



# HOW TO SELECT THE PIPE:

## The present section includes:

- 1 A list of the manufacturing standards of asbestos cement pipe.
- 2 The description of their properties.
- 3 A list of the various construction codes allowing the usage of asbestos cement pipe in the plumbing works.

## 1.0 Introduction

Asbestos cement pipes are used on the works of plumbing general, under and above the ground as vent, roof drains, domestic drains, and also for air supply.

### 1.1 Applicable Manufacturing standards

Asbestos cement pipe, for general plumbing requirements in Drain, Waste and Vent ( DWV ) systems, is made according to the following standards:

- CSA ( Canadian Standard Association ) B-127.1-99 ( " Drain, Waste and Vent Systems ")
- CGSB (Canadian Government Specifications Board) 34-GP-22M ( Standard for: Pipe, Asbestos-Cement, Drain )

Two types of pipe exist in categories " DWV ":

- The type 1, (pipe from 200 to 600 Ø, or of 8 " in 24 " Ø) classifies 3000
- The type 2, (pipe from 75 to 600 Ø, or of 3 " in 24 " Ø) classifies 4000

The numbers identifying the above-mentioned classes correspond to the load, in pound by linear foot, which a sample of pipe can resist under three-edge bearing test.

- Type 1: 3000 lbs in the linear foot, or 44 kN / m
- Type 2: 4000 lbs in the linear foot, or 58 kN / m

### 1.2 Manufacture

The manufacture of asbestos cement pipe is made by lamination on a metal spindle of wet past consisted of cement and fiber of asbestos. This thin sheet is compressed by rollers on the spindle, then rolled up in controlled speed until the thickness total of the lamination reaches the value required by the structural requirements appropriate for every pipe class.

After lamination, the pipe will be curing until the complete hydration of the cement. The pipe became a matrix of cement reinforced with asbestos chrysotile fibers. This matrix is strong, stable, dense, and not porous.

Logard Pipes meet the CSA B 127.1, for piping, CSA B 602 for mechanical joint, Flame Spread and Smoke Developed classification 3.1.5.15 National Building Code. Of Canada.

## Properties

The nature of the material and the mode of manufacture looks to asbestos cement pipe of numerous qualities sought a solution for pipes of plumbing:

## Hardness and durability

The surfaces of the pipe are hard, durable and resistant in the abrasion. Indeed, these are compacting by stream rollers during the lamination. The cement matrix reinforced with the asbestos gives a hard and stable product chemically. On the other hand, the fibers of asbestos have a natural resistance in the abrasion been attested by their custom in brake shoes.

## Thoughtlessness of the pipe

The fibers of asbestos chrysotile incorporated into the pipe form a highly effective armature. Indeed, the mechanical properties of the asbestos cement pipe can be until 10 times superior has those some common concrete. These properties eliminate the need to incorporate into the pipe a steel armature.

Besides, the absence of metal may be rust asbestos cement pipe do no require to have an over wall of concrete serving for protecting the steel of armature. The walls of the pipe are as a consequence thin and thus lighter. This property is appreciated during the installation of suspended pipings.

Indeed, the weight of a metre of pipe in asbestos cement pipe of 75 Ø will be 6.83 kg / m and that of the cast iron will be 8.86 kg / m, that is a weight ratio of more than 130 % in that of the asbestos cement pipe. In other extremity the ratio of the weights for a diameter of 375 Ø is 178 % more than that of the asbestos cement pipe.

## Hydraulic qualities

The internal surfaces of the pipe in asbestos cement pipe being formed on a metal spindle, they are smooth and insure a good coefficient of hydraulic drainage (Hazen-Williams,  $C=140$ ; Manning,  $n=0.010$ ), superior to those of the pipes in cast iron or in concrete.

## The Resistance in the degradation

The surfaces of the pipe in asbestos cement pipe do not rust, do not bloat, do not flake. They keep their good index of hydraulic drainage. Furthermore, the asbestos cement pipe resists to the humidity, to the vermin, to the decomposition, to the heat, to the ultraviolet beams, to the electrolysis, to the galvanic currents, to the alkalis and to the waters little or moderately aggressives. The asbestos cement pipe lives very one state there very for a long time. The networks of aqueduct, sewer and monoxyde of carbon prove it. Some are always in services for more than 100 years.

## Chemical resistances

The chemical resistances due to the very low concentration of free lime (less than 1 %) surpasses that some conventional concrete matured outdoors. Indeed, numerous mechanisms of chemical change of concretes begin with a reaction between the not combined lime and the present acid in the water. This free lime becomes soluble, giving porosity which disintegrates the surface. The exposed surface increases and accelerates the corrosion. The following table gives the acceptables values.

AGENTS	ACCEPTABLES VALUES
Alkaline waters	≤ 10% of hydroxides
Acid waters	pH ≥ 6: continues exposure PH ≥ 5,5: occasional exposure
Acids humiques	Sourness fired by NaOH ( N / 10 ) ≤ 20 ml / 100 g of ground
Index of aggressiveness of the water	pH + log (AH) ≥ 10
CaCl <sub>2</sub> salts	without danger
Sea water	without danger
Domestic waste water	without danger
H <sub>2</sub> S	without danger
Radiations UV	no degradation
Ions SO <sub>4</sub>	≤ 500 mg / l
In salts water Ions SO <sub>4</sub>	
- In the presence of 3000 mg / l of ions IC	≤ 800 mg / l
- In the presence of 5000 mg / l of ions IC	≤ 1430 mg / l
Ions NH <sub>4</sub>	≤ 80 mg / l
Magnesium Chloride	≤ 2000 mg / l of MgO
- in presence of 200 mg / l of ions SO <sub>4</sub>	≤ 700 mg / l of MgO
Phenols	≤ 70 mg / l

On the other hand, the asbestos cement pipe is incombustible and can resist over temperature 300°C without degradation nor release of poison gas. The asbestos cement does not lead the electricity (electric resistivity is of 1012 times in that of the cast iron and is not thus subject to the galvanic corrosion nor to the current led tramps. Some of those pipes are using in Aluminium foundry, as electrical insulator on hot gas vent.

## Acoustic properties

Because of the intrinsic properties of the asbestos cement pipe and to the presence of rubber coupling at each joint, the noises of water flowing in drainage pipe are not transmitted. The orientation and the composition of the different crystals of cements and the asbestos fibers stop the distribution of the acoustic waves. This quality is particularly sought in the pipings of the high riser buildings.

## Fire-proofing qualities

The asbestos cement pipe is incombustible. It is accepted as material of piping crossing walls firewall. It is also accepted as material of piping with fireplaces. It release no harsad gas when It undergoes strong temperatures (300°C, 575°F), and keep its mechanical properties.

## 1.3 Acceptance of asbestos cement pipe

The governments, the bodies and the agencies named below accept the usage of the asbestos cement pipe in the works of plumbing. This list is supplied as a rough guide and is not obviously exhaustive.

- Canadian Standards Association
- National Code of the Building of Canada.
- Canadian Society of mortgage and Expansion.
- Office of Normalization of Quebec
- Code of Plumbing of Quebec
- Office of Normalization of the government of Canada.

## 1.4 Guide for Estimate Plumbing Pipes and Joints

Section 154003

### Piping

1. The pipes of drain, waste and vent, as well as the joints, will be included in the term " drainage pipes ". The drainage pipes shall be conform to CSA B127.1
2. The drainage pipes, over the ground, inside the building shall be in asbestos cement pipe, of type 2 for the diameters of 150mm and less; and of type 1 or 2 for the diameters of 200mm and more.
3. The drainage pipes, under the ground, inside the building shall be in asbestos cement pipe, of type 2 for the diameters of 150mm and less; and of type 1 or 2 for the diameters of 200mm and more.
4. The drainage pipes, outside of the building shall be in asbestos cement pipe, of type 2 for the diameters of 150mm and less; and of type 1 or 2 for the diameters of 200mm and more.

# HOW TO SELECT THE PIPE (CONTINUED FROM PAGE 4)

## Joints

All our pipes and fittings are connecting with mechanical couplings, in elastomer with stainless steel clips. Their resistances in the hydrostatic pressure vary 350 kPa in 150 kPa according to the diameter.

*\* It is possible to obtain joints with resistant of oil and other acids on special inquiry.*

## Specification

The piping in asbestos cement pipe, the joints will be in accordance with CSA B127.1 and ONGC 34-GP-22M. The mechanical joint shall be in accordance with CSA B602.

The mechanical joint shall be in accordance with CSA B602.

Of more joints in elastomer meet the requirements of the national Code of the building Canada 1995, the article 3.1.5.15, for the index of distribution of the flame and for the building aimed by the sub-section 3.2.6, the index of release of smokes.

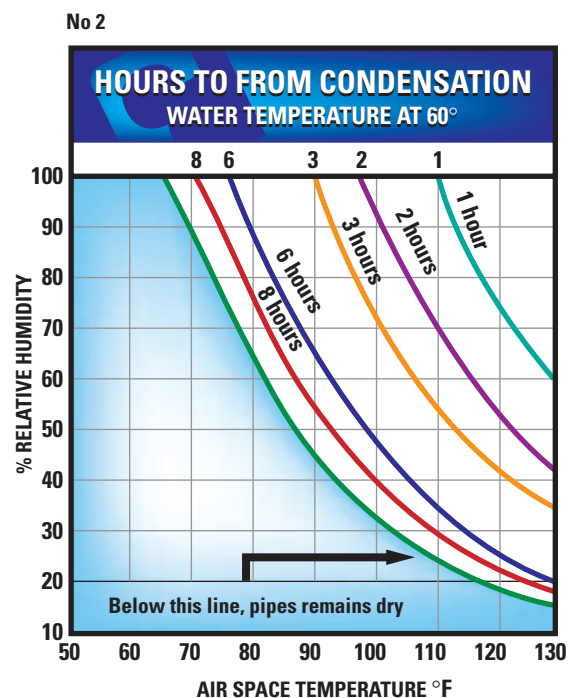
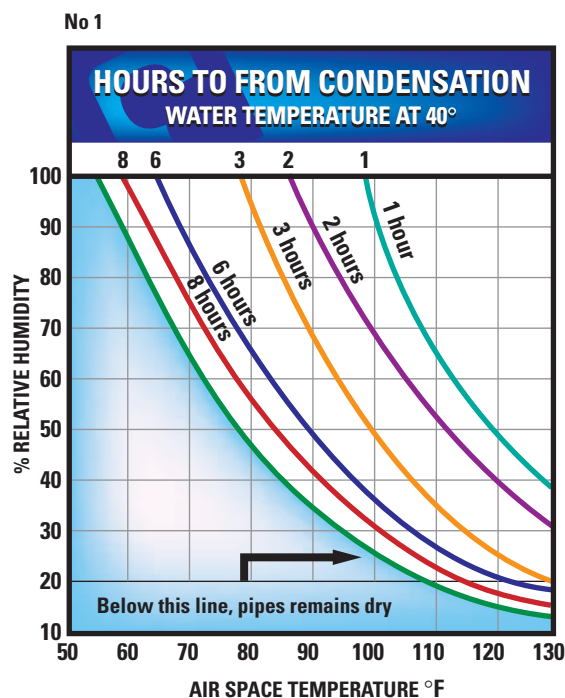
## Condensation, seepage and thermic specific conductivity

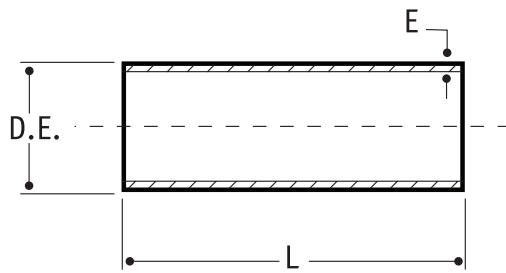
The low thermic specific conductivity of the asbestos cement pipe it is 60 times lower than the cast iron as well as absorption of seepage walls tend to preven effectively the condensation of the humidity of the air on walls. In the usual conditions of use, the asbestos cement pipe does not require heat insulation.

The tables of dew points (no 1 and 2) will inform you:

The table no 1 shows the conditions for a permanent regime, of a water in **40 degrees F (5 degrees C)** (winter condition)

The table no 2 shows the conditions for a regime, of a water in **60 degrees F (15 degrees C)** (summer condition)

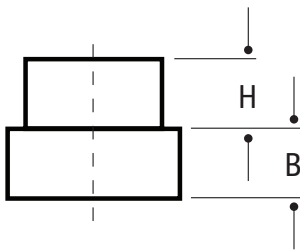




ASBESTOS CEMENT PIPE TYPE 2

Nom. Dia	75	100	150	200	250	300	350	375	400	450	500	600
D.E.	102	126	182	244	284	334	390	421	448	502	554	662
E	11	13	16	22	17	17	20	23	24	26	27	31
L (m)	4	4	4	4	4	4	4	4	4	4	4	4

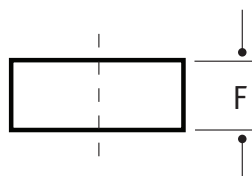
REDUCERS



	H
100 X 75	57
150 X 75	51
150 X 100	57
200 X 75	51
200 X 100	51
200 X 150	76

	H		H		H		H
250 X 75	51	375 X 75	51	450 X 75	51	500 X 350	133
250 X 100	51	375 X 100	51	450 X 100	51	500 X 375	133
250 X 150	70	375 X 150	70	450 X 150	70	500 X 400	133
250 X 200	76	375 X 200	70	450 X 200	70	500 X 450	140
		375 X 250	76	450 X 250	76		
300 X 100	51	375 X 300	89	450 X 300	83	600 X 75	51
300 X 150	70	375 X 350	140	450 X 350	133	600 X 100	51
300 X 200	70			450 X 375	140	600 X 150	70
300 X 250	83	400 X 75	51	450 X 400	140	600 X 200	70
		400 X 100	51			600 X 250	76
350 X 75	51	400 X 150	70	500 X 75	51	600 X 300	83
350 X 100	51	400 X 200	70	500 X 100	51	600 X 350	133
350 X 150	70	400 X 250	76	500 X 150	70	600 X 375	133
350 X 200	70	400 X 300	83	500 X 200	70	600 X 400	133
350 X 250	76	400 X 350	140	500 X 250	76	600 X 450	133
350 X 300	89	400 X 375	140	500 X 300	83	600 X 500	140

CAP



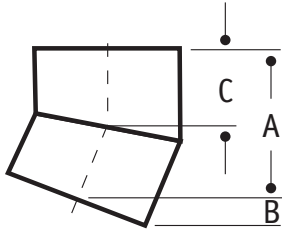
	DIA 75	100	150	200	250	300	350	375	400	450	500	600
F	64	64	83	83	89	95	152	152	152	152	152	152

All dimensions are in millimeter



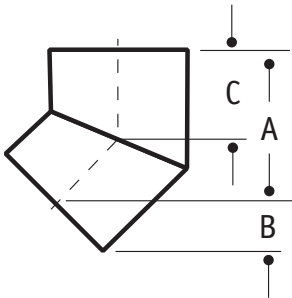
# ASBESTOS CEMENT PRODUCTS

BENDS 22° 1/2



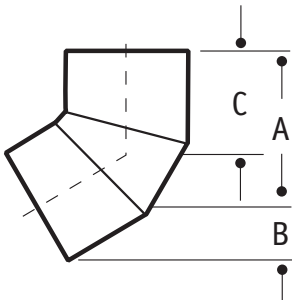
DIA	75	100	150	200	250	300	350	375	400	450	500	600
A	105	110	157	169	189	211	320	325	330	340	351	370
B	20	24	35	47	55	65	76	81	86	96	107	126
C	55	57	82	88	98	110	166	169	172	177	183	192

BENDS 45°



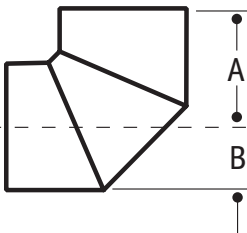
DIA	75	100	150	200	250	300	350	375	400	450	500	600
A	112	121	173	195	220	249	357	366	376	394	414	449
B	36	45	65	87	101	119	140	149	159	177	198	233
C	66	71	101	114	129	146	209	214	220	231	243	263

BENDS 60°



DIA	75	100	150	200	250	300	350	375	400	450	500	600
A	124	134	183	214	239	269	546	566	588	630	678	764
B	45	55	79	106	124	146	172	182	195	217	242	285
C	82	89	122	143	159	179	364	377	392	420	452	509

BENDS 90°

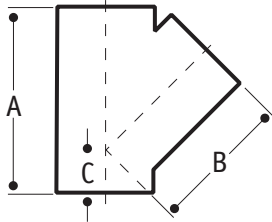


DIA	75	100	150	200	250	300	350	375	400	450	500	600
A	104	118	164	195	221	254	509	530	557	602	656	747
B	51	64	91	122	143	169	199	211	225	251	280	329

All dimensions are in millimeter



Y BRANCH



	A	B	C
<b>75 X 75</b>	235	175	63
<b>100 X 75</b>	235	202	51
<b>100 X 100</b>	270	214	72
<b>150 X 75</b>	273	241	30
<b>150 X 100</b>	308	253	63
<b>150 X 150</b>	384	296	98
<b>200 X 75</b>	283	285	18
<b>200 X 100</b>	318	297	35
<b>200 X 150</b>	397	341	80
<b>200 X 200</b>	483	372	114
<b>250 X 75</b>	286	314	-2
<b>250 X 100</b>	321	326	6
<b>250 X 150</b>	397	369	56
<b>250 X 200</b>	486	400	100
<b>250 X 250</b>	552	421	138
<b>300 X 75</b>	308	350	-35
<b>300 X 100</b>	343	362	-5
<b>300 X 150</b>	419	406	27
<b>300 X 200</b>	508	437	77
<b>300 X 250</b>	578	458	131
<b>300 X 300</b>	679	496	184
<b>350 X 75</b>	400	392	2
<b>350 X 100</b>	435	405	20
<b>350 X 150</b>	511	448	57
<b>350 X 200</b>	600	479	101
<b>350 X 250</b>	657	500	130
<b>350 X 300</b>	730	538	167
<b>350 X 350</b>	867	606	256
<b>375 X 75</b>	400	409	-10
<b>375 X 100</b>	435	422	8
<b>375 X 150</b>	511	465	45
<b>375 X 200</b>	600	496	89
<b>375 X 250</b>	657	517	118
<b>375 X 300</b>	730	555	155
<b>375 X 350</b>	867	623	244
<b>375 X 375</b>	902	635	261

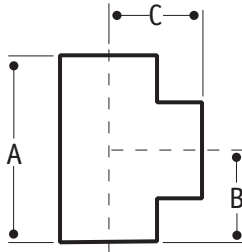
	A	B	C
<b>400 X 75</b>	400	430	-24
<b>400 X 100</b>	435	442	-7
<b>400 X 150</b>	511	485	31
<b>400 X 200</b>	600	516	75
<b>400 X 250</b>	657	537	103
<b>400 X 300</b>	730	575	141
<b>400 X 350</b>	867	643	229
<b>400 X 375</b>	902	655	247
<b>400 X 400</b>	940	670	264
<b>450 X 75</b>	400	467	-50
<b>450 X 100</b>	435	479	-33
<b>450 X 150</b>	511	522	5
<b>450 X 200</b>	600	553	49
<b>450 X 250</b>	657	574	77
<b>450 X 300</b>	730	612	115
<b>450 X 350</b>	867	680	203
<b>450 X 375</b>	902	692	221
<b>450 X 400</b>	940	707	238
<b>450 X 450</b>	1016	733	275
<b>500 X 75</b>	400	507	-79
<b>500 X 100</b>	435	519	-61
<b>500 X 150</b>	511	563	-24
<b>500 X 200</b>	600	594	20
<b>500 X 250</b>	657	614	49
<b>500 X 300</b>	730	653	86
<b>500 X 350</b>	867	721	175
<b>500 X 375</b>	902	733	192
<b>500 X 400</b>	940	747	209
<b>500 X 450</b>	1016	773	247
<b>500 X 500</b>	1095	802	288
<b>600 X 75</b>	400	577	-128
<b>600 X 100</b>	435	589	-111
<b>600 X 150</b>	511	633	-73
<b>600 X 200</b>	600	664	-29
<b>600 X 250</b>	657	684	-1
<b>600 X 300</b>	730	723	37
<b>600 X 350</b>	867	791	125
<b>600 X 375</b>	902	803	142
<b>600 X 400</b>	940	817	160
<b>600 X 450</b>	1016	843	197
<b>600 X 500</b>	1095	872	238
<b>600 X 600</b>	1235	921	314

All dimensions are in millimeter





T BRANCH



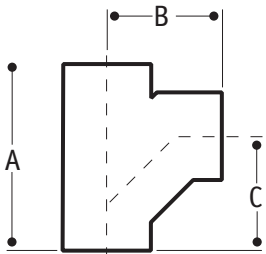
	A	B	C
75 X 75	191	95	96
100 X 75	191	95	108
100 X 100	216	108	108
150 X 75	229	114	136
150 X 100	254	127	136
150 X 150	308	154	155
200 X 75	229	114	167
200 X 100	254	127	167
200 X 150	308	154	186
200 X 200	381	191	186
250 X 75	241	121	187
250 X 100	267	133	187
250 X 150	321	160	206
250 X 200	384	192	206
250 X 250	425	213	213
300 X 75	254	127	213
300 X 100	279	140	213
300 X 150	333	167	232
300 X 200	406	203	232
300 X 250	438	219	239
300 X 300	489	244	245
350 X 75	356	178	243
350 X 100	381	191	243
350 X 150	435	217	262
350 X 200	498	249	262
350 X 250	540	270	268
350 X 300	591	295	275
350 X 350	651	325	326
375 X 75	356	178	255
375 X 100	381	191	255
375 X 150	435	217	274
375 X 200	498	249	274
375 X 250	540	270	280
375 X 300	591	295	287
375 X 350	651	325	338
375 X 375	676	338	338

	A	B	C
400 X 75	356	178	269
400 X 100	381	191	269
400 X 150	435	217	288
400 X 200	498	249	288
400 X 250	540	270	295
400 X 300	591	295	301
400 X 350	651	325	352
400 X 375	676	338	352
400 X 400	705	352	352
450 X 75	356	178	295
450 X 100	381	191	295
450 X 150	435	217	314
450 X 200	498	249	314
450 X 250	540	270	321
450 X 300	591	295	327
450 X 350	651	325	378
450 X 375	676	338	378
450 X 400	705	352	378
450 X 450	756	378	378
500 X 75	356	178	324
500 X 100	381	191	324
500 X 150	435	217	343
500 X 200	498	249	343
500 X 250	540	270	349
500 X 300	591	295	356
500 X 350	651	325	407
500 X 375	676	338	407
500 X 400	705	352	407
500 X 450	756	378	407
500 X 500	813	406	407
600 X 75	356	178	373
600 X 100	381	191	373
600 X 150	435	217	393
600 X 200	498	249	393
600 X 250	540	270	399
600 X 300	591	295	405
600 X 350	651	325	456
600 X 375	676	338	456
600 X 400	705	352	456
600 X 450	756	378	456
600 X 500	813	406	456
600 X 600	911	456	456

All dimensions are in millimeter

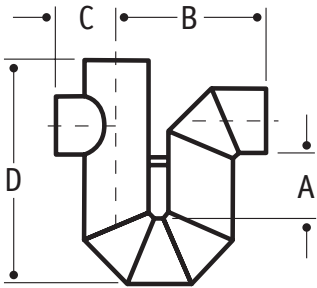


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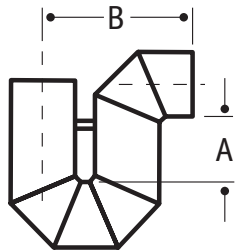
	<b>A</b>	<b>B</b>	<b>C</b>
<b>75 X 75</b>	235	145	154
<b>100 X 75</b>	235	145	175
<b>100 X 100</b>	270	171	185
<b>150 X 75</b>	273	152	203
<b>150 X 100</b>	308	190	213
<b>150 X 150</b>	384	236	252
<b>200 X 75</b>	283	171	234
<b>200 X 100</b>	318	193	244
<b>200 X 150</b>	397	249	283
<b>200 X 200</b>	483	296	309

**RUNNING TRAPS**



	<b>75</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>	<b>300</b>	<b>350</b>	<b>375</b>	<b>400</b>	<b>450</b>	<b>500</b>	<b>600</b>
<b>A</b>	102	108	108	152	152	152	203	203	203	203	203	203
<b>B</b>	203	241	330	428	491	575	710	747	791	875	966	1123
<b>C</b>	96	108	136	167	187	213	243	255	269	295	324	373
<b>D</b>	352	407	536	705	791	905	1115	1163	1220	1325	1441	1639

**P TRAPS**



	<b>75</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>	<b>300</b>	<b>350</b>	<b>375</b>	<b>400</b>	<b>450</b>	<b>500</b>	<b>600</b>
<b>A</b>	102	108	108	152	152	152	203	203	203	203	203	203
<b>B</b>	203	241	330	428	491	575	710	747	791	875	966	1123

All dimensions are in millimeter



## MECHANICAL JOINT



	75	100	150	200	250	300	350	375	400	450	500	600
<b>Standard</b>	2 3/16"	2 3/16"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	7"	7"	7"	7"	7"
<b>On request</b>	3 1/2"	3 1/2"	7"	7"	7"	7"	7"	-	-	-	-	-
<b>Hydrostatic Pressure</b> (in kPa, with torque of 70 pounds)	350	350	350	350	350	350	240	240	240	200	140	140
<b>Serie 1</b>	# 71	# 101	# 151	# 201	# 251	# 301	# 351	# 371	# 401	# 451	# 501	# 601

## WEIGHT (KG)

(for pipe: weight by length)

	75	100	150	200	250	300	350	400	450	500	600
<b>Pipe Type 2</b>	24	40	64	126	125	145	183	250	295	359	450
<b>Qty by bundle</b>	38	30	30	16	12	9	*	*	*	*	*
<b>CAP</b>	0,6	0,8	1,4	2,4	3,2	4,0	8,1	9,6	11,6	14,2	19,9
<b>BENDS 22</b>	0,8	1,1	2,6	5,0	6,3	8,1	18,7	21,8	26,7	33,3	48,6
<b>BENDS 45</b>	0,9	1,2	3,3	6,5	8,7	11,9	23,4	28,0	34,7	44,2	66,3
<b>BENDS 60</b>	1,0	1,8	3,9	8,8	8,3	13,1	27,8	33,3	41,7	53,0	80,4
<b>BENDS 90</b>	1,1	2,0	5,0	10,4	12,4	19,0	34,3	41,7	52,5	67,5	104,7

## Mechanicals Joints

<b>MC AC/AC</b>	# 71	# 101	# 151	# 201	# 251	# 301	# 351	# 401	# 451	# 501	# 601
	0,2	0,3	0,8	0,9	1,2	1,4	2,9	3,3	3,8	4,1	4,7
<b>Qty by box</b>	56	56	14	20	12	*	*	*	*	*	*
<b>MC AC/CI</b>	# 72	# 102	# 152	# 202	# 252	# 302	# 352	# 402	# 452	# 502	# 602
	0,2	0,2	0,8	1,0	1,5	1,9	4,9	5,6	6,3	7,1	8,1
<b>Qty by box</b>	56	56	14	8	*	*	*	*	*	*	*

All dimensions are in millimeter



WEIGHT (KG) (CONTINUED FROM PAGE 11)

Y BRANCH	75	100	150	200	250	300	350	400	450	500	600
75	2,1	2,7	5,1	7,6	7,7	12,3	21	25	30	36	45
100	*	3,3	6,1	9,5	9,3	12,7	23	27	32	39	49
150	*	*	8,7	12,1	13,4	16,6	28	33	38	46	58
200	*	*	*	18,0	19,0	21,6	49	55	61	70	84
250	*	*	*	*	19,7	29,7	36	43	50	61	76
300	*	*	*	*	*	38,3	39	47	55	67	83
350	*	*	*	*	*	*	49	57	67	81	101
400	*	*	*	*	*	*	*	60	71	86	107
450	*	*	*	*	*	*	*	*	77	86	117
500	*	*	*	*	*	*	*	*	*	99	123
600	*	*	*	*	*	*	*	*	*	*	123
<hr/>											
REDUCERS	75	100	150	200	250	300	350	400	450	500	600
75	*	1,3	1,8	3,0	4,3	4,8	8,5	10,0	12,0	14,6	20,3
100	*	*	2,1	3,3	4,9	5,3	8,9	10,4	12,4	15,0	20,7
150	*	*	*	3,5	5,1	7,4	9,4	10,9	12,9	15,5	21,1
200	*	*	*	*	5,3	7,7	10,6	12,1	14,1	16,7	22,3
250	*	*	*	*	*	5,2	10,7	12,1	14,1	16,6	22,3
300	*	*	*	*	*	*	10,9	12,5	14,5	17,0	22,7
350	*	*	*	*	*	*	*	15,3	17,3	19,9	25,5
400	*	*	*	*	*	*	*	*	18,0	20,6	26,3
450	*	*	*	*	*	*	*	*	*	21,8	27,4
500	*	*	*	*	*	*	*	*	*	*	29,0

All dimensions are in millimeter

CONTACT US



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