
PLAST
Arkan

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Arkan

INTRODUCTION

More than 25 years of experience in the field of plastic manufacturing, we have been able to build a good reputation and confidence for Arkan plast, which makes us proud in front of all our clients in different markets. That was a great motivation to us to set up Arkan factory that has been created to keep up with the last updates reached by plastic pipe technology and its accessories
that are made from pvc and ppr material. The company manufactures PVC pipes for all purposes, pressure pipes for transporting the drinking water and sanitation, drainage pipes and irrigation pipes, and telephone and electric cables. The diameters of which start from 20 mm till 400 mm.

Arkan Pipes are Produced according to the following specification:

German specification for drinking water and irrigation DIN8026-8061
American specification ASTM D -2241 SDR SERies
American specification ATM D - 1785 SCH40 - SCH80.
British specification BS 3505

Arkan Pipes Features:

- Durability and shock, acid and alkali resistance
- Rust and corrosion resistance
- Ease of installation and maintenance
- High electricity insulation ability
- Not to influence color or taste or smell of the transported fluid
- High efficiency for fluid transfer due to the smoothness of the inner surface and low coefficient for friction and lack of formation of sediment in the inner surface.
- U.P.V.C Pipes are considered as the most suitable types of pipes for use in highly aggressive soils because of its high resistance to soil salts of high concentration.
- They do not have a bad effect on the health, and they are resistant to bacteria and rodents.
- Arkan pipes are characterized by accurate follow up for all stages of production and stability and measurements based on pipe height, and the shape and dimensions of the head match the technical specification.

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Registration Certificate

This is to certify that the management system of

Ak Arkan Plast

have been assessed by AJA EGYPT and registered against the requirements of

ISO 9001:2015

Scope of Registration

Production of (PVC & PPR) Pipes & Fittings.

Sites Registered

Plot Number 17, Block 12002, North Extension, Industrial Zone, El Obour City, Al Qaliyubia, Egypt.

Certificate Number:	**AJAEG/22/10038Q**	**Date Original Registration:**	**12th October 2022**
Expiry Date:	**11th October 2025**	**Date of Re-registration:**	**N/A**
Previous Expiry Date:	**N/A**	**Next Re-Audit Due Date:**	**11th September 2025**
Revision Date:	**N/A**	**EAC:**	**14**

Mustafa Osman

Operation Manager, AJA EGYPT

EGAC Accredited QMS Certification CAB # 012207

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

AJA

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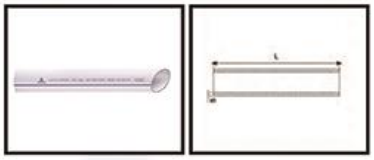
www.ajaegypt.com

Drainage Solutions
Products Details

Pipes

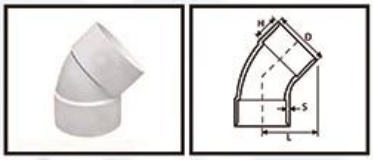
	Dn	L(m)	S(mm)	Kg/m
	48	6	2.5	0.582
	48	6	3.7	0.819
Export	50	6	2.5	0.618
Export	50	6	3.7	0.871
	60	6	2.7	0.796
	60	6	3.9	1.109
Export	63	6	1.9	0.608
Export	63	6	3	0.919
	75	6	3	1.103
	75	6	4	1.414
	75	6	5	1.724
Export	90	6	3	1.333
	110	6	2.8	1.542
	110	6	3	1.623
	110	6	4	2.111
	110	6	5	2.567
	160	6	4	3.130
	160	6	5	3.909

Multi-Layer Pipes



Dn	L	S	Kg/m
75	6	3	1.067
75	6	4	1.381
110	6	3	1.61
110	6	4	2.114
110	6	5	2.575
160	6	4	3.034
160	6	5	3.733

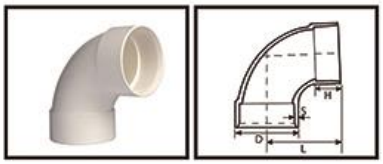
Elbow 45°



B=45 degree

	Dn	L(m)	H(mm)	S(mm)	Kg
	48	50	30	4	0.080
Export	50	52	33	4	0.070
	60	61	35	4	0.110
Export	63	60	32	4	0.115
	75	70	40	4	0.180
Export	90	81	42	4.5	0.235
	110	93	45	5.5	0.390
	160	140	70	6	0.921

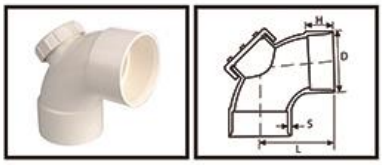
Elbow 87.5°



B=87.5 degree

	Dn	L(m)	H(mm)	S(mm)	Kg
	48	72	30	4	0.110
Export	50	83	33	4	0.100
	60	92	35	4	0.180
Export	63	105	32	4	0.143
	75	109	40	4	0.290
Export	90	143.5	42	4.5	0.313
	110	147	45	6	0.680
	160	208	70	6	1.490

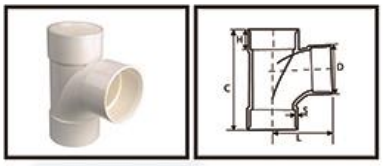
Elbow 87.5° with access



B=87.5 degree

Dn	L	H	S	Door	Kg
60	91	85	4	75	0.242
75	109	40	4.5	75	0.355
110	145	45	6	110	0.676
160	209	70	6	110	1.490

Tee 87.5°



B=87.5 degree

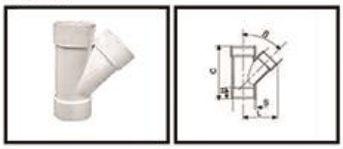
	Dn	L	H	S	C	Kg
	48	71	30	4	127	0.150
Export	50	78	32	4	140	0.140
	60	86	35	4	153	0.226
Export	63	71	32	4	139	0.200
	75	100	40	4.5	189	0.365
Export	90	95	42	4.5	187.5	0.425
	110	142	45	6	243	0.933
	160	346	70	6	345	1.885

Tee 87.5° /Reducer

B=87.5 degree

D1	D2	H1	H2	C	L	S1	S2	Kg
75	60	40	34	167	96	4.5	4	0.300
110	50	46	33	200	103	6	5.5	0.670
110	60	45	36	180	105	6	4.5	0.632
110	75	45	40	196	121	6	4	0.680
160	110	71	45	288	169	6	6	1.420

Tee 45°



B=45 degree

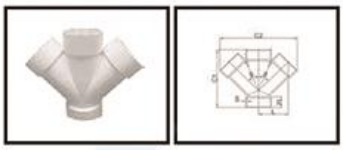
	Dn	L	H	S	C	Kg
	48	86	30	4	142	0.170
Export	50	95	32	4	153	0.150
	60	103	35	4	165	0.279
Export	63	112	33.6	4	177.5	0.275
	75	128	40	4.5	202	0.414
Export	90	153	43.7	4.5	238	0.600
	110	182	45	6	281	1.100
	160	250	71	6	390	2.565

Tee 45°/Reducer

B=45 degree

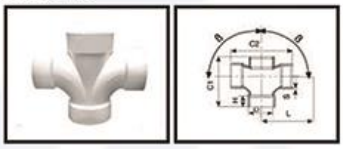
	D1	D2	H1	H2	C	L	S1	S2	Kg
Export	50	110	47	36	240	132	5.5	4	0.680
	60	110	45	37	222	140	6	4	0.740
	75	110	46	40	260	155	6	5	0.910
	160	110	71	45	320	230	6	6	1.920

Cross 110/45°



Dn	L	H	S	C1	C2	Kg
110	145	51.3	6.5	281	367.8	1.560

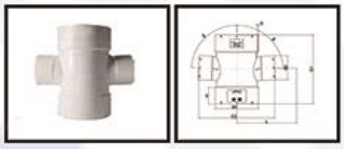
Cross 87.5°



B=87.5 degree

Dn	L	H	S	C1	C2	Kg
75	104	46	4.5	189	207	0.500
110	145	45	6.5	293	245	1.326

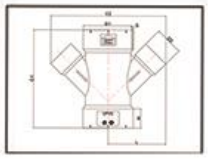
Cross 87.5° /Reducer



B=87.5 degree

	D1	D2	L	H	S	C1	C2	Kg
Export	110	50	107	47	5.5	200	214	0.720
	110	60	105	47	5.5	200	214.5	0.730
	110	75	114	47	5.5	200	255	0.875

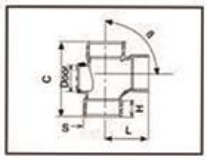
Cross 45°/Reducer

B=87.5 degree

	D1	D2	L	H	S	C1	C2	Kg
Export	110	50	112	47	5.5	240	265	0.755
	110	60	115.5	47	5.5	240	279	0.805
	110	75	126	47	5.5	240	312	0.890

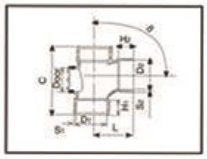
Tee 87.5° with access door

B=87.5degree

Dn	L	H	S	C	Kg
60	86	36	145	4	0.301
75	100	40	189	4.5	0.441
110	141	45	242	6	0.920
160	203	71	345	6	2.000

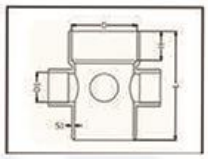
Tee 87.5° /Reducer with access door

B=45 degree

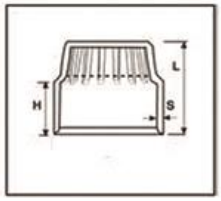
D1	D2	H1	H2	C	L	S1	S2	Kg
75	60	40	35	65	96	4.5	4	0.365
110	60	45	35	185	107	6	5	0.710
110	75	45	36	199	122	6	6	0.745
160	110	71	45	288	214	6	6	1.505

Drainage Collector

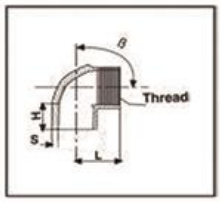
	Dn	D1	D2	L	H	S	C	Kg
Export	110	50	63	95.5	55	5	186.18	0.670
	110	48	48	95.5	55	5	186.18	0.660
	110	60	60	95.5	55	5	186.18	0.706

Air Vent



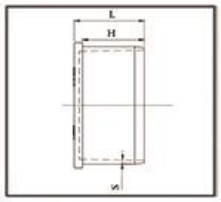
Dn	L	H	S	Kg
60	88	35	3	0.060
75	102	46	3	0.090
110	102	52	4	0.165

Elbow with inner thread 87.5°



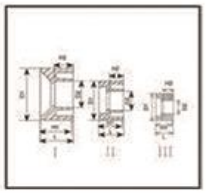
	Dn	Thread	H	S	C	Kg
	48	1.25"	30	4	59	0.120
	48	1.5"	30	4	58	0.110
Export	50	1.25"	30	4	58	0.110
Export	50	1.5"	30	4	58	0.100

Floor Drain Plug



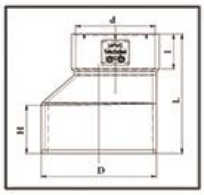
	Dn	L	H	S	Kg
	48	28	24	3	0.026
Export	**50**	28.5	25	3	0.030
	60	29	25	3.5	0.035
	63	35	30	5	0.04
	75	69	65	4.5	0.05
	110	111	40	3.5	0.140
	160	43	38	5	0.23

Reducing Bush



	Type	D1	D2	H1	H2	L	Kg
	III	48	32	31	29	38	0.039
	III	48	1"	31	29	38	0.035
	III	50	48	33	28	43	0.010
	III	60	48	36	30	45	0.060
	III	75	48	38	33	48	0.125
Export	II	75	50	40	36	50	0.110
	II	75	60	42	38	52	0.110
Export	II	110	50	46	38	58	0.250
	II	110	60	50	38	61	0.260
	I	110	75	50	38	61	0.266
	I	110	114	36	34	40	0.060
	I	160	110	65	56	77	0.533

Eccentric Reducer

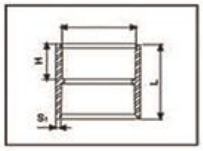


	D	d	H	I	L	Kg
Export	90	63	43.5	33	117	0.170
Export	90	75	43.5	38	117	0.180
	110	48	53	30	132	0.205
Export	110	50	54	38	132	0.235
	110	60	54	38	132	0.240
Export	110	63	54	38	132	0.245
	110	75	54	40	132	0.276
Export	110	90	54	45	132	0.278
	160	110	67	48	167	0500

Cleaning insert with access Door

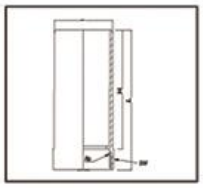
	Dn	L	H	S	Door	Kg
Export	50	72	38	3.6	65	0.098
	60	86	43	4	75	0.125
	63	65	40	3.6	75	0.113
	75	100	50	4.5	75	0.145
	90	82	43	4.5	75	0.166
	110	89	50	5	110	0.322
	160	125	78	6	110	0.607

Socket



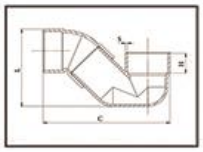
	Dn	L	H	S	Kg
	32	48	22	3	0.030
	1(Inch)	48	22	3	0.028
	48	65	31	4	0.060
Export	50	72	36	4	0.050
	60	80	40	4	0.090
Export	63	66.5	32	4	0.080
	75	94	45	4.5	0.150
Export	90	87	42	4.5	0.166
	110	109	52	5.5	0.330
	160	145.5	70	6	0.650

Socket with inner Thread



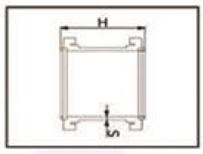
Dn	Thread	L	H	Kg
48	1.5"	100	85	0.076

Siphon



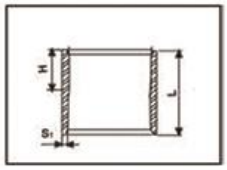
Dn	L	H	S	C	Kg
50	100	30	3	170	0.165
75	150	39	4.3	240	0.467
110	45	45	6	305	1.218

Repairing Socket With Expansion joint



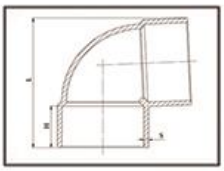
Dn	H	S	Kg
75	82	4	0.335
110	142	5	0.685
160	175	5	0.705

Repairing socket

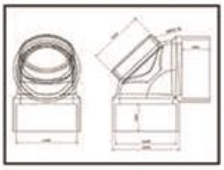
Dn	L	S	Kg
160	145.5	5	0.645

Short Elbow 87.5°

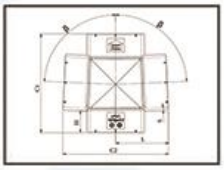
Dn	L	H	S	Kg
48	91	32	4	0.105
50	91	32	3	0.090
60	109	36	4	0.160
75	125	40	4	0.220
110	114	50	6	0.683

Short Elbow 87.5° with access door

Dn	L	H	S	Door	Kg
110	114	50	5.5	100	0.685

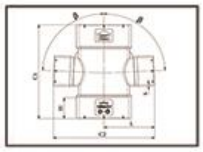
Short cross 87.5°

B=87.5 degree

Dn	L	H	S	C1	C2	Kg
60	71	35	4.2	139	142	0.250
63	71	35	2.7	139	142	0.195
90	95	42	4.5	187	190	0.500
110	112	48	5.7	216	225	0.870
160	158	68	6	305	316	1.860

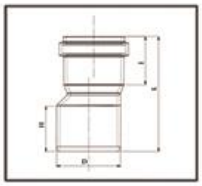
Short cross 87.5°/Reducer

B=87.5 degree

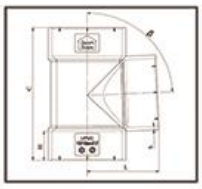
D1	D2	L	H	S	C1	C2	Kg
90	**63**	94.5	42	2.7	187	189	0.415
110	48	104	48	3.7	216	208	0.675
110	50	103	48	3.6	216	207	0.670
110	60	112	48	4.2	216	225	0.695
110	**63**	112	48	3.9	216	225	0.690
110	75	112.5	48	4.2	216	225	0.690
110	90	113	48	4.9	216	226	0.710

Eccentric reducer with gasket

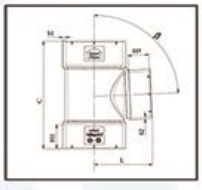
D	d	H	I	L	Kg
63	50	44	46	115	0.095
60	50	44	46	112	0.09

Short tee 87.5°

D	L	H	S	C	Kg
110	112	48	5.7	216	0.76

Short Tee 87.5°/Reducer

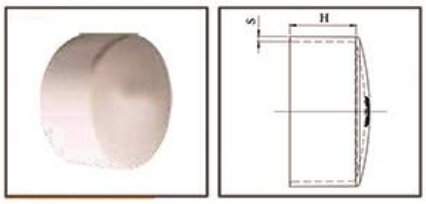



Dn1	Dn2	H1	H2	C	L	S1	S2	Kg
110	48	48	32	216	104	5.7	3.7	0.675
110	50	48	30	216	103	5.7	3.6	0.67
110	60	48	36	216	112	5.7	4.2	0.695
110	**63**	48	36	216	112	5.7	3.9	0.69
110	75	48	40	216	112.5	5.7	4.2	0.69
110	90	48	42	216	113	5.7	4.5	0.71

Expansion Joint

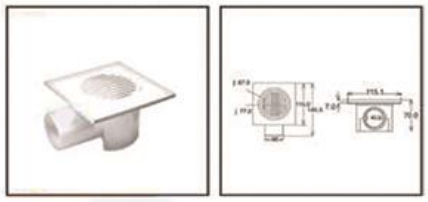
L	D1	D2	S	Kg
30	75	85	4	0.090
30	110	122.5	4	0.180
38	161	180	7.5	0.323

Pipe Plug



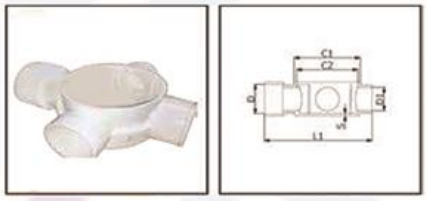
Dn	H	S	kG
1"	21.5	2.3	0.013
32	21.5	2.3	0.01
50	26	2.3	0.022
75	35.5	3	0.05
160	51.5	3	0.195

Small drain



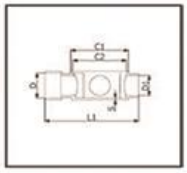
L1	L2	L3	D	D1	D2	D3	X	S	Kg
84	145	115	48	87	77	40	115	7	0.230

Drain 7 cm



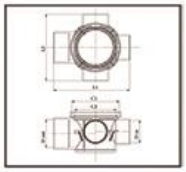
Measurements in mm.							
D in	D out	C1	C2	L1	L2	S2	Kg
48	60	117	110	200	175	5	0.370

Drain 8.8 cm

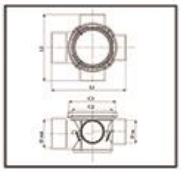
D in	D out	C1	C2	L1	S	Kg
75	60	111.5	108	220	4.5	0.475

Floor drain

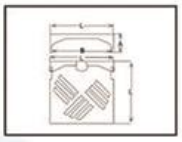
	D in	D out	C1	C2	L1	L2	S2	Kg
	48	75	125	110	193	170	4	0.450
	48	60	125	110	180	170	4	0.425
	60	75	125	110	193	180	4	0.470
	60	60	125	110	193	180	4	0.465
Export	50	75	125	110	220	180	4	0.430
	48/60	75	130	120	197	185	4	0.570
	50	60	125	110	195	180	4	0.400
	110	110	201	200	280	280	5	1.500
	110	160	170	160	240	240	5	0.800

Floor drain with Oder trap

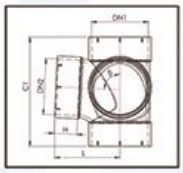
D in	D out	C1	C2	L1	L2	S	Kg
48	60	125	110	191	60	4	054
48	75	125	110	196	180	4	0.575
60	60	125	110	195	170	4	0.570
60	75	125	110	200	180	4	0.700
63	90	125	110	211	180	3	0.545

Open cover

	L	A	B	Kg
Closed	192	56	182	0.280
Open	192	56	182	0.270

Side cross

Dn1/Dn2	B	C1	C2	C3	S	H	L	Kg
110	87.5°	216	188	188	5.6	45	127	0.935

FEATURES

Products Information

ARKAN PVC-U underground and sewage piping system is one of the most comprehensive on the market with a full range from 48mm to 160mm in diameter.

Arkan was a pioneer in the development and marketing of PVC-U systems for this application and is well known for its excellent product quality.

The advantages of the **ARKAN** pipes are well accepted, they are lightweight, resistant to a wide variety of chemicals, do not support combustion, they are not subject to electrolytic corrosion. The fittings are designed with a high impact strength, which helps prevent damage during handling and installation. All parts assemble easily using solvent cement to accommodate thermal or ground movement. Pipes and fittings are manufactured according to ES 1717,1SO 4435, DIN 19534, DIN EN 1401, DIN EN 1329, DIN 80618062/, ISO 3633, ASTM 1)3311, and ASTM D2665 standards suitable for use below ground for general municipal drainage. All products comply with or exceed relevant International standards to ensure reliability and long-lasting service.

Arkan System Information

Material	Poly Vinyl Chloride - Un-Plasticized
Size	48mm - 160 mm
Area of application	Waste water pipes in buildings and laid above and underground inside and outside the building structure Water Management systems Ducting systems
Jointing	PVC Solvent Cement
Color	Pipe:- White by two blue stripes Fittings:- White
Installation temperature	Up to 60°C
Installation location	Indoors ,Outdoors and below ground

Scope of Application

Arkan pipes and fittings are mainly used for Non- pressure drainage lines resistant to hot water for domestic and industrial.

In single and multiple family house construction
In apartment construction
In renovation construction
In industrial plants
In large scale kitchens and laundries
In schools, universities
In hotels, convalescent homes
In infirmaries and many others

Inside these buildings the Arkan system can be used for:

Individual and collective lines
Downpipes
Ventilation pipes
Interior rain water pipes
Pipes for central dust extraction systems
Pipes, fittings and sealing elements are also suitable for the transportation of chemically aggressive
Electric and telecommunication cables ducts
Air conditioning drainage system

Chemical Resistance

Keywords

Keys:
+ = resistant
o = practically resistant
o = partially resistant
o = not very resistant
-- = not resistant

No:
Details = not tested
Any = any concentration
conc. = concentrated solution
low =low concentration
serv = service concentration
stand = standard, customary
disc. = discoloured
aq = aqueous solution
sat. = cold saturated
b.p. = boiling point

Features

ISO /TR7473 -1981(E)

TABLE 1 Chemical resistance of u unplasticized PVC, not subjected to mechanical stress, to various fluids at 20°C and 60°C.

Chemical or product	Conc.%	20°c	60°c
Acetaldehyde	40 %	NS	-
Acetaldehyde	100 %	NS	-
Acetic acid	Glacial	NS	NS
Acetic acid	25 %	S	L
Acetic acid	60 %	S	L
Acetic anhydride	100 %	NS	NS
Acetone	100 %	NS	NS
Adipic acid	Sat. sol.	S	L
Allyl alcohol	96 %	L	NS
Aluminum chloride	Sat. sol.	S	S
Aluminum potassium sulphate	Sat. sol.	S	S
Aluminum sulphate	Sat. sol.	S	S
Ammonia, dry gas	100 %	S	S
Ammonia, liquid	100 %	L	NS
Ammonia, aqueous	Dil, sol.	S	L
Ammonium chloride	Sat. sol.	S	S
Ammonium fluoride	20 %	S	L
Ammonium nitrate	Sat. sol.	S	S
Ammonium sulphate	Sat. sol.	S	S
Amyl acetate [1 -Pentanol acetate)	100 %	NS	NS
Amyl alcohol t I-Pentancll	100 %	S	L
Aniline	100 %	NS	NS
Aniline	Sat. sol.	NS	NS
Aniline hydrochloride	Sat. sol.	NS	NS
Antimony { Ill } chloride	90 %	S	S
Anthraquinone sulphonic acid	sol.	S	L
Arsenic acid	Dil, sol.	S	-
Arsenic acid	Sat. sol.	S	L
Beer	-	S	S
Benzaldehyde	0.1 %	NS	NS
Benzene	100 %	NS	NS
Benzoic acid	Sat. sol.	L	NS
Borax	Sat. sol.	S	L
Boric acid	Dil, sol.	S	L
Bromic acid	10 %	S	-

ISO /TR7473 -1981(E)
TABLE 2 Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20°C and 60°C.

Chemical or product	Conc.%	20°c	60°c
Bromine, liquid	100 %	NS	NS
Butadiene	100 %	S	S
Butane, gas	100 %	s	--
Butanols	Up to 100 %	s	L
Butyl acetate	100 %	NS	NS
Butyl phenol	100 %	NS	NS
Butyric acid	20%	S	
Butyric acid	98%	NS	NS
Calcium chloride	Sat. sol.	s	s
Calcium nitrate	50%	S	s
Carbon dioxide [aqueous solution]	Sat. sol.	s	L
Carbon dioxide, dry gas	100 %	s	s
Carbon dioxide, wet gas	--	S	s
Carbon disulphide	100%	NS	NS
Carbon tetrachloride	100 %	NS	NS
Chlorine, dry gas	100 %	L	NS
Chlorine, aqueous	Sat. sol.	L	NS
Chloroacetic acid	Sol.	s	L
Chlorosulphonic acid	100 %	L	NS
Chromic acid	From to 50%	S	L
Citric acid	Sat. sol.	S	S
Copper [1 I 1 chloride	Sat. sol.	S	S
Copper [l I 1 fluoride	2 %	S	S
Copper [1 Il sulphate	Sat. sol.	S	S
Cresols	Sat. sol.	--	NS
Cresylic acid [mthyl bonzoic acid)	Sat. sol.	--	NS
Crotonaldehyde	100 %	NS	NS
Cyclohexanol	100 %	NS	NS
Cyclohexanone	100 %	NS	NS
Developers [photographic)	Work, sol.	S	s
Dextrin	Sat. sol	s	L
Dichloroethane	100 %	NS	NS
Dichloromethane	100 %	NS	NS
Diethyl ether	100 %	NS	-
Diglycolic acid	18%	s	L

ISO /TR7473 -1981(E)
TABLE 3 Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20°C and 60°C.

Chemical or product	Conc.%	20°c	60°c
Dimethylamine	30%	s	-
Ethanediol [Ethylene-glycol)	work, SOL.	s	s
Ethanol	95%	s	L
Ethyl acetate	100%	NS	NS
Ethyl acrylate	100%	NS	NS
Fluosilicic acid	32%	s	s
Formaldehyde	dlL. SOLV	s	L
Formaldehyde	40%	s	s
Formic acid	From 1% to	s	L
Furfuryl alcohol	100%	NS	NS
Gasoline (Aliphatic hydrcarbonsl	-	s	s
Glucose	Sat. sol.	s	L
Glycerol	100%	S	s
Glycolic acid	30%	s	s
Hexadecanol	100%	s	s
Hydrobromic acid	10%	s	L
Hydrobromic acid	50%	s	L
Hydrochloric acid	20%	s	L
Hydrochloric acid	Reather than 30 %	S	s
Hydrofluoric acid	40 %	L	NS
Hydrofluoric acid	60%	L	NS
Hydrofluoric acid, gas	100%	L	NS
Hydrogen	100%	s	s
Hydrogen peroxide	30%	s	s
Hydrogen sulphide, gas	100%	S	s
Iron { Ill } chloride	Sat. sol.	s	s
Lactic acid	10%	s	L
Lactic acid	From 1 0% to	L	NS
Lead acetate	90%	s	s
Lead acetate	Oil, sol,	s	s
Lead tetraethyl	Sat, sol.	S	-
Magnesium chloride	100%	s	s
Magnesium sulphate	Sat, sol.	s	s
Maleic acid	Sat, sol.	s	L
Methanol	Sat, sol.100%	s	L

ISO /TR7473 -1981(E)
TABLE 4 Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20°C and 60°C.

Chemical or product	Conc.%	200c	600c
Methyl methacryiate	100%	NS	NS
Milk	-	S	S
Molasses	Work, sol	S	-
Nickel sulphate	Sat. sol	S	L
Nicotinic acid	Work, sol.	S	NS
Nitric acid	Up to 45 %	S	NS
Nitric acid	From 50%to 98 %	NS	L
Oil and Fats	-	S	NS
Oleic acid	100%	S	S
Oleum	10%of so3	NS	S
Orthophosphosphoric acid,aqueous	30 %	S	L
Orthophosphosphoric acid, aqueous	Greater than 30 %	S	S
Oxalic acid	Dil, sol..	S	S
Oxalic acid	Sat, sol.	S	NS
Oxygen	100%	S	NS
Ozone	100%	S	NS
Perchloric acid	10%	S	NS
Perchloric acid	70%	L	NS
Petrol[Aliphatichydrocarbons/benzene]	80 / 20	NS	NS
Phenol	90%	NS	L
Phenylhydrazine	100%	NS	S
Phenylhydrazine hydrochloride	97%	NS	
Phosphine	100%	s	s
Phosphorus [111] chloride	100%	NS	s
Picric acid	Sat, sol.	s	NS
Potassium bromide	Sat, sol.	s	NS
Potassium chloride	Sat, sol.	s	NS
Potassium chromate	40 %	s	NS
Potassium cyanide	sol.	s	NS
Potassium dichromate	40%	s	s
Potassium hexacyanoferrate [l11]	Sat, sol.	s	L
Potassium hexacyanoferrate [111]	Sat, sol.	s	NS
Potassium hydroxide	sol.	s	NS
Potassium nitrate	Sat, sol.	s	-
Potassium permanganate	20%	s	L

ISO /TR7473 -1981(E)
TABLE 5 Chemical resistance of unplasticized PVC, not subjected to mechanical stress, to various fluids at 20°C and 60°C.

Chemical or product	Conc.%	20°c	60°c
Potassium persulphate	Sat. sol.	s	L
Propane, liquefied gas	100%	s	-
Pyridine	Up to 100 %	NS	-
Seawater	-	s	L
Silver nitrate	Sat. sol.	s	L
Soap	sol.	s	L
Sodium benzoate Sodium chlorate	35%	s	L
Sodium chloride	Sat. sol.	s	s
Sodium hexacyanoferrate [I I J Sodium hexacyanoferrate [I I	Sat. sol.	s	s
Sodium hydrogen sulphite	Sat. sol.	s	s
Sodium hydroxide	Sat. sol.	s	s
Sodium hypochlorite [1 3% of chlorine)	Sat. sol.	s	s
Sodium sulphite	sol.	s	s
Sugar { aqueous solution }	100%	s	L
Sulphur dioxide, dry	Sat. sol.	s	L
Sulphur dioxide, liquid	Sat. sol.	s	s
Sulphuric acid	100%	s	s
Sulphuric acid	100%	L	NS
Sulphurous acid	From 40% to 90%	S	L
Tannic acid	96%	L	NS
Tartaric acid	sol.	S	s
Tin (Il I chloride	sol.	S	s
Toluene	sol.	s	s
Trichloroethylene	Sat, sol.	s	s
Trimethylolpropane	100%	NS	NS
Urea	100%	NS	NS
Urine	Up to 10 %	s	L
Vinegar	10%	S	L
Vinyl acetate	-	s	L
Wine	Up to 80% g/ I of acetic acid	s	s
Xylol	100%	NS	NS
Silver nitrate	-	s	s
Soap	100%	Ns	NS
Maleic acid	sol.	s	L
Methanol	Sat, sol.	s	S

Technical Specifications

Characteristic	Unit	Values
Physical Properties		
Density	kg/cm3	1.38
Water Absorption	mg/cm2	0.71
Mechanical Properties		
Modulus of Elasticity	N/mm2	3000
Compressive Strength	N/mm2	66
Flexural Strength	N/mm2	95
Tensile Strength	N/mm2	50
Impact Strength (Charpy)		No Break
Shore Hardness	R	115
Thermal Properties		
Vicat Softening Temperature	°C	>82
Max. Operating Temperature	°C	60
Longitudinal Reversion		< 2 %
Specific Heat	KJ/Kg.K	
Coefficient of Thermal Expansion	m/m.K	8×10^{-5}
Thermal Conductivity	W/m.K	0.16
Electrical Properties		
Volume Resistively	Ω.cm	$>10^{14}$
Surface Resistance	Ω	$2.4*10^{12}$
Dielectric Strength	Kv/mm	>40

QUALITY ASSURANCE

System Standards

Arkan manufacturing according to the following standards:

ES 17172008/

Pipe and Fittings made of Unplasticized Poly (Vinyl Chloride) (PVC-U) for underground drainage and sewage system

DIN 80618062/

Unplasticized Poly (Vinyl Chloride) (PVC-U) Pipes

DIN EN-1401

Plastic piping system for non-pressure underground drainage and sewerage Unplasticized Poly Vinyl Chloride (PVC-U)

DIN 19534

Plastic piping system for non-pressure underground drainage and sewerage Unplasticized Poly Vinyl Chloride (PVC-U)

ISO 3633

Plastics piping systems for soil and waste discharge (low and high temperature) inside buildings -- Unplasticized Poly (vinyl chloride) (PVC-U)

ASTM D 2665

Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings

ASTM D 3311

Standard Specification for Drain, Waste, and Vent (DWV) Plastic Fittings

DIN EN 1329

Poly (Vinyl Chloride) (PVC) Plastic Piping System for soil and waste discharge (low and high temperature within the building structure

ISO 4435

Plastics piping systems for non-pressure underground drainage and sewerage – Unplasticized poly (vinyl chloride) (PVC-U)

DIN 4102

Fire behavior of building materials and building components.

System Control

The production of Arkan superior high quality piping system calls for the regulation and control of all areas of the operations. All results are documented and archived:

Testing and accepting incoming goods.

Process Control.

In- process inspection.

Final inspection tests.

Regulation for the quality control of Arkan drainage system include all above standards that feature the minimum requirements for internal control.

Conformance to the superior quality standards is verified through independent authorities, by internal audits and Laboratory tests. Arkan quality standards are controlled by Egypt regulations.

ARKAN is a highly qualified and experienced manufacturer in extrusion and injection molding.

ARKAN is also the market leader and pioneer in the manufacturing of PVC-U drainage system in Egypt.

This is reflected in our internal quality standards and procedures, which are illustrated by the constant quality of our products.

STORAGE

Storage, Handling and Transportation

Storage

The following recommendations relate to the storage of Arkan PVC-U pipes under the normal climatic conditions.

Pipes should be uniformly supported throughout their length, if this is not possible timber battens at least 75mm wide at spacing's not greater than 1m centers should be placed beneath the pipes.

Preferably pipes of different sizes and wall thicknesses should be stacked separately. Where this is not possible the pipes with larger diameters and thicker walls should be at the bottom. It is preferable that pipes should not be stacked one inside the other.

Pipe stacks should not exceed 7 layers with maximum height of 1m.

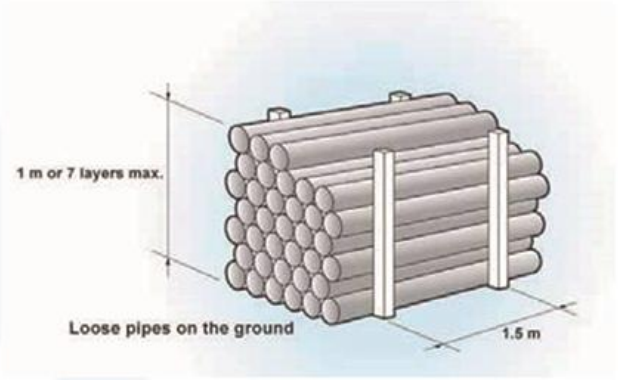
Ideally, stacks should contain one diameter pipe size only. Where this is not possible, stack largest diameter pipes at base of stack. Small pipes may be nested inside larger pipes.

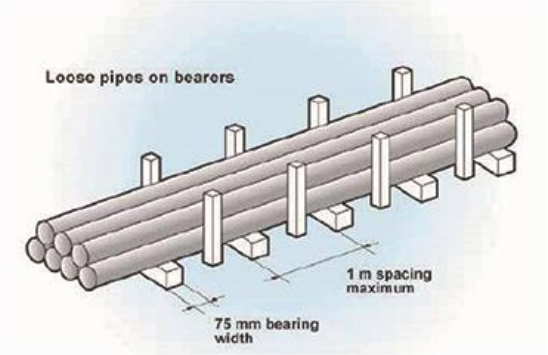
If stored in the open for long periods, or exposed to strong sunlight, cover the stack with opaque sheeting.

Store fittings under cover. Do not remove from cartons or packaging until required. Store solvent

cement and cleaning fluid in a cool place.

Ultra-violet light can affect pipes and fittings: pipe color may change





Handling

Pipes made from PVC-U are strong, though lightweight and are therefore very easily handled. However, it is necessary to take care to prevent damage; in particular, pipes should not be thrown, dropped or dragged along. If pipes are moved by rolling it is necessary to support them along their length and properly restrain them on inclines.

If pipes are loaded or unloaded by mechanical means (forklift, crane etc.,) care should be taken to prevent damage. Pipes should be properly supported in two places when lifted. Preferably protected slings should be used, if metal chains and hooks are all that is available, padding should be placed between them and the pipes. If pipes are delivered stuffed, special care should be taken to avoid damage during unloading.

Take all reasonable care when handling PVC, particularly in very cold conditions when the impact strength of the material is reduced.

Do not throw or drop pipes, or drag them along hard surfaces.

In case of mechanical handling, use protective slings and padded supports. Metal chains and hooks should not make direct contact with the pipe.

Transportation

Vehicles with a flatbed should be used for the transport of pipes. The bed should be free from nails or other projections. Each pipe should be supported uniformly along its length. Vehicles holds have adequate side supports at not more than 1.5m centers and pipes should be well secured during transit. All uprights should be flat and free from sharp edges.

Pipes should be loaded onto vehicles in such a way that any overhang does not exceed 1m.

Thick-walled pipes must be loaded before thin-walled pipes.

INDEX *Pages*

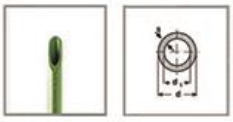
PP-R pipes PN20 SDR 6

D	di	s	Water content Lit/m	Kg/m	m/bag
20 mm	14.4	2.8	0.163	0.147	160
25 mm	18	3.5	0.254	0.229	100
32 mm	23	4.5	0.415	0.377	60
40 mm	29	5.5	0.660	0.578	40
50 mm	36.2	6.9	1.029	0.907	20
63 mm	45.8	8.6	1.647	1.426	20
75 mm	54.4	10.3	2.323	2.032	12
90 mm	65.4	12.3	3.358	2.914	8
110 mm	79.8	15.1	4.999	4.369	8

Material: PP-R
Pipe series: SOR 6 *IS* 2.5
Standard:
DIN 8077/DIN 8078
DIN EN ISO 15874
Color: Green
Form Supplied: 4 meter straight length
Fields of application:

- Cold and hot potable water application
- Swimming pool installations
- Rainwater application
- Compressed air system
- Pipelines for industrial use.
- Heating systems

PP-Rpipes PN16 SDR 7.4



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110 mm	79.8	15.1	4.999	4.369	8

Material: PP-R
Pipe series : SOR 7.4/S 3.2
Standard: DIN 8077/DIN 8078, DIN EN ISO 15874
Color: Green *I* Laser Labelling system
Form Supplied: 4 meter straight length, also in coils for some diameters Fields of application:

- Cold and hot potable water application
- Heating systems
- Compressed air system
- Swimming pool installations
- Pipelines for industrial use
- Rainwater application

PP-R Black Fiber pipes SDR 7.4 PN 16

D	di	s	Water content Lit/m	Kg/m	m/bag
20 mm	14.4	2.8	0.163	0.160	160
25 mm	18	3.5	0.254	0.242	100
32 mm	23	4.5	0.415	0.392	60
40 mm	29.0	5.5	0.660	0.597	40
50 mm	36.2	6.9	1.029	0.949	20
63 mm	45.8	8.6	1.647	1.434	20
75 mm	54.4	10.3	2.323	2.172	12
90 mm	65.4	12.3	3.358	2.956	8
110 mm	79.8	15.1	4.999	4.320	8

Material: PP-R
with integrated fiber reinforced layer and external polypropylene layer
Pipe series: SOR 7.4 /S 3.2
Standard: DIN 8077/DIN 8078, DIN EN ISO 15874
Color: internal layer is green and outer layer is black
Pipe: black pipes with laser labelling system
Form Supplied: 4 meter straight length Fields of application:

- Cold and hot potable water application for indoor and Outdoor

Advantages:
1. Linear expansion coefficient is only 20-30% of ordinary PP-R pipe, completely resolves the stretching problem of common plastic pipe.
2. Enhances pipe rigid, prevents droop down phenomenon, and also reduces the density and number of supporting points, thus cuts down the total cost of installation.
3. Higher pressure resistant level and longer working life under usual vibration.
4. Better high temperature resistance, and obvious energy saving effect; FR-PPR used in water heating systems, the normal temperature is up to 95-100 degrees, It not only increases the medium temperature.
5. Solves the oxygen permeability of the pipeline, the inner surface is non-toxic, fine sealing and sphagnum will not appear. The middle layer of FR-PPR pipe completely prevents outside air from infiltration into pipe inside, thereby inhibits algae growth, and maintains fresh pure water.

PP-RCT Pipe PN20- SDR 7.4

D	di	s	Water content Lit/m	Kg/m	m/bag
20 mm	14.4	2.8	0.163	0.147	160
25 mm	18	3.5	0.254	0.229	100
32 mm	23	4.5	0.415	0.377	60
40 mm	29	5.5	0.660	0.578	40
50 mm	36.2	6.9	1.029	0.907	20
63 mm	45.8	8.6	1.647	1.426	20
75 mm	54.4	10.3	2.323	2.032	12
90 mm	65.4	12.3	3.358	2.914	8
110 mm	79.8	15.1	4.999	4.369	8

Material: PP-RCT
Pipe series: SOR 7.4 /S 3.2
Standard: DIN 8077/DIN 8078, DIN EN ISO 15874
Color: Green
Form Supplied: 4 meter straight length, also in coils for some diameters
Applications :
- Cold and hot potable water applications
- Heating systems
- Compressed air system
- Swimming pool installations
- Pipelines for industrial use
- Rainwater application

Black fiber PP-RCT Pipe PN 24 SDR 7.4

D	di	s	Water content Lit/m	Kg/m	m/bag
20 mm	14.4	2.8	0.163	0.160	160
25 mm	18	3.5	0.254	0.242	100
32 mm	23	4.5	0.415	0.396	60
40 mm	29	5.5	0.660	0.597	40
50 mm	36.2	6.9	1.029	0.949	20
63 mm	45.8	8.6	1.647	1.434	20
75 mm	54.4	10.3	2.323	2.172	12
90 mm	65.4	12.3	3.358	2.956	8
110 mm	79.8	15.1	4.999	4.320	8

Material: PP-RCT with integrated fiber reinforced layer and external polypropylene layer Pipe series:
SOR 7.4 /S 3.2
Standard: DIN 8077/DIN 8078, DIN EN ISO 15874
Color: internal layer is green and outer layer is black
Form Supplied: 4 meter straight length, also in coils for some diameters Applications:
- Cold and hot potable water application for indoor and outdoor

Advantages:
1. Linear expansion coefficient is only 20-30% of ordinary PP-RCT pipe, completely resolves the stretching problem of common plastic pipe.
2. Enhances pipe rigid, prevents droop down phenomenon, and also reduces the density and number of supporting points, thus cuts down the total cost of installation.
3. Higher pressure resistant level and longer working life under usual vibration.
4. Better high temperature resistance, and obvious energy saving effect; FR-PP-RCT used in water heating systems, the normal temperature is up to 95-100 degrees, It not only increases the medium temperature.
5. Solves the oxygen permeability of the pipeline, the inner surface is non-toxic, fine sealing and sphagnum will not appear. The middle layer of FR-PP-RCT pipe completely prevents outside air from infiltration into pipe inside, thereby inhibits algae growth,
and maintains fresh pure water.

PP-R Fittings
EIBOW 45°

Dn	d	D	l	z	Pieces/Box
20	19.5	29	21	6	120
25	24.5	34	24	8	100
32	31.5	43	28	10	50
40	39.4	52	32	11	30
50	49.4	65	37	13	18
63	62.5	82	44	16	24
75	74.7	99	50	20	15
90	89.7	120	58	25	8
110	109.7	148	69	32	4

EIBOW 90°

Dn	d	D	l	z	Pieces/Box
20	19.5	29	28	13	120
25	24.5	34	32	16	80
32	31.5	43	38	20	80
40	39.4	52	44	23	50
50	49.4	65	52	28	30
63	62.5	84	62	34	20
75	74.7	101	71	41	12
90	89.7	120	83	50	6
110	109.7	148	99	62	3

Tee 90°

Dn	d	D	l	z	Pieces/Box
20	19.5	29	28	13	80
25	24.5	34	32	16	50
32	31.5	43	38	20	30
40	39.4	52	44	23	40
50	49.4	65	52	28	20
63	62.5	84	62	34	6
75	74.7	100	71	41	10
90	89.7	120	83	50	6
110	109.7	148	99	62	2

Wall inlet plug

Dn	O-Ring	H	D	Pieces/Box
20	20.5x3	11	28.5	100

Reducing Tee 90°

Dn- Dn1-Dn2	d - d_1 - d	D	D_1	D_2	l	l_1	Z	Z_1	Piesces/Box
25 - 20 - 25	24.5 - 19.5 - 24.5	34	29	34	32	32	16	17	140
32 - 20 - 32	31.5 - 19.5 - 31.5	43	34	43	38	36	20	21	80
32 - 25 - 32	31.5 - 24.5 - 31.5	43	34	43	38	36	20	20	80
40 - 20 - 40	39.4 - 19.5 - 39.4	52	43	52	44	39	24	24	60
40 - 25 - 40	39.4 - 24.5 - 39.4	52	43	52	44	40	23	24	50
40 - 32 - 40	39.4 - 31.5 - 39.4	52	43	52	44	40	23	22	50
50 - 20 - 50	49.4 - 19.5 - 49.4	65	43	65	52	46	28	31	30
50 - 25 - 50	49.4 - 24.5 - 49.4	65	43	65	52	46	28	30	30
50 - 32 - 50	49.4 - 31.5 - 49.4	65	43	65	52	46	28	28	30
50 - 40 - 50	49.4 - 39.4 - 49.4	85	85	85	62	62	39	35	30
63 - 20 - 63	62.5 - 19.5 - 62.5	85	43	85	62	62	35	48	16
63 - 25 - 63	62.5 - 24.5 - 62.5	85	43	85	62	62	35	46	16
63 - 32 - 63	62.5 - 31.5 - 62.5	85	43	85	62	62	35	44	16
63 - 40 - 63	62.5 - 39.4 - 62.5	85	85	85	62	62	35	42	16
63 - 50 - 63	62.5 - 49.4 - 62.5	85	85	85	62	62	35	39	16
75 - 20 - 75	74.7 - 19.5 - 74.7	100	43	100	71	71	41	57	12
75 - 25 - 75	74.7 - 24.5 - 74.7	100	43	100	71	71	41	55	12
75 - 32 - 75	74.7 - 31.5 - 74.7	100	43	100	71	71	41	53	12
75 - 40 - 75	74.7 - 39.4 - 74.7	100	65	100	71	71	41	51	12
75 - 50 - 75	74.7 - 49.4 - 74.7	100	65	100	71	71	41	48	12
75 - 63 - 75	74.7 - 62.5 - 74.7	100	101	100	71	71	41	44	12
90 - 63 - 90	89.7 - 62.5 - 89.7	120	120	120	83	83	50	55	6
90 - 75 - 90	89.7 - 74.7 - 89.7	120	120	120	83	83	50	53	6
110 - 63 - 110	109.7 - 62.5 - 109.7	148	85	148	99	99	62	71	4
110 - 75 - 110	109.7 - 74.7 - 109.7	148	100	148	99	99	62	69	4
110 - 90 - 110	109.7 - 89.7 - 109.7	148	120	148	99	99	62	66	4

Socket

Dn	d	D	l	z	Piesces/Box
20	19.5	29	34	5	150
25	24.5	34	37	5	120
32	31.5	43	41	5	60
40	39.4	52	46	5	80
50	49.4	65	52	5	70
63	62.5	84	60	5	36
75	74.7	99	65	5	32
90	89.7	120	76	10	14
110	109.7	148	80	6	7

Reducer

Dn - Dn1	d	d_1	D	D_1	l	z	Piesces/Box
25 - 20	24.5	19.5	34	29	36	22	10
32 - 20	31.5	19.5	43	29	37	23	10
32 - 25	31.5	24.5	43	34	39	23	10
40 - 20	39.4	19.5	52	34	43	28	10
40 - 25	39.4	24.5	52	34	43	27	10
40 - 32	39.4	31.5	52	43	45	27	10
50 - 20	49.4	19.5	65	43	51	36	10
50 - 25	49.4	24.5	65	43	51	35	10
50 - 32	49.4	31.5	65	43	51	33	10
50 - 40	49.4	39.4	65	52	53	33	10
63 - 20	62.5	19.5	80	34	56	42	5
63 - 25	62.5	24.5	80	34	56	40	5
63 - 32	62.5	31.5	80	43	58	40	5
63 - 40	62.5	39.4	80	52	60	40	5
63 - 50	62.5	49.4	80	65	63	40	5
75 - 50	74.7	49.4	100	65	67	44	3
75 - 63	74.7	62.5	100	80	71	44	3
90 - 63	89.7	62.5	110	80	78	51	1
90 - 75	89.7	74.7	110	99	81	51	1
110 - 75	109.7	74.7	148	100	90	60	2
110 - 90	109.7	89.7	148	110	93	61	1

Crossover

Dn	d	s	H	L	Piesces/Box
20	19.5	3.4	53	365	100
25	24.5	4.2	56	370	70
32	31.5	5.4	68	370	50

Short Crossover

D	D_1	H	I	S	Piesces/Box
20	28	42	90	4.3	60
25	35	47	100	4.8	50
32	42	67	130	5.8	20

Cross Tee

D	H	L	S	B	Piesces/Box
25	16	60	4.4	90°	100
32	18	75	5.8	90°	50

Union

D	H	L	S	Piesces/Box
20	20	45	4.3	140
25	23	51	4.8	100
32	27	61	5.5	60

Cap

Dn	d	D	l	Piesces/Box
20	19.5	29	25	250
25	24.5	34	28	150
32	31.5	43	32	100
40	39.4	52	36	60
50	49.4	65	41	120
63	62.5	79	48	70
75	74.7	99	54	16
90	89.7	120	66	8
110	109.7	148	79	8

Flange

Dn	d	D	D_1	l	Z	h	Piesces/Box
63	62.5	89.5	75.6	40.9	12.9	15.5	24
75	74.7	105	89	37	7.5	15	18
90	89.7	125.5	110	43.5	9.5	19.5	10
110	109.7	158	132	51	13.35	18	7

Elbow 90° male thread

Dn-Rp	d	D	l	l_1	Z	Z_1	SW	Piesces/Box
20-½	19.5	29	28	34	14	49	36	60
20-¾	19.5	34	32	40	18	56	44	50
25-½	24.5	34	32	38	16	53	36	40
25-¾	39.4	34	32	40	16	56	44	40
32-1	31.5	43	38	48	20	66	51	30

Bracket Female thread

Dn-Rp	d	D	D_1	L	L_1	h	T	z	z_1	Piesces/Box
20-½	19.5	35	29	35	27	15	40	21	11	70
25-½	24.5	35	29	37	30	17	40	23	14	60
25-¾	24.5	43	34	43	35	22	50	28	19	30
32-¾	31.5	43	43	43	35	22	50	28	17	30

Flange

Dn-Rp	d	D	D_1	l	l_1	h	z	z_1
20-½	19	37	29	33	28	15	16	13
25-½	24	37	34	36	33	17	20	17
32-1	30	52	43	49	38	21	28	20

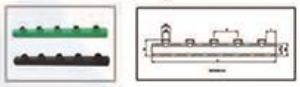
Double Elbow

Dn-Rp	D	H	H_1	l	l_1	S	Piesces/Box
20 *½	20	41	46	186	150	4.4	48
25 *½	25	53	47	186	150	4.8	32

Adjustable Water battery

Dn-Rp	Ladjustable	D	SW	L_1	S	H	h	Piesces/Box
20-½	100-135-150	20	38	220.3	4.4	19	30.5	28
25-½	100-135-150	25	38	220.7	4.8	21	37.75	20

Manifold welding without end socket



Dn-Dn_1	D_1	d_1	D_2	d_2	L	P	I	H
50-32	50.2	33.2	43	31.1	650	123	50	70
63-32	63.2	42	43	31.1	650	123	50	83

Manifold welding - end socket

Dn-Dn_1	D_1	d_1	D_2	d_2	D_3	d_3	L	P	I	I2	H
50-32	50.2	33.2	43	31.1	66	49	650	123	50	31.5	78
63-32	63.2	42	43	31.1	83	61.9	650	123	50	37.5	93

Tee male thread

Dn-Rp	SW	H	l	S	D_1	Piesces/Box
20-½	38	14.5	56	4.4	20	60
20-¾	45	14.5	56	4.4	20	40
25-½	38	16	61	4.9	25	40
25-¾	45.2	16	69	4.9	25	40

Adaptor socket male thread

Dn-G	d	L	Z	Piesces/Box
20-½	19.5	50	34	60
20-¾	19.5	53	38	60
25-½	24.5	51	35	80
25-¾	24.5	54	38	60
32-1	31.5	62	43	40
40-1¼	39.4	72	51	27
50-1½	49.4	77	53	24
63-2	62.5	88	60	12
75-2½	74.7	102	71	2
90-3	89.7	143	111	4
110-4	109.7	161	124	3

Adaptor socket Female thread

Dn-Rp	d	D	D_1	l	Z	SW	Piesces/Box
20-½	19.5	35	29	40	11	36	60
25-½	19.5	35	34	41	11	36	60
25-¾	24.5	43	34	42	11	44	50
32-¾	24.5	43	43	44	11	44	60
32-1	31.5	50	43	48	12	51	40
40-1¼	39.4	62	52	54	13	63	36
50-1½	49.4	69	64	57	14	70	27
63-2	62.5	84	79	68	19	85	12
75-2½	74.7	113	99	82	22	114	7
90-3	89.7	129	124	92	27	-	8
110-4	109.7	160	151	165	27	-	4

Union female thread

Dn-Rp	d	L	l	l_1	Z	SW	SW_1	Piesces/Box
20-1/2	19.5	37.5	20.5	15.5	11	40	25	80
25-3/4	24.5	41	22.5	16.75	12	47	30	72
32-1	31.5	48.5	27	20	13.7	56	37	36
40-1 1/4	39.4	52	29.5	20.35	16	68	46	24
50-1 1/2	49.4	57.5	32.8	23	20	85	53	16

Tee 90° Female thread

Dn-Rp	d	D	l	l_1	Z	Z_1	SW	Piesces/Box
20-½	19.5	29	28	34	14	20	36	60
25-½	24.5	34	32	38	16	24	36	50
25-¾	24.5	34	32	40	16	25	44	40
32-¾	31.5	43	38	45	20	30	44	20
32-1	31.5	43	38	48	20	30	51	20

Union male thread

Dn-Rp	d	L	l	l_1	Z	SW	SW_1	Pieces/Box
20 -½	19.5	47.8	26.0	20.3	13.0	40	21	64
25 -¾	24.5	51.0	27.0	22.0	13.5	47	27	48
32 -1	31.5	60.5	31.7	27.0	14.5	56	34	36
50 -1½	49.4	75.0	41.5	32.0	20.5	85	50	12

Socket with loose nut

Dn-Rp	D_1	H	SW_1	SW_2	L	S	Pieces/Box
20 -½	20	14	36	23	35	4.4	60
20 -¾	20	14	36	31	35	4.8	60
25 -¾	25	14	36	31	35	4.8	60

Y Filtter Femal thread

Dn - Rp	D_1	H	H_1	l	S	B	Pieces/Box
20-1/2"	20	14.5	14.5	70	4.4	45°	100
25-3/4"	25	16	16	80	4.9	45°	80
32-3/4"	32	18	18	80	4.8	45°	60

Concealed valve

Dn-Rp	d	D	D_1	Z	N	H
20-¾	19.5	34	45	46	75	112
25-¾	24.5	34	45	43	75	112
32-¾	31.5	43	45	39	75	112

Straight seated valve

Dn-Rp	d	D	D_1	Z	L	H	Pieces/Box
20-1/2"	19.5	34	45	46	75	69	150
25-3/4"	24.5	34	45	46	75	69	150
32-3/4"	31.5	43	45	39	75	69	150

Ball valve

d	d_1	d_2	D	L	S
20	19.5	28.5	33.85	20.55	4.6
25	24.5	33.2	38.8	22.7	5.5
32	31.5	43	44.2	27	6.1
40	39	54.5	61.2	29.5	7.7
50	49	67.7	77	32.2	9
63	61.9	87	96	36	11
75	73.4	103	115	43.7	13.15
90	88.2	117	131	45.7	15
110	108	145	162.25	48	16

chemical resistance
Arkan is a polyolefin polymer that features a high molecular weight. Therefore, it is more resistant to chemicals such as acid, lime or cement, See (fig. E). The resistance of products which are not submitted to the following factors: mechanical stress, various fluids, 20°c 60°c and 100°c temperatures according to ISO TR7471.

resistance to current strays
Like most thermoplastic products, Arkan is a poor electrical conductor. Therefore, there is no risk of stray currents occurring.

Soundproofing
The elasticity of Arkan pipes makes it viable to absorb and eliminate almost all vibrations that would normally occur in the traditional cast iron pipes. Therefore, Arkan is highly soundproof at no extra cost.

low thermal conductivity
Arkan has a low thermal conductivity (0.24 W/ m.K) that reduces the heat dispersion of the fluid that it conveys. Also, it reduces the condensation, which is normally formed on the outside of the generic metal pipes, under specific hygrometric conditions.

Low pressure loss
The inside surface of Arkan is sleek, smooth with very few irregularities (0.0070 μ), which convey a significant reduction in pressure loss. As a result, limestone cannot be built up inside the pipe.

No toxicity
The raw material used for the production of Arkan is absolutely non-toxic and complies with the most up-to- date national and international regulations.

Easy workability
One of the major attractions of the Arkan system is that it is extremely light and easy to weld and install. Our pipes, with diameters ranging from 20 mm to 110 mm, are extremely simple to assemble, providing the suitable polyfusion device. (See chapters 3 & 4)

UV Resistance
Arkan black coated pipes are UV-resistant but must not be installed in an exposed area.
Arkan pipes and fittings are equipped with a stabilizer which allows for safe transport and installation. However, they should not be stored for more than six months in the open air.

Cracking Resistance under Stress
The values determining the time resistance capacity of the Arkan system are the following:

Mechanical stress = Pressure
Thermal strain = Temperature
Stress duration = Time

The relationship between the above parameters can be controlled through regression curves. Arkan minimum resistance values have been determined through internal pressure tests, at various temperature intervals: 20, 40, 60, 80, 95, 120 °C. A logarithmic graphic representation shows the comparative tensions, the lifetime (in years), and the regression curves at various temperatures according to the DIN 8078 standard. See (fig. A)

Advantages of Arkan Piping System

provides all the necessary parts, for a complete and easy installation, from the beginning to the end, saying goodbye to the conventional problems of the past. It is guaranteed to feel and see the difference with the Arkan piping system.

Arkan is manufactured with Superior German quality.

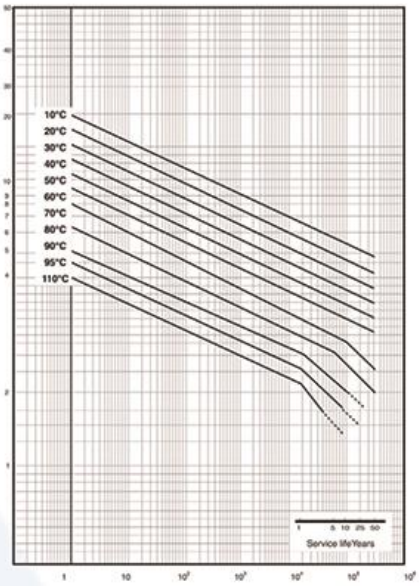
Arkan is made of corrosion resistant material, putting an end to old corrosion complications.

Unlike the alternatives, Arkan is made of opaque polypropylene, which is a nonpolluting material, preventing algae from growing.

Arkan is completely recyclable, with no risk of air pollution, making it an environmentally-friendly system.

- Long lifetime thanks to their resistance to environmental influences; non-corrosive even after 50 years.
- They reduce the risk of condensation to a minimum, which is the characteristic of the metal installation.
- Great welding ability as all parts can be connected with a welder or electrical socket.
- Low weight (9 times lighter than steel) which makes it easier for transportation and handling.
- High resistance to inner pressure.
- No harmful gas emission from burning.
- High cracking resistance under stress.

Diagram of pressure tests of Arkan Pipes



Thermal Characteristics

CHARACTERISTICS	METHODS	UNITS	VALUES
Thermal conductivity at 20°	DIN52612	W/m°K	0,24
Specific heat at 20°C	Adiabatic calorimeter	KJ/Kg°K	2,0
Linear expansion coefficient	VDE 0304	K1	1,5x 10
Heart deflection temperature B (0.45 MPa)	ISO 758-1.-2	°c	70
Vicat softening temperature(A/50)	ISO 306	°c	132
OIT (200 °C)	EN 1451	Min	58

Mechanical Characteristics

CHARACTERISTICS	METHODS	UNITS	VALUES
Yield strength	ISO/R 527	N/mm2	21
Ultimate tensile strength	DIN 53455	N/mm2	40
Ultimate elongation	DIN 53455	%	600
Modulus of elasticity	ISO 178	N/mm,	800
Hardness test	ISO 2039	N/mm	40
Impact strength 0°C	DIN 8078		Does not break
Charpy Impact Strength. notched(23°C)	180179/1 eU	KJ/m	20
Charpy Impact Strength. Notched (-0°C)	180179/1 eU	KJ/m	3.5
Charpy Impact Strength. notched(-20°C)	180179/1 eU	KJ/m	2
Charpy Impact Strength. unnotched (23°C)	180179/1 eU		Does not break
Charpy Impact Strength. unnotched (0°C)	180179/1 eU		Does not break
Charpy Impact Strength. unnotched (-2D°C)	180179/1 eU	KJ/m	40
Shore hardness D	ISO 868	R Scale	65

Material Properties of PP-R

Properties	Measuring technique	Unit	PP-R Value
Melting index	ISO/RII33		
MFR 190/5		g/10 min.	0.5
MFR 230/2.16		g/10 min.	0.24 - 0.36
Density	ISO IR 1183	g/cm'	0.895
Melting range	Polarizing microscope	°c	140 - 150
Yield stress	ISO/R527	N/mm'	21
Tensile strength	Feed speed	N/mm'	40
Tensile expansion	Test bar	%	600
Bending stress at 3.5%	ISO 178	N/mrn'	20
Marginal fiber Expansion	Test specimen 5.1		
Modulus of elasticity	ISO 178	N/mrn'	800
Mechanical properties Following impact Bending test at O°C	DIN 8078		No fraction
Expansion coefficient	VDE 0304 Part 1 §4	K-'	1. 5 x 10-4
Thermal conductivity at 20°c	DIN 52612	W/mK	0.24
Specific heat at 20'(	Adiabatic calorimeter	KJ/Kg K	2
Pipe friction factor			0.007

Quality Assurance

System Standards
DIN 8077 Polypropylene Pipes, Dimensions.
DIN 8078 Polypropylene Pipes, General Quality Requirements and Testing.
DIN 16962ff Pipe Joint Assemblies and Fittings for Polypropylene Pressure Pipes.
DIN 2999 Pipe Threads For Tubes and Fitting.
Various highly accredited and independent institutions confirm our superior German quality standards.

System Control
The production of superior German quality piping system calls for the regulation and control of all areas of the operations. All results are documented and archived:

- Testing and accepting incoming goods.
- Process control.
- In-process inspection.
- Final inspection tests.

ARKAN is a highly qualified and experienced manufacturer in extrusion and injection moulding.
ARKAN is also the market leader and pioneer in the manufacturing of polypropylene supply systems in Egypt. This is reflected in our internal quality standards and procedures, which are illustrated by the constant quality of our products.

Internal Control
A team of highly trained and qualified QC engineers, equipped with a state of art laboratory, ensurte that all tests are carried out in compliance with our quality control policies, which includes:

- Testing all raw material.
- Measuring and inspecting our production equipments.
- Auditing our production procedures.
- A final inspection for the quality of our finished products.
- All internal quality audits are documented and archived in accordance with the highest standard quality control policies.

ARKAN laboratory
ARKAN laboratory serves one of the most important functions in our production and process control. A significant portion of the ARKAN regulations pertain to the quality control laboratory and product testing to be able producing the highest quality products. ARKAN laboratory have the most advanced equipment with the highest technology like: -

- Universal Testing Machine.
- Hydrostatic Pressure Tester.
- Falling Dart Impact Tester.
- Full Notch Creep Tester.
- Melt Flow Tester- Melt Flow Indexer - MFI.
- Specific Gravity Tester - Densimeter.
- Thermo bath.
- Thermo oven.

Technical Information

Material:
PP-R (Polypropylene Random-Co- polymerisate) of high molecular weight and stabilized to high temperature. The material corresponds to KTW-recommendation of the German Board of Health.

Jointing:
Welding joints
Socket-welding by heating-ele- ments according to DVS (German Welding Inst.) specifications: leaflet 2207, part 11, section 3.2.
Tools and devices for socket-wel- ding by heating-elements accor- ding to DVS leaflet 2208, part 1, section 5, schedule 2, type A.

Threaded joints:
The threaded joint of adaptor pipe-fittings correspond to the re- quirements of DIN EN 10226, i. e. cylindrical female thread, conical male thread.
Male threads for connecting back- nuts correspond to the require- ments of DIN-ISO 228, part 1.

Dimensions:
Pipes: According to DIN 8077 (Pipes of polypropylene PP). Fittings: According to DIN EN ISO 15874, (Pipe connections and fit- tings
for polypropylene PP) injec- tion moulded fittings, z-dimensions tolerance ± 3 mm, we reserve the right to modify dimensions without previous notice

Quality:
Pipes: according to DIN 8078 for PP-R (polypropylene PP pipes). General quality standards, test.
Fittings: according to DIN EN ISO 15874
(Pipe connections and fittings for polypropylene PP pressure pipe- line.)
General quality standards, test.

Operating pressure:
For cold water at 20° C: up to 20 bar1.)
for hot water at 70° C: up to 10 bar1.)
for heating at 70° C: up to 3 bar. The regulations and guide-lines- dealing with the different fields of application are to be observed.

Chemical Resistance:
Detailed information on the chemi- cal resistance of polypropylene pipes and pipelines is available in DIN 8078.

Orders:
When ordering, kindly always state the dimensions and the order number in addition to the designation of the piece required.
Example: Elbow 90°, d 32, No. 351020003

Marking:
The fittings are marked as follows: Example: , d, PP-R, P
Signs and Symbols:
d = nominal size = pipe diameter
R = male thread-conical
Rp = female thread-cylindric
Rc = femalethread-conical
G = male thread-cylindric
Stp = standard packing
® = registered trade mark
AL =numberofscrewholes

Utilization:
The system of tubing of PP-R, as described in this catalogue, has primarly been developped for application in the sanitary field for cold and hot water.
This system can be applied as well in the industrial section.
Tubes and fittings are dimensioned in a way to assure, according to actual results of long-term tests a utilisation of at least 50 years, based on max. 10 bar and a con- stant temperature of 70 degrees Celsius.
For hot water piping, made accor- ding to DIN 1988, the tube row 6 (PN 20) according to DIN 8077 is valid, for dimensions according to table 1.
Tubes are available in lenghts of 4 m.
Plastic pipes and fittings of PP-R generally have all advantages which have been registered in all sections of industry and of installa- tion technics. Most of all the excel- lent resistance of corrosion gives proof
of an extensively long utiliza- tion
of installation tubing in the building technic, without risk of da- mages known from metallic materials.

Therefore PP-R as installation-material represents an excellent choice for piping of cold and hot water.

Properties	Measuring technique	Unit	PP - R Value	PP - RCT Value
Melting index MFR 190/5 MFR 230/2,16	ISO / R 1133	 g/10 min. g/10 min.	 0,5 0,24 – 0,36	 0,5 0,24 – 0,36
Density	ISO / R 1183	g/cm³	0,895	0,905
Melting range	polarizing microscope	0°C 0°F	140 – 150 289 – 302	140 – 150 284 – 302
Yield stress Tensile strength Tensile expansion	ISO / R 527 feed speed Test bar	N/mm² N/mm² %	21 40 600	25 45 300
Bending stress at 3,5% Marginal fibre expansion	ISO 178 test specimen 5.1	N/mm²	20	23
Modulus of elasticity	ISO 178	N/mm²	800	900
Mechanical properties following impact bending test at 0° C	DIN 8078		no fracture	no fracture
Expansion coefficient	VDE 0304 Part 1 § 4	K⁻¹	1,5 x 10⁻⁴	1,5 x 10⁻⁴
Thermal conductivity at 20° C/58° F	DIN 52612	W/m K	0,24	0,24
Specific heat at 20° C68° F	adiabatic calorimeter	kJ/kg K	2,0	2,0
Pipe friction factor	–	–	0,007	0,007

Testing and Accepting Incoming Goods
All incoming goods are carefully inspected, to ensure that the raw material conforms with the set requirements. Goods that have not been tested do not get released for production. The incoming raw material is tested according to ISO 1 1 33.

In-Process Inspection
The quality plan requires that all inspections are carried out at the beginning as well as during production. As production starts all relevant data are checked by the Quality Assurance Department. Pre-production samples are tested by the laboratory technicians for:

- Surface finish.
- Dimensional accuracy.
- Check Marking.
- Data from extrusion and injection moulding machines.
- The product is only released if optimal test results are achieved.

Final inspection
QC requires that inspections and tests are carried out on all finished products. The results are all documented. Finished products are only released to storage when all tests and inspections have conformed to the authorized procedures and specifications. The final inspection test includes a time laps procedure. This measures the usability of the products in their field of application, as well as removing production weaknesses. These inspections are the method for quality assurance during production and
for design tests. The results document the system quality and serve to optimize the manufacturing process.

The final inspection covers the following main Tests:

Dimensional
This test includes measuring of outside diameter, inside diameter, thickness, length and ovality according to DIN 8077 standard.MF! (Melt Flow Index) TestThis test is used for simulating the flow movement of the material in extruder and injection machines before processing. The test provides unit temperature and time based information on the material' s flow index. Test results provide information on possible
behavior of the material during manufacturing process. This test carried out according to ISO 1133 standard.

Density Test
Density tested according to DIN EN ISO 1183 standards. The material is passed through MFI device and its weight is determined separately in air and in a fluid with known density according to standard.
After these weight values are obtained, the density of the material is determined.

Impact Test
This test determines the amount of energy absorption and possible applicable force on a unit area by free fall of materials with different weight. This test provides information about the behavior of material against various loads in sudden impacts. This involves measuring the ability to absorb impact energy of 10 product samples. The greater the energy absorbed, expressed in Joules, the greater is the resistance to impact.
The impact strength test carried out according to DIN 8077 and DIN EN ISO 179-1 standard.

Long-term hydrostatic test
Hydrostatic internal pressure resistance test for system in performed according to DIN 8078. Arkan system didn't brust or leak during the stressing period .Time and temperature values must be as showing at the following parameters:-

Test Temperature(° C)	Test Medium	Hoop stress (MPa)	Stressing period (Hour)
20	Water	19	1
95	Water	3.8	165
95	Water	3.5	1000
110	Air	1.9	8760

Heat reversion test
Heat reversion test is used for determine a percent of linear shrinkage of profiles at elevated temperature and it determined according to DIN EN ISO 2505. Dimensional stability is an excellent indicator of any internal or residual stresses in the profile that may have resulted from the extrusion process. In use shrinkage can lead to distortion of profiles, It consists of placing a test piece of a specified length in an oven at 135 ° C for 120 Min. A marked length of this test piece is measured under identical conditions, before and after heating in the oven. The heat reversion is calculated as the percentage change of the final length relative to the initial length per pair of marks.

Heat deflection temperature
Heat deflection temperature is defined as the temperature at which a standard test bar deflects a specified distance under a load. It is used to determine short-term heat resistance. It distinguishes between materials that are able to sustain light loads at high temperatures and those that lose rigidity over a narrow temperature range. The bars are placed under the deflection measuring device. A load of 0.45 MPa is placed on each specimen. The specimens are then lowered into a silicone oil bath where the temperature is raised at 2° C per minute until they deflect 0.25 mm; once deflection happen the
device calculate heat deflection temperature. This test carried out according to ISO 75B standard

Vicat softening temperature
The Vicat softening temperature is the temperature at which a flat-ended needle penetrates the specimen to the depth of 1 mm under a specific load. The temperature reflects the point of softening to be expected when a material is used in an elevated temperature application.A test specimen is placed in the testing apparatus so that the penetrating needle rests on its surface at least 1 mm from the edge. A load of 1ON or SON is applied to the specimen. The specimen is then lowered into an oil bath at 23 degrees C. The bath is raised at a rate of 120° C per hour until the needle penetrates 1 mm,
once penetrate happen the device calculate Vicat softening temperature. This test carried out according to ISO 306 standard.

External Control
External supervision consists of measuring the fixed scope at fixed intervals. The respective supervising institutions appoint the appropriate authorized inspection organization to carry out external supervision. Inspection includes:

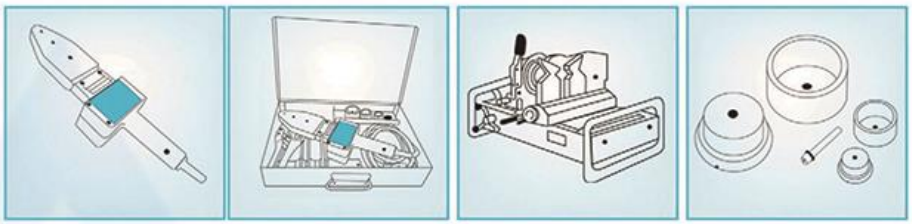
- External tests of products.
- Internal audit of quality assurance system and test procedures.
- Calibration of the test equipment.
- Hygienic and toxicity tests.

WELDING

pipes-dimensions.	DIN 8077
Quality Requirements for	DIN 8078
Quality Requirements for	pr EN 12202-2
The pr EN 12202-2 is valid in the following European Committee Standardization (CEN) member states: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.	
Joints and fittings for the pressurized pipes	DIN 16962
Welding of thermoplastic materials through heating.	DYS 2207
Machines and devices to weld thermoplastic materials	DYS 2208
Threads for pipes and fittings. Cylindrical internal and external tapered thread dimensions.	DIN 2999
Pipe threads for non-sealing coupling thread designation, dimensions and tolerance limits.	ISO 228
Cold and hot water supply and distribution installations Criteria of design,testing and management.	UNI 9182

Note:
Arkan is not liable for damages due to faliure to respect the above described references and/or failure to use a Arkan approved welding devices.

Heating Tools



Polyfusion Device

Our polyfusion device is fed by a 220 Voltage (110 V upon request) and 1000 W power. It is equipped with a fixed bulb-type thermostat with a+ 5·c,tolerance, Bushes must be heated at 260'C ± 10'C for whatever pipe diameter and/or under any weather condition. Welding must not take place in very windy areas, especially when it is cold, because it can produce a variation that exceeds 50·c,in this case, the thermostat will not be able to be adjusted in time

Welding Procedure

The pipework is coupled by socket fusion. The welded pipes and fittings have a longitudinally overlapping connection. The heating of the pipes' ends and fitting faucets is done by a heating element with bushes. After the necessary welding temperature is reached, the joining process is dine. The pipe and fitting faucets diameters, as well as the respective heating bush diameters, are matched to build up the necessary pressure during the joining process. The heating element is electrically heated it complies with DVS Directive 2208 part 1 in construction and accuracy.

Preparations

First, cutting pipes square into sections, with both joints, the pipe end and fitting faucet, to be thoroughly cleaned with absorbent paper. Second, marking the bush depth on the pipe while bringing the heating element to 260˚C (remember that the temperature tolerance is ±10˚ C) by checking the integrated thermometer on the heating element. Otherwise the temperature must be controlled and measured by an appropriate measuring device.

NOTE: Must not start heating the joint parts before reaching the set temperature of 260˚C. Also cleaning the mandrel and bush before each use.

Welding

Starting with pushing the pipe and fitting ends, quickly and axially, up to the stop of the mandrel and the marked insertion depth, respectively fast without torsion. The heating of the joint faces is done according to the table in (fig. A). When the heating period is up, the pipe and fitting ends are pulled abruptly from the heating element and joined immediately without torsion, minding the correct insertion depth (fig. B).

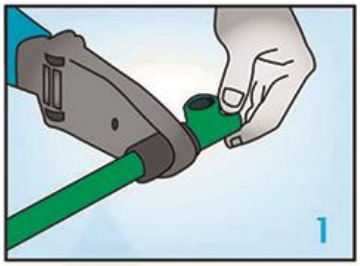
NOTE: We recommend fixing the tow joint part again for a certain time (the heating period). Do not expose the welded joint to mechanical stress until after the cooling period is done.

Note:
On the welding process the heating elements (mandrel and bush) must correspand to DVS 2208 (excluding mechanical working of pipe). (Fig A, B) schematically
show the 3 welding process stages.

Fig. A

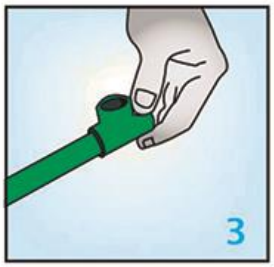
Pipe ∅	Heating S	Maximum Interval S	Cooling Time min.	Depht of Pocket mm.
20	5	4	2	14.5
25	7	4	2	16
32	8	6	4	18
40	12	6	4	20.5
50	18	6	4	23.5
63	24	8	6	27.5
75	30	8	6	31
90	40	8	6	35.5
110	50	10	8	41.5

Fig. B



1. The pipe end and the soket of fitting are pushed to heaters in axial direction. Pipe and fitting should be heated simultaneously.

2. At the end of the heating period fitting and pipe end are separated from the heating elements.

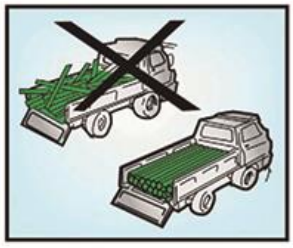


3. Fitting and pipe are quickly joined together in the axial direction. During joining, the pipe end should not be turned around its axis in the socket

Note:
Standard values for socket fusion welding at a room temperature of 20°c. With a room temperature below +5ºC, the heating phases should be increased up to 100%.

Transportation

During the various working phases, the surface of may be exposed nicks or cuts. In order to avoid dangerous situations due to possible cuts, all handling must be made with the upmost care. It is strongly prohibited to install damaged pipes or fittings.

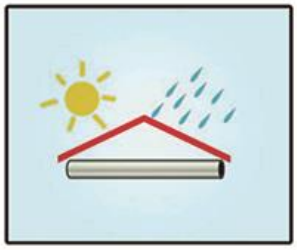


Low Temperatures

When temperatures get close to 0ºC, tend to become more fragile. Whenever working at low temperatures, it is advised to be extra careful during all the working phases (as was mentioned earlier, special attention should be paid when cutting the pipes). It is generally recommended to empty the pipes whenever water might freeze. In case of a significant volume increase, the installation is more likely to break.

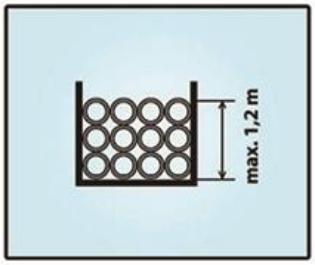
Exposure to UV Rays

is a new product which was designed and built to be used for years. Although the material is adequately stabilized, it nonetheless fears UV rays; therefore it is advised to avoid installing PP-R pipes in areas that are exposed to sunrays without proper protection. The system components must be protected against ultraviolet radiation, weather and contamination. UV radiation is damaging to polypropylene.Long – term exposure to sunlight can degrade the operating properties of the system. When the elements are stored in outdoors area or installed unprotected on outdoor wall surface, they must be taken to indoor storage or be covered with a suitable insulation black coated pipes only can be used when sunrays introduced.

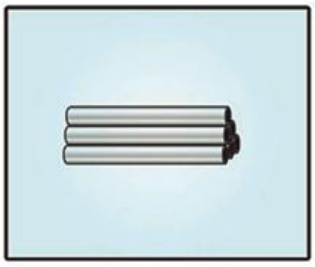


Storage Instructions

Plastic pipe and fittings are usually stored in sacks or on palettes or are freely loaded in boxes, containers, baskets, etc. Maximum storage height of 1.5 m must be respected if plastic pipes are kept in plastic sleeves and/or pipe fittings in plastic sacks. Different types of pipes and fittings are stored separately.



When stacked Plastic pipes must be supported along their whole length or protected against deflection in another suitable way.



The pipes are put into protective covers (pipes in polyethylene bags, pipe fittings also in sacks or cardboard boxes) and it is recommended to let them stay in there as long as possible before the installation works start (as a protection against dirt).

Handling

- Handle pipes with core , and avoid hard impact at the end of the pipes
- Use suitable sharp cutting loads to cut the pipe with no burrs
- Do not twist the pipe or the fitting after joining together. Alignment up to 5 degrees relative to the axis of the pipe can be done immediately after joining
- Use Teflon sealing tapes where necessary
- Avoid heavy and sharp load on the pipe
- Follow the instruction for joining process
- Always protect the pipes from direct exposure to sunlight by proper insulation or printing