



DATA CENTRES



SCHOOLS



HOSPITALS



COMMERCIAL BUILDINGS



including
Duracool



Durapipe
superFLO

chilled and cold water pipework

Technical Data and Dimensions

CHILLED AND BOOSTED COLD WATER

Durapipe SuperFLO offers tremendous advantages for chilled water/air conditioning or boosted cold water services in buildings.

When considering environmental control systems, or more specifically, the pipework requirements for chilled or boosted cold water applications, Durapipe SuperFLO provides the perfect solution.

Durapipe SuperFLO is lightweight and remains extremely tough and durable even at temperatures as low as -40°C .

The complete system, which incorporates pipes, fittings and valves, offers a 50-year design life as well as numerous benefits that alternative pipework materials cannot provide. These include reduced installation costs via a fast solvent-weld jointing procedure, low maintenance costs due to its limescale and corrosion resistance properties as well as being extremely lightweight making the product much easier to handle on site.

Durapipe SuperFLO is available in sizes ranging from 16mm to 315mm.

Key Product Information

- Size Range: 16mm to 315mm
- Pressure Rating:
PN10 - 16mm to 250mm,
PN8 - 315mm
- Temperature Rating: -40°C to 70°C

Key Product Features

- Lightweight
- Corrosion and limescale resistant
- Impact resistant
- Fast, simple jointing
- Ductile down to -40°C
- Reduced installation costs
- 50-year design life
- WRAS approved

Typical Applications

All building types for:

- Chilled water/air conditioning
- Boosted cold water



SuperFLO

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Why use Durapipe SuperFLO?

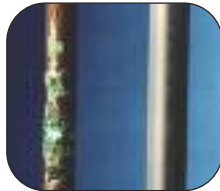


Reduced Installation Costs

Due to the many factors that make Durapipe SuperFLO easier to install on site, Durapipe SuperFLO can deliver installed cost savings when compared to a traditional welded or threaded metal pipe system. This is recognised by an independent BSRIA report.

Tough and Durable

The Butadiene element of ABS affords exceptional resistance to accidental damage, even at sub-zero temperatures. Durapipe SuperFLO is therefore extremely ductile and performs at temperatures as low as minus 40°C.



Copper pipe vs ABS pipe



Steel vs ABS



Corroded steel pipe



Plastic pipe

Corrosion and Limescale Resistant

Both limescale and corrosion can become a problematic feature of any metal-based pipework system. However, the smooth bore lining of Durapipe SuperFLO pipework prohibits any limescale build-up throughout the life of the system, maintaining consistent flow rates.

Fast, Simple and High Integrity Jointing

Solvent welding is a simple process which produces a permanent joint of strength equal to, or exceeding, the pipe itself. No special tools, equipment or hot works permits are required.

- No electricity required
- No flame or combustible gas bottles required on-site
- No site downtime due to electricity shut down
- No hot works permits or need for site segregation
- Permanent, secure jointing
- No special tools needed
- Easy transition to other systems
- Reduced installation time
- Reduced installation costs
- Light and easy to handle



Superior Flow

Low fluid friction allows higher flow velocities than metal pipes and also inhibits the formation of scale, with consequent savings in pump energy consumption, and reduced pressure drops.

Lightweight

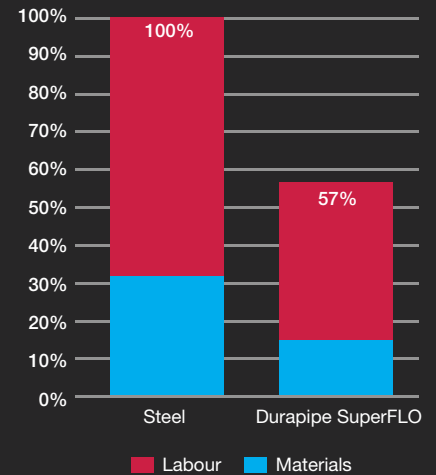
Durapipe SuperFLO is approximately one-sixth of the weight of steel pipework.

Therefore, Durapipe SuperFLO is much easier to handle, especially during installation on-site.



This example is based upon the labour and material cost to install a 6m length of 32mm chilled water pipework including three fittings and supports using thermoplastic pipework compared to traditional screwed steel pipework. The innovative installation shows a 43% cost saving over traditional methods.

Total installed cost comparison



Sustainability and Environment

The energy used to make Durapipe SuperFLO from raw material compares favourably with, for example, steel pipe manufacture because lower conversion temperatures are needed. Furthermore, our processes are clean with low process emissions.

Durapipe SuperFLO pipe and fittings are cheaper and easier to transport because they are lighter in weight than the equivalent metal products. They can be recycled into other products at the end of their life, and scrap during the manufacturing process can also be recycled and reused. This minimises the need for any thermoplastic pipe scrap entering the waste stream.



Metal Threaded Fittings

SuperFLO brass ended fittings provide reliable connections between pipework and ancillary equipment across a range of building services applications.



Flexible Braided Hoses

SuperFLO flexible hoses are designed to allow direct connection from ABS pipework to operating equipment.



Flange Connections

The SuperFLO range includes stub flanges for connection to metal valves and ancillary equipment.



Aligning Pipes and Fittings

Pipe markings and 90° markings on fittings help to align pipes and fittings to achieve perfect 90° or 180° location of fittings.



Global Distribution Network

Durapipe SuperFLO is available from an extensive international network of distributors and stockists. Please contact us for details of your nearest outlet.

Unrivalled Third Party Standards and Approvals

Durapipe SuperFLO is manufactured to the highest level and meets with the requirements of many international standards and approvals.

This unrivalled level of third party approval offers total assurance to the designer, installer and end user that Durapipe SuperFLO is a consistent and reliable pipework system.



Approved for use within public water supplies and by the Secretary of State. Durapipe ABS is listed in the "List of Approved Products" published by the DWI.



Quality Manufacturing

Quality is central to the operation with BS EN ISO9001 certification and within an environmental management system which operates in accordance with the requirements of ISO14001.



Design Life

Durapipe SuperFLO has a 50 year design life with a residual safety factor of 2:1.



Technical Support

We offer an unrivalled level of technical support where our experienced team can provide product training and installation advice on any given project. They also provide material take-off advice from architects' drawings.

Abrasion Resistance

Durapipe SuperFLO offers good resistance to abrasion and erosion from aggressive slurries.

No Metallic Stabilisers

Durapipe SuperFLO does not contain any harmful metallic stabilisers, and is widely used to convey high purity deionised water in semi-conductor and pharmaceutical applications.

Non-Toxic

Materials used are selected for their toxicological properties, and suitability for conveying cold potable water.

Valves and Flow Control



A comprehensive range of valves is available to support the SuperFLO system, including the new VXE Easyfit ball valve.

Easyfit is an innovative double union ball valve introducing an advanced method of installation for a long-term, trouble-free service, along with a level of customisation never before seen in a plastic valve.

For further information contact our specialist Valve Department on 01543 272424.

FREE

Practical Jointing Advice



One of the many benefits of using SuperFLO pipework instead of traditional materials is the simplicity of the jointing process when using plastic.

Furthermore, our team can advise pipework installers on methods of best practice when jointing plastic piping. We offer **FREE** practical product jointing advice on our SuperFLO range including jointing demonstrations, installation advice and even material and product selection.

This can be done either on site as part of our on-site support service or even at our UK office.

Market Sector Applications

Durapipe SuperFLO has been used for boosted cold water and chilled water/air conditioning applications, within the Building Services sector for many years. The system is commonly installed to provide pipework benefits for:



Industry Affiliations

We are members of a number of independent industry affiliation bodies and support various specific building services related organisations.



Schools

Edlington School, Doncaster

“The technical support and on-site training that was provided by Durapipe UK for the SuperFLO system was excellent.”

**Ryan Street,
NG Bailey**



Grace Academy, Solihull

“There were strict deadlines to meet with this development. As a result, the quick and easy installation technique of Durapipe SuperFLO was a major advantage in keeping on track.”

**Michael Cairney,
Rotary Midlands**



Commercial Buildings

Odeon Cinema, Nuneaton

“Durapipe SuperFLO made the project run very smoothly; its lightweight and fully integrated range of pipes and fittings ensured the pipework could be quickly and easily fitted to our current systems.”

**Lee Straughan,
L.M Straughan**



British Museum, London

“Unlike steel piping, Durapipe SuperFLO is light, so it is easier to lift and control on site. Using a lightweight system made the installation much faster, easier and safer.”

**Ashley Pursey,
Romec**



Durapipe SuperFLO Case Study Examples

Hospitals

Manor Hospital, Walsall

“The speed and ease of installation of SuperFLO was the deciding factor for this project and we were not disappointed; it saved us a significant amount of time compared with metal alternatives.”

**Steve Baguley,
Hilton Building Services**



Royal Hospital, Berkshire

“We found SuperFLO outperformed the previous metal pipework and were particularly impressed with the ease of installation on site.”

**Chris Tardivel,
Airconnaire**



Data Centres

MOD Data Centre, Cyprus

“The fact that the material remains durable down to temperatures of -40°C also means it will offer high performance benefits to the end user throughout the lifetime of the system.”

**Carl Davies,
Southern & Redfern**



Atos Origin Data Centre

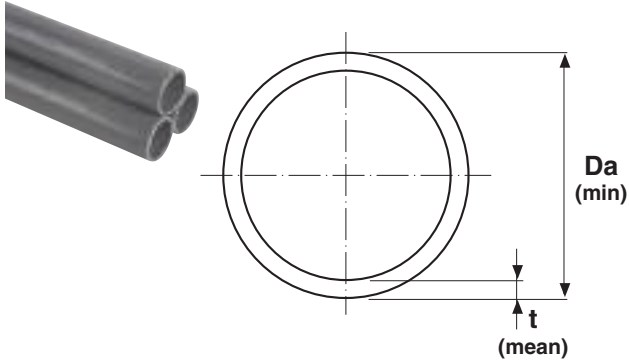
“Durapipe SuperFLO doesn't require any hot works, which helps save a lot of time and reduces safety worries on site. SuperFLO is also limescale resistant and ductile at very low temperatures, which are important factors to consider for a system that will be carrying cold water constantly.”

**Andy Coles,
CW Partnership**



SuperFLO Pipes and Fittings Range

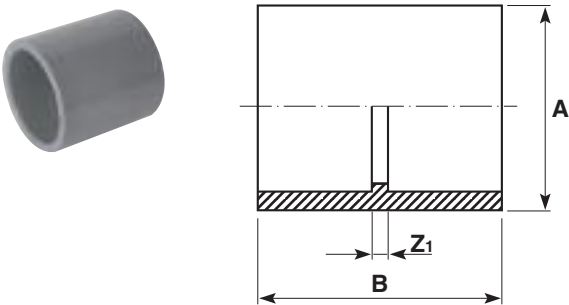
Metric pipe system plain PN10



Size Da	Thickness t mm	Weight kg/m	Length m	Code
16	1.5	0.07	3	11 565 305
20	1.6	0.10	3	11 565 306
25	1.9	0.14	3	11 565 307
32	2.1	0.21	3	11 565 308
16	1.5	0.07	6	11 551 305
20	1.6	0.10	6	11 551 306
25	1.9	0.14	6	11 551 307
32	2.1	0.21	6	11 551 308
40	2.7	0.33	6	11 551 309
50	3.4	0.52	6	11 551 310
63	4.2	0.81	6	11 551 311
75	5.0	1.14	6	11 551 312
90	6.0	1.65	6	11 551 313
110	7.3	2.45	6	11 551 314
125	8.2	3.13	6	11 551 315
140	9.3	3.97	6	11 551 316
160	10.5	5.13	6	11 551 317
200	13.2	8.06	6	11 551 318
225	14.8	10.17	6	11 551 319
250	16.1	12.31	6	11 551 320
315*	20.8	20.00	6	11 551 323

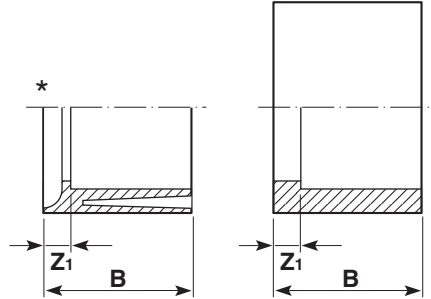
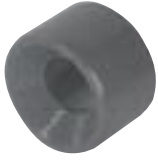
*315mm is PN8 rated.

Sockets



Size	PN	A	B	Z ₁	gms	Code
16	10	21	31	3	5	11 100 305
20	10	25	37	3	7	11 100 306
25	10	31	42	2	12	11 100 307
32	10	41	49	3	25	11 100 308
40	10	50	58	4	45	11 100 309
50	10	62	68	4	77	11 100 310
63	10	78	81	4	154	11 100 311
75	10	88	93	3	230	11 100 312
90	10	107	108	4	380	11 100 313
110	10	126	131	7	690	11 100 314
125	10	146	149	7	1040	11 100 315
140	10	171	163	7	1390	11 100 316
160	10	182	184	8	1660	11 100 317
200	10	223	220	8	2390	11 100 318
225	10	260	250	11	3470	11 100 319
250	10	286	272	10	5760	11 100 320
315	8	355	339	11	9780	11 100 323

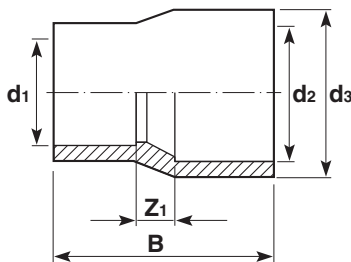
Reducing bushes



Size	PN	B	Z ₁	gms	Code
20 x 16	10	17	3	2	11 109 412
25 x 20	10	19	3	4	11 109 415
32 x 16	10	23	9	5	11 109 417
32 x 25	10	23	8	6	11 109 419
40 x 32	10	28	6	13	11 109 423
50 x 20*	10	33	17	32	11 109 424
50 x 25*	10	33	13	29	11 109 425
50 x 32*	10	32	11	19	11 109 426
50 x 40	10	32	5	25	11 109 427
63 x 25*	10	39	20	60	11 109 429
63 x 32*	10	39	16	36	11 109 430
63 x 50	10	39	7	47	11 109 432
75 x 63	10	46	7	65	11 109 438
90 x 50*	10	54	23	200	11 109 442
90 x 63*	10	54	15	224	11 109 443
90 x 75	10	55	9	110	11 109 444
110 x 63*	10	64	25	252	11 109 449
110 x 90	10	64	10	200	11 109 451
125 x 110	10	72	9	220	11 109 459
140 x 125	10	79	8	260	11 109 467
160 x 90	10	89	35	320	11 109 473
160 x 110*	10	89	27	405	11 109 474
160 x 140	10	89	10	460	11 109 476
200 x 160	10	110	21	109	11 109 487
225 x 160*	10	122	33	1600	11 109 495
225 x 200*	10	122	13	1250	11 109 496
250 x 225*	10	132	12	2230	11 109 499
315 x 250*	8	165	33	5080	11 109 503

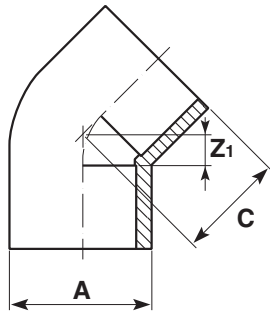
*Configuration shown in inset.

Reducers



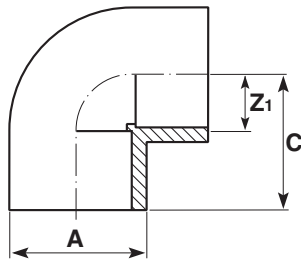
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10	50	40	32	60	11	39	11 114 423
10	63	50	40	71	11	80	11 114 427
10	75	63	50	85	14	108	11 114 432
10	90	75	63	98	13	190	11 114 438
10	110	90	75	115	16	350	11 114 444
10	125	110	90	140	21	480	11 114 451
10	140	125	110	156	20	690	11 114 459
10	160	140	125	170	20	1000	11 114 467
10	200	160	140	193	23	2180	11 114 476
10	225	200	160	237	41	2530	11 114 487

Elbows 45°



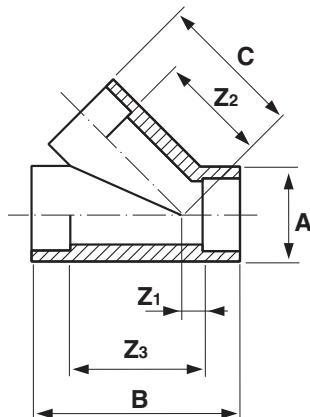
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32	10	40	31	8	27	11 119 308
40	10	50	37	10	54	11 119 309
50	10	62	45	13	100	11 119 310
63	10	82	54	16	180	11 119 311
75	10	90	63	17	300	11 119 312
90	10	112	70	18	550	11 119 313
110	10	137	90	27	950	11 119 314
125	10	155	103	31	1350	11 119 315
140	10	173	115	37	1980	11 119 316
160	10	190	125	35	2920	11 119 317
200	10	230	152	44	3460	11 119 318
225	10	260	174	51	4920	11 119 319
250	10	286	189	58	5900	11 119 320
315	8	359	230	66	11880	11 119 323

Elbows 90°



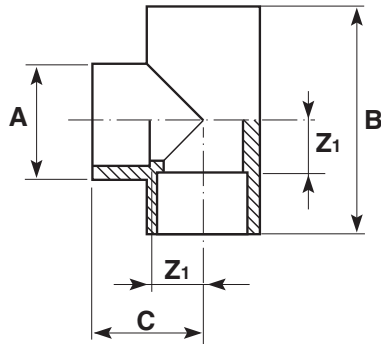
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32	10	40	41	18	35	11 115 308
40	10	50	47	20	68	11 115 309
50	10	62	59	26	129	11 115 310
63	10	78	71	31	230	11 115 311
75	10	90	83	38	385	11 115 312
90	10	112	100	49	690	11 115 313
110	10	136	125	63	1220	11 115 314
125	10	155	140	63	1720	11 115 315
140	10	173	153	76	2390	11 115 316
160	10	190	172	79	3600	11 115 317
200	10	235	207	110	4300	11 115 318
225	10	260	240	119	6550	11 115 319
250	10	286	319	188	9560	11 115 320
315	8	359	400	236	17910	11 115 323

Tees 45° plain



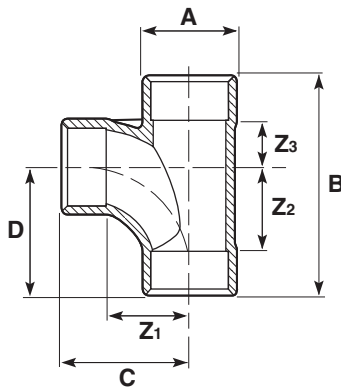
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32	10	41	98	65	9	42	52	80	11 418 308
40	10	50	117	77	11	51	65	135	11 418 309
50	10	60	140	95	12	63	78	195	11 418 310
63	10	74	169	114	13	76	93	410	11 418 311

Tees 90° equal



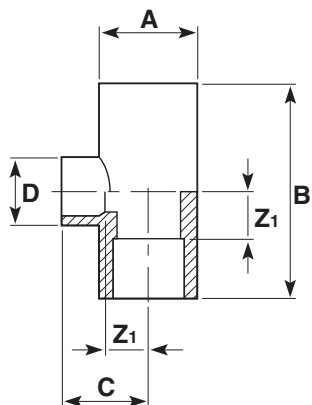
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25	10	31	67	34	15	24	11 122 307
32	10	40	81	43	18	48	11 122 308
40	10	50	99	50	23	87	11 122 309
50	10	62	119	62	28	160	11 122 310
63	10	78	146	70	34	300	11 122 311
75	10	90	172	87	36	510	11 122 312
90	10	112	205	104	46	900	11 122 313
110	10	132	248	128	60	1650	11 122 314
125	10	154	276	143	67	2300	11 122 315
140	10	172	307	153	72	3200	11 122 316
160	10	190	343	172	87	4800	11 122 317
200	10	237	413	206	101	5800	11 122 318
225	10	262	482	239	120	7700	11 122 319
250	10	286	518	259	128	10160	11 122 320
315	8	360	652	326	162	19390	11 122 323

Tees 90° swept



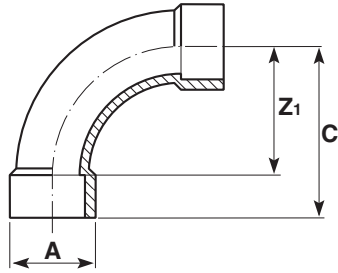
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63	10	78	195	125	125	87	87	32	480	11 148 311
75	10	92	210	125	125	81	81	41	601	11 148 312
110	10	139	315	190	190	127	127	62	2235	11 148 314

Tees 90° reducing



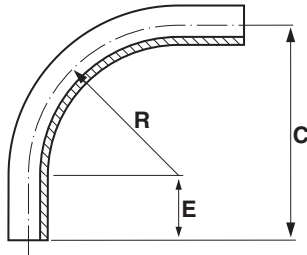
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40 x 20	10	50	98	39	25	22	72	11 124 421
40 x 25	10	50	98	41	31	22	72	11 124 422
50 x 20	10	62	119	44	29	27	104	11 124 424
50 x 25	10	62	119	46	31	27	140	11 124 425
50 x 32	10	62	119	50	40	27	140	11 124 426
63 x 25	10	78	146	53	31	34	250	11 124 429
63 x 32	10	78	146	57	40	34	250	11 124 430
75 x 32	10	91	168	62	41	40	391	11 124 435
75 x 40	10	91	168	66	50	40	398	11 124 436
75 x 50	10	91	168	71	61	40	406	11 124 437
75 x 63	10	91	168	78	76	40	428	11 124 438
90 x 40	10	109	198	74	50	48	642	11 124 441
90 x 50	10	109	198	79	61	48	649	11 124 442
90 x 63	10	109	198	86	76	48	664	11 124 443
90 x 75	10	109	198	92	91	48	693	11 124 444
110 x 50	10	133	244	92	61	61	1165	11 124 448
110 x 63	10	133	244	99	76	61	1173	11 124 449
110 x 75	10	133	244	105	91	61	1188	11 124 450
110 x 90	10	133	244	112	109	61	1210	11 124 451

Bends 90°



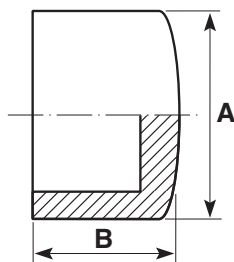
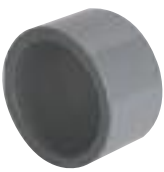
Size	PN	A	C	Z ₁	Weight gms	Code
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25	10	33	69	50	38	11 118 307
32	10	41	87	64	75	11 118 308
40	10	51	107	80	135	11 118 309
50	10	62	132	100	245	11 118 310
63	10	78	165	126	470	11 118 311
75	10	93	195	150	810	11 118 312
90	10	111	234	180	1350	11 118 313
110	10	140	284	220	2570	11 118 314

Fabricated bends 90° plain



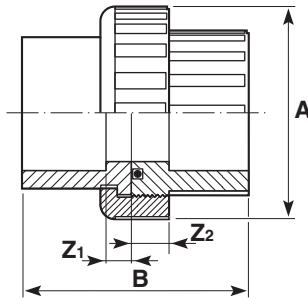
Size	C	E	R	Weight gms	Code
125	750	250	500	4790	11 309 315
140	840	280	560	6700	11 309 316
160	960	320	640	10040	11 309 317
200	1200	400	800	19480	11 309 318
225	1350	450	900	27850	11 309 319

Caps plain



Size	PN	A	B	Weight gms	Code
16	10	21	16	3	11 149 305
20	10	25	21	5	11 149 306
25	10	31	24	8	11 149 307
32	10	41	30	19	11 149 308
40	10	50	35	30	11 149 309
50	10	62	41	53	11 149 310
63	10	78	50	106	11 149 311
75	10	94	59	180	11 149 312
90	10	112	70	300	11 149 313
110	10	136	84	570	11 149 314

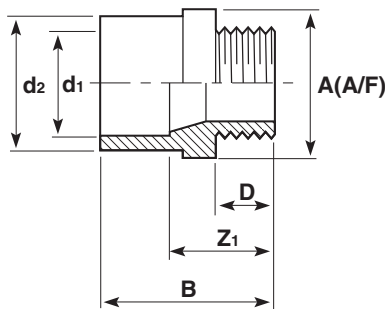
Socket unions



Size	PN	A	B	Z ₁	Z ₂	Weight gms	Code
16	10	34	42	3	10	19	11 205 305
20	10	40	47	3	10	29	11 205 306
25	10	50	53	3	10	46	11 205 307
32	10	57	64	8	11	70	11 205 308
40	10	73	78	10	13	140	11 205 309
50	10	80	92	13	15	154	11 205 310
63	10	102	111	14	20	270	11 205 311
75	10	135	107	8	13	720	11 205 312
90	10	157	115	7	4	750	11 205 313
110	10	183	138	8	7	1115	11 205 314

EPDM seal as standard.

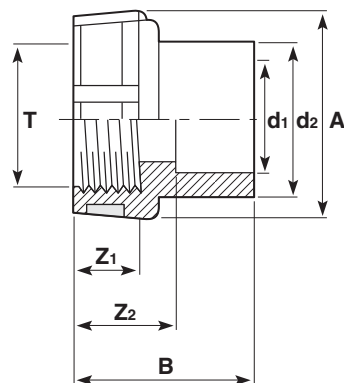
Male threaded adaptors BSP taper male thread



Size	PN	T*	A	B	D	Z ₁	Weight gms	Code
16- 12-	10	3/8	19	35	11	22	7	11 151 331
20- 16-	10	3/8	24	38	12	24	7	11 151 332
20- 16-	10	1/2	24	42	15	28	7	11 151 333
20- 16-	10	3/4	30	46	16	28	8	11 151 327
25- 20-	10	1/2	30	46	15	28	13	11 151 334
25- 20-	10	3/4	30	48	16	31	14	11 151 335
32- 25-	10	1/2	36	51	15	32	23	11 151 352
32- 25-	10	3/4	36	52	16	33	23	11 151 336
32- 25-	10	1	36	55	19	36	23	11 151 337
40- 32-	10	1	46	58	20	36	36	11 151 338
40- 32-	10	1 1/4	46	60	21	37	38	11 151 339
50- 40-	10	1 1/4	55	66	22	39	70	11 151 340
50- 40-	10	1 1/2	55	66	21	39	70	11 151 341
63- 50-	10	1 1/2	72	73	22	41	115	11 151 342
63- 50-	10	2	72	78	26	46	123	11 151 343
75- 63-	10	2	80	84	26	46	150	11 151 345

*Thread size designation.

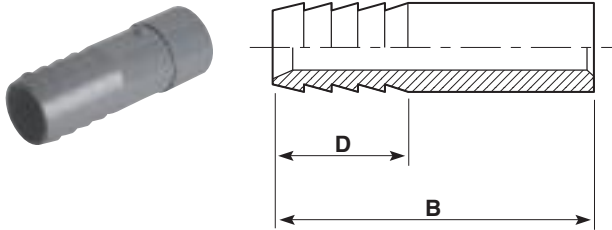
Female threaded adaptors BSP taper female threaded reinforced



Size	PN	T*	A	B	Z ₁	Z ₂	Weight gms	Code
16- 12-	10	3/8	24	28	11	16	7	11 153 331
20- 16-	10	1/2	30	35	15	21	14	11 153 333
25- 20-	10	3/4	38	39	16	22	21	11 153 335
32- 25-	10	1	45	45	18	26	42	11 153 337
40- 32-	10	1 1/4	56	54	21	31	69	11 153 339
50- 40-	10	1 1/2	64	60	21	33	108	11 153 341
63- 50-	10	2	78	72	25	41	169	11 153 343

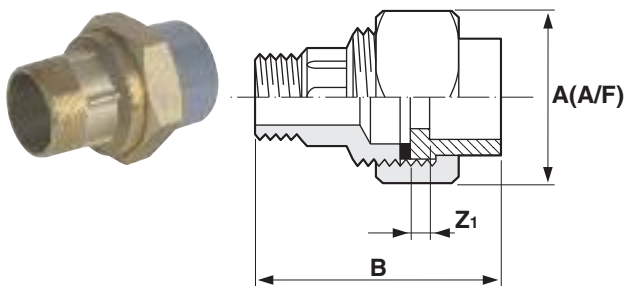
*Thread size designation.

Hose adaptors spigot end



Size	PN	B	D	Weight gms	Code
16	10	60	25	8	11 158 305
20	10	75	30	13	11 158 306
25	10	80	35	20	11 158 307
32	10	90	40	32	11 158 308

Male composite unions ABS/Brass, BSP taper male thread



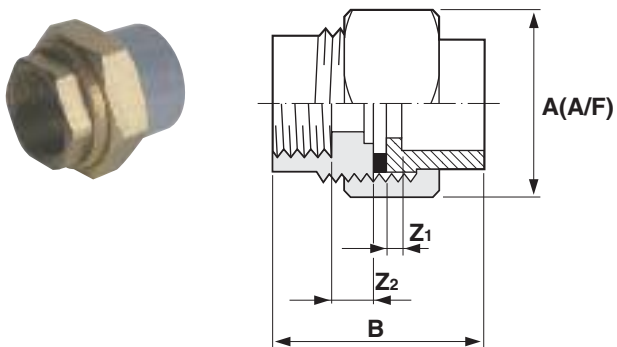
Size	PN	A	B	Z ₁	Z ₂	Weight gms	Code
16 x 3/8*	10	32	48	3	9	100	11 217 305
20 x 1/2*	10	40	54	3	9	165	11 217 306
25 x 3/4*	10	48	74	3	10	250	11 217 307
32 x 1*	10	55	86	8	11	310	11 217 308
40 x 1 1/4*	10	65	94	10	11	450	11 217 309
50 x 1 1/2*	10	78	108	12	12	800	11 217 310
63 x 2*	10	88	126	12	14	950	11 217 311

*Thread sizes designation.

Fitted with brass retaining nut and EPDM rubber seal.

Brass material to BS 2872, WRAS approved.

Female composite unions ABS/Brass, BSP parallel female



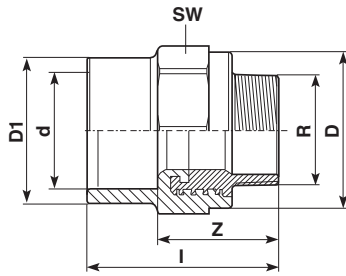
Size	PN	A	B	Z ₁	Z ₂	Weight gms	Code
16 x 3/8*	10	32	37	3	7	105	11 216 305
20 x 1/2*	10	40	43	3	7	175	11 216 306
25 x 3/4*	10	48	47	3	7	320	11 216 307
32 x 1*	10	55	59	8	9	420	11 216 308
40 x 1 1/4*	10	65	68	10	8	620	11 216 309
50 x 1 1/2*	10	78	76	12	9	1000	11 216 310
63 x 2*	10	88	89	12	11	1200	11 216 311

*Thread sizes designation.

Fitted with brass retaining nut and EPDM rubber seal.

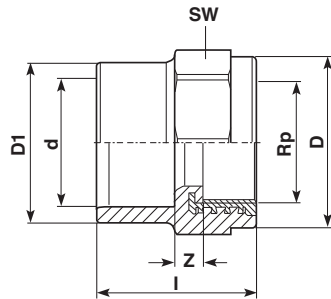
Brass material to BS 2872, WRAS approved.

ABS/male brass threaded fittings BSP



Size	PN	D	D ₁	L	Z	SW	Code
20 x 1/2	10	35	29	55	40	36	11 228 306
25 x 3/4	10	43	34	58	42	44	11 228 307
32 x 1	10	50	43	66	48	51	11 228 308
40 x 1 1/4	10	62	52	74	53	63	11 228 309

ABS/female brass threaded fittings BSP



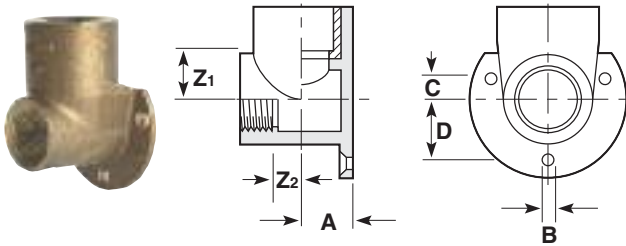
Size	PN	D	D ₁	L	Z	SW	Code
20 x 1/2	10	35	29	40	11	36	11 229 306
25 x 3/4	10	43	34	42	11	44	11 229 307
32 x 1	10	50	43	48	12	51	11 229 308
40 x 1 1/4	10	62	55	54	13	63	11 229 309

ABS flexible braided hoses plain spigot x BSP



Size	Description	Code
20	ABS Flexible hose 300mm long x 20 x 1/2"	11 450 306
25	ABS Flexible hose 300mm long x 25 x 3/4"	11 450 307
32	ABS Flexible hose 300mm long x 32 x 1"	11 450 308
20	ABS Flexible hose 600mm long x 20 x 1/2"	11 451 306
25	ABS Flexible hose 600mm long x 25 x 3/4"	11 451 307
32	ABS Flexible hose 600mm long x 32 x 1"	11 451 308

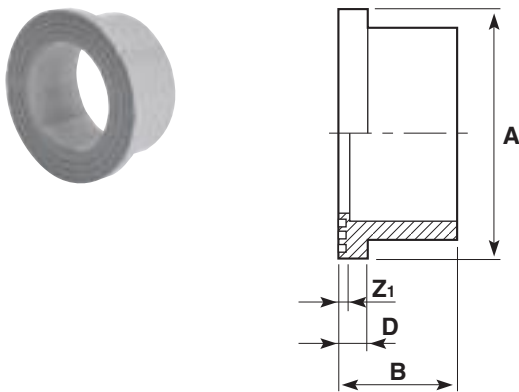
Wall brackets ABS/brass body



Size	PN	A	B	C	D	Z ₁	Z ₂	Weight gms	Code
16 - 3/8*	10	15	4.5	6	19	17	9	180	31 422 326
20 - 1/2*	10	16.5	4.5	6	19	18	9	185	31 422 327
25 - 1/2*	10	20	4.5	5	24	19	11	215	31 422 328
25 - 3/4*	10	20	4.5	5	24	19	11	200	31 422 329

*Thread sizes designation.

Stub flanges serrated face

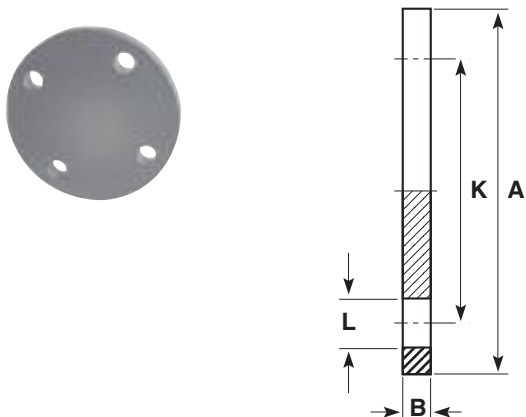


Size	PN	A	B	D	Z ₁	Weight gms	Code
16	10	29	17	6	3	5	11 135 305
20	10	34	20	6	3	8	11 135 306
25	10	41	22	7	3	13	11 135 307
32	10	50	26	7	3	19	11 135 308
40	10	61	30	8	3	36	11 135 309
50	10	73	35	8	3	60	11 135 310
63	10	90	42	9	4	100	11 135 311
75	10	106	49	10	4	150	11 135 312
90	10	125	59	11	6	240	11 135 313
110	10	149	68	12	6	370	11 135 314
125	10	165	76	13	5	520	11 135 315
140	10	180	83	14	7	680	11 135 316
160	10	205	93	16	5	930	11 135 317
200*	10	252	114	17	6	1520	11 135 318
225	10	273	126	24	6	1360	11 135 319
250	10	306	140	20	9	2140	11 135 320
315	10	375	180	32	14	5000	11 135 323

*The 200mm (NW175) stub flange supplied by Durapipe when used in conjunction with backing ring; code number 421 318 and 420 318 has a bolt circle diameter which matches 225mm (NW200) valves and fittings (295mm).

Note: 125mm and 200mm stub flanges are not suitable for connection to DN125 and DN200 butterfly valves.

Blank flanges

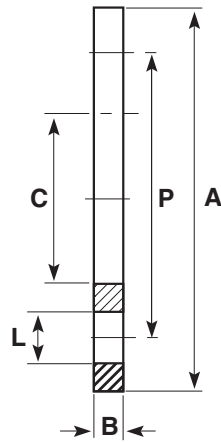


DIN 2501 16 bar/PN16

Size	PN	A	B	K	L	No. holes	Weight gms	Code
32	10	116	13	85	14	4	139	11 323 308
40	10	141	13	100	18	4	204	11 323 309
50	10	153	13	110	18.5	4	237	11 323 310
63	10	166	19	124	18	4	447	11 323 311
75	10	186	19	145	18.5	4	568	11 323 312
90	10	201	19	159	18	8	645	11 323 313
110	10	221	26	180	18	8	715	11 323 314
125	10	251	26	210	18	8	1338	11 323 315
140	10	251	26	210	18	8	1338	11 323 316
160	10	286	27	240	23	8	1720	11 323 317

Note: Durapipe backing rings must be used in conjunction with blank flanges.

Backing rings galvanised mild steel



Drilled to DIN 2501 (BS4504) PN10/PN16

Size	A	B	C	P	L	No. holes	Weight gms	Code
16	90	7	23	61	14	4	240	13 421 305
20	96	6	28	65	14	4	300	13 421 306
25	106	7	34	75	14	4	320	13 421 307
32	116	7	42	85	14	4	350	13 421 308
40	142	7	51	100	18	4	420	13 421 309
50	152	7	62	110	18	4	710	13 421 310
63	165	8	78	125	18	4	1010	13 421 311
75	186	9	92	145	18	4	1280	13 421 312
90	201	9	110	160	18	8	1380	13 421 313
110	220	9	133	180	18	8	1430	13 421 314
125	253	8	150	210	18	8	1960	13 421 315
140	251	11	167	210	18	8	2060	13 421 316
160	286	11	190	240	22	8	2700	13 421 317

Drilled to DIN 2501 (BS4504) PN10

Size	A	B	C	P	L	No. holes	Weight gms	Code
200	340	11	235	295	22	8	3830	13 421 318
225	340	11	249	295	22	8	3190	13 421 319
250	396	20	278	350	22	12	9450	13 421 320
315	448	20	349	402	22	12	8400	13 421 323

Drilled to DIN 2501 (BS4504) PN16

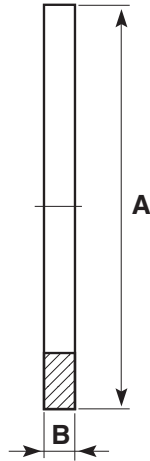
Size	A	B	C	P	L	No. holes	Weight gms	Code
200	340	11	235	295	22	12	3830	13 420 318
225	340	11	249	295	22	12	3190	13 420 319
250	405	20	278	355	26	12	9450	13 420 320
315	460	20	349	410	26	12	8400	13 420 323

Drilled to ANSI CLASS 150

Size	A	B	C	P	L	No. holes	Weight gms	Code
20	90	8	28	61	16	4	300	13 448 306
25	100	8	34	70	16	4	380	13 448 307
32	110	9	42	79	16	4	480	13 448 308
40	118	8	51	90	16	4	530	13 448 309
50	129	8	63	99	16	4	590	13 448 310
63	154	10	78	121	19	4	1050	13 448 311
90	192	11	110	153	19	4	1470	13 448 313
110	230	11	133	190	19	8	2080	13 448 314

*The 200mm (NW175) stub flange supplied by Durapipe when used in conjunction with backing ring; code number 421 318 and 420 318 has a bolt circle diameter which matches 225mm (NW200) valves and fittings (295mm)

Flat gaskets/stub flanges



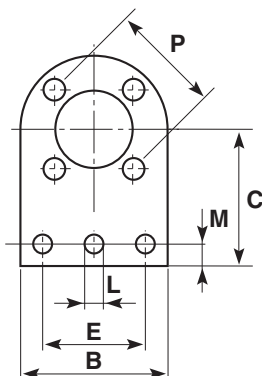
Size	A	B	Weight gms	EPDM Code
16	29	3.0	2	13 411 305
20	34	3.5	2	13 411 306
25	41	3.5	3	13 411 307
32	50	3.0	4	13 411 308
40	60	3.0	4	13 411 309
50	72	3.3	5	13 411 310
63	90	4.0	10	13 411 311
75	106	3.0	20	13 411 312
90	125	3.1	30	13 411 313
110	150	4.0	40	13 411 314
125	166	4.0	50	13 411 315
140	180	4.0	60	13 411 316
160	205	4.0	70	13 411 317
200	253	4.0	120	13 411 318
225	274	3.8	165	13 411 319
250	306	4.0	170	13 411 320
280	330	4.0	190	13 411 321
315	379	4.2	220	13 411 323

Flange assembly kits



Note: Pre-packed flange assemblies are also available and consist of an ABS stub flange, galvanised mild steel backing ring and gasket on one single product code. Ordering these products guarantees a correct fit between the components. See the Durapipe Building Services Price List for further details.

Valve support plates galvanised mild steel



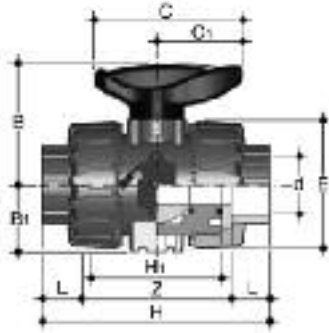
DIN 2501 16 bar/PN16

Size	B	C	E	L	M	N	P	No. holes	Weight gms	Code
16	91	84	50	14	16	2	61	4	370	31 459 305
20	97	86	49	14	16	2	65	4	640	31 459 306
25	105	89	76	14	16	2	75	4	750	31 459 307
32	114	96	77	14	12	2	85	4	860	31 459 308
50	150	125	100	14	22	2	110	4	1480	31 459 310
63	160	134	100	14	24	2	125	4	2100	31 459 311
75	185	144	125	14	22	2	145	4	2500	31 459 312
90	203	150	127	14	23	2	160	8	2660	31 459 313
110	214	160	150	14	22	3	179	8	2960	31 459 314

N = No. of holes in base.

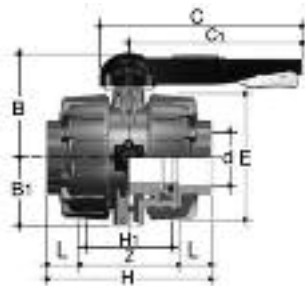
Valves

VKD Double union ball valves manual - EPDM seals



d	DN	PN	L	Z	H	E	B	C	gms	Code
16	10	10	14	75	103	55	54	67	200	HO DKA 305
20	15	10	16	71	103	55	54	67	195	HO DKA 306
25	20	10	19	77	115	66	65	85	310	HO DKA 307
32	25	10	22	84	128	75	70	85	440	HO DKA 308
40	32	10	26	94	146	87	83	108	645	HO DKA 309
50	40	10	31	102	164	100	89	108	880	HO DKA 310
63	50	10	38	123	199	122	108	134	1490	HO DKA 311

VKD Double union ball valves manual - EPDM seals



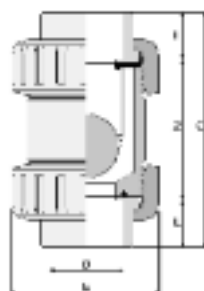
d	DN	PN	Z	L	H	H ₁	E	B	B ₁	C	C ₁	gms	Code
75	65	10	147	44	235	133	164	164	87	225	175	4380	HO DKA 312
90	80	10	168	51	270	149	203	177	105	327	272	7200	HO DKA 313
110	100	10	186	61	308	167	238	195	129	385	330	11141	HO DKA 314

VXE Double union ball valves manual - EPDM seals



d	DN	PN	L	Z	H	E	B	C	C ₁	gms	Code
20	15	16	16	50	82	54	49	64	20	175	HO XEA 306
25	20	16	19	53	91	63	62	78	23	260	HO XEA 307
32	25	16	22	59	103	72	71	87	27	365	HO XEA 308
40	32	16	26	68	120	85	82	102	30	565	HO XEA 309
50	40	16	31	77	139	100	92	109	33	795	HO XEA 310
63	50	16	38	98	174	118	110	133	39	1325	HO XEA 311

UC Ball check valves EPDM seals



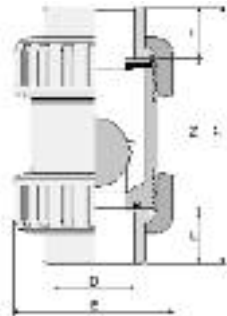
Size	L	Z	C	E	gms	Code
20	17	48	82	50	96	HO UCA 306
25	19	55	93	59	99	HO UCA 307
32	22	62	106	68	145	HO UCA 308
40	26	75	127	80	234	HO UCA 309
50	31	84	146	96	357	HO UCA 310
63	38	99	175	116	937	HO UCA 311

Options:

FPM seals (plain ends) order HO UCB***

For threaded versions refer to Imperial Valves section.

UA Air release valves FPM seals



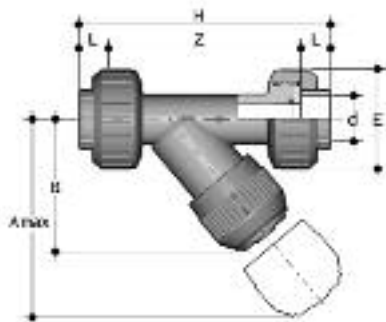
Size	L	Z	C	E	gms	Code
20	17	48	82	50	96	HO UAA 306
25	19	55	93	59	99	HO UAA 307
32	22	62	106	68	145	HO UAA 308
40	26	75	127	80	234	HO UAA 309
50	31	84	146	96	357	HO UAA 310
63	38	99	175	116	937	HO UAA 311

Options:

FPM seals (plain ends) order HO UAB***

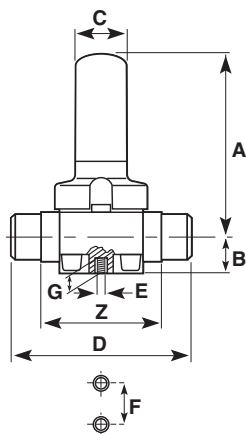
For threaded versions refer to Imperial Valves section.

RV Y-Type strainers plain ends - EDPM seals



D	DN	PN	A	B	E	L	Z	H	Fig.	gms	Code
20	15	10	125	72	55	16	103	135	A	211	HO UVA 306
25	20	10	145	84	66	19	120	158	A	358	HO UVA 307
32	25	10	165	95	75	22	132	176	A	256	HO UVA 308
40	32	10	190	111	87	26	155	207	A	733	HO UVA 309
50	40	10	210	120	100	31	181	243	A	1095	HO UVA 310
63	50	10	240	139	120	38	222	298	A	1843	HO UVA 311

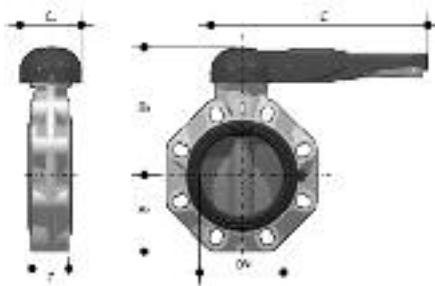
PR Pressure relief valves EPDM seals - union ended product



Size	PN	Z	A	B	C	D	E	F	G	gms	Code
20	10	92	143	20.5	35	146	M6	25	12	700	HO PRA 306
25	10	106	143	20.5	35	152	M6	25	12	700	HO PRA 307
32	10	108	143	25.0	35	166	M6	25	12	700	HO PRA 308
40	10	120	204	36.0	50	192	M8	44.5	16	1500	HO PRA 309
50	10	130	204	39.5	50	222	M8	44.5	16	1500	HO PRA 310
63	10	146	219	49.0	50	266	M8	44.5	16	2400	HO PRA 311

Valves can be supplied as electrically or pneumatically actuated.

FK Butterfly valves glass reinforced polypropylene with ABS disc

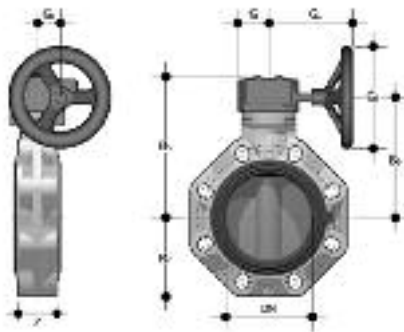


Lever operated

d	DN	PN	B ₂	B ₃	C	C ₁	gms	U	Z	Code
50	40	16	60	137	175	100	900	4	33	HO FKA 106
63	50	16	70	143	175	100	1080	4	43	HO FKA 107
75	65	10	80	164	272	110	1470	4	46	HO FKA 108
90	80	10	93	178	272	110	1870	8	49	HO FKA 109
110	100	10	107	192	272	110	2220	8	56	HO FKA 110
140	125	10	120	212	330	110	3100	8	64	HO FKA 111
160	150	10	134	225	330	110	3850	8	70	HO FKA 112
225	200	10	161	272	420	122	6750	8	71	HO FKA 113

U = No. of holes.

with gear box

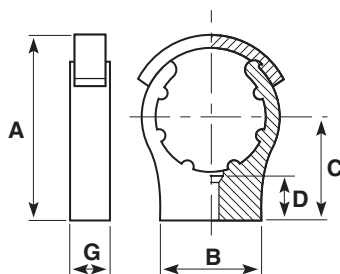


Size	DN	PN	B ₁	B ₂	B ₃	G	G ₁	G ₂	G ₃	gms	U	Z	Code
75	65	10	80	174	146	48	135	39	125	2400	4	46	HV FKA 108
90	80	10	93	188	160	48	135	39	125	2800	8	49	HV FKA 109
110	100	10	107	202	174	48	135	39	125	3150	8	56	HV FKA 110
140	125	10	120	222	194	48	144	39	200	4450	8	64	HV FKA 111
160	150	10	134	235	207	48	144	39	200	5200	8	70	HV FKA 112
225	200	10	161	287	256	65	204	60	200	9300	8	71	HV FKA 113
250	250	10	210	317	281	88	236	76	250	18600	12	114	HV FKA 114
315	300	8	245	374	338	88	236	76	250	25600	12	114	HV FKA 115

Note: Lugged versions available to special order.
Please refer to our Valve Department for further details.

Accessories

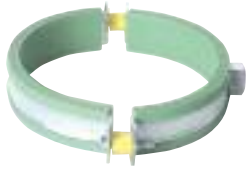
Cobra pipe clips



Size	A	B	C	D	G	Bolt/screw	gms	Code
*12	-	24	25	15	16	M4/3BA/No 8	5	13 434 304
*16	-	35	25	17	16	M4/3BA/No 8	7	13 434 305
*20	-	35	30	14	16	M5/1BA/No 10	8	13 434 306
*25	-	35	35	16	17	M5/1BA/No 10	11	13 434 307
32	65	45	40	17	17	M5/1BA/No 10	14	13 434 308
40	75	45	45	20	20	M5/1BA/No 10	21	13 434 309
50	85	50	50	22	21	M6/0BA/No 10	30	13 434 310
63	102	60	60	19	21	M6/0BA/No 10	42	13 434 311
75	122	70	70	27	31	M8	94	13 434 312
90	148	80	90	39	31	M8	121	13 434 313
110	171	90	96	36	35	M8	184	13 434 314
125	204	144	132	40	40	M8	237	13 434 315
140	211	156	132	40	40	M8	252	13 434 316
160	243	170	150	40	40	M8	330	13 434 317

*Without retaining clips. Bolts/screws not supplied.

Rubber lined pipe clips



Size	Thread	Code
16mm	M8	FT PC 1600
20mm	M8	FT PC 2000
25mm	M8	FT PC 2500
32mm	M8	FT PC 3200
40mm	M8	FT PC 4000
50mm	M8	FT PC 5000
63mm	M8	FT PC 6300
75mm	M8	FT PC 7500
90mm	M10	FT PC 9000
110mm	M10	FT PC 1100
160mm	M10	FT PC 1601

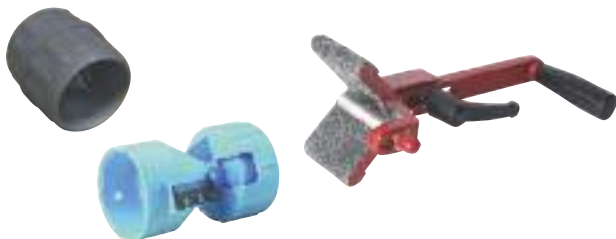
Note: 16-75mm thread changing to M10 during 2008 Q4.

Pipe trays



Pipe diameter (mm)	Standard length (m)	Standard pack quantity (m)	Code
16	3	90	FT 55 50 04
20	3	60	FT 55 50 06
25	3	36	FT 55 50 08
32	3	27	FT 55 50 11

Chamfering and de-burring tools



Description	Code
E 16-25mm pipe inner and outer milling cutter tool	FT 55 72 90
E 16-63mm pipe inner and outer milling cutter tool	FT 55 65 12
32-160mm chamfering tool	FT 55 05 10

Pipe cutters



Description	Code
16-63mm pipe cutter	FT 80 00 01
50-125mm pipe cutter	FT 80 00 03
16-63mm spare cutter wheel	FT 80 00 02
50-125mm spare cutter wheel	FT 80 00 04

SuperFLO one-step solvent cement and eco cleaner



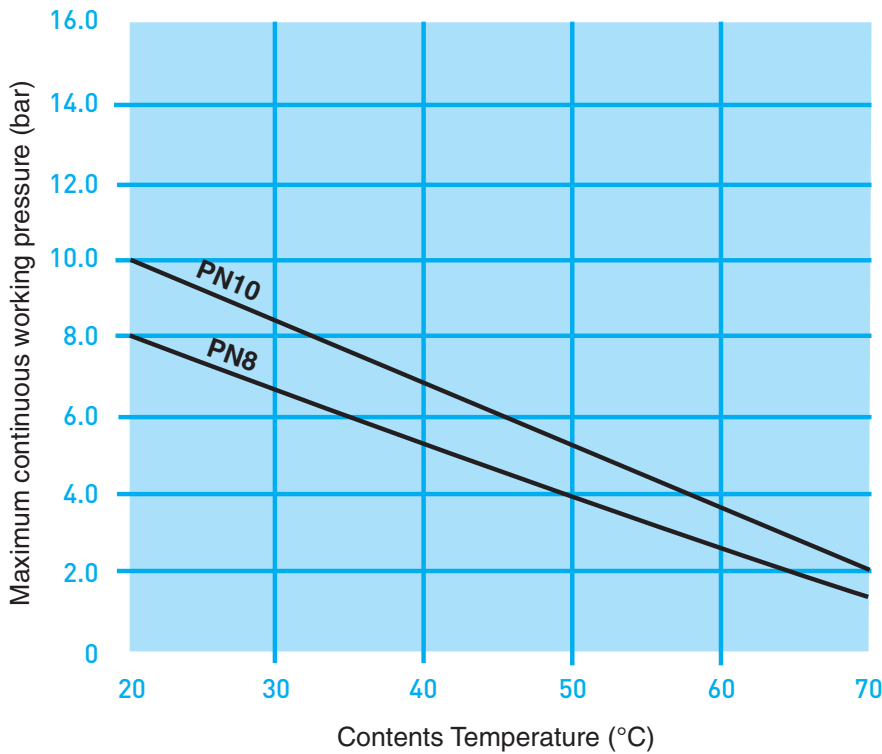
Description	Code
500ml grey one step cement	03 461 395
1 litre grey one-step cement	03 461 396
500ml eco cleaner	03 457 395

*Durapipe SuperFLO/ABS one-step cement **must** be used for jointing.

System Design and Installation Guide

Maximum pressure/temperature relationship

When temperature of contents exceeds 20°C the working pressure of the system must be reduced accordingly (see table below).



Flow calculations

Pressure drop due to friction in pipes conveying water can be determined using the Flow Nomogram on page 24.

The pressure drop at a given flow rate can be determined as follows:

1. Obtain the internal diameter of the pipe to be used by referring to the dimension table below:
2. Mark this diameter on Scale A.
3. Mark the required flow rate in litres per second on Scale B.
4. Draw a straight line connecting the points on Scales A and B and extend this to Scales C and D.
5. The velocity of flow in metres per second is determined from the intersection with Scale C.
6. The frictional head loss in metres per 100 metres of pipe can then be read off Scale D.

Fittings

The calculation of pressure drop in fittings is more complex but calculations can be made for equivalent lengths of straight pipe using the formula $E = F \times D$ where:

E = equivalent pipe length (metres)

F = fittings constant
(see table above)

D = fitting internal diameter (mm)

To calculate the total pressure drop in the system, the equivalent straight pipe lengths for fittings is then added to the total straight pipe length to obtain the total drop.

Fittings Constant

90° elbow	0.03
45° elbow	0.01
90° tee - straight through	0.01
90° tee - side branch	0.06
90° bend	0.01
45° bend	0.01
Reducing bush	
(per size reduction)	0.015
Butterfly valves	0.13
Diaphragm valves	0.23
Check valves	0.05

The values are included as a guide to aid calculation of overall system performance and should not be used in isolation.

Table of Pipe Internal Diameters

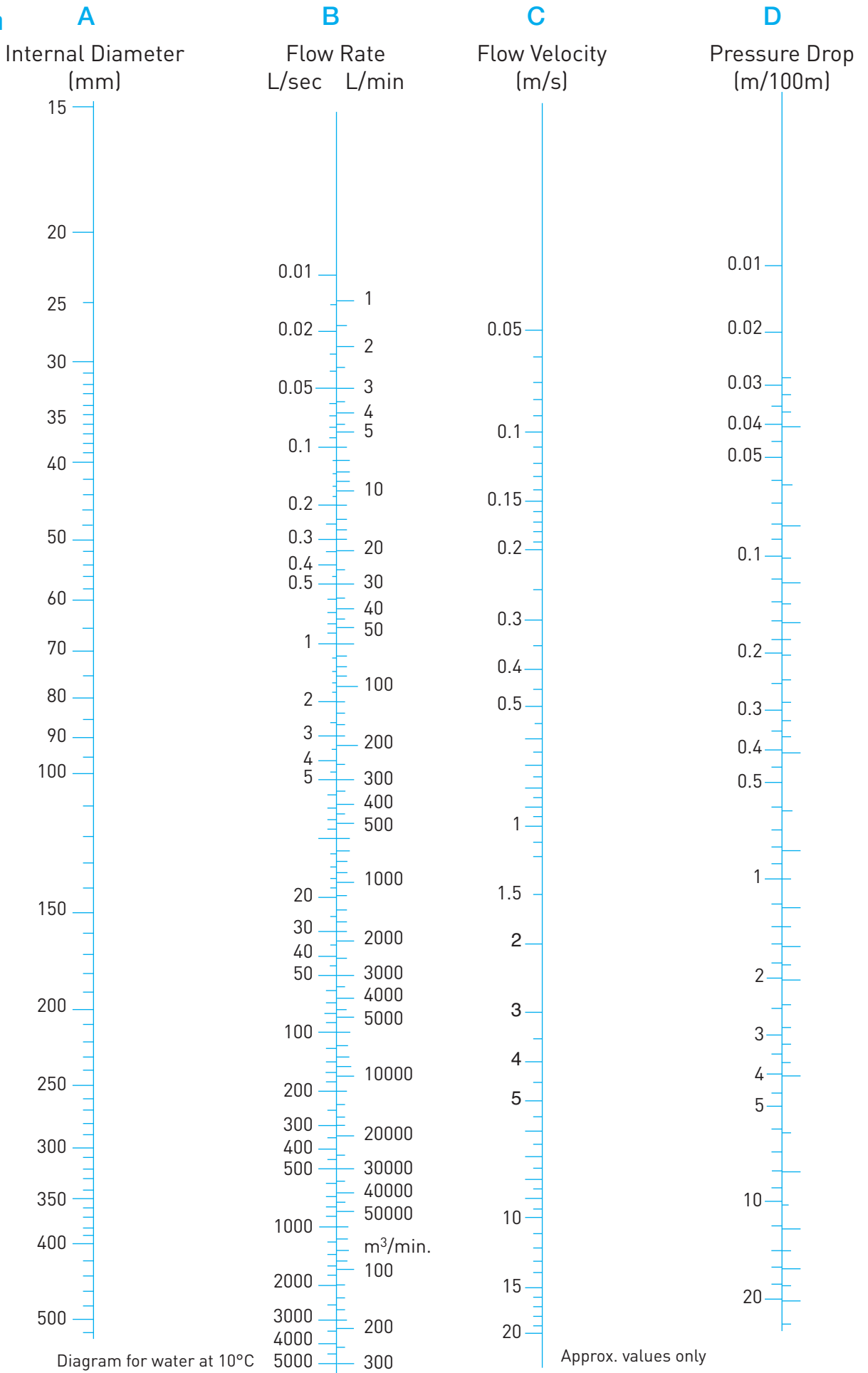
In accordance with ISO 161.

Pipe o/dia	Mean Bore
16	13.0
20	16.8
25	21.2
32	27.8
40	34.6
50	43.2
63	54.6
75	65.0
90	78.0
110	95.4
125	108.6
140	121.4
160	139.0
200	173.6
225	195.4
250	217.8
315	273.4

Note:

Higher pressure rated Imperial pipe and fittings are available on request. For further details contact the Technical Support Department on +44 (0)1543 272446.

**Flow
Nomogram**



Thermal expansion and contraction

Thermoplastic materials have a greater co-efficient of thermal expansion compared with metals. There will, therefore, be a greater change in length of the pipe run for any given temperature change.

Expansion and contraction can often be accommodated by using the natural flexibility of thermoplastic material, i.e. at 90° changes in direction, thus overcoming the problem with little or no additional expense (right).

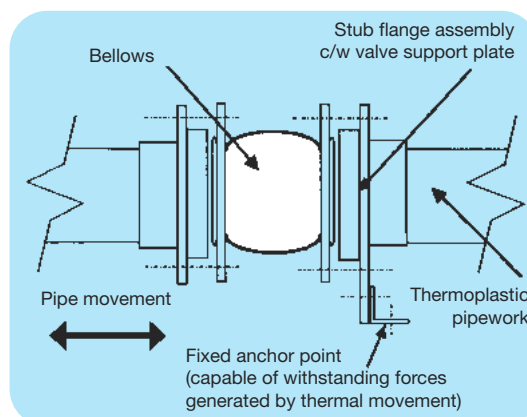
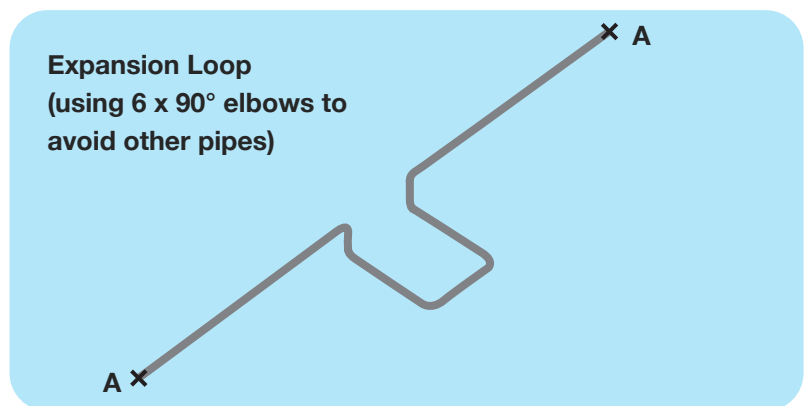
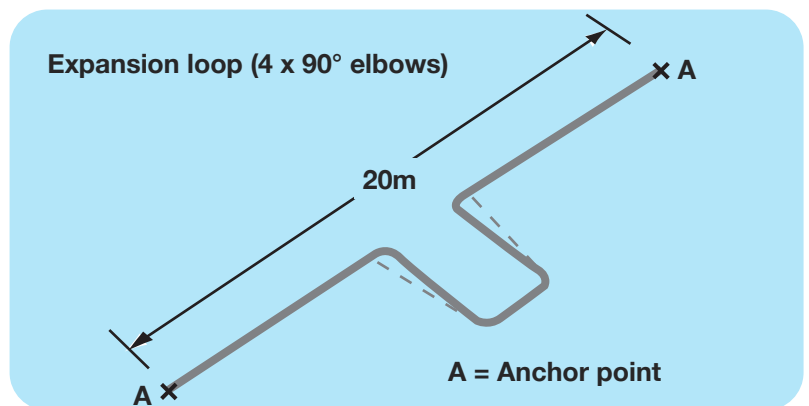
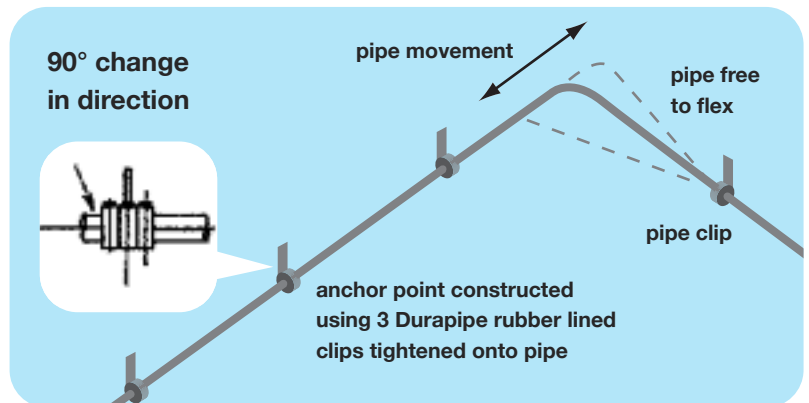
Pipe anchors

The direction of pipe movement can be controlled by the use of anchor points at strategic positions, as shown opposite.

Where there are no changes in direction (eg. a straight run along a corridor) it may be necessary to incorporate expansion loops (see right).

Expansion bellows

If there is insufficient room for expansion loops it will be necessary to incorporate expansion bellows (see below). These must be of a suitable design to ensure correct operation with SuperFLO pipework. Most manufacturers of these units will have products in their range designed for use with plastic pipework. Their advice on the correct selection and installation must be followed.



Calculating thermal movement

SuperFLO pipe expands/contracts by 1mm/metre/10°C change in pipe temperature.

On chilled water and boosted cold water pipework, the greatest single change in temperature is generally that which occurs when the pipework is put into service, particularly when this is done during spring or summer.

Example:

What is the anticipated change in length of a 20 metre run of SuperFLO conveying chilled water? The system is in the UK and is expected to be ready for commissioning during July or August. The CHW flow will run at 6°C and will return at 12°C. It will be insulated after pressure testing and commissioning is completed.

Calculation:

Ambient temperature indoors will probably be in the range of 20°C to 30°C. Assume pipe temperature prior to commissioning as (worse case) = 30°C.

Maximum change in pipe temperature will occur in CHW flow pipe, ie. 30 - 6 = 24°C.

The change in length, therefore, (using '1mm/metre/10°C') is 2.4mm/metre.

The change in length of a 20 metre run will be 2.4 x 20 = 48mm.

Answer:

As the pipe cools from 30°C to 6°C it will contract by 48mm.

Calculating free leg length

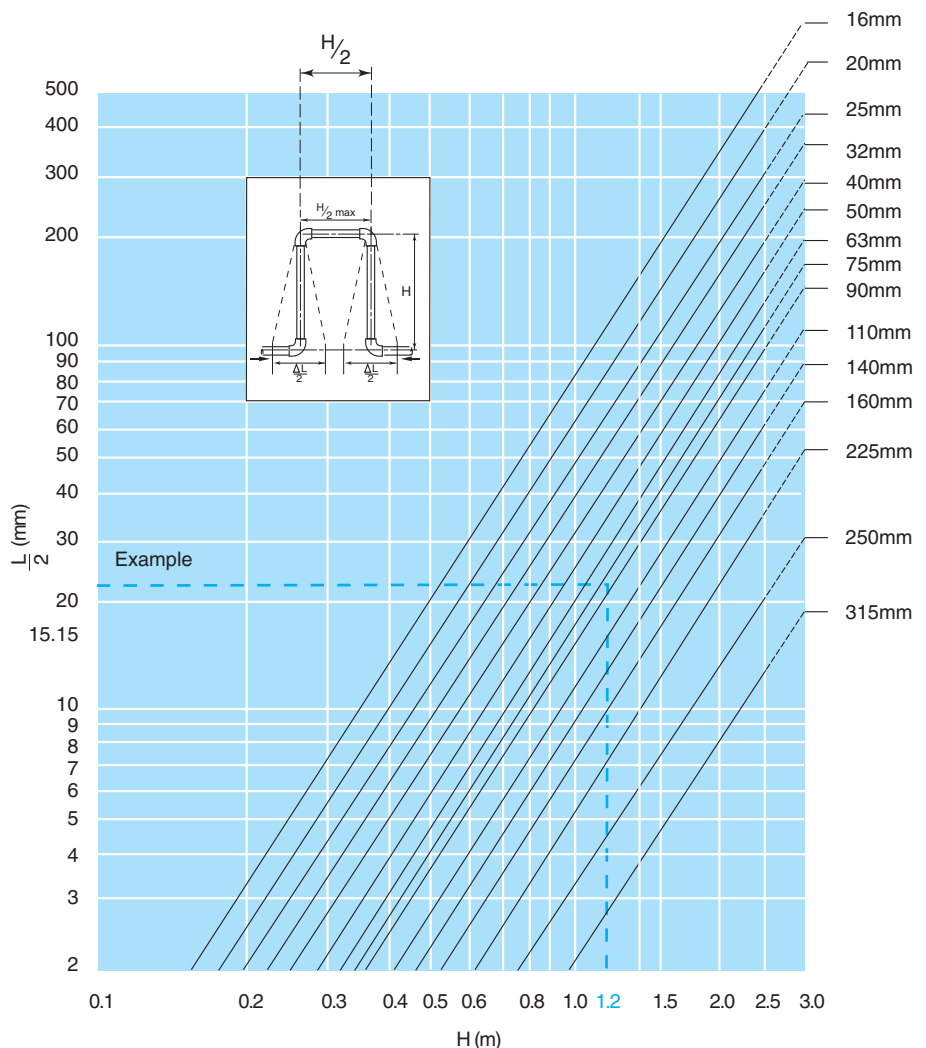
The length of unrestrained pipe at a 90° change in direction required to accommodate expansion or the leg length of an expansion loop can be calculated from the graph to the right. The example given below shows how to calculate leg length of an extension loop.

Example:

Calculate the size of expansion loop required for a 90mm diameter pipe contracting by a length = 48mm.

Draw a horizontal line from the vertical section to meet the 90mm pipe gradient line. Drop a perpendicular from the intersection point to the horizontal scale. The figure obtained is the free leg length of the loop required.

Hence, in this instance a loop measuring 1200mm long x 600mm wide will cater for movement.



Jointing guide

Durapipe SuperFLO pipes and fittings are designed for an interference fit. Although Durapipe SuperFLO solvent cement has good gap filling properties no attempt should be made to increase the clearance between the pipes and fittings.

Solvent cement welding offers a simple and quick means of constructing high integrity, leak-free joints.

The solvent cement operates by chemically softening the joint surfaces. Joint integrity will be greatly reduced if these surfaces are not clean and properly prepared.

Durapipe SuperFLO solvent cement **must** be used.

The jointing procedure detailed here must be followed.

This relates to the new 'one-step' solvent cement. With this cement it is not necessary to abrade pipe or fitting.

An indication of the number of joints to be made per litre of cement is as follows:

Size (mm)	Recommended container size	Joints per litre
16 - 32	0.5 litre	400
40 - 63	0.5 litre	200
75 - 110	0.5 litre	70
125 - 140	1 litre	20
160 - 225	1 litre	10
250 - 315	1 litre	5



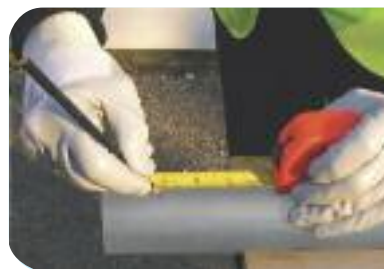
Stage 1

The pipe must be cut clean and square. A suitable wheel cutter will eliminate swarf.



Stage 2

Chamfer the end of the pipe using a coarse file or suitable chamfering tool. The chamfer should be approximately 45° by 3mm to 5mm depending on the pipe size.



Stage 3

Mark the pipe a known distance from the end and clear of the area to be cleaned. This mark should be used to confirm full insertion of pipe into socket of fitting.



Stage 4

Clean surfaces thoroughly with Durapipe Eco cleaner using lint free cloth/paper towel.

Drying times

The drying times will vary with fit, amount of solvent cement applied, ambient temperature and working pressure. It is recommended that, wherever possible, joints of sizes up to 225mm are allowed to dry for at least 24 hours.

Sizes 250 mm and 315mm require a minimum of 48 hours. These guidelines are based on an ambient temperature of between 10°C to 40°C. Longer drying times will be required at lower and higher ambient temperatures.

It is recognised that there will be occasions when the system will need to be put into service within a few hours of being made. A rough but safe working guide where the ambient temperature is between 10°C to 40°C and the contents temperature does not exceed 20°C is as follows:

Size range	Up to 75mm	90mm to 125mm	140mm & 160mm	200mm & 225mm	250mm & 315mm
Drying time	0.5 hour/bar	1.0 hour/bar	1.5 hour/bar	2.0 hours/bar	48hrs min

Stage 5

Using a clean brush apply cement to the pipe and fitting. The joint surfaces should be completely covered by cement. For larger pipe sizes, cement should be applied using an appropriate size brush and tin of cement. It is important to apply cement quickly to enable assembly without excessive force being required.



Stage 6

Immediately after applications of cement, push pipe fully home into the fitting. Do not twist. Hold the pipe and the fitting for times varying from a few seconds on size 16mm up to 1 minute on size 315mm. Application of the correct amount of cement will result in a neat bead of cement at the edge of the fitting and at the edge of the pipe.



Stage 7

Wipe off excess cement. Bead can be left unwiped for neatness. Check for and remove any runs of cement on face of flanges/unions or inside fittings. Using the mark previously made, check that the pipe has been fully inserted. Do not disturb a joint for least 10 minutes. On larger sizes do not subject the joint to bending or twisting forces for at least 4 hours (see below). When making subsequent joints, which can be done without waiting, take care not to transmit forces to freshly made joints in the system.



Important information

1. The integrity of Durapipe SuperFLO systems may be affected if SuperFLO one-step Thixotropic Solvent cement and Durapipe Eco cleaner is not used. Durapipe UK disclaims responsibility for any Durapipe SuperFLO system constructed with any other cement or not fabricated in accordance with the instructions herein.
2. Use the appropriate size of solvent cement tin/container and method of application for the size of pipe and fitting to be assembled.
3. To achieve the correct speed of application on sizes 140mm and above, cement should be applied simultaneously to pipe and fitting, by two people.

Jointing precautions

Durapipe SuperFLO solvents cement and Eco cleaner are hazardous, flammable, substances. Read instructions on labels, follow instructions, and take appropriate measures to reduce hazards. Always wear appropriate personal protective equipment.

- DO NOT** use near naked flames
- DO NOT** smoke in the working area
- DO NOT** use in confined spaces
- DO NOT** joint in the rain or wet conditions
- DO NOT** use dirty brushes
- DO NOT** use dirty or oily cleaning cloths
- DO NOT** use the same brush for different cements
- DO NOT** dilute or decant Durapipe SuperFLO solvent cement

Design of pipe supports and clips

Pipe supports (eg. drop rods) should be sufficiently rigid to provide lateral restraint to the pipework, otherwise the pipes may 'snake'. This will prevent the expansion loop from working correctly, and may even reduce the service life of the pipework.

Pipe clips must allow free, unrestricted, axial movement. The pipe clips shown on pages 21 and 22 meet these requirements.

Pipe clips

Some rubber lined clips contain harmful substances which can reduce the service life of the pipework. We recommend the use of pipe clips as shown on pages 21 and 22.

Support centres

The recommended distance between supports for SuperFLO pipes filled with water is given in the table above. This table is based on the thinnest wall pipe in each size. The details shown are for horizontal pipes. For vertical pipes, support centres may be increased by 50%.

Anchor blocks below ground

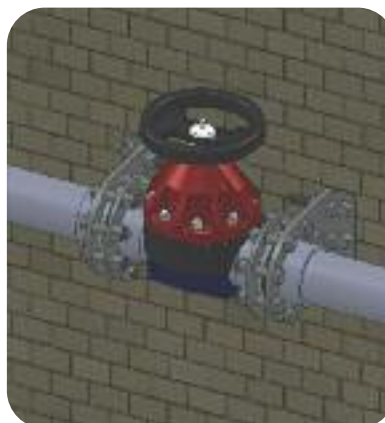
For wholly solvent welded systems the pipework is pressure balanced and anchor thrust blocks are not required.

Size (mm/imperial)	Support distance (m at 20°C)
16mm	0.8
20mm	0.9
25mm	1.0
32mm	1.1
40mm	1.2
50mm	1.3
63mm	1.4
75mm	1.5
90mm	1.6
110mm	1.8
125mm	1.9
140mm	2.0
160mm	2.1
200mm	2.2
225mm	2.3
250mm	2.5
315mm	2.9

Pipe trays are available for sizes 16mm, 20mm, 25mm and 32mm. These allow support distances to be increased to 2.0 metres.

Support of heavy equipment

Large valves, strainers and other heavy equipment should always be independently supported to prevent undue loading onto the SuperFLO system. Durapipe valve support plates have been designed for this purpose and may be used in place of flange backing rings.



Flexible hoses and metal threaded fittings

SuperFLO flexible hoses

SuperFLO flexible hoses have been introduced in response to customer demand and are specially designed to allow direct connection from Durapipe SuperFLO pipework to operating equipment.

If pipework is either short of a connection or at a higher or lower level to ancillary equipment, the braided flexible hoses can be solvent welded to SuperFLO pipework and then connected to operating equipment using a female threaded connection, forming a durable, leak-free fusion.

Manufactured in 300mm and 600mm lengths as standard, with additional sizes available on request, SuperFLO flexible hoses come in a choice of 20mm, 25mm and 32mm diameters. With an internal hose made from EPDM rubber, SuperFLO flexible hoses are also compliant with BSRIA Flexible Hose Standard BG4/2004.



SuperFLO metal threaded fittings

A series of brass ended fittings offer the ultimate in performance capabilities and provide a highly reliable connection between pipework and ancillary equipment across a range of building services applications.

These fittings have been specifically developed to offer increased customer options in the threaded fittings range. The fittings allow direct metal to metal connection and the ability to be solvent welded to pipework also ensures the fittings provide a durable connection to operational equipment.

Available in metric sizes up to 63mm the latest addition offers male and female connection options, providing specifiers with increased flexibility when selecting fittings for a variety of uses within the building services market.

Manufactured in the same sizes, a new half-faced union is also available in the Durapipe SuperFLO range. In ABS material, the new product can be connected to metal valves and easily removed and replaced with no cutting required. The half-faced union provides a male threaded adaptor for female ends.

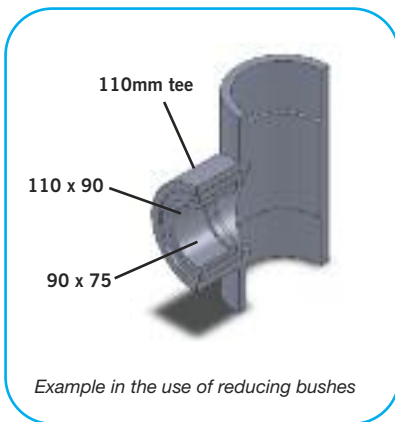


Using bushes, reducers, threaded adaptors and flanges

Reducing bushes

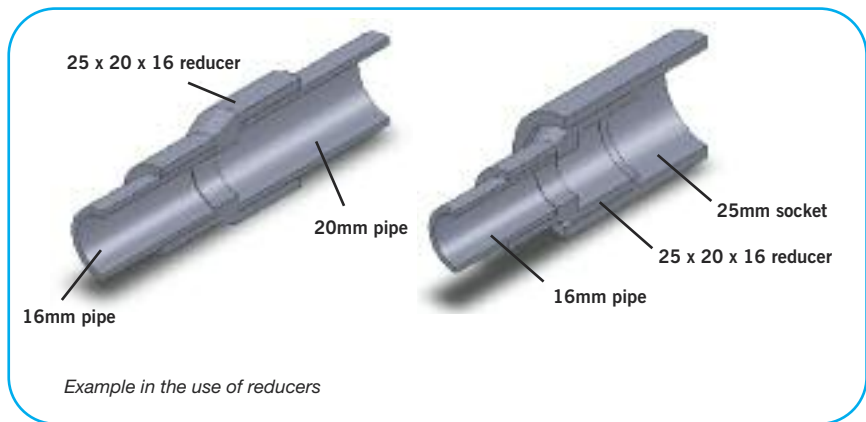
Reducing bushes offer a neat and simple method of reducing socket size in the minimum of space.

Care must be taken to properly prepare all jointing surfaces as recommended earlier, with the end of the bush being chamfered (unless a moulded chamfer is included).



The use of reducers

All fittings have female ends, dimensionally controlled for solvent welding. In addition, reducers in the Metric series have controlled outside diameter at the larger end. This allows use as a male or female component, as illustrated.



Connections - Plastics to metal

There are several recommended methods to connect metal and plastic systems:

- Composite unions
- Flanges
- Male threaded fittings
- Female threaded fittings

Plastics expand or contract more than metals for any given change in temperature. The practice of connecting plastic threaded fittings to metal threads is not recommended where the joint is likely to experience a temperature change of more than +/-5°C, otherwise leaks may occur.

SuperFLO threaded adaptors

Female and male threaded adaptors have controlled inside and outside diameters on the plain end. They can therefore be used as a male or female component.

PTFE

It is recommended that PTFE tape be used when making plastic threaded joints/connections.

Any other sealing compound must be confirmed by Durapipe as being suitable.

Unions and transitions

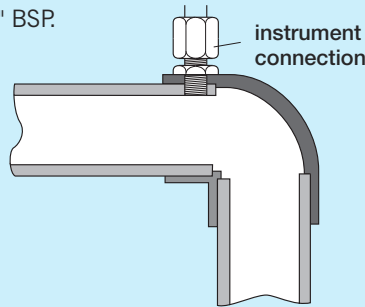
Available in sizes from 16-63mm with brass male or female BSP threads (see pages 14 and 15).

Connection to instrumentation

Instrumentation connections can be made by drilling through pipe and socket where the material is at its thickest and tapping the hole to receive a threaded fitting, as shown below:

Pipe size	Connection size
16mm-63mm	Use tees, reducing bushes and threaded fittings
75mm-110mm	Max. tapping 1/2" BSP.
125mm-140mm	Max. tapping 3/4" BSP.
160mm & above	Max. tapping 1" BSP.

Such connections, if correctly drilled and tapped with full thread form will have full PN10 pressure rating.



Tightening torques for flange bolts in SuperFLO piping systems

Recommended Torque Values (Nm)

Size	Torque
16	15
20	15
25	15
32	15
40	20
50	30
63	35
75	40
90	40
110	40
125	50
140	50
160	60
200	70
225	70
250	80
315	100

The tolerance on torque is +/- 10%

Flanged joints

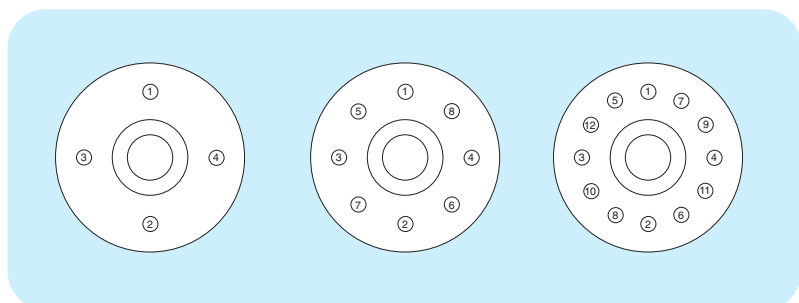
Stub flanges are available from 16mm to 315mm.

The correct galvanised mild steel backing ring and rubber gasket must be used with both types.

Flange bolting procedure

The following procedure is recommended for installing Durapipe SuperFLO flanges:

1. Inspect flange faces and ensure that they are clean and undamaged.
2. Check that the correct backing ring and rubber gaskets have been supplied. Durapipe supplies a matched system of flanges and backing rings.
3. Loosely assemble flanges. Ensure that flanges and bolt holes align and that the flange faces are parallel. Ensure that the gasket is correctly positioned between the flanges.
4. Ensure that the appropriate sized washers are placed under both bolt heads and nuts.
5. Tighten the nuts and bolts in a diagonally opposite sequence (see below) to ensure even loading around the flange to avoid distortion. It is recommended that the nuts and bolts be tightened as uniformly as possible progressively from a finger tight start.
6. Repeat as necessary until tightness of all bolts is achieved.



Additional Important Information

• Thermal insulation

Some insulation products can contain substances capable of having a detrimental effect on thermoplastic pipework eg. Certain types of foam rubber insulations can cause pipes to fail where the ABS is conveying liquids at temperatures above 30°C.

Recommended insulation – a list of some of the common types of insulation materials known to be suitable with ABS pipework are as follows;

Fibre wool, such as 'Rockwool'
Armaflex Class 1 HT
Koolphen K Phenolic foam
Polystyrene

Note: The above list is not exhaustive – please contact our Technical Support Department if further assistance is required. Some adhesives can also be detrimental. Do not bond insulation to ABS. (The comment also applies to any tapes, adhesives, or other substances used to secure the heating tape to the pipework.)

• Trace heating

The selection of heating tapes with silicone rubber, woven wire, or woven polyester outer sheaths will eliminate the risk of plasticizer migration. These tapes are therefore preferred for use on thermoplastic systems.

• Pipe contents identification

Do not put self-adhesive labels directly on to pipe surfaces as this may be detrimental to pipe performance. It is recommended that some sort of barrier, such as aluminium foil, is placed between pipe and identification label.

• Intumescent mastic and mastic sealants

Certain mastic sealants are formulated with phthalates. Phthalates are known to be extremely aggressive toward ABS materials, and therefore confirmation of the suitability of any mastic sealant should be determined before being used in conjunction with ABS pipework.

• Pipe clips

It is important that the composition of pipe clips and their linings do not include substances which might have a detrimental effect upon the ABS pipe. Please check for suitability before use.

We strongly recommend the use of Durapipe Cobra clips for pipe sizes up to and including 160mm OD / 6"NB, wherever circumstances allow.

• Contact with synthetic oils

Some synthetic oils are unsuitable for use with thermoplastic pipe systems. The main types of synthetic oils identified as being incompatible with thermoplastic pipe systems includes Esters, Polyalkylene Glycols, and Organic Phosphates.

It should be noted that some metal coil manufacturers use these oils in their manufacturing process. This is normally drained from the coil. If it is suspected that residues of oil may remain in the coil it should be filled with methylated spirits, then thoroughly flushed with water.

• Freezing conditions

Precautions should be taken to prevent contents freezing, as this can cause pipework to split.

Mono-ethylene glycol can be added to the system to lower the freezing point.

• Contact with fluxes

Some fluxes can be detrimental to ABS. Care should be taken when soldering copper pipework directly above, or close to, ABS pipework.

• Buried pipes

Do not lay ABS in contaminated ground eg. 'brown-field' sites. Do not lay ABS in ground where spillages of chemicals may occur.

• Thread sealants

Some thread sealants can damage ABS. PTFE tape should be used when making threaded connections.

• Resistance to U.V. (sunlight)

Care should be taken to avoid exposure to U.V. light, eg. sunlight, particularly during storage. Thus will cause discolouration and deterioration of the ABS material. Whilst this is a surface effect only it is recommended that precautions be taken to prevent this happening. If stored outdoors pipe should be covered with opaque sheeting. If installed outdoors it can be protected from the effects of U.V. by insulating or painting.

• Pressure surges

Durapipe ABS pipework can withstand pressure surges within the limitations detailed within CP312 part 2:1973 and its amendment dated 1977.

On no account should pressure surges be allowed to exceed the maximum continuous working pressure.

Mechanical, Physical and Electrical Data

Test Method

Value

Mechanical

Tensile strength at yield (23°C)	ASTM D635	45MN/m ²
Tensile modulus of elasticity	ASTM D635	2200MN/m ²
Poisson's ratio	-	0.35
Izod impact strength at 23°C (notched)	ASTM D256 (1/8")	35kJ/m ²
Charpy impact strength at 23°C (notched)	-	20kJ/m ²

Physical

Specific gravity	ASTM D792	1.04
Softening point (BS2782:Part 1 Method120B:1976)	ISO R 306 (5kg) (heating rate unknown)	99°C
Linear co-efficient of thermal expansion	-	10.1 x 10 ⁻⁵ /°C
ISO75 HDT/Ae 1.8Mpa	ASTM D648 (unannealed, 1/4", 18.56 kgf/cm ²)	78°C
Thermal conductivity	-	0.157W/m°C
Specific heat	-	2.1kJ/kg.K
Self ignition temperature	-	540°C

Electrical

Dielectric constant	-	2.9 at 10 ³ Hz 2.8 at 10 ⁶ Hz
Volume resistivity IEC 93	-	>1.E ¹⁴ ohm m

Handling and storage

The high impact strength of Durapipe SuperFLO systems provides some protection against damage but care should be taken at all stages of handling, transportation and storage.

Pipe must be transported by a suitable vehicle and properly loaded and unloaded, eg., wherever possible moved by hand or mechanical lifting equipment. It must not be dragged across the ground.

The storage should be flat, level and free from sharp stones.

Lengths

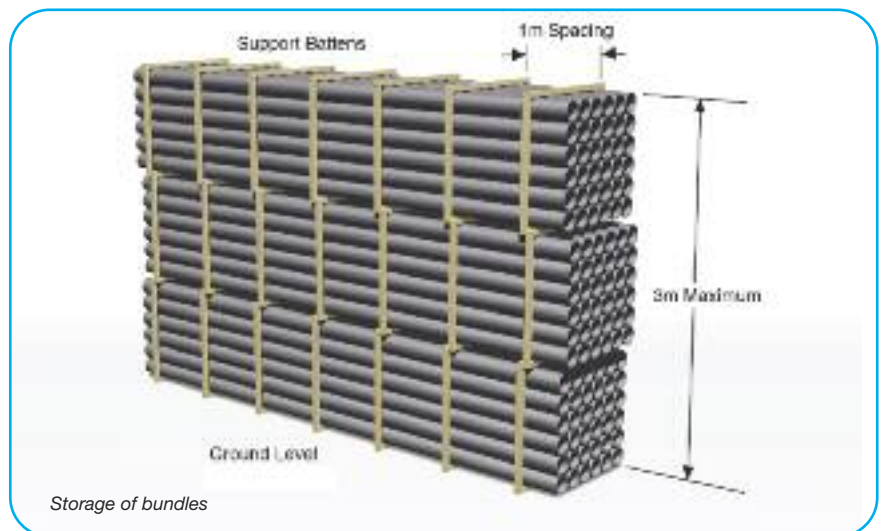
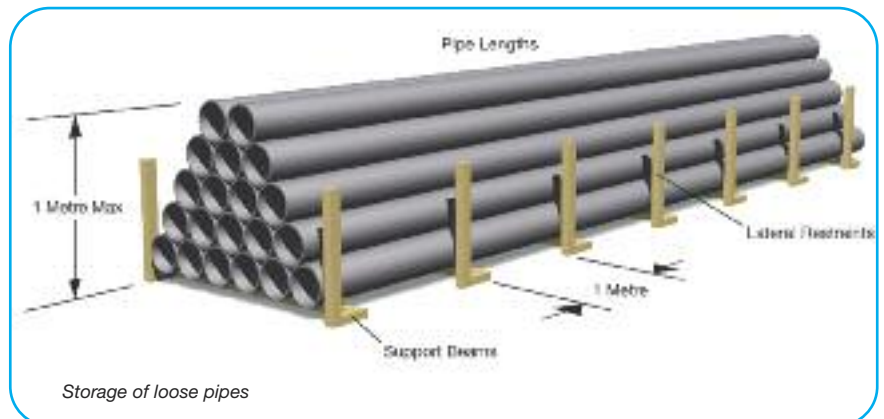
Pipe lengths stored individually should be stacked in a pyramid not more than one metre high, with the bottom layer fully restrained by wedges. Where possible, the bottom layer of pipes should be laid on timber battens at one-metre centres. On site, pipes may be laid out individually in strings. (Where appropriate, protective barriers should be placed with adequate warning signs and lamps.)

Bundles

Bundled packs of pipe should be stored on clear, level ground with the battens supported from the outside by timbers or concrete blocks. For safety, bundled packs should not be stacked more than three metres high.

Smaller pipes may be nested inside larger pipes. Side bracing should be provided to prevent stack collapse.

Similar precautions should be taken with fittings and these should be kept in protective wrappings until required for use.



Health and Safety at Work Act and COSHH Regulations

Attention is drawn to the requirements in the UK of this Act and to the 1988 Control of Substances Hazardous to Health (COSHH) Regulations. Durapipe cannot accept responsibility for accidents arising from the misuse of its products because of bad installation or incorrect application.

Material safety data

Material Safety Data sheets are available on our website.

Handling SuperFLO pipes and fittings

Always adopt good storage and handling practice. Advice is available upon request.

Jointing and installation

Durapipe SuperFLO solvent cement must be used exclusively for fabrication of the SuperFLO system. Performance guarantees are null and void if other solvent cements are used.

Storage and installation outdoors

Care should be taken to avoid exposure to sunlight during storage. This may cause discolouration and deterioration of the SuperFLO material. Whilst this is a surface effect only, it is recommended that precautions be taken to prevent this happening (other sources of UV light can have a similar effect).

If SuperFLO is installed outdoors we recommend that it is protected from the effects of sunlight.

Filling and flushing

When purchasing chemicals for either flushing or long-term system use, suppliers should be advised that this is for SuperFLO material. Guidance on the suitability of various system flushing or filling fluids with SuperFLO can be found in the Durapipe Chemical Data catalogue.

Testing

It is suggested that the following test procedure be followed, after joints have been allowed to dry for the appropriate minimum time (at least 24 hours up to 225mm, sizes 250mm and 315mm require a minimum of 48 hours at 20°C).

The system should be divided conveniently into test sections.

Fill section with cold water making sure that no air pockets remain. Do not pressurise at this stage.

Check system for leaks. If none are apparent, check for and remove any remaining air. Increase pressure up to 3 bar. Do not pressurise further at this stage.

Leave section pressurised for 10 minutes. If pressure decays, inspect for leaks and rectify as necessary.

If pressure remains constant, slowly increase the hydrostatic pressure to 1½ times nominal operating pressure.

Leave section pressurised for a period not exceeding 1 hour.

During this time pressure should not change.

Colour

Durapipe SuperFLO products are a mid-grey colour, generally in accordance with BS5252, colour ref. 18 B 21 and RAL 7001.

The Durapipe SuperFLO Metric System is manufactured generally in accordance with the relevant international standards as shown below:

ISO 15493

KIWA 49 and 549

DIN 8062 and 8063

Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of Durapipe fittings for solvent welding comply with ISO/DIS 727-1.

Materials

Durapipe SuperFLO material is UK Water Regulations Advisory Scheme approved for cold water services and is listed in the Water Fittings and Materials Directory.

Durapipe SuperFLO formulation does not contain any harmful metallic stabilisers.

Gaskets and seals

Gaskets and O-Ring seals are made from EPDM except where stated otherwise.

Pressure surges

Durapipe SuperFLO pipework can withstand pressure surges within the limitations detailed within CP312 Part 2:1973 and its amendment dated 1977.

On no account should pressure surges be allowed to exceed the maximum continuous working pressure calculated using the graph on page 23.

Caution

Personnel must stand well clear when pressure testing systems. For information regarding pneumatic testing of SuperFLO pipework, contact the Durapipe technical support department.

Note: If extended times are required to achieve hydrostatic pressure, either leakage has occurred or air remains in the line. Inspect for leakage and if none is apparent, reduce pressure and check for trapped air. This must be removed before further pressurisation commences.

PRE-INSULATED PIPEWORK

Duracool is a completely innovative pre-insulated ABS pipework system that is specially designed to provide reduced installation costs.

Duracool is a complete system of pre-insulated pipe with unique shells for the fittings, insulation is protected by an attractive polyethylene outer casing.

Fitting is quick and easy, eliminating the need for hot works or manual lagging and making installation an easy and convenient process.

Key Product Information

- Size Range: 20mm to 225mm
- Pressure Rating: PN10
- Temperature Rating: -40°C to 70°C

Key Product Features

- Lightweight
- Easy to install
- Cost-efficient installation
- Wide temperature range
- Tough and durable

Typical Applications

- Chilled water/air conditioning
- Boosted cold water
- Secondary refrigeration



Duracool



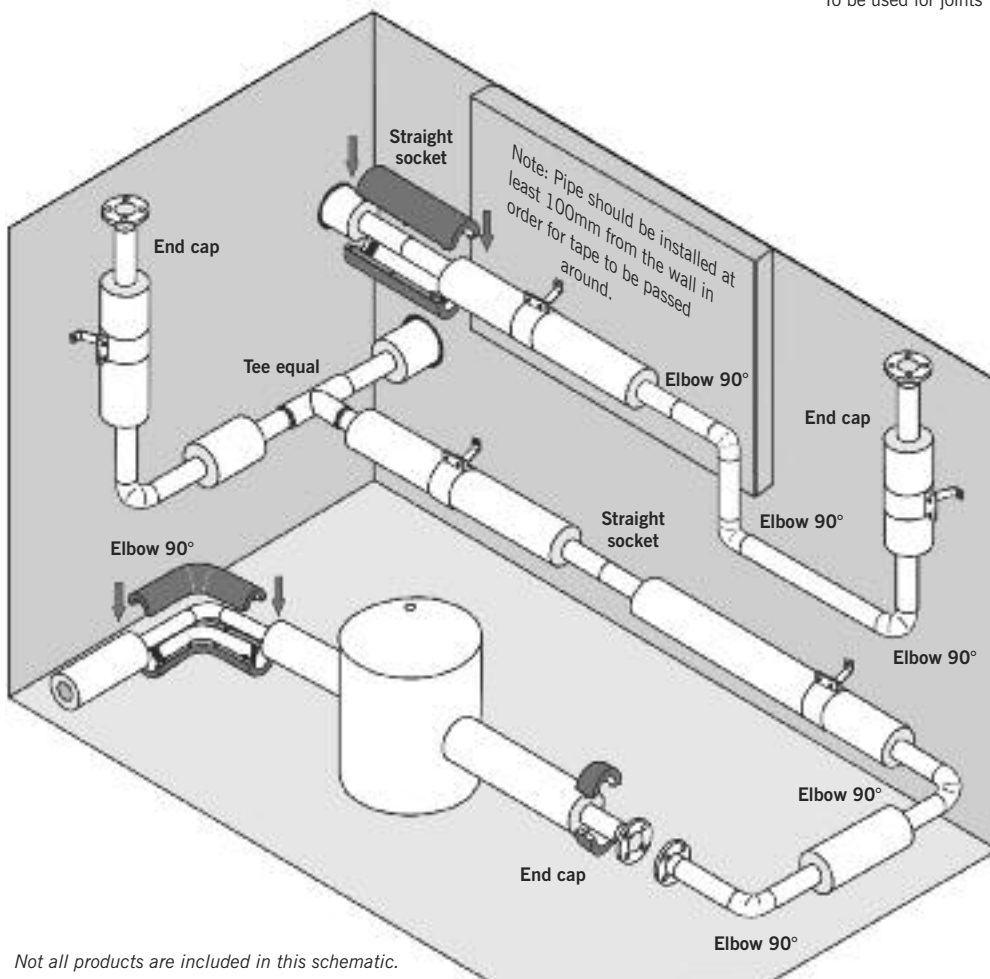
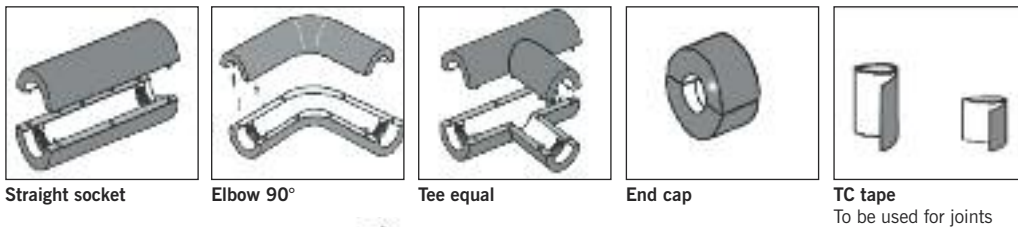
Duracool system overview

Duracool is a custom designed insulated pipework system that offers exceptional performance and life. It is the perfect addition to our standard Durapipe SuperFLO which includes pipe, fittings, valves and a full range of transition fittings. Designed to enable lower lifetime and operational costs.

The system can be used to both protect and insulate the carrier pipe and when installed correctly can offer exceptional performance compared to any type of standard insulation and is therefore ideal for the transportation of chilled water, iced water, salt solutions, glycol solutions and organic salt solutions. Thermo-Click shells are watertight, condensation proof and suitable for outside use. Fitting is quick and easy, eliminating the need

for hot works or manual lagging and allowing convenient, simple trimming. A complete system of pre-insulated pipe and unique Thermo-Click shells for fittings, insulation is provided by polyurethane foam protected by an attractive polystyrene outer casing. The insulation is able to perform along the full temperature range of ABS and the outer can live up to daily cleaning with various chemicals (max 50°C on the jacket).

We have various components which make it possible for you to build a complete insulated piping system. All our fittings are delivered complete with the tape and sealant you will need to complete the installation, more is available if needed.



Not all products are included in this schematic.



Fields of Application:

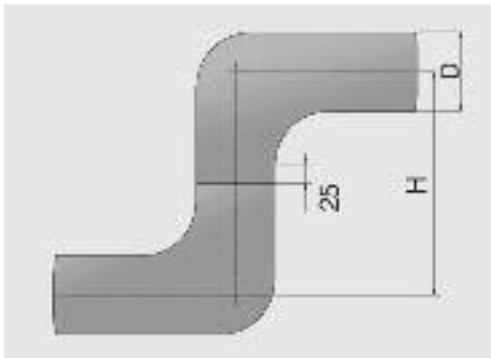
- Chilled water
- Secondary refrigeration
- Air conditioning
- Industrial cold/iced water
- Pharmaceutical industry
- Food and beverage industry
- Supermarkets
- Chemical industry
- Paper production

Advantages:

- Easy-strip trimming for clean pipe ends
- Unique Thermo-Click shells for pipe fittings
- No hot works
- No manual lagging
- Lifetime cost savings
- No corrosion
- Top levels of energy efficiency
- Reduced costs for pipe hanging and can be applied directly onto the casing
- Simple installation
- Hygienic and aesthetically pleasing
- Joints can be opened for inspection
- High mechanical strength
- Resistant to chemicals and UV rays

Technical considerations when installing Duracool

To avoid unnecessary problems please examine the following before planning/installation of Duracool.



OD of outer pipe (mm)	H min (mm)	H max (mm)
90	220	500
110	290	560
125	340	590
140	370	650
160	430	710
180	440	740
200	480	720
225	536	830
250	604	910
280	660	900
315	634	910

There is a minimum distance required between two 90° elbows, if your requirements fall between H min and H max then standard un-insulated pipe can be used between the elbows.

Sealants for use with Duracool

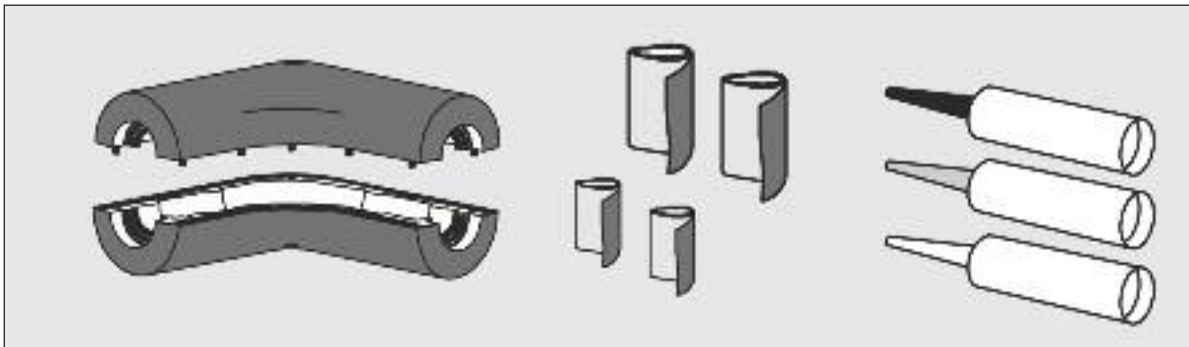
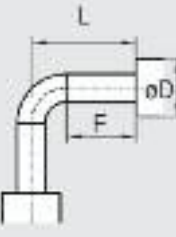
All Duracool Thermo-Click shells are supplied with the sealant required to make a joint. The sealant supplied has been tested and approved for use with ABS pipework. However, certain Intumescent mastics, mastic sealants and silicone sealants are formulated with components that can be hazardous when in contact with SuperFLO, such as phthalates. Therefore confirmation of the suitability of any mastic sealant should be determined before being used in conjunction with SuperFLO pipework or Duracool.

Duracool pipe support centres

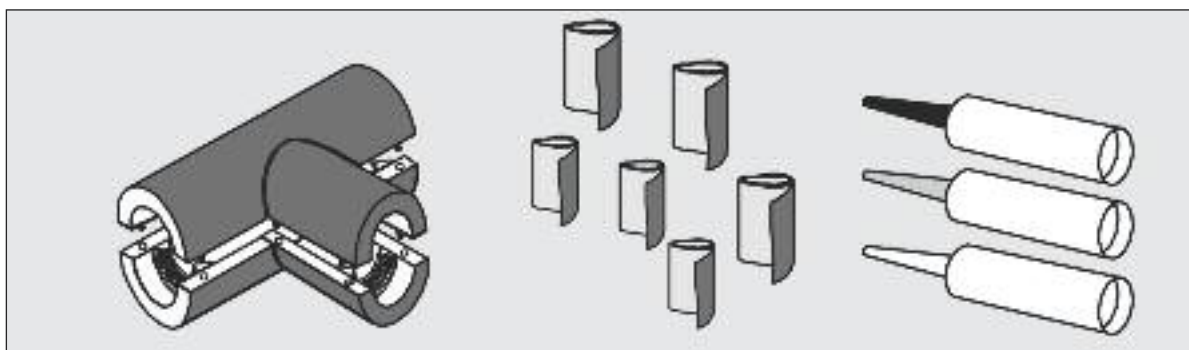
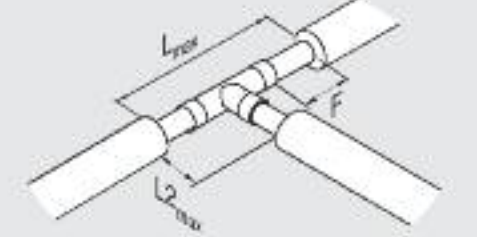
Carrier pipe (mm)	Outer casing (mm)	Support centres (mm)
25	90	1.5
32	90	1.6
40	110	1.8
50	110	1.9
63	125	2.1
75	140	2.2
90	160	2.4
110	200	2.7
140	225	3.0
160	250	3.1
200	280	3.3
225	315	3.4

Installation of Thermo-Click shells

When you receive your Thermo-Click shells you will also receive the appropriate amount of sealant and tape to complete the installation.

Carrier pipe d mm	Thermo-Click Diameter D (mm)	L max	L min
25, 32	90	250	110
40, 50	110	280	145
63	125	295	170
75	140	325	185
90	160	355	215
110	200	360	240
140	225	415	268
160	250	455	302
225	315	455	317

Carrier pipe d mm	Thermo-Click Diameter D (mm)	L max	L ₂ min
25, 32	90	440 or 875*	230
40, 50	110		230
63	125		230
75	140		260
90	160		265
110	200		285
140	225		285
160	250		260
225	315		275

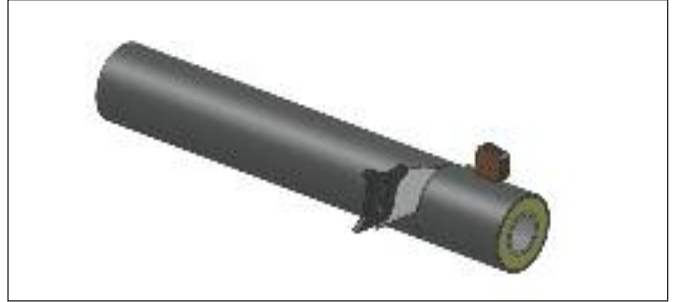
*Tees are supplied standard with an L dimension of 440mm, but 875mm product is available as a special order, please enquire for details.

Duracool pipe preparation

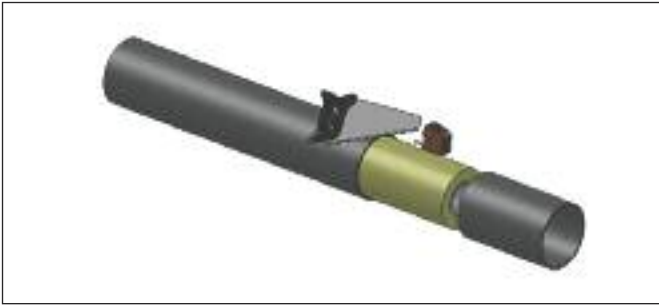
1. The pre-insulated pipe is supplied with a spigot of carrier pipe protruding from the end of the insulation. This is to make the installation as quick and simple as possible. However, if your installation does not require full lengths you will need to perform the following.



2. Determine the length of pipe you require and cut through the outer skin, insulation and carrier pipe to the required distance.



3. Perform a shallow cut around the pipe at the required distance from the end of the pipe, so that the outer skin can be removed (the distance will be dependent on the type of fitting that is being installed (please refer to the tables on page 38)).

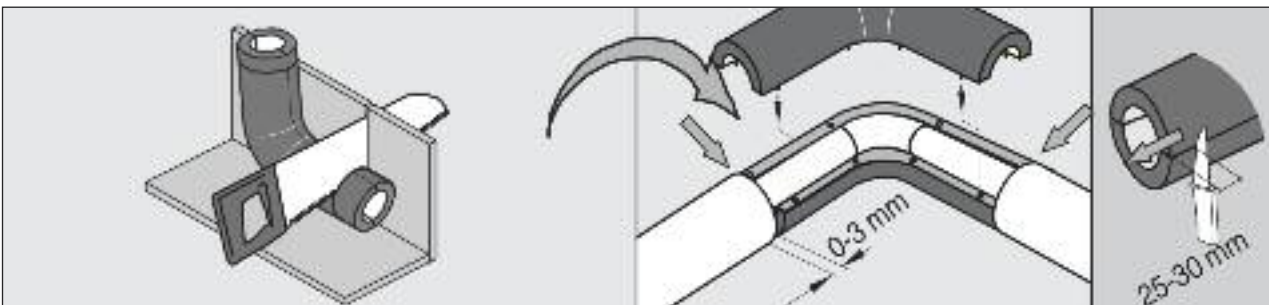


4. With a blunt instrument remove the remaining insulation so as to reveal the carrier pipe. There is a thin 'easy-peel' polythene layer between the insulation and the pipe to make this easier.

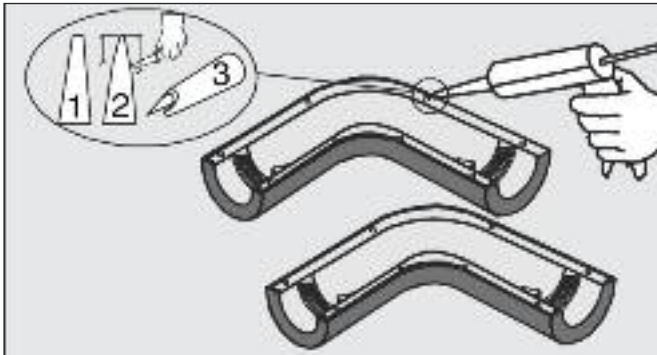


5. Use the appropriate fitting to make the joint, this is described on pages 27-28. Complete this for the full system and perform a pressure test while all of the joints are exposed, so that any leaks can be identified and fixed.

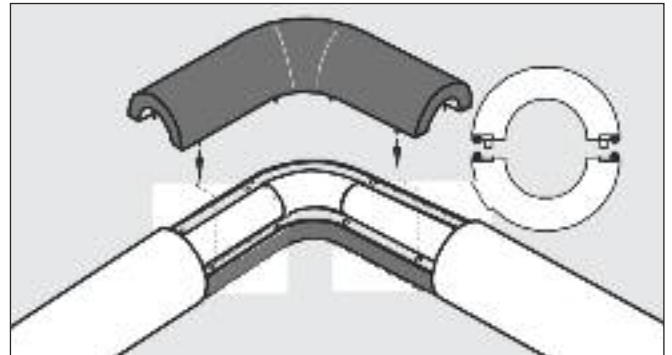
6. Cut the Thermo-Click insulation shells to fit tight between the jacketed pipe and Thermo-Click shells. The plastic edge 25-30mm on the Thermo-Click shells must be removed.



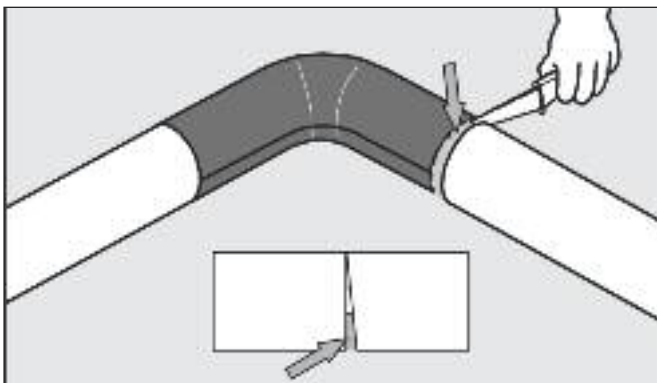
7. Apply sealant to both sides of the Thermo-Click shell, in a level layer, $\varnothing 8\text{mm}$ along both edges.



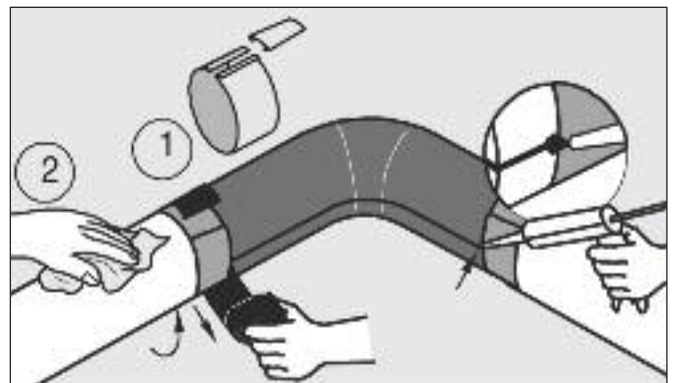
8. Mount the Thermo-Click shells by gently pressing them together. Check that the sealant has been squeezed out.



9. Any air-gaps of 0-3 mm between the pipe and the shells, must be sealed either with mineral wool, PU-foam or sealant.

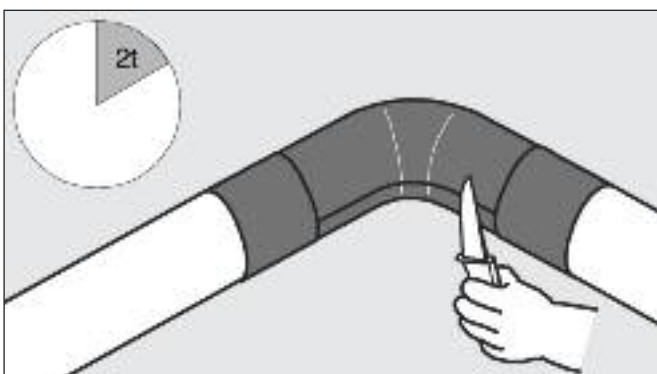


10. 1) Outer surfaces of the Thermo-Click shell must be CLEAN and DRY.
 2) Wrap the Butyl-alutape around the assembly so that it bridges the gap evenly between the pipe and Thermo-Click shells. Wrap and stretch the black PVC tape around the assembly - making sure to leave at least a 100mm overlap.
 3) If possible leave the tape overlap out of sight eg. topside of pipe.

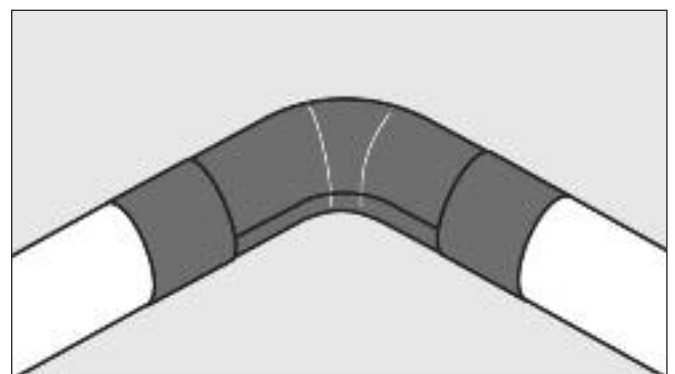


Note: It is also possible to use a painted steel wrap instead of black PVC tape to finish off the joint (shown in the image above). This offers greater protection to the system as well as an attractive finish. Please contact Durapipe UK for more details on the steel wrap.

11. After 2-4 hours remove the extra construction sealant with a knife. Alternatively if preferred the wet sealant can be shaped with a damp cloth for a smooth, attractive finish.



12. The Thermo-Click joint is complete.



Data sheet Thermo-Click insulation shells

This polyurethane system has been specially formulated for production of half shells. The waterbased foam has a fine cell structure, which results in a high strength. The system does not contain any HCFC – it is blown with CO₂ – and therefore has zero Ozone depletion potential (ODP).

Foam Characteristics at 20°C (hand mixed)

Properties	Value	Test Method
Density, free rise:	43kg/m ³	BS 4370 part 1 meth. 2
Density (packed in form)	88kg/m ³	BS 4370 part 1 meth. 2
Closed cells	96%	ISO 4590
Cell size	< 0.2mm	EN253
Water absorption	2.2 %	EN253
Parallel to rise	0.31MPa	ISO 844
Perpendicular to rise	0.16MPa	ISO 844
E-modulus:		
Parallel to rise	11.7MPa	ISO 844
Perpendicular to rise	3.9MPa	ISO 844
Dimensional stability: (+140°C/0.02 MPa/48h) < - 5 %	DIN 18159-1	
Thermal conductivity coefficient:		
λ10	0,026 W/m ² K	ISO 8301
λ24	0,027 W/m ² K	ISO 8301
λ50	0,030 W/m ² K	ISO 8301

In Heat Transfer λ is used to denote the heat of vaporisation per mole or latent heat.

Burning characteristics: B2 DIN 4102.

Thermo-Click shell outer

'Athpol' P90UV - extruded UV stabilised high-impact polystyrene (HIPS) sheet.

The following information represents typical property values that are based on information given by polymer raw material suppliers.

Properties	Value	Test Method
Mechanical		
Tensile Stress at Yield	23MPa	ISO 527
Flexural Strength	32MPa	ISO 178
Izod Impact Strength (notched)	23°C 12KJ/M2	ISO 180A
Thermal		
Heat Deflection Temperature	(1.8MPa) 75°C	ISO 75
Vicat Softening Temperature	(5kg - 50c/H) 84°C	ISO 306
Density	1.02	ISO 1183
Flammability at 1.6mm thickness HB UL94		
Chemical Resistance Chart		
Acids, Inorganic	Alcohols E	
- Weak E	Aliphatic Amines E	
- Strong E	Bases E	
- Strong oxidising F	Polyglycols E	
Acids, Organic	Vegetable oils G	
- Weak E	Pharmaceuticals E	
- Strong G	Salts E	

E = Excellent resistant - no attack.

G = Good resistant - minor attack.

F = Fair - limited resistance. Suitable for short term use only.

For chemical suitability of SuperFLO pressure pipe refer to the Durapipe UK website www.durapipe.co.uk

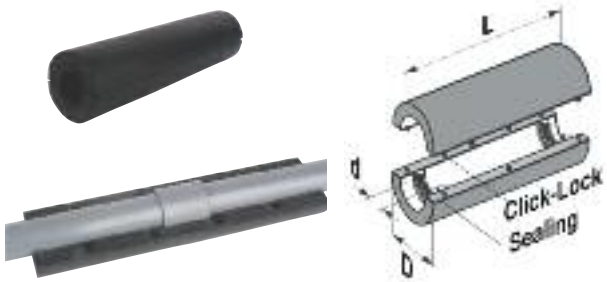
Duracool product range

Pre-Insulated SuperFLO pipe Free spigot end for solvent welding



Carrier Pipe size (mm)	Wall Thickness of Carrier Pipe (mm)	Length (m)	Pipe OD (mm)	Code
25	1.9	5	90	21 555 307
32	2.1	5	90	21 555 308
40	2.7	5	110	21 555 309
50	3.4	5	110	21 555 310
63	4.2	5	125	21 555 311
75	5	5	140	21 555 312
90	6	5	160	21 555 313
110	7.3	5	200	21 555 314
140	9.3	5	225	21 555 316
160	10.5	5	250	21 555 317
200	13.2	5	280	21 555 318
225	14.8	5	315	21 555 319

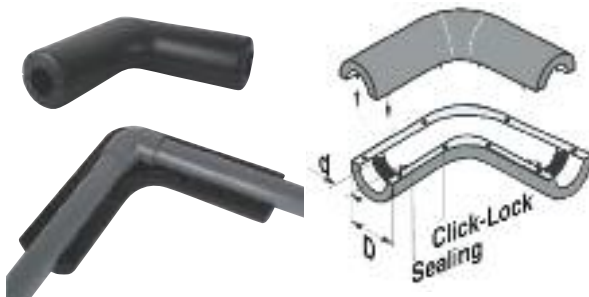
Socket straights Thermo-Click Shells



Carrier Pipe Size d (mm)	Length L (mm)	Thermo-Click D (mm)	Code
25	440	90	21 100 313
32	440	90	21 100 313
40	440	110	21 100 314
50	440	110	21 100 314
63	440	125	21 100 315
75	440	140	21 100 316
90	440	160	21 100 317
110	440	200	21 100 318
140	440	225	21 100 319
160	440	250	21 100 320
225	440	315	21 100 323

Note: ABS Fittings to be ordered separately.

Elbows 90° Thermo-Click Shells

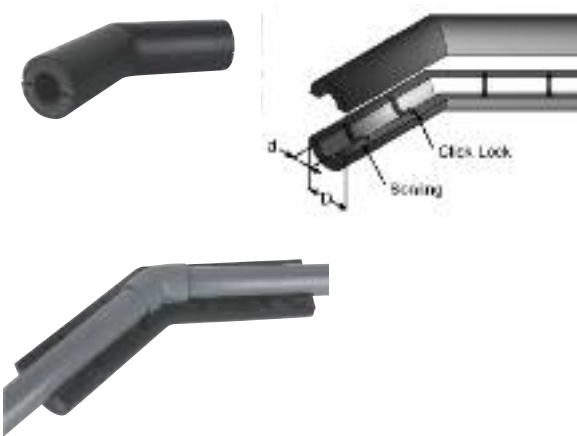


Carrier Pipe Size d (mm)	Dimension E (mm)	Thermo-Click OD D (mm)	Code
25	250	90	21 115 313
32	250	90	21 115 313
40	275	110	21 115 314
50	275	110	21 115 314
63	295	125	21 115 315
75	325	140	21 115 316
90	355	160	21 115 317
110	360	200	21 115 318
140	410	225	21 115 319
160	425	250	21 115 320
225	450	315	21 115 323

Note: ABS Fittings to be ordered separately.

Duracool product range

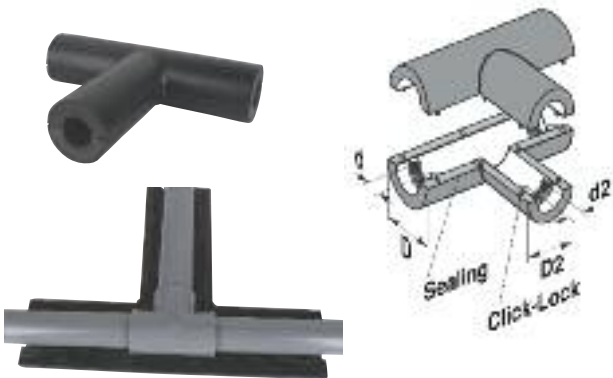
Elbows 45° Thermo-Click Shells



Carrier Pipe Size d (mm)	Dimension F (mm)	Thermo-Click OD (D) (mm)	Code
25	250	90	21 119 313
32	250	90	21 119 313
40	260	110	21 119 314
50	260	110	21 119 314
63	260	125	21 119 315
75	290	140	21 119 316
90	310	160	21 119 317
110	325	200	21 119 318
140	320	225	21 119 319
160	315	250	21 119 320
225	350	315	21 119 323

Note: ABS Fittings to be ordered separately.

Tee equal Thermo-Click Shells



Carrier Pipe Size d (mm)	Dimension G (mm)	Dimension H (mm)	Thermo-Click OD D (mm)	Code
25	440	250	90	21 122 313
32	440	250	90	21 122 313
40	440	260	110	21 122 314
50	440	260	110	21 122 314
63	440	260	125	21 122 315
75	440	290	140	21 122 316
90	440	310	160	21 122 317
110	440	325	200	21 122 318
140	440	320	225	21 122 319
160	440	315	250	21 122 320
225	440	350	315	21 122 323

Note: ABS Fittings to be ordered separately.

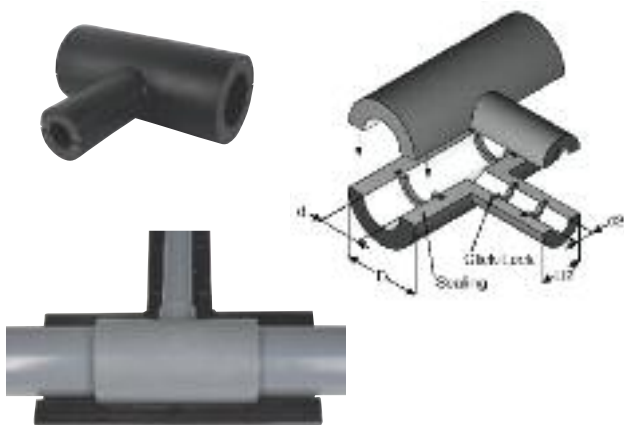
End caps Thermo-Click Shells



Carrier Pipe Size d (mm)	Thermo-Click OD pipe d (mm)	Dimension (m) D (mm)	Code
25	90	60	21 149 313
32	90	60	21 149 313
40	110	60	21 149 314
50	110	60	21 149 314
63	125	60	21 149 315
75	140	60	21 149 316
90	160	60	21 149 317
110	200	60	21 149 318
140	225	60	21 149 319
160	250	60	21 149 320
225	315	60	21 149 323

Note: ABS Fittings to be ordered separately.

Tees 90° reducing Thermo-Click Shells



Carrier Pipe Size d (mm)	Dimension J (mm)	Dimension K (mm)	Thermo-Click OD D (mm)	Code
40 x 25	440	250	110 x 90	21 109 451
40 x 32	440	250	110 x 90	21 109 451
50 x 25	440	250	110 x 90	21 109 451
50 x 32	440	250	110 x 90	21 109 451
63 x 25	440	250	125 x 90	21 109 458
63 x 32	440	250	125 x 90	21 109 458
63 x 40	440	260	125 x 110	21 109 459
63 x 50	440	260	125 x 110	21 109 459
75 x 25	440	250	140 x 90	21 109 465
75 x 32	440	250	140 x 90	21 109 465
75 x 40	440	260	140 x 110	21 109 466
75 x 50	440	260	140 x 110	21 109 466
75 x 63	440	260	140 x 125	21 109 467
90 x 25	440	250	160 x 90	21 109 473
90 x 32	440	250	160 x 90	21 109 473
90 x 40	440	250	160 x 110	21 109 474
90 x 50	440	250	160 x 110	21 109 474
90 x 63	440	250	160 x 125	21 109 475
90 x 75	440	290	160 x 140	21 109 476
110 x 25	440	250	200 x 90	21 109 483
110 x 32	440	250	200 x 90	21 109 483
110 x 40	440	260	200 x 110	21 109 484
110 x 50	440	260	200 x 110	21 109 484
110 x 63	440	260	200 x 125	21 109 485
110 x 75	440	290	200 x 140	21 109 486
110 x 90	440	310	200 x 160	21 109 487
140 x 25	440	250	225 x 90	21 109 491
140 x 32	440	250	225 x 90	21 109 491
140 x 40	440	260	225 x 110	21 109 492
140 x 50	440	260	225 x 110	21 109 492
140 x 75	440	290	225 x 140	21 109 493
140 x 90	440	310	225 x 160	21 109 494
140 x 110	440	325	225 x 200	21 109 495
160 x 25	440	250	250 x 90	21 109 490
160 x 32	440	250	250 x 90	21 109 490
160 x 40	440	260	250 x 110	21 109 469
160 x 50	440	260	250 x 110	21 109 469
160 x 63	440	260	250 x 125	20 109 508
160 x 75	440	290	250 x 140	21 109 516
160 x 90	440	310	250 x 160	21 109 497
160 x 110	440	325	250 x 200	21 109 498
160 x 140	440	320	250 x 225	21 109 499
225 x 25	440	250	315 x 90	21 109 506
225 x 32	440	250	315 x 90	21 109 506
225 x 40	440	260	315 x 110	21 109 505
225 x 50	440	260	315 x 110	21 109 505
225 x 63	440	260	315 x 125	20 109 510
225 x 75	440	290	315 x 140	20 109 518
225 x 90	440	310	315 x 160	20 109 525
225 x 110	440	325	315 x 200	21 109 536
225 x 140	440	320	315 x 225	21 109 502
225 x 160	440	315	315 x 250	21 109 503

Note: ABS Fittings to be ordered separately.

Durapipe UK Pipework Systems

INDUSTRIAL



ABS

- Ideal for chilled, potable and waste water
- Tough, durable, lightweight and fully approved
- Suitable for use from -40°C to +70°C
- Fully matched system of pipes, fittings and valves



PVC-U

- Versatile, multi-purpose solvent weld pipework system with an extensive range of valves and fittings
- The established system for process and industrial handling of chemicals and water up to 60°C



Guardian

- Specialist dual contained pipework
- Patented Centra-Lok™ system
- Visual or automated leak detection system available



Air-Line Xtra

- High performance thermoplastic pipework system for compressed air



Polypropylene

- Conveys chemicals at temperatures up to 100°C
- Excellent resistance to a wide range of substances
- Available in larger diameters up to 500mm



Corzan

- Solvent weld thermoplastic pipe system for aggressive substances
- Designed specifically for use in highly corrosive conditions at temperatures up to 95°C
- Valves range available



Flow Control

- Manual and actuated flow control solutions
- For use with all Durapipe systems
- Lightweight and easy to install

BUILDING SERVICES



Vulcathene

- Safe chemical drainage pipework
- Two easy jointing methods - Mechanical or Enfusion
- Ideal for schools, universities and colleges, hospitals and clinics



Friaphon

- Sound attenuated drainage system
- Superb sound insulation with no lagging required
- Ideal for hospitals, hotels, office suites and apartments



Duracool

- Pre-insulated ABS pipework system
- Lightweight and easy to install
- Unique shells for cost-efficient installation



SuperFLO

- Pipe system for chilled and cold water applications
- Ductile and robust down to minus 40°C
- Lightweight, non-corrosive and limescale resistant



Friatherm

- Limescale and corrosion resistant
- WRAS approved
- Installed cost saving versus traditional materials



PLX

- Specialist pipework system for the safe conveyance of fuel
- Suitable for pressure and vacuum applications
- Ideal for emergency power supply, uninterrupted power supply and transport refuelling applications

DURAPIPE UK CONDITIONS OF SALE

1. **DEFINITIONS:**

'Seller' shall mean Glynwed Pipe Systems Limited, registered in England under number 1698059. 'Buyer' shall mean any company, organisation or individual to whom a quotation is offered, or whose order is accepted by the Seller.
2. **CONDITIONS:**

All offers, quotations, estimates, acceptances and contracts are subject to these Conditions of Business and any terms or conditions which any other person shall seek to impose or make part of any contract shall, so far as is inconsistent with these Conditions of Business, not apply unless expressly agreed by the Seller in writing. The headings in these conditions are for convenience only and shall not affect their interpretation.
3. **QUOTATIONS AND PRICE VARIATION:**
 - a) Any quotation given by the Seller is an invitation to the Buyer to make an offer only and no order of the Buyer placed with the Seller in pursuance of a quotation or otherwise shall be binding on the Seller unless and until it is accepted in writing by the Seller.
 - b) Unless stated otherwise, all quotations and published price lists are ex works, exclusive of VAT and shall remain valid for 30 days or such a period as may be quoted but nevertheless the Seller may amend or withdraw any quotation by written or oral notice. Quotations may be varied if the Buyer makes variations in his specifications.
4. **STATEMENTS OR REPRESENTATIONS TO THE BUYER:**

If any statement or representation has been made to the Buyer upon which the Buyer relies other than in the documents enclosed with the Seller's quotation, the Buyer must set out that statement or representation in a document to be attached to or endorsed on the order in which case the Seller may submit a new quotation.
5. **DELIVERY - TIME:**
 - a) Any period for delivery given at any time and in any manner by the Seller is an estimate only and is not binding on the Seller. Delivery periods are normally calculated from the later of:
 - i) acceptance of order; or
 - ii) where applicable, the receipt by the Seller of a detailed specification or drawings.
 - b) Time shall not be deemed to be of the essence of the contract. Failure by the Seller to meet any quoted delivery period for any part or the whole of the order shall not entitle the Buyer to rescind the contract or to claim damages of any nature.
 - c) The Seller will endeavour to comply with reasonable requests by the Buyer for postponement of delivery but shall be under no obligation to do so. Where delivery is postponed otherwise than due to default by the Seller the Buyer shall pay all costs and expenses including a reasonable charge for storage and transportation occasioned thereby and an extra charge for split delivery if applicable.
 - d) The Buyer will receive delivery of any consignment between the hours of 8.00am and 4.00pm Monday to Friday inclusive, unless otherwise agreed in writing. Cost incurred by the Seller arising from the Buyer's refusal to accept consignments within the agreed hours shall be borne by the Buyer.
6. **DELIVERY AND RISK:**
 - a) Except where stated to the contrary in the contract, delivery shall be made as follows:
 - i) where the Buyer provides the transport, delivery shall be made ex the Seller's works;
 - ii) where the Seller provides the transport, delivery shall be made to the premises of the Buyer, or the premises of the Buyer's customer or works site if the Buyer has requested delivery to be so made but where the Buyer has made such a request the Seller will make a first delivery to the Buyer's customer or works site as so much of the goods as is available for that delivery but subsequent deliveries will be made to the premises of the Buyer.
 - b) The Seller may at its discretion make partial delivery of orders and invoice the same.
 - c) Risk in the goods shall pass on delivery.
 - d) Where goods are sent FOB the Seller's responsibility shall cease when the goods are placed on board ship or aircraft without the need for the Seller to give notice to the Buyer and the provisions of Section 32(3) of the Sale of Goods Act 1979 shall not apply.
7. **OWNERSHIP OF GOODS:**
 - a) The goods shall remain the sole and absolute property of the Seller as legal and equitable owner until such time as the Buyer shall have paid to the Seller the contract price together with the full price of any other goods the subject of any contract between the Seller and the Buyer.
 - b) The Buyer acknowledges that until such time as the property in the goods passes to the Buyer he is in possession of the goods as a bailee and fiduciary agent for the Seller and the Purchaser shall store the goods in such a manner that they are clearly identifiable as the property of the Seller.
 - c) Until payment due under all contracts between the Buyer and the Seller had been made in full, in the event of sale of the goods by the Buyer:
 - i) the Seller shall be entitled to trace all proceeds of sale received by the Buyer through any bank or other account maintained by the Buyer; and
 - ii) the Buyer shall if requested by the Seller in writing to so assign its rights to recover the selling price of the goods from the third parties concerned. Such monies to be held separately by the Buyer as agent on behalf of the Seller.
 - d) The Seller may for the purpose of recovery of its goods enter upon any premises where they are stored or where they are reasonably thought to be stored and may repossess the same.
8. **TERMS OF PAYMENT:**

In the event of default in payment according to the agreed payment terms between the Seller and the Buyer – ie: by the end of the month following the month of despatch of the goods the Seller shall be entitled without prejudice to any other right or remedy to suspend all further deliveries and to charge interest on any amount outstanding at the rate of 2% per month until payment in full is made (a part of a month being treated as a full month for the purpose of calculating interest).
9. **SHORTAGES AND DEFECTS APPARENT ON DELIVERY:**
 - a) It shall be the responsibility of the Buyer to inspect or arrange for an inspection of the goods on delivery whether the goods are delivered to the Buyer's premises or to the premises of the Buyer's customer or to a works site. If no such inspection is made the Buyer shall be deemed to have accepted the goods.
 - b) The Buyer shall have no claim for shortages or defects apparent on inspection unless:
 - i) a written complaint is made to the Seller within three days of receipt of the goods specifying the shortage or defect; and
 - ii) the Seller is within seven days of receipt of the complaint given an opportunity to inspect the goods and investigate the complaint before any use is made of the goods.
 - c) If a complaint is not made to the Seller as herein provided then in respect of such shortages or defects the goods shall be deemed to be in all respects in accordance with the contract and the Buyer shall be bound to pay for the same accordingly.
10. **CLAIMS FOR DEFECTS NOT APPARENT ON INSPECTION:**
 - a) The Buyer shall have no claim for defects not apparent on inspection unless the Seller is notified of defective workmanship or materials within twelve months from delivery of the goods. Provided that the goods have been installed and applied in accordance with any relevant recommendations made by the Seller, the Seller will at its option replace the goods or refund the net invoiced price in respect of the goods which have been shown to be defective. If the Seller does so supply substitute goods the Buyer shall be bound to accept such substituted goods in full satisfaction of the obligations of the Seller under the contract.
 - b) The Buyer shall in any event have no claim or set-off in respect of defects unless a written complaint is sent to the Seller as soon as the defect is noticed and no use is made of the goods thereafter or alteration made thereto by the Buyer before the Seller is given an opportunity to inspect the goods.
 - c) The Buyer is responsible for ensuring that the goods are fit for any particular purpose, and no warranty or condition of fitness for any particular purpose is to be implied into the contract.
11. **LIABILITY:**

Save as stated in Conditions 9 and 10 (and save in respect of death or personal injury resulting from the negligence of the Seller its servants or agents) the Seller shall not be liable for any claim or claims for direct or indirect consequential or incidental injury loss or damage made by the Buyer against the Seller whether in contract or in tort (including negligence on the part of the Seller its servants or agents) arising out of or in connection with any defect in the goods or their fitness or otherwise for any particular purpose or any act omission neglect or default of the Seller its servants or agents in the performance of the contract.
12. **FORCE MAJEURE:**

Notwithstanding anything herein contained neither the Buyer nor the Seller is to be held liable for any delay or failure to carry out the contract due wholly or in part to an act of God action by any Government whether British or foreign civil war strikes and/or lockouts wheresoever occurring fire trade disputes floods or unfavourable weather or any material becoming unavailable or irreplaceable (whether at all or at commercially acceptable prices) or any other circumstances beyond the control of the Seller.
13. **SUB-CONTRACTING:**

The Seller reserves the right to sub-contract the fulfilment of any order or any part thereof.
14. **INSOLVENCY AND BREACH OF CONTRACT:**

In the event that:

 - a) the Buyer commits any breach of the contract and fails to remedy such breach (if capable of remedy) within a period of thirty days from receipt of a notice in writing from the Seller requesting such remedy; or
 - b) any distress or execution is levied upon any of the goods or property of the Buyer; or
 - c) the Buyer offers to make any arrangements with or for the benefit of its creditors or (if an individual) becomes subject to a petition for a bankruptcy order or (being a limited company) has a receiver appointed of the whole or any part of its undertaking property or assets; or
 - d) an order is made or a resolution is passed or analogous proceedings are taken for the winding up of the Buyer (save for the purpose of reconstruction or amalgamation with insolvency and previously approved in writing by the Seller) the Seller shall thereupon be entitled without prejudice to its other rights hereunder forthwith to suspend all further deliveries until the default has been made good or to determine the contract and any unfulfilled part thereof or at the Seller's option to make partial deliveries. Notwithstanding any such termination the Buyer shall pay to the Seller at the contract rate for all the goods delivered up to and including the date of termination.
15. **INDUSTRIAL PROPERTY RIGHTS:**

If goods supplied by the Seller to the Buyer's design or specifications infringe or are alleged to infringe any patent or registered design right or copyright the Buyer will indemnify the Seller against all damages, costs and expenses incurred by the Seller as a result of the infringement or allegation. The Buyer will give the Seller all possible help in meeting any infringement claim brought against the Seller.
16. **BUYER'S ERROR IN ORDERING:**

In the event the Buyer orders incorrectly the Seller will be under no obligation to the Buyer to rectify or assist in rectifying the error.
17. **LAW AND JURISDICTION:**

The contract shall be subject in all respects to English Law and to the jurisdiction of the English Courts.

Durapipe
superFLO
chilled and cold water pipework

Durapipe UK reserves the right to modify the details in this publication as products and specifications are updated and improved. The content of this publication is for general information only and it is the user's responsibility to determine the suitability of any product for the purpose intended.

For further information on all Durapipe UK products and services contact our Customer Services Department as detailed below.

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