

**SHIELD**<sup>TM</sup>

*Trusted Worldwide*



# EXPANSION JOINTS

(BRAIDED LOOPS)

Flexible & Reliable Joints for Seismic Applications





## INTRODUCTION

SHIELD is a company created to cater to the infrastructure, fire protection and building services industries with a comprehensive range of products designed to be competitive and of assured quality.

We stay ahead of today's evolving market requirements by committing to a program of continued research and development.

We are able to maintain our high standards by ensuring that our worldwide manufacturing networks are the most advanced in the industry in Europe, Asia and America in terms of quality and delivery lead time. Our fully experienced and professional staff is there to provide engineering expertise and after sales service exactly when you need it.

Combine this with highly responsive and customer focused network of distribution centres around the world, you will find that customer satisfaction is what we excel at.

We are justifiably proud of our global client base. With offices and facilities in the UK and Middle East, we are able to comprehend the specific needs of your particular region.

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# SHIELD SEISMIC PROTECTION

# SHIELD Expansion Joints

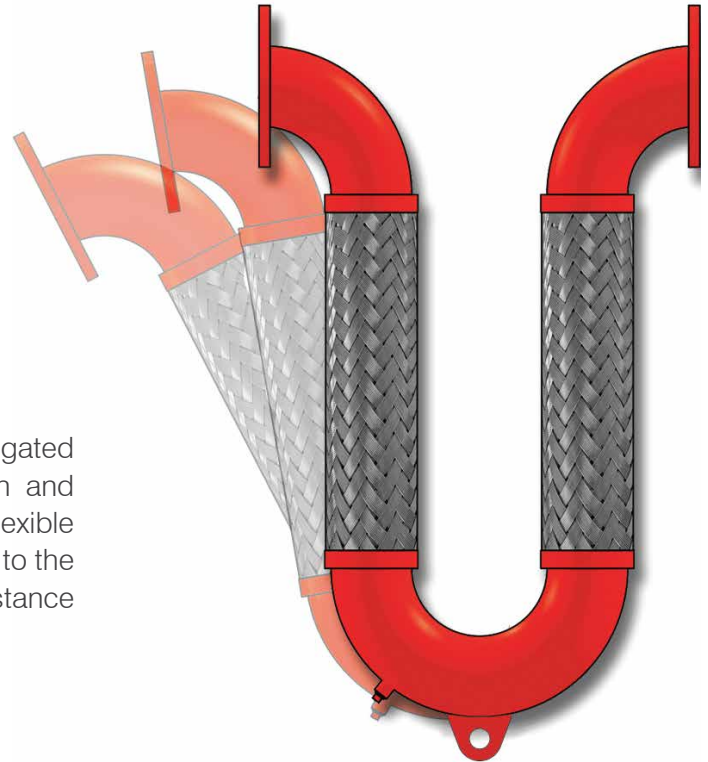
## Description:

SHIELD Expansion Joints (U-Flex and V-Flex) provide extremely reliable and flexible movement in the piping system deployed in firefighting, HVAC, water and fluid carrying domestic and industrial system. The joints act as shock absorbers during seismic shocks and safeguard the piping system from potential break down and critical losses. SHIELD U-Flex and V-Flex assemblies prevent piping's structural deformations such as cracks and break downs of rigid connections by the required flexibility. They offer easy, safe and reliable solution to secure the piping system.

## A Perfect Seismic Protection Solution

## Design & Structure:

SHIELD U-Flex and V-Flex assemblies consist of parallel corrugated metal hose with braiding through Carbon Steel connection and direction parts such as turns and elbows at various angles. Flexible metal hose provides high movement capacity in all directions to the assemblies and the braiding increases the pressure resistance accordingly.



## Specifications:

- Bellow Material                      Stainless Steel AISI 316L / AISI 321
- Braiding Material                   Stainless Steel AISI 304
- Connection Types                  Flanged End, Welded End, Grooved End and Threaded End
- Flange Material                     Carbon Steel St. 37.2, the material can be customized on request
- Elbow and Turn Material          Carbon Steel St. 37.2, the material can be customized on request.

## Operating Conditions:

**Operating Temperature**  
-80 °C to +600 °C

**Operating Pressure**  
250psi (FM Approved)

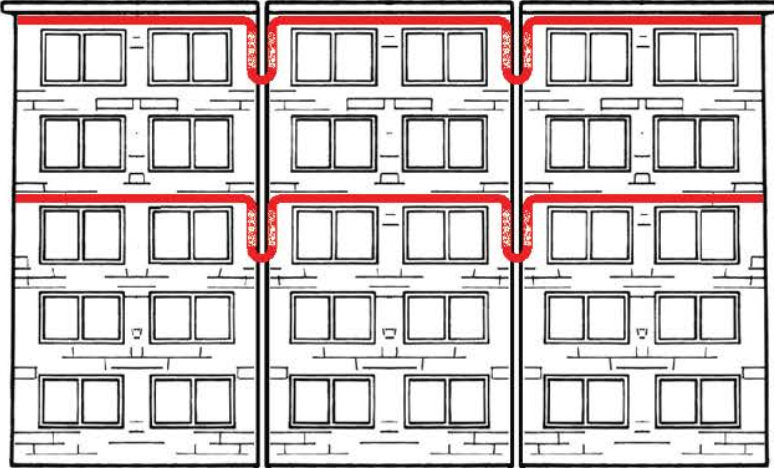
**Nominal Diameters**  
DN15 (1/2") - DN250 (10")



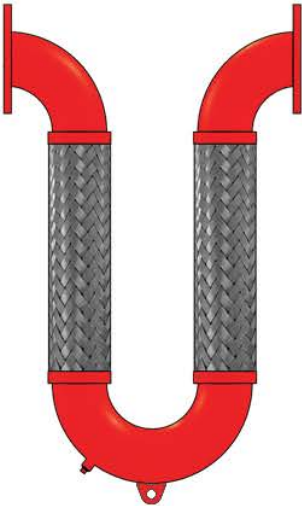


# Building with SHIELD Expansion Joints

## Before Seismic Effects



Factory Mutual System



## After Seismic Effects



# U-Flex

## Braided Loop Joints:

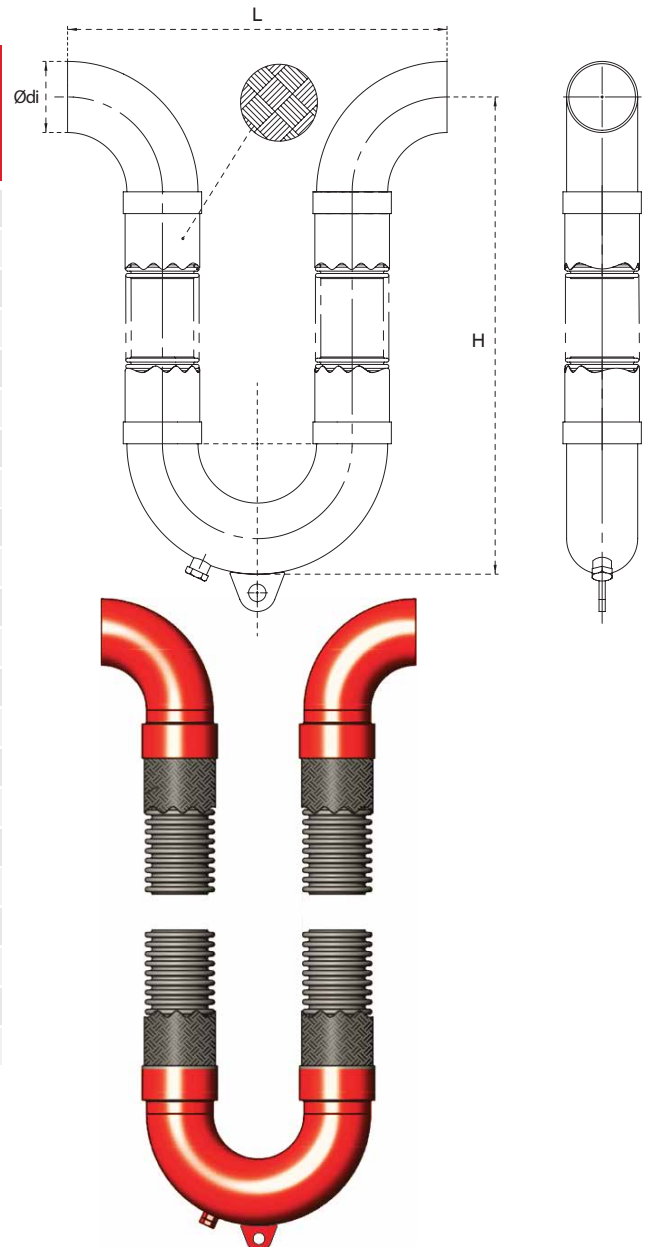
SHIELD U-Flex, Available Types (Standard Versions)

Model	Movement Amount - All Plates mm	Design Pressure PSI	Description
SD-UFW	± 37.5 & ± 100.0	250	U-type, 3D Braided Loop-Joint, Welded End
SD-UFF	± 37.5 & ± 100.0	250	U-type, 3D Braided Loop-Joint, Flanged End
SD-UFG	± 37.5 & ± 100.0	250	U-type, 3D Braided Loop-Joint, Grooved End
SD-UFT	± 37.5 & ± 100.0	250	U-type, 3D Braided Loop-Joint, Threaded End

## Welded End:

SD-UFW

Model	Nominal Diameter mm	Nominal Pipe Size Inch	Ødi mm	Movement in all directions		L mm	H mm
				mm	Inch		
SD-UFW-25	DN 25	1	33.7	± 37.5	± 1.5	152	380
				± 100.0	± 4.0	254	510
SD-UFW-32	DN 32	1¼	42.4	± 37.5	± 1.5	190	410
				± 100.0	± 4.0	273	535
SD-UFW-40	DN 40	1½	48.3	± 37.5	± 1.5	228	435
				± 100.0	± 4.0	292	585
SD-UFW-50	DN 50	2	60.3	± 37.5	± 1.5	304	485
				± 100.0	± 4.0	356	635
SD-UFW-65	DN 65	2½	76.1	± 37.5	± 1.5	380	535
				± 100.0	± 4.0	380	715
SD-UFW-80	DN 80	3	88.9	± 37.5	± 1.5	456	585
				± 100.0	± 4.0	456	762
SD-UFW-100	DN 100	4	114.3	± 37.5	± 1.5	608	715
				± 100.0	± 4.0	608	890
SD-UFW-125	DN 125	5	139.7	± 37.5	± 1.5	760	815
				± 100.0	± 4.0	760	1020
SD-UFW-150	DN 150	6	168.3	± 37.5	± 1.5	916	940
				± 100.0	± 4.0	920	1170
SD-UFW-200	DN 200	8	219.1	± 37.5	± 1.5	1220	1220
				± 100.0	± 4.0	1220	1475
SD-UFW-250	DN 250	10	273.0	± 37.5	± 1.5	1524	1400
				± 100.0	± 4.0	1524	1702

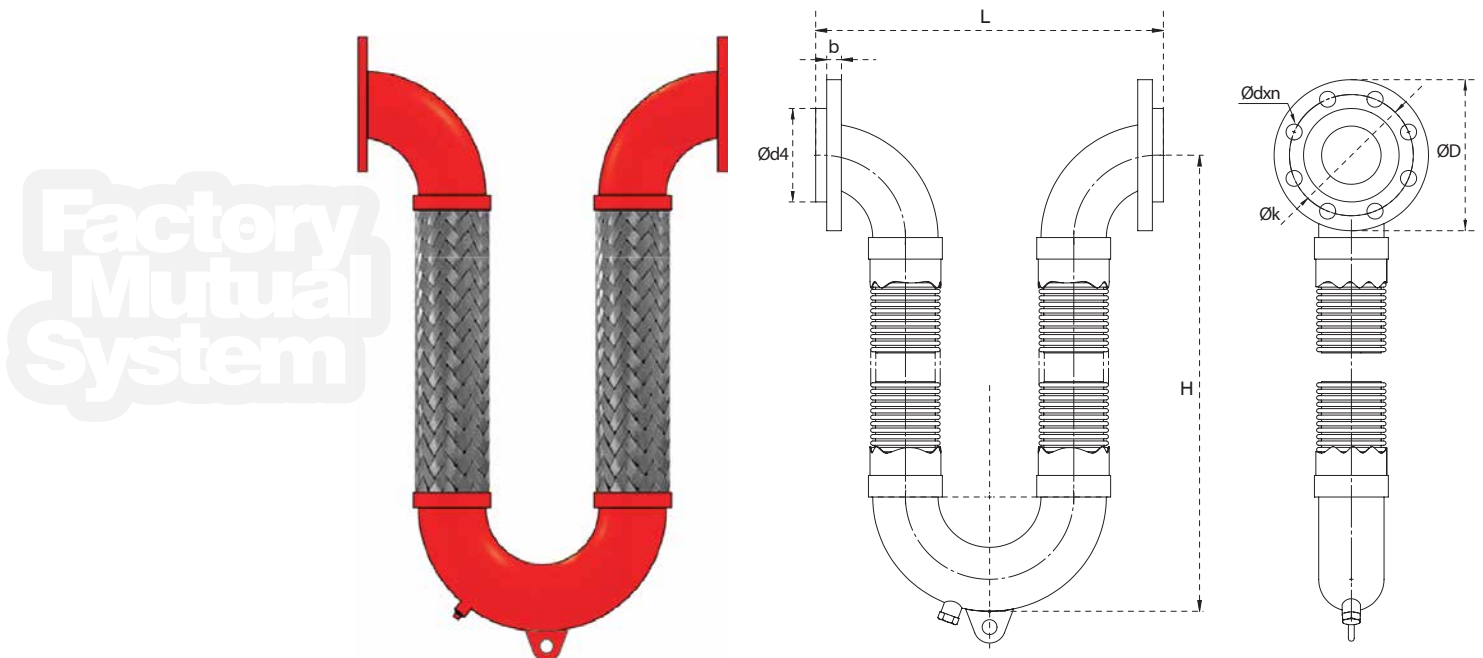


## Flanged End:

SD-UFF

Model	Nominal Diameter	Nominal Pipe Size	Flange (DIN EN 1092/1) PN 16					Movement in all directions		L	H
			ØD mm	Øk mm	b mm	Ødxn mm	Ød4 mm	mm	Inch		
	mm	Inch								mm	mm
SD-UFF-25	DN 25	1	115	85	16	14 x 4	68	± 37.5	± 1.5	222	380
								± 100.0	± 4.0	324	510
SD-UFF-32	DN 32	1¼	140	100	16	18 x 4	78	± 37.5	± 1.5	260	410
								± 100.0	± 4.0	343	535
SD-UFF-40	DN 40	1½	150	110	16	18 x 4	88	± 37.5	± 1.5	300	435
								± 100.0	± 4.0	362	585
SD-UFF-50	DN 50	2	165	125	18	18 x 4	102	± 37.5	± 1.5	375	485
								± 100.0	± 4.0	426	635
SD-UFF-65	DN 65	2½	185	145	18	18 x 4	122	± 37.5	± 1.5	450	535
								± 100.0	± 4.0	450	715
SD-UFF-80	DN 80	3	200	160	20	18 x 8	138	± 37.5	± 1.5	536	585
								± 100.0	± 4.0	536	765
SD-UFF-100	DN 100	4	220	180	20	18 x 8	158	± 37.5	± 1.5	680	715
								± 100.0	± 4.0	680	890
SD-UFF-125	DN 125	5	250	210	22	18 x 8	188	± 37.5	± 1.5	832	815
								± 100.0	± 4.0	832	1020
SD-UFF-150	DN 150	6	285	240	22	23 x 8	212	± 37.5	± 1.5	988	940
								± 100.0	± 4.0	988	1170
SD-UFF-200	DN 200	8	340	295	24	23 x 12	268	± 37.5	± 1.5	1292	1220
								± 100.0	± 4.0	1292	1475
SD-UFF-250	DN 250	10	405	355	26	27 x 12	320	± 37.5	± 1.5	1600	1400
								± 100.0	± 4.0	1600	1702

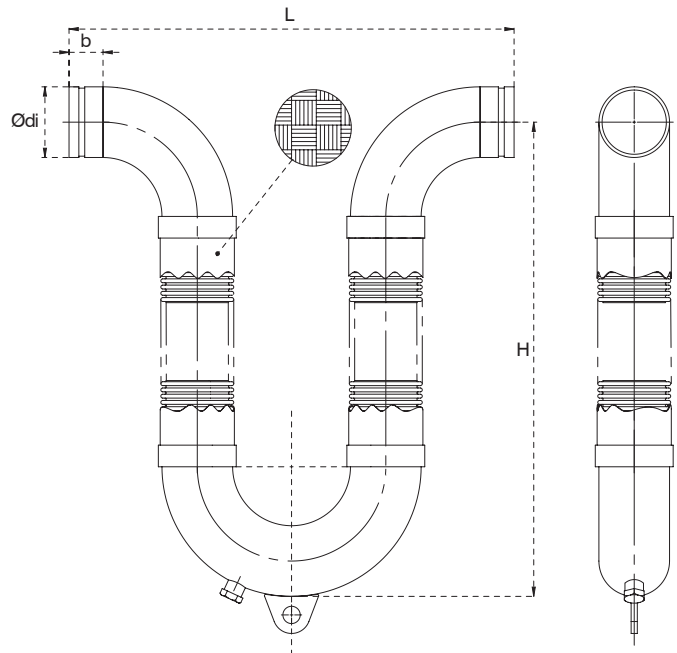
Other flange types are made according to different standards (ANSI/ASME, BS, & UNI), are also available upon request.





# U-Flex

## Grooved End:



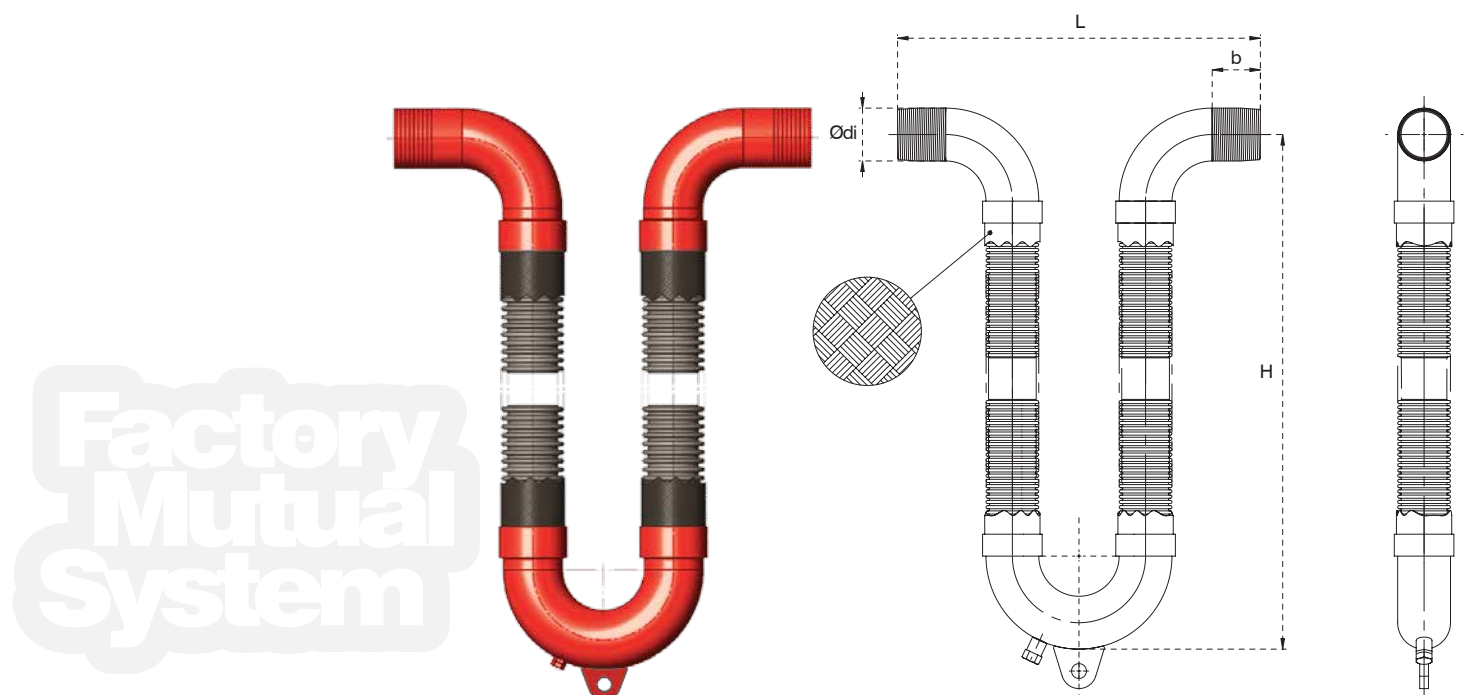
### SD-UFG

Model	Nominal Diameter	Nominal Pipe Size	Ødi	b	Movement in all directions		L	H
					mm	Inch		
SD-UFG-25	DN 25	1	33.7	55	±37.5	±1.5	262	380
					±100.0	±4.0	364	510
SD-UFG-32	DN 32	1¼	42.4	55	±37.5	±1.5	300	410
					±100.0	±4.0	383	535
SD-UFG-40	DN 40	1½	48.3	55	±37.5	±1.5	338	435
					±100.0	±4.0	402	585
SD-UFG-50	DN 50	2	60.3	55	±37.5	±1.5	414	485
					±100.0	±4.0	466	635
SD-UFG-65	DN 65	2½	76.1	55	±37.5	±1.5	491	535
					±100.0	±4.0	490	715
SD-UFG-80	DN 80	3	88.9	55	±37.5	±1.5	568	585
					±100.0	±4.0	566	762
SD-UFG-100	DN 100	4	114.3	55	±37.5	±1.5	720	715
					±100.0	±4.0	718	890
SD-UFG-125	DN 125	5	139.7	60	±37.5	±1.5	882	815
					±100.0	±4.0	880	1020
SD-UFG-150	DN 150	6	165.1	60	±37.5	±1.5	1034	940
					±100.0	±4.0	1040	1170
SD-UFG-200	DN 200	8	219.1	65	±37.5	±1.5	1350	1220
					±100.0	±4.0	1350	1475
SD-UFG-250	DN 250	10	273.0	65	±37.5	±1.5	1654	1400
					±100.0	±4.0	1654	1702

## Threaded End:

### SD-UFT

Model	Nominal Diameter	Nominal Pipe Size	Ødi	b	Movement in all directions		L	H
					mm	Inch		
SD-UFT-25	DN 25	1	33.7	55	±37.5	±1.5	262	380
					±100.0	±4.0	364	510
SD-UFT-32	DN 32	1¼	42.4	55	±37.5	±1.5	300	410
					±100.0	±4.0	383	535
SD-UFT-40	DN 40	1½	48.3	55	±37.5	±1.5	338	435
					±100.0	±4.0	402	585
SD-UFT-50	DN 50	2	60.3	55	±37.5	±1.5	414	485
					±100.0	±4.0	466	635
SD-UFT-65	DN 65	2½	76.1	55	±37.5	±1.5	491	535
					±100.0	±4.0	490	715
SD-UFT-80	DN 80	3	88.9	55	±37.5	±1.5	568	585
					±100.0	±4.0	566	762
SD-UFT-100	DN 100	4	114.3	55	±37.5	±1.5	720	715
					±100.0	±4.0	718	890
SD-UFT-125	DN 125	5	139.7	60	±37.5	±1.5	882	815
					±100.0	±4.0	880	1020
SD-UFT-150	DN 150	6	165.1	60	±37.5	±1.5	1034	940
					±100.0	±4.0	1040	1170



**Factory  
Mutual  
System**



# A stronger bond for building integrity in worst events



**Factory  
Mutual  
System**

Seismic flexible braided expansion joint is a distinctive product which can easily absorb the lateral offset and angular movements.

## Braided Loop Joints:

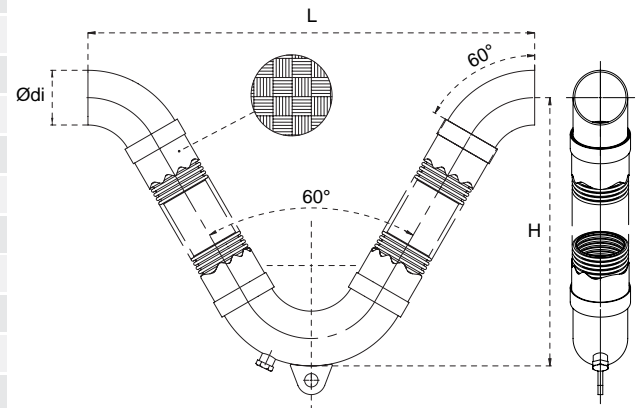
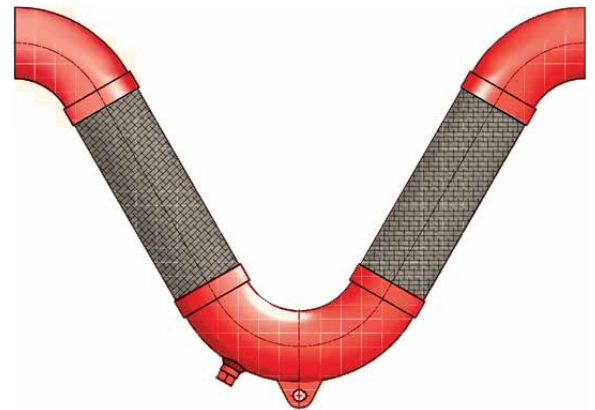
SHIELD V-Flex, Available Types (Standard Versions)

Model	Movement Amount - All Plates mm	Design Pressure PSI	Description
SD-VFW	± 37.5 & ± 100.0	250	V-type, 3D Braided Loop-Joint, Welded End
SD-VFF	± 37.5 & ± 100.0	250	V-type, 3D Braided Loop-Joint, Flanged End
SD-VFG	± 37.5 & ± 100.0	250	V-type, 3D Braided Loop-Joint, Grooved End
SD-VFT	± 37.5 & ± 100.0	250	V-type, 3D Braided Loop-Joint, Threaded End

## Welded End:

SD-VFW

Model	Nominal Diameter mm	Nominal Pipe Size Inch	Ødi mm	Movement in all directions		L mm	H mm
				mm	Inch		
SD-VFW-25	DN 25	1	33.7	± 37.5	± 1.5	450	330
				± 100.0	± 4.0	637	492
SD-VFW-32	DN 32	1¼	42.4	± 37.5	± 1.5	467	330
				± 100.0	± 4.0	680	515
SD-VFW-40	DN 40	1½	48.3	± 37.5	± 1.5	484	330
				± 100.0	± 4.0	737	549
SD-VFW-50	DN 50	2	60.3	± 37.5	± 1.5	568	370
				± 100.0	± 4.0	815	584
SD-VFW-65	DN 65	2½	76.1	± 37.5	± 1.5	679	436
				± 100.0	± 4.0	950	670
SD-VFW-80	DN 80	3	88.9	± 37.5	± 1.5	768	480
				± 100.0	± 4.0	1065	739
SD-VFW-100	DN 100	4	114.3	± 37.5	± 1.5	933	560
				± 100.0	± 4.0	1248	834
SD-VFW-125	DN 125	5	139.7	± 37.5	± 1.5	1110	650
				± 100.0	± 4.0	1480	872
SD-VFW-150	DN 150	6	168.3	± 37.5	± 1.5	1297	750
				± 100.0	± 4.0	1687	1088
SD-VFW-200	DN 200	8	219.1	± 37.5	± 1.5	1617	900
				± 100.0	± 4.0	2027	1255
SD-VFW-250	DN 250	10	273.0	± 37.5	± 1.5	1970	1080
				± 100.0	± 4.0	2440	1488

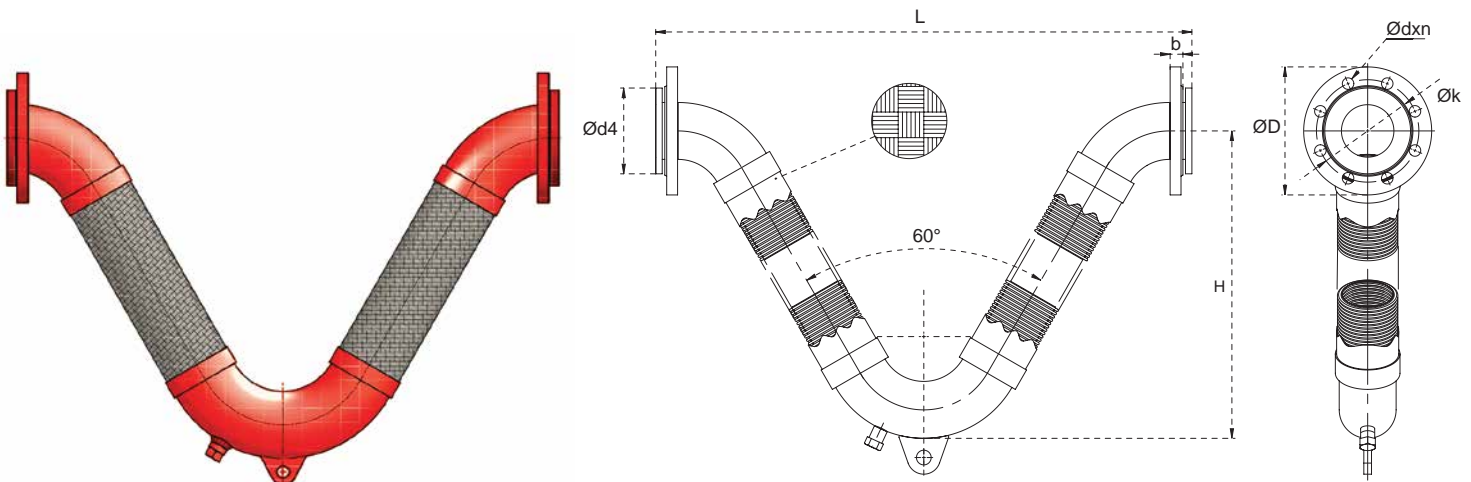


# V-Flex

## Flanged End:

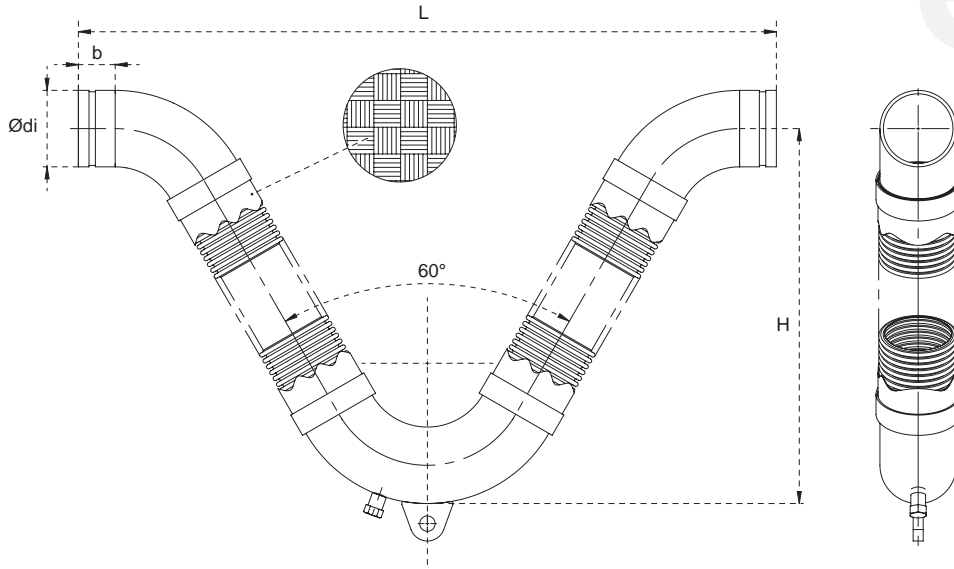
### SD-VFF

Model	Nominal Diameter	Nominal Pipe Size	Flange (DIN EN 1092/1) PN 16					Movement in all directions		L	H
			ØD	Øk	b	Ødxn	Ød4	mm	Inch		
	mm	Inch	mm	mm	mm	mm	mm			mm	mm
SD-VFF-25	DN 25	1	115	85	16	14 x 4	68	± 37.5	± 1.5	520	330
								± 100.0	± 4.0	707	492
SD-VFF-32	DN 32	1¼	140	100	16	18 x 4	78	± 37.5	± 1.5	537	330
								± 100.0	± 4.0	750	515
SD-VFF-40	DN 40	1½	150	110	16	18 x 4	88	± 37.5	± 1.5	554	330
								± 100.0	± 4.0	807	549
SD-VFF-50	DN 50	2	165	125	18	18 x 4	102	± 37.5	± 1.5	638	370
								± 100.0	± 4.0	885	584
SD-VFF-65	DN 65	2½	185	145	18	18 x 4	122	± 37.5	± 1.5	749	436
								± 100.0	± 4.0	1020	670
SD-VFF-80	DN 80	3	200	160	20	18 x 8	138	± 37.5	± 1.5	838	480
								± 100.0	± 4.0	1135	739
SD-VFF-100	DN 100	4	220	180	20	18 x 8	158	± 37.5	± 1.5	1005	560
								± 100.0	± 4.0	1320	834
SD-VFF-125	DN 125	5	250	210	22	18 x 8	188	± 37.5	± 1.5	1182	650
								± 100.0	± 4.0	1552	972
SD-VFF-150	DN 150	6	285	240	22	23 x 8	212	± 37.5	± 1.5	1369	750
								± 100.0	± 4.0	1759	1088
SD-VFF-200	DN 200	8	340	295	24	23 x 12	268	± 37.5	± 1.5	1689	900
								± 100.0	± 4.0	2102	1255
SD-VFF-250	DN 250	10	405	355	26	27 x 12	320	± 37.5	± 1.5	2045	1080
								± 100.0	± 4.0	2515	1487





## Grooved End:



## SD-VFG

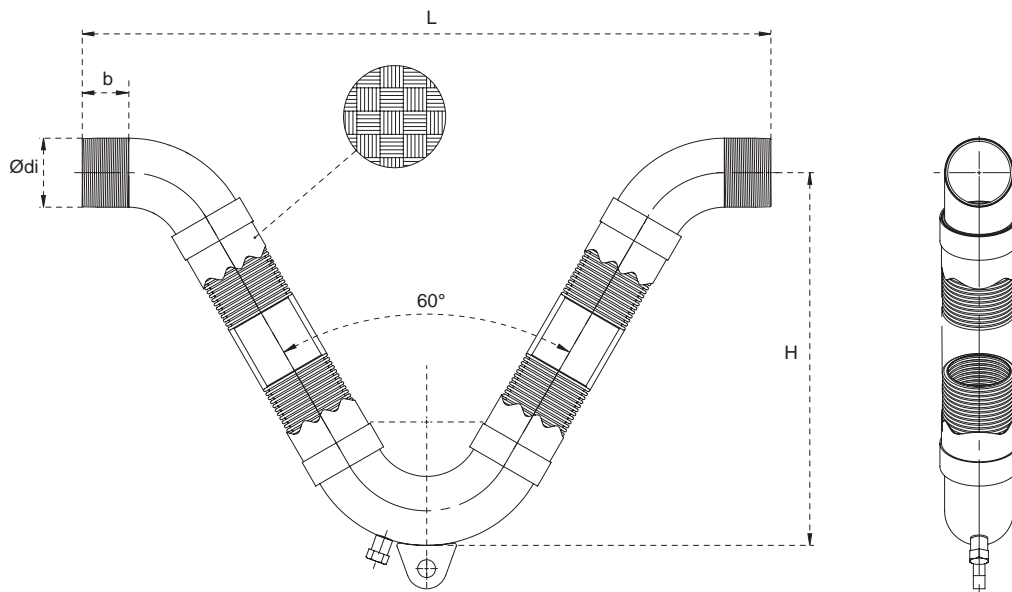
Model	Nominal Diameter		Ødi	b	Movement in all directions		L	H
	mm	Inch			mm	Inch		
SD-VFG-25	DN 25	1	33.7	55	±37.5	±1.5	560	330
					±100.0	±4.0	747	492
SD-VFG-32	DN 32	1¼	42.4	55	±37.5	±1.5	577	330
					±100.0	±4.0	790	515
SD-VFG-40	DN 40	1½	48.3	55	±37.5	±1.5	594	330
					±100.0	±4.0	847	549
SD-VFG-50	DN 50	2	60.3	55	±37.5	±1.5	678	370
					±100.0	±4.0	925	582
SD-VFG-65	DN 65	2½	76.1	55	±37.5	±1.5	789	436
					±100.0	±4.0	1060	670
SD-VFG-80	DN 80	3	88.9	55	±37.5	±1.5	878	480
					±100.0	±4.0	1175	739
SD-VFG-100	DN 100	4	114.3	55	±37.5	±1.5	1043	560
					±100.0	±4.0	1358	833
SD-VFG-125	DN 125	5	139.7	60	±37.5	±1.5	1230	650
					±100.0	±4.0	1600	970
SD-VFG-150	DN 150	6	165.1	60	±37.5	±1.5	1417	750
					±100.0	±4.0	1807	1088
SD-VFG-200	DN 200	8	219.1	65	±37.5	±1.5	1747	900
					±100.0	±4.0	2157	1255
SD-VFG-250	DN 250	10	273.0	65	±37.5	±1.5	2100	1080
					±100.0	±4.0	2570	1487

# V-Flex

## Threaded End:

SD-VFT

Model	Nominal Diameter	Nominal Pipe Size	Ødi	b	Movement in all directions		L	H
					mm	Inch		
SD-VFT-25	DN 25	1	33.7	55	±37.5	±1.5	560	330
					±100.0	±4.0	747	492
SD-VFT-32	DN 32	1¼	42.4	55	±37.5	±1.5	577	330
					±100.0	±4.0	790	515
SD-VFT-40	DN 40	1½	48.3	55	±37.5	±1.5	594	330
					±100.0	±4.0	847	549
SD-VFT-50	DN 50	2	60.3	55	±37.5	±1.5	678	370
					±100.0	±4.0	925	582
SD-VFT-65	DN 65	2½	76.1	55	±37.5	±1.5	789	436
					±100.0	±4.0	1060	670
SD-VFT-80	DN 80	3	88.9	55	±37.5	±1.5	878	480
					±100.0	±4.0	1175	739
SD-VFT-100	DN 100	4	114.3	55	±37.5	±1.5	1043	560
					±100.0	±4.0	1358	833
SD-VFT-125	DN 125	5	139.7	60	±37.5	±1.5	1230	650
					±100.0	±4.0	1600	970
SD-VFT-150	DN 150	6	165.1	60	±37.5	±1.5	1417	750
					±100.0	±4.0	1807	1088





For further information on any aspect of the SHIELD range of Expansion Joints please contact your nearest office.

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