




**PREVENT SPRAY OUT  
SAFEGUARD PERSONNEL  
PREVENT DAMAGE TO PLANT**

 **LEADING MANUFACTURER AND SUPPLIER  
OF PIPE SAFETY SHIELDS**



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# About Flangeguards

Established in 2006, Flangeguards Limited specialise in the manufacture of pipe safety shields to prevent spray out and mist formation from failing pipe joints.

Flangeguards is a modern and forward thinking manufacturer. The management team have over twenty-five years' experience in this market. Frustrated with the considerable shortcomings of existing products in the marketplace, we decided to design and manufacture our own product range. Since this point we have never looked back, and now supply shields across the globe.

We understand the safety shields market intimately and our knowledge of end-user requirement coupled with our extensive product knowledge and expertise, drives us to give unparalleled service and most importantly, a spray shield that is fit for purpose.

## Manufacturing

Many safety shield designs look the same but when the price of failure is high, you need to be sure that the product you have paid for will protect your people and plant. So how do we know our shields are going to work?

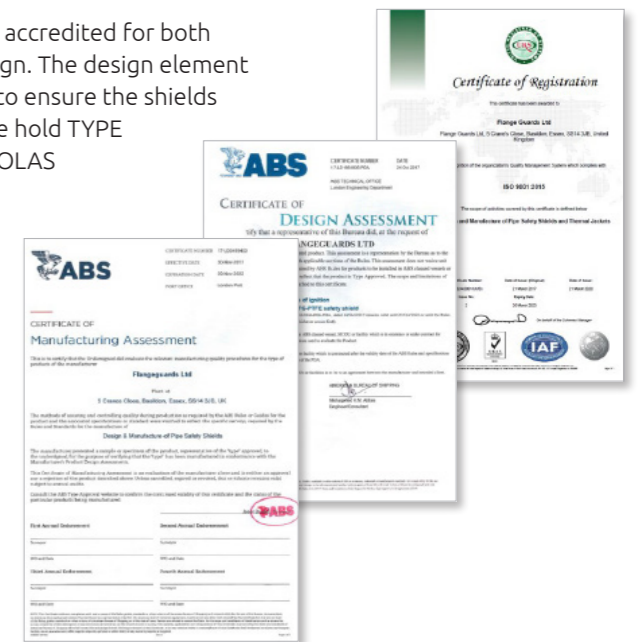
Our range of Flange Guards are manufactured in-house, at our UK production plant. In lieu of any international safety shield standards, we designed and built our own Pressure Test Facility. All our shield designs are tested to ensure spray and mist prevention. Many such tests are available on our website and Hydro Test Certificates (including video footage) can be performed.



## Quality

We are ISO9001:2015 accredited for both manufacture and design. The design element is critically important to ensure the shields are fit for purpose. We hold TYPE approval for marine SOLAS applications.

We only use the most effective shield designs and will never compromise on the quality of the materials used in production.



# What are flange guards?

Flange guards, otherwise known as spray safety shields, are installed on pipe joints, these being the 'weak points' where leaks typically occur. For critical pressurised applications, they are the vital first line of defence to prevent fire, explosion and toxic release which would otherwise endanger plant and personnel.

- **Prevent Spray-outs** Generally the most important requirement is to control the leak, create a safe release and thus avoid a dangerous spray-out, which would otherwise happen even at low pressure.
- **Avoid oil mist formation** For certain oil & fuel applications, oil mist formation is just as hazardous as a spray-out. Furthermore, ill-fitting safety shields can actually create mist formation.

- **Provide leak indication** It is important to identify leaks as quickly as possible, though the process will determine the urgency. For certain acid lines, some customers require that flanges must not be concealed. This is achieved using transparent shielding. Alternatively leak-indicator patches can be used. For other process liquids, leaks will be self-evident.
- **Contain leaks** Whilst standard safety shield designs generally do not provide secondary containment (indeed there should be a leak path to avoid pressure build-up), we can offer special designs incorporating drain nipples and a system to channel liquid releases.



We have a variety of shield types and materials to solve practically any problem.

This ensures the guard you use is fit for purpose in terms of design and compatibility with the process.

# Where to use

Flange guards are installed in areas where a risk to plant and personnel exists. Shields needn't be installed site wide. Consideration of the process, the risk of leakage and its impact on the local area should be considered.

- **Oil lines near hot surfaces** Do you need to install shielding for all oil lines, or only those in close proximity to hot surfaces?
- **Acid lines near personnel or walkways** Is there a risk of injury through spray-out? Do you need immediate leak indication and identification of acids?
- **Reducing zoned hazardous areas** Customers use the argument that safety shields around pipe fittings reduce the size of the local zoned area.
- **Concentration, temperature & pressure** Whilst we would suggest all hazardous process lines are shielded, perhaps the first priority should be those above a certain concentration, pressure or temperature.
- **Working at height** Pipelines at height can be as dangerous as any other. But once again, the logistics of gaining access might mean that first priority goes to pipework up to head height.

## Not all shield designs are the same

**Shields are like insurance policies:** Once in place, you think you are covered

**Only after an incident you find out:** Some give full protection, others are worthless

# Why do I need them and what drives the requirements?

## Drivers

Throughout process industries, focus on safety of personnel and assets is growing dramatically. Whether it be corporate policy for 'zero accidents', industrial insurance, industry-specific regulation, or general best practice, safety shields are increasingly being used to control pipeline leaks.

## Insurance requirement

The cost of site fires, explosions and personal injury is significant. Industrial insurers now focus specifically on spray-out and oil mist prevention, and often insist on safety shielding.

## Company policy & best practice

To reach the goal of 'zero accidents', many companies create and insist upon safety policies and requirements that often include safety shielding.

## Recent incident or near-miss

Very often, site incidents or near-misses will necessitate a safety review, at which time safety shields are considered as corrective or preventative action.

## Hazardous area zoning (ATEX)

Many customers use safety shields as part of their case to reduce zoned areas.

## Industry regulations

Various regulations exist, some specifying safety shielding, and others recommending shielding as a control measure.

### OSHA

"Protective equipment, incl. PPE for eyes, face, head and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided".

### EI 15

Energy Industry requirement for oil lines above 1bar pressure. Mainly focused on avoidance of oil mist prevention.

### SOLAS

This marine industry regulation includes requirement for shielding/ screening of oil spray within vessel engine rooms.

### DSEAR / Hazardous Area Zoning

Dangerous Substances & Explosive Atmospheres Regulation (Europe).

Shields are recommended as a control measure to prevent spray and mist.

Sites now use shields to reduce the size of zoned hazardous areas (since spray and mist is avoided, thus the ATEX 'bubble' is smaller).

### OTHER

There are a variety of other reasons to fit shields, including pollution control, general site cleanliness and protection of nearby electrical equipment.



Flange failures cause incidents and accidents around the world, the results of which can be devastating.

**Fire, Explosion, Toxic release**  
All resulting in human and financial loss

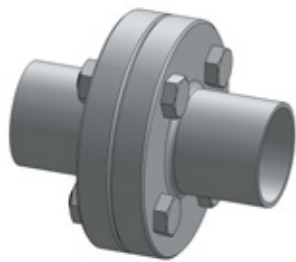
# Where do I install flange guards

Flanges are the most common application for safety shields. They are used to connect pipelines, valves, pumps, strainers and various other pipe joints. But these joints are considered the weak point from a leakage point of view.

Whilst the vast majority of pipe joint seals operate perfectly through correct material selection and routine maintenance, many high profile incidents and accidents have occurred around the world, specifically caused by flange leaks.

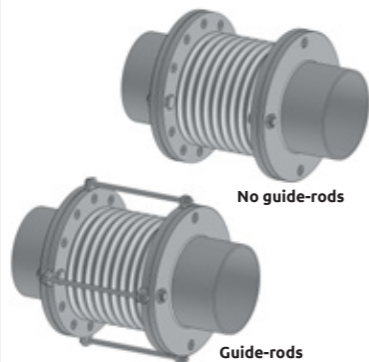
## Shields to fit flanges

### Flange Guards



## Shields to fit joints and couplings

### Expansion Joints



### Elbows / Couplings

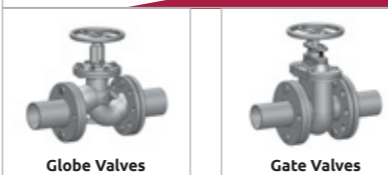


## Shields to fit valves

### 1 Piece Valves



### 3 Piece Valves



# Styles of flange guards

There are many different shield designs available today. The main purpose of safety shields is to prevent spray-out.

You must always ensure that, whichever design you select, it is fit for the purpose in terms of design and compatibility with the process:

- Temperature
- Pressure
- Chemical resistance

In operation, should a flange or joint fail, any liquid released must be controlled.

We manufacture both the original 'bag' style safety shield and the newer **SUREBAND**® design.

## Flangeguards 'bag' style shield

The original 'bag' style of safety shield has not changed since the 1970's and is a safe, effective way to protect flange joints. The shield wraps around the outside of the flange and draws the fabric down around the bolts, towards the pipe itself. Draw strings hold the shield tight in place.

This design controls the leak and prevents spray outs and mist formation. The liquid release coalesces inside the shield and drains vertically. It comes either with a litmus indicator patch (which changes colour in the event of acid/alkali leak) or a central

clear section enabling flange inspection through the shield, without removal.

The shield can be untied to enable routine flange inspection and maintenance, then reinstalled. It is reusable, even in the event of leaks, since the shield can be cleaned. However, the severity of the leak and exposure time will determine the shield life.

With this design, each shield is made to fit a specific flange size. The use of flexible fabrics makes this shield ideal for non-standard shapes and sizes (valves, expansion joints, etc).



We use the highest quality technical fabrics, including PTFE coated pull-cord & thread.

## SUREBAND® style shield

**SUREBAND**® was designed with simplicity in mind, to advance safety shield technology and improve upon the original 'bag' style shield.

Available either in all polymer PTFE/ECTFE (for corrosive applications) or all 316 stainless steel (for high pressure & temperature), this shield design comprises an outer band with specially formulated, multi-layered internal mesh.

The multi-layered mesh held tight against the flange, forms the basis of our Pressure Diffusion Technology (PDT). The result is a self-draining, incredibly effective way of preventing spray-outs (side or lateral) and mist formation.

This range is fitted and removed in seconds, with no pull-cords or special tools required. The polymer shield version contains no fibreglass and will therefore outlast the conventional 'bag' style shield, especially when exposed to corrosive media.



With **SUREBAND**® we have produced something that is **SAFER** **QUICKER** **BETTER**

# SUREBAND® *be safe, be sure*

The innovative SUREBAND® Safety Spray Shield design from FlangeGuards. Representing over twenty five years' experience and development, this new design significantly improves upon conventional shielding products.

NO PULL-CORDS.  
FITTED AND REMOVED  
IN SECONDS



MULTI-LAYERED  
INTERNAL MESH  
DIFFUSES PRESSURE  
RELEASE



MULTI-SIZE FUNCTION  
ONE SHIELD FITS  
MULTIPLE FLANGES



## SUREBAND® Clear

ALL POLYMER PTFE/ECTFE. OUTLASTS CONVENTIONAL PTFE-COATED FIBREGLASS SHIELDS IN CORROSIVE ENVIRONMENTS

## SUREBAND® Steel

ALL-316 ST/ST BANDING AND MESH. SUITABLE FOR HIGH PRESSURE AND TEMPERATURE APPLICATIONS

### PRIMARY FUNCTION

- DIFFUSES THE PRESSURE
- PREVENTS SPRAY & MIST FORMATION
- CREATES A SAFE RELEASE

### SECONDARY BENEFITS

- PROVIDES VISUAL LEAK INDICATION
- AVOIDS PRESSURE BUILD-UP
- RE-USABLE
- SIMPLE AND QUICK TO FIT / REMOVE
- HAVE A LONG SERVICE LIFE
- MORE ECONOMIC

## ✓ SAFER

Our PDT technology makes SUREBAND® THE most effective shield design on the market. Be sure, be safe, choose FlangeGuards

## ✓ QUICKER

No pull-cords. Quick-fit connection cuts install time dramatically, saving time & money. Operators are more inclined to re-fit after removal

## ✓ BETTER

Unique multi-size system means one shield fits multiple flange sizes

## SAFER

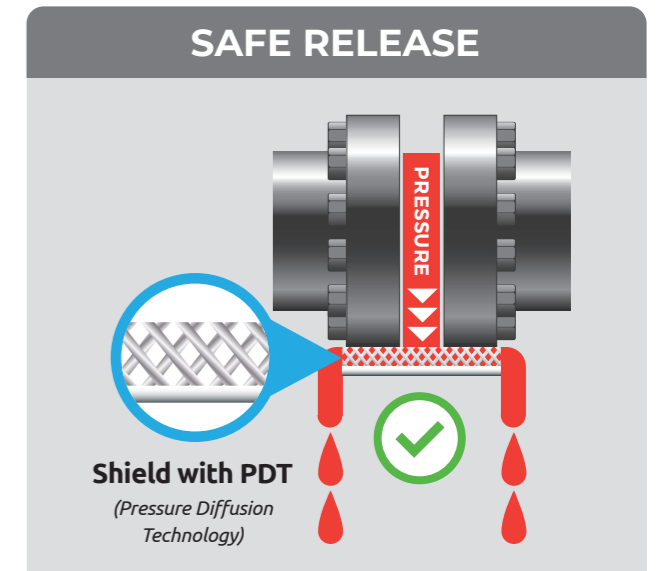
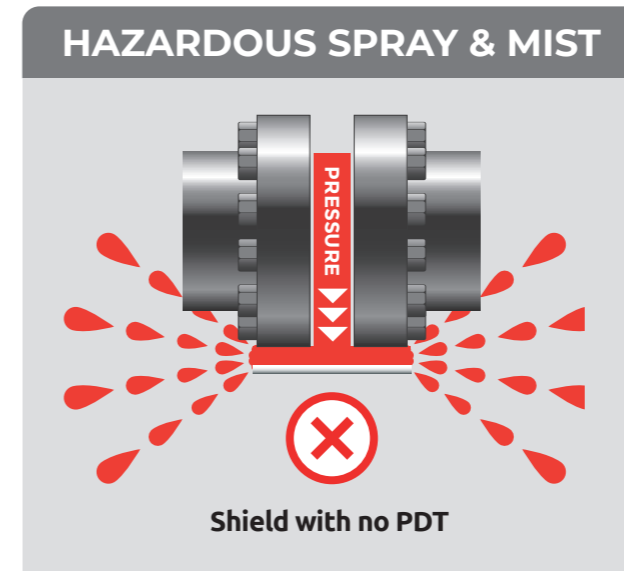
### Innovation in Safety Spray Shield design

**SUREBAND® PDT**  
(pressure diffusion technology)

Uses a specially formulated multi-layered mesh that is held against the flange. The pressure is diffused in a controlled manner thus preventing formation of a mist/vapour cloud. At the point of exit from the shield, the leak takes the form of a safe, vertical drip or stream.

Our leak testing facility has proven that pressure diffusion is required to prevent spray and mist formation. However, many shield designs have no diffusion – and this can create a worse leak than no shield at all.

Our PDT technology makes SUREBAND® the most effective shield design on the market



### FEATURES

- MULTI LAYERED MESH
- PDT HELD AGAINST FLANGE

### BENEFITS

- DIFFUSES PRESSURE IN A CONTROLLED MANNER
- PREVENTS MIST/VAPOUR CLOUD

# QUICKER

## Our Quick-fit connection makes installation and removal quick and simple

**SUREBAND®** has been designed with simplicity in mind. Unlike conventional 'pull-cord' shields, no knots are required. This is a significant benefit, especially when removing shields – and tightly tied knots are typically cut, not untied.

Ongoing pipe maintenance require shields to be removed. Gloves are generally mandatory, so pull-cord knots are typically cut off rendering these shields useless and unable to be refitted.

Operatives are more likely to re-fit **SUREBAND®**, as they are so simple. This is critical for ongoing safety, and necessary, particularly where shields are used within hazardous area zoning calculations, thus failure to re-install the shields invalidates zone classification.



The **Clear** shield uses proprietary technical hook+loop connection (40kg lateral shear strength).



### FEATURES

- CLEAR SHIELD HOOK + LOOP TECHNOLOGY
- STEEL SHIELD LATCH
- SIMPLE INSTALLATION

### BENEFITS

- QUICK POSITIVE CONNECTION
- MORE LIKELY TO BE RE-FITTED



The **Steel** shield uses a quick-connection latch which locks into one of a series of specially designed louvre slots.



# BETTER

## Flexibility of install and a longer service life

### MULTI-SIZE FUNCTION

Our clever Multi-Size system means one shield fits multiple flange sizes. In fact, 5 shield sizes fit all 28 standard flanges between ½" and 6" / 15mm and 150mm pipe size (across multiple pressure classes).

This reduces stockholding and speeds up delivery dramatically. It also prevents fitting errors where site surveys are required (fixed size shields require precise flange measurement).

**SUREBAND®** can be made to fit either a specific flange size or multiple flange sizes. Custom sizes can be created upon request.

### BEST IN CLASS MATERIALS

**SUREBAND®** has considerable relative strength when compared to traditional safety shields. Using highest quality materials, resulting in longest service life.

### SUREBAND<sup>Clear</sup>

100% PTFE/ECTFE and no fibreglass, unlike conventional shields where, in corrosive environments, the fibreglass would ultimately degrade.

- 100% PTFE/ECTFE AND NO FIBREGLASS
- DOES NOT DEGRADE LIKE CONVENTIONAL COATED FIBREGLASS

### SUREBAND<sup>Steel</sup>

Comprising all-316 stainless steel, **SUREBAND® Steel** works effectively across high pressure and wide temperature ranges.

- ALL-316 STAINLESS STEEL
- WORKS EFFECTIVELY AT HIGH PRESSURE AND WIDE TEMPERATURE RANGES



### FEATURES

- ONE SHIELD FITS MULTIPLE FLANGE SIZES
- 5 SHIELD SIZES FOR 28 FLANGE SIZES BETWEEN ½" AND 6" / 15MM AND 150MM PIPE SIZE
- SHIELD SIZE RANGES CAN BE TAILORED TO CUSTOMER REQUIREMENT

### BENEFITS

- CONSIDERABLE STOCK SAVING AND SHORTER LEAD TIME
- IMPROVED FLEXIBILITY, LESS ERRORS WITH FITTING
- MEET EXACTING REQUIREMENTS

	HYDRAULIC OIL	HP STEAM	HOT OIL	FUEL/LUBE OIL	ACID	CAUSTIC
SUREBAND STEEL	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓
SUREBAND CLEAR	–	–	–	✓✓✓	✓✓✓	✓✓✓
PTFE/PTFE-CLEAR	–	–	–	✓✓✓	✓✓	✓✓
PVC	–	–	–	✓	✓	✓

	Hand	c/f	Bar/psi	FLANGE	NON STANDARD
SUREBAND STEEL	✓✓	✓✓✓	✓✓✓	✓✓✓	✓
SUREBAND CLEAR	✓✓✓	✓✓	✓✓	✓✓✓	✓
PTFE/PTFE-CLEAR	✓✓	✓✓	✓✓	✓✓	✓✓✓
PVC	✓	✓	✓	✓✓	✓✓✓

# SUREBAND® Clear



## FEATURES

- PRESSURE DIFFUSION TECHNOLOGY
- QUICK-FIT CONNECTION
- MULTI-SIZE FUNCTION
- SELF DRAINING

## BENEFITS

- PREVENTS FORMATION OF MIST/VAPOUR
- SIMPLE INSTALLATION
- ELIMINATES FITTING ERRORS

SUREBAND® is a revolutionary safety spray shield manufactured by Flangeguards.

SUREBAND® Clear comprises a clear ECTFE outer and multi-layered PTFE mesh and stitching. This material provides unparalleled chemical resistance.

SUREBAND® Clear installation is quick and easy with incredibly strong, heavy duty Velcro fastener ensuring correct fitment.

Once installed, the internal mesh is compressed against the flange, preventing direct and lateral spray. The liquid pressure inside the shield is rapidly diffused, resulting in a safe drip-release.

SUREBAND® Clear incorporates a replaceable litmus leak indicator strip to provide visual warning of leaks of hazardous liquids.

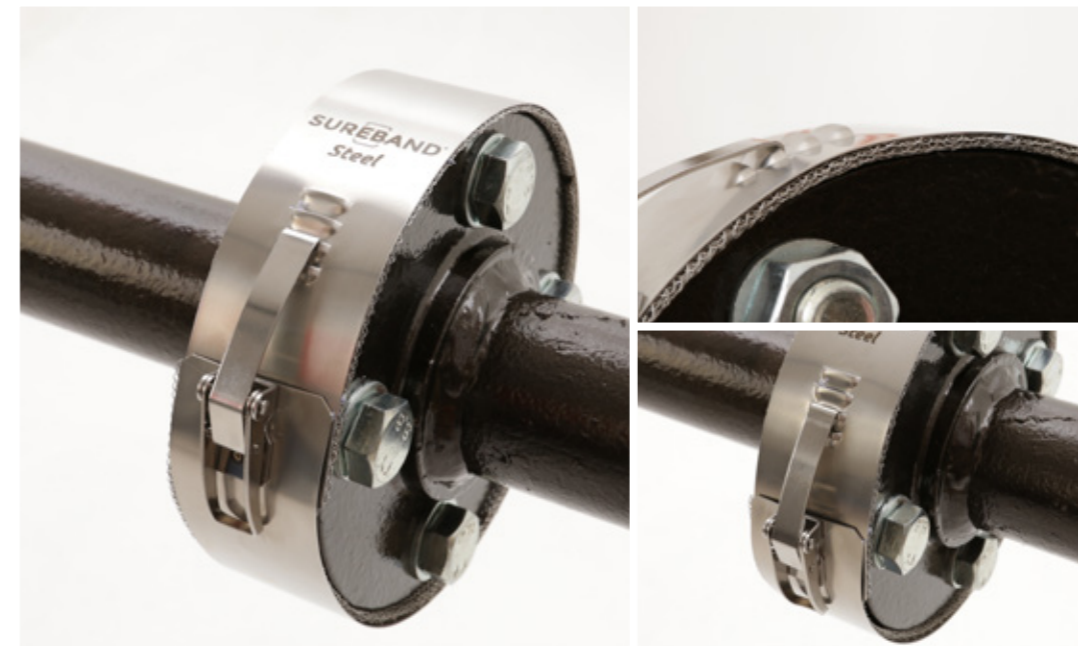
In the event of a leak SUREBAND® Clear can be re-used thus providing a long term solution.

SUREBAND® Clear has been pressure tested in excess of 50 bar, is suitable for maximum surface temperature of 200 °C and fits pipe sizes from ½" / 15mm upwards.



FASTENING	ECTFE OUTER PTFE MESH
UP TO 200C	½" / 15mm UPWARDS
OILS	ACIDS
ALKALIS	CORROSIVES
MIST PREVENTION	

# SUREBAND® Steel



## FEATURES

- PRESSURE DIFFUSION TECHNOLOGY
- QUICK-FIT CONNECTION
- MULTI-SIZE FUNCTION
- SELF DRAINING

## BENEFITS

- PREVENTS FORMATION OF MIST/VAPOUR
- SIMPLE INSTALLATION
- ELIMINATES FITTING ERRORS

SUREBAND® is a revolutionary safety spray shield manufactured by Flangeguards.

SUREBAND® Steel comprises a 316 stainless steel band and an internal layer of 316 stainless steel mesh. This material provides unparalleled heat resistance.

SUREBAND® Steel installation is quick and easy with the metal quick-connection latch, ensuring correct fitment.

Once installed the steel mesh is compressed against the flange itself. This mesh, which is crimped along the centre to fill the gap between the two flange faces quickly and efficiently diffuses the spray-out, resulting in a safe drip-release.

SUREBAND® Steel is quick to install and typically used on high pressure pipelines.

In the event of a leak SUREBAND® Steel can be reused thus providing a long term solution.

SUREBAND® Steel has been pressure tested to 335 bar, is suitable for maximum surface temperature in excess of 500 °C and fits pipe sizes from ½" / 15mm upwards.



FASTENING	STAINLESS STEEL BAND AND INNER MESH
UP TO 500C	½" / 15mm UPWARDS
OILS	MIST PREVENTION
STEAM	



# PTFE SAFETY SPRAY SHIELD



### FEATURES

- CENTRAL TEFLON SCRIM
- PERMEABLE TEFLON PTFE
- LITMUS STRIP

### BENEFITS

- INCREASED INTEGRAL STRENGTH
- DRAWS LIQUID AWAY FROM FLANGE AVOIDING CORROSION
- VISUAL LEAK DETECTION

**Flangeguards PTFE shield** is manufactured from three layers of woven Teflon coated fibreglass fabric (PTFE).

The addition of a central Teflon scrim gives superior strength.

**Flangeguards PTFE shield** is installed without the need for special tools using an easy fit, lock tight, fastening system comprising velcro strip and braided 100% Teflon coated fibreglass draw string.

Once installed the fabric is drawn over the flange bolts toward the pipe wall enabling leaks to be released without danger, avoiding pressure-build up within the shield or lateral spray out.





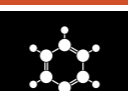



**Flangeguards PTFE shield** incorporates a replaceable litmus leak indicator strip to provide visual warning of leaks of hazardous liquids.

In the event of a leak the **Flangeguards PTFE shield** can be re-used thus providing a long term solution.

**Flangeguards PTFE shield** is compatible with flange, coupling, valve, elbow and tees connections/joints.

**Flangeguards PTFE shield** is suited to maximum temperature exposure of 232° C and fits pipe sizes from ¼" / 10mm upwards.



 FASTENING	 MULTI LAYER PTFE
 UP TO 232C	 ¼" / 10mm UPWARDS
 OILS	 ACIDS
 ALKALIS	 CORROSIVES

# PTFE-CLEAR SAFETY SPRAY SHIELD



### FEATURES

- CLEAR ECTFE CENTRAL BAND
- PTFE MATERIAL

### BENEFITS

- VISUAL INSPECTION OF FLANGE
- STRONG, CORROSION RESISTANT

**Flangeguards PTFE-CLEAR shield** is manufactured from Teflon coated fibreglass PTFE, with wide central band of clear Teflon (ECTFE). This material is resistant to hydrocarbons and chemical liquids.

**Flangeguards PTFE-CLEAR shield** is installed without the need for special tools using an easy fit, lock tight, fastening system comprising velcro strip and braided 100% Teflon coated fibreglass draw string.

Once installed the fabric is drawn over the flange bolts toward the pipe wall enabling leaks to be released without danger, avoiding pressure-build up within the shield and lateral spray out.





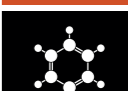



The clear ECTFE section permits visual inspection of the valve for any leaking fluid.

In the event of a leak the **Flangeguards PTFE-CLEAR shield** can be re-used thus providing a long term solution.

**Flangeguards PTFE-CLEAR shield** is compatible with flange, coupling, valve, elbow and tees connections/joints.

**Flangeguards PTFE-CLEAR shield** suitable for maximum surface temperature of 150°C and pipe sizes from ¼" / 10mm upwards.



 FASTENING	 PTFE & ECTFE
 UP TO 150C	 ¼" / 10mm UPWARDS
 OILS	 ACIDS
 ALKALIS	 CORROSIVES

# PVC SAFETY SPRAY SHIELD



## FEATURES

- TWO LAYERS OF PVC
- LITMUS STRIP

## BENEFITS

- VISUAL LEAK DETECTION
- ENTRY LEVEL SAFETY SHIELD

Flangeguards PVC shield is manufactured from two layers of Polyvinyl chloride laminate

The Flangeguards PVC shield is installed without the need for special tools using an easy fit, lock tight, fastening system comprising Velcro strip and braided 100% PVC draw string.

Once installed the fabric is drawn over the flange bolts toward the pipe wall enabling leaks to be released without danger, avoiding pressure-build up within the shield and lateral spray out.

Flangeguards PVC shield incorporates a replaceable litmus leak indicator strip to provide visual warning of leaks of acids.

In the event of a leak the Flangeguards PVC shield can be re-used thus providing a long term solution.

Flangeguards PVC shield is compatible with flange, coupling, elbow and tees connections/joints.

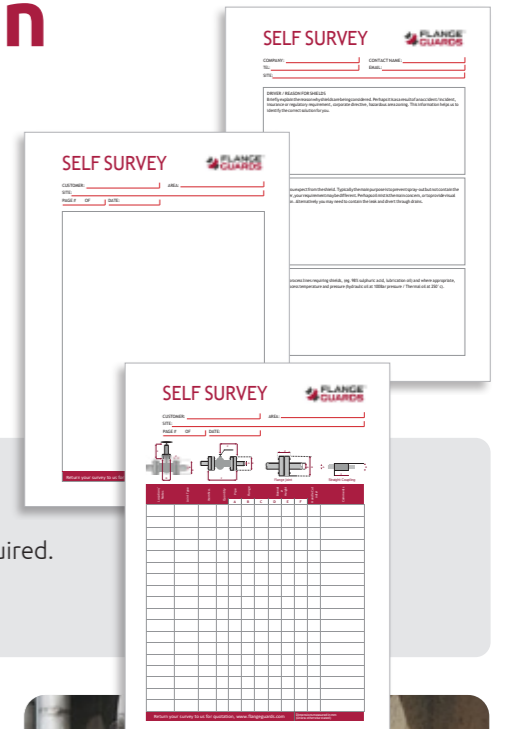
Flangeguards PVC shield is suited to maximum temperature exposure of 60°C and fits pipe sizes from 1/4" / 10mm upwards.



# Survey and Installation

Safety shields are made to fit specific pipe joints. To ensure the shield is fit for purpose, it is important to select the design and material which are compatible with the process. Further, the pipe joint dimensions are required in order for the shields to fit correctly.

Our Total Shield Solutions guidebook provides detailed information about correct shield selection. It contains a section on sizing and self-surveying, and includes blank survey sheets which can be used on site. The guidebook is available as a free download from our website.

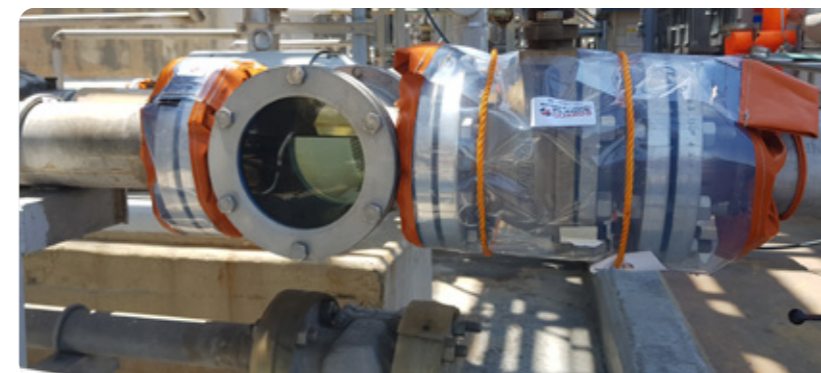


## HELP WITH SURVEY AND INSTALL

If in doubt, ask us. We have over twenty five years' experience and are always happy to make recommendations and clarify specific dimensions required.

We help ensure you select the appropriate shield for your application.

Here are just a few examples where we have helped companies mitigate hazards and risk to plant, equipment and health.

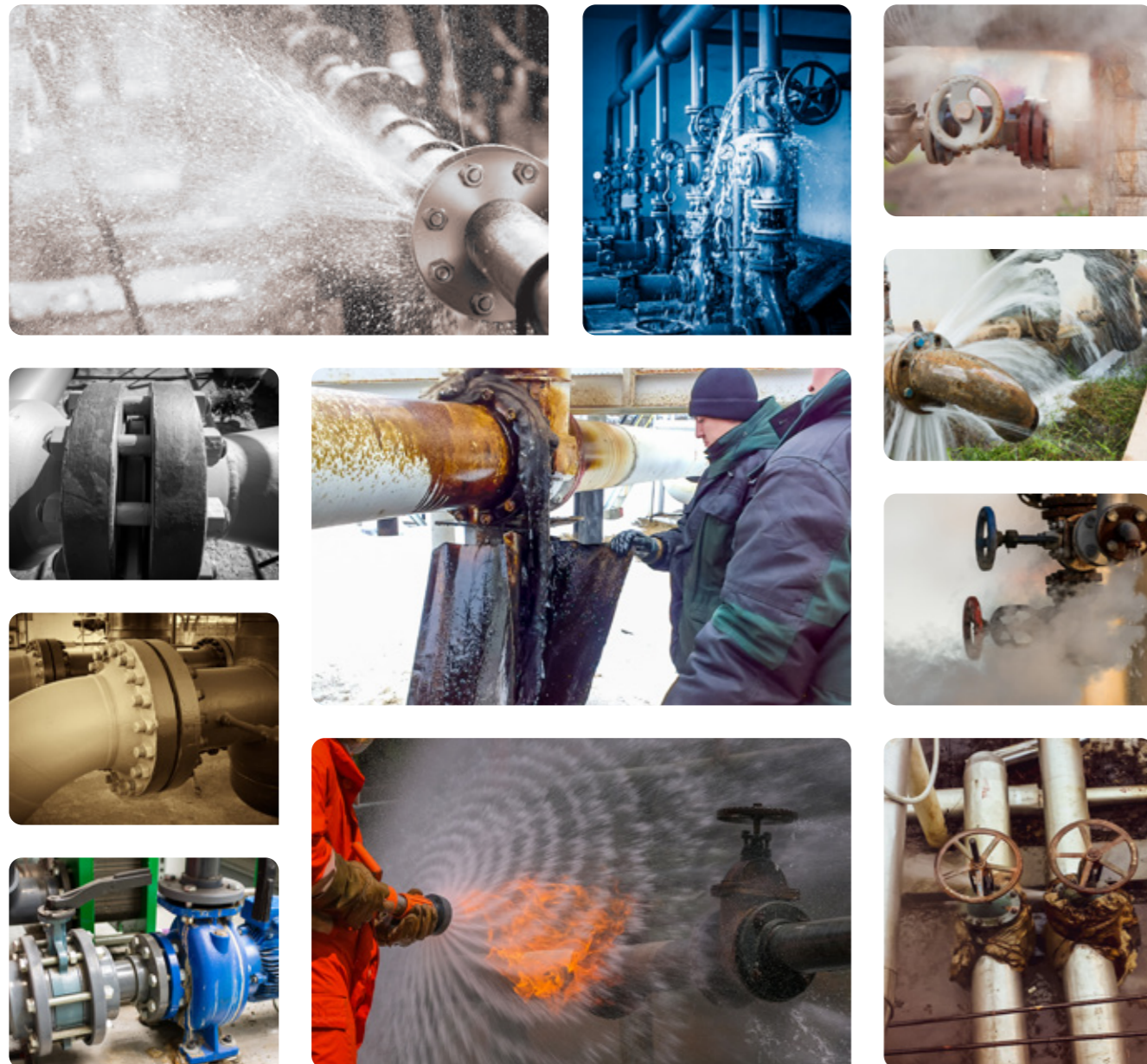


# Applications

Spray safety shields are commonly used to control the accidental release of liquids from failed flanges, joints and connections. Typical applications for safety spray shields include:



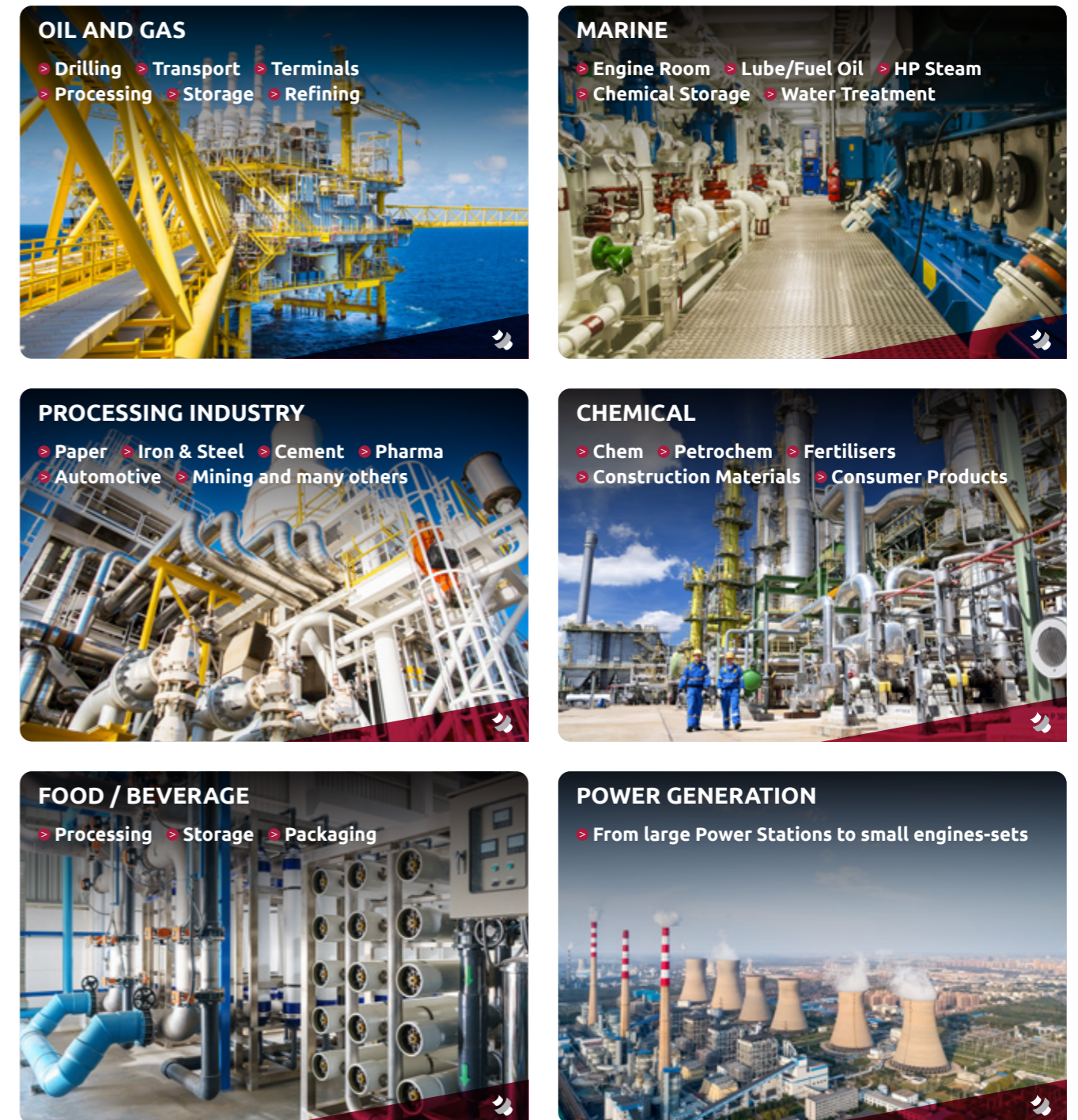
If left unshielded, and the flange fails, the results can be catastrophic:



# Industries

Flange guards, or spray safety shields as they are otherwise known, are used in all manner of industry, in particular those involved in the processing of flammable, volatile, toxic or corrosive liquids.

Key industries where greater protection of plant equipment and personnel is necessary due to the nature of the processing include:





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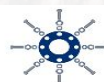


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