3 ERA CTS Pipe and Fittings

3.1 Product Specification

ERA CPVC Pipes are produced in copper tube size (CTS) from 15 mm (1/2″) to 50 mm (2″) with two different standard dimensional ratios - SDR-11 and SDR-13.5. The fittings are produced as per SDR 11.

ERA CTS CPVC pipe and fittings are manufactured to the dimensions and specifications shown in ASTM D 2846. This product is tan in color, and the pipe has the same outside diameter as copper tubing. Pipe up through nominal 2″ size is manufactured to a standard dimension ratio (SDR of 11. The standard dimension ratio represents the ratio of the pipe O.D. to the pipe wall thickness. Consequently, all of the SDR 11 CPVC sizes have the same pressure rating.

ERA CTS CPVC SDR 13.5 pipe meet the requirement of ASTM F 442. All ERA CPVC pipes in SDR 11 & SDR 13.5 are made from the identical CPVC coumpound having the same physical properties. Apart from having the same physical properties, SDR11 and SDR13.5 which are having different wall thickness and therefore, at any given temperature, they have different rating.

3.1.1 ERA CTS Pipe DimenSions

OUTSIDE Diameters, Wall Thickness and Tolerances
CPVC 4120, SDR11 Plastic Pipe, in inches

Nominal Size	Average Pipe O.D.	Tolerance on Average O.D.	Wall Thickness	Tolerance on Wall
1/2″	0.625(15.9)	+0.003(+0.08)	0.068(1.73)	+0.020(+0.51)
3/4″	0.875(22.2)	+0.003(+0.08)	0.080(2.03)	+0.020(+0.51)
1″	1.125(28.6)	+0.003(+0.08)	0.102(2.59)	+0.020(+0.51)
1-1/4″	1.375(34.9)	+0.003(+0.08)	0.125(3.18)	+0.020(+0.51)
1-1/2″	1.625(41.3)	+0.003(+0.08)	0.148(3.76)	+0.020(+0.51)
2″	2.125(54.0)	+0.004(+0.10)	0.193(4.90)	+0.023(+0.58)

OUTSIDE Diameters, Wall Thickness and Tolerances
CPVC 4120, SDR13.5 Plastic Pipe, in inches

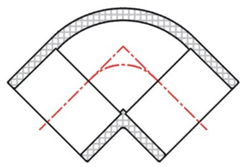
Nominal Size	Average Pipe O.D.	Tolerance on Average O.D.	Wall Thickness	Tolerance on Wall
1/2″	0.625(15.9)	+0.003(+0.08)	0.060(1.52)	+0.020(+0.51)
3/4″	0.875(22.2)	+0.003(+0.08)	0.068(1.73)	+0.020(+0.51)
1″	1.125(28.6)	+0.003(+0.08)	0.080(2.03)	+0.020(+0.51)
1-1/4″	1.375(34.9)	+0.003(+0.08)	0.102(2.59)	+0.020(+0.51)
1-1/2″	1.625(41.3)	+0.003(+0.08)	0.120(3.06)	+0.020(+0.51)
2″	2.125(54.0)	+0.004(+0.10)	0.157(4.00)	+0.023(+0.58)

3.1.2 ERA CTS Fitting Dimensions

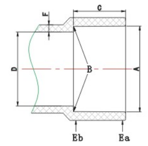
ASTM D 2846
Standard Specifications
for

ERA®

CTS Pipe and Fittings
for
Hot - Cold Water
Distribution Systems

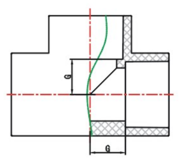


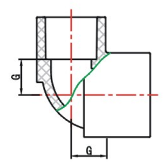
Tapered Socket Dimensions For CPVC 41, SDR 11 Plastic Fittings



Nominal Size (In.)	Socket Entrance Diameter, In.(mm)		Socket Bottom Diameter, In.(mm)	
	"A" Average	"A" Tolerance	"B" Average	"B" Tolerance
1/2″	0.633(16.08)	±0.003(±0.08)	0.619(15.72)	±0.003(±0.08)
3/4″	0.884(22.45)	±0.003(±0.08)	0.870(22.10)	±0.003(±0.08)
1″	1.135(28.83)	±0.003(±0.08)	1.121(28.47)	±0.003(±0.08)
1¼″	1.386(35.20)	±0.003(±0.08)	1.372(34.85)	±0.003(±0.08)
1½″	1.640(41.66)	±0.004 (±0.10)	1.622(41.20)	±0.004 (±0.10)
2″	2.141(54.38)	±0.004 (±0.10)	2.123(53.92)	±0.004 (±0.10)

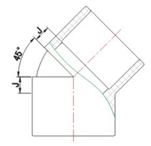
Socket Length In.(mm) "C" min.	Inside Diameter In.(mm) "D" min.	Wall Thickness, In.(mm)		
		Socket Entrace "EA" min	Socket Bottom "EB" min.	"F"
0.500(12.70)	0.489(12.42)	0.068(1.73)	0.102(2.59)	0.128 (3.25)
0.700(17.78)	0.715(18.16)	0.080(2.03)	0.102(2.59)	0.128 (3.25)
0.900(22.86)	0.921(23.39)	0.102(2.59)	0.102 (2.59)	0.128 (3.25)
1.100(27.94)	1.125(28.58)	0.125(3.18)	0.125(3.18)	0.159(3.96)
1.300(33.02)	1.329（33.76）	0.148(3.76)	0.148(3.76)	0.185 (4.70)
1.700(43.18）	1.739（44.17）	0.193(4.90)	0.193(4.90)	0.241(6.12)

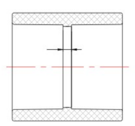




Minimum Dimensions From Center To End of Socket (Laying Length) For CPVC 41, SDR 11 Fittings

Nominal Size (In.)	"G" min. In. (Mm)	"J" min. in. (Mm)	"N" min. In. (Mm)
1/2″	0.382 (9.70)	0.183(4.65)	0.102(2.59)
3/4″	0.507(12.88)	0.235(5.97)	0.102(2.59)
1″	0.633(16.08)	0.287(7.29)	0.102(2.59)
1¼″	0.758(19.25)	0.339(8.61)	0.102(2.59)
1½″	0.884(22.45)	0.391(9.93))	0.102(2.59)
2″	1.134(28.83)	0.495(12.57	0.102(2.59)





Pressure Rating For CPVC 4120, SDR 11 Plastic Pipe

Nominal Size (In.)	Pressure Rating, PSI	
	73.4℉(23℃)	180℉(82℃)
1/2″	400	100
3/4″	400	100
1″	400	100
1¼″	400	100
1½″	400	100
2″	400	100

All information contained herein is from Standard ASTM D 2846 which is given in good faith without guarantee of completeness or accuracy. If other Specification requirements is needed, please contact Yonggao Co., Ltd.

ERA CTS PIPE AND FITTINGS 17-18

3.1.3 FRICTION LOSS AND FLOW VELOCITY FOR SDR11 CPVC THERMPPLASTIC PIPE

(Friction Head and friction loss are per 100 feet of pipe.)

NOTICE:Flow velocity should not exceed 8 feet per second . Velocities in excess of 8 feet per second may result in system and property damage.

Gallons Per Minute	Velocity Feet Per Second	Head Loss Feet of Water Per 100 Ft.	Pressure Loss PSI Per 100Ft.	Velocity Feet Per Second	Head Loss Feet of Water Per 100 Ft.	Pressure Loss PSI Per 100 Ft.	Velocity Feet Per Second	Head Loss Feet of Water Per 100 Ft.	Pressure Loss PSI Per 100 Ft.
	1/2 in.			3/4 in.			1 in.		
1	1.71	3.19	1.38	0.80	0.50	0.22	0.48	0.15	0.06
2	3.42	11.53	5.00	1.60	1.82	0.79	0.96	0.53	0.23
3	5.13	24.43	10.59	2.40	3.85	1.67	1.44	1.12	0.49
4	6.83	41.62	18.04	3.20	6.55	2.84	1.93	1.91	0.83
5	8.54	62.91	27.27	4.00	9.91	4.29	2.41	2.89	1.25
6	10.25	88.18	38.23	4.79	13.89	6.02	2.89	4.05	1.76
7	11.96	117.32	50.86	5.59	18.47	8.01	3.37	5.39	2.34
8	13.67	150.23	65.13	6.39	23.66	10.26	3.85	6.90	2.99
9	15.38	186.85	81.00	7.19	29.42	12.76	4.33	8.58	3.72
10	17.08	227.11	98.45	7.99	35.76	15.50	4.82	10.43	4.52
15				11.99	75.78	32.85	7.22	22.11	9.58
20				15.98	129.11	55.97	9.63	37.67	16.33
25							12.04	56.94	24.69
30							14.45	79.82	34.60
35							16.86	106.19	46.03
40									
45									
50									
55									
60									
70									
80									
90									
100									
125									

Gallons Per Minute	Velocity Feet Per Second	Head Loss Feet of Water Per 100 Ft.	Pressure Loss PSI Per 100 Ft.	Velocity Feet Per Second	Head Loss Feet of Water Per 100 Ft.	Pressure Loss PSI Per 100 Ft.	Velocity Feet per Second	Head Loss Feet of Water Per 100Ft.	Pressure Loss PSI Per 100Ft.
	1¼ in.			1½ in.			2 in.		
1									
2									
3									
4									
5	1.61	1.09	0.47	1.16	0.49	0.21	0.68	0.13	0.06
6									
7									
8									
9									
10	3.23	3.94	1.71	2.31	1.75	0.76	1.35	0.49	0.21
15	4.84	8.35	3.62	3.47	3.71	1.61	2.03	1.03	0.45
20	6.46	14.23	6.17	4.63	6.33	2.74	2.70	1.76	0.76
25	8.07	21.51	9.33	5.78	9.56	4.15	3.38	2.66	1.15
30	9.68	30.15	13.07	6.94	13.40	5.81	4.05	3.73	1.62
35	11.30	40.11	17.39	8.09	17.83	7.73	4.73	4.96	2.15
40	12.91	51.37	22.27	9.25	22.83	9.90	5.40	6.35	2.75
45	14.52	63.89	27.70	10.41	28.40	12.31	6.08	7.89	3.42
50	16.14	77.66	33.66	11.56	34.52	14.96	6.75	9.60	4.16
55	17.75	92.65	40.16	12.72	41.18	17.85	7.43	11.45	4.96
60				13.88	48.38	20.97	8.10	13.45	5.83
70				16.19	64.37	27.90	9.46	17.89	7.76
80							10.61	22.91	9.93
90							12.16	28.50	12.35
100							13.51	34.64	15.02
125							16.89	52.37	22.70

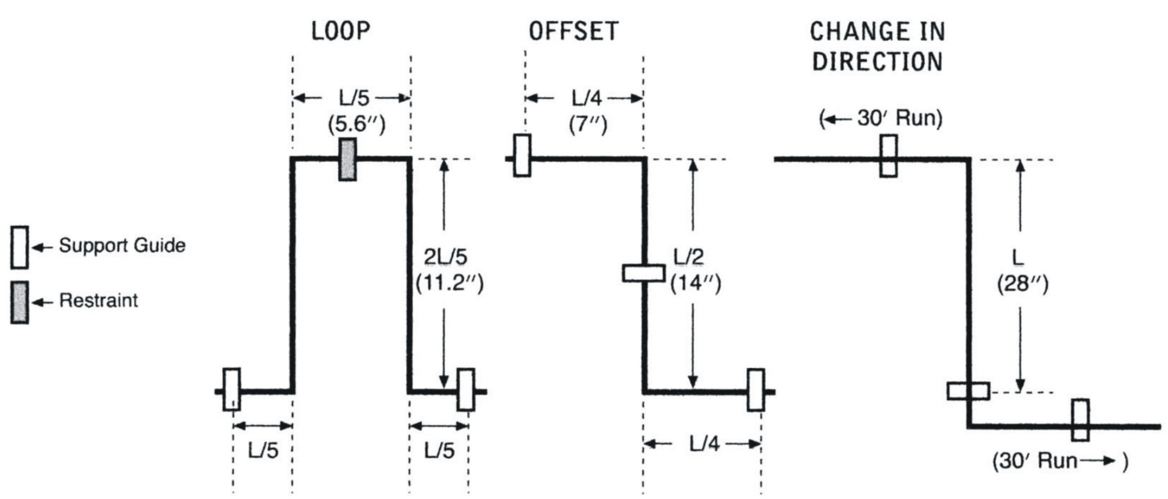
3.1.4Expansion and Contraction of CTS CPVC

Below please find basic expansion loop requirements for ERA CTS CPVC . One or more expansion loops, properly sized, may be required in a single straight run. The following charts can be used to determine expansion loop and offset lengths.

Expansion Loop Length (L), inches
for
100° F Temperature Change
Length of Run in Feet

Nominal Dia., In.	20'	40'	60'	80'	100'
1/2″	16	23	28	32	36
3/4″	19	29	33	38	43
1″	22	31	38	44	49
1¼″	24	34	42	48	54
1½″	26	37	45	52	59
2″	30	42	52	60	67

Example: Tubing Size =1/2" Length of run = 60' L = 28" (from table)



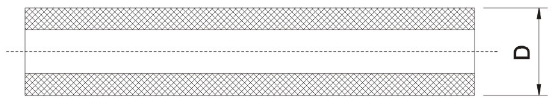
3.2CPVC CTS PIPES

CPVC CTS PIPES

CPVC CTS PIPES (SDR11)
Material: CPVC
Pressure ratings: SDR11

According to ASTM D 2846

From supplied: 3M, 4M, 5.8M,6M,or customer required length
Packing unit: in Roll (Please check below sheet for detail packing unit)
Color: Ivory(Tan)



Pipe			Diameter	Wall thickness	Internal Diameter
Art. No .	Sizes	Packing unit	mm	mm	mm
CP001	1/2″	25	15.9	1.73	12.44
CP001	3/4″	20	22.2	2.03	18.14
CP001	1″	10	28.6	2.59	23.42
CP001	1¼″	5	34.9	3.18	28.54
CP001	1½″	5	41.3	3.76	33.78
CP001	2″	5	54	4.9	44.2

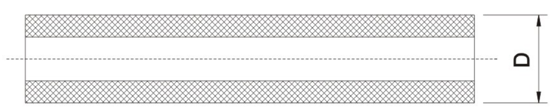
Fields of Applications:

Hot and Cold water applications in homes, apartments, hotels, resorts, hospitals, high and low rise buildings, corporate and commercial houses, academic institutes etc. for pure and hygienic water supply.

CPVC CTS PIPES (SDR13.5)
Material: CPVC
Pressure ratings: SDR13.5

According to ASTM D 2846

From supplied: 3M, 4M, 5.8M,6M,or customer required length
Packing unit: in Roll (Please check below sheet for detail packing unit)
Color: Ivory(Tan)



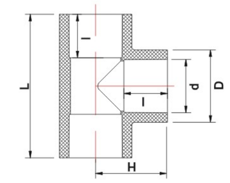
Pipe			Diameter	Wall thickness	Internal Diameter
Art. No.	Sizes	Packing unit	mm	mm	mm
CP001	1/2″	25	15.9	1.52	12.86
CP001	3/4″	20	22.2	1.73	18.74
CP001	1″	10	28.6	2.03	24.54
CP001	1¼″	5	34.9	2.59	29.72
CP001	1½″	5	41.3	3.06	35.18
CP001	2″	5	54	4	46

Fields of Applications:

Hot and Cold water applications in homes, apartments, hotels, resorts, hospitals, high and low rise buildings, corporate and commercial houses, academic institutes etc. for pure and hygienic water supply.

ERA CTS PIPE AND FITTINGS 21-22

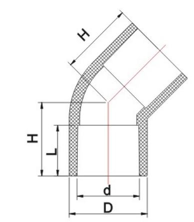
3.3 ERA CTS Fittings



ITEM NO: CPA004

TEE

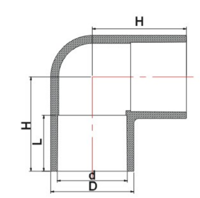
Nom Size	D	d	l	L	H	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.5	15.9	13	43.8	21.8	395X260X210	500
3/4"	26.8	22.2	18	62	31	395X260X210	200
1"	34.5	28.6	23	80	40	395X260X210	100
1¼"	41.8	34.9	28.1	95.5	47.75	395X260X210	72
1½"	49.4	41.3	33.5	112	56	395X260X210	40
2"	64.4	54	43.5	145	72.5	395X260X210	20(18)



ITEM NO: CPA010

45° ELBOW

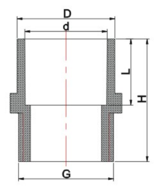
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
1/2"	20	15.9	13	18.8	395X260X210	1000
3/4"	26.8	22.2	18	24.3	395X260X210	360
1"	34.5	28.6	23	30.9	395X260X210	200
1¼"	41.8	34.9	28.1	37.1	395X260X210	110
1½"	49.46	41.3	33.5	44	395X260X210	66
2"	64.58	54	43.5	56.5	395X260X210	30



ITEM NO: CPA002

90° ELBOW

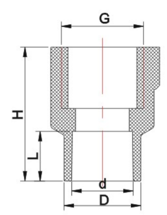
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.5	15.9	13	23.1	395X260X210	700
3/4"	26.8	22.2	18	31.43	395X260X210	300
1"	34.5	28.6	23	39.22	395X260X210	160
1¼"	41.8	34.9	28.1	47.4	395X260X210	75
1½"	49.4	41.3	33.5	55.4	395X260X210	50
2"	64.4	54	43.5	72.5	395X260X210	20



ITEM NO:CPA005

MALE ADAPTOR

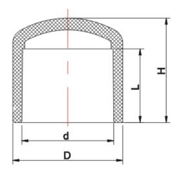
Nom Size	D	d	G	H	L	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.5	15.9	1/2"	41.4	13	395X260X210	800
3/4"	26.8	22.2	3/4"	42	18	395X260X210	500
1"	34.5	28.6	1"	47	23	395X260X210	280
1¼"	41.8	34.9	1 1/4"	55	28.1	395X260X210	140
1½"	49.4	41.3	1 1/2"	62	33.5	395X260X210	100
2"	64.4	54	2"	75	43.5	395X260X210	50



ITEM NO:CPA008

FMALE ADAPTOR

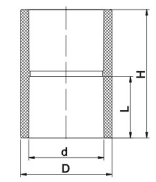
Nom Size	D	d	G	H	L	Carton size mm*mm*mm	Qty/ctn pc
1/2"	20	15.9	1/2"	35	13	395X260X210	600
3/4"	26.8	22.2	3/4"	42	18	395X260X210	350
1"	34.5	28.6	1"	50	19.3	395X260X210	160
1¼"	41.8	34.9	1 1/4"	58	28.1	395X260X210	100
1½"	49.46	41.3	1 1/2"	68	33.5	395X260X210	64
2"	64.58	54	2"	87	43.5	395X260X210	36



ITEM NO: CPA003

END CAP

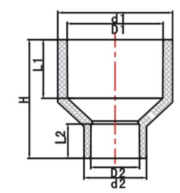
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.5	15.9	13	17	395X260X210	2000
3/4"	26.8	22.2	18	25.5	395X260X210	900
1"	34.5	28.6	23	32	395X260X210	400
1¼"	41.8	34.9	28.1	41	395X260X210	240
1½"	49.4	41.3	33.5	44	395X260X210	160
2"	64.4	54	43.5	57	395X260X210	70



ITEM NO: CPA001

SOCKET

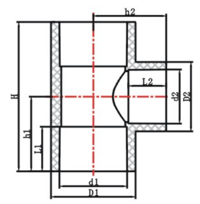
Nom Size	D	d	H	L	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.5	15.9	28.9	13	395X260X210	1100
3/4"	26.8	22.2	39.5	18	395X260X210	500
1"	34.5	28.6	50	23	395X260X210	250
1¼"	41.8	34.9	60	28.1	395X260X210	150
1½"	49.4	41.3	70.5	33.5	395X260X210	80
2"	64.4	54	90.5	43.5	395X260X210	48



ITEM NO:CPAS04

REDUCING SOCKET

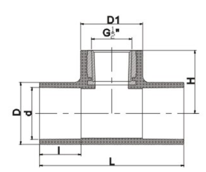
Nom Size	D1	d1	L1	D2	D2	L2	H	Carton size mm*mm*mm	Qty/ctn pc
3/4"x 1/2"	26.85	22.2	18	20.08	15.9	13	33.7	395X260X210	750
1"x1/2"	34.43	28.6	23	20.08	15.9	13	39	395X260X210	400
1"x3/4"	34.43	28.6	23	26.85	22.2	18	44	395X260X210	350
11/4"x 1/2"	41.8	34.9	28.1	20.08	15.9	13	44.1	395X260X210	324
11/4"x 3/4"	41.8	34.9	28.1	26.83	22.2	18	49.1	395X260X225	324
11/4"x 1"	41.8	34.9	28.1	34.43	28.6	23	54.1	395X260X210	270
11/2"x 1/2"	49.46	41.3	33.5	20.08	15.9	13	49.5	395X260X210	200
11/2"x 3/4"	49.46	41.3	33.5	26.85	22.2	18	54.5	395X260X210	200
11/2"x 1"	49.46	41.3	33.5	34.43	28.6	23	59.5	395X260X225	200
11/2"x11/4"	49.46	41.3	33.5	41.8	34.9	28.1	64.6	395X260X210	100
2"x3/4"	64.58	54	43.5	26.85	22.2	18	64.5	395X260X225	88
2"x1"	64.58	54	43.5	34.43	28.6	23	69.5	395X260X225	88
2"x11/2"	64.58	54	43.5	41.8	34.9	28.1	74.6	395X260X210	72
2"x11/4"	64.58	54	43.5	49.46	41.3	33.5	80	395X260X210	72



ITEM NO:CPAS02

REDUCING TEE

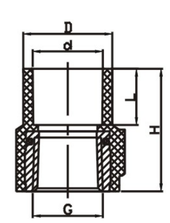
Nom Size	D1	d1	L1	h1	D2	d2	L2	H2	H	Carton size mm*mm*mm	Qty/ctn pc
3/4"x 1/2"	26.85	22.2	18	27.25	20.08	15.9	13	25.33	54.5	395X260X210	300
1"x1/2"	34.4	28.6	23	32.4	20.08	15.9	13	28.81	64.8	395X260X210	180
1"x3/4"	34.4	38.6	23	35.6	26.85	22.2	18	33.8	71.2	395X260X210	140
11/4"x 1/2"	41.8	34.9	28.1	37.5	20.08	15.9	13	32	75	395X260X210	110
11/4"x 3/4"	41.8	34.9	28.1	41	26.85	22.2	18	37	82	395X260X210	88
11/4"x 1"	41.8	34.9	28.1	44	34.43	28.6	23	42	88	395X260X210	72
11/2"x 1/2"	49.46	41.3	35.5	43	20.08	15.9	13	35.5	86	395X260X210	70
11/2"x 3/4"	49.46	41.3	35.5	46.5	26.85	22.2	18	40.5	93	395X260X210	60
11/2"x 1"	49.46	41.3	35.5	49.6	34.4	28.6	23	43.46	99.2	395X260X210	50
11/2"x11/4"	49.46	41.3	35.5	52.5	41.8	34.9	28.1	50.5	105	395X260X225	50
2"x3/4"	64.58	54	43.5	56.5	26.85	22.2	18	46.5	113	395X260X210	32
2"x1"	64.58	54	43.5	59.5	34.43	28.6	23	52	119	395X260X210	27
2"x11/2"	64.58	54	43.5	63	41.8	34.9	28.1	57	126	395X260X210	28
2"x11/4"	64.58	54	43.5	66	49.46	41.3	33.5	62.5	132	395X260X225	24



ITEM NO:CPAB02

BRASS THREADED FEMALE TEE

Nom Size	D1	D	d	l	G	L	H	Carton size mm*mm*mm	Qty/ctn pc
1/2"x 1/2"	33.2	20	15.9	13	1/2"	52	39	395X260X210	300
3/4"x 1/2"	33.2	26.8	22.2	18	1/2"	68.5	31.5	395X260X210	180
1"x 1/2"	34.9	34.5	28.6	23	1/2"	80	35	395X260X210	100

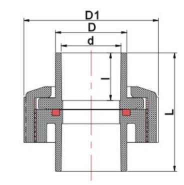


ITEM NO:CPAB05

BRASS THREAD REDUCING SOCKET

Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
3/4"x1/2"	28.5	22.2	39.2	18	1/2"	395X260X210	300
1"x1/2"	34.4	28.6	44.5	23	1/2"	395X260X210	240

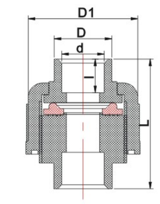
ERA CTS PIPE AND FITTINGS 25-26



ITEM NO:CPA007

II UNION

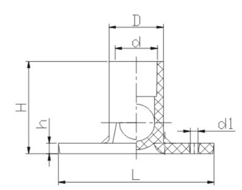
Nom Size	d	D	D1	l	L	Carton size mm*mm*mm	Qty/ctn pc
15mm (1/2")	15.9	21.8	39.5	13	36.5	395X260X210	330
20mm (3/4")	22.2	32.5	53.5	22	53.5	395X260X210	120
25mm (1")	28.6	34.43	65	23	57.5	395X260X210	80
32mm(1-1/4")	34.9	42.6	67.2	28	62	395X260X210	123
40mm(1-1/2")	41.3	52.5	81.7	30	71.6	395X260X210	72
50mm(2")	54	64.6	93	35	84.5	395X260X210	45



ITEM NO: CPA011

I UNION

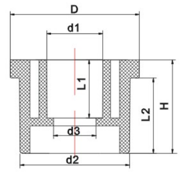
Nom Size	d	D	D1	l	L	Carton size mm*mm*mm	Qty/ctn pc
15mm (1/2")	15.9	21.7	41.3	12.7	49.1	395X260X210	200
20mm (3/4")	22.2	30.2	53.3	19.5	63	395X260X210	120



ITEM NO:CPAS03

90 °ELBOW WITH BRACKET

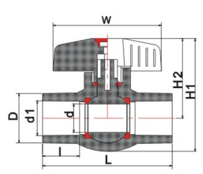
Nom Size	D	d	d1	H	h	L	Carton size mm*mm*mm	Qty/ctn pc
1/2"	20.8	15.9	3	35.5	4	59.75	395X260X210	450
3/4"	26.85	22.2	3	46.5	4	74.75	395X260X210	220



ITEM NO: CPA009

REDUCING BUSHES

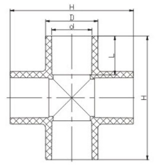
Nom Size	D	d1	d2	d3	H	L1	L2	Carton size mm*mm*mm	Qty/ctn pc
3/4"x 1/2"	26.8	15.9	22.1	14.72	21.2	13	18	395X260X210	1200
1"x1/2"	34.5	15.9	28.47	14.72	26.4	13	23	395X260X210	600
1"x3/4"	34.5	22.2	28.47	21.1	26.4	18	23	395X260X210	600
11/4"x 1/2"	41.8	15.9	34.85	14.72	31	13	28.1	395X260X210	330
11/4"x 3/4"	41.8	22.2	34.85	21.1	31	18	28.1	395X260X210	330
11/4"x 1"	41.8	28.6	34.85	27.47	31	23	28.1	395X260X210	330
11/2"x 1/2"	49.5	15.9	41.2	14.72	36.3	13	33.5	395X260X210	200
11/2"x 3/4"	49.5	22.2	41.2	21.1	36.3	18	33.5	395X260X210	200
11/2"x 1"	49.5	28.6	41.2	27.47	36.3	23	33.5	395X260X210	200
11/2"x11/4"	49.5	34.9	41.2	33.85	36.3	28.1	33.5	395X260X210	200
2"x11/2"	64.6	15.9	54	14.72	47	13	43.5	395X260X210	96
2x3/4	64.6	22.2	54	21.1	47	18	43.5	395X260X211	96
2X1	64.6	28.6	54	27.47	47	23	43.5	395X260X212	96
2x11/4"	64.6	34.9	54	33.85	47	28.1	43.5	395X260X213	96
2X11/2	64.6	49.5	54	14.72	47	13	43.5	395X260X214	96



ITEM NO: CPAC01

COMPACT BALL VALVE

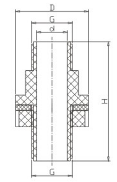
Nom Size	D1	d	D	L	l	W	H1	H2	Carton size mm*mm*mm	Qty/ctn pc
15mm(1/2")	15.9	12.4	24	68.5	19	60	58	40.7	395X260X210	180
20mm(3/4")	22.2	18.4	32	84	24	70.2	73	51.6	395X260X210	80
25mm(1")	28.6	20.5	38.4	91	25	79	77	52.3	395X260X210	60
1 1/4"	34.9	25	45.8	105.5	28.5	100	93.5	65.2	395X260X210	37
1 1/2"	41.3	30.6	53.5	121	33.5	108	104.8	72.3	395X260X210	25
2"	54	41	68.4	149	43.5	130	122	82	395X260X210	15



ITEM NO:CPA011

CROSS TEE

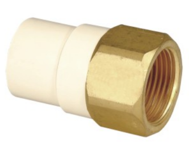
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
½"	21.5	15.9	13	44	395X260X210	2000
¾"	27	22.2	18	62	395X260X210	900
1"	34	28.6	23	80	395X260X210	400
1¼"	42	34.9	28	95.5	395X260X210	240
1½"	49	41.3	33	112	395X260X210	160
2"	65	54	43	145	395X260X210	70

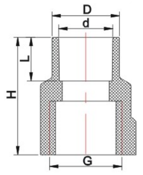


ITEM NO:CPA012

MALE ADAPTOR II

Nom Size	D	G	d	H	Carton size mm*mm*mm	Qty/ctn pc
½"	39.4	½"	13.4	66	395X260X210	800
¾"	45.4	¾"	19	74.3	395X260X210	500
1"	51.4	1"	23.5	82	395X260X210	280

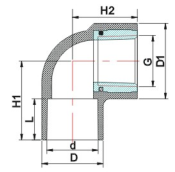




ITEM NO:CPAB04

BRASS THREADED FEMALE ADAPTOR

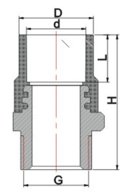
Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.7	15.9	42.5	13	1/2"	395X260X210	400
3/4"	28.5	22.2	50	18	3/4"	395X260X210	250
1"	35	28.6	65	23	1"	395X260X210	120
1¼"	44	34.9	77	28.1	1 1/4"	395X260X210	60
1½"	51.5	41.3	84	33.5	1 1/2"	395X260X210	50
2"	64.4	54	94	43.5	2"	395X260X210	30



ITEM NO: CPAB01

BRASS THREAD FEMALE ELBOW

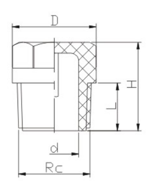
Nom Size	D1	D	d	L	G	H1	H2	Carton size mm*mm*mm	Qty/ctn pc
1/2"x 1/2"	33	20.08	15.9	13	1/2"	29.5	26.56	395X260X210	360
3/4"	39	26.85	22.2	18	3/4"	35.5	28.15	395X260X210	250
3/4"x 1/2"	33	26.85	22.2	18	1/2"	34.5	28.35	395X260X210	250
1"x 1/2"	33	34.43	28.6	23	1/2"	38.5	35.07	395X260X210	180



ITEM NO: CPAB03

BRASS THREADED MALE ADAPTOR

Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.7	15.9	48	13	1/2"	395X260X210	400
3/4"	28.5	22.2	53	18	3/4"	395X260X210	250
1"	35	28.6	71	23	1"	395X260X210	120
1¼"	44	34.9	80	28.1	1 1/4"	395X260X210	60
1½"	51.5	41.3	88	33.5	1 1/2"	395X260X210	50
2"	64.4	54	94	38.5	2"	395X260X210	30
3/4"x 1/2"	28.5	22.2	54	18	1/2"	395X260X210	250

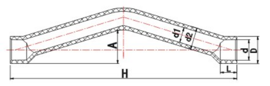


ITEM NO:CPA012

THREAD PLUG

Nom Size	D	d	L	Rc	H	Carton size mm*mm*mm	Qty/ctn pc
½″	24	13.4	17	½″	29	395X260X210	1000
¾″	31	19	17	¾″	32.5	395X260X210	500
1″	39	23.5	21	1″	37.5	395X260X210	280

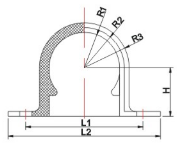
ERA CTS PIPE AND FITTINGS 29-30



ITEM NO: CPAS01

STEP OVER BEND

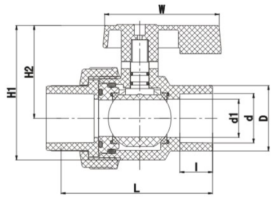
Nom Size	D	d	d1	d2	L	H	A	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.5	15.9	12	17.4	13	180	26.5	395X260X210	180
3/4"	26.9	22.2	16.5	20.9	18	195	29.2	395X260X210	120
1"	34.5	28.6	21	26.6	23	215	32.4	395X260X210	70



ITEM NO:CPA006

BRACKET

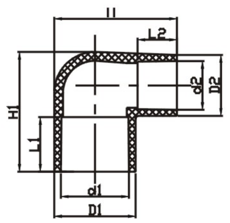
Nom Size	R1	R2	R3	H	L1	L2	Carton size mm*mm*mm	Qty/ctn pc
1/2"	7.8	9.2	10.6	12.6	27.6	39	395X260X210	3000
3/4"	11	12.5	14	15.2	36.6	47.6	395X260X210	2000
1"	14	15.6	17.2	19.4	43.2	55.6	395X260X210	1300
1 1/4"	16.8	18.9	21	23.4	54	72.2	395X260X210	720
1 1/2"	20	22.5	25	28	68.6	84	395X260X210	400
2"	26.5	29.1	31.7	34.4	83.6	99	395X260X210	300



ITEM NO:CPAC02

SINGLE UNION BALL VALVE

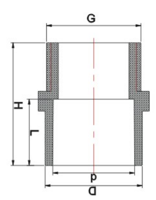
Nom Size	D	d	d1	l	L	W	H1	H2	Carton size mm*mm*mm	Qty/ctn pc
1-1/4"	53.5	47.2	39	34	95.8	109.7	127	86.5	395X260X210	37
1-1/2"	61.6	50.3	39	34	113	109.7	127	86.5	395X260X210	25
2"	64.6	54	39	43.5	174	109.7	127	86.5	395X260X210	15

ITEM NO:CPAS05

REDUCING ELBOW

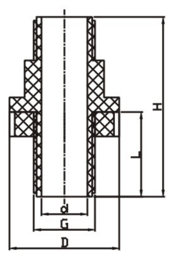
Nom Size	D1	d1	D2	d2	L1	L2	H1	H2	Carton size mm*mm*mm	Qty/ctn pc
3/4"x 1/2"	26.85	22.2	20	15.9	18	13	39.5	40.5	395X260X210	500

ITEM NO:CPAS06

REDUCING MALE ADAPTOR

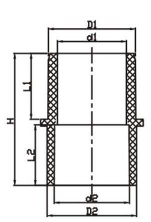
Nom Size	D	d	G	H	L	Carton size mm*mm*mm	Qty/ctn pc
3/4"x 1/2"	26.85	22.2	1/2"	42	18	395X260X210	500

ITEM NO:CPA013

TANK CON NECTOR

Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
1/2"	39.4	13.4	66	30	1/2"	395X260X210	220
3/4"	45.4	19	74.3	35	3/4"	395X260X210	140
1"	51.4	23.5	82	40	1"	395X260X210	80

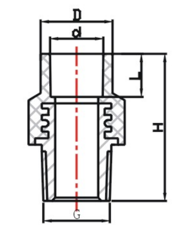



ITEM NO:CPAS08

REDUCING RING (TRANS FORM ASTM2846 TO SCH80)

Nom Size	D1	d1	L1	D2	d2	L2	H	Carton size mm*mm*mm	Qty/ctn pc
11/2"	48.26	38.16	36.4	49.46	41.3	33.5	73	340X300X235	90
2"	60.33	49.23	39.6	64.58	54	43.5	86.5	395X260X210	48

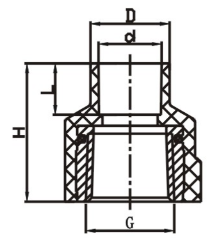
ERA CTS PIPE AND FITTINGS 31-32

ITEM NO:CPAB06

II BRASS MALE THREAD ADAPTOR

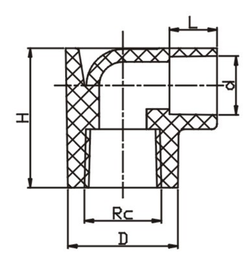
Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
1/2"	20.1	15.9	35	13	1/2"	395X260X210	400

ITEM NO:CPAB07

II BRASS FEMALE THREAD ADAPTOR

Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
1/2"	21.7	15.9	44.5	13	1/2"	395X260X210	400

ITEM NO:CPAS07

FEMALE ELBOW WITH BRACKET

Nom Size	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
1/2"	30	15.9	38.2	13	1/2"	395X260X210	260

Product code	CPVC 8213
Color	Yellow
Viscosity	Medium Bodied
Max VOC	490g/L(Low VOC)
Shelf life	2Years
Max Pipe Size	DN 200
Package	946ml/473ml/273ml/118ml
Standards :	ASTM D-2846 F-493
Specially recommend field	hotel, spring, hospital, family cpvc hot and cold water transportation

4.1 Product Specification

4.1.1 General Specification

Product Features
ERA CPVC industrial pipe and fittings are extruded/molded from CPVC compounds. The compounds meet cell class 23447 as defined by ASTM D 1784 and have a design stress of 2000psi @73 ℉ and a maximum service temperature of 200℉.

Pipe: Pipe meets the requirements of ASTM F441 in Schedule 80 dimensions. Available in size range 1/2” - 8”

Fittings: fittings from 1/2” 6” are injection molded which meet the requirement of ASTM F 437 (Schedule 80 threaded), ASTM F 439(Schedule 80 socket).

Primer/ Solvent Cement: All socket type joints made up employing promers and solvent cements that meet or exceed the requirements of ASTM F656 and F493 respectively. The standard practice for safe handling of primer and cement are in accordance with ASTM F 402.

Basic Use

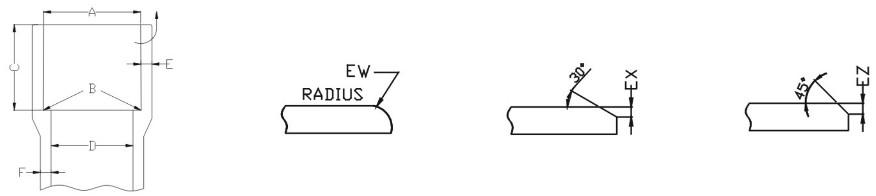
ERA CPVC pipe and fittings are intended for use in both pressure and drain applications in general chemical manufacturing plants, pulp and paper plants, waste water treatment plants, metal treating/electroplating plants, water purification plants, semiconductor/electronic manufactures and food processing plants where excellent resistance to corrosion from a wide range of chemicals, acids and bases at temperature up 200℉ is required.

4.1.2Product Dimension

Size	Standard			
	D	Tolerance	t(min)	Tolerance
½″	21.34	±0.10	3.73	±0.51
¾″	26.67	±0.10	3.91	±0.51
1″	33.40	±0.13	4.55	±0.53
1¼″	42.16	±0.13	4.85	±0.58
1½″	48.26	±0.15	5.08	±0.61
2″	60.32	±0.15	5.54	±0.66
2½″	73.02	±0.18	7.01	±0.84
3″	88.90	±0.20	7.62	±0.91
4″	114.30	±0.23	8.56	±1.02
5″	141.30	±0.25	9.52	±1.14
6″	168.28	±0.28	10.97	±1.32
8″	219.08	±0.38	12.70	±1.52

ERA SCH80 PIPE AND FITTINGS 35-36

Tapered Sockets for CPVC Pipe Fittngs, Schedule 80, in. (Mm)



Nominal Pipe Size	A Socket Entrance Diameter			B Socket Bottom Diameter			C	D	Wall Thickness, min		Entrance, min	
	Diameter	Tolerance on Nominal Diameter	Maximum Out of Round	Diameter	Tolerance on Nominal Diameter	Maximum Out of Round	Socket Length, min	Inside Diameter, min	E	F	EW	EX.WZ
1/2"	0.848(21.54)	0.004(0.10)	0.016(0.41)	0.836(21.23)	0.004(0.10)	0.016(0.41)	0.875(22.22)	0.502(12.75)	0.147(3.73)	0.185(4.70)	0.03(0.8)	0.03(0.8)
3/4"	1.058(26.87)	0.004(0.10)	0.020(0.51)	1.046(26.57)	0.004(0.10)	0.020(0.51)	1.000(25.40)	0.698(17.73)	0.154(3.91)	0.195(4.95)	0.03(0.8)	0.03(0.8)
1"	1.325(33.66)	0.005(0.13)	0.020(0.51)	1.310(33.27)	0.005(0.13)	0.020(0.51)	1.125(28.58)	0.911(23.14)	0.179(4.55)	0.225(5.72)	0.06(1.5)	0.06(1.5)
1-1/4"	1.670(42.42)	0.005(0.13)	0.024(0.61)	1.655(42.04)	0.005(0.13)	0.024(0.61)	1.250(31.75)	1.227(31.17)	0.191(4.85)	0.240(6.10)	0.06(1.5)	0.06(1.5)
1-1/2"	1.912(48.56)	0.006(0.15)	0.024(0.61)	1.894(48.11)	0.006(0.15)	0.024(0.61)	1.375(34.93)	1.446(36.73)	0.200(5.08)	0.250(6.35)	0.06(1.5)	0.06(1.5)
2"	2.387(60.63)	0.006(0.15)	0.024(0.61)	2.369(60.17)	0.006(0.15)	0.024(0.61)	1.500(38.10)	1.881(47.78)	0.218(5.54)	0.275(6.99)	0.06(1.5)	0.06(1.5)
2-1/2"	2.889(73.38)	0.007(0.18	0.030(0.76)	2.868(72.85)	0.007(0.18	0.030(0.76)	1.750(44.45)	2.250(57.15)	0.276(7.01)	0.345(8.76	0.09(2.3)	0.09(2.3)
3"	3.516(89.31)	0.008(0.20)	0.030(0.76)	3.492(88.70)	0.008(0.20)	0.030(0.76)	1.875(47.63)	2.820(71.63)	0.300(7.62)	0.375(9.53)	0.09(2.3)	0.09(2.3)
4"	4.518(114.76)	0.009(0.23)	0.030(0.76)	4.491(114.07)	0.009(0.23)	0.030(0.76)	2.250(57.15)	3.737(94.92)	0.337(8.56)	0.420(10.67)	0.09(2.3)	0.09(2.3)
6"	6.647(168.83)	0.011(0.28)	0.060(1.52)	6.614(168.00)	0.011(0.28)	0.060(1.52)	3.000(76.20)	5.646(143.41)	0.432(10.97)	0.540(13.72)	0.13(3.3)	0.13(3.3)

Notes:

A:
The Sketches and designs of fittings are illustrative only

B:
Socket Depth, measured from socket entrance fact to socket bottom face.

C:
The minimum inside diameter of the fittings shall be not less than the minimum specified inside diameter of the corresponding size of Schedule 80 pipe. This is calculated as follows: (minimum OD) - 2 X (maximum wall) = minimum ID

4.1.3Pressure Rating

Determining pressure-stress pipe relationships

ISO Equation: Circumferential stress is the largest stress present in any pressurized piping system. It is the factor that determines the pressure that a section of pipe dimensions is described by ISO(for International Standardization Organization) Equation. In various forms this equation is

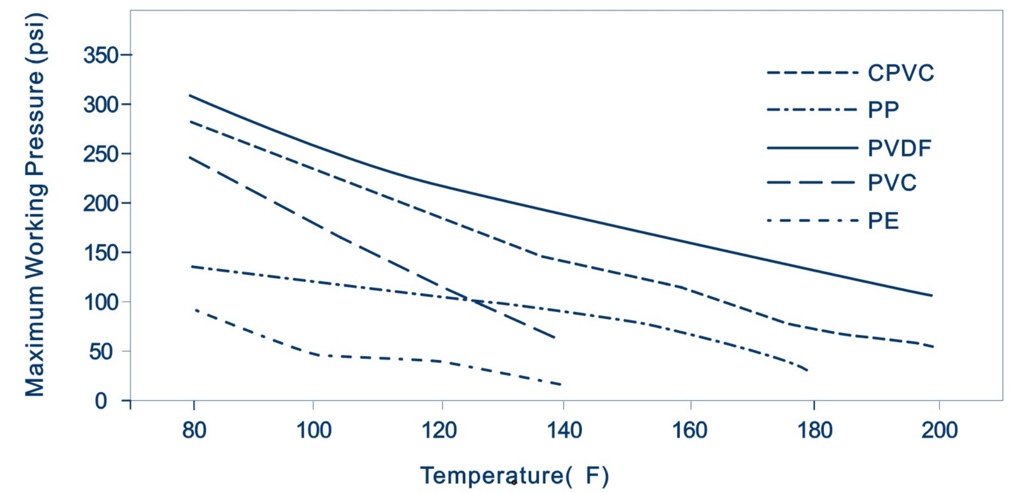
$$P = \frac{2S}{R-1} = \frac{2St}{Do-t} \qquad \frac{2S}{P} = \frac{Do}{t} - 1$$

$$\frac{2S}{P} = R-1 \qquad S = \frac{P(R-1)}{2}$$

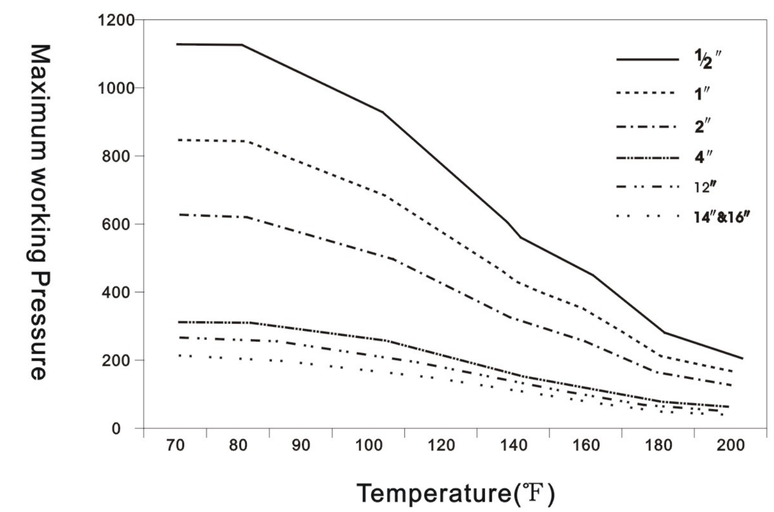
Where
P=Internal Pressure,psi
S=Circumferential Stress,psi
t=Wall Thickness,in
Do=Outside Pipe Diameter,in
R=Do/t

Long-term strength: To determine the long-term strength of thermoplastic pip, lengths of pipe are capped at both ends and subjected to various internal pressure, to produce circumferential stresses that will produce failure in from 10 to 10000 hours. The test is run according to ASTM D 1598 Standard test for time hydrostatic pressure.

Maximum Working Pressures of 6 Inch Diameter Schedule 80 Lines



Maximum Working pressure vs. Temperature for Schedule 80 CPVC Industrial Piping System.



Pressure rating for pipe

Size	OD(inch)	SCH80 Max Working Pressure	SCH80 Max Working Pressure
		kg/cm²	psi
½″	0.840	59.76	850
¾″	1.050	48.51	690
1″	1.315	44.29	630
1¼″	1.660	36.56	520
1½″	1.900	33.04	470
2″	2.375	28.12	400
2½″	2.875	29.53	420
3″	3.500	26.01	370
4″	4.500	22.5	320
5″	5.563	20.39	290
6″	6.628	19.69	280

Burst Pressure Requirements for water at 73 ℉		
Nominal Size, in.	Minumum Burst Strength Class 23447 and 23448	
	Psi	Mpa
½″	2720	18.75
¾″	2200	15.17
1″	2020	13.93
1¼″	1660	11.44
1½″	1510	10.41
2″	1290	8.89
2½″	1360	9.38
3″	1200	8.27
4″	1040	7.17
6″	890	6.14

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4.1.4 Carry Capacity and Friction Loss for Schedule 80CPVC Pipe

Independent variables:Volumetric Flow Rate and Average Pipe ID
Dependent variables:Linear Velocity,Friction Head Loss ,and Presurre Drop

Volumetric flow (gal/min)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)
	1/2 inch				3/4 inch											
1	1.47	2.20	0.95	48.16	0.78	0.47	0.20	23.71	1 inch				1¼ inch			
2	2.93	7.94	3.43	96.31	1.56	1.71	0.74	46.34	0.93	0.49	0.21	26.67	0.52	0.12	0.05	13.47
3	4.40	16.82	7.26	144.47	2.34	3.62	1.56	69.51	1.40	1.04	0.45	40.01	0.78	0.25	0.11	20.21
4	5.86	28.65	13.37	192.63	3.12	6.17	2.66	92.69	1.87	1.78	0.77	53.34	1.04	0.42	0.18	26.94
5	7.33	43.31	18.70	240.79	3.90	9.32	4.03	115.86	2.34	2.69	1.16	66.68	1.29	0.64	0.28	33.68
6	8.79	60.71	26.22	288.94	4.68	13.07	5.64	139.03	2.80	3.76	1.63	80.01	1.55	0.90	0.39	40.41
7	10.26	80.76	34.88	337.10	5.46	17.38	7.51	162.20	3.27	5.01	2.16	93.35	1.81	1.19	0.51	47.15
8					6.23	22.26	9.61	185.37	3.74	6.41	2.77	106.68	2.07	1.53	0.66	53.88
9					7.01	27.69	11.96	208.54	4.21	7.98	3.44	120.02	2.33	1.90	0.82	60.62
10					7.79	33.65	14.53	231.71	4.67	9.70	4.19	133.35	2.59	2.31	1.00	67.35
15	4 inch				11.69	71.31	30.79	347.57	7.01	20.54	8.87	200.03	3.88	4.89	2.11	101.03
20	0.57	0.04	0.02	11.78					9.35	35.00	15.12	266.71	5.18	8.33	3.60	134.71
25	0.71	0.06	0.03	14.73					11.68	52.91	22.85	333.38	6.47	12.59	5.44	168.38
30	0.85	0.08	0.04	17.67					14.02	74.17	32.03	400.06	7.77	17.64	7.62	202.06
35	1.00	0.11	0.05	20.62									9.06	23.47	10.14	235.73
40	1.14	0.14	0.06	23.56									10.36	30.06	12.98	269.41
45	1.28	0.17	0.08	26.51	6 inch								11.65	37.38	16.14	303.09
50	1.42	0.21	0.09	29.54	0.63	0.03	0.01	12.04					12.95	45.44	19.62	336.76
60	1.71	0.30	0.13	35.35	0.75	0.04	0.02	14.45								
70	1.99	0.39	0.17	41.24	0.88	0.05	0.02	16.86								
80	2.28	0.51	0.22	47.13	1.00	0.07	0.03	19.27								
90	2.56	0.63	0.27	53.02	1.13	0.09	0.04	21.68								
100	2.85	0.76	0.33	58.91	1.25	0.10	0.04	24.09								
125	3.56	1.16	0.50	73.64	1.57	0.16	0.07	30.11								
150	4.27	1.62	0.70	88.36	1.88	0.22	0.09	36.13								
200	5.70	2.76	1.19	117.82	2.51	0.37	0.16	48.18								
250	7.12	4.17	1.80	147.27	3.13	0.57	0.24	60.22								
300	8.55	5.85	2.53	176.73	3.76	0.79	0.34	72.27								
350	9.97	7.78	3.36	206.18	4.39	1.05	0.46	84.31								
400	11.40	9.96	4.30	235.64	5.01	1.35	0.58	96.36								
450	12.82	13.39	5.35	265.09	5.64	1.68	0.73	108.40								
500	14.25	15.06	6.50	294.55	6.27	2.04	0.88	120.45								
600	17.10	21.11	9.12	353.46	7.52	2.86	1.24	144.54								
700					8.77	3.81	1.64	168.63								
800					10.03	4.88	2.11	192.71								
900					11.28	6.06	2.62	216.80								
1000					12.53	7.37	3.18	240.89								
1250					15.67	11.14	4.81	301.12								

linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	linear velocity (ft/s)	frection head loss (ftwater/ 100 ft)	Friction pressure (psi/100 ft)	Maxiumum Surge Pressure (PSI)	Volumetric flow (gal/min)
1½ inch																1
0.38	0.05	0.02	9.30													2
0.56	0.11	0.05	13.95													3
0.75	0.19	0.08	18.95													4
0.94	0.29	0.13	23.24	2 inch				2½ inch								5
1.13	0.41	0.18	27.89	0.67	0.12	0.05	15.43	0.47	0.05	0.02	11.04					6
1.31	0.54	0.23	32.54	0.78	0.15	0.07	18.00	0.55	0.06	0.03	12.88					7
1.50	0.70	0.30	37.19	0.89	0.20	0.09	20.57	0.62	0.08	0.04	14.72					8
1.69	0.87	0.37	41.84	1.00	0.24	0.11	23.14	0.70	0.10	0.04	16.56	3 inch				9
1.88	1.05	0.45	46.49	1.12	0.30	0.13	25.71	0.78	0.12	0.05	18.40	0.50	0.04	0.02	11.06	10
2.81	2.23	0.96	69.73	1.67	0.63	0.27	38.56	1.17	0.26	0.11	27.60	0.75	0.09	0.04	16.59	15
3.75	3.80	1.64	92.97	2.23	1.07	0.46	51.42	1.56	0.45	0.19	36.79	1.00	0.15	0.07	22.12	20
4.69	5.74	2.48	116.22	2.79	1.63	0.70	64.27	1.95	0.68	0.29	45.99	1.25	0.23	0.10	27.65	25
5.63	8.04	3.47	139.46	3.35	2.28	0.98	77.13	2.34	0.95	0.41	55.19	1.49	0.32	0.14	33.18	30
6.56	10.70	4.62	162.70	3.91	3.03	1.31	89.98	2.73	1.27	0.55	64.39	1.74	0.43	0.18	38.71	35
7.50	13.71	5.92	189.95	4.47	3.88	1.68	102.84	3.12	1.62	0.70	73.59	1.99	0.54	0.24	44.24	40
8.44	17.05	7.36	209.19	5.02	4.83	2.08	115.69	3.51	2.02	0.87	82.79	2.24	0.68	0.29	49.76	45
9.38	20.72	8.95	232.43	5.58	5.87	2.53	128.54	3.90	2.45	1.06	91.98	2.49	0.82	0.36	55.29	50
11.25	29.04	12.54	278.92	6.70	8.22	3.55	154.25	4.68	3.43	1.48	110.38	2.99	1.15	0.50	66.35	60
13.13	38.64	16.68	325.41	7.81	10.94	4.72	179.96	5.46	4.57	1.97	128.78	3.49	1.54	0.66	77.41	70
				8.93	14.01	6.05	205.67	6.24	5.85	2.53	147.17	3.98	1.97	0.85	88.47	80
				10.05	17.42	7.52	231.38	7.02	7.28	3.14	165.57	4.48	2.45	1.06	99.53	90
				11.16	21.18	9.15	257.09	7.80	8.85	3.82	183.97	4.98	2.97	1.28	110.59	100
				13.95	32.02	13.83	321.36	9.75	13.37	5.77	229.96	6.23	4.49	1.94	138.24	125
				16.74	44.88	19.38	385.63	11.69	18.74	8.09	275.95	7.47	6.30	2.72	165.88	150
								15.59	31.93	13.79	367.93	9.96	10.73	4.63	221.18	200
												12.45	16.22	7.01	276.47	250
												14.94	22.74	9.82	331.77	300
												17.43	30.25	13.06	387.06	350
																400
																450
																500
																600
																700
																800
																900
																1000
																1250

4.1.5 Support spacing for CPVC pipes

Maximum support spacing for CPVC - Chlorinated Poly Vinyl Chloride - pipes depends on the operating temperature. Maximum spacing between supports at different temperatures can be found in the tables below:

CPVC SCHEDULE 80 SUPPORT SPCING SHEET (feet)						
NPS (inches)	Operating Temperature (℉)					
	80	100	120	140	160	180
1/2	5 1/2	5	4 1/2	4	3	2 1/2
3/4	5 1/2	5 1/2	5	4 1/2	3	2 1/2
1	6	6	5 1/2	5	3 1/2	3
1 1/4	6 1/2	6	6	5 1/2	3 1/2	3
1 1/2	7	6 1/2	6	6	3 1/2	3 1/2
2	7	7	6 1/2	6	4	3 1/2
2 1/2	8	7 1/2	7 1/2	6 1/2	4 1/2	4
3	8	8	7 1/2	7	4 1/2	4
4	9	9	8 1/2	7 1/2	5	4 1/2
6	10	9 1/2	9	8	5 1/2	5

1 ft (foot) = 0.3048 m
T(°C) = 5/9[T(°F) - 32]
Chlorinated Poly Vinyl Chloride - CPVC - is a thermoplastic pipe and fitting material made with CPVC compounds meeting the requirements of ASTM Class 23447 as defined in ASTM Specification D1784.
CPVC applications are for potable water distribution, corrosive fluid handling in industry, and fire suppression systems

4.1.6 Applicable Standards

Standard	Topic
ASTM D 1784	Standards Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride)(CPVC) Compounds
ASTM F 402	Standards Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings
ASTM F 437	Standards Specification for Threaded Chlorinated Poly (Vinyl Chloride)(CPVC) Plastic Pipe Fittings, schedule 80
ASTM F 438	Standard Specification for Socket-Type Chlorinated Poly (Vinyl Chloride)(CPVC) Plastic pipe fittings, Schedule 40
ASTM F 439	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, schedule 80
ASTM F 441	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) PlasticPipe, Schedule 40 and 80
ASTM F 493	Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) Plastic Pipe and Fittings.
ASTM F 656	Specification for primers for use in solvent cement joints of poly (Vinyl Chloride) (PVC) Plastic pipe and fittings.

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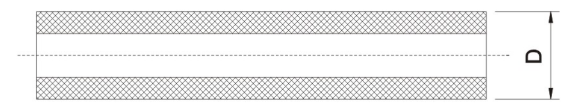
4.2 CPVC SCH80 PIPES

CPVC SCH80 PIPES
Material: CPVC
Pressure ratings: please check 4.1.3

According to ASTM F441

From supplied: 3M, 4M, 5.8M,6M,or customer required length
Packing unit: in Roll (Please check below sheet for detail packing unit)
Color: Light Grey

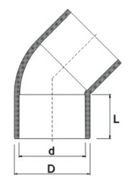


Pipe			Diameter	Wall thickness	Internal Diameter
Art. No .	Sizes	Packing unit	mm	mm	mm
CPS001	1/2″	20	21.34	3.73	13.88
CPS001	3/4″	20	26.67	3.91	18.85
CPS001	1″	10	33.4	4.55	24.30
CPS001	1¼″	10	42.16	4.85	32.46
CPS001	1½″	5	48.26	5.08	38.10
CPS001	2″	5	60.33	5.54	49.25
CPS001	2½″	4	73.03	7.01	59.01
CPS001	3″	3	88.9	7.62	73.66
CPS001	4″	2	114.3	8.56	97.18
CPS001	6″	1	168.3	10.97	146.36
CPS001	8″	1	219.08	12.7	193.68

Fields of Applications:

Hot and Cold water applications in homes, apartments, hotels, resorts, hospitals, high and low rise buildings, corporate and commercial houses, academic institutes etc. for pure and hygienic water supply.

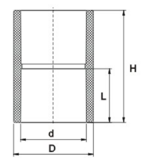
4.3 ERA CTS Fittings



ITEM NO:CPS001

45° ELBOW

Nom Size	D	d	L	Carton size mm*mm*mm	Qty/ctn pc
1/2"	29.3	21.34	22.7	355X355X350	594
3/4"	35.1	26.67	25.9	355X355X350	315
1"	43.1	33.4	29.1	355X355X350	192
1 1/4"	52.4	42.16	32.3	355X355X350	120
1 1/2"	59	48.26	35.4	355X355X350	90
2"	72.5	60.33	38.6	355X355X350	60
2 1/2"	87.8	73.03	45	355X355X430	36
3"	104.9	88.9	48.1	545X420X290	32
4"	132.4	114.3	57.6	460X390X270	12
6"	191.2	168.3	76.7	605X495X285	6

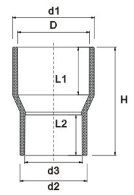


ITEM NO:CPS003

COUPLING

Nom Size	D	d	H	L	Carton size mm*mm*mm	Qty/ctn pc
1/2"	29.3	21.34	48.8	22.7	355X355X350	847
3/4"	35.1	26.67	55.2	26.0	355X355X350	600
1"	43.1	33.4	61.6	29.1	355X355X350	320
1 1/4"	52.4	42.16	67.4	32.3	355X355X350	222
1 1/2"	59	48.26	74.3	35.4	355X355X350	144
2"	72	60.33	80.1	38.6	355X355X350	96
2 1/2"	87.8	73.03	95.3	45	355X355X295	48
3"	104.9	88.9	101	48.1	540X430X315	60
4"	132.4	114.3	120.5	57.4	540X410X250	24
6"	191.2	168.3	160.3	76.7	580X395X170	6

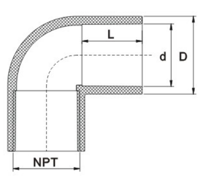
ERA SCH80 PIPE AND FITTINGS 41-42



ITEM NO:CPS004

REDUCING COUPLING

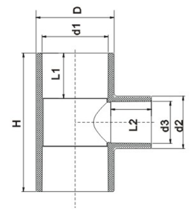
Nom Size	D	d1	d2	d3	H	L1	L2	Carton size mm*mm*mm	Qty/ctn pc	Weight/ctn Kgs
3/4"× 1/2"	35.1	26.67	29.3	21.34	57.5	25.9	22.7	355X355X350	600	20.85
1"× 1/2"	43.4	33.4	29.8	21.34	63.1	29.1	22.7	355X355X350	512	25.326
1"× 3/4"	43.1	33.4	35.5	26.67	65.4	29.1	25.9	355X355X350	320	17.87
1 1/4"× 1/2"	52.4	42.16	29.3	21.34	66.4	32.3	22.7	355X355X350	352	22.75
1 1/4"× 3/4"	52.4	42.16	35.1	26.67	67.6	32.3	25.9	355X355X350	352	23.63
1 1/4"× 1"	52.4	42.16	43.4	33.4	72.2	33	28.2	355X355X350	205	16.0225
1 1/2"× 1/2"	59	48.26	29.3	21.34	70.5	35.4	22.7	355X355X350	238	19.79
1 1/2"× 3/4"	59	48.26	35.5	26.67	73.7	35.4	25.9	355X355X350	238	21.694
1 1/2"× 1"	59	48.26	43 5	33.4	76.9	35.4	28.8	355X355X350	238	23.36
1 1/2"× 1 1/4"	59	48.26	52.4	42.16	80.1	35.4	32.3	355X355X350	136	15.302
2"× 1/2"	72	60.33	29.3	21.34	79.7	38.6	22.7	355X355X350	138	17.379
2"× 3/4"	72	60.33	35.1	26.67	81.4	38.6	25.9	355X355X350	138	17.034
2"× 1"	72	60.33	43.1	33.4	84.6	38.6	29.1	355X355X350	138	18.828
2"× 1 1/4"	72	60.33	52.4	42.16	87.8	38.6	32.3	355X355X350	138	20.484
2"× 1 1/2"	72	60.33	59	48.26	90.9	38.6	35.4	355X355X350	138	21.588



ITEM NO:CPS007

FEMALE THREAD ELBOW

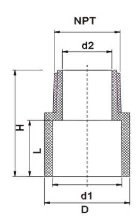
Nom Size	D	d	L	NPT	Carton size mm*mm*mm	Qty/ctn pc
1/2"	32.5	21.34	22.7	1/2"	355X355X350	462
3/4"	38.1	26.67	25.9	3/4"	355X355X350	278
1"	46	33.4	29.1	1"	355X355X350	165
1 1/4"	55.9	42.16	32.3	1 1/4"	355X355X350	96
1 1/2"	63.5	48.26	35.4	1 1/2"	355X355X350	66
2"	76.2	60.33	38.6	2"	355X355X350	39



ITEM NO:CPS008

REDUCING TEE

Nom Size	D	d1	d2	d3	L1	L2	H	Carton size mm*mm*mm	Qty/ctn pc
¾″× ½″	35.5	26.67	30	21.34	25.9	22.7	79.1	355X355X350	216
1″× ½″	43.1	33.4	29.3	21.34	29.1	22.7	80.5	355X355X350	160
1″× ¾″	43.1	33.4	35.1	26.67	29.1	25.9	91	355X355X350	138
1¼″× ½″	52.4	42.16	29.3	21.34	32.3	22.7	92.2	355X355X350	123
1¼″× ¾″	52.4	42.16	35.1	26.67	32.3	25.9	97.3	355X355X350	87
1¼″×1″	52.4	42.16	43.1	33.4	32.3	29.1	105.8	355X355X350	78
1½″× ½″	59	48.26	29.3	21.34	35.4	22.7	97.6	355X355X350	84
1½″× ¾″	59	48.26	35.1	26.67	35.4	25.9	103.7	355X355X350	72
1½″× 1″	59	48.26	43.1	33.4	35.4	29.1	110.5	355X355X350	72
1½″×1¼″	59	48.26	52.4	42.16	35.4	32.3	118.9	355X355X350	55
2″× ½″	72	60.33	29.3	21.34	38.6	22.7	104.7	355X355X350	64
2″× ¾″	72	60.33	35.1	26.67	38.6	25.9	109.7	355X355X350	45
2″× 1″	72	60.33	43.1	33.4	38.6	29.1	115.9	405X355X360	60
2″× 1¼″	72	60.33	52.4	42.16	38.6	32.3	124.6	355X355X350	40
2″× 1½″	72	60.3	59	48.26	38.6	35.4	131.6	355X355X350	40

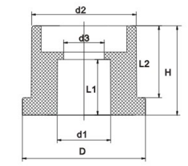


ITEM NO:CPS009

MALE ADAPTOR

Nom Size	D	d1	d2	NPT	H	L	Carton size mm*mm*mm	Qty/ctn pc
½″	30	21.34	9.4	½″	46.5	23.2	355X355X350	800
¾″	35.8	26.67	14	¾″	55.9	25.9	355X355X350	810
1″	44	33.4	18.8	1″	61	29.1	355X355X350	576
1¼″	53	42.16	26.8	1¼″	65.5	32.5	355X355X350	336
1½″	60	48.26	32.4	1½″	70.9	35.4	355X355X350	175
2″	73	60.33	43.3	2″	76.7	38.6	355X355X340	138
2½″	88.2	73.03	51.0	2½″	93.2	44.8	455X280X310	75
3″	104.9	88.9	66.0	3"	99.0	48.1	535X430X335	100
4″	132	114.3	89.9	4"	112	57.0	540X410X390	60
6″	191.2	168.3	138.3	6"	138.5	76.7	585X392X237	12

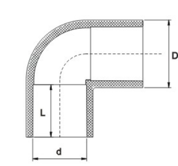
ERA SCH80 PIPE AND FITTINGS 43-44



ITEM NO:CPS010

REDUCING RING

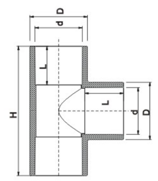
Nom Size	D	d1	d2	d3	L1	L2	H	Carton size mm*mm*mm	Qty/ctn pc
1¼″× ½″	52.4	21.34	42.16	13.5	22.7	31.5	40	355X355X350	392
1¼″× ¾″	52.4	26.64	42.16	17.8	25.9	31.5	40	355X355X350	392
1¼″×1″	52.4	33.4	42.16	24	29.1	31.5	40	355X355X350	392
1½″× ½″	59	21.34	48.26	13	22.7	35	43	355X355X350	288
1½″× ¾″	58.5	26.67	48.26	17.3	25.9	35	43	355X355X350	288
1½″× 1″	59	33.4	48.26	24.3	29.1	35	43	355X355X350	288
1½″×1¼″	59	42.16	48.26	31.2	32.3	35	43	355X355X350	288
2″× ½″	72	21.34	60.33	13	22.7	39	49	355X355X350	175
2″× ¾″	72	33.4	60.33	23.5	29.1	39	49	355X355X350	175
2″× 1″	72	26.67	60.33	18	29.1	38.3	48.6	355X355X350	175
2″× 1¼″	72	42.16	60.33	32	32.3	39	49	355X355X350	175
2″× 1½″	72	48.26	60.33	36.2	35.4	38.6	48.6	355X355X350	175
3″ ×1½″	104.9	48.26	88.9	42	35.5	47.1	55.1	440X408X290	80
3″×2″	104.9	60.33	88.9	53.8	38.6	47.1	55.1	440X408X290	80
4″ ×1½″	132.4	48.26	114.3	42	35.5	56.6	65.1	515X425X340	60
4″×2″	132.4	60.33	114.3	53.8	38.6	56.6	65.1	515X425X340	60
4″×3″	132.4	88.9	114.3	82	48.1	56.6	65.1	515X425X340	60
6″×4″	191.2	114.3	168.3	106.1	57.6	76.7	86.7	560X425X275	18



ITEM NO:CPS002

90° ELBOW

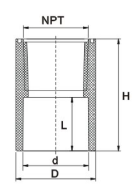
Nom Size	D	d	L	Carton size mm*mm*mm	Qty/ctn pc
½″	29.8	21.34	22.7	355X355X350	462
¾″	35.6	26.67	25.9	355X355X350	278
1″	43.1	33.4	29.1	355X355X350	200
1¼″	52.4	42.16	32.3	425X385X270	105
1½″	59	48.26	35.4	355X355X350	84
2″	72	60.33	38.6	355X355X350	45
2½″	87.8	73.03	45	455X400X390	45
3″	104.9	88.9	48.1	540X460X340	30
4″	132.4	114.3	56.6	580X415X380	18
6″	190.9	168.3	76.7	540X390X270	4



ITEM NO:CPS005

STRAIGHT TEE

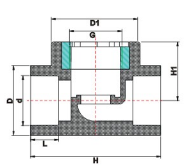
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
½″	29.3	21.34	22.4	70.8	355X355X350	340
¾″	35.4	26.67	25.9	82.4	355X355X350	200
1″	43.1	33.4	29.1	97.6	355X355X350	117
1¼″	52.4	42.16	32.3	110.9	355X355X350	72
1½″	59	48.26	35.4	122.7	355X355X350	51
2″	72	60.33	38.6	142.7	355X355X350	32
2½″	87.8	73.03	45	168.2	460X400X350	30
3″	104.9	88.9	48.1	190.2	540X305X200	10
4″	132.4	114.3	57.6	235.6	480X380X405	12
6″	191.2	168.3	76.7	333.2	580X270X340	3



ITEM NO:CPS006

FEMALE ADAPTOR

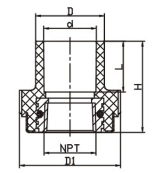
Nom Size	D	d	H	L	NPT	Carton size mm*mm*mm	Qty/ctn pc
½″	32.5	21.34	45.7	22.7	½″	355X355X350	847
¾″	38.1	26.67	54.8	25.9	¾″	355X355X350	480
1″	46	33.4	58.7	29.1	1″	355X355X350	320
1¼″	55.9	42.16	64.3	32.3	1¼″	355X355X350	180
1½″	63.5	48.26	70.9	35.4	1½″	355X355X350	138
2″	76.2	60.33	74.6	38.6	2″	355X355X315	80
2½″	87.8	73.03	92.3	45	2½″	540X450X385	120
3″	104.9	88.9	97.9	48.1	3″	535X435X400	80
4″	132.4	114.3	109.9	57.6	4″	540X420X450	48
6″	191.2	168.3	135.6	76.7	6″	585X395X415	18



ITEM NO:CPS012

CPVC STOP VALVE TYPE I

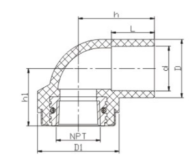
Nom Size	D	d	G	L	H	D1	H1	Carton size mm*mm*mm	Qty/ctn pc
½″	29.8	21.34	1/2″	22.7	80	35	30	350X273X240	48



ITEM NO:CPS015

FEMALE ADAPTOR WITH BRASS

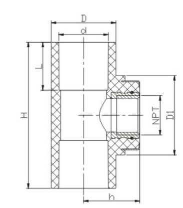
Nom Size	D1	D	d	L	NPT	H	Carton size mm*mm*mm	Qty/ctn pc
½″	45.3	29.4	21.34	23	½″	40.5	395X260X210	240
½″×¾″	51.6	29.4	21.34	23	¾″	43.5	395X260X210	160
¾″	51.6	35	26.67	26	¾″	46.5	395X260X210	180
¾″×½″	45.3	35	26.67	26	½″	44.5	395X260X210	150
1″	59	43	33.4	29	1″	53.5	395X270X210	180
1″×¾″	51.6	43	33.4	29	¾″	50	395X260X210	140



ITEM NO:CPS016

FEMALE ELBOW WITH BRASS

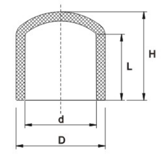
Nom Size	D1	D	d	L	NPT	h	h1	Carton size mm*mm*mm	Qty/ctn pc
½″	42.9	29.4	21.34	23	½″	39.4	28	395X260X210	180
½″×¾″	49.2	29.4	21.34	23	¾″	38.5	31.5	395X260X210	120
¾″	49.2	35	26.67	26	¾″	45.9	34.5	395X260X210	150
¾″×½″	42.9	35	26.67	26	½″	39.5	30.5	395X260X210	110
1¼″	67	52	42.16	32	1¼″	60	46.5	395X260X210	
1½″	73	59	48.26	35	1½″	66	51	395X260X210	32
2″	87.6	72	60.33	39	2″	75	61	395X260X210	20



ITEM NO:CPS017

FEMALE TEE WITH BRASS

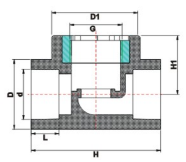
Nom Size	D1	D	d	L	NPT	h	h1	Carton size mm*mm*mm	Qty/ctn pc
½″	42.9	29.4	21.34	23	½″	28	77	395X260X210	130
½″×¾″	49.2	29.4	21.34	23	¾″	31.5	77	395X260X210	100
¾″	49.2	35	26.67	26	¾″	34.5	92	395X260X210	110
¾″×½″	42.9	35	26.67	26	½″	30.5	79	395X260X210	80
1¼″	67	52	42.16	32	1¼″	46.5	120	395X260X210	32
1½″	73	59	48.26	35	1½″	51	132	395X260X210	23
2″	87.6	72	60.33	39	2″	61	150	395X260X210	12



ITEM NO:CPS011

END PLUG

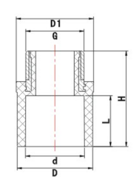
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
½"	29.3	21.34	22.7	39.7	355X355X350	1400
¾"	35.1	26.67	25.9	33.7	355X355X350	1100
1"	43.1	33.4	29.1	33.8	355X355X350	576
1¼"	52.4	42.16	32.3	43	355X355X350	324
1½"	59	48.26	35.4	45.8	355X355X350	272
2"	72	60.33	38.6	51.8	355X355X350	144
3"	33.3	25	19.5	25	430X390X320	70
4"	41	32	22.5	30	405X375X300	32
6"	33.3	25	19.5	25	585X395X300	18



ITEM NO:CPS013

CPVC STOP VALVE TYPE II

Nom Size	D	d	G	L	H	D1	H1	Carton size mm*mm*mm	Qty/ctn pc
20X1/2"	29.6	21.34	½"	23.5	80	34.8	30	350X273X240	48
25X1/2"	36	26.67	¾"	24	82	42	33	350X273X240	48
32X3/4"	44	33.4	1"	25	93	51.8	38.4	350X273X255	48

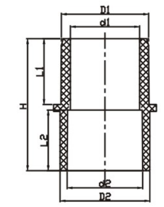


ITEM NO:CPS014

MALE ADAPTOR WITH BRASS

Nom Size	D1	D	d	H	L	G	Carton size mm*mm*mm	Qty/ctn pc
½"	30.4	29.4	21.34	44.2	22.7	½"	395X260X210	400
¾"	36.1	35.1	26.67	48.9	25.9	¾"	395X260X210	250
1"	44.1	43.1	33.4	54.5	29.1	1"	405X270X235	192
1¼"	53.4	52.4	42.16	63.1	32.3	1¼"	395X260X210	99
1½"	60	59	48.26	69.7	35.4	1½"	415X295X230	90
2"	73	72	60.33	76.1	38.6	2"	430X295X245	60

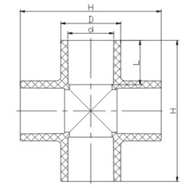
ERA SCH80 PIPE AND FITTINGS 47-48



ITEM NO:CPS018

REDUCING RING(TRANSFORM FOR ASTM2846 TO SCH80)

Nom Size	D1	d1	L1	D2	d2	L2	H	Carton size mm*mm*mm	Qty/ctn pc
11/2"	48.26	38.16	36.4	49.46	41.3	33.5	73	340X300X235	90
2"	60.33	49.23	39.6	64.58	54	43.5	86.5	395X260X210	48



ITEM NO: USC001

CROSS TEE

Size Nom	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
½"	29.4	21.34	23	71	435X280X230	162
¾"	35	26.67	26	82.5	425X295X265	120
1"	43	33.4	29	97.5	495X315X305	105
1¼"	52	42.16	32	111	395X260X220	28
1½"	59	48.26	35	124	395X260X210	18
2"	72	60.33	39	143	450X300X300	24

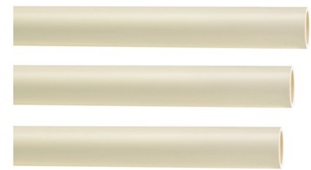
Product code	CPVC 8125
Color	Gray
Viscosity	Heavy Bodied
Max VOC	490g/L(Low VOC)
Shelf life	2Years
Max Pipe Size	DN 300
Package	946ml/473ml/273ml/118ml
Standards :	ASTM F-493
Specially recommend field	Chemical indusry,industry CPVC/UPVC acid proof alkali proof,esp, hypochlorite,high temperature liquid transportation system.

Product code	Primer 1050
Color	Clear
Viscosity	Water Thin
Max VOC	<550g/L(Low VOC)
Shelf life	3Years
Max Pipe Size	For all size
Package	946ml/473ml/273ml/118ml
Standards :	ASTM F-656
Specially recommend field	Industrial, High-pressure managing system, low temperature, humid environment or bad construction conditions.

5. ERA DIN Pipe and Fittings

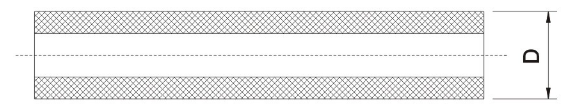
5.1 ERA DIN PIPES

CPVC DIN STANDARD PIPES
Material: CPVC
Pressure ratings: PN25



According to DIN STANDARD

From supplied: 3M, 4M, 5.8M
Packing unit: in Roll (Please check below sheet for detail packing unit)
Color: Ivory(Tan)

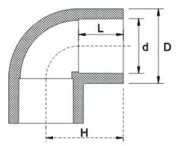


Pipe			Diameter	Wall thickness	Internal Diameter	Weight
Art. No .	Sizes	Packing unit	mm	mm	mm	Kg/m
Cp001	20	25	20	2.6	14.8	
Cp001	25	20	25	3.0	19.0	
Cp001	32	20	32	3.9	24.2	

Fields of Applications:

Hot and Cold water applications in homes, apartments, hotels, resorts, hospitals, high and low rise buildings, corporate and commercial houses, academic institutes etc. for pure and hygienic water supply.

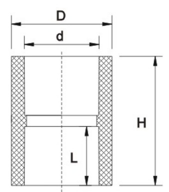
5.2 ERA DIN Fittings



ITEM NO: CP002

90° ELBOW

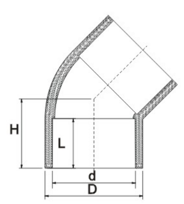
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
20	27.5	20	16.5	28.5	585X455X245	1000
25	33.3	25	19.5	33.7	690X436X280	800
32	41	32	22.5	41.8	670X430X365	500
63	75	63	38.5	71	460X390X460	80



ITEM NO: CP006

DOUBLE SOCKET

Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
20	27.5	20	16.6	35.7	715X470X210	2000
25	33.3	25	19.5	42	690X425X240	1200
32	40.5	32	22.5	48	625X422X425	1200
63	75	63	38.5	80	390X310X340	80

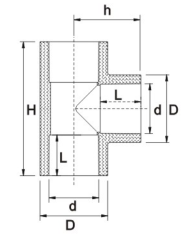


ITEM NO: CP008

45° ELBOW

Nom Size	D	d	H	L	Carton size mm*mm*mm	Qty/ctn pc
20	27.5	20	21	16.5	455X370X210	720
25	33.3	25	25	19.5	620X495X195	800
32	41	32	30	22.5	560X470X235	480
63	74.8	63	53	38	460X350X410	80

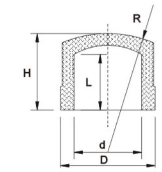
ERA DIN PIPE AND FITTINGS 51-52



TEM NO: CP003

TEE 90°

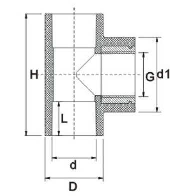
Nom Size	D	d	L	H	h	Carton size mm*mm*mm	Qty/ctn pc
20	27.5	20	16.5	54.4	27.5	585X432X305	1000
25	33.3	25	19.5	67.4	33.7	705X425X360	800
32	41	32	22.5	77.7	39	620X445X415	500
63	75	63	38.5	145	72.5	460X400X310	40



ITEM NO: CP004

END CAP

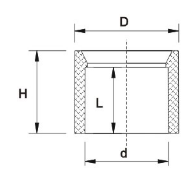
Nom Size	D	d	L	H	R	Carton size mm*mm*mm	Qty/ctn pc
20	28.6	20	16.5	23.2	31.5	595X310X285	2000
25	34.2	25	19.5	26.3	35.7	695X360X305	2000
32	42.1	32	22.5	31.6	38	530X477X340	1200
63	76.8	63	38.5	52	144.9		



ITEM NO:CP017

TEE 90° ADAPTOR WITH BRASS INSERT

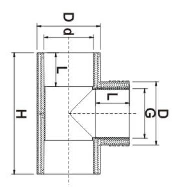
Nom Size	D	d	d1	G	L	H	Carton size mm*mm*mm	Qty/ctn pc
20×½″	27.5	20	39	½″	16.5	65	405X270X255	200
25×¾″	33.3	25	43	¾″	19.5	70	445X290X290	200
25×½″	33.3	25	43	½″	19.5	70	445X290X290	200



ITEM NO: CP005

SHORT REDUCING BUSHES

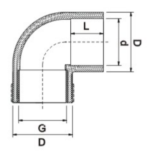
Nom Size	D	d	L	H	Carton size mm*mm*mm	Qty/ctn pc
25×20	25	20	17.1	19.8	650X420X260	4000
32×20	32	20	16.5	22.5	670X340X270	2000
32×25	32	25	18.7	22.1	670X340X270	2000
63×32	63	32	22.5	38.5	325X265X215	100

ITEM NO: CP007

EQUAL FEMALE THREAD TEE WITH STEEL RING

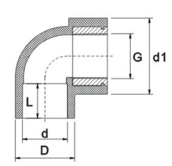
Nom Size	D	d	G	L	H	Carton size mm*mm*mm	Qty/ctn pc
20×½″	27.5	20	½″	17.3	55.3	580X445X305	1000
32×1″	41	32	1″	22.5	78	648X445X335	400

ITEM NO: CP009

FEMALE THREADED ELBOW

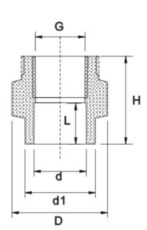
Nom Size	D	d	G	L	Carton size mm*mm*mm	Qty/ctn pc
32×1″	41	32	1″	25	650X440X350	500

ITEM NO: CP015

ELBOW 90° ADAPTOR WITH BRASS INSERT

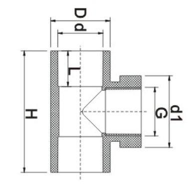
Nom Size	D	d	d1	G	L	Carton size mm*mm*mm	Qty/ctn pc
20×½″	27.5	20	39	½″	16.5	385X300X255	300
25×½″	33.3	25	43	½″	19.5	440X360X305	300
25× ¾″	33.3	25	43	¾″	19.5	440X360X305	300

ITEM NO: CP010

FEMALE ADAPTOR WITH STEEL RING

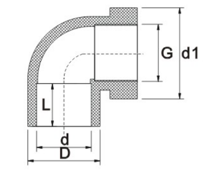
Nom Size	D	d	d1	G	L	H	Carton size mm*mm*mm	Qty/ctn pc
20×½″	36.5	20	28	½″	16.1	36.3	552X440X210	1000
25×¾″	41.1	25	34.5	¾″	19.5	40.5	600X480X240	1000
32×1″	49.4	32	42	1″	22	45	440X245X210	180
63×2″	85.9	63	75.8	2″	38	69	410X335X230	60

ITEM NO: CP011

REDUCED FEMALE THREADED TEE

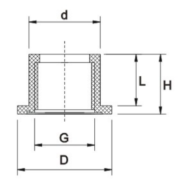
Nom Size	D	d	G	L	H	d1	Carton size mm*mm*mm	Qty/ctn pc
20×½″	27.5	20	½″	16.5	55	27.5	585X470X250	1000
25×½″	33	25	½″	19.5	67.5	41	510X425X270	600
25×¾″	33	25	¾″	19.5	68	41	510X425X285	600

ITEM NO: CP013

REDUCED FEMALE THREADED ELBOW

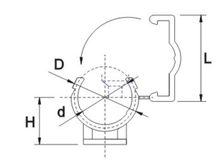
Nom Size	D	d	d1	G	L	Carton size mm*mm*mm	Qty/ctn pc
20×½″	27.5	20	33.3	½″	16.5	585X470X250	1000
25×½″	33	25	33	½″	19.5	510X425X270	600
25×¾″	33	25	41	¾″	19.5	550X425X285	600

ITEM NO: CP016

THREADED SHORT REDUCER

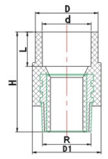
Nom Size	D	d	G	L	H	Carton size mm*mm*mm	Qty/ctn pc
25×½″	33	25	½″	18	21.5	552X366X265	2000

ITEM NO: CP012

MONO D'CLIPS

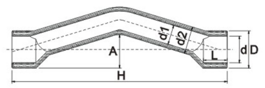
Nom Size	D	d	H	L	Carton size mm*mm*mm	Qty/ctn pc
20	25.2	20	18	31.3	590X515X245	3000
25	32	25	23	38.3	605X310X250	1200
32	39	32	37.7	48.2	550X490X260	1200



ITEM NO: CP021

FEMALE ADAPTOR WITH BRASS INSERT

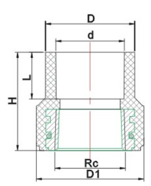
Nom Size	D1	D	d	L	H	Rc	Carton size mm*mm*mm	Qty/ctn pc
20×½″	40.6	28.3	20	16.5	39.8	1/2"	445X330X185	336
25×¾″	45.6	33.3	25	19.5	40.8	3/4"	360X375X150	192
32×1″	50.7	42	32	22.5	46.3	1"	450X445X115	144
40×1¼″	60.5	50	40	25.5	58.5	1¼"	420X375X140	80
50×1½″	70.3	62	50	30.5	65.5	1½"	435X250X215	54
63×2″	80.7	75.8	63	38.5	77.8	2"	340X340X175	32



ITEM NO: CP019

STEP OVER BEND

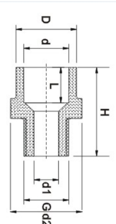
Nom Size	D	d2	d	d1	L	H	A	Carton size mm*mm*mm	Qty/ctn pc
20	28.7	17	20	12.4	17	159.6	25.2	420X375X340	400
25	35.2	26	25	18.6	22.1	203.5	31.6	480X375X430	240



ITEM NO: CP020

MALE ADAPTOR WITH BRASS INSERT

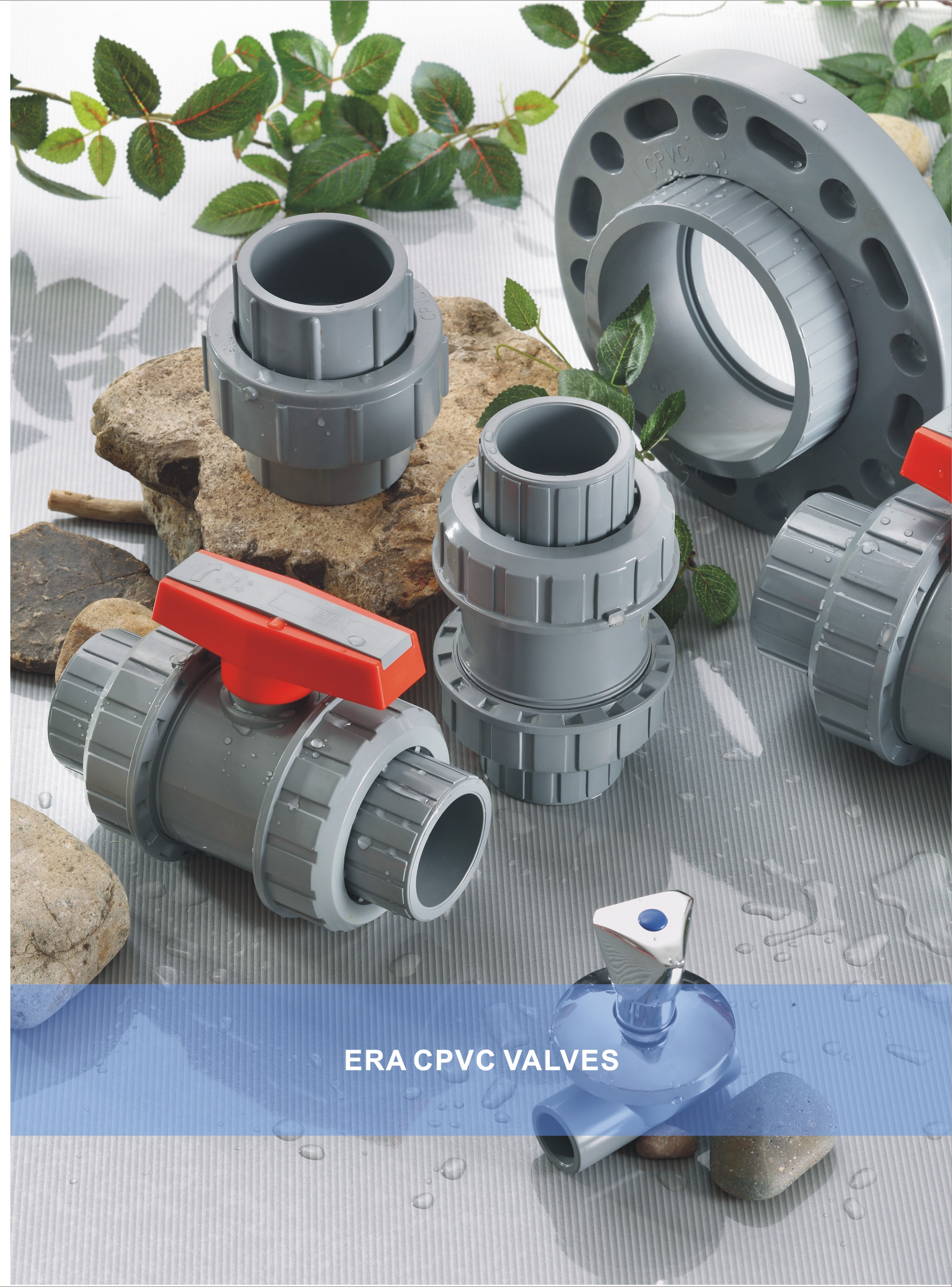
Nom Size	D1	D	d	L	H	Rc	Carton size mm*mm*mm	Qty/ctn pc
20×½″	40.6	28.3	20	16.5	39.8	1/2"	460X245X185	252
25×¾″	45.6	33.3	25	19.5	40.8	3/4"	423X270X140	120
32×1″	50.7	42	32	22.5	46.3	1"	390X300X225	144
40×1¼″	60.5	50	40	25.5	58.5	1¼"	425X265X235	72
50×1½″	70.3	62	50	30.5	65.5	1½"	435X255X230	54
63×2″	80.7	75.8	63	38.5	77.8	2"	350X295X190	24



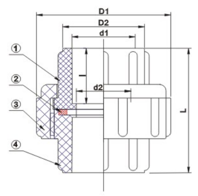
ITEM NO: CP018

MALE ADAPTOR

Nom Size	D	d	d1	d2	G	L	H	Carton size mm*mm*mm	Qty/ctn pc
20×½″	27.5	20	11.5	37	½″	16.5	40	625X410X240	1000
25×¾″	33	25	16	41.6	¾″	19.5	44	610X495X250	1000
32×1″	41	32	22	53.1	1″	22.5	48.5	575X480X280	600
63×2″	75	63	48.8	79.5	2″	38.5	76	415X330X290	100



6 ERA CPVC VALVES



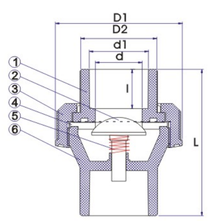
ITEM:CU001
- SIZE:1/2″-4″
- END CONNECTOR: THREAD, SOCKET, FLANGE
- WORKING PRESSURE:150 PSI

UNION Specification of material

NO.	PART	MATERIAL	Q'TY
1	End Connector	CPVC	1
2	O-Ring	EPDM	1
3	Union Nut	CPVC	1
4	Body	CPVC	1

Dimensions

Nom Size	NPT Thd./in	BSPT Thd./in	JIS d1	BS d1	ANSI d1	DIN d1	d2	D2	D1	l	L
15mm(1/2″)	14	14	22	22	21.34	20	14	29.20	50.6	20.5	48
20mm(3/4″)	14	14	26	26	26.67	25	19	34.5	56.7	22	53.6
25mm(1″)	11.5	11	32	34	33.4	32	24	42.6	66.5	28	63
32mm(11/4″)	11.5	11	38	42	42.16	40	32	52	81	30	72.6
40mm(11/2″)	11.5	11	48	48	48.26	50	40	59	86.8	34.5	85
50mm(2″)	11.5	11	60	60	60.33	63	45	72.1	105.8	40	103
65mm(21/2″)	8	11	76	76	73.03	75	60	90	129	40	109
80mm(3″)	8	11	89	89	88.9	90	80	103.5	145.5	48	125.5
100mm(4″)	8	11	114	114	114.3	110	100	132.5	175	60	160



ITEM NO:CSU02
- SIZE:1/2″-4″

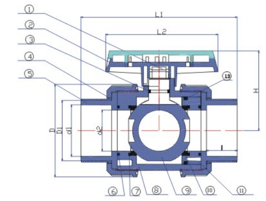
SINGLE UNION SPRING CHECK VALVE Specification of material

NO.	PART	MATERIAL	Q'TY
1	Union Connector	CPVC	1
2	Gate	CPVC	1
3	Union Nut	CPVC	1
4	Space Seal	EPDM	1
5	Spring	STAINLESS STEEL	1
6	Body	CPVC	1

Dimensions

Nom Size	NPT Thd./in	BSPT Thd./in	JIS d1	BS d1	ANSI d1	DIN d1	d	D2	D1	l	L
15mm(1/2″)	14	14	22	22	21.34	20	16	27.5	51.3	20.5	80
20mm(3/4″)	14	14	26	26	26.67	25	19	35.5	65.5	22	86.5
25mm(1″)	11.5	11	32	34	33.4	32	24	41.5	73.7	28.0	96
32mm(11/4″)	11.5	11	38	42	42.16	40	32	51.6	86.8	30.0	105
40mm(11/2″)	11.5	11	48	48	48.26	50	40	60.9	102	34.7	115.5
50mm(2″)	11.5	11	60	60	60.33	63	49.8	75	119.8	40	141

ERA CPVC VALVES 57-58



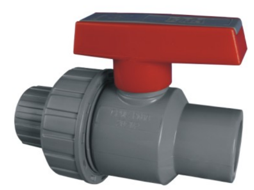
ITEM NO:CTB01
- SIZE:1/2″-4″
- END CONNECTOR: THREAD, SOCKET, FLANGE
- WORKING PRESSURE:150PSI

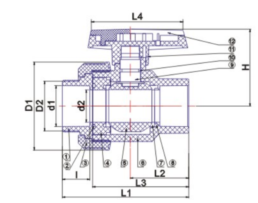
TRUE UNION BALL VALVE Specification of material

NO.	PART	MATERIAL	Q'TY	NO.	PART	MATERIAL	Q'TY
1	Stem	CPVC	1	7	O-Ring	EPDM	2
2	Handle	ABS	1	8	Body	CPVC	1
3	Stem O-Ring	EPDM	2	9	Ball	CPVC	1
4	Union Nut	CPVC	2	10	Seat Seal	PTFE	2
5	End Connector	CPVC	2	11	Seat Carrier	CPVC	1
6	Body O-Ring	EPDM	2	12	Carrier O-Ring	EPDM	1

Dimensions

Nom Size	NPT Thd./in	BSPT Thd./in	JIS d1	BS d1	ANSI d1	DIN d1	d2	D1	D	l	L1	L2	H
15mm(1/2″)	14	14	22	22	21.34	20	14	27.6	51.2	20.6	112.5	65	50.5
20mm(3/4″)	14	14	26	26	26.67	25	18.7	35.6	65.5	24.6	130.2	75	58.5
25mm(1″)	11.5	11	32	34	33.4	32	24	41.6	73.7	28	142.5	85	65.7
32mm(11/4″)	11.5	11	38	42	42.16	40	32	52	86.6	31	161	97	76.5
40mm(11/2″)	11.5	11	48	48	48.26	50	40	59.5	102	31.5	166.5	110	86
50mm(2″)	11.5	11	60	60	60.33	63	50	75	120	40	214	133.5	101.5
65mm(21/2″)	8	11	76	75	73.03	75	60	87.5	135	40	228	161	112.5
80mm(3″)	8	11	89	79	88.9	90	79	107.5	188	48	269	200	160.5
100mm(4″)	8	11	114	114	114.3	110	99	132	216	56	309	240	173.5





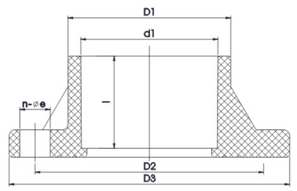
ITEM:CSU01
- SIZE:1/2″-4″
- END CONNECTOR: THREAD, SOCKET, FLANGE
- WORKING PRESSURE:150 PSI

SINGLE UNION BALL VALVE Specification of material

NO.	PART	MATERIAL	Q'TY	NO.	PART	MATERIAL	Q'TY
1	End Connector	CPVC	1	7	Seat Seal	PTFE	2
2	Carrier O-Ring	EPDM	1	8	O-Ring	EPDM	2
3	Union Nut	CPVC	1	9	Stem	CPVC	1
4	Seal Carrier	CPVC	1	10	Stem O-Ring	EPDM	2
5	Ball	CPVC	1	11	Handle	ABS	1
6	Body	CPVC	1				

Dimensions

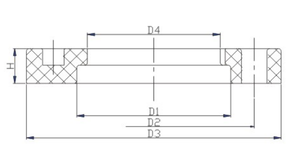
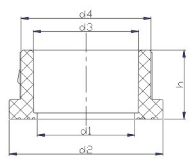
Nom Size	NPT Thd./in	BSPT Thd./in	JIS d1	BS d1	ANSI d1	DIN d1	d2	D2	D1	l	L1	L2	L3	L4	H
15mm(1/2″)	14	14	22	22	21.34	20	14	27.6	51.3	20.6	95.8	25.3	67.3	65	49.5
20mm(3/4″)	14	14	26	26	26.67	25	18.7	35.2	65.5	25	111.4	32.4	78.3	74.9	56.5
25mm(1″)	11.5	11	32	34	33.4	32	24	41.6	73.7	27.9	121.5	49.5	85.9	85	65
32mm(11/4″)	11.5	11	38	42	42.16	40	32	49	86.6	27.0	130	57	99	97.1	76.5
40mm(11/2″)	11.5	11	48	48	48.26	50	40	60.8	102	34.5	157.5	69.0	113.5	109.7	86.5
50mm(2″)	11.5	11	60	60	60.33	63	50	74.5	120	40	190	81	136.5	190.0	102
65mm(21/2″)	8	11	76	75	73.03	75	60	89	135	40	210	95.9	156	161	113.5
80mm(3″)	8	11	89	89	88.9	90	79	107.5	188	48	254.6	120.9	196.5	199.4	161.5
100mm(4″)	8	11	114	114	114.3	110	99	132	215.5	56	294	140.7	225	240	174

ITEM NO: CTF01
- SIZE:1/2″-4″
- 235PSI MAXIMUM INTERNAL PRESSURE RATING @73˚F
- MATERIAL：CPVC

TS FLANGE Dimensions

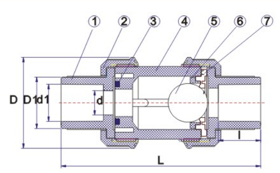
Nom Size	D1	D2	D3	d1 DIN	d1 ANSI	d1 JIS	d1 BS	l	n-φe
20mm(1/2″)	30	60.5	89	20	21.34	22	22	22	4-16
25mm(3/4″)	34	70.5	98	25	26.67	26	26	23.5	4-16
32mm(1″)	42.5	79.5	108	32	33.4	32	34	25.5	4-16
40mm(1-1/4″)	52	89.5	118	40	42.16	38	42	32	4-16
50mm(1-1/2″)	61.5	98.5	127	50	48.26	48	48	32.5	4-19
63mm(2″)	76	120.5	151.5	63	60.33	60	60	35.8	4-19
75mm(2-1/2″)	89.5	139.5	177.3	75	70.03	76	76	41	4-19
90mm(3″)	107.5	152.5	191	90	88.9	89	89	48.5	4-19
110mm(4″)	130.5	190.5	228.5	110	114.3	114	114	58.5	8-19
160mm(6″)	188	240	280	160	168.3	165	168.3	132	8-23
200mm(8″)	238	296	330	200	219.1	216	219.1	136	12-23

ITEM:CVF01
- SIZE:2½″-8″
- MATERIAL：CPVC

VAN STONE FLANGE Dimensions

Nom Size	d1	d2	d3	d4	h	D1	D2	D3	D4	H
2″	51	91.8	58	74.6	43.5	92.5	120	152.4	77.6	20.5
2½″	68	107.2	73.4	90.6	49	107.6	140	177.6	92.6	24.8
3″	77.2	119.9	89.4	107	54.9	120.6	152.5	191.4	109.4	26.4
4″	102.4	152.5	110.4	131.8	64.8	153	191	229.7	134	28.5
6″	156	206	160.5	189.2	85	207.5	241	284	192.5	32
8″	204.2	260	201	237	119	261	296	342.2	239	36.2
225	200	274	225	247.5	118	126	250	294.5	339	32
250	242	327	250	282	133	140	284	350	399.7	34.5
315	299	377	315	345	165.5	174	347.5	402.5	450.8	36.5

ITEM:VBC02

PVC BALL CHECK VALVE Specification of material

NO.	PART	MATERIAL	Q'TY	NO.	PART	MATERIAL	Q'TY
1	End Connector	CPVC	2	5	Ball	CPVC	1
2	Union Nut	CPVC	2	6	Gland	CPVC	1
3	Stem O-Ring	EPDM	1	7	Seat	EPDM	1
4	Body	CPVC	1				

Dimensions

Nom Size	NPT Thd./in	BSPT Thd./in	JIS d1	BS d1	ANSI d1	DIN d1	d	D1	D	l	L
15mm(1/2″)	14	14	22	22	21.34	20	15	27.5	51.3	20.5	105
20mm(3/4″)	14	14	26	26	26.67	25	19.5	35.0	65.5	25	116.5
25mm(1″)	11.5	11	32	34	33.4	32	25	41.6	73.7	28	130.5
32mm(11/4″)	11.5	11	38	42	42.16	40	32	51.6	86.8	29.5	148.5
40mm(11/2″)	11.5	11	48	48	48.26	50	40	60.9	102	34	168.5
50mm(2″)	11.5	11	60	60	60.33	63	50	75	119.8	40	189

7.1 Thermal Expansion and Thermal Stresses

It is important to consider thermal expansion when designing a system with CPVC pipe. Most thermoplastics have a coefficient of thermal expansion which is significantly higher than those of metals. However, CPVC has the lowest thermal expansion of any commonly used thermoplastic. The thermal expansion of a piping system subject to a temperature change can therefore be significant, and may need compensation in the system design. The expansion or contraction of thermoplastic pipe may be calculated from the following formula:

Expansion Loop Formula

$$L = \sqrt{\frac{3ED(\Delta L)}{2S}}$$

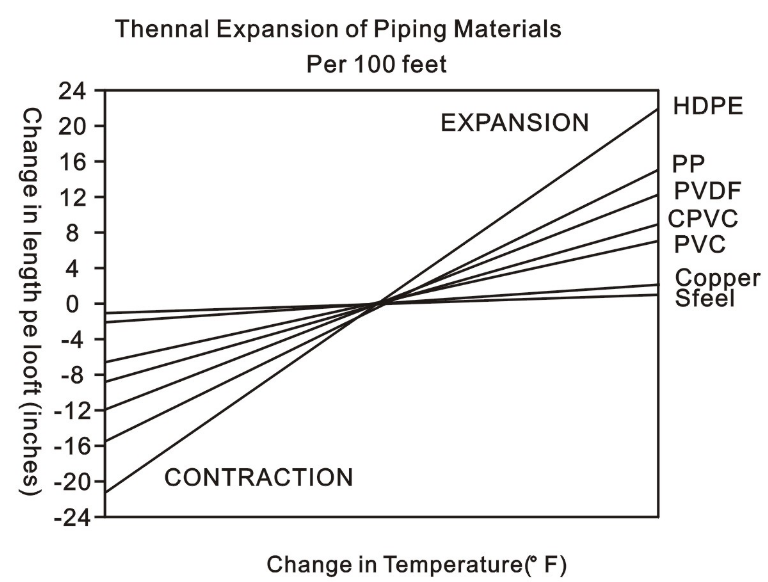
Where: L = Loop Length (in.)
E = Modulus of elasticity at maximum temperature (psi)
S = Working Stress at maximum temperature (psi)
D = Outside diameter of pipe (in.)
ΔL=Change in length due to change in temperature (in.)

Thermal Expansion Formula

$$\Delta L = Lp\,C\,\Delta T$$

Where: ΔL = Change in length due to change in temperature (in.)
Lp = Length of pipe (in.)
C = Coefficient of thermal expansion (in./in./°F)
= 3.4×10^{-5} in./in./°F for CPVC
ΔT = Change in temperature(°F)

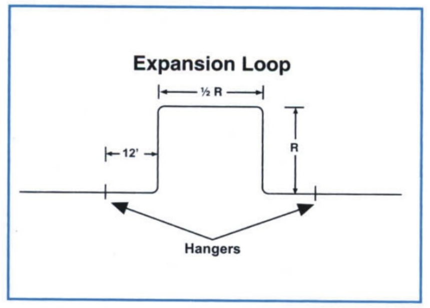
The thermal expansion and contraction of CPVC and other piping materials is displayed below.



7.2 Expansion Loops and Offsets

Expansion Loops and Offsets

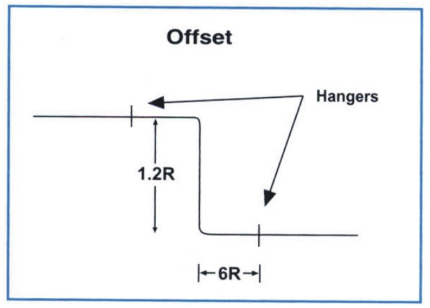
As a rule of thumb, if the total temperature change is greater than 30° F(17° C), compensation for thermal expansion should be included in the system design for pipe runs greater than 100ft(30m). there commended method of accommodating thermal expansion is to include expansion loops or offsets where necessary in the system design.



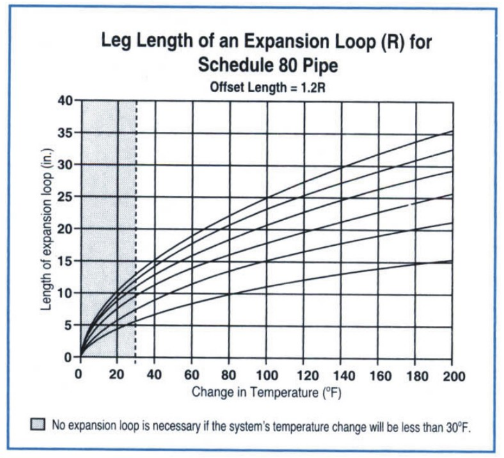
The Proper dimensions for an expansion loop may be calculated from the following formula

$$R=3.5\sqrt{D \times \Delta L}$$

Where R=leg length of the expansion loop
D=outside diameter of piping
ΔL=thermal expansion of pipe as calculated above



The proper leg length for an offset is 1.2 times the leg length for an expansion loop. The proper dimensioning of an expansion loop is presented graphically.



Expansion loops and offsets should be constructed with straight pipe and 90° elbows which are solvent cemented together. If threaded pipe is used in the rest of the system, it is still recommended that expansion loops and offsets be constructed with solvent cement in order to better handle the bending stresses incurred during expansion. The expansion loop or offset should be located approximately at the midpoint of the pipe run and should not have any supports or anchors installed in it. Valves or strainers should not be installed with in an expansion loop or offset. Supports should be installed approximately 1ft(0.3m)on either side of an expansion loop, and approximately half the length of the offset on either side of an offset.

Thermal stresses
If thermal expansion is not accommodated, it is absorbed in the pipe as an internal compression. This is creates a compressive stress in the pipe. The stress induced in a pipe which is restrained from expanding is calculated with the following formula:

S=Ey T
Where S=stress induced in the pipe
E=tensile modules
(see Section 4.1.1 and Figure 4.1.2A)
Y=codfficient of thermal expansion
ΔT=total temperature change of the system

INSTALLATION INFORMATION 61-62

7.3 Underground Installation

CPVC pipe and fittings can be installed underground, as these piping systems are flexible systems, proper attention should be given to burial conditions. Detail installation information is based:
1. ASTM D2774: Standard Recommended Practice for Underground Installation of Thermoplastic Piping
2. Industry Experience
For additional information and data, consult ASTM standards D2774, D2321, or F645.
Installation Procedures
This procedure will cover the typical steps encountered in underground installations: trench design, trench preparation, piping assembly, laying of pipe, and backfilling.

Inspection: Before installation, CPVC piping products should be thoroughly inspected for cuts, scratches,
gouges, or split ends which may have occurred to the product during shipping and handling. Do not use damaged
sections. Damaged sections must be cut out and discarded.

Trench Preparation

Width: The trench should be of adequate width to allow for convenient installation, but as narrow as possible depending on whether the piping will be assembled inside or outside of the trench.
Depth: The trench depth should be sufficient to place the pipe deep enough to meet frost, above-ground load,and any trench bedding requirements.
Frost: Piping at least 12 inches below the frost line.
Loads: Piping should be deep enough to keep external stress levels below acceptable design stress. Design stress will be determined by pipe size and operating temperature and may be governed by various codes.
Bedding: 4 to 6 inches underneath piping, if necessary.

Bedding and Backfilling

1. Even though sub-soil conditions vary widely from place to place, the pipe backfill should be stable and provide protection for the pipe.
2. The pipe should be surrounded with a granular material which is easily worked around the sides of the pipe backfilling should be performed in layer of 6″with each layer being sufficiently compacted to 85% to 95% compaction.
3. A mechanical tamper is recommended for compacting sand and gravel backfill which contain a significant proportion of fine grained material, such as silt and clay. If a tamper is not available, compacting should be done by hand.
4. The trench should be completely filled. The backfill should be placed and spread in fairly uniform layers to prevent any unfilled spaces or voids. Large rocks, stones, frozen clods, or other large debris should be removed. Heavy tampers or rolling equipment should only be used to consolidate only the final backfill.



7.4 JOINING ERA CPVC PIPE AND FITTINGS:

1. PREPARATION:
Before installation, prepare all the necessary materials.

2. CUTTINGS:
In order to make a proper and neat joint, please measure the pipe length accurately and make a small mark. Ensure that the pipe and fittings are size compatible. You can easily cut with a plastic pipe cutter or hacksaw blade. Cutting tubing as squarely as possible provides optimal bonding area within a joint.

3. DEBURRING/BEVELING:
Burrs and filings can prevent proper contact between tube and fitting during assembly and should be removed from the outside and inside of the pipe. Debarking tool, Scissors, pocket knife or file are suitable for this. A slight bevel on the bend of the tubing will ease entry of the tubing into the fitting socket.

3. FITTMENT TEST
Using a clean and dry rag to wipe any dirt or moisture from the fitting sockets and piping end. Test the fitment for pipe and fittings. The pipe should make contact with the socket wall 1/3 to 2/3 of the way into the fitting socket.

4. SOLVENT CEMENT APPLICATION:
For ERA CPVC Pipe and fittings system, please use only ERA suggested CPVC cement or joint failure may result (Please check 7.6 Solvent welding instructions for ERA CPVC piping system). When making a joint, apply a heavy, even coat of cement to the pipe end. Use the same applicator without additional cement to the pipe end. Use the same applicator without additional cement to apply a thin coat inside the fitting socket. Too much cement can cause clogged water ways.

5.ASSEMBLY:
Immediately insert the tubing into the fitting socket, rotate the tube 1/4 to 1/2 turn while inserting. This motion ensures and even distribution of cement within the joint. Properly align the fittings. Hold the assembly for approximately 10 seconds, allowing the joint to set-up.

6.SET AND CURE TIMES:
Solvent cement set and cure times are a function of pipe size, temperature and relative humidity. Curing time is shorter for drier environments, smaller sizes and higher temperatures. It requires 10 to 20 minutes for perfect joint.(Detail Cure time requirement please check 7.6 Table 2)

7.5 TIPS FOR INSTALLAITION

DO's FOR ALL CONSTRUCTION

- Read the manufacturer's installation instructions.
- Make sure all thread sealants, gasket lubricants, and fire stop materials are compatible with CPVC.
- Keep pipe and fittings in original packaging until needed.
- Use tools specifically designed for use with plastic pipe and fittings.
- Cut the pipe ends square.
- Deburr and bevel the pipe ends with a chamfering tool.
- Use the proper solvent cement and follow application instructions.
- Rotate the pipe at least □ turn when bottoming the pipe into the fitting socket.
- Avoid puddling of cement in fittings and pipe.
- Follow the cement manufacturer's recommended cure times prior to pressure testing.
- Allow CPVC tube slight movement to permit thermal expansion.
- Use plastic pipe straps that fully encircle the tube.
- Drill holes □" larger than the outside diameter of the tube, when penetrating wood studs.
- Use protective pipe isolators when penetrating steel studs.
- Use metallic clevis or tear drop hangers when suspending tube from all-thread rod.

DO's FOR UNDERSLAB CONSTRUCTION

- Use compatible sleeving material and tape.
- Securely tape the top of the sleeve to the pipe.
- Extend pipe sleeve 12" above and below the slab.
- Backfill and cover underground piping prior to spraying termiticide in preparation for concrete pour.

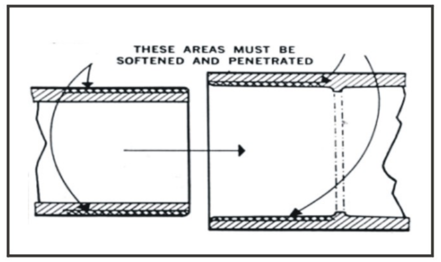
DON'T DO's FOR ALL CONSTRUCTION

- Do not use petroleum or solvent based sealants, lubricants, or fire stop materials.
- Do not use edible oils, such as Crisco, for a lubricant.
- Do not use solvent cement that has exceeded its shelf life or has become discolored or jelled.
- Do not pressure test until the recommended joint cure times are met.
- Do not thread, groove, or drill CPVC pipe.
- Do not overtighten or lock down the system.
- Do not install in cold weather without allowing for thermal expansion.
- Do not use tube straps which tend to restrict expansion/contraction.
- Do not use wood or plastic wedges that strain the tube as it passes through wood studs.
- Do not use pipe isolators as tube passes through wood studs
- Do not bend CPVC tube around DWV stacks causing the two materials to bind against each other.
- Do not terminate a run of tube against an immovable object (e.g., a floor joist).

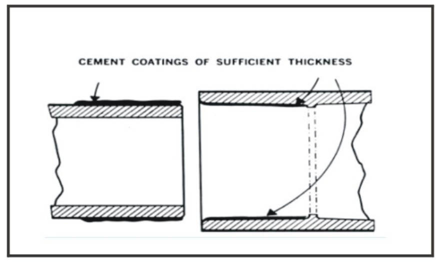
DON'T DO's FOR UNDERSLAB CONSTRUCTION

- Do not allow heavy concentrations of termiticides to come into direct and sustained contact with CPVC pipe.
- Do not inject termiticides into the annular space between the pipe wall and sleeving material.
- Do not spray termiticide, when preparing a slab, without first backfilling over underground piping.
- Do not cut sleeving too short. Sleeving material should extend 12" above and below the slab.

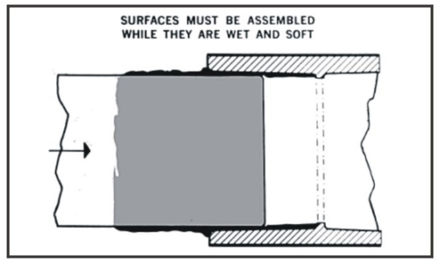
7.6 Solvent Welding Instruction for ERA CPVC pressure piping systems



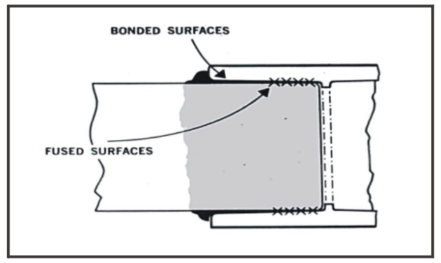
These Areas Must Be Softened And Penetrated



Cement Coatings Of Sufficient Thickness



Surfaces Must Be Assembled
While They Are Wet And Soft



Bonded Surfaces/Fused Surfaces

Notice for using ERA Glue:

1.When install in the hot weather, place cement and primer in the cooling place, wipe of the pipe and fitting with wet cloth to lower the temperature.
2.When install in the cold weather, place the cement in the warmer or normal temperature, prepare all the material in the heat working condition, including pipe and fitting.
3.Wipe off the excee water when install in winter. Such as ice and snow. Apply the primer and soften and surface first and then apply the cement.
4.Cold temperature needs longer dry time for pressure then the normal temperature, use the heating method to shorten the solidity and dry time, such as Electric blanket
5.When connecting the big size pipe, more people will be needed to help set up or use the stay tube machine, suggest 150mm 200 mm diameters 2-3 people,250mm -750mm diameters 3-4 people.

Table 1

Adhesive step details refer to Balley construction or product manual.								
Adhesive Connector Data (1QT=946ml≈1000g)								
Diameter	½″	1″	2″	4″	6″	8″	10″	12″
Connector number	400	150	90	40	15	8	3	4

Table 2

Bailey Adhesives average Solidify Schedule (connector movable time)					
Diameter / Environment Temperature	½″～1¼″	1½″～2″	2½″～8″	10″～15″	15″upward
16～38℃	2mins	5mins	30mins	2hours	4hours
5～16℃	5mins	10mins	2hours	8hours	16hours
-5～5℃	10mins	15mins	12hours	24hours	48hours

Table 3

Bailey Adhesives average dry schedule(under pressure test time)								
Relative humidity ≤60%/Diameter	½″～1¼″		1½″～2″		2½″～8″		10″～15″	15″upward
Temperature/adhesive strength	≤1.1Mpa	≤1.1~2.5Mpa	≤1.1Mpa	≤1.1~2.5Mpa	≤1.1Mpa	≤1.1~2.5Mpa	≤0.68Mpa	≤0.68Mpa
16～38℃	1hours	6hours	2hours	12hours	4hours	24hours	36hours	72hours
5～16℃	2hours	12hours	4hours	24hours	12hours	48hours	4day	6day
-5～5℃	6hours	48hours	24hours	96hours	48hours	8day	8day	14day





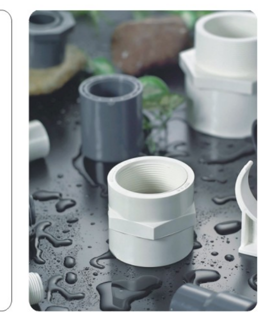




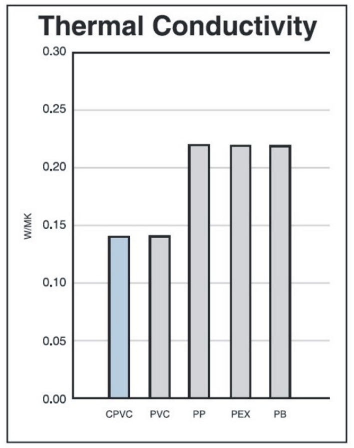






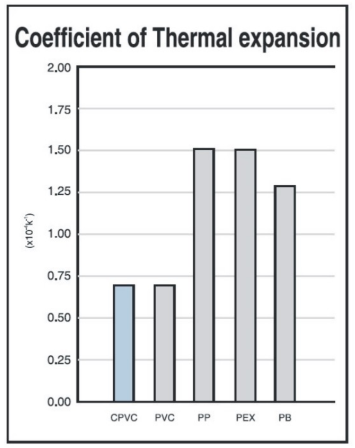


1.3.1 Features and Benefits



Most suitable for carrying drinking water
Retards bacterial growth, which keeps the water quality healthy and very good. They are suitable even for aggressive water pH levels of less than 6.5. CPVC Pipes meant for carrying water should have NSF certification according to ANSI/NSF Standard 61/ program policy 45 (RVCM levels in these pipes are so low as to be undetectable).

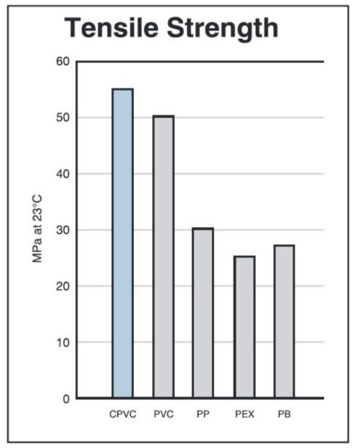
Hot and Cold water compatible:
CPVC Pipe is compatible with both hot and cold water. It withstands very high temperature compared to any other thermoplastic plumbing systems. Many solar and electric waterheaters have CPVC piping systems for heat efficiency and lower installation cost.



Low Thermal Expansion:
CPVC Pipes has a lower coefficient of thermal expansion than alternative plastics, reducing the amount that the pipe expands when hot water is running, again reducing unsightly looping of the pipe.

Completely leak proof
The cold welding using CPVC solvent is fast and simple, ensuring leak free installation for the entire life span of the piping system.

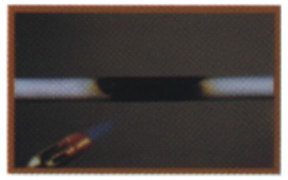
Superior Insulation:
CPVC pipe is more energy efficient than other alternative pipes. As an insulator it does not lose heat the way other pipes do. Heat loss and thermal expansion are reduced.



Strength:
CPVC Pipe is a highly resilient, though and durable product that has tensile strength and high impact strength. It will withstand at high pressure and temperature for long periods.

Fire Safety:
CPVC has a limiting Oxygen Index (LOI) of 60. Thus in air, CPVC pipe does not support combustion. No flaming drips, does not increase the fire load, low flame spread, low smoke generation.

Easy, Cold welding process:
CPVC uses a simple, solvent cement jointing method. Tools required are very simple and inexpensive (Deburring / Beveling tool and pipe cutter only) and avoid the need for an electrical source.


CPVC


Other Plastics

Initially when torch in applied


CPVC


Other Plastics

After torch is removed, other plastics continue to bum

CHARACTERISTICS 07-08

1.4 Field of Applications:

- The excellent qualities of ERA CPVC Pipe and fittings make them ideal for
- Hot and cold water distribution in residential, industrial and public projects.
- Carrying drinking water and food liquids
- Water and waste water treatment systems
- Transportation of chemical and hot corrosive fluids, which includes a wide variety of inorganic acids, bases used in chemical processing
- Use in industries like metal finishing, plating and treatment, pulp and paper, air pollution control, mining, aerospace, textile, food and beverage processing, fine sprinkler piping and municipal projects.
- Use as high tension cable protection pipe for electric net improvement (Large dia. CPVC Pipes).
- Solar heating, central heating and radiant floor heating application


WATER TREATMENTS


SWIMMING POOL

HOSPITALS


GYMNASIUN


HIGH AND LOW RISE BUILDINGS


HOMES AND APARTMENTS

1.5 BASIC PHYSICAL PROPRETIES

PROPERTY	TEST	CONDITION	ENGLISH UNITS	SI UNITS
GENERAL:				
Specific Gravity	ASTM D 792	73° F/23℃	1.55g/cm³	1.55g/cm³
Specific Volume		73° F/23℃	0.645cm³/g	0.645cm³/g
Water Absorption	ASTM D 570	73° F/23℃ 212° F/100℃	+0.03% +0.55%	+0.03% +0.55%
Rockwell Hardness	ASTM D 785	73° F/23℃	119	
Cell Class	ASTM D 1784		23447-B	
MECHANICAL:				
Izod Impact	ASTM D 256	73° F/23℃	1.5ft lbs/in o.n.	80J/m o.n.
Tensile Strength	ASTM D 638	73° F/23℃	8000psi	55N/mm²
Tensile Modulus	ASTM D 638	73° F/23℃	360,000psi	2500N/mm²
Flexural Strength	ASTM D 790	73° F/23℃	15,100psi	104N/mm²
Flexural Modulus	ASTM D 790	73° F/23℃	415,000psi	2860N/mm²
Compressive Strength	ASTM D 695	73° F/23℃	10,100psi	70N/mm²
Compressive Modulus	ASTM D 695	73° F/23℃	196,000psi	1350N/mm²
THERMAL:				
Coefficient of Thermal Expansion	ASTM D 696		3.4×10^{-5} in/in/° F	6.3×10^{-5} m/m/ °K
Thermal Conductivity	ASTM C 177		0.95BTU in/hr/ft² /°F	0.14 Wm/° K/m²
Heat Distortion Temperature	ASTM C 638		217° F	103℃
Heat Capacity	DSC	73° F/23℃ 212° F/100℃	0.21 BTU/lb° F 0.26 BTU/lb° F	0.9 J/g° K 1.10 J/g° K
FLAMMBILITY:				
Flammability Rating	UL 94	0.062in/0.157cm	V-0.5VB,5VA	
Flame Spread	ASTM E84		15	
Smoke Developed	ASTM E84		70-125	
Limiting Oxygen Index	ASTM D 2863		60%	
ELECTRICAL:				
Dielectric Strength	ASTM D 147		1250V/mil	492,000V/cm
Dielectric Constant	ASTM D 150	60HZ,30° F/-1℃	3.70	3.70
Power Factor	ASTM D 150	1000HZ	0.007%	0.007%
Volume Resistivity	ASTM D 257	73° F/23℃	3.4×10^{15} ohm/cm	3.4×10^{15} ohm/cm

CHARACTERISTICS 09-10

1.6 Important CPVC Related Standards

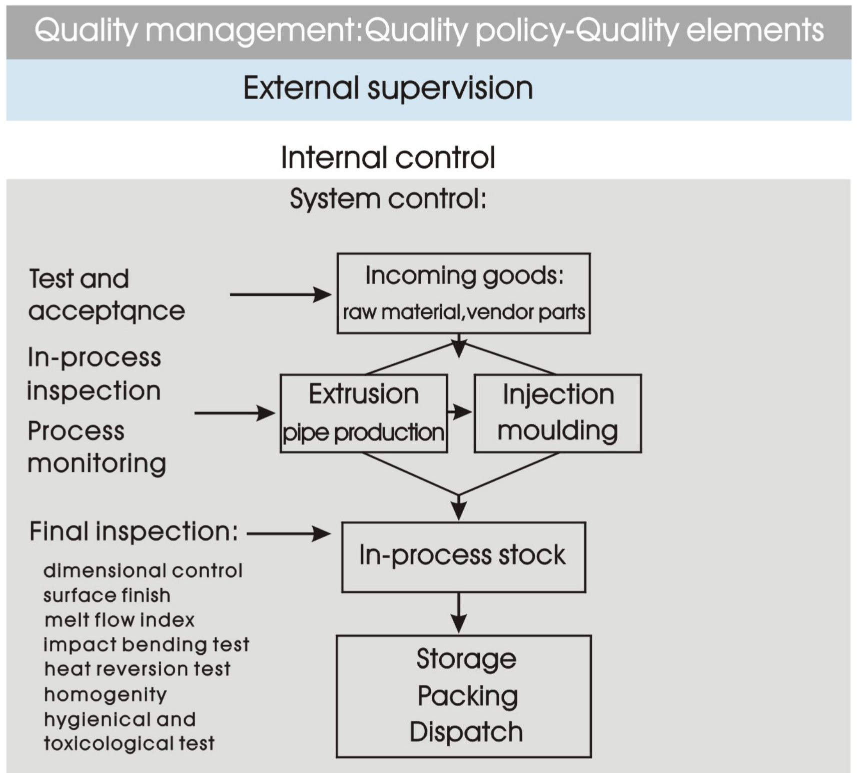
Standard	Topic
ASTM D2846	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot & Cold water distribution systems.
ASTM F439	Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. Schedule 80.
ASTM F437	Standard Specification for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80
ASTM F441	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, SCH 40 & 80.
ASTM F493	Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe & Fittings.
ASTM D1784	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
DIN-8079	CPVC Pipes Dimension
DIN-8080	CPVC Pipes General Quality Requirements and Testing
BS 7291/4	CPVC Pipes and Fittings for Hot and Cold Water Distribution
EN-ISO 15877:2003	Plastics Piping Systems for Hot and Cold Water Installations -Chlorinated Poly Vinyl Chloride (PVC - C)
NFT 54-014-1/2	CPVC Pipes and Fittings for Hot and Cold Water Distribution
ANSI/NSF Standard 61	CPVC Pipes-Potable Water Supply This is a critical certification without which CPVC Pipes cannot be used for carrying potable water

2 Quality assurance

2.1 ERA quality management system

Quality process is an integral part of everything ERA does. Quality action teams of ERA thoughout the world are continually working to improve products, processes and processes and procedures to better meet customer requirements.

We have learned and adapted many of the best practices of successful quality management systems to create our own ERA Quality System. There is no end for Quality. ERA quality management system is designed as below:



2.2 System Control

The production of a quality controlled pipe system demands the supervision,regulation and control of all work operations. All results and processes have to be documented.

This requires
Test and acceptance of incoming goods
Process control
In-process inspection and test
Final inspection and test

These standards and guidelines detail the minimum requirements for internal control. Conformance o the standards is verified by independent institutes in form of internal audits and laboratory tests.

ERA has many years experience in extrusion and injection moulding and is the market leader and pioneer in the manufacture of polypropylene supply systems.
This experience is reflected in internal quality standards and laid down procedures,which Are taken strongest note of and are documented by the constant quality of our products.

QUALITY ASSURANCE 11-12

2.3 Internal Control

Trained and qualified employees and a modern equipped laboratory ensure that all tests are carried out and regulations are complied with in accordance with the quality control policy, which includes
control of inspection, measuring and test equipment
process and production control
receiving inspection and test
in-process inspection and test
final inspection and test
All internal quality control tests are documented and recorded in acc. With the quality control policy.

2.3.1 Test and Acceptance of Incoming Goods

All incoming goods are subject to a test. This ensures that incoming products conform to specified requirements. Goods, which have not been tested are not released for production

In-process inspection and Test
The quality plan requires that tests and inspections are carried out before and during production. At the start of production all quality relevant data are checked by the quality assurance department.
Preproduction samples are tested by the laboratory technicians for

- Surface finish
- Dimensional accuracy of the test samples
- Data from extrusion and injection moulding machines

The goods are only released for production if optimal test results are achieved. These tests are carried out at the beginning of each production series to ensure perfect system quality.

2.3.2 Process control

Ultrasonic measurement and process data recording in the field of extrusion are only one example of the extensive quality control process.

This equipment enables constant observation and control of production, Ultrasonics automatically measure and report any deviations in tolerance to the cutting device on the extrusion machine so that the sizing plant automatically isolates a substandard product. This ensures that only perfect quality products are packed and stored.

All data received during production is analyzed in detail.

2.3.3 Final inspection and Test

The quality plan requires that inspections and tests are carried out on all finished products. The results are documented in test reports.

Finished products are only released to stock when all tests and inspections conform to the prescribed procedures and specifications.

The final inspection and test includes time laps test procedures. This enables statements regarding the usability of the products in their later field of application.

These tests are the method for quality assurance during production and for design tests. This is to discover and remove production weaknesses. The results document the system quality and serve to optimize the manufacturing processes. The final inspection and test covers the following test procedures:

Dimensional control
Surface finish
Measurement of the melt flow index
Impact bending test
Heat reversion test
Homogeneity of the material
Behaviour under long period stressing

QUALITY ASSURANCE 13-14

2.4 External Control

Exernal supervision consists of tests of a fixed scope and at fixed intervals. The respective supervising institutions appoint authorized test organizations to carry out these tests.
The external supervision includes external tests of the products and
a）internal audit of ERA's quality assurance system and test procedures
b）calibration of the test equipment
c）hygienic and toxology tests
the results of the supervisory visits as well as external tests made on pipe and fitting samples are confirmed to ERA in test certificates.

2.5 Storage/Packing/Dispatch

Upon successful release the products are stored in suitable warehouses.
Internal instructions control the method of packing, storage and dispatch of the products. The warehouse staff is responsible for control of the stored product.

1. Characteristics

1.1 General

Chlorinated Polyvinyl Chloride (CPVC) is a rigid, thermoplastic pipe and fitting material approved for potable water distribution throughout the World. CPVC pipe is joined to CPVC fittings with solvent cement and requires only inexpensive, readily available, and easy-to-use tools.
ERA CPVC Pipes and fittings are made of high performance CPVC material. Its physical and chemical properties make ERA a versatile piping system in a wide rang of applications in different industries.
ERA have various standard of CPVC pipes and fittings which fulfill most demands from all over the world. Till now, ERA has CPVC CTS Pipe fittings (ASTM D 2846), CPVC SCH80 Pipe fittings, CPVC DIN Pipe fittings, CPVC Valves suitable for DIN, SCH80,BS,JIS...

CHARACTERISTICS 05-06

1.2 Raw material Advantages

CPVC has been used successfully in residential, commercial, and industrial applications for over 50 years. Its most common application is in single-family and multifamily hot and cold water distribution systems. CPVC can also be used for residential fire sprinkler systems, gray water systems, reclaimed water, chemical drain waste systems, industrial processing, and commercial and high-rise construction. The key advantages of CPVC are its low cost, resistance to corrosion, pitting, and scaling, its ease of installation, and its light weight

1.2.1 Excellent Chemical Resistance

ERA CPVC pipe and fittings are chemically inert to most mineral acids, bases and salts, as well as aliphatic hydrocarbons. In addition, these systems are not subject to galvanic corrosion.

General Chemical Resistance Chart for CPVC			
Excellent	**Good**	**Fair**	**Poor**
Weak Acids &Caustics	Halogens	---	---
Salts	Strong Oxidants	---	---
Strong Caustics	---	---	---
Strong Mineral	---	---	---

1.2.2 Superior Mechanical Properties

Comparing with other engineering thermoplastic such as PVC, ABS, PP and PPR, ERA CPVC Pipe and fittings has the maximum working pressure and support spacing. It provides the user with the superior operating range and design space, and its expected life for pressureing service is up to 50 years or more, which much better than other thermoplastic material.

1.3 ERA CPVC Advantages