FIRE SPRINKLER SYSTEM PIPES

UL/FM APPROVED

ÇAYIROVA boru

YÜCEL grup

YÜCELgrup

ÇAYIROVAboru

KROMANçelik

YÜCELboru

ÇELSANTAŞ

YÜCELihracat ithalat

DEMTRANStaşımacılık

ÇEMSAT

YÜCELeko-tarım

Being established in 1978 in the locality of Cayirova, Cayirova Boru has been operating in the steel pipe industry for over 35 years with a production capacity of “300 thousand” tons/year over a settlement area of about 100 thousand sqm.

Our company offers a wide range of products such as Fire Sprinkler System Pipes, Oil and Natural Gas Line Pipes, Concrete Pump Pipes, Polyethylene Coated Pipes, Water Pipes, Galvanized Pipes, Boiler Pipes, Painted Pipes, Grooved Pipes and such protective coating applications as Inner/ Outer Epoxy Coating and paint.

Having implemented and maintained Quality and Production Management Systems that are certified by internationally recognized inspection bodies, Cayirova Boru exports a major part of its products to over 30 countries and maintains its contributions to the Turkish industry and exports

Cayirova Pipe Plant Darıca/Kocaeli

Çayırova Pipe Plant Dortyol/Hatay

QUALITY AND RELIABILITY IN FIRE SPRINKLER SYSTEM PIPES

With ever enhancing occupational health and safety measures both in our country and around the world, approaches to structural fire protection measures are dealt with more seriously.

Cayirova Boru fire sprinkler system pipes are UL and FM certified according to EN and ASTM standards. Application of Cayirova Boru products in the fire security sprinkler installations provides economic advantages from the point of insured safety of structures against fire thanks to their high quality and being accredited by international bodies.

Our fire security sprinkler system pipes have been preferred by numerous mega projects in Turkey for many years. Cayirova Boru brand is widely favored in the fire sprinkler installations of many different types of structures such as shopping centers, airports, stadiums, industrial buildings and so on.

Underwriters Laboratories (UL) is a global independent engineering and safety certification company operating in 5 principal strategic branches (Product Safety, Environment, Health, University and Verification Services).

Factory Mutual (FM) is rated among the largest insurance companies in the world, which provides engineering solutions for protection against such risks mainly as fire, acts of god and so on. FM Approvals is an affiliate of FM Global, which certifies industrial and commercial products and services for companies.

UL / FM TESTING

Çayırova Boru plant premises are subject to inspection by UL/FM representatives at 3-month intervals with or without notice and the compliance of products to criteria is assured. The following additional testing is carried out at UL/FM laboratories apart from the essential testing for production standards:

BENDING MOMENT STRENGTH

Bending moment testing is applied onto the system made up with fittings attached onto the pipe sample ends. Pipe ends are tailor-made by the manufacturer for the fittings. Such fittings on the tailor-made ends are applied the pressure values that are designated for the test and the bending moment under pressure is assessed. This testing is carried out to test the strength of the pipes and fitting under a certain load. Coupling strength of pipes under pressure is tested.

ROTATIONAL BENDING MOMENT RESISTANCE

The assemblies for each nominal pipe size considered for approval are tested and the compliance is verified by this test method. It is verified that no leakage, cracking, fracture or pipe deformation occurs before, during and after the rotational bending moment applied under nominal operating pressure on the assembly prepared with approved fittings, and that it remains leak-proof while being pressurized to nominal operating pressure.

HYDROSTATIC STRENGTH

This test is conducted by using multiple coupling throughout the same pipe or for separate assemblies for each coupling method. Pipe assemblies undergo hydrostatic testing at four times the nominal operating pressure. Each hydrostatic pressure test lasts for five seconds.

VIBRATION RESISTANCE

Compliance in terms of vibration resistance testing is verified by testing minimum one sample assembly for each type. Prepared testing assembly undergoes vibration under hydrostatic nominal operating pressure at 5 cycles by specified vibrating pulse increments gradually once every 5 hours. No leakage or other failure is allowable during such 25-hour test. Then hydrostatic strength test is repeated after the vibration test of each sample assembly. Nonexistence of leakage or other failure is verified.

MARKING DURABILITY

Pipe marking must remain clear and legible under storage, shipping and handling conditions to ensure the identification of the product. Thus, the durability and compliance of the marking are verified by immersing the part of pipe, approximately 450mm in length, which is clearly marked, for five minutes once a day during 10 working days. During such routinely repeated daily procedures, after the samples are pulled out of the water, the zone of marking is vigorously wiped dry by using a cotton or paper towel. If the marking is not rubbed off onto the towels, does not overflow or deposit, after the completion of water immersion test of 10 days, the markings on the sample is coated with petroleum-based grease and thus it must be kept uncorrupted over the course of 24 hours. At the end of that period, the grease is wiped clean off the sample surface by using cotton or paper towel. Nonexistence of any erasure, staining or any other removal of the pipe marking is verified.

CORROSION RESISTANT COATINGS

For hot dip galvanized coatings, the pipe samples for all sizes coated are inspected and their compliance is verified. Samples are cut off a full-length pipe after coating. Totally three samples are taken, which are approximately 600mm in length, from two free ends and from the centre of the full-length pipe. Measurements are performed at equal spacings around the outside diameter, at a distance of approximately 100mm from the end. For pipes ≤ NPS 2 (DN50 – 60,3mm), minimum four measurements are required around the outside diameter and for pipes >NPS 2 (DN50 – 60,3mm) minimum six measurements are required. Each sample pipe, according to whatever standard it is made, must exhibit a coating thickness of 77microns (55 g/m2) on average. Coating thickness must not be <64microns (0,46 kg/m2) at each point measured.

PRODUCTS

Specifications	EN 10255	ASTM A53	ASTM A795
Steel Grade	S195T	GR A, GR B	GR A, GR B
Wall Thickness	Medium Series	Sch10 , Sch40	Sch10 , Sch40
Pipe End			
Beveled Ends	✓	✓	✓
Grooved	✓	✓	✓
Squre Cut	✓	✓	✓
Protective Coating			
Painted (Water-based/Epoxy)	✓	✓	✓
Hot Dip Galvanized	✓	✓	✓

International Production Standards:

- EN 10255
- ASTM A53
- ASTM A795

Compliance to Construction Products Regulation (305/2011) / CE Certifications:

- TS EN 10255
- TS EN 10219

System Quality Certifications:

- ISO 9001 (TÜV)
- ISO 9001 (API)
- API SPECIFICATION Q1
- ISO 14001
- OHSAS 18001

Certifications for Compliance to Fire Sprinkler System Lines Applications:

- FM
- UL

ASTM A795

ASTM A795		SPRINKLER TUBES								
Diameter		Wall thickness			Mass per Unit				Test Pressure	
					Plain End		Threaded & Coupled			
inch	mm	inch	mm	Sch	lb/ft	kg/m	lb/ft	kg/m	psi	(bar)
3/4	26,7	0,083	2,11	10	1,41	2,09			700	48
		0,113	2,87	40	1,13	1,69	1,13	1,68	700	48
1	33,4	0,109	2,77	10	1,41	2,09			700	48
		0,133	3,38	40	1,68	2,50	1,68	2,50	700	48
1 1/4	42,2	0,109	2,77	10	1,81	2,69			1000	69
		0,140	3,56	40	2,27	3,39	2,28	3,40	1000	69
1 1/2	48,3	0,109	2,77	10	2,09	3,11			1000	69
		0,145	3,68	40	2,72	4,05	2,73	4,07	1000	69
2	60,3	0,109	2,77	10	2,64	3,93			1000	69
		0,154	3,91	40	3,66	5,45	3,69	5,50	1000	69
2 1/2	73,0	0,120	3,05	10	3,53	5,26			1000	69
		0,203	5,16	40	5,80	8,64	5,83	8,68	1000	69
3	88,9	0,120	3,05	10	4,34	6,46			1000	69
		0,126	5,49	40	7,58	11,29	7,62	11,35	1000	69
3 1/2	101,6	0,120	3,05	10	4,98	7,41			1200	83
		0,226	5,74	40	9,12	13,58	9,21	13,71	1200	83
4	114,3	0,120	3,05	10	5,62	8,37			1200	83
		0,237	6,02	40	10,80	16,09	10,91	16,25	1200	83
5	141,3	0,134	3,40	10	7,78	11,58			1200	83
		0,258	6,55	40	14,63	21,79	14,82	22,07	1200	83
6	168,3	0,134	3,40	10	9,30	13,85			1000	69
		0,280	7,11	40	18,99	28,29	19,20	28,60	1200	83
8	219,1	0,188	4,78		16,96	25,26			800	55
		0,277	7,04	30	24,72	36,82			1200	83
10	273,0	0,188	4,78		21,23	31,62			700	48
		0,307	7,80	30	34,27	51,05			1000	69

TS EN 10255 Medium Series

TS EN 10255		WATER TUBES - MEDIUM SERIES					
Diameter			Thickness	Mass per Unit (kg/m)			
inch	mm	DN	mm	Black Plain End	Black Threaded & Coupled	Galvanized Plain End	Galvanized * Threaded & Coupled
3/8	17,2	10	2,3	0,84	0,85	0,88	0,89
1/2	21,3	15	2,6	1,21	1,22	1,27	1,29
3/4	26,9	20	2,6	1,56	1,57	1,65	1,66
1	33,7	25	3,2	2,41	2,43	2,55	2,57
1 1/4	42,4	32	3,2	3,10	3,13	3,28	3,31
1 1/2	48,3	40	3,2	3,56	3,60	3,77	3,80
2	60,3	50	3,6	5,03	5,10	5,33	5,40
2 1/2	76,1	65	3,6	6,42	6,54	6,80	6,90
3	88,9	80	4,0	8,36	8,53	8,85	9,00
4	114,3	100	4,5	12,20	12,50	12,60	13,00
5	139,7	125	5,0	16,60	17,10	16,90	17,50
6	165,1	150	5,0	19,80	20,40	20,10	20,70

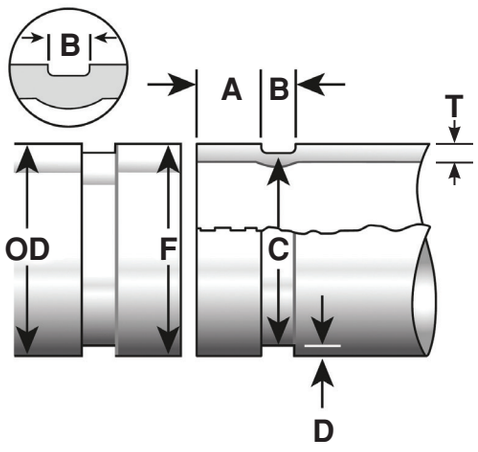
*Çayırova Boru production values.

ASTM A53

ASTM A53		WATER & GAS TUBES										
Diameter		Wall thickness			Mass per Unit				Test Pressure			
					Plain End		Threaded & Coupled		Gr A		Gr B	
inch	mm	inch	mm	Sch	lb/ft	kg/m	lb/ft	kg/m	psi	(bar)	psi	(bar)
3/8	17,1	0,091	2,31	40(STD)	0,57	0,84	0,57	0,84	700	48	700	48
1/2	21,3	0,109	2,77	40(STD)	0,85	1,27	0,86	1,27	700	48	700	48
3/4	26,7	0,113	2,87	40(STD)	1,13	1,69	1,14	1,69	700	48	700	48
1	33,4	0,113	3,38	40(STD)	1,68	2,50	1,69	2,50	700	48	700	48
1 1/4	42,2	0,14	3,56	40(STD)	2,27	3,39	2,28	3,40	1200	83	1300	90
1 1/2	48,3	0,145	3,68	40(STD)	2,72	4,05	2,74	4,04	1200	83	1300	90
2	60,3	0,154	3,91	40(STD)	3,66	5,44	3,68	5,46	2300	159	2500	172
2 1/2	73,0	0,203	5,16	40(STD)	5,80	8,63	5,85	8,67	2500	172	2500	172
3	88,9	0,125	3,18		4,51	6,72	4,61	6,78	1290	89	1500	100
		0,156	3,96		5,58	8,29	5,68	8,35	1600	110	1870	129
		0,188	4,78		6,66	9,92	6,76	9,98	1930	133	2260	156
		0,216	5,49	40(STD)	7,58	11,29	7,68	11,35	2220	153	2500	172
		0,250	6,35		8,69	12,93	8,79	13,00	2250	155	2500	172
3 1/2	101,6	0,125	3,18		5,18	7,72	5,33	7,86	1120	77	1310	90
		0,156	3,96		6,41	9,53	6,56	9,67	1400	97	1640	113
		0,188	4,78		7,66	11,41	7,81	11,55	1690	117	1970	136
		0,226	5,74	40(STD)	9,12	13,57	9,27	13,71	2030	140	2370	163
4	114,3	0,125	3,18		5,85	8,71	5,97	8,87	1000	69	1170	81
		0,156	3,96		7,24	10,78	7,36	10,94	1250	86	1460	101
		0,188	4,78		8,67	12,91	8,79	13,07	1500	103	1750	121
		0,219	5,56		10,02	14,91	10,14	15,07	1750	121	2040	141
		0,237	6,02	40(STD)	10,80	16,07	10,92	16,23	1900	131	2210	152
		0,250	6,35		11,36	16,90	11,48	17,06	2000	138	2330	161
5	141,3	0,188	4,78		10,80	16,09	11,07	16,39	1220	84	1420	98
		0,219	5,56		12,51	18,61	12,78	18,91	1420	98	1650	114
		0,258	6,55	40(STD)	14,63	21,77	14,90	22,07	1670	115	1950	134
		0,281	7,14		15,87	23,62	16,14	23,92	1820	125	2120	146
6	168,3	0,188	4,78		12,94	19,27	13,29	19,59	1020	70	1190	82
		0,219	5,56		15,00	22,31	15,35	22,63	1190	82	1390	96
		0,250	6,35		17,04	25,36	17,39	25,68	1360	94	1580	109
		0,280	7,11	40(STD)	18,99	28,26	19,34	28,58	1520	105	1780	123
		0,312	7,92		21,06	31,32	21,41	31,64	1700	117	1980	137
8	219,1	0,188	4,78		16,96	25,26			780	54	920	63
		0,203	5,16		18,28	27,22			850	59	1000	69
		0,219	5,56		19,68	29,28			910	63	1070	74
		0,250	6,35	20	22,38	33,31			1040	72	1220	84
		0,277	7,04	30	24,72	36,31			1160	78	1350	93
		0,312	7,92		27,73	41,24			1300	90	1520	105
		0,322	8,18	40(STD)	28,58	42,55			1340	92	1570	108
		0,344	8,74		30,45	45,34			1440	99	1680	116
10	273,0	0,188	4,78		21,23	31,62			630	43	730	50
		0,203	5,16		22,89	34,08			680	47	800	55
		0,219	5,56		24,65	36,67			730	50	860	59
		0,250	6,35	20	28,06	41,75			840	58	980	68
		0,279	7,09		31,23	46,49			930	64	1090	75
		0,307	7,80	30	34,27	51,01			1030	71	1200	83
		0,348	8,74		38,70	56,96			1150	79	1340	92
		0,365	9,27	40(STD)	40,52	60,29			1220	84	1430	99
12	323,8	0,203	5,16		27,23	40,55			570	39	670	46
		0,219	5,56		29,34	43,63			620	43	720	50
		0,250	6,35	20	33,41	49,71			710	49	820	57
		0,281	7,14		37,46	55,75			790	54	930	64
		0,312	7,92		41,48	61,69			880	61	1030	71
		0,330	8,38	30	43,81	65,18			930	64	1090	75
		0,344	8,74		45,62	67,90			970	67	1130	78
		0,375	9,52	STD	49,61	73,78			1060	73	1240	85
		0,406	10,31	40	53,57	79,70			1150	79	1340	92

GROOVED PIPES

ROLL GROOVED TUBES										
Diameter		Diamater Tolerance		Seal Seat	Groove Width	Groove Diameter		Groove Depth	Minimum Wall Thickness	Pipe End Diameter
inch (DN)	inch mm	(+) mm	(-) mm	(A) ±0.76 mm	(B) ±0.76 mm	(C) Nominal	(C) +0,00	(D) mm	(T) mm	(F) mm
3/4	1,050									
20	26,7	0,25	0,25	15,88	7,14	23,83	-0,38	1,50	1,60	29,2
1	1,315									
25	33,7	0,33	0,33	15,88	7,14	30,23	-0,38	1,60	1,60	36,3
1 1/4	1,660									
32	42,4	0,41	0,41	15,88	7,14	38,99	-0,38	1,60	1,60	45,0
1 1/2	1,900									
40	48,3	0,48	0,48	15,88	7,14	45,09	-0,38	1,60	1,60	51,1
2	2,375									
50	60,3	0,61	0,61	15,88	8,74	57,15	-0,38	1,60	1,60	63,0
2 1/2	2,875									
65	73	0,74	0,74	15,88	8,74	69,09	-0,38	1,60	1,60	75,7
	3,000									
76,1mm	76,1	0,76	0,76	15,88	8,74	72,26	-0,46	1,98	2,00	78,7
3	3,500									
80	88,9	0,89	0,89	15,88	8,74	84,94	-0,46	1,98	2,00	91,4
3 1/2	4,000									
90	101,6	1,02	0,79	15,88	8,74	97,38	-0,51	2,11	2,00	104,1
4	4,500									
100	114,3	1,14	0,79	15,88	8,74	110,08	-0,51	2,11	2,11	116,8
	4,25									
133,0mm	133,0	1,35	0,79	15,88	8,74	129,13	-0,51	2,11	2,77	135,9
5 1/2	5,500									
139,7mm	139,7	1,42	0,79	15,88	8,74	135,48	-0,51	2,11	2,77	142,2
5 9/16	5,563									
125	141,3	1,60	0,79	15,88	8,74	137,03	-0,56	2,13	2,77	143,8
	6,500									
165,1	165,1	1,60	0,79	15,88	8,74	160,78	-0,56	2,16	2,77	167,6
6	6,625									
150	168,3	1,60	0,79	15,88	8,74	163,96	-0,56	2,16	2,77	170,9
8	8,625									
200	219,1	1,60	0,79	15,88	11,91	214,40	-0,64	2,34	2,77	223,5
10	10,750									
250	273	1,60	0,79	15,88	11,91	268,28	-0,69	2,39	3,40	277,4
12	12,750									
300	323,9	1,60	0,79	15,88	11,91	318,29	-0,76	2,77	3,96	328,2



YÜCELgrup

ÇAYIROVAboru

www.cayirovaboru.com

SCAN ME

Çayırova Boru Sanayi ve Tic. A.Ş.
Osmangazi Mahallesi Aşıroğlu Caddesi
No: 170 Darıca 41700 KOCAELİ, TÜRKİYE

Tel: +90262 723 44 00 | **Fax:** +90262 653 61 35
E-mail satis@cayirovaboru.com.tr
www.cayirovaboru.com

JULY 2020