



# API PIPE

Conduction efficiency.  
A true fact.



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In TUNA 100% of our production of API steel pipe is fabricated using the methods of hot reduction or cold forming as rolled, this allows the steel to acquired the optimum conditions for the conduction of fluids in the petroleum industry.

Thanks to our steel normalization procedure, it is possible to acquire bending properties for the product. This pipe is usually utilized in conduction systems in the oil and gas industry.

Additionally, since 1995 this process counts with the American Petroleum Institute certification, which backs up its guarantees, safety and trustworthiness.

Manufacturing processes are monitored with strict quality controls through different tests, among them hydrostatic, electromagnetic (Eddy currents) and flattening tests, to ensure its quality in accordance with national and international standards.



**DIMENSIONS AND CHARACTERISTICS OF PETROLEUM AND NATURAL GAS CONDUCTION PIPE API-5L-PSL-1  
AVAILABLE IN LENGTHS OF 6.1 MTS, 7.62 MTS AND 12.80 MTS  
IMP RE-PSIAFM-01-10, NORMA NRF-001-PEMEX CERTIFICATE**

| DIAMETER | GAUGE | OUTSIDE NOMINAL DIAMETER |        | THICKNESS NOMINAL |      | WEIGHT |       |            |            |              | PACKAGE        |
|----------|-------|--------------------------|--------|-------------------|------|--------|-------|------------|------------|--------------|----------------|
|          |       | inch                     | mm     | inch              | mm   | lb/ft  | kg/m  | kg x 6.40m | lb x 21 ft | kg x package | pipes per pack |
| 1/2      | STD   | 0.840                    | 21.34  | 0.109             | 2.77 | 0.85   | 1.27  | 8.11       | 17.872     | 1030.36      | 127            |
|          | XS    | 0.840                    | 21.34  | 0.147             | 3.73 | 1.09   | 1.62  | 10.37      | 22.850     | 1317.33      | 127            |
| 3/4      | STD   | 1.050                    | 26.67  | 0.113             | 2.87 | 1.13   | 1.68  | 10.78      | 23.750     | 1369.19      | 127            |
|          | XS    | 1.050                    | 26.67  | 0.154             | 3.91 | 1.47   | 2.20  | 14.05      | 30.950     | 1784.32      | 127            |
| 1        | STD   | 1.315                    | 33.40  | 0.133             | 3.38 | 1.68   | 2.50  | 16.01      | 35.262     | 1456.64      | 91             |
|          | XS    | 1.315                    | 33.40  | 0.179             | 4.55 | 2.17   | 3.24  | 20.70      | 45.611     | 1884.14      | 91             |
| 1 1/4    | STD   | 1.660                    | 42.16  | 0.140             | 3.56 | 2.27   | 3.39  | 21.67      | 47.732     | 1971.76      | 91             |
|          | XS    | 1.660                    | 42.16  | 0.191             | 4.85 | 3.00   | 4.46  | 28.57      | 62.935     | 1742.71      | 61             |
| 1 1/2    | STD   | 1.900                    | 48.26  | 0.145             | 3.68 | 2.72   | 4.05  | 25.91      | 57.080     | 2357.91      | 91             |
|          | XS    | 1.900                    | 48.26  | 0.200             | 5.08 | 3.63   | 5.41  | 34.62      | 76.264     | 2111.78      | 61             |
| 2        | STD   | 2.375                    | 60.33  | 0.154             | 3.91 | 3.65   | 5.44  | 34.83      | 76.720     | 2124.42      | 61             |
|          |       | 2.375                    | 60.33  | 0.188             | 4.78 | 4.39   | 6.54  | 41.86      | 92.224     | 2553.74      | 61             |
|          | XS    | 2.375                    | 60.33  | 0.218             | 5.54 | 5.02   | 7.48  | 47.88      | 105.474    | 1771.53      | 37             |
| 2 1/2    | STD   | 2.875                    | 73.03  | 0.156             | 3.96 | 4.53   | 6.75  | 43.19      | 95.142     | 1598.00      | 37             |
|          |       | 2.875                    | 73.03  | 0.188             | 4.78 | 5.40   | 8.04  | 51.44      | 113.309    | 1903.13      | 37             |
|          | STD   | 2.875                    | 73.03  | 0.203             | 5.16 | 5.79   | 8.63  | 55.23      | 121.667    | 2043.50      | 37             |
|          |       | 2.875                    | 73.03  | 0.216             | 5.49 | 6.13   | 9.14  | 58.48      | 128.828    | 2163.79      | 37             |
| 3        | STD   | 3.500                    | 88.90  | 0.156             | 3.96 | 5.57   | 8.30  | 53.12      | 117.012    | 1009.22      | 19             |
|          |       | 3.500                    | 88.90  | 0.188             | 4.78 | 6.65   | 9.91  | 63.40      | 139.665    | 1204.60      | 19             |
|          | STD   | 3.500                    | 88.90  | 0.216             | 5.49 | 7.58   | 11.29 | 72.23      | 159.109    | 1372.31      | 19             |
| 4        | STD   | 4.500                    | 114.30 | 0.156             | 3.96 | 7.24   | 10.78 | 69.00      | 152.003    | 1311.02      | 19             |
|          |       | 4.500                    | 114.30 | 0.188             | 4.78 | 8.66   | 12.90 | 82.54      | 181.834    | 1568.31      | 19             |
|          | STD   | 4.500                    | 114.30 | 0.219             | 5.56 | 10.01  | 14.92 | 95.46      | 210.295    | 1813.78      | 19             |
|          |       | 4.500                    | 114.30 | 0.237             | 6.02 | 10.79  | 16.07 | 102.87     | 226.622    | 1954.60      | 19             |
| 6        | STD   | 6.625                    | 168.28 | 0.188             | 4.78 | 12.93  | 19.25 | 123.22     | 271.444    | 1232.20      | 10             |
|          |       | 6.625                    | 168.28 | 0.219             | 5.56 | 14.98  | 22.32 | 142.85     | 314.681    | 1428.47      | 10             |
|          | STD   | 6.625                    | 168.28 | 0.250             | 6.35 | 17.02  | 25.36 | 162.28     | 357.486    | 1622.78      | 10             |
|          |       | 6.625                    | 168.28 | 0.280             | 7.11 | 18.98  | 28.27 | 180.90     | 398.500    | 1808.96      | 10             |

*Nota: Tolerancias en diámetro exterior y espesor basadas en norma correspondiente.*

**MECHANICAL RESISTANCE API-5L-PSL-1 / API5-0284 LICENCE**

| MIN FLUENCY LIMIT      | A25(L175) | A(L210) | B(L245) | X42(L290) | X46(L320) | X52(L360) |
|------------------------|-----------|---------|---------|-----------|-----------|-----------|
| Mpa                    | 175       | 210     | 245     | 290       | 320       | 360       |
| PSI (Lb/in²)           | 25400     | 30500   | 35500   | 42100     | 46400     | 52200     |
| MIN TENSION RESISTANCE | A(L210)   | A(L210) | B(L245) | X42(L290) | X46(L320) | X52(L360) |
| Mpa                    | 310       | 335     | 415     | 415       | 435       | 460       |
| PSI (Lb/in²)           | 45000     | 48600   | 60200   | 60200     | 63100     | 66700     |

CHEMICAL COMPOSITION API-5L-PSL1 WITH THICKNESS SMALLER OR EQUAL TO 25MM (0.984")

| MAX. % OF CHEMICALS | A25(L175) | A(L210) | B(L245) | X42(L290) | X46(L320) | X52(L360) |
|---------------------|-----------|---------|---------|-----------|-----------|-----------|
| Carbon              | 0.210     | 0.220   | 0.260   | 0.260     | 0.260     | 0.260     |
| Manganese           | 0.600     | 0.900   | 1.200   | 1.300     | 1.400     | 1.400     |
| Phosphorus          | 0.030     | 0.030   | 0.030   | 0.030     | 0.030     | 0.030     |
| Sulfur              | 0.030     | 0.030   | 0.030   | 0.030     | 0.030     | 0.030     |
| Vanadium            |           |         | d       | d         | d         | d         |
| Niobium             |           |         | d       | d         | d         | d         |
| Titanium            |           |         | d       | d         | d         | d         |

d= the sums of niobium, vanadium and titanium must be equal or less than 0.15%.

PRESSURE TEST FOR DIFFERENT QUALITIES OF API 5L-PSL-1 PIPE

| DIAMETER | GAUGE | NOMINAL THICKNESS | PRESSURE HYDROSTATIC |                    |                    |                    |                    |                    |
|----------|-------|-------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|          |       |                   | lb/in <sup>2</sup>   | lb/in <sup>2</sup> | lb/in <sup>2</sup> | lb/in <sup>2</sup> | lb/in <sup>2</sup> | lb/in <sup>2</sup> |
| inch     |       | inch              | A25(L175)            | A(L210)            | B(L245)            | X42(L290)          | X46(L320)          | X52(L360)          |
| 1/2      | STD   | 0.109             | 700                  | 700                | 700                |                    |                    |                    |
|          | XS    | 0.147             | 850                  | 850                | 850                |                    |                    |                    |
| 3/4      | STD   | 0.113             | 700                  | 700                | 700                |                    |                    |                    |
|          | XS    | 0.154             | 850                  | 850                | 850                |                    |                    |                    |
| 1        | STD   | 0.133             | 700                  | 700                | 700                |                    |                    |                    |
|          | XS    | 0.179             | 850                  | 850                | 850                |                    |                    |                    |
| 1 1/4    | STD   | 0.140             | 1000                 | 1000               | 1000               |                    |                    |                    |
|          | XS    | 0.191             | 1300                 | 1500               | 1600               |                    |                    |                    |
| 1 1/2    | STD   | 0.145             | 1000                 | 1000               | 1000               |                    |                    |                    |
|          | XS    | 0.200             | 1300                 | 1500               | 1600               |                    |                    |                    |
| 2        | STD   | 0.154             | 1000                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          |       | 0.188             | 1000                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          | XS    | 0.218             | 1300                 | 2470               | 2470               | 2970               | 2970               | 2970               |
| 2 1/2    | STD   | 0.156             | 1200                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          |       | 0.188             | 1200                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          | XS    | 0.203             | 1000                 | 1000               | 1000               | 2970               | 2970               | 2970               |
| 3        | STD   | 0.216             | 1200                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          |       | 0.156             | 1200                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          | XS    | 0.188             | 1200                 | 1000               | 1000               | 2970               | 2970               | 2970               |
| 4        | STD   | 0.216             | 1000                 | 1000               | 1000               | 2970               | 2970               | 2970               |
|          |       | 0.156             | 1200                 | 1200               | 1200               | 2970               | 2970               | 2970               |
|          | XS    | 0.188             | 1200                 | 1200               | 1200               | 2970               | 2970               | 2970               |
| 6        | STD   | 0.219             | 1200                 | 1200               | 1200               | 2970               | 2970               | 2970               |
|          |       | 0.237             | 1200                 | 1200               | 1200               | 2970               | 2970               | 2970               |
|          | XS    | 0.188             | 1200                 | 1200               | 1300               |                    |                    |                    |
| 6        | STD   | 0.219             | 1200                 | 1200               | 1300               |                    |                    |                    |
|          |       | 0.250             | 1200                 | 1200               | 1300               |                    |                    |                    |
|          | XS    | 0.280             | 1200                 | 1200               | 1300               |                    |                    |                    |

**DIMENSIONS AND CHARACTERISTICS OF PETROLEUM AND NATURAL GAS CONDUCTION PIPE API-5L-PSL-2,  
AVAILABLE IN LENGTHS OF 6.1 MTS, 7.62 MTS AND 12.80 MTS  
API-5L-0284 LICENCE, IMP RE-PSIAFM-01-10, NORMA NRF-001-PEMEX CERTIFICATE**

| DIAMETER | GAUGE | OUTSIDE NOMINAL DIAMETER |        | THICKNESS NOMINAL |      | WEIGHT |       |            |            |              | PACKAGE        |
|----------|-------|--------------------------|--------|-------------------|------|--------|-------|------------|------------|--------------|----------------|
|          |       | inch                     | mm     | inch              | mm   | lb/ft  | kg/m  | kg x 6.40m | lb x 21 ft | kg x package | pipes per pack |
| 1/2      | STD   | 0.840                    | 21.34  | 0.109             | 2.77 | 0.85   | 1.27  | 8.11       | 17.872     | 1030.36      | 127            |
|          | XS    | 0.840                    | 21.34  | 0.147             | 3.73 | 1.09   | 1.62  | 10.37      | 22.869     | 1317.33      | 127            |
| 3/4      | STD   | 1.050                    | 26.67  | 0.113             | 2.87 | 1.13   | 1.68  | 10.78      | 23.769     | 1369.19      | 127            |
|          | XS    | 1.050                    | 26.67  | 0.154             | 3.91 | 1.48   | 2.20  | 14.05      | 30.976     | 1784.32      | 127            |
| 1        | STD   | 1.315                    | 33.40  | 0.133             | 3.38 | 1.68   | 2.50  | 16.01      | 35.291     | 1456.64      | 91             |
|          | XS    | 1.315                    | 33.40  | 0.179             | 4.55 | 2.17   | 3.24  | 20.70      | 45.649     | 1884.14      | 91             |
| 1 1/4    | STD   | 1.660                    | 42.16  | 0.140             | 3.56 | 2.27   | 3.39  | 21.67      | 47.771     | 1971.76      | 91             |
|          | XS    | 1.660                    | 42.16  | 0.191             | 4.85 | 3.00   | 4.46  | 28.57      | 62.987     | 1742.71      | 61             |
| 1 1/2    | STD   | 1.900                    | 48.26  | 0.145             | 3.68 | 2.72   | 4.05  | 25.91      | 57.127     | 2357.91      | 91             |
|          | XS    | 1.900                    | 48.26  | 0.200             | 5.08 | 3.63   | 5.41  | 34.62      | 76.327     | 2111.78      | 61             |
| 2        | STD   | 2.375                    | 60.33  | 0.154             | 3.91 | 3.66   | 5.44  | 34.83      | 76.783     | 2124.42      | 61             |
|          |       | 2.375                    | 60.33  | 0.188             | 4.78 | 4.40   | 6.54  | 41.86      | 92.300     | 2553.74      | 61             |
|          | XS    | 2.375                    | 60.33  | 0.218             | 5.54 | 5.03   | 7.48  | 47.88      | 105.561    | 1771.53      | 37             |
| 2 1/2    | STD   | 2.875                    | 73.03  | 0.156             | 3.96 | 4.53   | 6.75  | 43.19      | 95.221     | 1598.00      | 37             |
|          |       | 2.875                    | 73.03  | 0.188             | 4.78 | 5.40   | 8.04  | 51.44      | 113.402    | 1903.13      | 37             |
|          |       | 2.875                    | 73.03  | 0.203             | 5.16 | 5.80   | 8.63  | 55.23      | 121.767    | 2043.50      | 37             |
|          |       | 2.875                    | 73.03  | 0.216             | 5.49 | 6.14   | 9.14  | 58.48      | 128.934    | 2163.79      | 37             |
| 3        | STD   | 3.500                    | 88.90  | 0.156             | 3.96 | 5.58   | 8.30  | 53.12      | 117.108    | 1009.22      | 19             |
|          |       | 3.500                    | 88.90  | 0.188             | 4.78 | 6.66   | 9.91  | 63.40      | 139.780    | 1204.60      | 19             |
|          |       | 3.500                    | 88.90  | 0.216             | 5.49 | 7.58   | 11.29 | 72.23      | 159.241    | 1372.31      | 19             |
| 4        | STD   | 4.500                    | 114.30 | 0.156             | 3.96 | 7.24   | 10.78 | 69.00      | 152.129    | 1311.02      | 19             |
|          |       | 4.500                    | 114.30 | 0.188             | 4.78 | 8.67   | 12.90 | 82.54      | 181.984    | 1568.31      | 19             |
|          |       | 4.500                    | 114.30 | 0.219             | 5.56 | 10.02  | 14.92 | 95.46      | 210.468    | 1813.78      | 19             |
|          |       | 4.500                    | 114.30 | 0.237             | 6.02 | 10.80  | 16.07 | 102.87     | 226.809    | 1954.60      | 19             |

Note: Outside diameter and thickness tolerances have been based from the corresponding norm.

**MECHANICAL RESISTANCE API-5L-PSL-2 / API5-0284 LICENCE**

| MIN FLUENCY LIMIT         | A25(L175) | A(L210) | B(L245) | X42(L290) | X46(L320) | X52(L360) |
|---------------------------|-----------|---------|---------|-----------|-----------|-----------|
| Mpa                       | 175       | 210     | 245     | 290       | 320       | 360       |
| PSI (Lb/in <sup>2</sup> ) | 25400     | 30500   | 35500   | 42100     | 46400     | 52200     |
| MIN TENSION RESISTANCE    | A(L210)   | A(L210) | B(L245) | X42(L290) | X46(L320) | X52(L360) |
| Mpa                       | 310       | 335     | 415     | 415       | 435       | 460       |
| PSI (Lb/in <sup>2</sup> ) | 45000     | 48600   | 60200   | 60200     | 63100     | 66700     |

## CHEMICAL COMPOSITION API-5L-PSL-2 WITH THICKNESS SMALLER OR EQUAL TO 25MM (0.984")

| MAX. % OF CHEMICALS            | L245N O BN | L290N O X42N | L320N O X46N | L360N O X52N |
|--------------------------------|------------|--------------|--------------|--------------|
| Carbon                         | 0.24       | 0.24         | 0.24         | 0.24         |
| Silicon                        | 0.40       | 0.40         | 0.40         | 0.45         |
| Manganese                      | 1.20       | 1.20         | 1.40         | 1.40         |
| Phosphorus                     | 0.025      | 0.025        | 0.025        | 0.025        |
| Sulfur                         | 0.015      | 0.015        | 0.015        | 0.015        |
| Vanadium                       | c          | 0.06         | 0.07         | 0.1          |
| Niobium                        | c          | 0.05         | 0.05         | 0.05         |
| Titanium                       | 0.04       | 0.04         | 0.04         | 0.04         |
| <b>MAX % EQUIVALENT CARBON</b> |            |              |              |              |
| CE iiw                         | 0.43       | 0.43         | 0.43         | 0.43         |
| CEpcm                          | 0.25       | 0.25         | 0.25         | 0.25         |

c= the sums of niobium, vanadium and titanium must be equal or less than 0.06%.

## PRESSURE TEST FOR DIFFERENT QUALITIES OF API 5L-PSL-2 PIPE

| DIAMETER | GAUGE | NOMINAL THICKNESS | PRESSURE           | PRESSURE           | HYDROSTATIC        |
|----------|-------|-------------------|--------------------|--------------------|--------------------|
|          |       |                   | lb/in <sup>2</sup> | lb/in <sup>2</sup> | lb/in <sup>2</sup> |
| inch     |       | inch              | Grado B (L175)     | Grado X42 (L290)   | Grado X52 (L360)   |
| 1/2      | STD   | 0.109             | 700                |                    |                    |
|          | XS    | 0.147             | 850                |                    |                    |
| 3/4      | STD   | 0.113             | 700                |                    |                    |
|          | XS    | 0.154             | 850                |                    |                    |
| 1        | STD   | 0.133             | 700                |                    |                    |
|          | XS    | 0.179             | 850                |                    |                    |
| 1 1/4    | STD   | 0.140             | 1000               |                    |                    |
|          | XS    | 0.191             | 1600               |                    |                    |
| 1 1/2    | STD   | 0.145             | 1000               |                    |                    |
|          | XS    | 0.200             | 1600               |                    |                    |
| 2        | STD   | 0.154             | 1000               | 2500               | 2500               |
|          |       | 0.188             | 1000               | 2500               | 2500               |
|          |       | 0.218             | 2470               | 2500               | 2500               |
| 2 1/2    | STD   | 0.156             | 1000               | 2500               | 2500               |
|          |       | 0.188             | 2500               | 2500               | 2500               |
|          |       | 0.203             | 2500               | 2500               | 2500               |
|          |       | 0.216             | 2500               | 2500               | 2500               |
| 3        | STD   | 0.156             | 1000               | 2200               | 2200               |
|          |       | 0.188             | 2200               | 2200               | 2200               |
|          |       | 0.216             | 1930               | 1930               | 1930               |
| 4        | STD   | 0.156             | 1300               | 1900               | 1900               |
|          |       | 0.188             | 1900               | 1900               | 1900               |
|          |       | 0.219             | 1900               | 1900               | 1900               |
|          |       | 0.237             | 1500               | 1500               | 1500               |



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