



Dalmine Thermo®

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We would like to thank readers in advance for their suggestions.



Quality System Certified
n. 110950/003

Dalmine Thermo®

In civil and industrial installations, it is necessary for the color of the pipe to identify the fluid carried. Dalmine has created Thermo™: steel pipe, coated with epoxy powder, which means no painting on site by the installer and even easier and safer identification of usage.

The coating is applied by fusing epoxy powder onto the surface of the grit-blasted pipe, preheated to about 200°C.

The coating, with a minimum thickness of 50 microns, gives a working temperature of between -10 to +110°C, and has excellent adhesive properties and resistance to abrasion; allowing bending with a standard portable tool, with a mandrel having a minimum bending radius of 6 times the external diameter of the pipe.



Dalmine Thermo® Yellow



Dalmine Thermo® UNI EN 10208-1

Tubes in carbon steel L235 GA, welded using the Fretz-Moon process for natural gas (series IV max pressure 5 bar), hot coated with epoxy powder available in the dimensional range of from 3/4 to 4" diameter.

MECHANICAL AND CHEMICAL PROPERTIES

TYPE OF STEEL	MECHANICAL PROPERTIES			CHEMICAL COMPOSITION % (CAST ANALYSIS)				
	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	C	Mn	Si	P	S
	R _m N/mm ²	R _{t 0,5} Min N/mm ²	A Min %	Max	Max	Max	Max	Max
L235GA	370 ÷ 510	235	23	0,16	1,20	0,40	0,030	0,030

DIMENSIONS – UNI EN 10208 - 1

NOMINAL DIAMETER		OD	WT	NOMINAL WEIGHT	EXECUTION*
inches	ND	mm	mm	kg/m	
3/4	20	26,9	2,3	1,39	FM Welding
1	25	33,7	2,9	2,21	FM Welding
1 1/4	32	42,4	2,9	2,83	FM Welding
1 1/2	40	48,3	2,9	3,25	FM Welding
2	50	60,3	3,2	4,51	FM Welding
2 1/2	65	76,1	3,2	5,75	FM Welding
3	80	88,9	3,6	7,58	FM Welding
4	100	114,0	4,0	10,88	ERW Welding

*Seamless up to 10" available on request
Length 6 m

Tolerances

On the outside diameter
± 0,75 %

On the wall thickness
+ 1 – 0,5 mm

On the nominal weight
+ 10% – 3,5 %
on a single tube

On the length
+ 100 – 50 mm
on a single tube

Ends

Smooth, cut perpendicularly
to the tube axis

Tests

Tests in conformity with the
manufacture norm are carried
out on the tubes, additional
tests must be agreed upon
when ordering.

Documentation

A certificate in accord with
the UNI EN 10204 norm can
be issued

Marking

Dalmine Thermo FM UNI
EN 10208 – 1 L235GA

Dalmine Thermo® Green



Dalmine Thermo® FM UNI 8863 WL

Tube in carbon steel Fe 330 welded with the Fretz-Moon process for civil and industrial installations, hot coated with epoxy powder, available in the dimensional range 1/2" to 4" diameter.

MECHANICAL AND CHEMICAL PROPERTIES

TYPE OF STEEL	MECHANICAL PROPERTIES			CHEMICAL COMPOSITION % (CAST ANALYSIS)				
	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	C	Mn	Si	P	S
	R _m N/mm ²	R _{t 0,5} Min N/mm ²	A Min %	Max	Max	Max	Max	Max
Fe 330	330 ÷ 520	210	22	0,17	0,65	-	0,040	0,040

DIMENSIONS – UNI 8863 LIGHT-WEIGHT SERIES

ND inches	OUTSIDE DIAMETER		WT mm	NOMINAL WEIGHT kg/m	EXECUTION
	MAX mm	MIN mm			
1/2	21,7	21,0	2,3	1,09	FM Welding
3/4	27,1	26,4	2,3	1,39	FM Welding
1	34,0	33,2	2,9	2,21	FM Welding
1 1/4	42,7	41,9	2,9	2,83	FM Welding
1 1/2	48,6	47,8	2,9	3,25	FM Welding
2	60,7	59,6	3,2	4,51	FM Welding
2 1/2	76,3	75,2	3,2	5,75	FM Welding
3	89,4	87,9	3,6	7,58	FM Welding
4	114,9	113,0	4,0	10,88	ERW Welding

Length 6 m - Smooth ends, cut perpendicularly to the tube axis

Tolleranze

On the outside diameter
See 'Dimensions' table

On the wall thickness
+ not limited
- 10%

On the nominal weight
+ 10% - 8%
on a single tube
- 5% per lotti > 10 t

On the length
+ 100 - 50mm

Tests

Tests in conformity with the manufacture norm are carried out on the tubes, additional tests must be agreed upon when ordering.

Documentation

A certificate in accord with the UNI EN 10204 norm can be issued

Marking

Dalmine Thermo FM
UNI 8863 WL



Dalmine Thermo® red



Dalmine Thermo® UNI 8863

Tube in carbon steel Fe 330 welded with the Fretz-Moon process and seamless for civil and industrial installations and for fireproof systems, hot coated with epoxy powder available in the dimensional range 1/2" to 6" diameter.

MECHANICAL AND CHEMICAL PROPERTIES

TYPE OF STEEL	MECHANICAL PROPERTIES			CHEMICAL COMPOSITION % (CAST ANALYSIS)				
	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	C	Mn	Si	P	S
	R _m N/mm ²	R _{t 0,5} Min N/mm ²	A Min %	Max	Max	Max	Max	Max
Fe 330	330 ÷ 520	210	22	0,17	0,65	-	0,040	0,040

DIMENSIONS – UNI 8863 LIGHT-WEIGHT SERIES

ND inches	OUTSIDE DIAMETER		WT mm	NOMINAL WEIGHT kg/m	EXECUTION
	MAX mm	MIN mm			
1/2	21,7	21,0	2,3	1,09	FM Welding
3/4	27,1	26,4	2,3	1,39	FM Welding
1	34,0	33,2	2,9	2,21	FM Welding
1 1/4	42,7	41,9	2,9	2,83	FM Welding
1 1/2	48,6	47,8	2,9	3,25	FM Welding
2	60,7	59,6	3,2	4,51	FM Welding
2 1/2	76,3	75,2	3,2	5,75	FM Welding
3	89,4	87,9	3,6	7,58	FM Welding
4	114,9	113,0	4,0	10,88	ERW Welding

Length 6 m - Smooth ends, cut perpendicularly to the tube axis





DIMENSIONS –UNI 8863 MEDIUM SERIES

ND inches	OUTSIDE DIAMETER		WT mm	NOMINAL WEIGHT kg/m	EXECUTION
	MAX mm	MIN mm			
1/2	21,7	21,0	2,6	1,21	Seamless
3/4	27,1	26,4	2,6	1,57	Seamless
1	34,0	33,2	3,2	2,42	Seamless
1 1/4	42,7	41,9	3,2	3,11	Seamless
1 1/2	48,6	47,8	3,2	3,58	Seamless
2	60,7	59,6	3,6	5,05	Seamless
2 1/2	76,3	75,2	3,6	6,44	Seamless
3	89,4	87,9	4,0	8,38	Seamless
4	114,9	113,0	4,5	12,19	Seamless
5	140,8	138,5	5,0	16,64	Seamless
6	166,5	163,9	5,0	19,80	Seamless

Length 6 m - Smooth ends, cut perpendicularly to the tube axis

Tolerances Welded tubes

On the outside diameter
See the table 'Dimensions'

On the wall thickness
+ not limited
– 10%

On the nominal weight
+ 10% – 8%
on a single tube
± 5% per batch > 10 t

On the length
+ 100 – 50mm

Tolerances seamless tubes

On the outside diameter
see the table 'Dimensions'

On the wall thickness
+ not limited
– 12,5%

On the nominal weight
± 10%
on a single tube
± 7,5% per batch > 10 t

On the length
+ 100 – 50 mm

Tests

Tests in conformity with the manufacture norm are carried out on the tubes, additional tests must be agreed upon when ordering.

Marking

- Tenaris DL Thermo FM
UNI 8863 WL
- Tenaris DL Thermo SS
UNI 8863 SM

Documentation

A certificate in accord with the UNI EN 10204 norm can be issued

Dalmine Thermo® red



Dalmine Thermo® UNI EN 10216-1

Seamless tube in carbon steel Fe 320 for civil and industrial installations and fireproof systems, coated in epoxy resin available in a dimensional range of from 101.6 to 273 mm external diameter.

MECHANICAL AND CHEMICAL PROPERTIES

TYPE OF STEEL	MECHANICAL PROPERTIES			CHEMICAL COMPOSITION % (CAST ANALYSIS)				
	TENSILE STRENGTH	YIELD STRENGTH	ELONGATION	C	Mn	Si	P	S
	R_m MPa*	R_{eH} MIN MPa*	A MIN % l t	MAX	MAX	MAX	MAX	MAX
P235TR1	360 ÷ 500	235	25 23	0,16	1,20	0,35	0,025	0,020

*1MPa = 1N/mm²

DIMENSIONS – GENERAL PURPOSE TUBES UNI 7287

OD	WT mm	NOMINAL WEIGHT kg/m	EXECUTION
101,6	3,6	8,73	Seamless
108	3,6	9,30	Seamless
114,3	3,6	9,86	Seamless
133	4	12,77	Seamless
139,7	4,5	15,05	Seamless
159	4,5	17,20	Seamless
168,3	4,5	18,23	Seamless
193,7	5,4	25,14	Seamless
219,1	6,3	33,13	Seamless
244,5	6,3	37,09	Seamless
273	6,3	41,52	Seamless

Length 4 ÷ 8 m - Smooth ends, cut perpendicularly to the tube axis

Tolerances

On the outside diameter
± 1% with a minimum of 0.5 mm

On the wall thickness
For OD ≤ 219.1 mm ± 12.5%
With a minimum of 0.4 mm
For OD > 219.1 mm:

- ± 20% when the relationship
WT/OD is ≤ 0.025
- ± 15% when the relationship
WT/OD is > 0.025

Tests

Tests provided for in the UNI EN 10216 standard are normally carried out.

Further tests have to be agreed upon.

Documents

If requested when ordering, a conformity certificate in accord with the UNI EN 10204 standard is issued.

Marking

Tenaris DL Thermo SS
UNI EN 10216 P235TR1



Packaging

Tubes with a diameter of up to 6 inches, packaged in hexagonal bundles.

MAKE-UP OF THE HEXAGONAL BUNDLES					
ND inches	OD mm	Thermo® SEAMLESS		Thermo® WELDED	
		n° tubes	kg	n° tubes	kg
1/2	21.3	127	930	127	830
3/4	26.9	127	1190	127	1070
1	33.7	91	1320	91	1210
1 1/4	42.4	61	1140	61	1040
1 1/2	48.3	61	1310	61	1190
2	60.3	37	1120	38	1000
2 1/2	76.1	19	740	37	1280
3	88.9	19	960	19	860
4	114.3	19	1400	19	1240
5	139.7	7	700	-	-
6	165.1	7	830	-	-

Length 6 m



Advice for the installer



A welded joint can be achieved without removing the coating. Tests carried out have actually shown the absence of further noxiousness in the fumes from the welding process.

The weld can be done with oxy-acetylene, arc welding with coated electrodes, or TIG welding.

The coating of the area affected by welding can easily be repaired with epoxy resin of the same type, applied cold on site with a spatula or brush.

When laying down into chase, be careful not to damage the epoxy coating. In case areas are found where it has come off, restore the coating's continuity with resin, applied cold.

Comparison between Dalmine Thermo® tubes and tubes painted with general rust preventer

The photo shows the result of a peel strength test under negative polarization executed in the manner expected by the UNI 9099 norm.

The test consists of putting a crop end of tube, in which a 6mm diameter hole has been made in the coating, in contact with a saline solution and then negatively

polarized with a high-density electric current.

At the end of the test, at a temperature of 23 °C lasting 28 days, the area is measured where the coating has peeled.



Dalmine Thermo® tube

Tube painted with rust preventer



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