

# PSP<sup>®</sup>

PermaShield Pipe



Corrosive Fume Exhaust  
and Odor Control Duct



**Fab-Tech, Inc.**

A Critical Process Systems Group Company



Fab-Tech's PermaShield Pipe (PSP®) is recognized around the world as the best product for removal of corrosive and highly hazardous fumes. Founded in engineering, manufacturing and customer service expertise, Fab-Tech established a new level of standards for cost effective, reliable, and most importantly, safe corrosive fume exhaust and odor control duct.

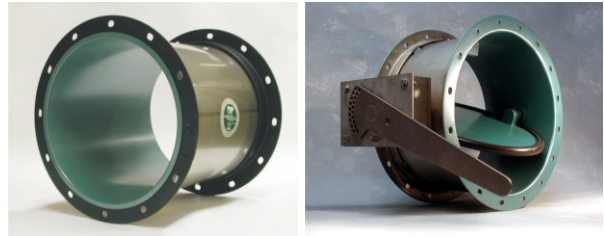
PSP®'s fully engineered system of stainless steel duct/pipe and accessories with its durable and highly chemical resistant coating provides decades of worry free fume exhaust service.

PSP® is available in a wide range of standard fittings from as small as 2" ( 50mm ) diameter up to a robust 120" ( 3,045mm ) diameter. With more accessories to get the job done than any other duct manufacturer and the ability to form round, rectangular, or oval duct, Fab-Tech can meet any of your corrosive fume exhaust and odor control duct requirements.

What does that mean for you, your facility or your laboratory?

## PermaShield Pipe

*PSP® with a "0" flame spread rating, does not burn, generate smoke or melt.*



## Safe

PermaShield Pipe contributes to the overall safety of the facility as well as the safety of the men and women responsible for day to day operations by preventing fugitive fume contamination, fluid leakage, or catastrophic loss of life and facilities in the event of a fire.

**True "Class 1" Duct** Your local building and fire code officials will be satisfied with PSP® as a true "Class 1" product. PSP® complies with NFPA 820\* established by the Uniform Building Code which is accepted by federal, state and local authorities. This product does not burn as certified in ASTM E-84 tests with "0" flame spread and a smoke generation index of less than "20". These tests were performed as part of PSP®'s Factory Mutual FM 4922 approval with various joining systems and unlimited vertical height. PermaShield Fluoropolymer Barrier Coating is FM 4922 approved for up to 16 mils although our recommendation is that 10 mils is more than adequate for any service conditions ever encountered. Installations using Fab-Tech's "Class 1" PSP® duct can greatly reduce annual fire and business interruption insurance costs.

\*NFPA 820 is the Standard for Fire Protection in Wastewater Treatment and Collection Facilities.



Building loss in excess of \$400 million USD, exclusive of production and downstream interdependency losses. A contributing factor to the spread of the fire was the use of plastic exhaust duct.

*Don't let this happen to your facility!*



Estimated \$1 million USD cost of fire damage to this waste water treatment plant ( FRP duct system ).

**Environmentally Safe** PermaShield Pipe has a desirable half life. Fittings can be used and reused before the end of the product's life. Unlike plastic/FRP products which over time absorb the chemicals they were exposed to, Fab-Tech's PermaShield coating is inert and will not absorb water or chemicals. At life cycle end the stainless steel can be recycled for scrap value and the significant cost associated with hazardous waste disposal is eliminated with PSP®.

PSP® is easy to install. Unlike plastic/FRP products, our systems do not require heat, chemicals, grinding or sanding which creates airborne contaminants for facility and construction workers.

As an added benefit, PermaShield Pipe, when applied in conjunction with or as part of a greater system, may be eligible for points towards LEED certification in various categories.

*If corrosive fumes and fire safety are a concern...  
select PSP® for peace of mind!*





*Easy to install, easy to maintain, easy on the bottom line!*

## Cost Effective

PermaShield Pipe is the world's undisputed first choice to prevent expensive unscheduled shutdown of your manufacturing equipment due to chemical attack.

**Installation labor savings** Fab-Tech's PSP<sup>®</sup> duct is easy to install - saving you valuable time and money while creating a safer work environment. With efficient all mechanical fasteners and easy to use PTFE gaskets, keep your projects on or ahead of schedule resulting in reduced project and labor costs. PermaShield Pipes' bolt together Van Stone Flange joining system provides a 50% reduction in installation labor when compared to fiberglass reinforced plastic ( FRP ). An additional 40% labor savings are realized when the EZ joining system is used.

**Eliminate Temporary Structures** The cost of building temporary containment due to airborne contaminate ( a clean environment with temperature or weather control necessary when installing FRP ) is eliminated as PSP<sup>®</sup> installs cleanly with no welding, grinding, sanding or chemicals for assembly and installation.

**Reduces Fire Protection Costs** Installing PSP<sup>®</sup> will potentially reduce the fire load in your facility to the point where the numbers of fire sprinklers are reduced. Fire protection sprinklers and the labor to install them inside combustible ( plastic ) duct for facilities requiring "Class 1" duct are eliminated. In addition, the labor and materials to install an oversized grey water collection system ( necessary to process contaminated water discharged into the exhaust duct by the fire protection system ) are greatly reduced.

**Easily Field Modified** It doesn't get much easier when duct smaller than 30" ( 759mm ) with 20ga material can be cut to length on site. Branch lines can be added with innovative saddle-tap fittings. And ports for drain lines, tool hook-up and system measurement can be easily installed in the field.

**Life Time Maintenance: ZERO** Unlike plastic/FRP products which are easily damaged and require UV protection to be routinely applied, an installed PSP<sup>®</sup> system requires no maintenance and associated cost. A retired system can be as easily disassembled and stored for reuse if desired. Or the stainless steel can be sold for scrap value. Long term, the economic effects of chemical leaching and subsequent hazardous waste disposal associated with other systems are eliminated with PSP<sup>®</sup>.



*With 3 decades of experience, we know what works!*

## Service, Service, Service

Fab-Tech is also known for its outstanding customer service which also means cost savings for our customers.

**Communication** Fab-Tech customer service starts with communication. Communication is critical; we work very closely with contractors, engineers and end-users to assure the finished product is consistent with prints, shop drawings and cut sheets. We communicate to you what is possible and then make it a reality. Working closely with our project managers and their quick response saves you time and money.

**On Time Delivery** Fab-Tech has the best reputation in the business for doing what you want, when you want it. Constantly aware of valuable lead time and the need for no delays, Fab-Tech is capable of round-the-clock manufacturing and expedited delivery when necessary. Our customers appreciate the advantage of Fab-Tech's fully staffed and robust facility, the largest and most efficient facility for manufacturing coated duct in the world. The added cost and stress of managing your duct supplier is eliminated with the addition of Fab-Tech to your team.

**Engineering Expertise** Our professional engineering staff is available to evaluate your custom fabrication as well as provide installation training upon request. Many customers ask us to help solve their exhaust problems with specialty fittings and accessories. Solving problems is something our engineering department loves to do.

**Quick and Reliable Information** Our extensive website enables you to quickly receive information on our product: general information, chemical resistance charts, installation guides and videos, case studies and order sheets are just a few categories covered. No more wasted time finding simple information.





Field proven for no surprises!

# Reliable

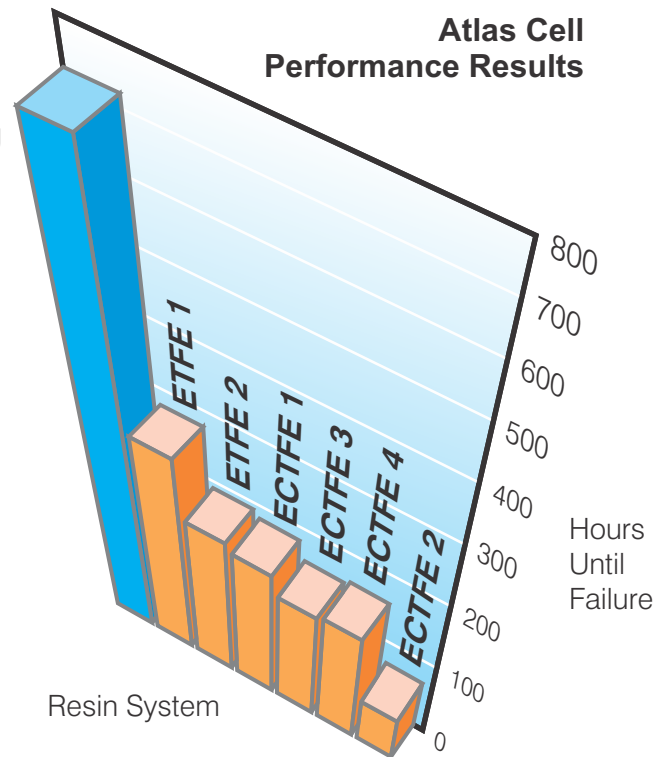
With three decades of proven service handling highly corrosive vapor waste products, PSP® is ideal for the safe and reliable removal of hazardous exhaust and foul air fumes. Facility system engineers sleep well knowing PSP® prevents unscheduled shutdown of their manufacturing lines or waste water odor control facility.

**Corrosion Resistant** The PermaShield Fluoropolymer Barrier Coating applied to PSP® products is the premier chemical and impact resistant coating for an under 300°F application available today. The PSP® product line has never had a reported failure due to chemical attack of the coating. Chemical compatibility data is available from Fab-Tech for over 300 chemicals. This extensive chemical resistance chart provides information on numerous chemicals with their concentrations and maximum recommended use temperature. Many of the chemicals and solvents that are easily contained by PermaShield Fluoropolymer Barrier Coating can cause rapid deterioration of other plastics and all but the most exotic metal alloys.

**Barrier Coating** Fab-Tech's PermaShield Fluoropolymer Barrier Coating is so much more than the typical powder coating. Applied using an electrostatic resin, the coating is integrally bonded to the substrate. This process allows the coating to be applied to virtually any fitting, regardless of size or configuration. PermaShield Fluoropolymer Barrier Coating exhibits many beneficial attributes for years of worry-free service.

The PermaShield barrier coating has better permeation resistance than any other fluoropolymer coating on the market today. Independent testing results show PSP® has a 3 times greater permeation resistance than the next best coating found in the marketplace ( see Atlas Cell Test graph ). The elasticity and bond to the substrate enables smaller diameter duct to be cut to length in the field and a new flange to be turned. This provides the contractor with the flexibility needed during installation from unexpected changes to tool location.

## PermaShield Barrier Coating



The atlas cell test is an industry standard test per IAW ASTM C 868-85 Standard Test Method for Chemical Resistance of Protective Linings and their adhesion to steel substrates under attack of various solutions at elevated temperatures.

**Note:** The test run had a total of over 60 samples of various resin systems from various manufacturers.

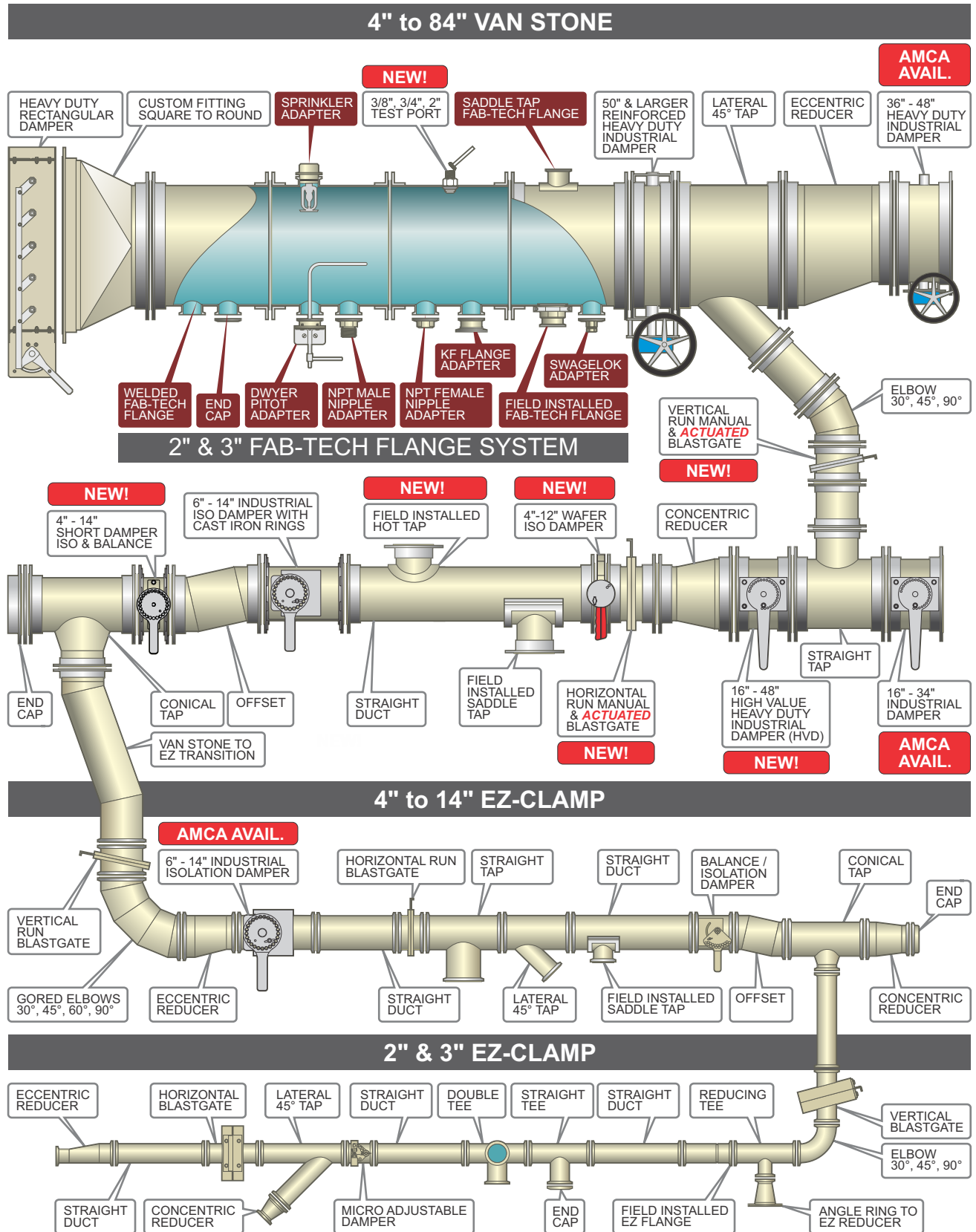
**Control Devices** Fab-Tech offers a wide range of dampers and blastgates for your exhaust fume applications. All PSP® dampers utilize quality steel construction and have been specifically designed as coated devices to provide maximum corrosion resistance. Dampers are also available as AMCA Class 1A rated devices to assure end users that they will function as specified.

**Liquid Tight System** The combination of fluoropolymer coated stainless steel and PTFE joint sealant technology constitutes a liquid tight system virtually unaffected by a wide range of industrial chemicals.

**Structurally Secure** In the event of fire, the stainless steel substrate of PSP® components will not burn or collapse. Nor will they generate large quantities of smoke, thereby protecting valuable tooling and adjacent production areas. Durable yet light weight stainless steel means economic benefits from life-cycle savings and reduced insurance costs.

# More accessories to get the job done than any other manufacturer!

The PSP® Solution The chart below presents all the categories of standard fittings available from Fab-Tech. Specifics for each fitting type are available in our print catalog or on line at [www.fabtechinc.com](http://www.fabtechinc.com).



# PSP® General Specifications:



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<b>Size:</b>	2" thru 120" round, up to 144" x 144" rectangular
<b>Material:</b>	Series 300 stainless steel sheet goods, 20 ga thru 10 ga
<b>Coating:</b>	PermaShield Fluoropolymer Barrier Coating
<b>Construction:</b>	Forming any type, fully welded construction
<b>Joining System:</b>	Companion angle rings, 4" thru 120", Stainless steel or black iron
<b>Clamped Joints:</b>	Proprietary EZ clamp 2" thru 14" diameter
<b>Cast Joints:</b>	Companion cast rings, stainless steel 4" thru 14"
<b>Gasket:</b>	Self adhesive PTFE gasket system for Applications from -450°F to 300°F
<b>Air Control Devices:</b>	Balance & isolation dampers 4" thru 120" Rectangular backdraft dampers Axial flow dampers 18" thru 72" Horizontal & vertical blastgates 4" thru 120" <b>AMCA</b> Class 1A rated dampers 6" thru 48"
<b>System Pressures:</b>	Standard PSP® handles 2"-18"wg. Custom systems designed for up to 1 psi (33"wg)
<b>Flame Spread:</b>	"0" ( FM Approval certification ) ASTME - 84
<b>Smoke Generation:</b>	"20" ( FM Approval certification ) ASTME - 84
<b>Applications:</b>	Mining, Petrochemical, Plastics Industries, Gas Refining, Power Plant, Gas Manufacturing, Life Science Building, Electronics Industries, Pharmaceutical, Sewage / Water Treatment, Pulp and Paper, Semiconductor Industries
<b>Partial Customer List:</b>	GlaxoSmithKline, Pfizer, Sony, Mallinckrodt, Micron, MEMC, NEC, Roche Vitamin, IBM, Intel, DuPont, AMD, Hitachi, TSMC, Merck, Bristol Myers Squibb, Global Foundries

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PSP® is a registered trademark of Fab-Tech, Inc., manufactured in the USA and under license in the following locations:

**Taiwan**

NO. 8-1 Tong-Shih Jair Liu-Fen Li, San-Hua Town, Tainan County, Taiwan

**Korea**

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Seoul, Korea

**China**

Building 5 No 1109 Guang Tai Road,  
JinHui Town Fengxian District  
Shanghai 200127, P.R. China



Fab-Tech is also a **Critical Process Systems Group** company: [www.cpsgrp.com](http://www.cpsgrp.com)

Or visit our associate companies below:

- |                             |  |
|-----------------------------|--|
| BioPharm Engineered Systems | <a href="http://www.bpesys.com">www.bpesys.com</a>               |
| Composites USA              | <a href="http://www.compositesusa.com">www.compositesusa.com</a> |
| CPS Process Solutions       | <a href="http://www.cpsprocess.com">www.cpsprocess.com</a>       |
| Diversified Fluid Solutions | <a href="http://www.dfsolution.com">www.dfsolution.com</a>       |
| ENGVT, LLC                  | <a href="http://www.engvt.com">www.engvt.com</a>                 |
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