6.0 / -6.0/-30	498	1150 x 920	+30/+6.0 / -6.0/-30	490
1100 x 860	+30/+6.0 / -6.0/-30	482	1150 x 930	+30/+6.0 / -6.0/-30	473
1100 x 870	+30/+6.0 / -6.0/-30	466	1150 x 940	+30/+6.0 / -6.0/-30	456
1100 x 880	+30/+6.0 / -6.0/-30	451	1150 x 950	+30/+6.0 / -6.0/-30	439
1100 x 890	+30/+6.0 / -6.0/-30	434	1150 x 960	+30/+6.0 / -6.0/-30	434
1100 x 900	+30/+6.0 / -6.0/-30	418	1150 x 970	+30/+6.0 / -6.0/-30	417
1100 x 910	+30/+6.0 / -6.0/-30	413	1150 x 980	+30/+6.0 / -6.0/-30	399
1100 x 920	+30/+6.0 / -6.0/-30	397	1150 x 990	+30/+6.0 / -6.0/-30	381
1100 x 930	+30/+6.0 / -6.0/-30	380	1150 x 1000	+30/+6.0 / -6.0/-30	363
1100 x 940	+30/+6.0 / -6.0/-30	363	1150 x 1010	+30/+6.0 / -6.0/-30	358
1100 x 950	+30/+6.0 / -6.0/-30	346	1150 x 1020	+30/+6.0 / -6.0/-30	339
1100 x 960	+30/+6.0 / -6.0/-30	340	1150 x 1030	+30/+6.0 / -6.0/-30	320
1100 x 970	+30/+6.0 / -6.0/-30	323	1150 x 1040	+30/+6.0 / -6.0/-30	301
1100 x 980	+30/+6.0 / -6.0/-30	305	1150 x 1050	+30/+6.0 / -6.0/-30	282
1100 x 990	+30/+6.0 / -6.0/-30	287	1150 x 1060	+30/+6.0 / -6.0/-30	270
1100 x 1000	+30/+6.0 / -6.0/-30	269	1150 x 1070	+30/+6.0 / -6.0/-30	250
1100 x 1010	+30/+6.0 / -6.0/-30	256	1150 x 1080	+30/+6.0 / -6.0/-30	230
1100 x 1020	+30/+6.0 / -6.0/-30	238	1150 x 1090	+30/+6.0 / -6.0/-30	211
1100 x 1030	+30/+6.0 / -6.0/-30	219	1150 x 1100	+30/+6.0 / -6.0/-30	191
1100 x 1040	+30/+6.0 / -6.0/-30	200	1150 x 1110	+30/+6.0 / -6.0/-30	170
1100 x 1050	+30/+6.0 / -6.0/-30	181	1150 x 1120	+30/+6.0 / -6.0/-30	156
1100 x 1060	+30/+6.0 / -6.0/-30	162	1150 x 1130	+30/+6.0 / -6.0/-30	136
1100 x 1070	+30/+6.0 / -6.0/-30	148	1175 x 950	+30/+6.0 / -6.0/-30	493
1100 x 1080	+30/+6.0 / -6.0/-30	128	1175 x 960	+30/+6.0 / -6.0/-30	476
1125 x 880	+30/+6.0 / -6.0/-30	503	1175 x 970	+30/+6.0 / -6.0/-30	458
1125 x 890	+30/+6.0 / -6.0/-30	486	1175 x 980	+30/+6.0 / -6.0/-30	454
1125 x 900	+30/+6.0 / -6.0/-30	470	1175 x 990	+30/+6.0 / -6.0/-30	436
1125 x 910	+30/+6.0 / -6.0/-30	454	1175 x 1000	+30/+6.0 / -6.0/-30	418
1125 x 920	+30/+6.0 / -6.0/-30	427	1175 x 1010	+30/+6.0 / -6.0/-30	399
1125 x 930	+30/+6.0 / -6.0/-30	432	1175 x 1020	+30/+6.0 / -6.0/-30	381
1125 x 940	+30/+6.0 / -6.0/-30	415	1175 x 1030	+30/+6.0 / -6.0/-30	376
1125 x 950	+30/+6.0 / -6.0/-30	398	1175 x 1040	+30/+6.0 / -6.0/-30	357
1125 x 960	+30/+6.0 / -6.0/-30	381	1175 x 1050	+30/+6.0 / -6.0/-30	338
1125 x 970	+30/+6.0 / -6.0/-30	363	1175 x 1060	+30/+6.0 / -6.0/-30	318
1125 x 980	+30/+6.0 / -6.0/-30	358	1175 x 1070	+30/+6.0 / -6.0/-30	299
1125 x 990	+30/+6.0 / -6.0/-30	340	1175 x 1080	+30/+6.0 / -6.0/-30	286
1125 x 1000	+30/+6.0 / -6.0/-30	322	1175 x 1090	+30/+6.0 / -6.0/-30	266
1125 x 1010	+30/+6.0 / -6.0/-30	303	1175 x 1100	+30/+6.0 / -6.0/-30	246
1125 x 1020	+30/+6.0 / -6.0/-30	285	1175 x 1110	+30/+6.0 / -6.0/-30	226
1125 x 1030	+30/+6.0 / -6.0/-30	272	1175 x 1120	+30/+6.0 / -6.0/-30	206
1125 x 1040	+30/+6.0 / -6.0/-30	253	1175 x 1130	+30/+6.0 / -6.0/-30	185
1125 x 1050	+30/+6.0 / -6.0/-30	234	1175 x 1140	+30/+6.0 / -6.0/-30	171
1125 x 1060	+30/+6.0 / -6.0/-30	215	1175 x 1150	+30/+6.0 / -6.0/-30	150
1125 x 1070	+30/+6.0 / -6.0/-30	196	1175 x 1160	+30/+6.0 / -6.0/-30	129
1125 x 1080	+30/+6.0 / -6.0/-30	176	1200 x 990	+30/+6.0 / -6.0/-30	478
1125 x 1090	+30/+6.0 / -6.0/-30	162	1200 x 1000	+30/+6.0 / -6.0/-30	460

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
1200 x 1010	+30/+6.0 / -6.0/-30	456	1250 x 1150	+30/+6.0 / -6.0/-30	321
1200 x 1020	+30/+6.0 / -6.0/-30	437	1250 x 1160	+30/+6.0 / -6.0/-30	307
1200 x 1030	+30/+6.0 / -6.0/-30	418	1250 x 1170	+30/+6.0 / -6.0/-30	286
1200 x 1040	+30/+6.0 / -6.0/-30	399	1250 x 1180	+30/+6.0 / -6.0/-30	265
1200 x 1050	+30/+6.0 / -6.0/-30	380	1250 x 1190	+30/+6.0 / -6.0/-30	243
1200 x 1060	+30/+6.0 / -6.0/-30	375	1250 x 1200	+30/+6.0 / -6.0/-30	211
1200 x 1070	+30/+6.0 / -6.0/-30	356	1250 x 1210	+30/+6.0 / -6.0/-30	199
1200 x 1080	+30/+6.0 / -6.0/-30	336	1250 x 1220	+30/+6.0 / -6.0/-30	185
1200 x 1090	+30/+6.0 / -6.0/-30	316	1250 x 1230	+30/+6.0 / -6.0/-30	162
1200 x 1100	+30/+6.0 / -6.0/-30	296	1275 x 500	+40/+6.0 / -6.0/-40	1355
1200 x 1110	+30/+6.0 / -6.0/-30	283	1275 x 525	+40/+6.0 / -6.0/-40	1330
1200 x 1120	+30/+6.0 / -6.0/-30	263	1275 x 550	+40/+6.0 / -6.0/-40	1305
1200 x 1130	+30/+6.0 / -6.0/-30	242	1275 x 575	+40/+6.0 / -6.0/-40	1278
1200 x 1140	+30/+6.0 / -6.0/-30	221	1275 x 600	+40/+6.0 / -6.0/-40	1250
1200 x 1150	+30/+6.0 / -6.0/-30	200	1275 x 625	+40/+6.0 / -6.0/-40	1221
1200 x 1160	+30/+6.0 / -6.0/-30	179	1275 x 650	+40/+6.0 / -6.0/-40	1191
1200 x 1170	+30/+6.0 / -6.0/-30	165	1275 x 675	+40/+6.0 / -6.0/-40	1159
1200 x 1180	+30/+6.0 / -6.0/-30	143	1275 x 700	+40/+6.0 / -6.0/-40	1127
1225 x 1020	+30/+6.0 / -6.0/-30	479	1275 x 725	+40/+6.0 / -6.0/-40	1093
1225 x 1030	+30/+6.0 / -6.0/-30	476	1275 x 750	+40/+6.0 / -6.0/-40	1058
1225 x 1040	+30/+6.0 / -6.0/-30	457	1275 x 775	+40/+6.0 / -6.0/-40	1022
1225 x 1050	+30/+6.0 / -6.0/-30	437	1275 x 800	+40/+6.0 / -6.0/-40	985
1225 x 1060	+30/+6.0 / -6.0/-30	418	1275 x 825	+40/+6.0 / -6.0/-40	946
1225 x 1070	+30/+6.0 / -6.0/-30	399	1275 x 850	+40/+6.0 / -6.0/-40	906
1225 x 1080	+30/+6.0 / -6.0/-30	394	1275 x 875	+40/+6.0 / -6.0/-40	865
1225 x 1090	+30/+6.0 / -6.0/-30	374	1275 x 900	+40/+6.0 / -6.0/-40	823
1225 x 1100	+30/+6.0 / -6.0/-30	354	1275 x 925	+40/+6.0 / -6.0/-40	780
1225 x 1110	+30/+6.0 / -6.0/-30	334	1275 x 950	+40/+6.0 / -6.0/-40	736
1225 x 1120	+30/+6.0 / -6.0/-30	313	1275 x 975	+40/+6.0 / -6.0/-40	690
1225 x 1130	+30/+6.0 / -6.0/-30	300	1275 x 1000	+40/+6.0 / -6.0/-40	643
1225 x 1140	+30/+6.0 / -6.0/-30	279	1275 x 1025	+40/+6.0 / -6.0/-40	595
1225 x 1150	+30/+6.0 / -6.0/-30	258	1275 x 1050	+40/+6.0 / -6.0/-40	546
1225 x 1160	+30/+6.0 / -6.0/-30	237	1275 x 1075	+40/+6.0 / -6.0/-40	495
1225 x 1170	+30/+6.0 / -6.0/-30	216	1275 x 1100	+40/+6.0 / -6.0/-40	443
1225 x 1180	+30/+6.0 / -6.0/-30	194	1275 x 1125	+40/+6.0 / -6.0/-40	391
1225 x 1190	+30/+6.0 / -6.0/-30	180	1275 x 1150	+40/+6.0 / -6.0/-40	337
1225 x 1200	+30/+6.0 / -6.0/-30	158	1275 x 1175	+40/+6.0 / -6.0/-40	281
1225 x 1210	+30/+6.0 / -6.0/-30	136	1275 x 1200	+40/+6.0 / -6.0/-40	225
1250 x 1050	+30/+6.0 / -6.0/-30	490	1275 x 1250	+40/+6.0 / -6.0/-40	109
1250 x 1060	+30/+6.0 / -6.0/-30	486	1300 x 500	+40/+6.0 / -6.0/-40	1417
1250 x 1070	+30/+6.0 / -6.0/-30	467	1300 x 525	+40/+6.0 / -6.0/-40	1393
1250 x 1080	+30/+6.0 / -6.0/-30	447	1300 x 550	+40/+6.0 / -6.0/-40	1367
1250 x 1090	+30/+6.0 / -6.0/-30	428	1300 x 575	+40/+6.0 / -6.0/-40	1341
1250 x 1100	+30/+6.0 / -6.0/-30	408	1300 x 600	+40/+6.0 / -6.0/-40	1313
1250 x 1110	+30/+6.0 / -6.0/-30	403	1300 x 625	+40/+6.0 / -6.0/-40	1284
1250 x 1120	+30/+6.0 / -6.0/-30	383	1300 x 650	+40/+6.0 / -6.0/-40	1253
1250 x 1130	+30/+6.0 / -6.0/-30	362	1300 x 675	+40/+6.0 / -6.0/-40	1222
1250 x 1140	+30/+6.0 / -6.0/-30	341	1300 x 700	+40/+6.0 / -6.0/-40	1189

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
1300 x 725	+40/+6.0 / -6.0/-40	1155	1400 x 950	+40/+6.0 / -6.0/-40	1058
1300 x 750	+40/+6.0 / -6.0/-40	1120	1400 x 1000	+40/+6.0 / -6.0/-40	965
1300 x 775	+40/+6.0 / -6.0/-40	1084	1400 x 1050	+40/+6.0 / -6.0/-40	868
1300 x 800	+40/+6.0 / -6.0/-40	1047	1400 x 1100	+40/+6.0 / -6.0/-40	766
1300 x 825	+40/+6.0 / -6.0/-40	1008	1400 x 1150	+40/+6.0 / -6.0/-40	659
1300 x 850	+40/+6.0 / -6.0/-40	969	1400 x 1200	+40/+6.0 / -6.0/-40	547
1300 x 875	+40/+6.0 / -6.0/-40	928	1400 x 1250	+40/+6.0 / -6.0/-40	431
1300 x 900	+40/+6.0 / -6.0/-40	885	1400 x 1300	+40/+6.0 / -6.0/-40	310
1300 x 925	+40/+6.0 / -6.0/-40	842	1400 x 1350	+40/+6.0 / -6.0/-40	184
1300 x 950	+40/+6.0 / -6.0/-40	798	1450 x 600	+40/+6.0 / -6.0/-40	1710
1300 x 975	+40/+6.0 / -6.0/-40	752	1450 x 650	+40/+6.0 / -6.0/-40	1651
1300 x 1000	+40/+6.0 / -6.0/-40	705	1450 x 700	+40/+6.0 / -6.0/-40	1587
1300 x 1025	+40/+6.0 / -6.0/-40	657	1450 x 750	+40/+6.0 / -6.0/-40	1518
1300 x 1050	+40/+6.0 / -6.0/-40	608	1450 x 800	+40/+6.0 / -6.0/-40	1444
1300 x 1075	+40/+6.0 / -6.0/-40	557	1450 x 850	+40/+6.0 / -6.0/-40	1366
1300 x 1100	+40/+6.0 / -6.0/-40	506	1450 x 900	+40/+6.0 / -6.0/-40	1283
1300 x 1125	+40/+6.0 / -6.0/-40	453	1450 x 950	+40/+6.0 / -6.0/-40	1195
1300 x 1150	+40/+6.0 / -6.0/-40	399	1450 x 1000	+40/+6.0 / -6.0/-40	1102
1300 x 1175	+40/+6.0 / -6.0/-40	344	1450 x 1050	+40/+6.0 / -6.0/-40	1005
1300 x 1200	+40/+6.0 / -6.0/-40	287	1450 x 1100	+40/+6.0 / -6.0/-40	903
1300 x 1225	+40/+6.0 / -6.0/-40	230	1450 x 1150	+40/+6.0 / -6.0/-40	796
1300 x 1250	+40/+6.0 / -6.0/-40	171	1450 x 1200	+40/+6.0 / -6.0/-40	685
1350 x 500	+40/+6.0 / -6.0/-40	1545	1450 x 1250	+40/+6.0 / -6.0/-40	568
1350 x 550	+40/+6.0 / -6.0/-40	1495	1450 x 1300	+40/+6.0 / -6.0/-40	447
1350 x 600	+40/+6.0 / -6.0/-40	1440	1450 x 1350	+40/+6.0 / -6.0/-40	321
1350 x 650	+40/+6.0 / -6.0/-40	1381	1450 x 1400	+40/+6.0 / -6.0/-40	191
1350 x 700	+40/+6.0 / -6.0/-40	1317	1500 x 700	+40/+6.0 / -6.0/-40	1729
1350 x 750	+40/+6.0 / -6.0/-40	1248	1500 x 750	+40/+6.0 / -6.0/-40	1660
1350 x 800	+40/+6.0 / -6.0/-40	1175	1500 x 800	+40/+6.0 / -6.0/-40	1586
1350 x 850	+40/+6.0 / -6.0/-40	1096	1500 x 850	+40/+6.0 / -6.0/-40	1508
1350 x 900	+40/+6.0 / -6.0/-40	1013	1500 x 900	+40/+6.0 / -6.0/-40	1425
1350 x 950	+40/+6.0 / -6.0/-40	925	1500 x 950	+40/+6.0 / -6.0/-40	1337
1350 x 1000	+40/+6.0 / -6.0/-40	833	1500 x 1000	+40/+6.0 / -6.0/-40	1244
1350 x 1050	+40/+6.0 / -6.0/-40	735	1500 x 1050	+40/+6.0 / -6.0/-40	1147
1350 x 1100	+40/+6.0 / -6.0/-40	633	1500 x 1100	+40/+6.0 / -6.0/-40	1045
1350 x 1150	+40/+6.0 / -6.0/-40	526	1500 x 1150	+40/+6.0 / -6.0/-40	938
1350 x 1200	+40/+6.0 / -6.0/-40	415	1500 x 1200	+40/+6.0 / -6.0/-40	827
1350 x 1250	+40/+6.0 / -6.0/-40	299	1500 x 1250	+40/+6.0 / -6.0/-40	710
1350 x 1300	+40/+6.0 / -6.0/-40	177	1500 x 1300	+40/+6.0 / -6.0/-40	589
1400 x 500	+40/+6.0 / -6.0/-40	1677	1500 x 1350	+40/+6.0 / -6.0/-40	463
1400 x 550	+40/+6.0 / -6.0/-40	1628	1500 x 1400	+40/+6.0 / -6.0/-40	333
1400 x 600	+40/+6.0 / -6.0/-40	1573	1500 x 1450	+40/+6.0 / -6.0/-40	197
1400 x 650	+40/+6.0 / -6.0/-40	1514	1550 x 700	+50/+10 / -10/-50	1875
1400 x 700	+40/+6.0 / -6.0/-40	1450	1550 x 750	+50/+10 / -10/-50	1807
1400 x 750	+40/+6.0 / -6.0/-40	1381	1550 x 800	+50/+10 / -10/-50	1733
1400 x 800	+40/+6.0 / -6.0/-40	1307	1550 x 850	+50/+10 / -10/-50	1655
1400 x 850	+40/+6.0 / -6.0/-40	1229	1550 x 900	+50/+10 / -10/-50	1572
1400 x 900	+40/+6.0 / -6.0/-40	1146	1550 x 950	+50/+10 / -10/-50	1484

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
1550 x 1000	+50/+10 / -10/-50	1391	1700 x 1050	+50/+10 / -10/-50	1762
1550 x 1050	+50/+10 / -10/-50	1294	1700 x 1100	+50/+10 / -10/-50	1660
1550 x 1100	+50/+10 / -10/-50	1192	1700 x 1150	+50/+10 / -10/-50	1553
1550 x 1150	+50/+10 / -10/-50	1085	1700 x 1200	+50/+10 / -10/-50	1442
1550 x 1200	+50/+10 / -10/-50	973	1700 x 1250	+50/+10 / -10/-50	1326
1550 x 1250	+50/+10 / -10/-50	857	1700 x 1300	+50/+10 / -10/-50	1205
1550 x 1300	+50/+10 / -10/-50	736	1700 x 1350	+50/+10 / -10/-50	1079
1550 x 1350	+50/+10 / -10/-50	610	1700 x 1400	+50/+10 / -10/-50	948
1550 x 1400	+50/+10 / -10/-50	479	1700 x 1450	+50/+10 / -10/-50	813
1550 x 1450	+50/+10 / -10/-50	344	1700 x 1500	+50/+10 / -10/-50	673
1550 x 1500	+50/+10 / -10/-50	204	1700 x 1550	+50/+10 / -10/-50	528
1600 x 800	+50/+10 / -10/-50	1884	1700 x 1600	+50/+10 / -10/-50	378
1600 x 850	+50/+10 / -10/-50	1806	1700 x 1650	+50/+10 / -10/-50	224
1600 x 900	+50/+10 / -10/-50	1723	1750 x 1000	+50/+10 / -10/-50	2025
1600 x 950	+50/+10 / -10/-50	1635	1750 x 1050	+50/+10 / -10/-50	1928
1600 x 1000	+50/+10 / -10/-50	1543	1750 x 1100	+50/+10 / -10/-50	1826
1600 x 1050	+50/+10 / -10/-50	1445	1750 x 1150	+50/+10 / -10/-50	1719
1600 x 1100	+50/+10 / -10/-50	1343	1750 x 1200	+50/+10 / -10/-50	1608
1600 x 1150	+50/+10 / -10/-50	1236	1750 x 1250	+50/+10 / -10/-50	1491
1600 x 1200	+50/+10 / -10/-50	1125	1750 x 1300	+50/+10 / -10/-50	1370
1600 x 1250	+50/+10 / -10/-50	1008	1750 x 1350	+50/+10 / -10/-50	1244
1600 x 1300	+50/+10 / -10/-50	887	1750 x 1400	+50/+10 / -10/-50	1114
1600 x 1350	+50/+10 / -10/-50	762	1750 x 1450	+50/+10 / -10/-50	978
1600 x 1400	+50/+10 / -10/-50	631	1750 x 1500	+50/+10 / -10/-50	838
1600 x 1450	+50/+10 / -10/-50	496	1750 x 1550	+50/+10 / -10/-50	694
1600 x 1500	+50/+10 / -10/-50	356	1750 x 1600	+50/+10 / -10/-50	544
1600 x 1550	+50/+10 / -10/-50	211	1750 x 1650	+50/+10 / -10/-50	390
1650 x 800	+50/+10 / -10/-50	2041	1800 x 1700	+50/+10 / -10/-50	231
1650 x 850	+50/+10 / -10/-50	1962	1800 x 1000	+50/+10 / -10/-50	2196
1650 x 900	+50/+10 / -10/-50	1879	1800 x 1050	+50/+10 / -10/-50	2099
1650 x 950	+50/+10 / -10/-50	1791	1800 x 1100	+50/+10 / -10/-50	1996
1650 x 1000	+50/+10 / -10/-50	1699	1800 x 1150	+50/+10 / -10/-50	1890
1650 x 1050	+50/+10 / -10/-50	1601	1800 x 1200	+50/+10 / -10/-50	1778
1650 x 1100	+50/+10 / -10/-50	1499	1800 x 1250	+50/+10 / -10/-50	1662
1650 x 1150	+50/+10 / -10/-50	1393	1800 x 1300	+50/+10 / -10/-50	1541
1650 x 1200	+50/+10 / -10/-50	1281	1800 x 1350	+50/+10 / -10/-50	1415
1650 x 1250	+50/+10 / -10/-50	1165	1800 x 1400	+50/+10 / -10/-50	1284
1650 x 1300	+50/+10 / -10/-50	1044	1800 x 1450	+50/+10 / -10/-50	1149
1650 x 1350	+50/+10 / -10/-50	918	1800 x 1500	+50/+10 / -10/-50	1009
1650 x 1400	+50/+10 / -10/-50	787	1800 x 1550	+50/+10 / -10/-50	864
1650 x 1450	+50/+10 / -10/-50	652	1800 x 1600	+50/+10 / -10/-50	714
1650 x 1500	+50/+10 / -10/-50	512	1800 x 1650	+50/+10 / -10/-50	560
1650 x 1550	+50/+10 / -10/-50	367	1800 x 1700	+50/+10 / -10/-50	401
1650 x 1600	+50/+10 / -10/-50	217	1800 x 1750	+50/+10 / -10/-50	237
1700 x 850	+50/+10 / -10/-50	2123	1850 x 1100	+50/+10 / -10/-50	2172
1700 x 900	+50/+10 / -10/-50	2040	1850 x 1150	+50/+10 / -10/-50	2065
1700 x 950	+50/+10 / -10/-50	1952	1850 x 1200	+50/+10 / -10/-50	1953
1700 x 1000	+50/+10 / -10/-50	1860	1850 x 1250	+50/+10 / -10/-50	1837

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.

# Tubes

Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.	Diameter mm. ØxØ	Tolerance mm.	Apr. weight Kg/m.
1850 x 1300	+50/+10 / -10/-50	1716	2050 x 1500	+10/+60 / -10/-60	1932
1850 x 1350	+50/+10 / -10/-50	1590	2050 x 1550	+10/+60 / -10/-60	1788
1850 x 1400	+50/+10 / -10/-50	1459	2050 x 1600	+10/+60 / -10/-60	1638
1850 x 1450	+50/+10 / -10/-50	1324	2050 x 1650	+10/+60 / -10/-60	1484
1850 x 1500	+50/+10 / -10/-50	1184	2050 x 1700	+10/+60 / -10/-60	1325
1850 x 1550	+50/+10 / -10/-50	1039	2050 x 1750	+10/+60 / -10/-60	1161
1850 x 1600	+50/+10 / -10/-50	890	2050 x 1800	+10/+60 / -10/-60	992
1850 x 1650	+50/+10 / -10/-50	735	2050 x 1850	+10/+60 / -10/-60	819
1850 x 1700	+50/+10 / -10/-50	576	2050 x 1900	+10/+60 / -10/-60	641
1850 x 1750	+50/+10 / -10/-50	413	2050 x 1950	+10/+60 / -10/-60	458
1850 x 1800	+50/+10 / -10/-50	244	2050 x 2000	+10/+60 / -10/-60	271
1900 x 1200	+50/+10 / -10/-50	2133	2100 x 1500	+10/+60 / -10/-60	2131
1900 x 1250	+50/+10 / -10/-50	2017	2100 x 1550	+10/+60 / -10/-60	1987
1900 x 1300	+50/+10 / -10/-50	1896	2100 x 1600	+10/+60 / -10/-60	1837
1900 x 1350	+50/+10 / -10/-50	1770	2100 x 1650	+10/+60 / -10/-60	1683
1900 x 1400	+50/+10 / -10/-50	1639	2100 x 1700	+10/+60 / -10/-60	1524
1900 x 1450	+50/+10 / -10/-50	1504	2100 x 1750	+10/+60 / -10/-60	1360
1900 x 1500	+50/+10 / -10/-50	1364	2100 x 1800	+10/+60 / -10/-60	1191
1900 x 1550	+50/+10 / -10/-50	1219	2100 x 1850	+10/+60 / -10/-60	1018
1900 x 1600	+50/+10 / -10/-50	1070	2100 x 1900	+10/+60 / -10/-60	840
1900 x 1650	+50/+10 / -10/-50	915	2100 x 1950	+10/+60 / -10/-60	657
1900 x 1700	+50/+10 / -10/-50	756	2100 x 2000	+10/+60 / -10/-60	469
1900 x 1750	+50/+10 / -10/-50	592	2100 x 2050	+10/+60 / -10/-60	277
1900 x 1800	+50/+10 / -10/-50	424	2150 x 1500	+10/+60 / -10/-60	2335
1900 x 1850	+50/+10 / -10/-50	251	2150 x 1550	+10/+60 / -10/-60	2190
1950 x 1300	+50/+10 / -10/-50	2081	2150 x 1600	+10/+60 / -10/-60	2041
1950 x 1350	+50/+10 / -10/-50	1955	2150 x 1650	+10/+60 / -10/-60	1886
1950 x 1400	+50/+10 / -10/-50	1824	2150 x 1700	+10/+60 / -10/-60	1727
1950 x 1450	+50/+10 / -10/-50	1689	2150 x 1750	+10/+60 / -10/-60	1563
1950 x 1500	+50/+10 / -10/-50	1549	2150 x 1800	+10/+60 / -10/-60	1395
1950 x 1550	+50/+10 / -10/-50	1404	2150 x 1850	+10/+60 / -10/-60	1222
1950 x 1600	+50/+10 / -10/-50	1254	2150 x 1900	+10/+60 / -10/-60	1044
1950 x 1650	+50/+10 / -10/-50	1100	2150 x 1950	+10/+60 / -10/-60	861
1950 x 1700	+50/+10 / -10/-50	941	2150 x 2000	+10/+60 / -10/-60	673
1950 x 1750	+50/+10 / -10/-50	777	2150 x 2050	+10/+60 / -10/-60	481
1950 x 1800	+50/+10 / -10/-50	609	2150 x 2100	+10/+60 / -10/-60	284
1950 x 1850	+50/+10 / -10/-50	435	2200 x 1550	+10/+60 / -10/-60	2399
1950 x 1900	+50/+10 / -10/-50	257	2200 x 1600	+10/+60 / -10/-60	2249
2000 x 1500	+50/+10 / -10/-50	1738	2200 x 1650	+10/+60 / -10/-60	2095
2000 x 1550	+50/+10 / -10/-50	1593	2200 x 1700	+10/+60 / -10/-60	1936
2000 x 1600	+50/+10 / -10/-50	1444	2200 x 1750	+10/+60 / -10/-60	1772
2000 x 1650	+50/+10 / -10/-50	1289	2200 x 1800	+10/+60 / -10/-60	1603
2000 x 1700	+50/+10 / -10/-50	1130	2200 x 1850	+10/+60 / -10/-60	1430
2000 x 1750	+50/+10 / -10/-50	967	2200 x 1900	+10/+60 / -10/-60	1252
2000 x 1800	+50/+10 / -10/-50	798	2200 x 1950	+10/+60 / -10/-60	1069
2000 x 1850	+50/+10 / -10/-50	625	2200 x 2000	+10/+60 / -10/-60	882
2000 x 1900	+50/+10 / -10/-50	447	2200 x 2050	+10/+60 / -10/-60	689
2000 x 1950	+50/+10 / -10/-50	264	2200 x 2100	+10/+60 / -10/-60	492

Standard lengths: 3.000 mm. / 2.000 mm. / 1.000 mm.

Other sizes and lengths are available on request.

All material is Ultrasonic Tested and Stress Relieved.



TRAIDAMID®

# TRAIDAMID® G

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Natural
Density	ISO 1183	g / Cm <sup>3</sup>	1,15
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	44
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	83
Water absorption at saturation in air at 23°C / 50% RH	-	%	2,2
Water absorption at saturation in water at 23°C	-	%	6,5
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	120
Min. service temperature	-	°C	-30
Flammability 'Oxigen index'	ISO 4589	%	25
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	85
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	55
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3400
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1700
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	26
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	51
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	92
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	22
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	10
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	165
Rockwell hardness	Dry ISO 2039/2	-	M 88
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	25
Electric strength	Sat. IEC 60243	kV/mm	17
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,6
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,6
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,2
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,7
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,012
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,14
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Black, yellow, green, blue, red
Density	ISO 1183	g / Cm <sup>3</sup>	1,15
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	44
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	83
Water absorption at saturation in air at 23°C / 50% RH	-	%	2,2
Water absorption at saturation in water at 23°C	-	%	6,5
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuosly	-	°C	120
Min. service temperature	-	°C	-30
Flammability 'Oxygen index'	ISO 4589	%	25
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	85
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	55
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3400
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1700
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	26
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	51
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	92
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	22
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	10
Charpy impact strength unnotched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength notched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	3,5
Izod notched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	3,5
Izod notched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	165
Rockwell hardness	Dry ISO 2039/2	-	M 88
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	25
Electric strength	Sat. IEC 60243	kV/mm	17
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,6
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,6
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,2
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,7
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,012
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,14
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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TRAIDAMID®

# TRAIDAMID® G MOS2

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Black
Density	ISO 1183	g / Cm <sup>3</sup>	1,15
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	42
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	79
Water absorption at saturation in air at 23°C / 50% RH	-	%	2,1
Water absorption at saturation in water at 23°C	-	%	6,4
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	75
Max. allowable service temperature in air for short periods	-	°C	165
Max. allowable service temperature in air continuously	-	°C	105
Min. service temperature	-	°C	-30
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	79
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	52
Breaking elongation, tension test at 23°C	Dry ISO 527	%	26
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3200
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1600
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	25
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	49
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	85
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	19
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	9
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	160
Rockwell hardness	Dry ISO 2039/2	-	M 85
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	24
Electric strength	Sat. IEC 60243	kV/mm	16
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,6
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,6
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,2
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,7
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,012
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,14
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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TRAIDAMID®

# TRAIDAMID® G + OIL

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Black,yellow,green
Density	ISO 1183	g / Cm³	1,14
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	44
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	83
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,8
Water absorption at saturation in water at 23°C	-	%	6,3
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10⁻⁶
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10⁻⁶
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	75
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	105
Min. service temperature	-	°C	-20
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	70
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	45
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3000
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1450
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	22
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	45
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	81
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	19
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	9
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m²	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m²	4
Izod noched impact strength (2A)	Dry ISO 180	kJ/m²	4
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m²	7
Ball indentation hardness	Dry ISO 2039/1	N/mm²	145
Rockwell hardness	Dry ISO 2039/2	-	M 83
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	22
Electric strength	Sat. IEC 60243	kV/mm	14
Volume resistivity	Dry IEC 60093	Ohm.cm	>10¹⁴
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10¹²
Surface resistivity	Dry. IEC 60093	Ohm	>10¹³
Surface resistivity	Sat. IEC 60093	Ohm	>10¹²
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,5
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,5
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,1
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,6
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,015
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,15
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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TRAIDAMID®

# TRAIDAMID® 901

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Blue
Density	ISO 1183	g / Cm <sup>3</sup>	1,15
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	50
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	94
Water absorption at saturation in air at 23°C / 50% RH	-	%	2,4
Water absorption at saturation in water at 23°C	-	%	6,6
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	128
Min. service temperature	-	°C	-40
Flammability 'Oxigen index'	ISO 4589	%	25
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	80
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	50
Breaking elongation, tension test at 23°C	Dry ISO 527	%	15
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3200
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1500
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	25
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	48
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	85
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	21
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	10
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	6
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	160
Rockwell hardness	Dry ISO 2039/2	-	M 85
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	25
Electric strength	Sat. IEC 60243	kV/mm	17
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,6
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,6
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,2
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,7
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,012
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,14
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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TRAIDAMID®

# TRAIDAMID® FV30

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Grey
Density	ISO 1183	g / Cm <sup>3</sup>	1.29
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	-
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	-
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,5
Water absorption at saturation in water at 23°C	-	%	-
THERMAL PROPERTIES			
Melting temperature	-	°C	225
Thermal conductivity at 23°C	-	W/(K.m)	0.30
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1.8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	110
Min. service temperature	-	°C	-40
Flammability 'Oxygen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	100
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	100
Breaking elongation, tension test at 23°C	Dry ISO 527	%	-
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	-
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	5000
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	-
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	-
Charpy impact strength unnotched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength notched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	>4
Izod notched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	-
Izod notched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	-
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	250
Rockwell hardness	Dry ISO 2039/2	-	-
Shore hardness	Dry D	-	85
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	30
Electric strength	Sat. IEC 60243	kV/mm	-
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>15</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>14</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	-
Relative permittivity at 100 Hz	Sat. IEC 60250	-	-
Relative permittivity at 1 MHz	Dry. IEC 60250	-	-
Relative permittivity at 1 MHz	Sat. IEC 60250	-	-
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	-
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	-
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	-
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	-
Comparative tracking index (CTI)	Dry IEC 60112	-	-
Comparative tracking index (CTI)	Sat. IEC 60112	-	-

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TRAIDAMID®

# TRAIDAMID® IMPACT

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Natural
Density	ISO 1183	g / Cm <sup>3</sup>	1,13
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	40
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	79
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,8
Water absorption at saturation in water at 23°C	-	%	6,0
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,25
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	105
Min. service temperature	-	°C	-30
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	68
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	45
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	2600
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	-
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	26
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	-
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	165
Rockwell hardness	Dry ISO 2039/2	-	M 88
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	25
Electric strength	Sat. IEC 60243	kV/mm	17
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,6
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,6
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,2
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,7
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,012
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,14
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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# TRAIDAMID® SUPERGLIDE



TRAIDAMID®

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Bright green
Density	ISO 1183	g / Cm <sup>3</sup>	1,135
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	44
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	83
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,8
Water absorption at saturation in water at 23°C	-	%	6,3
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	75
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	105
Min. service temperature	-	°C	-20
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	70
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	45
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3000
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1450
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	22
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	45
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	81
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	19
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	9
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	4
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	4
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	145
Rockwell hardness	Dry ISO 2039/2	-	M 83
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	22
Electric strength	Sat. IEC 60243	kV/mm	14
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,5
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,5
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,1
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,6
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,015
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,15
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Red
Density	ISO 1183	g / Cm <sup>3</sup>	1,14
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	44
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	83
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,8
Water absorption at saturation in water at 23°C	-	%	6,3
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,29
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	75
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	105
Min. service temperature	-	°C	-20
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	70
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	45
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3100
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1500
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	22
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	45
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	81
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	19
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	9
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	4
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	4
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	145
Rockwell hardness	Dry ISO 2039/2	-	M 83
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	22
Electric strength	Sat. IEC 60243	kV/mm	14
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,5
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,5
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,1
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,6
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,015
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,15
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Natural
Density	ISO 1183	g / Cm <sup>3</sup>	1,14
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	-
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	-
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,8
Water absorption at saturation in water at 23°C	-	%	5,5
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,23
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	110
Min. service temperature	-	°C	-40
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	70
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	-
Breaking elongation, tension test at 23°C	Dry ISO 527	%	35
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	-
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	3400
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1700
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	-
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	5
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	-
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	-
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	150
Rockwell hardness	Dry ISO 2039/2	-	-
Shore hardness	Dry D	-	81
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	-
Electric strength	Sat. IEC 60243	kV/mm	-
Volume resistivity	Dry IEC 60093	Ohm.cm	-
Volume resistivity	Sat. IEC 60093	Ohm.cm	-
Surface resistivity	Dry. IEC 60093	Ohm	-
Surface resistivity	Sat. IEC 60093	Ohm	-
Relative permittivity at 100 Hz	Dry IEC 60250	-	-
Relative permittivity at 100 Hz	Sat. IEC 60250	-	-
Relative permittivity at 1 MHz	Dry. IEC 60250	-	-
Relative permittivity at 1 MHz	Sat. IEC 60250	-	-
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	-
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	-
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	-
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	-
Comparative tracking index (CTI)	Dry IEC 60112	-	-
Comparative tracking index (CTI)	Sat. IEC 60112	-	-

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TRAIDAMID®

# TRAIDAMID® 612

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Natural
Density	ISO 1183	g / Cm <sup>3</sup>	1,13
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	40
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	79
Water absorption at saturation in air at 23°C / 50% RH	-	%	1,8
Water absorption at saturation in water at 23°C	-	%	6,0
THERMAL PROPERTIES			
Melting temperature	-	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0,25
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	80.10 <sup>-6</sup>
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	90.10 <sup>-6</sup>
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	80
Max. allowable service temperature in air for short periods	-	°C	170
Max. allowable service temperature in air continuously	-	°C	105
Min. service temperature	-	°C	-30
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	HB
Flammability according to UL 94, 6 mm. thickness	-	-	HB
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	68
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	45
Breaking elongation, tension test at 23°C	Dry ISO 527	%	25
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	>50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	2600
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	-
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	26
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	-
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	No br.
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	3,5
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	7
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	165
Rockwell hardness	Dry ISO 2039/2	-	M 88
Shore hardness	Dry D	-	80
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	25
Electric strength	Sat. IEC 60243	kV/mm	17
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>14</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	>10 <sup>12</sup>
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	>10 <sup>12</sup>
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,6
Relative permittivity at 100 Hz	Sat. IEC 60250	-	6,6
Relative permittivity at 1 MHz	Dry. IEC 60250	-	3,2
Relative permittivity at 1 MHz	Sat. IEC 60250	-	3,7
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,012
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	0,14
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	0,016
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	0,05
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	600

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TRAIDAMID®

# TRAIDAMID® 12

## Technical data Sheet

GENERAL PROPERTIES	Test Method	Units	Values
Colour	-	-	Natural
Density	ISO 1183	g / Cm <sup>3</sup>	1.03
Water Absorption after 24 h immersion in water at 23°C	ISO 62	Mg	-
Water Absorption after 96 h immersion in water at 23°C	ISO 62	Mg	-
Water absorption at saturation in air at 23°C / 50% RH	-	%	0,9
Water absorption at saturation in water at 23°C	-	%	1,5
THERMAL PROPERTIES			
Melting temperature	-	°C	190
Thermal conductivity at 23°C	-	W/(K.m)	0.25
Coefficient of linear thermal expansion average value between 23 and 60°C	-	M(m.K)	-
Coefficient of linear thermal expansion average value between 23 and 100°C	-	M(m.K)	-
Temperature of deflection under load. Method A: 1,8 MPa*	Dry ISO 75	°C	-
Max. allowable service temperature in air for short periods	-	°C	150
Max. allowable service temperature in air continuously	-	°C	90
Min. service temperature	-	°C	-70
Flammability 'Oxigen index'	ISO 4589	%	-
Flammability according to UL 94, 3 mm. thickness	-	-	-
Flammability according to UL 94, 6 mm. thickness	-	-	-
MECHANICAL PROPERTIES			
Tensile stress at yield, tension test at 23°C	Dry ISO 527	MPa	60
Tensile stress at yield, tension test at 23°C	Sat. ISO 527	MPa	53
Breaking elongation, tension test at 23°C	Dry ISO 527	%	10
Breaking elongation, tension test at 23°C	Sat. ISO 527	%	50
Tensile modulus of elasticity, tension test at 23°C	Dry ISO 527	MPa	2100
Tensile modulus of elasticity, tension test at 23°C	Sat. ISO 527	MPa	1800
Compressive stress at 1% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 2% nominal strain	Dry ISO 604	MPa	-
Compressive stress at 5% nominal strain	Dry ISO 604	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Dry ISO 899	MPa	-
Creep test in tension stress to produce 1% strain in 1000 h	Sat. ISO 899	MPa	-
Charpy impact strength unnoched (1eU)	Dry ISO 179	kJ/m <sup>2</sup>	-
Charpy impact strength noched (1eA)	Dry ISO 179	kJ/m <sup>2</sup>	-
Izod noched impact strength (2A)	Dry ISO 180	kJ/m <sup>2</sup>	6
Izod noched impact strength (2A)	Sat. ISO 180	kJ/m <sup>2</sup>	-
Ball indentation hardness	Dry ISO 2039/1	N/mm <sup>2</sup>	100
Rockwell hardness	Dry ISO 2039/2	-	-
Shore hardness	Dry D	-	74
ELECTRICAL PROPERTIES			
Electric strength	Dry IEC 60243	kV/mm	-
Electric strength	Sat. IEC 60243	kV/mm	-
Volume resistivity	Dry IEC 60093	Ohm.cm	>10 <sup>12</sup>
Volume resistivity	Sat. IEC 60093	Ohm.cm	-
Surface resistivity	Dry. IEC 60093	Ohm	>10 <sup>13</sup>
Surface resistivity	Sat. IEC 60093	Ohm	-
Relative permittivity at 100 Hz	Dry IEC 60250	-	3,5
Relative permittivity at 100 Hz	Sat. IEC 60250	-	-
Relative permittivity at 1 MHz	Dry. IEC 60250	-	-
Relative permittivity at 1 MHz	Sat. IEC 60250	-	-
Dielectric dissipater factor tan at 100 Hz	Dry IEC 60250	-	0,038
Dielectric dissipater factor tan at 100 Hz	Sat. IEC 60250	-	-
Dielectric dissipater factor tan at 1 MHz	Dry IEC 60250	-	-
Dielectric dissipater factor tan at 1 MHz	Sat. IEC 60250	-	-
Comparative tracking index (CTI)	Dry IEC 60112	-	600
Comparative tracking index (CTI)	Sat. IEC 60112	-	-

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