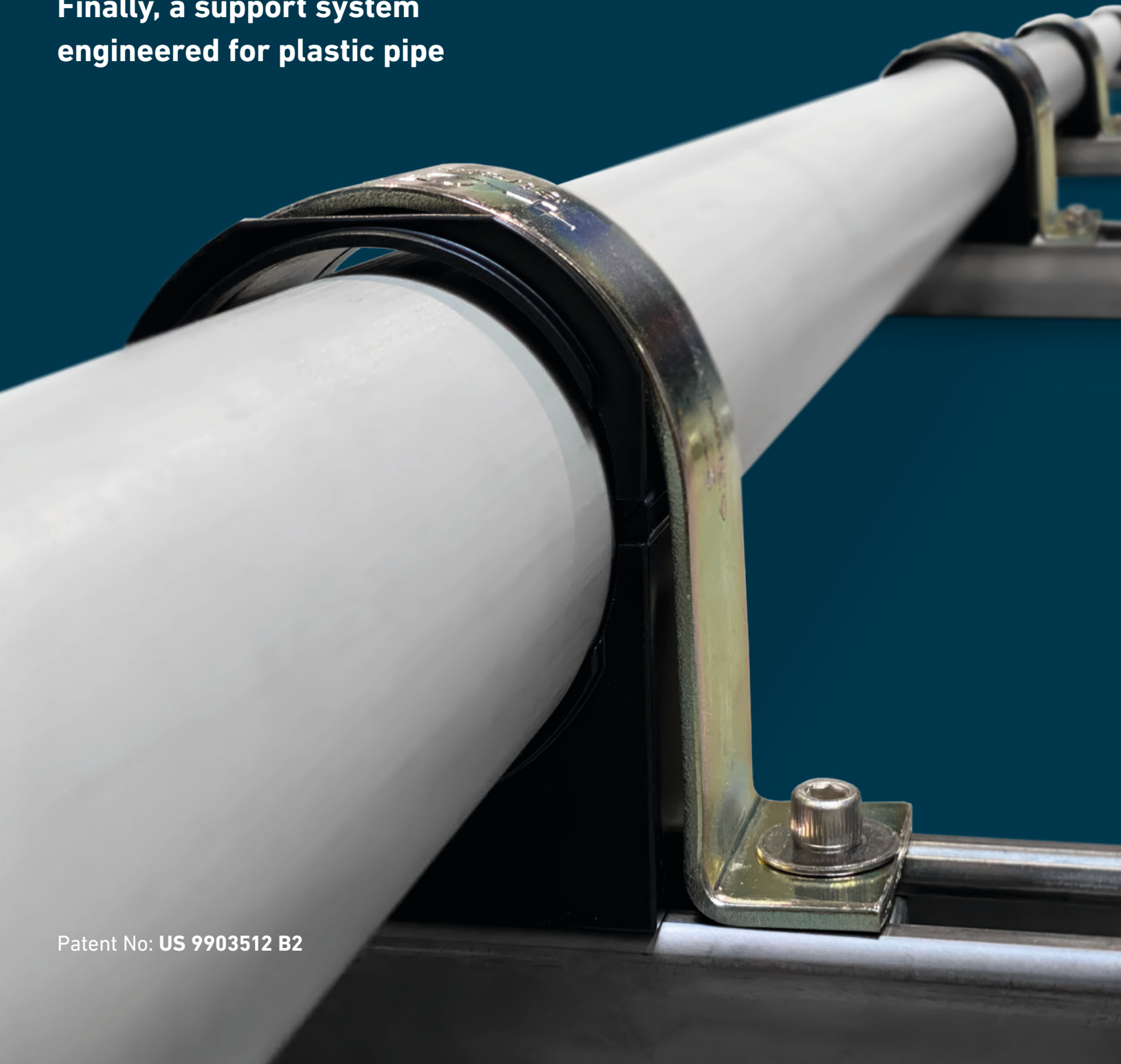


Piping Systems

**+GF+**

# **Stress Less<sup>®</sup>** **Pipe Support System**

**Finally, a support system  
engineered for plastic pipe**



Patent No: **US 9903512 B2**

# Challenges

Plastic piping failures can occur when piping system installers do not consider thermal expansion during the design of a system. Traditional metal clamps were created for metal pipe but will lock a plastic pipe in place. This creates stress on the plastic pipe, and reduces its life expectancy.

## Thermal Expansion

The length of expansion of the plastic pipe varies considerably depending on:

- Piping material (coefficient of linear expansion)
- Change in temperature
- Length of pipe

The higher coefficient of linear expansion, the longer the pipe, and the larger change in temperature will result in greater change in length.

There are many conditions that can contribute to temperature differences between when the pipe is locked in place and when the system begins operating.

Temperature at time install vs operation:

- Media conveyed in pipes
- Indoor to outdoor transitions
- Seasonal changes
- Change in temperature from morning to afternoon

## Traditional Clamps & Pipe Expansion

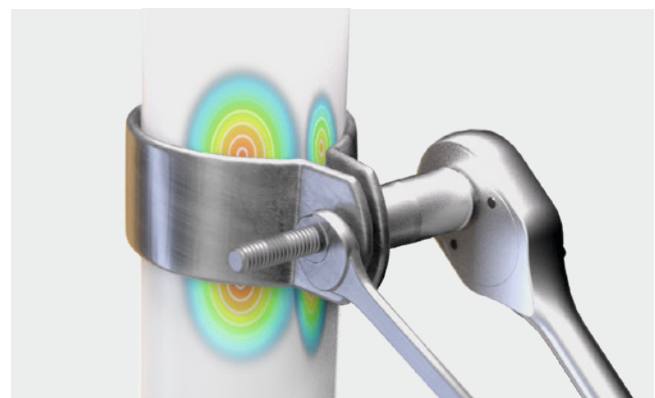
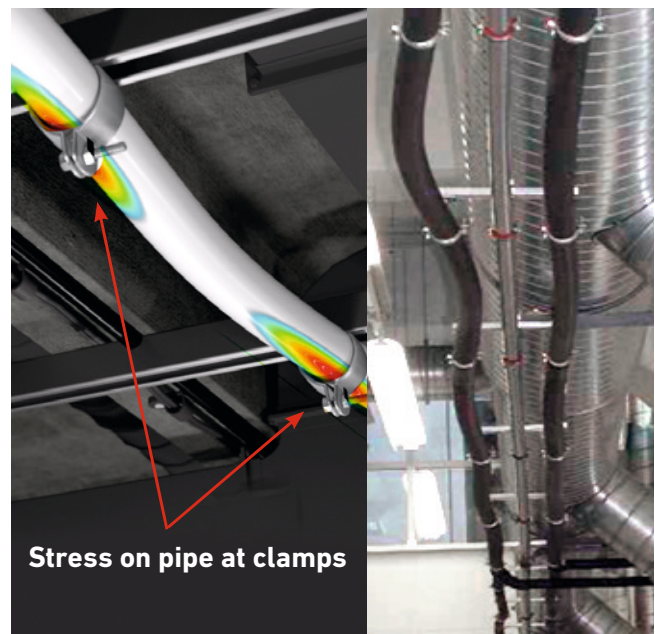
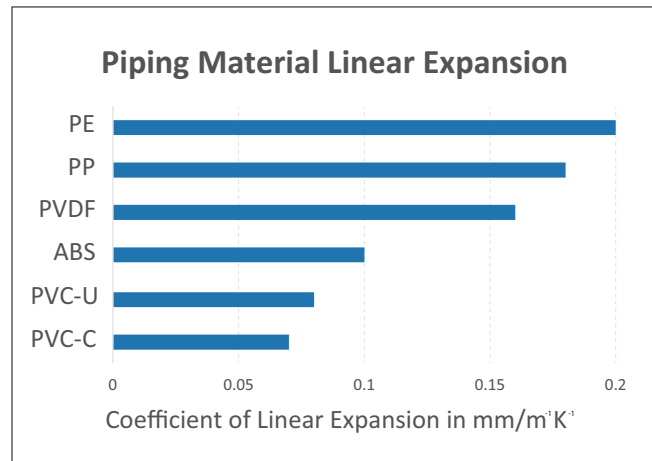
Traditional pipe clamps lock onto the plastic pipe, which creates a fix point and does not allow any room for plastic pipes to expand.

- Stress from thermal movement has nowhere to escape
- Repeated fluctuations of temperature over time leads to long term mechanical stress and possible stress cracks

## Problems with Traditional Clamps

Traditional metal pipe clamps are designed for metal pipes and do not take into consideration its effect on plastic pipes. When piping leaks, it is most often near clamping locations.

- Clamping force around the pipe creates mechanical stress
- Does not prevent installer from overtightening
- Sharp metal in contact with plastic piping



# Engineered for plastic pipe systems

Our decades of engineering experience in designing plastic piping systems led us to develop a pipe support system specially designed to eliminate stress transfer to the pipe caused by thermal expansion or overtightening of clamps onto the pipe. The patented design consists of a uniquely designed plastic insert that allows for pipe movement during thermal expansion and prevents severe pipe impact when seismic accelerations occur. The trivalent chrome-coated metal hoop meets pipe hanger and support standards and withstands a myriad of operating conditions, including the seismic and corrosive environment.

## Trivalent chrome plated metal hoop

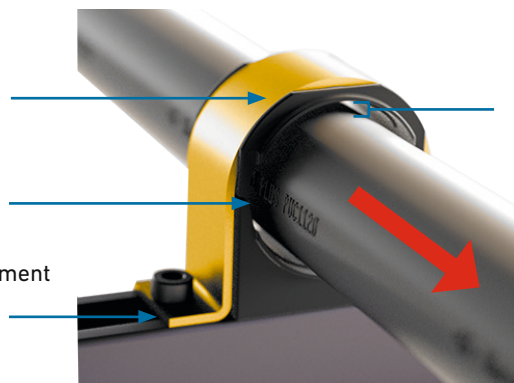
- Corrosion and chemical resistant
- Indoor or outdoor

## Smooth plastic insert with UV inhibitors

- No sharp corners in contact with pipe
- Low friction coefficient to allow pipe movement

## Locks onto strut channel

- Cannot over tighten onto pipe



## Engineered gap

- Allows for thermal expansion
- Allows for seismic conditions

## Protecting the plastic pipe

Stress Less® guides are designed with a gap between the plastic insert and the outer diameter of the pipe it supports. This specifically engineered spacing and smooth plastic insert allow the pipe to slide freely in the axial direction with minimal stress and wear during each thermal expansion cycle.

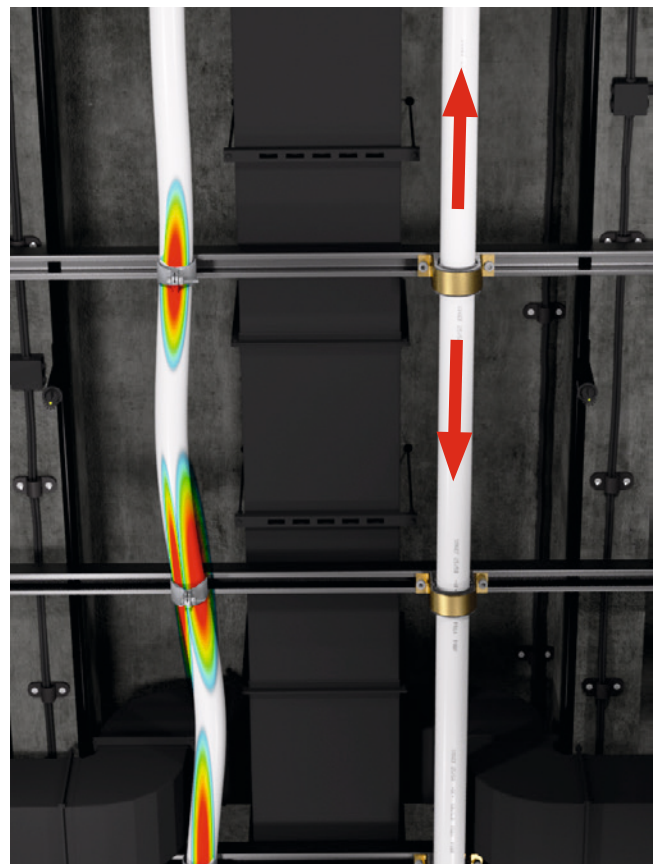
Stress Less® guides use a metal hoop to give proper structural support, but are designed with the plastic insert to ensure that the plastic pipe does not get damaged.

1. The metal bracket cannot touch the plastic pipe, no matter how hard the installer bolts down the metal bracket.
2. The plastic insert ensures that there are no sharp edges that are in contact with the pipe.



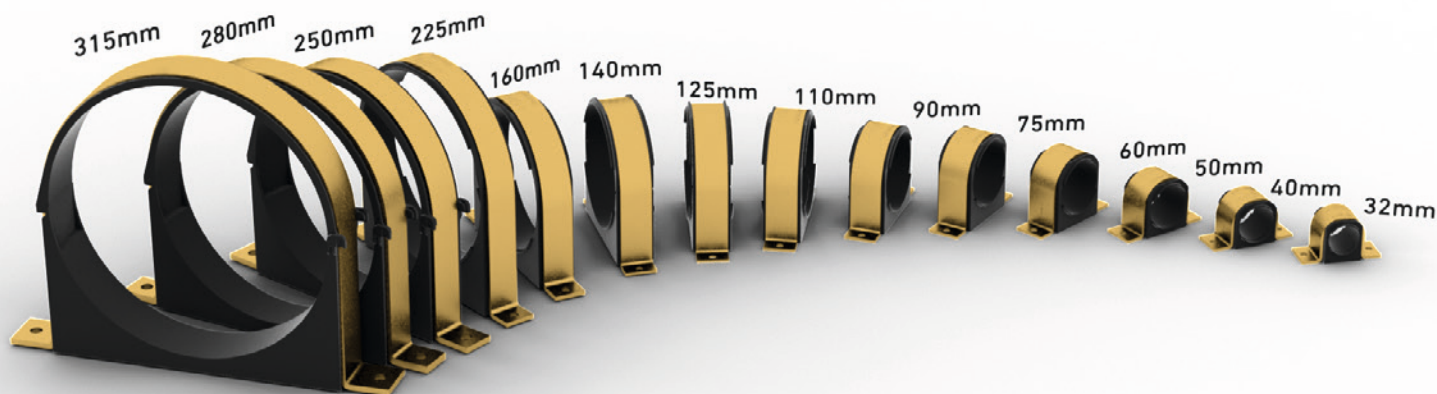
## Traditional Clamps

## Stress Less®



# A support system designed for Metric and IPS Piping Systems

## Metric and IPS Sizes

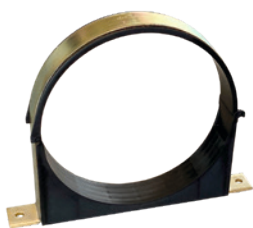


Metric sizes shown above

Full range of IPS sizes available from 1/2" to 12"

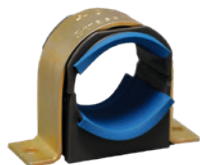
## Stress Less® Products

Stress Less® Pipe Support System includes pipe guides, clevis hangers, and valve supports allowing installers the flexibility to mount directly on any flat surface, on pipe support rail, horizontally as a hanger, or vertically.



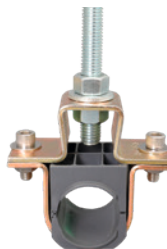
### Pipe Guides

- Larger sizes engineered with enhanced plastic
- Inserts and metal hoops
- Dimension range:  
IPS: 1/2" to 2"
- Metric: 20mm to 315mm
- 304 Stainless Steel metal hoop options available



### Vertical Supports

- Includes blue elastomer strip for friction support of vertical running pipe
- Friction hold is able to support pipe and liquid
- Dimension range:
  - IPS: 1/2" to 2"
  - Metric: 20mm to 63mm
- 304 Stainless Steel metal hoop options available



### Clevis Hanger

- Kit includes: 1 hanger bracket, 2 bolts, 2 nuts, 4 washer (matching pipe guide not included)
- Dimension range:
  - IPS: 1/2" to 2"
  - Metric: 20mm to 315mm



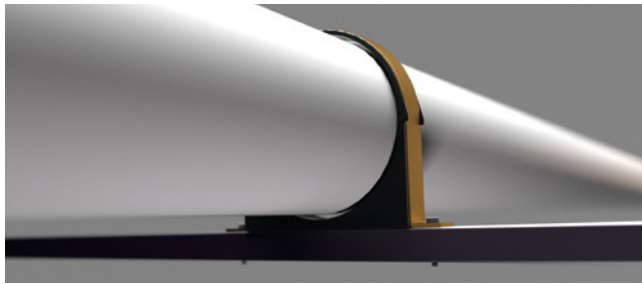
### Valve Supports

- Mounts to the following GF valves with integrated bases: Type 546, 523, 543 horizontal, 5-Series diaphragm valves
- Mounts flush to surface or strut
- Dimension range:
  - 1/2" to 1" (IPS and Metric)
  - 1-1/4" to 2" (IPS and Metric)

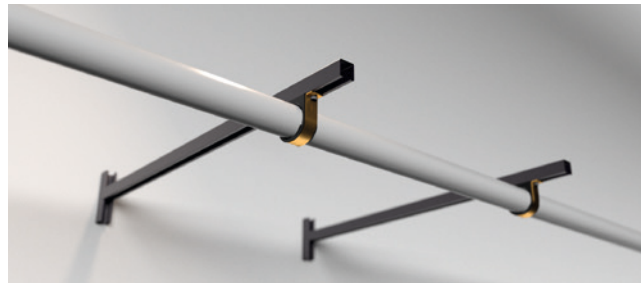


# Installation configurations

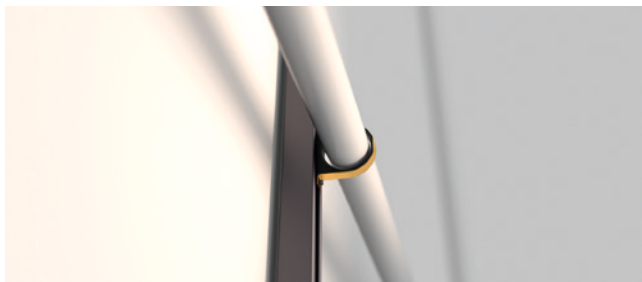
**Flat on strut channels**



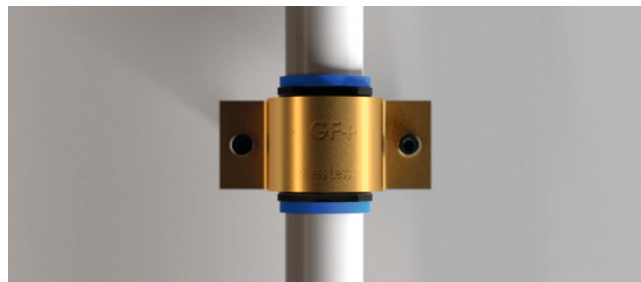
**Hung on strut channels**



**Supported on vertical running strut**



**Vertical with rubber insert**



**Clevis hanger**

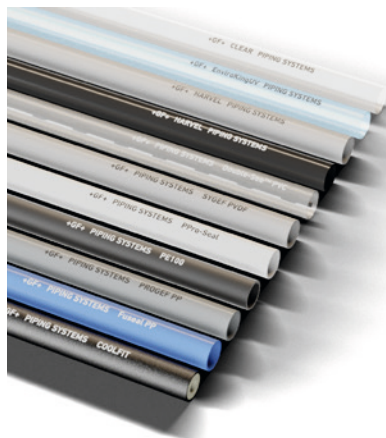


**Valve support**



## Compatible GF Piping Systems

Stress Less® pipe supports are engineered to protect and extend the life of thermoplastic piping systems. With both metric and IPS (inch) sizes, Stress Less® can accommodate most plastic piping systems.



### Metric Systems

PROGEF® - Polypropylene  
 SYGEF® - PVDF  
 ecoFIT® - Polyethylene  
 ELGEF® Plus - Polyethylene  
 COOL-FIT® 4.0 (PE Plus)  
 COOL-FIT® 2.0 (ABS Plus)  
 Contain-It™ Plus - Polyethylene  
 ABS System  
 PVC-U  
 PVC-C

### IPS Systems

ChlorFIT® - CPVC  
 Industrial PVC - Schedule 80 & 40 PVC  
 Harvel Clear™ - PVC  
 Fuseal® - Polypropylene  
 Fuseal® Fast Lock - Polypropylene  
 HDPE IPS - High Density Polyethylene  
 Double-See™ - Double Containment Vinyl  
 PPro-Seal™ - Polypropylene  
 SeaDrain® - Polypropylene  
 SeaCor® - CPVC



# Why choose Stress Less®

## + Protection

Protects plastic piping systems for peace of mind:

- Extends the life of the piping system
- Installation and operation

## + Engineered Control

Engineered to perform and protect against:

- Thermal expansion
- Seismic conditions
- Water hammer events

## + Support

- Meet and exceed standards to support piping systems
- ANSI MSS SP-58

## + Install Options

Multiple mounting options and configurations:

- Full range of IPS and Metric Sizes
- Mount directly on any flat surface or strut channels
- Mount horizontal, vertical, or hanging

## + Durability

- Corrosion and chemical resistant
- UV protected

## + Install Environment

- Indoor / outdoor
- High purity facilities
- Corrosive environment

## Stress Less® Guides



Metric		IPS	
Pipe Size	Part Number	Pipe Size	Part Number
20mm	155484500	½"	155484520
25mm	155484501	¾"	155484521
32mm	155484502	1"	155484522
40mm	155484503	1¼"	155484523
50mm	155484504	1½"	155484524
63mm	155484505	2"	155484525
75mm	155484506	2½"	155484526
90mm	155484507	3"	155484527
110mm	155484508	4"	155484528
125mm	155484518	5"	155484519
140mm	155484519	6"	155484529
160mm	155484509	8"	155484531
225mm	155484511	10"	155484532
250mm	155484512	12"	155484533
280mm	155484513		
315mm	155484514		

Includes coated steel hoop and Polypropylene clamp insert. Mounting hardware not included.

## Stress Less® Clevis Hanger



Metric or IPS Pipe Size	Part Number
20mm (½")	155484540
25mm (¾")	155484541
32mm (1")	155484542
40mm (1¼")	155484543
50mm (1½")	155484544
63mm (2")	155484545
75mm (2½")	155484546
90mm (3")	155484547
110mm (4")	155484548
125mm	155484558
140mm (5")	155484559
160mm (6")	155484549
225mm (8")	155484551
250mm	155484552
10"	155484553
280 mm	155484554
315mm (12")	155484550

Includes coated steel clevis bracket and hardware for mounting to Stress Less® Guide. Must also purchase Stress Less® Pipe Guides. Fits IPS and metric size Stress Less® Pipe Guide.

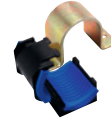
## Stress Less® Valve Supports



Metric or IPS Valve Size	Part Number
20-32mm (½"-1")	155484120
40-63mm (1¼"-2")	155484121

Fits all GF Type 546, 523, 543, and 5-series valves with mounting inserts. Includes hardware to attach valve. Does not include hardware for mounting to surface or unistrut.

## Stress Less® Vertical Supports



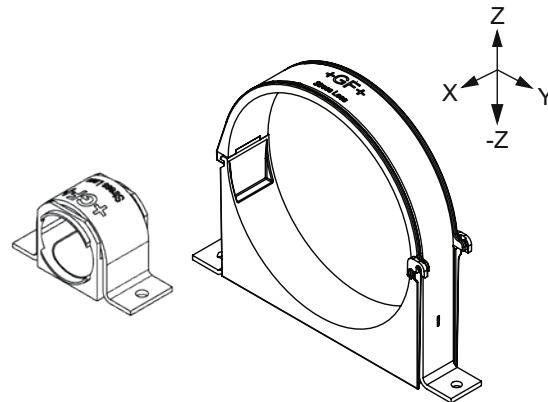
Metric Pipe Size	Part Number	IPS Pipe Size	Part Number
20mm	155484560	½"	155484580
25mm	155484561	¾"	155484581
32mm	155484562	1"	155484582
40mm	155484563	1¼"	155484583
50mm	155484564	1½"	155484584
63mm	155484565	2"	155484585

Includes coated steel hoop and Polypropylene clamp insert with elastomer on ID. Mounting hardware not included. Not for use as restraint fitting in horizontal or vertical mounting.

## Stress Less® with 304 Stainless Steel

Stress Less® Guides and Vertical Supports with 304 Stainless Steel metal hoops are available. Please see Stress Catalog for part numbers.

## Stress Less® Pipe Supports Load Rating



Pipe Size		Design Load		
Metric	Inch	Fz	F-z	Fy
20mm	1/2"	150lbs / 660N	180lbs / 800N	150lbs / 660N
25mm	3/4"	150lbs / 660N	180lbs / 800N	150lbs / 660N
32mm	1"	150lbs / 660N	180lbs / 800N	150lbs / 660N
40mm	1 1/4"	150lbs / 660N	180lbs / 800N	150lbs / 660N
50mm	1 1/2"	150lbs / 660N	180lbs / 800N	150lbs / 660N
63mm	2"	200lbs / 800N	240lbs / 880N	200lbs / 800N
75mm	2 1/2"	300lbs / 1300N	360lbs / 1600N	300lbs / 1300N
90mm	3"	450lbs / 2000N	540lbs / 2400N	450lbs / 2000N
110mm	4"	650lbs / 2800N	780lbs / 3400N	600lbs / 2670N
125mm		700lbs / 3100N	840lbs / 3700N	600lbs / 2670N
140mm	5"	700lbs / 3100N	840lbs / 3700N	600lbs / 2670N
160mm	6"	900lbs / 4000N	1080lbs / 4800N	600lbs / 2670N
225mm	8"	1750lbs / 7700N	2100lbs / 9300N	800lbs / 3560N
250mm	10"	1750lbs / 7700N	2100lbs / 9300N	800lbs / 3560N
280mm		1750lbs / 7700N	2100lbs / 9300N	800lbs / 3560N
315mm	12"	1750lbs / 7700N	2100lbs / 9300N	800lbs / 3560N

Design Load Rating considering both static and dynamic loading. Fx, Fy, Fz and F-z are nominal loads in lb-f (pounds-force) and N (Newton) for the respective x-, y-, z- and -z-directions.

## Local support around the world

Visit our webpage to get in touch with your local specialist:

**[www.gfps.com/our-locations](http://www.gfps.com/our-locations)**



The information and technical data (altogether "Data") herein are not binding, unless explicitly confirmed in writing.  
The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.