



# Espiroflex

FÁBRICA DE TUBERÍA FLEXIBLE

C/. VIC S/N POL. IND. LA FLORIDA 08130 STA. PERPETUA DE LA MOGODA

TEL: 935602400 FAX : 935602626 Web: <http://www.espiroflex.com> E-mail : [info@espiroflex.com](mailto:info@espiroflex.com)

Santa Perpetua Mogoda, 27 July 2009

Dear Sirs

Our product "**Hidrotubo**" pipe is designed to withstand service pressure up to 7 bar when the liquid inside is at 23°C temperature, depending of the dimensions of the pipe, according with the next table:

∅ INT. mm	∅ <b>EXT.</b> <b>mm</b>	Service Pressure bar	Minimum Burst Pressure bar
13	<b>16</b>	7	22
16	<b>20</b>	7	22
20	<b>25</b>	7	22
25	<b>32</b>	7	22
26	<b>32</b>	5	16
27	<b>32</b>	5	16
34	<b>40</b>	5	16
35	<b>40</b>	5	16
42	<b>50</b>	5	16
43	<b>50</b>	5	16
55	<b>63</b>	5	16
65	<b>75</b>	4	12,5
80	<b>90</b>	4	12,5
100	<b>110</b>	3	9,5
110	<b>125</b>	3	9,5

The minimum burst pressure is established by the Spanish certification authority, AENOR, since "**Hidrotubo**" is a certified product, and all the production is monitorized by AENOR. As long as the temperature of the liquid inside the pipe is growing, the service and the bursting pressure are diminishing as well. When the liquid inside is at 55°C temperature, the minimum bursting pressure and service pressure established by AENOR is given by the following table



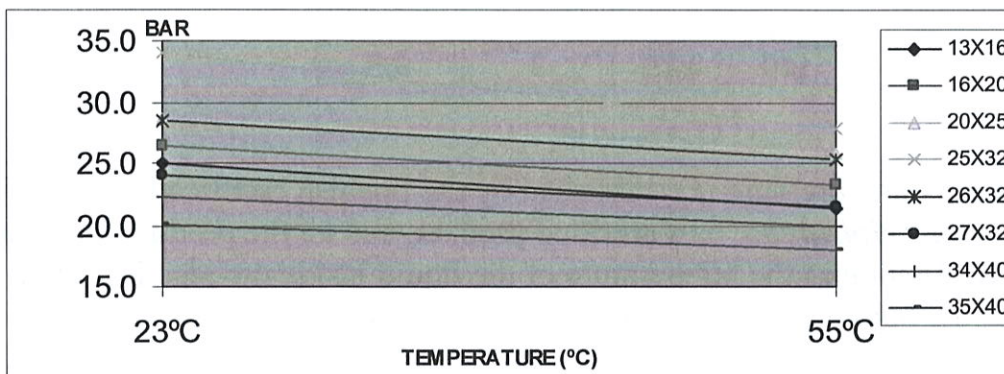
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∅ INT. mm	∅ EXT. mm	Service Pressure bar	Minimum Burst Pressure bar
13	<b>16</b>	2.0	6.5
16	<b>20</b>	2.0	6.5
20	<b>25</b>	2.0	6.5
25	<b>32</b>	2.0	6.5
26	<b>32</b>	1.5	4.5
27	<b>32</b>	1.5	4.5
34	<b>40</b>	1.5	4.5
35	<b>40</b>	1.5	4.5
42	<b>50</b>	1.5	4.5
43	<b>50</b>	1.5	4.5
55	<b>63</b>	1.5	4.5
65	<b>75</b>	1.0	4.0
80	<b>90</b>	1.0	4.0
100	<b>110</b>	0.8	3.0
110	<b>125</b>	0.8	3.0

Following the requirements from AENOR, samples of all the production orders are bursted at 23°C and at 55°C temperature conditions at Espiroflex laboratory. The average bursting pressure of all these tests is summarized in the following graphics and table:



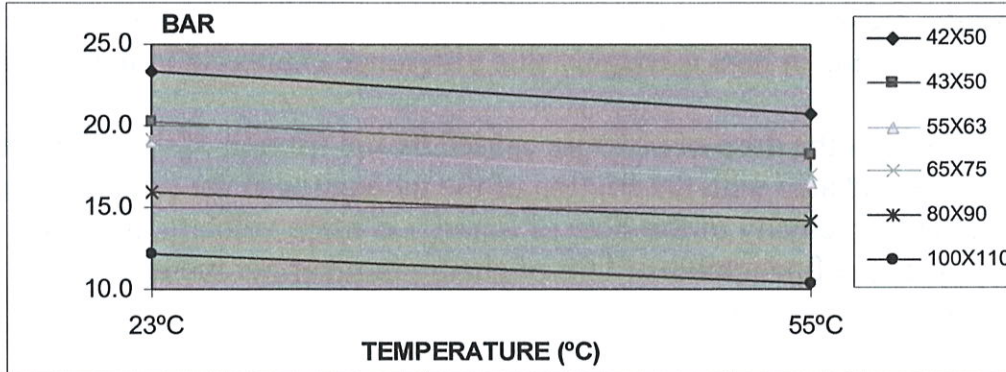


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DIAMETER	Burst pressure at 23°C (bar)	Burst Pressure at 55°C (bar)
13X16	25.0	21.4
16X20	26.5	23.2
20X25	28.7	25.7
25X32	34.0	27.9
26X32	28.5	25.3
27X32	24.0	21.5
34X40	22.3	19.9
35X40	20.0	18.0
42X50	23.3	20.7
43X50	20.2	18.2
55X63	19.0	16.5
65X75	19.2	17.0
80X90	15.9	14.2
100X110	12.1	10.3

As you can see, the experimental values of bursting pressure obtained by the “*Hidrotubo*” pipes are much higher than the minimum required. **Nevertheless, Espiroflex does not recommend exceeding the nominal service pressure.**

You have to keep in mind that the service pressure at one point of the installation is actually the sum of the hydrostatic pressure (pressure when there is no circulation of liquid) and the dynamic pressure supplied by the pump system, minus the loss of charge of the pipes.