



Tenaris Thermo

 **Tenaris** Silcotub

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



Quality System Certified
N. 110950/042

Tenaris Thermo

In civil and industrial installations, it is necessary for the color of the pipe to identify the fluid carried. Tenaris 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.



Tenaris Thermo

Yellow



Tenaris Thermo EN 10208-1

Seamless tube in carbon steel, L235 GA, for natural gas, hot coated with epoxy powder available in the dimensional range of from 1/2" to 10" 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 – EN 10208 - 1

| NOMINAL DIAMETER | | OD mm | WT mm | NOMINAL WEIGHT kg/m | EXECUTION* |
|------------------|-----|----------|----------|------------------------|------------|
| inches | mm | | | | |
| 1/2 | 15 | 21,3 | 2,6 | 1,25 | Seamless |
| 3/4 | 20 | 26,9 | 2,6 | 1,56 | Seamless |
| 1 | 25 | 33,7 | 3,2 | 2,41 | Seamless |
| 1 1/4 | 32 | 42,4 | 3,2 | 3,10 | Seamless |
| 1 1/2 | 40 | 48,3 | 3,2 | 3,56 | Seamless |
| 2 | 50 | 60,3 | 3,6 | 5,03 | Seamless |
| 2 1/2 | 65 | 76,1 | 3,6 | 6,42 | Seamless |
| 3 | 80 | 88,9 | 4,0 | 8,36 | Seamless |
| 4 | 100 | 114,3 | 4,5 | 12,20 | Seamless |
| 5 | 125 | 139,7 | 4,5 | 15,00 | Seamless |
| 6 | 150 | 168,3 | 4,5 | 18,18 | Seamless |
| 8 | 200 | 219,1 | 6,3 | 33,06 | Seamless |
| 10 | 250 | 273,0 | 6,3 | 41,44 | Seamless |

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

Tolerances

On the outside diameter
± 0,75 %

On the wall thickness
T ≤ 4 mm; + 0,6 / - 0,5 mm
4 < T < 25 mm; + 15 % / - 12,5 %

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

Ends

Smooth, cut perpendicularly
to the tube axis

Tests

Tests in conformity with
the manufacture norm
EN 10208-1 are carried out
on the tubes, additional tests
must be agreed upon when
ordering.

Documentation

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

Marking

Tenaris Thermo
EN 10208-1, L235GA

Tenaris Thermo Green



Tenaris Thermo EN 10255

Seamless tube in carbon steel, S 195T, for civil and industrial installations, hot coated with epoxy powder available in the dimensional range of from 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 |
| S 195T | 330 ÷ 520 | 195 | 20 | 0,20 | 1,40 | - | 0,035 | 0,030 |

DIMENSIONS – EN 10255 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 | 1,25 | 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

On the outside diameter
See 'Dimensions' table

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 - 50mm

Tests

Tests in conformity with the manufacture norm EN 10255 are carried out on the tubes, additional tests must be agreed upon when ordering.

Documentation

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

Marking

Tenaris Thermo EN 10255 SM

Tenaris Thermo Green



Tenaris Thermo EN 10216-1

Seamless tube in carbon steel, P235TR1, for civil and industrial installations coated in epoxy resin available in a dimensional range of from 1/2" to 10" 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 – EN 10216-1

| OD mm | WT mm | NOMINAL WEIGHT kg/m | EXECUTION |
|----------|----------|------------------------|-----------|
| 33,7 | 2,6 | 1,99 | Seamless |
| 42,4 | 2,6 | 2,55 | Seamless |
| 48,3 | 2,6 | 2,93 | Seamless |
| 60,3 | 2,9 | 4,11 | Seamless |
| 70,0 | 2,9 | 4,80 | Seamless |
| 76,1 | 2,9 | 5,24 | Seamless |
| 88,9 | 3,2 | 6,76 | Seamless |
| 101,6 | 3,6 | 8,70 | Seamless |
| 108 | 3,6 | 9,27 | Seamless |
| 114,3 | 3,6 | 9,83 | Seamless |
| 133 | 4 | 12,77 | Seamless |
| 139,7 | 4,5 | 15,00 | Seamless |
| 159 | 4,5 | 17,15 | Seamless |
| 168,3 | 4,5 | 18,18 | Seamless |
| 193,7 | 5,4 | 25,08 | Seamless |
| 219,1 | 6,3 | 33,06 | Seamless |
| 244,5 | 6,3 | 37,01 | Seamless |
| 273 | 6,3 | 41,44 | Seamless |

Length 6 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 EN 10216-1 standard are normally carried out.

Further tests have to be agreed upon.

Documents

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

Marking

Tenaris Thermo SS
EN 10216 P235TR1

Tenaris Thermo

Red



Tenaris Thermo EN 10255

Seamless tube in carbon steel S 195T 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 _{t0,5} Min N/mm ² | A Min % | Max | Max | Max | Max | Max |
| S 195T | 320 ÷ 520 | 195 | 20 | 0,20 | 1,40 | - | 0,035 | 0,030 |

DIMENSIONS – EN 10255 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 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 EN 10255 are carried out on the tubes, additional tests must be agreed upon when ordering.

Marking

Tenaris Thermo EN 10255 SM

Documentation

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

Tenaris Thermo

Red



Tenaris Thermo EN 10216-1

Seamless tube in carbon, P235TR1 for civil and industrial installations and fireproof systems, coated in epoxy resin available in a dimensional range of from 1" to 10" 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 – EN 10216-1

| OD mm | WT mm | NOMINAL WEIGHT kg/m | EXECUTION |
|----------|----------|------------------------|-----------|
| 33,7 | 2,6 | 1,99 | Seamless |
| 42,4 | 2,6 | 2,55 | Seamless |
| 48,3 | 2,6 | 2,93 | Seamless |
| 60,3 | 2,9 | 4,11 | Seamless |
| 70,0 | 2,9 | 4,80 | Seamless |
| 76,1 | 2,9 | 5,24 | Seamless |
| 88,9 | 3,2 | 6,76 | Seamless |
| 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 |

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 EN 10216-1 standard are normally carried out.

Further tests have to be agreed upon.

Documents

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

Marking

Tenaris Thermo SS
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 | |
| | | n° tubes | kg |
| 1/2 | 21,3 | 127 | 930 |
| 3/4 | 26,9 | 127 | 1190 |
| 1 | 33,7 | 91 | 1320 |
| 1 1/4 | 42,4 | 61 | 1140 |
| 1 1/2 | 48,3 | 61 | 1310 |
| 2 | 60,3 | 37 | 1120 |
| 2 1/2 | 76,1 | 19 | 740 |
| 3 | 88,9 | 19 | 960 |
| 4 | 114,3 | 19 | 1400 |
| 5 | 139,7 | 7 | 700 |
| 6 | 165,1 | 7 | 830 |

For tubes with a diameter > 6 inches, packaging will be agreed upon when ordering.



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 Tenaris 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.



Tenaris Thermo® tube

Tube painted with rust preventer



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