



Job or Customer: .....

Engineer: .....

Contractor: .....

Submitted by: ..... Date .....

Approved by: ..... Date .....

Order No: ..... Date .....

Specification: .....

## introduction

### < STANDARDS >



ASTM D3965



5391-1  
5392-1



RQS

Duraplus ABS is designed for industrial pressure pipe applications where the extremely high-impact resistance and ductility of the material offers greater insurance against internal and external shock loadings and site abuse conditions. Its 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.

Pipe and fittings shall be manufactured from a copolymeric material – acrylonitrile, butadiene, styrene (ABS) – in accordance with ASTM D3965.

## material properties

Material Property		Unit	Value
Ultimate tensile strength (strain rate 2 inches/min)	73°F (22.79°C)	lbf/in <sup>2</sup>	5,500
	176°F (80°C)	lbf/in <sup>2</sup>	3,150
Modulus of elasticity	73°F (22.79°C)	lbf/in <sup>2</sup>	240,000
	176°F (80°C)	lbf/in <sup>2</sup>	185,000
Izod impact strength notched	73°F (22.79°C)	ft.lb/in notch	8.5
Specific gravity		-	1.04



## pipe availability

Pipe Class	Continuous Pressure Rating @ 73°F (23°C)	Size Range
Class 90 psi	90 psi (6 bar)	10" and 12"
Class 115 psi	115 psi (8 bar)	6" and 8"
Class 145 psi	145 psi (10 bar)	1" to 8"
Class 180 psi	180 psi (12 bar)	1" to 6"
Class 230 psi	230 psi (16 bar)	3/8" to 4"
Class T	230 psi (16 bar)	3/8" to 2"

## fitting availability

Fitting	Size
Saddle Clips	3/8" - 4"
Cobra Clips	3/8" - 4"
Couplings	3/8" - 12"
Flange, Full-Face – Undrilled/Socket	1/2" - 6"
Flange, Full-face – Drilled ASA 150, Socket	1/2" - 6"
Flange, Stub – Socket	2" - 12"
Gaskets	1/2" - 12"
Backing Rings - Galvanized Mild Steel, Drilled to ASA 150	1/2" - 12"
Blind Flanges – Drilled to ASA 150	3" - 12"
Cap – Socket	3/8" - 4"
Union – Socket/Plastic to Plastic, EPDM 'o' ring	3/8" - 4"
Union, Composite – Plastic to Brass, Socket/FPT, EPDM 'o' ring	3/8" - 2"
Elbow, 90° – Socket	3/8" - 12"
Elbow, 45° – Socket	3/8" - 12"
Bend, 90° – Short Radius	1/2" - 4"
Bend, 90° Long Radius – 4 x D, spigot	3" - 12"
Bend, 45° Long Radius – 4 x D, spigot	3" - 12"
Tee, Socket	3/8" - 12"
Saddle, Socket	2" - 6" x 1-1/4" - 2"
Wye, 45° Socket End	1/2" - 2"
Wye, 45° Spigot End – Fabricated	3" - 12"
Reducer Bushing – Spigot x Socket	1/2" - 12" x 3/8" - 10"
Reducer Bushing – Spigot x FPT	1/2" - 1" x 3/8" - 3/4"
Reducer Coupling – Socket	1/2" - 12" x 3/8" - 10"
Female Adapter – Socket x BSPT	1/2" - 2"
Female Adapter – Spigot x BSPT	1/2" - 2"
Nipple – Spigot x MPT	3/8" - 4"
Plug – M.P.T.	1/2" - 2"

*Matched pipe, fittings and valves – all supplied by a single manufacturer.*

# Handling & Installation Procedures



## WARNING

IPEX cannot accept responsibility for accidents arising from the misuse of its products due to poor system design, installation, or incorrect application.

Unless the procedures and recommendations set out in this manual have been strictly followed, all warranties are null and void.

## Solvent Cement Welding

Correctly made joints using this method are stronger than either pipe or fitting. They can be made quicker and cheaper than by any other method. Duraplus ABS solvent cement is specially formulated to withstand the same working conditions as the rest of the Duraplus Industrial System.

The cement operates by chemically attacking the outside of the pipe and the inside of the fittings and therefore the efficiency is greatly reduced if these surfaces are not absolutely clean and properly prepared.

**Note:** All warranties are contingent upon the use of the correct Duraplus cement. IPEX takes no responsibility for any Duraplus System constructed with other cements, or not fabricated with the instructions contained herein.

## Precautions

- Do not thin cements with cleaner.  
*NOTE:* Solvent cement and cleaners are toxic and flammable. Suitable precautions must be taken to safeguard the health of the installers.
- Do not join near open flames and avoid smoking in the working area - all cements and cleaners are flammable.
- Do not use cements or cleaners in confined spaces – under these conditions, solvents may have a narcotic effect.
- Special care should be taken if solvent cementing is done in the rain or in wet conditions.
- Always use clean application brushes and do not use the same brush for different types of cement.
- Always use a clean rag and brush with IPEX supplied cleaners and solvent cements.
- Make sure cement cans are closed after use – solvents evaporate and the cement efficiency may be impaired if the container is left open.
- IPEX does not recommend the solvent cement joining of the Duraplus Industrial system to PVC. This transition is best accomplished through the use of flanges.

1

Cut the pipe clean and square. Use a hacksaw for smaller pipes. A mitre box is more suitable on larger sizes. Alternatively, a rotary cutter designed for plastic pipes can be used. The blade must be kept sharp.



## Handling & Installation Procedures

2

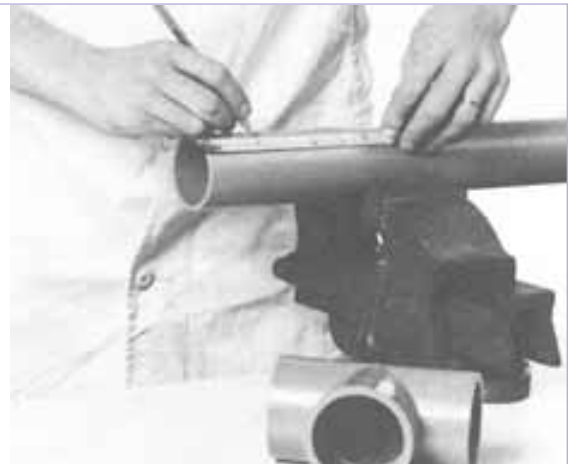
Remove internal and external burrs and clean any debris. Chamfer the pipe using a file. The size of the chamfer will depend on the pipe diameter but generally averages 1/8" x 45°. This prevents the solvent layer from being sheared from the surface of the fitting when the pipe is pushed fully home.



3

Next, mark the pipe a known distance from the end and clear of the area to be abraded.

This mark should be used to check the pipe penetration into the socket after completion.



4

Lightly abrade the end of the pipe over a length equal to the depth of the fitting socket, using only medium sand paper or 60-grit emery cloth.

Duraplus pipe and matched fittings are designed for an interference fit.

No attempt should be made to increase the clearance between pipe and fittings by excessive abrading.



## Handling & Installation Procedures

5

Lightly abrade the socket of the fitting.



6

Clean the abraded surfaces of pipe and fittings thoroughly using a clean rag moistened with Duraplus MEK Cleaner.



7

Stir the solvent cement well. Using a clean brush or roller as wide as convenient to the socket of the fitting, apply the correct Duraplus cement to pipe and fitting.

The number of coats to be applied will vary with the size of the joint being made, and the fit between the pipe and fitting. On average, two coats should be applied to both the Duraplus pipe and the fitting.

Each successive coat should be applied as quickly as possible after the previous one to avoid drying. The number of coats necessary will tend to increase with the increasing diameter but where an additional coat is required, it should be applied to the pipe rather than the fitting.

Care should be taken to avoid excess puddling of cement inside the fitting which would weaken the wall, particularly in the smaller diameters.



## Handling & Installation Procedures

8

Immediately after applying the cement, push the pipe fully home into the fitting. Continue to exert the pressure necessary to hold the pipe into the fitting for times varying from 10 seconds for 3/8" to 1 minute on 8" and higher. The slight taper of Duraplus fittings may otherwise induce the pipe to slide out of the socket with the consequent loss of joint shear strength.



9

Wipe off all excess cement.

Replace the lid on the solvent cement cans and clean the brush in the Duraplus MEK Cleaner.



Note: Metal pipes and heat exchangers should be flushed thoroughly if they are to be connected to Duraplus ABS. This will ensure that if there are any harmful chemicals or settlement they will not contaminate or attack the ABS pipe.

### Joint Curing Time

The drying time for joints will vary with material, fit, amount of solvent applied, ambient temperature and working pressure. Although full rated pressure and test pressure should not be applied for 24 hours, joints in smaller systems can sometime be put into service within minutes of being made. Please refer to Joint Cure Schedule on page 7 for complete table of cure times.

# Handling & Installation Procedures

## Cold Weather

Although normal installation temperatures are between 40°F (4°C) and 110°F (43°C), high strength joints have been made at temperatures as low as -15°F (-26°C).

In cold weather, solvents penetrate and soften the plastic pipe and fitting surfaces more slowly than in warm weather. In this situation, the plastic is more resistant to solvent attack and it becomes even more important to pre-soften surfaces with an aggressive primer. Be aware that because of slower evaporation, a longer cure time is necessary.

Tips for solvent cementing in cold weather:

- Prefabricate as much of the system as is possible in a heated work area.
- Store cements and primers in a warmer area when not in use and make sure they remain fluid.
- Take special care to remove moisture including ice and snow from the surfaces to be joined.
- Ensure that the temperature of the materials to be joined (ie. pipe and fittings) is similar.
- Use an IPEX Primer to soften the joining surfaces before applying cements. More than one application may be necessary.
- Allow a longer cure period before the system is used.  
**Note:** A heat blanket may be used to speed up the set and cure times.

An indication of the time to make a joint and number of joints likely to be made per quart of Duraplus cement is indicated in the table that follows:

Size (in.)	Joints per Quart	Time per Joint (min)
3/8 – 1	290	5
1-1/4 – 2	144	7
3	48	10
4	32	10
6	16	13
8	10	16
10	4	20
12	4	20

## Hot Weather

There are many occasions when solvent cementing plastic pipe at 95°F (35°C) temperatures and above cannot be avoided. If special precautions are taken, problems can be avoided.

Solvent cements for plastic pipe contain high-strength solvents which evaporate faster at elevated temperatures. This is especially true when there is a hot wind blowing. If the pipe is stored in direct sunlight, the pipe surface temperatures may be 20°F to 30°F (10°C to 15°C) higher than the ambient temperature. In this situation, the plastic is less resistant to attack and the solvents will attack faster and deeper, especially inside a joint. It is therefore very important to avoid puddling the cement inside the fitting socket and to ensure that any excess cement outside the joint is wiped off.

Tips for solvent cementing in hot weather:

- Store solvent cements and primers in a cool or shaded area prior to use.
- If possible, store fittings and pipe (at least the ends to be solvent welded) in a shady area before cementing.
- Try to do the solvent cementing in cooler morning hours.
- Cool surfaces to be joined by wiping with a damp rag.
- Make sure that the surface is dry prior to applying solvent cement.
- Make sure that both surfaces to be joined are still wet with cement when putting them together. With large size pipe, more people on the crew may be necessary.
- Using a primer and a heavier, high-viscosity cement will provide a little more working time.

**Note:** During hot weather the expansion-contraction factor may increase. Refer to the expansion-contraction design criteria in this manual.

Joint Cure Schedule for IPEX and IPEX Recommended ABS Solvent Cements\*

Temperature Range (°F)	Temperature Range (°C)	Pipe Size (in) & System Operating Pressure			
		up to 1-1/4 160 - 230 psi	1-1/2 to 2 160 - 230 psi	2-1/2 to 8 145 - 230 psi	10 to 12 < 90 psi
60 to 100	16 to 38	6 hr	12 hr	24 hr	48 hr
40 to 60	4 to 16	12 hr	24 hr	48 hr	96 hr
0 to 40	-18 to 4	48 hr	96 hr	8 days	8 days

\* The figures in the table are estimates based on laboratory tests for water applications (chemical applications may require different set times). In damp or humid weather allow 50% more cure time (relative humidity over 60%).

**Note 1:** Due to the many variables in the field, these figures should be used as a general guideline only.

**Note 2:** Joint cure schedule is the necessary time needed before pressurizing the system.



# Handling & Installation Procedures

## Branch Connections

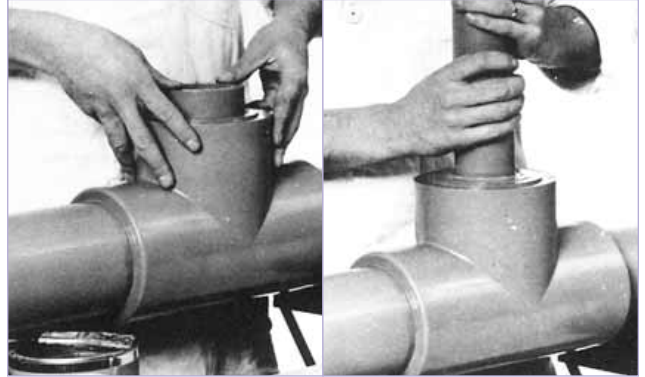
Reductions in branch connections can be made as follows:

- Reducer bushings can be solvent welded into tees, from 1/2" through 8".

Reducer bushings offer a neat and simple method of reducing socket size in confined spaces. They are telescopic and may be solvent welded into fittings or into each other.

Care must be taken to properly prepare all jointing surfaces per the solvent cementing instructions.

- Reducer saddles can be used, from 2" up to 6".



Saddles permit branch connections to be made without cutting the main pipe in two. Follow the fitting procedure below carefully:

1

Cut a hole into the pipe wall with a hole saw to suit the connection. The size of the hole and cutter to be used for each size of saddle is indicated in the table. Never use power drills to cut holes in the pipe.

Pipe Size (in)	2	3	4	6
Hole and Cutter Size (in.)	1-7/8	2-3/8	2-7/8	2-7/8



2

Mark out the area covered by the saddle on the pipe.

Position straps onto the pipe. These are needed to clamp the saddle into position after the solvent welding procedure.

The clamping straps recommended are of the worm-drive type and should be left on either side of the saddle until the joint has cured.

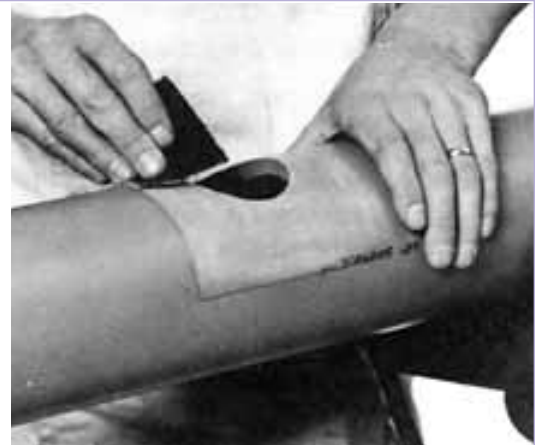




## Handling & Installation Procedures

3

Lightly abrade the mating surfaces of the pipe and the saddle with clean medium sand paper or 60-grit emery cloth.



4

Clean and abrade the surfaces of the pipe and saddle using Duraplus MEK cleaner.



5

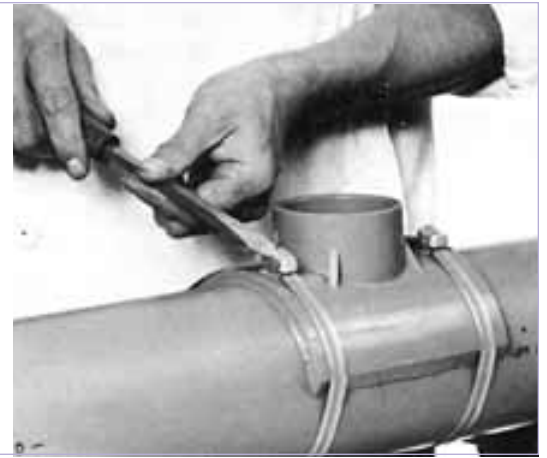
Apply Duraplus cement to the pipe area marked and to the saddle, taking care that cement is applied to the inside of the drilled hole and the outside of the spigot located on the underside of the saddle. Joints require two coats of cement on each surface.



## Handling & Installation Procedures

6

Place the saddle into position, ensuring that the spigot is located in the hole against the pipe wall. Clamp the saddle with the straps.



7

Wipe off excess cement.  
Replace the lids of cement cans.  
Clean the brush in Duraplus MEK Cleaner.



Please refer to Joint Cure Schedule on page 7 for complete table of cure times.

## Handling & Installation Procedures

### Threaded Connections

#### Plastic-to-Plastic

A range of threaded fittings is available with molded NPT threads. These threaded adapters can be cemented to pipe or fittings to convert them from plain end to threaded styles. IPEX recommends the use of molded threaded fittings wherever possible.

A special thick-walled 'Class T' pipe is available for threading in sizes up to 2" when molded fittings cannot be used.

**When Class T pipe is threaded, the pipe must be de-rated to 180 psi at 73°F.**

- Teflon tape should be wound onto male threads for a satisfactory seal.
- Tightening should only be done by hand or, at most, by an extra quarter turn with a strap wrench.
- Extra care must be taken not to over tighten or damage the pipe.
- Never use a pipe wrench.

**Any Duraplus Industrial System incorporating a threaded connection is restricted to 180 psi pressure at 73°F.**



#### CAUTION

Anaerobic adhesive thread sealants e.g. Loctite 542, 572, can chemically attack ABS and must not be used. We recommend the use of Teflon<sup>®</sup> tape only.

# Handling & Installation Procedures

## Plastic-to-Metal

There are several recommended methods of connecting metal and plastic systems.

- Composite Unions
- Flanges
- Socket/Male Threaded Adapters
- Spigot/Female Threaded Adapters

The incorporation of a metal threaded composite union into the system means that a threaded plastic component need not be used and therefore pressure de-rating is not required.

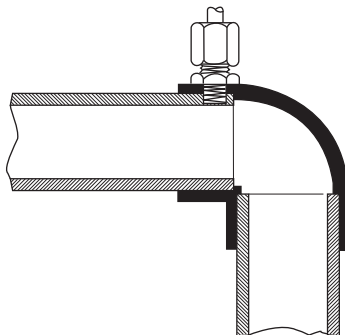
Composite unions are available with brass female threads up to and including 1".



**Note:** Metal pipes and heat exchangers should be flushed thoroughly if they are to be connected to Duraplus ABS. This will ensure that if there are any harmful chemicals or settlement they will not contaminate or attack the ABS pipe.

## Connections for Instrumentation

On 6" diameter pipe and above, small diameter connections up to 1/4" NPT can be made by drilling through pipe and fitting where the material is at its thickest and tapping the hole to receive a threaded fitting. This must never be done while the system is in service or under any internal pressure conditions.



## Flanged Joints

The Duraplus Industrial range consists of two types:

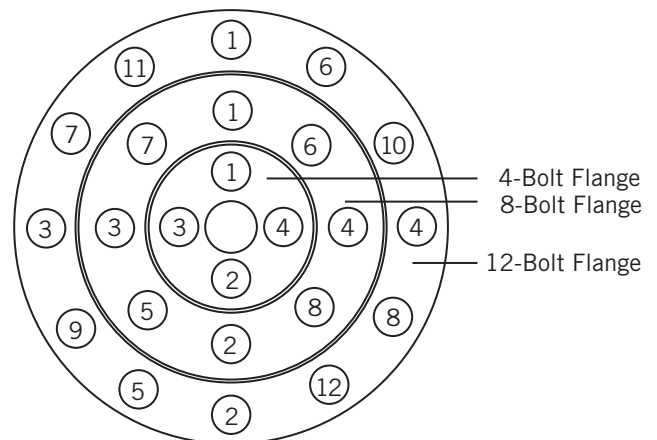
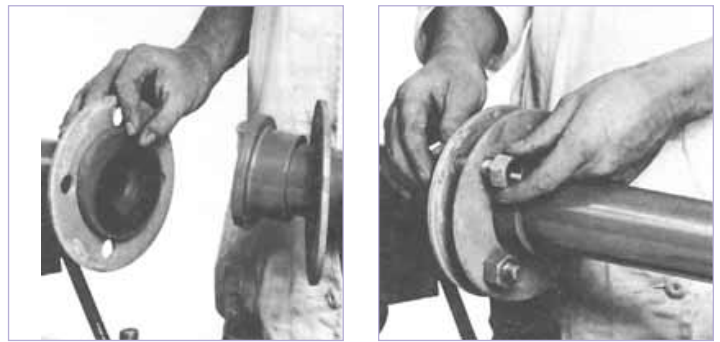
- Full-face flanges from 1/2" to 6"
- Stub flanges from 2" to 12"

**A galvanized mild steel backing ring and the appropriate neoprene gasket must be used with both types of flanges.**

The full-face flange has a serrated face and makes use of a flat drilled gasket.

The stub flange has a serrated face and makes use of a plain, flat, undrilled gasket.

Stub-type flanges make bolt hole adjustment very simple.



## Testing

### Site Pressure Testing

The purpose of an onsite pressure test is to establish that the installed section of line – and in particular all joints and fittings – will withstand the design working pressure, plus a safety margin, without loss of pressure or fluid.

Generally a test pressure of 1-1/2 times the safe working pressure, but not exceeding the maximum Rated Pressure of the piping system, for the installed pipe is adequate. Whenever possible, it is recommended that hydrostatic testing be carried out. It is recommended that the following hydrostatic test procedure be followed after the solvent-welded joints have been allowed to cure for a minimum period of 24 hours at 73°F (timed from the last joint). However, please refer to Joint Cure Schedule on page 7 for complete table of cure times.

### Hydrostatic Test Procedure

1. Fully inspect the installed piping for evidence of mechanical abuse and/or dry, suspect joints.
2. Split the system into convenient test sections not exceeding 1,000 ft.
3. Slowly fill the pipe section with cold water, taking care to evacuate all entrapped air in the process. Use air release valves at any high points in the system. Do not pressurize at this stage.
4. Leave the section for at least 1 hour to allow equilibrium temperature to be achieved.
5. Check the system for leaks. If clear, check for and remove any remaining air and increase pressure up to 50 psi. Do not pressurize further at this stage.
6. Leave the section pressurized for 10 minutes. If the pressure decays, inspect for leaks. If the pressure remains constant, slowly increase the hydrostatic pressure to 1-1/2 times the nominal working pressure but not exceeding the maximum Rated Pressure of the piping system.
7. Leave the section pressurized for a period not exceeding 1 hour. During this time, the pressure should not change.

If there is a significant drop in static pressure or extended times are required to achieve pressure, either joint leakage has occurred or air remains in the line. Inspect for leakage and if none is apparent, reduce the pressure and check for trapped air. This must be removed before further testing.

Any joint leaks should be repaired and allowed to cure fully before re-pressurizing for a minimum of 24 hours.

## Storage

### Prolonged Storage in Sunlight

Prolonged storage in sunlight may lead to degradation and some loss of impact resistance because of the combined effect of heat and ultraviolet radiation. Tarps should be used wherever possible to prevent this from happening.

### On-site Storage

The high-impact strength of the Duraplus Industrial System provides some protection against damage to plastic pipe often incurred during handling and storage on-site.

However, it is recommended the following precautions are taken:

1. The storage site should be flat, level and free from sharp stones, etc.
2. Pipes should not be stacked to heights exceeding the following:

Pipe Size	Max Stacking Height
Up to 3"	20 x pipe size
4" - 6"	12 x pipe size
8"	7 x pipe size
10"	4 x pipe size
12"	4 x pipe size

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



## Handling & Installation Procedures

### VKD Series Ball Valves

IPEX VKD Series Ball Valves offer a variety of advanced features such as the patented seat stop carrier, a high quality stem and ball support system, and a multifunctional handle with optional lock. The new DUAL BLOCK® system locks the union nuts preventing back-off due to vibration or thermal cycling. Deep grooves, thick o-rings, and cushioned Teflon® seats contribute to strong seals under pressure while integral mounting features and bracketing combine for simple adaptation for actuation and anchoring. Pressure rated to 232 PSI at 73°F. Sizes 3/8" to 4".

**Note:** Additional information is available in the IPEX Volume IV: Duraplus ABS Industrial Piping System Technical Manual.



Pneumatically actuated



Electrically actuated

#### Size (inches):

- 3/8
- 1-1/2
- 1/2
- 2
- 3/4
- 3
- 1
- 4
- 1-1/4

#### Control Style:

- Manual
- Electrically Actuated
- Pneumatically Actuated

*(Note: Please refer to IPEX valve price list for additional components with actuated valves)*

#### Seals:

- EPDM
- Viton® (FPM)

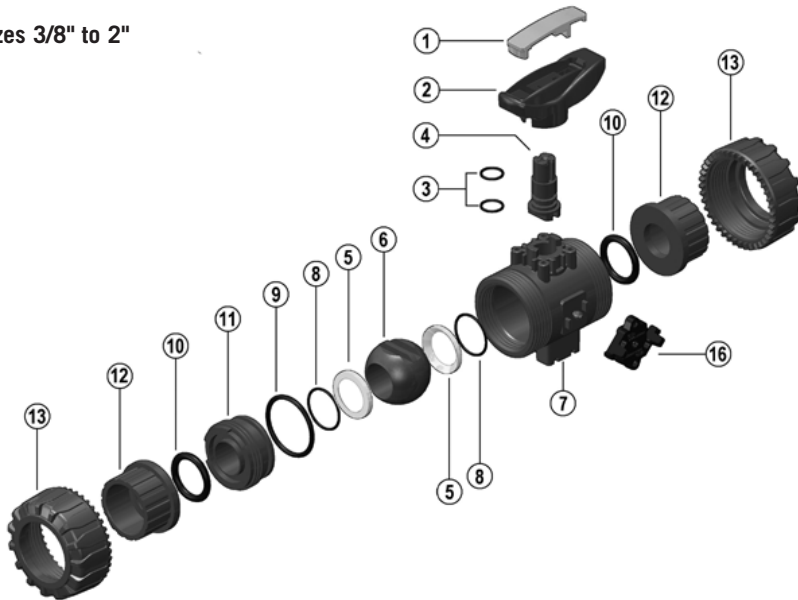
#### Valve Material:

- ABS

## Handling & Installation Procedures

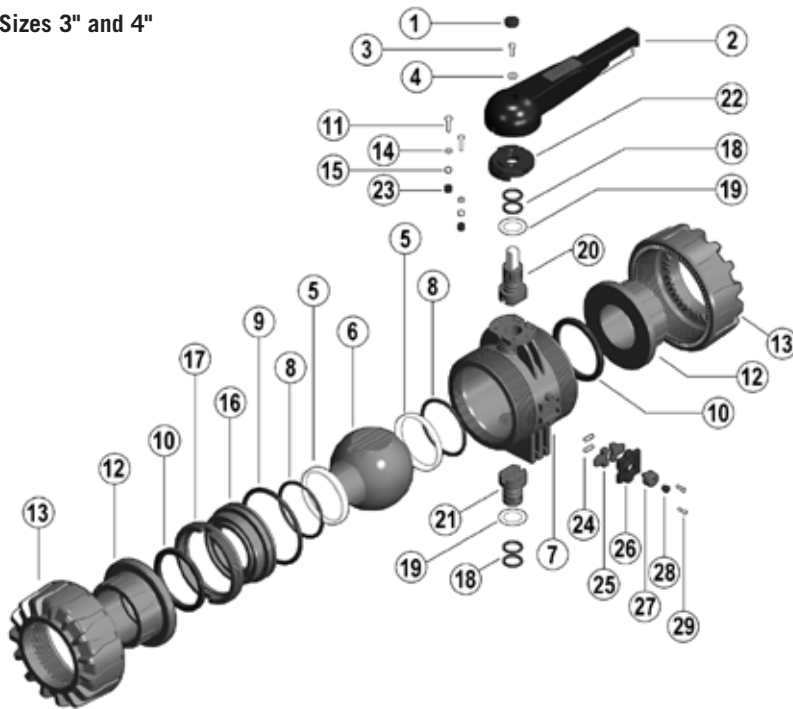
### Components

Sizes 3/8" to 2"



#	Component	Material
1	Insert	PVC
2	Handle	PVC
3	Stem O-Ring	EPDM
4	Stem	Duraplus ABS
5	Ball Seat	PTFE
6	Ball	Duraplus ABS
7	Body	Duraplus ABS
8	Ball Seat O-Ring	EPDM
9	Body O-Ring	EPDM
10	Socket O-Ring	EPDM
11	Carrier with Stop Ring	Duraplus ABS
12	End Connector	Duraplus ABS
13	Union Nut	Duraplus ABS
16	Dual Block®	POM

Sizes 3" and 4"



#	Component	Material
1	Protective Cap	PE
2	Handle	PVC
3	Bolt	SS
4	Washer	SS
5	Ball Seat	PTFE
6	Ball	Duraplus ABS
7	Body	Duraplus ABS
8	Ball Seat O-ring	EPDM
9	Body O-Ring	EPDM
10	Socket O-Ring	EPDM
11	Bolt	SS
12	End Connector	Duraplus ABS
13	Union Nut	Duraplus ABS
14	Washer	SS
15	Nut	SS
16	Carrier	Duraplus ABS
17	Stop Ring	Duraplus ABS
18	Stem O-Ring	EPDM
19	Bushing	PTFE
20	Upper Stem	Duraplus ABS & SS
21	Lower Stem	Duraplus ABS
22	Pad	GRPP
23	Protective Cap	PE
24	Spring	SS
25	Nut Block	GRPP
26	Cover	PP
27	Nut Block Button	GRPP
28	Protective Cap	PE
29	Screw	Nylon

## Handling & Installation Procedures

### FK Series Butterfly Valves

IPEX FK Series Butterfly Valves offer superior strength and chemical resistance in highly corrosive environments and process flow conditions. The special trapezoid shape of the liner and a serrated body cavity guarantee a bubble tight seal while keeping break-away torque at an absolute minimum. This versatile industrial valve features double self-lubricating seals and direct actuator mount capability. Pressure rated to 150 PSI at 73°F. Sizes 1-1/2" to 8".

**Note:** Additional information is available in the IPEX Volume IV: Duraplus ABS Industrial Piping System Technical Manual.



Sizes 1-1/2" to 2"

Sizes 3" to 8"



Sizes 6" to 12"

#### Size (inches):

- |                                |                             |
|--------------------------------|-----------------------------|
| <input type="checkbox"/> 1-1/2 | <input type="checkbox"/> 6  |
| <input type="checkbox"/> 2     | <input type="checkbox"/> 8  |
| <input type="checkbox"/> 3     | <input type="checkbox"/> 10 |
| <input type="checkbox"/> 4     | <input type="checkbox"/> 12 |

#### Control Style:

- Lever Handle
- Mounted Gear Box

#### Body Style:

- Wafer

#### Seals:

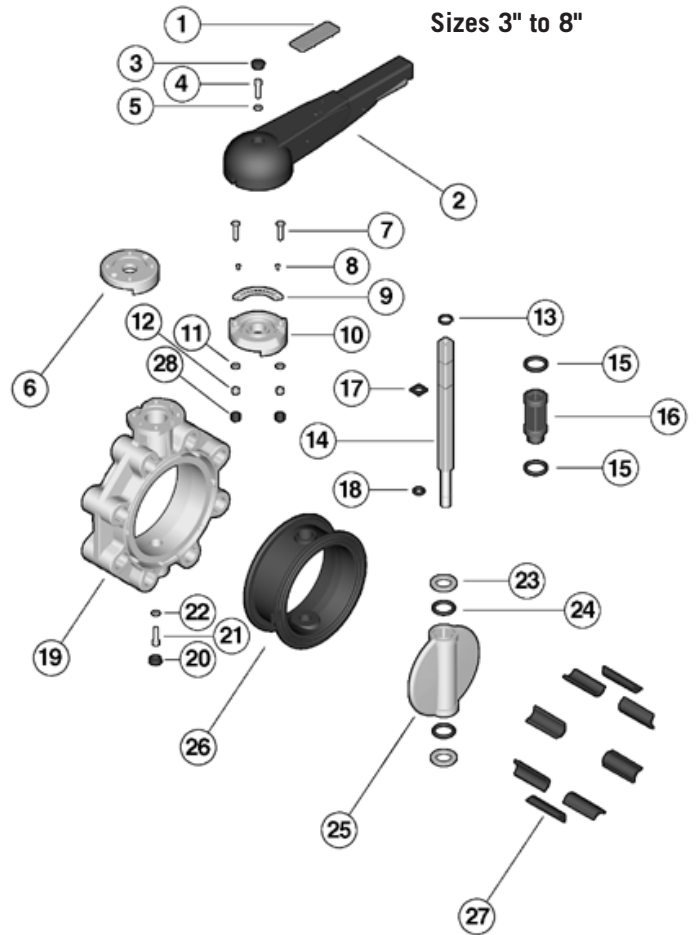
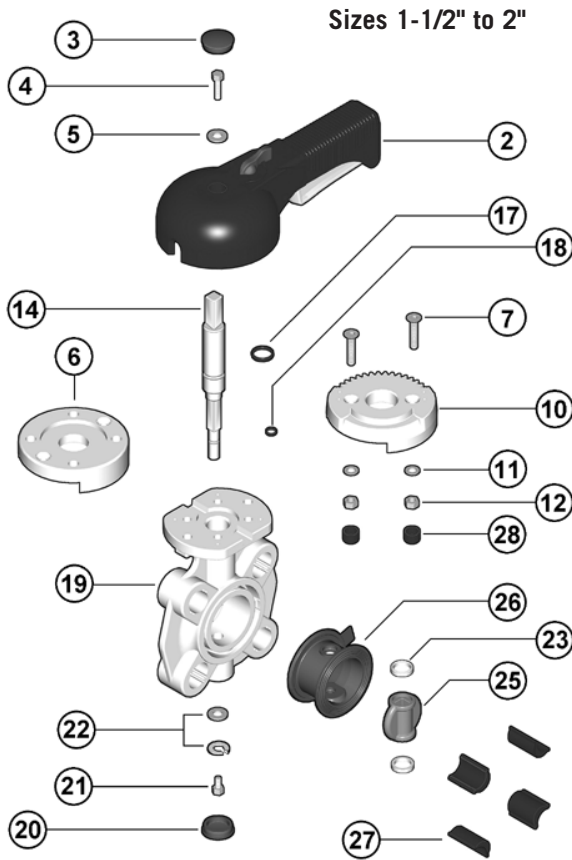
- EPDM
- Viton® (FPM)

#### Disk Material:

- ABS

# Handling & Installation Procedures

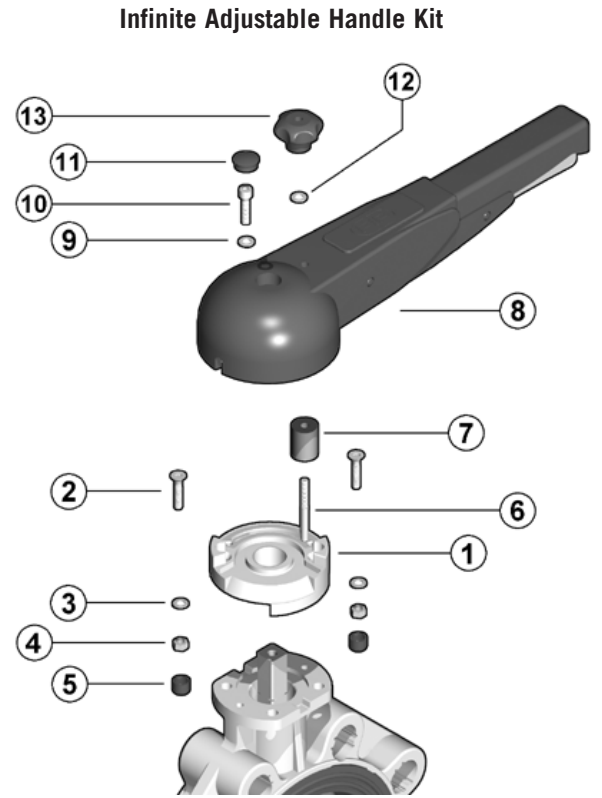
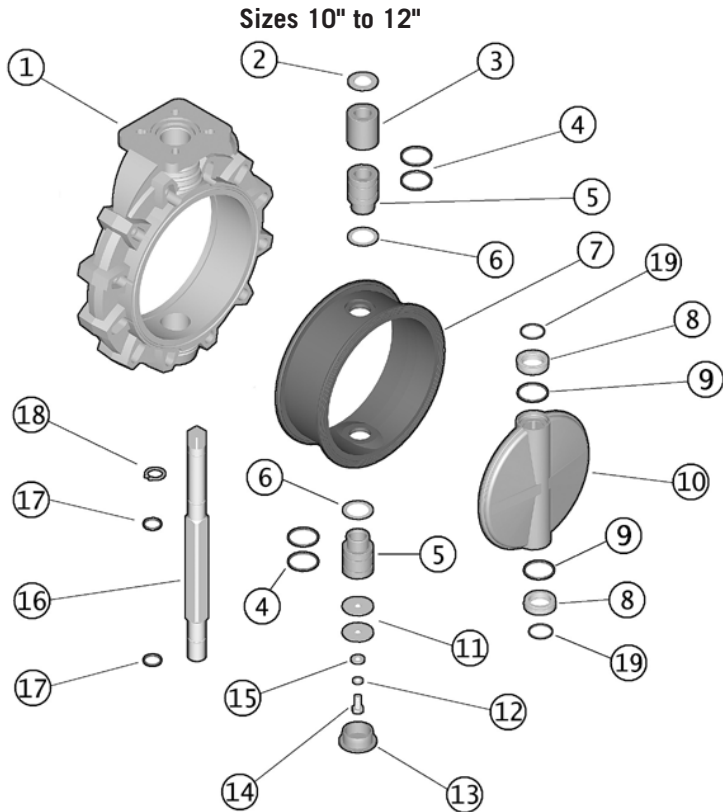
## Components



#	Component	Material
1	Handle Insert	ABS
2	Handle	PVC
3	Cap	PE
4	Screw	SS
5	Washer	SS
6	Spacer Pad	GRPP
7	Screw	SS
8	Screw	SS
9	Ratchet	SS
10	Pad	GRPP
11	Washer	SS
12	Nut	SS
13	Retaining Ring	SS
14	Shaft	420 SS

#	Component	Material
15	Bushing O-Ring	EPDM
16	Bushing	nylon
17	Shaft O-Ring	EPDM
18	Shaft O-Ring	EPDM
19	Body	GRPP
20	Cap	PE
21	Screw	SS
22	Washer	SS
23	Anti-Friction Ring	PTFE
24	Disc O-Ring	EPDM
25	Disc	Duraplus ABS
26	Primary Liner	EPDM
27	Inserts	ABS
28	Cap	PE

## Handling & Installation Procedures



#	Component	Material	Qty
1	body	GRPP	1
2	washer	SS	1
3	bushing	PP	1
4*	bushing o-ring	EPDM or Viton®	4
3	bushing for o-ring	PP	2
6	washer	PTFE	2
7*	primary liner	EPDM or Viton®	1
8*	anti-friction ring	PTFE	2
9*	disc o-ring	EPDM or Viton®	2
10*	disc	PP / PVC / CPVC / PVDF	1
11	washer	SS	2
12	washer	SS	1
13	cap	PE	1
14	screw	SS	1
15	washer	SS	1
16*	shaft	420 SS	1
17*	shaft o-ring	EPDM or Viton®	2
18	retaining ring	SS	1
19	o-ring	EPDM or Viton®	2

#	Component	Material	Qty
1	pad	GRPP	1
2	screw	SS	2
3	washer	SS	2
4	nut	SS	2
5	cap	PE	2
6	screw	SS	1
7	spacer	PVC	1
8	handle	PVC	1
9	washer	SS	1
10	screw	SS	1
11	cap	PE	1
12	washer	SS	1
13	knob	PP	1

\* Spare parts available.

# Handling & Installation Procedures

## VM Series Diaphragm Valves

IPEX VM Series Diaphragm Valves are the ideal solution for modulating flow and precise throttling in a variety of applications. The compact modular design allows for installation in any orientation, simple elastomer replacement, and possible conversion to an automated valve without removing the body from the line. Pressure rated to 150 PSI at 73°F. Sizes 1/2" to 3", spigot end connectors.

**Note:** Additional information is available in the IPEX Volume IV: Duraplus ABS Industrial Piping System Technical Manual.



### Size (inches):

- 1/2
- 3/4
- 1
- 1-1/4
- 1-1/2
- 2
- 3

### Control Style:

- Manual
- Pneumatically Actuated

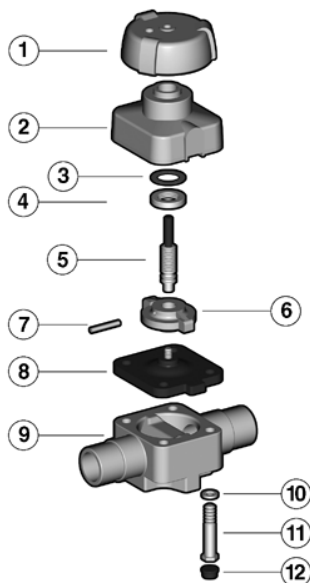
### Seals:

- EPDM

### Valve Material:

- ABS

## Components



#	Component	Material
1	Handwheel	GFPP
2	Bonnet	GFPP
3	Compression Bearing	POM
4	Security Ring	brass
5	Indicator - Stem	SS
6	Compressor	PBT
7	Pin	SS
8	Diaphragm	EPDM
9	Valve Body	Duraplus ABS
10	Washer	zinc plated steel
11	Hex Bolt	zinc plated steel
12	Protective Cap	PE

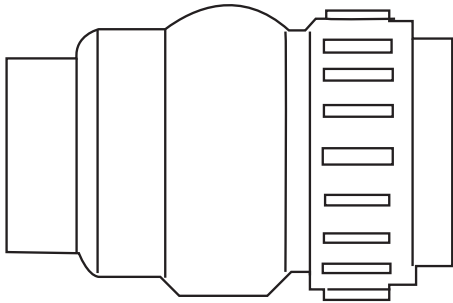


## Handling & Installation Procedures

### Ball Check Valve - Socket, Single union, EPDM Seals

Air release valve - code 858 - has the same dimensions but with Viton Seals. Not available in 3" size.

**Note:** Additional information is available in the IPEX Volume IV: Duraplus ABS Industrial Piping System Technical Manual.



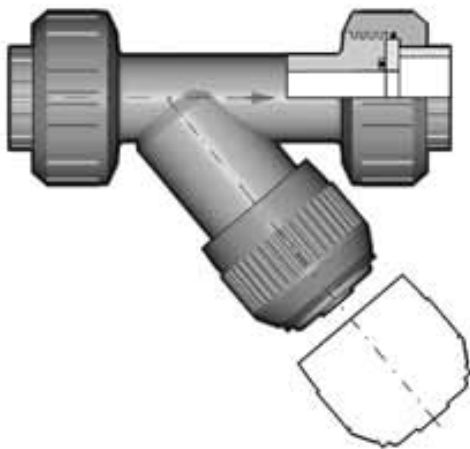
**Size (inches):**

- |                              |                                |
|------------------------------|--------------------------------|
| <input type="checkbox"/> 3/8 | <input type="checkbox"/> 1-1/4 |
| <input type="checkbox"/> 1/2 | <input type="checkbox"/> 1-1/2 |
| <input type="checkbox"/> 3/4 | <input type="checkbox"/> 2     |
| <input type="checkbox"/> 1   | <input type="checkbox"/> 3     |

### Strainers - Socket, EPDM Seals

Mesh: 1.5 mm mesh, ASTM mesh size 30, polypropylene.

**Note:** Additional information is available in the IPEX Volume IV: Duraplus ABS Industrial Piping System Technical Manual.



**Size (inches):**

- |                              |                                |
|------------------------------|--------------------------------|
| <input type="checkbox"/> 1/2 | <input type="checkbox"/> 1-1/4 |
| <input type="checkbox"/> 3/4 | <input type="checkbox"/> 1-1/2 |
| <input type="checkbox"/> 1   | <input type="checkbox"/> 2     |