

DURAPLUS ABS INDUSTRIAL

3/8" - 12"

Duraplus™

The Duraplus® Industrial Piping System by IPEX offers a complete range of ABS pressure pipe, valves and fittings that are ideal for demanding applications ranging from abrasive slurries and separation reagents to caustic processes and low temperature glycol systems. These rugged Duraplus components operate over a wide range of temperatures while delivering excellent material properties including:

- Exceptional Toughness
- Non-Toxicity
- Corrosion Resistance

This design and installation manual provides the most up-to-date comprehensive information about IPEX's Duraplus ABS Industrial Piping System. By combining IPEX's laboratory test results with over 65 years of field experience, we have produced a manual suited to engineers, contractors and distributors alike. All aspects of Duraplus are described here – from basic raw material properties through to installation procedures of the finished product.

IPEX offers matched Duraplus pipes, fittings and valves in IPS sizes ranging from 3/8" to 12" nominal diameter, suitable for pressures up to 230 psi at 73°F (depending on the size).

DURAPLUS® FEATURES:

- High impact strength
- Outstanding ductility
- Wide chemical resistance
- Competitive installed cost
- Operating range from -40°F to +158°F
- Long term UV resistance
- Multiple proven and easy joining methods

ADVANTAGES

- 1 Lightweight**
Duraplus Industrial ABS material is 1/8 the weight of steel and 1/5 the weight of copper.
- 2 Simple, reliable joining method**
Solvent cemented joints can be made quickly and easily without expensive equipment or certifications. Flanging and threaded joints are also possible.
- 3 Grooved joints**
Allow quick assembly and disassembly, pipe rotation for even wear and cleaning of individual pipe sections.
- 4 Wide range of pressure and temperature capabilities**
Operating pressures from drainage up to 230 psi and temperature range from -40°F to 176°F make this product suitable for the harshest environments.
- 5 Lower installation costs**
Duraplus Industrial ABS is less expensive to install because of its simple joining methods – its lightweight and ease of handling.
- 6 Lower maintenance costs**
Duraplus Industrial ABS has excellent chemical resistance, corrosion resistance and impact resistance resulting in a piping system that lasts longer.
- 7 No heat, no sparks, no open flames**
Pipe can be joined to fitting without the necessity of heat.
- 8 Abrasion resistance**
The rubber-like poly-butadiene phase gives Duraplus Industrial ABS exceptionally good abrasion resistance to slurries and other abrasive media.

APPLICATIONS

• Chilled water / HVAC

Chilled Water Lines	Cooling Tower Pipes
Condensate Drain Lines	Humidification Supply Lines

• Off Shore Applications

"Mud" Systems	Deluge Systems
Topside (low pressure) Operations	(Emergency Showers/Eye Baths)
Vacuum Systems (Drill Cuttings Transport)	Chilled Water (Air Conditioning)
Deck Wash System – Supply & Drainage	Potable Water
	Black Water Drainage

• Mining

Slurries	Chemical Treatment
Water Lines	Tailing Lines
Vent Piping	

• Secondary Loop Refrigeration

Glycol Chilled Lines

STANDARDS



The ABS compound used in the manufacturing of Duraplus ABS Industrial Pipe complies with the material requirements of ASTM D3965, "Standard Specification for Rigid Acrylonitrile-Butadiene-Styrene (ABS) Materials for Pipe and Fittings".

SHORT FORM SPECIFICATIONS

GENERAL

Duraplus ABS is designed for industrial pressure pipe applications where the extremely high-impact resistance and ductility of the material offers some insurance against internal and external shock loadings and site abuse conditions. It's unique combination of ABS properties – non-toxicity, purity, corrosion- and chemical-resistance, toughness, low-hydraulic resistance, and the ability to perform over a wide temperature range (-40°F to +158°F) ensures excellent in-service performance and system life.

MATERIAL SPECIFICATION

Pipe and fittings shall be manufactured from a copolymeric material – Acrylonitrile Butadiene Styrene (ABS) – conforming to a 43232 cell classification in accordance with ASTM D3965.

Material for both pipe and fittings shall have a design stress of not less than 2,000 psi, and shall be designed with a 2 to 1 safety factor for a 50 year lifespan when operated under continuous pressure.

The material shall have an izod impact resistance value of not less than 6 ft./lb. at 73°F and 3 ft./lb. at -22°F, when tested in accordance with ASTM D256, method 'A'.

PIPE

Pipes shall be manufactured by IPEX and designed on a Standard Dimension Ratio (SDR) basis to give various pressure ratings as described below:

Pipe Class	Equivalent DR	Continuous Pressure Rating at 73°F (23°C)	Size Range
Class B 90 psi	DR 24.0	90 psi	10" & 12"
Class C 145 psi	DR 15.5	145 psi	1" to 8"
Class D 180 psi	DR 12.5	180 psi	1" to 6"
Class E 230 psi	DR 10.0	230 psi	3/8" to 4"
Class T 230 psi		180 psi	3/8" to 2"

FITTINGS

Fittings shall be of the socket type, designed for solvent welding as supplied by IPEX.

Fittings shall be designed and manufactured so that they withstand the continuous pressures applicable to the maximum pressure native of the pipe.

SOLVENT CEMENT

All joints shall be made with Gray Duraplus ABS solvent cement as supplied by IPEX.

The solvent cement shall be designed to withstand continuous applied pressures up to 230 psi at 73°F.

DESIGN AND INSTALLATION

The design and installation of ABS pressure systems shall be performed in accordance with the recommendations detailed in the Handling and Installation section of this manual, local and national regulations where applicable.

To ensure the full integrity of the completed system, all components shall be supplied by IPEX.

DID YOU KNOW?

Duraplus Industrial ABS is an extremely versatile process piping system that combines ruggedness, chemical resistance, light weight and ease of installation.

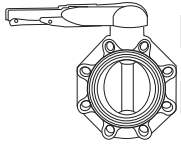
The most common applications for Duraplus Industrial ABS utilizes its outstanding impact resistance, ductility and abrasion resistance at both low and high temperatures.



PRODUCT SELECTION CHART – DURAPLUS

Dimension inches	Significant Number	Product Code
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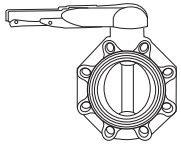
FK, EPDM Seals – Glass filled PP Body



2	680107	337651
3	680109	337652
4	680110	337653
6	680112	337654
8	680113	337655

General service (GS) - offered primarily for use with water, but suitable for a wide range of diluted chemicals, swimming pools, irrigation, potable water, etc. The GS valve is also suitable for compressed air and gases.

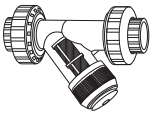
FK, Viton® Seals – Glass filled PP body



2	681107	337656
3	681109	337657
4	681110	337658
6	681112	337659
8	681113	337660

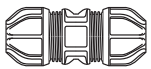
Chemical duty (CD) - incorporating more chemically resistant components, this valve can be used with a wide range of organic or inorganic chemicals even at elevated temperatures.

RV Y-Strainer EPDM Seals Soc



1/2	846102	337739
3/4	846103	337740
1	846104	337741
1-1/4	846105	337742
1-1/2	846106	337743
2	846107	337744

Transition Coupling ABS Compression x Copper Compression



1/2	846102	337739
3/4	846103	337740
1	846104	337741
1-1/4	846105	337742
1-1/2	846106	337743
2	846107	337744

Liquid Quantity	Significant Number	Product Code
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Solvent Cement



1 pint	461392	337466
1 quart	461393	337467

MEK Cleaner



1 pint	461397	337468
1 quart	461398	337469

Joints

An indication of the number of joints likely to be made per quart of Duraplus® cement is as follows (it is recommended that MEK Cleaner order equals one-half the quantity of solvent cement required):


Pipe Size inches	Number of Joints
3/8 – 1	290
1-1/4 – 2	144
3	48
4	32
6	16
8	10
10	4
12	4


All Threads are BSP tapered unless otherwise noted ***.


Systems using plastic threaded components are restricted to 180 psi. The use of PTFE sealing tape is recommended.


Only the correct Duraplus® cement will provide a compatible joint. All warranties void if other cement used.


PRODUCT SELECTION CHART – DURAPLUS AIRLINE


	Dimension		Significant Number	Product Code
	inches	mm		
Female Adapter Soc x Female Thread				
	1/2 x 1/2	20 x 1/2	101306	437034
	3/4 x 3/4	25 x 3/4	101307	437035
	1 x 1	32 x 1	101308	437036


	Dimension		Significant Number	Product Code
	inches	mm		
Female Adapter Sp x Female Thread				
	1-1/2 x 1-1/2	50 x 1-1/2	153341	437231
	2 x 2	63 x 2	153343	437232


	Dimension	Significant Number	Product Code	
			inches	mm
Plug Male Thread				
	1/2	–	155102	337264
	3/4	–	155103	337265


	Dimension		Significant Number	Product Code
	inches	mm		
Wall Bracket Soc x Female Thread (Brass body)				
	1/2 x 1/2	20 x 1/2	422327	437335
	3/4 x 1/2	25 x 1/2	422328	437336
	3/4 x 3/4	25 x 3/4	422329	437337


	Dimension	Significant Number	Product Code	
			inches	mm
Wall Bracket Multiport				
	3/4 x 1/2	–	429122	437338
	Inlet – 3/4" male thread. Outlet – 1/2" female			


	Dimension	Significant Number	Product Code	
			inches	mm
Butterfly Valve - FK Manual, EPDM Seals - Glass filled PP Body				
	2	–	680107	337651
	3	–	680109	337652
	4	–	680110	337653
	6	–	680112	337654
	8	–	680113	337665

	Dimension		Significant Number	Product Code
	inches	mm		
Composite Union Soc x MPT (Air-line to Brass)				
	1/2 x 1/2	20 x 1/2	217306	437247
	3/4 x 3/4	25 x 3/4	217307	437248
	1 x 1	32 x 1	217308	437249
	1-1/2 x 1-1/2	50 x 1-1/2	217310	437250
	2 x 2	63 x 2	217311	437251

	Dimension		Significant Number	Product Code
	inches	mm		
True Union Ball Valve Soc 230psi at 73°F EPDM Seals				
	* 1/2	20	882306	437451
	* 3/4	25	882307	437452
	* 1	32	882308	437453
	* 1-1/2	50	882310	437454
	* 2	63	882311	437455
	*Valves are supplied in Grey ABS			

	Dimension	Significant Number	Product Code	
			inches	mm
End Connectors				
	1/2	20	882312	437446
	3/4	25	882313	437447
	1	32	882314	437448
	1-1/2	50	882315	437449
	2	63	882316	437450

	Quantity	Significant Number	Product Code	
			inches	mm
Air-Line Solvent Cement				
	1 pint	461390	437354	
	1 quart	461391	437355	

	Quantity	Significant Number	Product Code	
			inches	mm
MEK Cleaner				
	1 pint	461397	337468	
	1 quart	461398	337469	

Joints
An indication of the number of joints likely to be made per quart of Duraplus® cement is as follows (it is recommended that MEK cleaner orders equals one-half the quantity of solvent cement required).

Pipe Size	Number of Joints	
	inches	mm
3/8 - 1	20 - 32	290
1-1/4 - 2	50 - 63	144
3	75 - 90	48
4	110	32
6	-	16
8	-	10

Certain compressor and lubricant oils will damage your Duraplus Air-Line installation. Before using any oils in the system contact IPEX to obtain a list of recommended oils or to confirm individual oil suitability.