Standard Specification for

*Engineered Fire Piping S.L. | c.del Pino 17, Polígono Industrial La Malena, Yuncos, Toledo – España*

*C.I.F. B - 45762119 | Inscrita en el Registro Mercantil de Toledo*

Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

# ASTM A53 / A53M

This specification covers seamless and welded black and hot-dipped galvanized steel pipe in NPS 1⁄8 to NPS 26 [DN 6 to DN 650]).

Pipes nominal wall thickness are given in Table 1 and Table 2.

This specification covers the following types and grades:

* Type F—Furnace-butt welded, continuous welded Grade A,
* Type E—Electric-resistance welded, Grades A and B, and
* Type S—Seamless, Grades A and B

Pipe ordered under this specification is intended for mechanical and pressure applications and is also acceptable for ordinary uses in steam, water, gas, and air lines. It is suitable for welding, and suitable for forming operations involving coiling, bending, and flanging, subject to the following qualifications:

* Type F is not intended for flanging.
* When Types S and E are required for close coiling or cold bending, Grade A is the preferred grade.

 The steel shall conform to the requirements as to **Chemical Composition** in the Table below

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Carbon | Manganese | Phosphorus | Sulfur | CopperA | NickelA | ChromiumA | MolybdenumA | VanadiumA |
| GRADE | TYPE S (Seamless pipe) % máx. |
| A | 0,25 | 0,95 | 0,05 | 0,045 | 0,40 | 0,40 | 0,40 | 0,15 | 0,08 |
| B | 0,30 | 1,20 | 0,05 | 0,045 | 0,40 | 0,40 | 0,40 | 0,15 | 0,08 |
| GRADE | TYPE E (Electric-resistance-welded pipe) % máx. |
| A | 0,25 | 0,95 | 0,05 | 0,045 | 0,40 | 0,40 | 0,40 | 0,15 | 0,08 |
| B | 0,30 | 1,20 | 0,05 | 0,045 | 0,40 | 0,40 | 0,40 | 0,15 | 0,08 |
| GRADE | TYPE F (Furnace-welded pipe) % máx. |
| A | 0,25 | 0,95 | 0,05 | 0,045 | 0,40 | 0,40 | 0,40 | 0,15 | 0,08 |

*(A) The combination of these five elements shall not exceed 1.00 %.*

**Tensile Requirements**

|  |  |  |
| --- | --- | --- |
|  | **TYPE F** | **TYPES E y S** |
| Open-Hearth Basic Oxygen or Electric-Furnace.GRADE A | GRADE A | GRADE B |
| Tensile strength min psi (MPa) | 48000 (330)  | 48000 (330) | 60000 (415) |
| Yield strength psi (MPa) | 30000 (205)  | 30000 (205) | 35000 (240) |

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## Permissible Variations in Weight and Dimensions.

The **weight** of the pipe as specified in Table 1 and Table 2 shall not vary by more than ±10 %.

Unless otherwise specified, the outside **diameter** at any point shall not vary more than specified in the following Table:

|  |  |
| --- | --- |
| **NPS( DN)** | **Permissible Outside Diameter Variations** |
|  inches (mm) | Upper limit inches(mm)  | Lower limit inches(mm) |
| ≤ 1 ½ (≤ 40)  | 1/64 (0,4) | 1/64 (0,4) |
|  ≥ 2 (≥ 50) |  not more than ±1 % from the standard specified |

The **minimum wall thickness** at any point shall be not more than 12.5 % under the nominal wall thickness specified.

Unless otherwise specified, **pipe lengths** shall be in accordance with the following regular practice.

 Pipe of weights lighter than XS:

* **Threaded Ends:** Shall be in single-random lengths of 16 to 22 ft [4.88 to 6.71 m], but not more than 5 % of the total number of threaded lengths are permitted to be jointers (two pieces coupled together).
* **Plain Ends:** Shall be in single-random lengths of 16 to 22 ft [4.88 to 6.71 m]. No more than 5 % are permitted to be in lengths of 12 to 16 ft [3.66 to 4.88 m].

When extra-strong or lighter pipe is ordered in double-random lengths, the minimum lengths shall be not less than 22 ft [6.71 m], with a minimum average for the order of 35 ft [10.67 m].

Pipe of XS and heavier weight:

* Shall be in random lengths of 12 to 22 ft [3.66 to 6.71 m]. Five percent are permitted to be in lengths of 6 to 12 ft [1.83 to 3.66 m].
* When lengths longer than single random are required for wall thicknesses heavier than extra-strong, the length shall be subject to negotiation

*NOTE: When pipe is furnished with threads and couplings, the length shall be measured to the outer face of the coupling.*

## Pressure and mechanical test:

o Hydrostatic test:

Each length of plain-end pipe shall be hydrostatically tested to the pressures prescribed in Table 1, and each threaded-and-coupled length shall be hydrostatically tested to the pressures prescribed in Table 2.

The minimum hydrostatic test pressure required to satisfy these requirements need not exceed 2500 psi [17 200 kPa] for NPS 3 [DN 80] and under, nor 2800 psi [19 300 kPa] for all sized over NPS 3 [DN 80].

The hydrostatic pressure shall be maintained for not less than 5 s for all sizes of seamless and electric-welded pipe.

Standard Specification for

Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

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## Pressure and mechanical tests:

* Tensile Requirements:

Para diámetros de 8” y superiores, el ensayo podrá ser lateral o longitudinal, salvo para tuberías Electrosoldadas, en las cuales el ensayo será lateral y longitudinal.

Para tuberías de diámetro inferior a 8”, solo longitudinal

* Flattening test:

 The flattening test shall be made on pipe over NPS 2 [DN 50] with all thicknesses extra strong and lighter.

* Bending Requirements:

For pipe NPS 2 [DN 50] and under, a sufficient length of pipe shall be capable of being bent cold around a cylindrical mandrel, according to the following table:

|  |  |  |
| --- | --- | --- |
|  | **Bending radius** | **Cylindrical Mandrel Diameter** |
| Standard applications pipes | 90 º | 12 x Pipe OD |
| Close coiling applications | 180 º | 8 x Pipe OD |

*NOTE: Double-extra-strong pipe over NPS 11⁄4 [DN 32] need not be subjected to the bend test*.*.*

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# ASTM A53 / A53M

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  |  | Identificación [Estandar (STD), Extra (XS), Extra doble (XXS)] |  |  |  |  |
| NPS(Nominal Pipe Size) | DN(Diámetro Nominal) | Schedule Nº | Diámetro exterior (mm) | Espesor de pared (mm) | Peso tubo extremo lisos kg/m | Presión de ensayo kPa |  |
|  | GRADO A | GRADO B |
|  |  |  |  |  |  |  |  |  |
| 1" | 25 | STD | 40 | 33,4 | 3,38 | 2,50 | 4800 | 4800 |
| 1" | 25 | XS | 80 | 33,4 | 4,55 | 3,24 | 5900 | 5900 |
| 1" | 25 | …. | 160 | 33,4 | 6,35 | 4,24 | 6500 | 6500 |
| 1" | 25 | XXS | …. | 33,4 | 9,09 | 5,45 | 6900 | 6900 |
| 11/4" | 32 | STD | 40 | 42,2 | 3,56 | 3,39 | 8300 | 9000 |
| 11/4" | 32 | XS | 80 | 42,2 | 4,85 | 4,47 | 12400 | 13100 |
| 11/4" | 32 | …. | 160 | 42,2 | 6,35 | 5,61 | 13100 | 13800 |
| 11/4" | 32 | XXS | …. | 42,2 | 9,70 | 7,77 | 15200 | 15900 |
| 11/2" | 40 | STD | 40 | 48,3 | 3,68 | 4,05 | 8300 | 9000 |
| 11/2" | 40 | XS | 80 | 48,3 | 5,08 | 5,41 | 12400 | 13100 |
| 11/2" | 40 | …. | 160 | 48,3 | 7,14 | 7,25 | 13400 | 14100 |
| 11/2" | 40 | XXS | …. | 48,3 | 10,15 | 9,55 | 15200 | 15900 |
| 2" | 50 | STD | 40 | 60,3 | 3,91 | 5,44 | 15900 | 17200 |
| 2" | 50 | XS | 80 | 60,3 | 5,54 | 7,48 | 17200 | 17200 |
| 2" | 50 | …. | 160 | 60,3 | 8,74 | 11,11 | 17200 | 17200 |
| 2" | 50 | XXS | …. | 60,3 | 11,07 | 13,44 | 17200 | 17200 |
| 2 2/1" | 65 | STD | 40 | 73,0 | 5,16 | 8,63 | 17200 | 17200 |
| 2 2/1" | 65 | XS | 80 | 73,0 | 7,01 | 11,41 | 17200 | 17200 |
| 2 2/1" | 65 | …. | 160 | 73,0 | 9,53 | 14,92 | 17200 | 17200 |
| 2 2/1" | 65 | XXS | …. | 73,0 | 14,02 | 20,39 | 17200 | 17200 |
| 3" | 80 | …. | …. | 88,9 | 3,18 | 4,52 | 8900 | 10000 |
| 3" | 80 | …. | …. | 88,9 | 3,96 | 6,46 | 11000 | 12900 |
| 3" | 80 | …. | …. | 88,9 | 4,78 | 9,92 | 13330 | 15600 |
| 3" | 80 | STD | 40 | 88,9 | 5,49 | 11,29 | 15300 | 17200 |
| 3" | 80 | …. | …. | 88,9 | 6,35 | 12,93 | 17200 | 17200 |
| 3" | 80 | …. | …. | 88,9 | 7,14 | 14,40 | 17200 | 17200 |
| 3" | 80 | XS | 80 | 88,9 | 7,62 | 15,27 | 17200 | 17200 |
| 3" | 80 | …. | 160 | 88,9 | 11,13 | 21,35 | 17200 | 17200 |
| 3" | 80 | XXS | …. | 88,9 | 15,24 | 27,68 | 17200 | 17200 |
| 4" | 100 | …. | …. | 114,3 | 3,18 | 8,71 | 6900 | 8100 |
| 4" | 100 | …. | …. | 114,3 | 3,96 | 10,78 | 8600 | 10100 |
| 4" | 100 | …. | …. | 114,3 | 4,78 | 12,91 | 10300 | 12100 |
| 4" | 100 | …. | …. | 114,3 | 5,56 | 14,91 | 12100 | 14100 |
| 4" | 100 | STD | 40 | 114,3 | 6,02 | 16,07 | 13100 | 15200 |
| 4" | 100 | …. | …. | 114,3 | 6,35 | 16,90 | 13800 | 16100 |
| 4" | 100 | …. | …. | 114,3 | 7,14 | 18,87 | 15100 | 18100 |
| 4" | 100 | …. | …. | 114,3 | 7,92 | 20,78 | 17200 | 19300 |
| 4" | 100 | XS | 80 | 114,3 | 8,56 | 22,32 | 18600 | 19300 |
| 4" | 100 | …. | 120 | 114,3 | 11,13 | 28,32 | 19300 | 19300 |
| 4" | 100 | …. | 160 | 114,3 | 13,49 | 33,54 | 19300 | 19300 |
| 4" | 100 | XXS | …. | 114,3 | 17,12 | 41,03 | 19300 | 19300 |
| 5" | 125 | …. | …. | 141,3 | 3,96 | 13,41 | 7000 | 8100 |
| 5" | 125 | …. | …. | 141,3 | 4,78 | 16,09 | 8400 | 9800 |
| 5" | 125 | …. | …. | 141,3 | 5,56 | 18,61 | 9800 | 11400 |
| 5" | 125 | STD | 40 | 141,3 | 6,55 | 21,77 | 11500 | 13400 |
| 5" | 125 | …. | …. | 141,3 | 7,14 | 23,62 | 12500 | 14600 |
| 5" | 125 | …. | …. | 141,3 | 7,92 | 26,05 | 13900 | 16300 |
| 5" | 125 | …. | …. | 141,3 | 8,74 | 28,57 | 15400 | 17900 |
| 5" | 125 | XS | 80 | 141,3 | 9,52 | 30,94 | 16800 | 19300 |
| 5" | 125 | …. | 120 | 141,3 | 12,70 | 40,28 | 19300 | 19300 |
| 5" | 125 | …. | 160 | 141,3 | 15,88 | 49,11 | 19300 | 19300 |
| 5" | 125 | XXS | …. | 141,3 | 19,05 | 57,43 | 19300 | 19300 |

Tubería Con/Sin Soldadura de acero al carbono negras y galvanizadas en caliente

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLA 1 (**NPS(Nominal Pipe Size) | **CONT) PESOS**DN(Diámetro Nominal) | **Y DIMENSIONES D**Identificación [Estandar (STD), Extra (XS), Extra doble (XXS)] | **E TUBERÍA DE AC** | **ERO CON Y SIN** | **SOLDADURA A5** | **3/A53M. CON E**Peso tubo extremo lisos kg/m | **XTREMOS LISOS**Presión de ensayo kPa |
| Schedule Nº | Diámetro exterior (mm) | Espesor de pared (mm) |  |  |
|  | GRADO A | GRADO B |
| 6" | 150 | …. | …. | 168,3 | 4,78 | 19,27 | 7000 | 8200 |
| 6" | 150 | …. | …. | 168,3 | 5,56 | 22,31 | 8200 | 9600 |
| 6" | 150 | …. | …. | 168,3 | 6,35 | 25,36 | 9400 | 10900 |
| 6" | 150 | STD | 40 | 168,3 | 7,11 | 28,26 | 10500 | 12300 |
| 6" | 150 | …. | …. | 168,3 | 7,92 | 31,12 | 11700 | 13700 |
| 6" | 150 | …. | …. | 168,3 | 8,74 | 34,39 | 12900 | 15000 |
| 6" | 150 | …. | …. | 168,3 | 9,52 | 37,28 | 14100 | 16400 |
| 6" | 150 | XS | 80 | 168,3 | 10,97 | 42,56 | 16200 | 18900 |
| 6" | 150 | …. | 120 | 168,3 | 14,27 | 54,20 | 19300 | 19300 |
| 6" | 150 | …. | 160 | 168,3 | 18,26 | 67,56 | 19300 | 19300 |
| 6" | 150 | XXS | …. | 168,3 | 21,95 | 79,22 | 19300 | 19300 |
| 8" | 200 | …. | …. | 219,1 | 4,78 | 25,26 | 5400 | 6300 |
| 8" | 200 | …. | …. | 219,1 | 5,16 | 27,22 | 5900 | 6900 |
| 8" | 200 | …. | …. | 219,1 | 5,56 | 29,28 | 6300 | 7400 |
| 8" | 200 | …. | 20 | 219,1 | 6,35 | 33,31 | 7200 | 8400 |
| 8" | 200 | …. | 30 | 219,1 | 7,04 | 36,31 | 7800 | 9300 |
| 8" | 200 | …. | …. | 219,1 | 7,92 | 41,24 | 9000 | 10500 |
| 8" | 200 | STD | 40 | 219,1 | 8,18 | 42,55 | 9200 | 10800 |
| 8" | 200 | …. | …. | 219,1 | 8,74 | 45,34 | 9900 | 11600 |
| 8" | 200 | …. | …. | 219,1 | 9,52 | 49,20 | 10800 | 12600 |
| 8" | 200 | …. | 60 | 219,1 | 10,31 | 53,08 | 11700 | 13800 |
| 8" | 200 | …. | …. | 219,1 | 11,13 | 57,08 | 12600 | 14700 |
| 8" | 200 | XS | 80 | 219,1 | 12,70 | 64,64 | 14400 | 16800 |
| 8" | 200 | …. | 100 | 219,1 | 15,09 | 75,92 | 17200 | 19300 |
| 8" | 200 | …. | 120 | 219,1 | 18,26 | 90,44 | 19300 | 19300 |
| 8" | 200 | …. | 140 | 219,1 | 20,62 | 100,92 | 19300 | 19300 |
| 8" | 200 | XXS | …. | 219,1 | 22,22 | 107,88 | 19300 | 19300 |
| 8" | 200 | …. | 160 | 219,1 | 23,01 | 111,27 | 19300 | 19300 |
| 10" | 250 | …. | …. | 273,0 | 4,78 | 31,62 | 4300 | 5000 |
| 10" | 250 | …. | …. | 273,0 | 5,16 | 34,08 | 4700 | 5500 |
| 10" | 250 | …. | …. | 273,0 | 5,56 | 36,67 | 5000 | 5900 |
| 10" | 250 | …. | 20 | 273,0 | 6,35 | 41,75 | 5800 | 6800 |
| 10" | 250 | …. | … | 273,0 | 7,09 | 46,49 | 6400 | 7500 |
| 10" | 250 | …. | 30 | 273,0 | 7,80 | 51,01 | 7100 | 8300 |
| 10" | 250 | …. | …. | 273,0 | 8,74 | 59,96 | 7900 | 9200 |
| 10" | 250 | STD | 40 | 273,0 | 9,27 | 60,29 | 8400 | 9900 |
| 10" | 250 | …. | …. | 273,0 | 11,13 | 71,87 | 10100 | 11800 |
| 10" | 250 | XS | 60 | 273,0 | 12,70 | 81,52 | 11500 | 13400 |
| 10" | 250 | …. | 80 | 273,0 | 15,09 | 95,97 | 13700 | 16000 |
| 10" | 250 | …. | 100 | 273,0 | 18,26 | 114,70 | 16600 | 19300 |
| 10" | 250 | …. | 120 | 273,0 | 21,44 | 133,00 | 19300 | 19300 |
| 10" | 250 | XXS | 140 | 273,0 | 25,40 | 155,09 | 19300 | 19300 |
| 10" | 250 | …. | 160 | 273,0 | 28,57 | 172,21 | 19300 | 19300 |
| 12" | 300 | …. | …. | 323,8 | 5,16 | 40,55 | 3900 | 4600 |
| 12" | 300 | …. | …. | 323,8 | 5,56 | 46,63 | 4300 | 5000 |
| 12" | 300 | …. | 20 | 323,8 | 6,35 | 49,71 | 4900 | 5700 |
| 12" | 300 | …. | …. | 323,8 | 7,14 | 55,75 | 5400 | 6400 |
| 12" | 300 | …. | …. | 323,8 | 7,92 | 61,69 | 6100 | 7100 |
| 12" | 300 | …. | 30 | 323,8 | 8,38 | 65,18 | 6400 | 7500 |
| 12" | 300 | …. | …. | 323,8 | 8,74 | 67,90 | 6700 | 7800 |
| 12" | 300 | STD | …. | 323,8 | 9,52 | 73,78 | 7300 | 8500 |
| 12" | 300 | …. | 40 | 323,8 | 10,31 | 79,70 | 7900 | 9200 |
| 12" | 300 | …. | …. | 323,8 | 11,13 | 85,82 | 8500 | 9900 |
| 12" | 300 | XS | …. | 323,8 | 12,70 | 97,43 | 9700 | 11400 |
| 12" | 300 | …. | 60 | 323,8 | 14,27 | 108,92 | 11000 | 12800 |
| 12" | 300 | …. | 80 | 323,8 | 17,48 | 132,04 | 13400 | 15700 |
| 12" | 300 | …. | 100 | 323,8 | 21,44 | 159,86 | 16500 | 19200 |
| 12" | 300 | XXS | 120 | 323,8 | 25,40 | 186,91 | 19300 | 19300 |
| 12" | 300 | …. | 140 | 323,8 | 28,57 | 208,00 | 19300 | 19300 |
| 12" | 300 | …. | 160 | 323,8 | 33,32 | 238,68 | 19300 | 19300 |

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLA 2 PESOS**NPS(Designator) | **Y DIMENSION**DN(Designator) | **ES DE TUBERÍA DE**Identificación [Estandar (STD), Extra (XS), Extra doble (XXS)] | **ACERO CON Y** | **SIN SOLDADURA** | **A53/A53M. CON** | **EXTREMOS ROS**Peso tubo extremo roscado c/manguito kg/m | **CADOS C/MANGUITO**Presión de ensayo kPa |
| Schedule Nº | Diámetro exterior (mm) | Espesor de pared (mm) | GRADO A | GRADO B |
|  |  |  |  |  |
| 1" | 25 | STD | 40 | 33,4 | 3,38 | 2,50 | 4800 | 4800 |
| 1" | 25 | XS | 80 | 33,4 | 4,55 | 3,25 | 5900 | 5900 |
| 1" | 25 | XXS | …. | 33,4 | 9,09 | 5,45 | 6900 | 6900 |
| 11/4" | 32 | STD | 40 | 42,2 | 3,56 | 3,40 | 6900 | 7600 |
| 11/4" | 32 | XS | 80 | 42,2 | 4,85 | 4,49 | 10300 | 11000 |
| 11/4" | 32 | XXS | …. | 42,2 | 9,70 | 7,76 | 12400 | 13100 |
| 11/2" | 40 | STD | 40 | 48,3 | 3,68 | 4,04 | 6900 | 7600 |
| 11/2" | 40 | XS | 80 | 48,3 | 5,08 | 5,39 | 10300 | 11000 |
| 11/2" | 40 | XXS | …. | 48,3 | 10,16 | 9,56 | 12400 | 13100 |
| 2" | 50 | STD | 40 | 60,3 | 3,91 | 5,46 | 15900 | 17200 |
| 2" | 50 | XS | 80 | 60,3 | 5,54 | 7,55 | 17200 | 17200 |
| 2" | 50 | XXS | …. | 60,3 | 11,07 | 13,44 | 17200 | 17200 |
| 2 2/1" | 65 | STD | 40 | 73,0 | 5,16 | 8,67 | 17200 | 17200 |
| 2 2/1" | 65 | XS | 80 | 73,0 | 7,01 | 11,52 | 17200 | 17200 |
| 2 2/1" | 65 | XXS | …. | 73,0 | 14,02 | 20,39 | 17200 | 17200 |
| 3" | 80 | STD | 40 | 88,9 | 5,49 | 11,35 | 15200 | 17200 |
| 3" | 80 | XS | 80 | 88,9 | 7,62 | 15,39 | 17200 | 17200 |
| 3" | 80 | XXS | …. | 88,9 | 15,24 | 27,66 | 17200 | 17200 |
| 4" | 100 | STD | 40 | 114,3 | 6,02 | 16,23 | 13100 | 15200 |
| 4" | 100 | XS | 80 | 114,3 | 8,56 | 22,60 | 18600 | 19300 |
| 4" | 100 | XXS | …. | 114,3 | 17,12 | 41,09 | 19300 | 19300 |
| 5" | 125 | STD | 40 | 141,3 | 6,55 | 22,07 | 11700 | 13100 |
| 5" | 125 | XS | 80 | 141,3 | 9,52 | 31,42 | 16500 | 19300 |
| 5" | 125 | XXS | …. | 141,3 | 19,05 | 57,53 | 19300 | 19300 |
| 6" | 150 | STD | 40 | 168,3 | 7,11 | 28,58 | 10300 | 12400 |
| 6" | 150 | XS | 80 | 168,3 | 10,97 | 43,05 | 15900 | 18600 |
| 6" | 150 | XXS | …. | 168,3 | 21,95 | 79,18 | 19300 | 19300 |
| 8" | 200 | …. | 30 | 219,1 | 7,04 | 38,07 | 8300 | 9000 |
| 8" | 200 | STD | 40 | 219,1 | 8,18 | 43,73 | 9000 | 11000 |
| 8" | 200 | XS | 80 | 219,1 | 12,70 | 65,41 | 14500 | 16500 |
| 8" | 200 | XXS | …. | 219,1 | 22,22 | 107,94 | 19300 | 19300 |
| 10" | 250 | …. | … | 273,0 | 7,09 | 48,80 | 6500 | 7600 |
| 10" | 250 | …. | 30 | 273,0 | 7,80 | 53,27 | 6900 | 8300 |
| 10" | 250 | STD | 40 | 273,0 | 9,27 | 63,36 | 8300 | 9700 |
| 10" | 250 | XS | 60 | 273,0 | 12,70 | 83,17 | 11700 | 13800 |
| 12" | 300 | …. | 30 | 323,8 | 8,38 | 67,72 | 6500 | 7600 |
| 12" | 300 | STD | …. | 323,8 | 9,52 | 76,21 | 7600 | 8300 |
| 12" | 300 | XS | …. | 323,8 | 12,70 | 99,40 | 9700 | 11000 |