Metso

Integrated solution with extensive application expertise

Slurry hose systems

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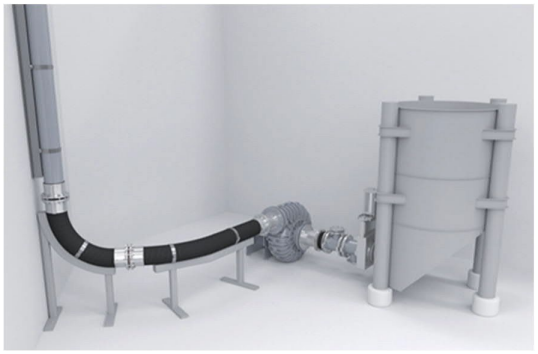
The System

Metso Slurry Hose Systems are based on easily exchangeable standard components: hoses, couplings and gaskets of varying diameters. The figure to the right shows the principle for Metso Slurry Hose Systems with support beams. The beam is used as a support for hoses, bends and couplings and is fixed to a steel frame and is screwed to the floor. The hose is fixed to the beam using clamps, sized in relation to the hose dimensions.



Metso slurry hose systems with support beams.

Rubber Hoses

Rubber slurry hoses are used for sections of slurry hose systems containing bends, differences in levels and unevenness. The rubber hose is flexible and can be easily adjusted to different lengths, to a certain degree, or bent to requirements. For the recommended bend radius, contact your local Metso representative today.

Rubber Lined Steel Pipes

The rubber lined steel pipe is an alternative to the rubber hose for the straighter sections of the slurry hose system. The rubber lined steel pipe is available in 3m &6m lengths. The rubber lined steel pipe doesn't need a support beam, it only requires support at each end. For other lengths contact your local Metso representative.

Coupling & Gaskets

Aluminum couplings are placed between the hose lengths for fully tight joints and are reinforced with rubber gaskets. The rubber seals compensate for the unevenness in the joints, while also protecting the couplings from direct contact with the slurry. The same type of couplings and seals are used for both rubber hoses and rubber3xD bends.

3xD Bends

Bends are used in tight spaces, where the smallest bend radius of the hose is not enough. It also is possible to adjust bending angle to a certain degree.

Standards	Specifications / Painting
According to PED EN 13480	Surface preparation blasting grade: Sa 2.5
According to EN3834.	Primary Coat: EP (Zn (R)) 60/1
Flanges according to -EN1092-1 and ASME B16.5	Top Coat: Pur 120/2
Painting and surface treatment according to EN ISO 12944-4, ISO 8501-1 and EN ISO 12944-5	Painting system: EP (Zn (R)) PUR 180/3

Material Handling Slurry Hose T40

Material handling hoses are used for slurry handling in the mineral processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance, flexibility and vibration reduction are required.

Product description: Trellex Material Handling Slurry Hose for hydraulic applications. It has a wear tube of natural rubber T40 marked with a green label.

Areas of use: Transport of extremely abrasive materials and slurries containing particles up to 10mm in size.

Characteristics: Thick, wear resistant tubes with smooth walls and low flow resistance. Together with Trellex couplings and gaskets, these hoses form an extremely reliable system which retains the free flow area without turbulence at the couplings.

Technical description: The hoses are reinforced with cord and have embedded galvanized steel wire spirals for managing dynamic pressure and under pressure. Test pressure is 1.5 times the working pressure and peak pressure against bursting 3.2 times working pressure. The hose can withstand operating temperatures up to 60-70°C.

Installation: Trellex Material Handling Slurry Hoses are cut to length on site.

Part No.	ID mm/ inch	OD mm	Standard length m/ft	Wear tube		Working pressure Mpa/psi	Vacuum	Bend radius		Weight	
				mm	inch			Rec. 10xID mm	Min. mm	kg/m	lbs/ft
SH-27748	51/2	72	20/66	6	1/4	1.0/150	90 %	500	300	2.4	1.6
SH-27771	76/3	99.5	20/66	6	1/4	1.0/150	90 %	750	450	4.1	2.8
SH-27805	102/4	125	20/66	6	1/4	1.0/150	90 %	1000	600	5.4	3.7
SH-27821	127/5	154	20/66	6	1/4	1.0/150	90 %	1250	750	7.5	5.1
SH-227847	152/6	178	10/33	6	1/4	1.0/150	90 %	1500	900	8.9	6.1
SH-227888	204/8	238	10/33	7.5	5/16	1.0/150	90 %	2000	1300	16	11
SH-227904	254/10	291	10/33	7.5	5/16	1.0/150	50 %	2500	1600	21	15
SH-27912	305/12	341	10/33	7.5	5/16	1.0/150	50 %	3000	1800	27	18
SH-228162	355/14	403	10/33	12	1/2	0.5/75	50 %	3500	2200	41	28
SH-473538	405/16	456	10/33	12	1/2	0.5/75	50 %	4000	2500	46	32
SH-728170	457/18	507	10/33	10.5	7/16	0.5/75	50 %	4500	2900	55	38
SH-728188	508/20	558	10/33	12	1/2	0.5/75	50 %	5000	3100	64	44
SH-728196	610/24	664	10/33	12	1/2	0.5/75	50 %	6000	3700	88	60

Material Handling Slurry/Bulk Hose T60

Material handling hoses are used for slurry and bulk handling in the mineral processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance, flexibility and vibration reduction are required.

Product description: Trellex Material Handling Slurry/Bulk Hose T60 are made of SBR rubber T60 marked with a yellow label.

Areas of use: Pneumatic transport of dry bulk material or abrasive material over 10mm in size.

Characteristics: Thick, wear resistant tube with smooth walls and low flow resistance. Together with Trellex couplings and gaskets, these hoses form an extremely reliable system which retains the free flow area without turbulence at the couplings.

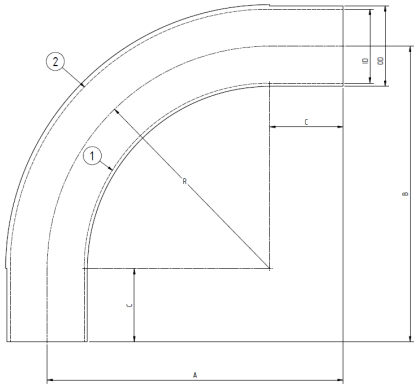
Technical description: The hoses are reinforced with cord and have embedded galvanized steel wire spirals for managing dynamic pressure and under pressure. Test pressure is 1.5 times the working pressure and peak pressure against bursting 3.2 times working pressure. The hose can withstand operating temperatures up to 70-80°C.

Installation: Trellex Material Handling Slurry/Bulk Hoses are cut to length on site.

Part No.	ID mm/ inch	OD mm	Standard length m/ft	Wear tube		Working pressure Mpa/psi	Vacuum	Bend radius		Weight	
				mm	inch			Rec 10xID mm	Min mm	kg/m	lbs/ft
SH-509380	51/2	72	20/66	6	1/4	1.0/150	90 %	500	300	2.4	1.6
SH-509406	76/3	99.5	20/66	6	1/4	1.0/150	90 %	750	450	4.1	2.8
SH-509430	102/4	125	20/66	6	1/4	1.0/150	90 %	1000	600	5.4	3.7
SH-371278	127/5	154	20/66	6	1/4	1.0/150	90 %	1250	750	7.5	5.1
SH-373134	152/6	178	10/33	6	1/4	1.0/150	90 %	1500	900	8.9	6.1
SH-371260	204/8	238	10/33	7.5	5/16	1.0/150	90 %	2000	1300	16	11
SH-602318	254/10	291	10/33	7.5	5/16	1.0/150	50 %	2500	1600	21	15
SH-602300	305/12	341	10/33	7.5	5/16	1.0/150	50 %	3000	1800	27	18
SH-1625340	355/14	403	10/33	12	1/2	0.5/75	50 %	3500	2200	41	28
SH-489255	405/16	456	10/33	12	1/2	0.5/75	50 %	4000	2500	46	32
SH-489256	457/18	507	10/33	10.5	7/16	0.5/75	50 %	4500	2900	55	38
SH-489257	508/20	558	10/33	12	1/2	0.5/75	50 %	5000	3100	64	44
SH-602319	610/24	664	10/33	12	1/2	0.5/75	50 %	6000	3700	88	60

3xD Bends 90°

3xD Bends 90° are used for slurry handling in heavy wear applications in the mining processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance is required.



Product description: Trellex 3xD Bends are made completely of rubber, cord reinforcement and a fully embedded galvanized steel wire spiral.

Areas of use: Intended for use in tight spaces where ordinary hoses cannot be bent enough. For optimum wear economy, the outer bend has a >30 % thicker wear tube than the inner bend. Can be bent between 60°-110°.

Characteristics: Thick rubber bends with smooth walls and low flow resistance.

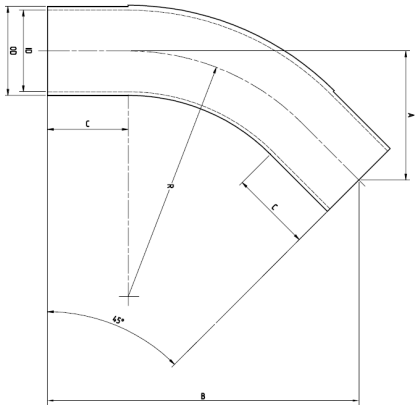
Technical description: Test pressure is 1.5 times the working pressure and peak pressure against bursting 3.2 times working pressure. Straight sections outside the 3xD bend allows connection with couplings.

Installation: Quick & easy installation without special tools. Couplings & gaskets are not included.

Part No.	ID		OD	Wear tube Outer radius		Operating pressure		A x B	C	R	Weight	
	mm	inch	mm	mm	inch	MPa	psi				kg	lbs
SH-179903	51	2	72	8	5/16	1.0	150	260 x 260	105	155	1.1	2.4
SH-35956	76	3	100	8	5/16	1.0	150	335 x 335	105	230	2.3	5.1
SH-35972	102	4	125	8	5/16	1.0	150	455 x 455	150	305	4.3	9.5
SH-371245	127	5	154	8	5/16	1.0	150	570 x 570	190	380	8.1	17.9
SH-36004	152	6	178	8	5/16	1.0	150	670 x 670	215	455	10.8	24
SH-36020	204	8	238	10	7/16	1.0	150	890 x 890	275	615	25.2	56
SH-588665	254	10	291	10	7/16	1.0	150	980 x 980	215	765	32.2	71
SH-371286	305	12	341	10	7/16	1.0	150	1170 x 1170	255	915	51	112
SH-2070150	355	14	403	16	5/8	0.5	75	1360 x 1360	295	1065	56.5	125
SH-1717550	405	16	456	16	5/8	0.5	75	1615 x 1615	400	1215	60	132
SH-371290	457	18	507	16	5/8	0.5	75	1871 x 1871	500	1371	80	176
SH-2880440	508	20	558	16	5/8	0.5	75	2020 x 2020	500	1520	110	242
SH-489184	610	24	664	16	5/8	0.5	75	2440 x 2440	605	1835	265	584

3xD Bends 45°

3xD Bends 45° are used for slurry handling in heavy wear applications in the mining processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance is required.



Product description: Trellex 3xD Bends are made completely of rubber, cord reinforcement and a fully embedded galvanized steel wire spiral.

Areas of use: Intended for use in tight spaces where ordinary hoses can't be bent enough. For optimum wear economy, the outer bend has a >30 % thicker wear tube than the inner bend and can be bent between 30°- 60°.

Characteristics: Thick bends with smooth walls and low flow resistance.

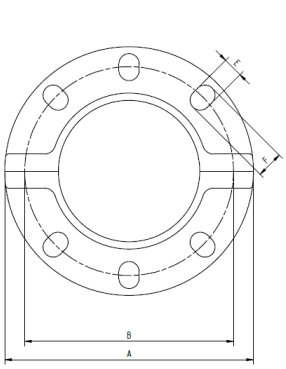
Technical description: Test pressure is 1.5 times the working pressure and peak pressure against bursting 3.2 times working pressure. Straight sections outside the 3xD bend allows for connection with couplings.

Installation: Quick & easy installation without special tools. Couplings & gaskets are not included.

Part No.	ID		OD	Wear tube Outer radius		Operating pressure		A x B	C	R	Weight	
	mm	inch	mm	mm	inch	MPa	psi				kg	lbs
SH-179895	51	2	72	8	5/16	1.0	150	120 x 290	105	155	0.7	1.6
SH-35840	76	3	100	8	5/16	1.0	150	140 x 340	105	230	1.5	3.3
SH-35865	102	4	125	8	5/16	1.0	150	195 x 475	150	305	2.8	6.2
SH-371252	127	5	154	8	5/16	1.0	150	245 x 595	190	380	5.3	11.6
SH-35899	152	6	178	8	5/16	1.0	150	285 x 690	215	455	7	15.5
SH-35915	204	8	238	10	7/16	1.0	150	375 x 905	275	615	16.4	36
SH-588640	254	10	291	10	7/16	1.0	150	375 x 905	215	765	20.9	46
SH-588657	305	12	341	10	7/16	1.0	150	445 x 1075	255	915	33.2	73
SH-489185	355	14	403	16	5/8	0.5	75	520 x 1255	295	1065	36.7	81
SH-489186	405	16	456	16	5/8	0.5	75	640 x 1540	400	1215	39	86
SH-489187	457	18	507	16	5/8	0.5	75	755 x 1823	500	1371	52	115
SH-489188	508	20	558	16	5/8	0.5	75	800 x 1930	500	1520	71.5	158
SH-489189	610	24	664	16	5/8	0.5	75	965 x 2330	605	1835	172.3	380

Couplings

Couplings are designed for use with hoses, bends and rubber lined steel pipes for slurry handling in heavy wear applications.



Product description: Trellex split flange couplings are made of high strength aluminum alloys. They consist of 2 or 4 identical segments which are mounted mechanically on the smooth hose.

Areas of use: Pumping of extremely abrasive materials.

Characteristics: The couplings are reusable after replacing hoses since they do not come into contact with the transported materials.

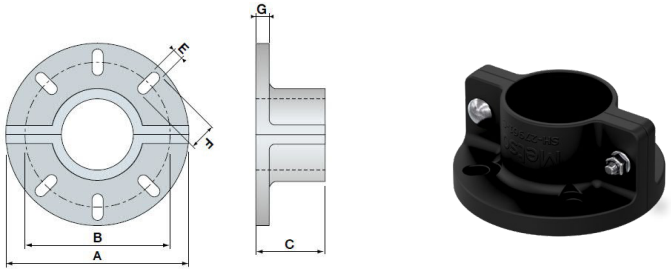
Technical description: Trellex Couplings comply with DIN and ANSI flange standard.

Installation: The couplings don't need to be suited to any special pattern on the hose cover. It is simply twisted around the hose until it fits into the connected flange.

Part No.	Coupling size mm/ inch	Dimension				ExF mm	Holes per joint	Sections per segment	Matches flange		Operating pressure mpa / psi	Weight	
		A mm	B mm	C mm	G mm				EN1092-1 PN 10	ANSI B16.5 150 lbs		kg	lbs
SH-27946	51/2	165	124	91	18	18x20	2	2	50	2"	1.0/150	1.8	4.0
SH-27961	76/3	200	158	91	20	18x24	2	2	80	3"	1.0/150	2.4	5.5
SH-27995	102/4	220	184	133	20	18x24	3	2	100	4"	1.0/150	3.5	7.7
SH-28019	127/5	250	213	165	22	23x26	3	2	125	5"	1.0/150	4.8	10.6
SH-28035	152/6	285	238	197	22	23x27	3	2	150	6"	1.0/150	6.2	13.6
SH-28076	204/8	340	295	257	24	23x26	3	2	200	8"	1.0/150	10.6	23
SH-228092	254/10	405	353	197	25	25x33	5	2	250	10"	1.0/150	11	24
SH-228100	305/12	495	418	237	25	25x47	5	2	300	12"	1.0/150	21	47
SH-28118	355/14	530	455	277	25	27x40	3	4	350	-	0.5/75	26	56
SH-657536	1355/14*	530	466	277	25	28x41	2	4	-	14"	0.5/75	27	59
SH-28126	405/16	600	521	400	25	27x51	3	4	400	16"	0.5/75	45	100
SH-657544	457/18	634	556	450	25	27x36	4	4	450	-	0.5/75	50	110
SH-657551	1457/18*	634	569	450	25	27x36	3	4	-	18"	0.5/75	51	113
SH-657569	508/20	698	621	500	25	27x44	4	4	500	20"	0.5/75	62	136
SH-657577	610/24	820	731	600	30	30x52	4	4	600	24"	0.5/75	80	175

Coated couplings

Coated Couplings are designed for use with hoses, bends and rubber lined steel pipes for slurry handling in a corrosive environment like salt mines.



Product description: Trellex split flange coated couplings are made of high strength aluminum alloys and a thermoplastic coating. The couplings consist of two or four identical segments which are mounted mechanically on the smooth hose.

Areas of use: Pumping of extremely abrasive materials in a corrosive environment like salt production and diluted acid.

Characteristics: The couplings are reusable after replacing hoses, since they do not come into contact with the transported materials.

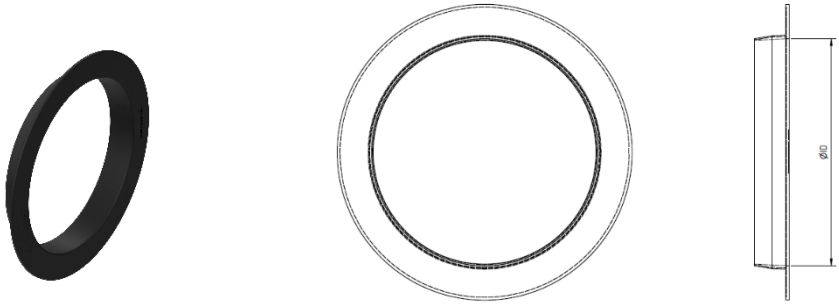
Technical description: Trellex Couplings comply with DIN and ANSI flange standard. Thermoplastic coating that protects the aluminum from corrosion in hazard environment. Fasteners and grater plate comes in stainless steel.

Installation: The couplings do not need to be suited to any special pattern on the hose cover. It is simply twisted around the hose until it fits into the flange connected.

Part No.	Coupling size mm/ inch	Dimension				ExF mm	Holes per joint	Sections per segment	Matches flange		Operating pressure / psi	Weight	
		A mm	B mm	C mm	G mm				EN1092-1 PN 10	ANSI B16.5 150 lbs MPa		kg	lbs
SH-27946-C	51/2	165	124	91	18	18x20	2	2	50	2”	1.0/150	1.8	4.0
SH-27961-C	76/3	200	158	91	20	18x24	2	2	80	3”	1.0/150	2.4	5.5
SH-27995-C	102/4	220	184	133	20	18x24	3	2	100	4”	1.0/150	3.5	7.7
SH-28019-C	127/5	250	213	165	22	23x26	3	2	125	5”	1.0/150	4.8	10.6
SH-28035-C	152/6	285	238	197	22	23x27	3	2	150	6”	1.0/150	6.2	13.6
SH-28076-C	204/8	340	295	257	24	23x26	3	2	200	8”	1.0/150	10.6	23
SH-228092-C	254/10	405	353	197	25	25x33	5	2	250	10”	1.0/150	11	24
SH-228100-C	305/12	495	418	237	25	25x47	5	2	300	12”	1.0/150	21	47
SH-28118-C	355/14	530	455	277	25	27x40	3	4	350	-	0.5/75	26	56
SH-657536-C	1355/14*	530	466	277	25	28x41	2	4	-	14”	0.5/75	27	59
SH-28126-C	405/16	600	521	400	25	27x51	3	4	400	16”	0.5/75	45	100
SH-657544-C	457/18	634	556	450	25	27x36	4	4	450	-	0.5/75	50	110
SH-657551-C	1457/18*	634	569	450	25	27x36	3	4	-	18”	0.5/75	51	113
SH-657569-C	508/20	698	621	500	25	27x44	4	4	500	20”	0.5/75	62	136
SH-657577-C	610/24	820	731	600	30	30x52	4	4	600	24”	0.5/75	80	175

Gaskets

Gaskets are designed for use with couplings, together with hoses, bends and rubber lined steel pipes for slurry handling in heavy wear applications.



Product description: The conical Trellex Gasket is designed for use together with Trellex hoses, bends and rubber lined steel pipes. Together with the Trellex Coupling, the gasket ensures completely sealed couplings while retaining full inner diameter.

Areas of use: Pumping of extremely abrasive materials.

Characteristics: Steel reinforced gaskets that allows for turbulence free passage. The inner diameter is the same size as the hose and the conical shape compensates for irregularities in the hose ends. Grooves at the front eliminate the risk of leaks.

Other information: Two couplings and two gaskets are required to form a complete link between two hoses. Secure sealing band for an easy installation and as a leak proof solution.

Part No.	For internal hose diameter		Weight	
	mm	inch	kg	lbs
SH-373977	51	2”	0.06	0.15
SH-373951	76	3”	0.10	0.20
SH-373928	102	4”	0.15	0.30
SH-373902	127	5”	0.20	0.40
SH-373886	152	6”	0.25	0.60
SH-373852	204	8”	0.40	0.90
SH-373837	254	10”	0.60	1.30
SH-373829	305	12”	0.70	1.50
SH-373811	355	14”	0.75	1.60
SH-373803	405	16”	0.90	1.90
SH-373795	457	18”	1.00	2.20
SH-373787	508	20”	1.20	2.80
SH-373779	610	24”	1.70	3.80

Rubber Lined Steel Pipe

Rubber lined steel pipes are used in the mining processing industry, coal refinement plants, power plants in the steel, cement industries & other applications where high wear resistance is required.

Product description: Trellex Rubber Lined Steel Pipes for hydraulic applications are lined with a natural rubber of quality Trellex T50.

Areas of use: Pumping of extremely abrasive materials.

Characteristics: Rigid steel pipes with smooth rubber lined walls and low flow resistance. One fixed and one rotating flange with inbuilt gasket. It forms a reliable system that retains the free flow area without turbulence.

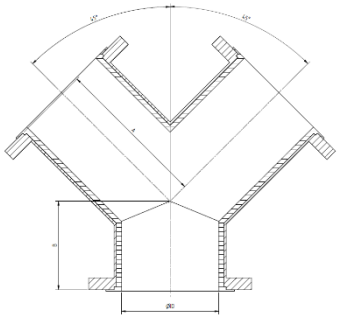
Technical description: Steel pipes lined with natural rubber. The safety factor is 1.5 times the working pressure.

Part No.	ID		Length		Wear Tube		Flange drilling	Operating Pressure		Weight	
	mm	inch	m	ft	mm	inch	EN1092-1/ ANSI B.16.5	MPa	psi	kg	lbs
DIN PN10 Flange											
489933-102-3000	102	4	3	10	5	0.2	100	1.0	150	45	99
489933-102-6000	102	4	6	20	5	0.2	100	1.0	150	79	175
489933-127-3000	127	5	3	10	5	0.2	125	1.0	150	59	131
489933-127-6000	127	5	6	20	5	0.2	125	1.0	150	106	233
489933-152-3000	152	6	3	10	5	0.2	150	1.0	150	79	175
489933-152-6000	152	6	6	20	5	0.2	150	1.0	150	141	311
489933-204-3000	204	8	3	10	5	0.2	200	1.0	150	104	228
489933-204-6000	204	8	6	20	5	0.2	200	1.0	150	185	408
489933-254-3000	254	10	3	10	5	0.2	254	1.0	150	140	309
489933-254-6000	254	10	6	20	5	0.2	250	1.0	150	252	555
489933-305-3000	305	12	3	10	5	0.2	300	1.0	150	168	370
489933-305-6000	305	12	6	20	5	0.2	300	1.0	150	326	719
ASME B16.5 150lbs Flange											
489934-102-3000	102	4	3	10	5	0.2	4”	1.0	150	45	99
489934-102-6000	102	4	6	20	5	0.2	4”	1.0	150	79	175
489934-127-3000	127	5	3	10	5	0.2	5”	1.0	150	59	131
489934-127-6000	127	5	6	20	5	0.2	5”	1.0	150	106	233
489934-152-3000	152	6	3	10	5	0.2	6”	1.0	150	79	175
489934-152-6000	152	6	6	20	5	0.2	6”	1.0	150	141	311
489934-204-3000	204	8	3	10	5	0.2	8”	1.0	150	104	228
489934-204-6000	204	8	6	20	5	0.2	8”	1.0	150	185	408
489934-254-3000	254	10	3	10	5	0.2	10”	1.0	150	140	309
489934-254-6000	254	10	6	20	5	0.2	10”	1.0	150	252	555
489934-305-3000	305	12	3	10	5	0.2	12”	1.0	150	168	370
489934-305-6000	305	12	6	20	5	0.2	12”	1.0	150	326	719

Installation: Trellex Rubber Lined Steel Pipe have fixed lengths & are designed to be used together with Slurry Hose System on straight sections. Gasket included in flange.

Branch Pipes S45

Branch pipes are used in the mining processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance is required.



Product description: Trellex Branch Pipes S45 are lined with a natural rubber of Trellex T50.

Areas of use: Pumping of extremely abrasive materials.

Characteristics: Rigid steel pipes with smooth rubber lined walls and low flow resistance. It forms a reliable system that retains the free flow area without turbulence at the couplings.

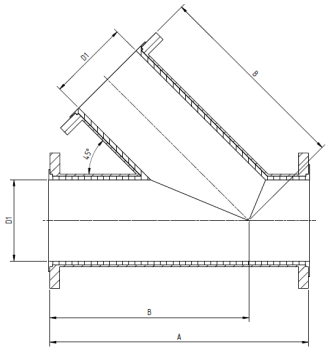
Technical description: High strength steel pipes lined with natural rubber. The safety factor is 1.5 times the working pressure. Wear tube up to 10mm depending on dimension. Combined Flange drilling according to DIN PN10 and ASME 150lbs flange standard.

Installation: Trellex Branch Pipes S45 are available in dimensions according to the table below. Gasket included in flange

Part No	ID		Wear Tube		A	B	Operating pressure		Combined flange drilling N 1092 PN10 / ANSI B16. 150lbs	Weight Y45	
	mm	inch	mm	inch	mm	mm	MPa	psi		Kg	lbs
SH-574943	51	2	3	0.12”	146.4	53.0	1.0	150	50 / 2”	10	22
SH-968198	76	3	3	0.12”	146.4	72.0	1.0	150	80 / 3”	14	31
SH-574947	102	4	10	0.4’’	148.4	74.0	1.0	150	100 / 4”	16	35
SH-574954	127	5	10	0.4’’	173.8	88.0	1.0	150	125 / 5”	25	55
SH-574962	152	6	10	0.4’’	195.0	98.0	1.0	150	150 / 6”	30	66
SH-574970	204	8	10	0.4’’	261.5	133.0	1.0	150	200 / 8”	49	108
SH-574988	254	10	10	0.4’’	317.7	159.0	1.0	150	250 / 10”	68	150
SH-574996	305	12	10	0.4’’	374.1	190.0	1.0	150	300 / 12”	115	253
SH-1533120	355	14	10	0.4’’	447.6	225.0	1.0	150	350 / 14”	120	264
SH-489936-405	405	16	10	0.4’’	474.3	250.0	1.0	150	400 / 16”	150	330
SH-489936-457	457	18	10	0.4’’	495.0	300.0	1.0	150	450 / 18”	175	385
SH-489936-508	508	20	10	0.4’’	565.7	350.0	1.0	150	500 / 20”	199	439
SH-489936-610	610	24	10	0.4’’	636.4	350.0	1.0	150	600 / 24”	224	493

Branch Pipes K45

Branch pipes are used in the mining processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance is required.



Product description: Trellex Branch Pipes K45 are lined with a natural rubber of Trellex T50. The pipes are customized to fit Trellex couplings.

Areas of use: Pumping of extremely abrasive materials

Characteristics: Rigid steel pipes with smooth rubber lined walls and low flow resistance. The special components are based on Trellex pipes together with Trellex couplings and sealings. It forms a reliable system that retains the free flow area without turbulence at the couplings.

Technical description: High strength steel pipes lined with natural rubber. The safety factor is 1.5 times the working pressure. 5mm wear tube up to inner diameter 305mm, and 10mm wear tube from 355 to 610mm. Combined Flange drilling according to DIN PN10 and ANSI 150lbs flange standard.

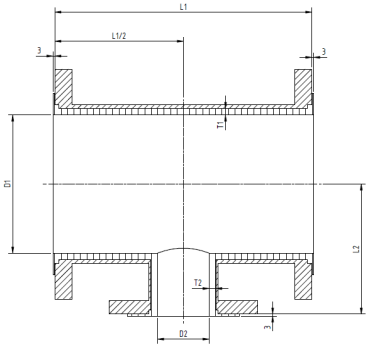
Installation: Trellex Branch Pipes K45 are available in dimensions according to table below. For diameter change, use rubber lined reducers. Gasket included in flange.

Part No.	ID D1		A	B	Wear tube	Operating Pressure	Combined flange drilling	Weight	
	mm	inch	mm	mm	mm	MPa	EN 1092 PN10 / ANSI B16 150lbs	kg	lbs
SH-489871-51-51	51	2	300	250	3	1.0	50 / 2”	10.6	23.5
SH-489871-76-76	76	3	400	300	3	1.0	80 / 3”	15.9	35.1
SH-489871-102-102	102	4	400	300	10	1.0	100 / 4”	17.4	38.3
SH-489871-127-127	127	5	450	350	10	1.0	125 / 5”	27.1	59.8
SH-489871-152-152	152	6	500	400	10	1.0	150 / 6”	34.3	75.7
SH-489871-204-204	204	8	650	500	10	1.0	200 / 8”	61.2	135.0
SH-489871-254-254	254	10	550	550	10	1.0	250 / 10”	93.5	206.1
SH-489871-305-305	305	12	800	650	10	1.0	300 / 12”	130.3	287.2
SH-489871-355-355	355	14	900	700	10	1.0	350 / 14”	144.0	317.4
SH-489871-405-405	405	16	1000	800	10	1.0	400 / 16”	178.3	393.1
SH-489871-457-457	457	18	1200	900	10	1.0	450 / 18”	288.4	635.9
SH-489871-508-508	508	20	1350	1000	10	1.0	500 / 20”	348.9	769.2
SH-489871-610-610	610	24	1600	1200	10	1.0	600 / 24”	550.6	1213.9

For other size combinations, please contact your local Metso representative.

Branch Pipes T90

Branch pipes are used in the mining processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance is required.



Product description: Trellex Branch Pipes T90 are lined with a natural rubber of Trellex T50.

Areas of use: Pumping of extremely abrasive materials.

Characteristics: Rigid steel pipes with smooth rubber lined walls and low flow resistance. The special components are based on Trellex Pipes with split steel flanges. The branch pipes form a reliable system which retains the free flow area without turbulence at the flanges.

Technical description: High strength steel pipes lined with natural rubber. Fixed steel flanges with inbuilt rubber gasket. The safety factor is 1.5 times the working pressure. 10 mm wear tube from ID 102mm. Combined Flange drilling according to DIN PN10 and ANSI 150lbs flange standard.

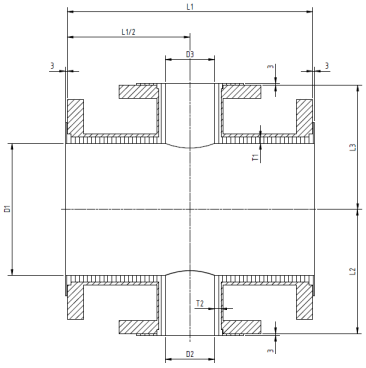
Installation: Trellex Branch Pipes are available in dimensions according to table below.

Item code: SH-489818-D1-D2

Part no.	D1	L1	T1 Wear tube	D2	L2	T2 Wear tube	Operating Pressure		Combined Flange Drilling EN 1092 PN10 / ANSI B16. 150 lbs		Weight	
	mm	mm	mm	mm	mm	mm	mpa	psi	D1	D2	kg	lbs
SH-489818-51-51	51	380	3	51	105	3	1.0	150	50 / 2”	50 / 2”	10.6	23.4
SH-489818-76-76	76	380	3	76	120	3	1.0	150	80 / 3”	80 / 3”	14.9	33.1
SH-489818-102-76	102	380	10	76	139	3	1.0	150	100 / 4”	80 / 3”	16.1	35.5
SH-489818-127-76	127	380	10	76	152	3	1.0	150	125 / 5”	80 / 3”	18.7	41.2
SH-489818-152-76	152	380	10	76	166	3	1.0	150	150 / 6”	80 / 3”	25.8	56.9
SH-489818-204-102	204	380	10	102	192	10	1.0	150	200 / 8”	100 / 4”	35.6	78.6
SH-489818-254-102	254	380	10	102	217	10	1.0	150	250 / 10”	100 / 4”	42.9	94.7
SH-489818-305-102	305	380	10	102	243	10	1.0	150	300 / 12”	100 / 4”	56.1	123.7
SH-489818-355-102	355	380	10	102	268	10	1.0	150	350 / 14”	100 / 4”	70.6	155.7
SH-489818-405-152	405	570	10	152	318	10	1.0	150	400 / 16”	150 / 6”	96.1	211.9
SH-489818-457-152	457	570	10	152	344	10	1.0	150	450 / 18”	150 / 6”	124.9	275.3
SH-489818-508-152	508	570	10	152	369	10	1.0	150	500 / 20”	150 / 6”	142.4	313.9
SH-489818-610-204	610	570	10	204	420	10	1.0	150	600 / 24”	200 / 8”	179.9	396.6

Branch Pipes TX90

Branch pipes are used in the mining processing industry, coal refinement plants, power plants in the steel and cement industries and other applications where high wear resistance is required.



Product description: Trellex Branch Pipes TX90 are lined with a natural rubber of Trellex T50.

Areas of use: Pumping of extremely abrasive materials.

Characteristics: Rigid steel pipes lined with long-life wear rubber with smooth walls and low flow resistance. These branch pipes form an extremely reliable system which retains the free flow area without turbulence at the flanges.

Technical description: High strength steel pipes lined with natural rubber. Fixed steel flanges with inbuilt rubber gasket. The safety factor is 1.5□times the working pressure. 10 mm wear tube from ID 102mm. Combined Flange drilling according to DIN PN10 and ASME 150lbs flange standard.

Installation: Trellex Branch Pipes are available in dimensions according to the table below.

Item code: SH-489797-D1-D2

Part no.	D1	L1	T1 Wear tube	D2	L2	T2 Wear tube	D3	L3	Operating Pressure		Combined Flange Drilling EN 1092 PN10 / ANSI B16. 150 lbs			Weight	
	mm	mm	mm	mm	mm	mm	mm	mm	mpa	psi	D1	D2	D3	kg	lbs
SH-489797-51-51	51	380	3	51	105	3	51	105	1.0	150	50 / 2”	50 / 2”	50 / 2”	13,8	30,5
SH-489797-76-76	76	380	3	76	120	3	51	120	1.0	150	80 / 3”	80 / 3”	50 / 2”	18,2	40,2
SH-489797-102-76	102	380	10	76	139	3	51	139	1.0	150	100 / 4”	80 / 3”	50 / 2”	19,1	42,2
SH-489797-127-76	127	380	10	76	152	3	51	152	1.0	150	125 / 5”	80 / 3”	50 / 2”	21,6	47,6
SH-489797-152-76	152	380	10	76	166	3	51	166	1.0	150	150 / 6”	80 / 3”	50 / 2”	27,9	61,5
SH-489797-204-102	204	380	10	102	192	10	76	192	1.0	150	200 / 8”	100 / 4”	80 / 3”	40,5	89,2
SH-489797-254-102	254	380	10	102	217	10	76	217	1.0	150	250 / 10”	100 / 4”	80 / 3”	47,3	104,8
SH-489797-305-102	305	380	10	102	243	10	76	243	1.0	150	300 / 12”	100 / 4”	80 / 3”	60,2	132,8
SH-489797-355-102	355	380	10	102	268	10	102	268	1.0	150	350 / 14”	100 / 4”	100 / 4”	72,5	160,3
SH-489797-405-152	405	570	10	152	318	10	102	293	1.0	150	400 / 16”	150 / 6”	100 / 4”	98.2	215,3
SH-489797-457-152	457	570	10	152	344	10	102	319	1.0	150	450 / 18”	150 / 6”	100 / 4”	125,7	277,2
SH-489797-508-152	508	570	10	152	369	10	102	344	1.0	150	500 / 20”	150 / 6”	100 / 4”	142,6	314,5
SH-489797-610-204	610	570	10	204	420	10	152	420	1.0	150	600 / 24”	200 / 8”	150 / 6”	183.0	403,5

For other size combinations, please contact your local Metso representative.

Clamps

Clamps are used to mount material handling hoses and rubber lined steel pipes in the mineral processing industry, coal refinement plants, power plants and cement factories.

Product description: Clamps are made of galvanized steel.

Area of use: Steel clamps are used to fix hoses or pipes to the support beam. It is important for the hose to be fixed to the supporting beam at bends & wherever long lengths of hoses are used.

Characteristics: Clamping is done every 1000 to 1500 mm in a straight line on both vertical and horizontal layouts. In curved sections, tighter clamping is recommended.

Technical description: Clamps are made of galvanized steel & correspond to SSG 7075 standard.

Installation: Clamps are available in sizes matching the size of hoses and pipes, see table below left. The following spacing between each clamp is recommended:

Hose / Pipe ID	Spacing Hose	Distance to pipe end
mm / inch	mm / ft	mm / ft
51-127 / 2-5	1000 / 3	300 / 1
152-355 / 6-14	1250 / 4	500 / 1.5
405-610 / 16-24	1500 / 5	1000 / 3

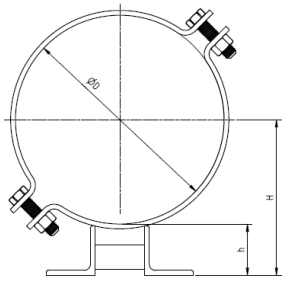
Rubber Strip (SH-489245): To clamp rubber lined steel pipes use Rubber Strip (SH-489245) as spacer. Strip needs to be ordered separately. Needed length for each clamp, see tables below:

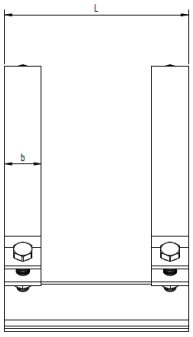
Part no.	Hose / Pipe ID		Clamp Width		Total Weight		Screw Dim. (not included)	
	mm	inch	mm	inch	kg	lbs	Metric	inch
SH-596551	51	2	40	1.6	0.5	1.1	M10x40	3/8 x 1.6"
SH-596577	76	3	50	2	1.4	3.1	M10x40	3/8 x 1.6"
SH-575043	102	4	50	2	1.6	3.5	M16x60	5/8 x 2.4"
SH-575050	127	5	50	2	1.8	4	M16x60	5/8 x 2.4"
SH-575068	152	6	50	2	2	4.4	M16x80	5/8 x 2.4"
SH-575076	204	8	60	2.4	4.2	9.3	M20x80	3/4 x 3.2"
SH-575084	254	10	60	2.4	4.9	10.8	M20x80	3/4 x 3.2"
SH-575092	305	12	60	2.4	5.5	12.1	M20x80	3/4 x 3.2"
SH-602904	355	14	70	2.8	9.3	20.5	M20x80	3/4 x 3.2"
SH-602896	405	16	70	2.8	10.1	22.3	M20x80	3/4 x 3.2"
SH-602888	457	18	70	2.8	11	24.3	M20x80	3/4 x 3.2"
SH-602870	508	20	100	4	20.2	44.5	M24x100	1 x 4"
SH-602862	610	24	100	4	23.4	51.6	M24x100	1 x 4"

Pipe ID		Length (rubber strip)	
mm	inch	mm	inch
51	2	250	10
76	3	350	14
102	4	450	18
127	5	500	20
152	6	650	26
204	8	800	32
254	10	1000	39
305	12	1200	47
355	14	1300	51
405	16	1500	59
457	18	1600	63
508	20	2x1800	2x71
610	24	2x2100	2x83

Sliding Clamps

Sliding clamps are used to mount rubber lined steel pipes in the mineral processing industry, coal refinement plants, power plants and cement factories.





Product description: Sliding clamps are made of galvanized steel.

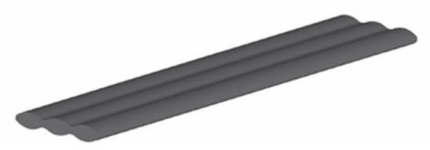
Area of use: Sliding clamps are used to fix pipes to the support beam. It is important that rubber lined steel pipes have the ability to move due to temperature variations.

Characteristics: Clamping should be done at each pipe end. For 10m pipes three sliding clamps might be necessary for high density media transportation.

Technical description: Sliding clamps are made of galvanized steel and correspond to SSG standards.

Installation: Mount sliding clamps at the distances recommended below to the pipe end due to space needed for couplings. Sliding clamps come without mounting screws, see recommended dimensions:

Pipe ID	Distance to pipe end
mm / inch	mm / ft
51-127 / 2-5	300/1
152-355 / 6-14	500/1.5
405-610 / 16-24	1000/3



Rubber Strip (SH-489245): To clamp rubber lined steel pipes use Rubber Strip (SH-489245) as spacer. Strip needs to be ordered separately. Needed length for each clamp, see tables below:

Clamps

Part no.	Hose/ Pipe ID		Length	Height		Clamp Width	Total Weight		Screw Dim. (not included)	
	mm	inch	L	h	H	b	kg	lbs	Metric	UNC
SH-489348-102	102	4	200	86	152	50	3.2	7	M16x60	5/8 x 2.4"
SH-489348-127	127	5	200	86	164	50	3.6	8	M16x60	5/8 x 2.4"
SH-489348-152	152	6	200	86	176	50	4	8.8	M16x80	5/8 x 2.4"
SH-489348-204	204	8	300	82	205	60	8.4	18.6	M20x80	3/4 x 3.2"
SH-489348-254	254	10	300	82	227	60	9.8	21.6	M20x80	3/4 x 3.2"
SH-489348-305	305	12	300	83	253	60	11	24.2	M20x80	3/4 x 3.2"
SH-489348-355	355	14	400	85	290	70	18.6	41	M20x80	3/4 x 3.2"
SH-489348-405	405	16	400	85	315	70	20.2	44.6	M20x80	3/4 x 3.2"
SH-489348-457	457	18	400	85	340	70	22	48.6	M20x80	3/4 x 3.2"
SH-489348-508	508	20	400	85	366	100	40.4	89	M24x100	1 x 4"
SH-489348-610	610	24	400	85	415	100	46.8	103.2	M24x100	1 x 4"

Rubber Strip

Pipe ID		Length (rubber strip)	
mm	inch	mm	inch
102	4	450	18
127	5	500	20
152	6	650	26
204	8	800	32
254	10	1000	39
305	12	1200	47
355	14	1300	51
405	16	1500	59
457	18	1600	63
508	20	2 x 1800	2 x 71
610	24	2 x 2100	2 x 83

Concentric Rubber Lined Steel Reducer

Rubber lined steel reducers provide a transition between pipes or hoses of different diameters to compensate for changes in flow velocity.

Product description: Trellex Rubber Lined Steel Reducers are fabricated from rolled and welded steel sheets, lined with T50 rubber.

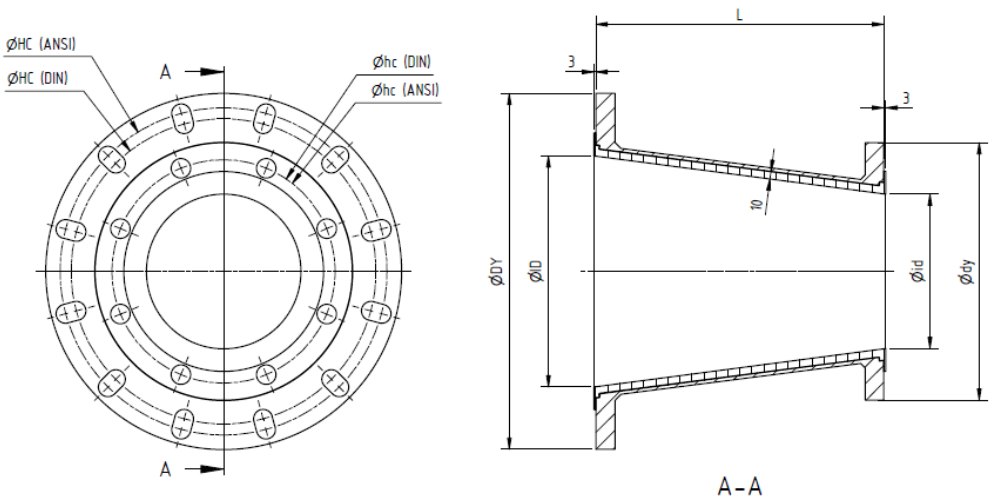
Areas of use: Pumping of extremely abrasive materials.

Characteristics: Steel reducers lined with 10 mm smooth rubber walls and low flow resistance.

Technical description: The safety factor is 1.5 times the working pressure. Taper of less than 2x8° ensures smooth flow with no turbulence. Working pressure of 1.0 Mpa.

Installation: Combined flanges according to EN1092-1 PN10 and ANSI B16.5 150 lbs. Gasket included in flange.

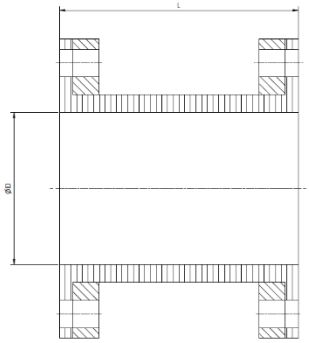
For Special Pump Reducers that fit pump flange drilling and are made to order, please contact your local Metso representative.



Item code	ID	id	Dy	HC		dy	hc		Length	Weight	
	mm			EN1092-1 PN10, mm	ANSI B16.5 150 lbs, mm	mm	EN1092-1 PN10 , mm	ANSI B16.5 150 lbs, mm	mm	kg	lbs
SH-489922	65	51	185	125	121	165	125	121	380	8	18
SH-489929	76	51	200	160	152	165	125	121	380	8	18
SH-489345	76	65	200	160	152	185	145	140	380	9	20
SH-489948	102	51	220	180	191	165	125	121	380	11	24
SH-489361	102	65	220	180	191	185	145	140	380	12	26
SH-489132	102	76	220	180	191	200	160	152	380	13	29
SH-489420	127	76	250	210	216	200	160	152	380	15	33
SH-489133	127	102	250	210	216	220	180	191	380	16	36
SH-489134	152	102	285	240	241	220	180	191	380	18	40
SH-489847	152	76	285	240	241	200	160	152	380	17	37
SH-489135	152	127	285	240	241	250	210	216	380	20	45
SH-489421	204	102	340	295	299	220	180	191	380	22	49
SH-489136	204	127	340	295	299	250	210	216	380	24	54
SH-489137	204	152	340	295	299	285	240	241	380	26	58
SH-489138	254	152	395	350	362	285	240	241	380	31	67
SH-489139	254	204	395	350	362	340	295	299	380	34	76
SH-489140	305	204	470	400	432	340	295	299	380	38	83
SH-489141	305	254	470	400	432	395	350	362	380	42	92
SH-489681	355	204	520	460	476	340	295	299	570	55	121
SH-489142	355	254	520	460	476	395	350	362	380	48	105
SH-489143	355	305	520	460	476	470	400	432	380	51	112
SH-489144	405	305	580	515	540	470	400	432	380	59	130
SH-489145	405	355	580	515	540	520	460	476	380	64	142
SH-489146	457	355	630	565	578	520	460	476	380	73	161
SH-489147	457	405	630	565	578	580	515	540	380	80	177
SH-489148	508	405	690	620	635	580	515	540	380	87	191
SH-489149	508	457	690	620	635	630	565	578	380	94	207
SH-489896	610	457	805	725	749	630	565	578	570	101	222
SH-489150	610	508	805	725	749	690	620	635	380	116	256

Rubber Compensators

Rubber compensators are used to eliminate vibrations, noise, compensate for misalignments and length deviations when rubber hose or rubber reducers are not used.



Product description: Trellex Rubber Compensators are made all of rubber reinforced with cord and a steel spiral.

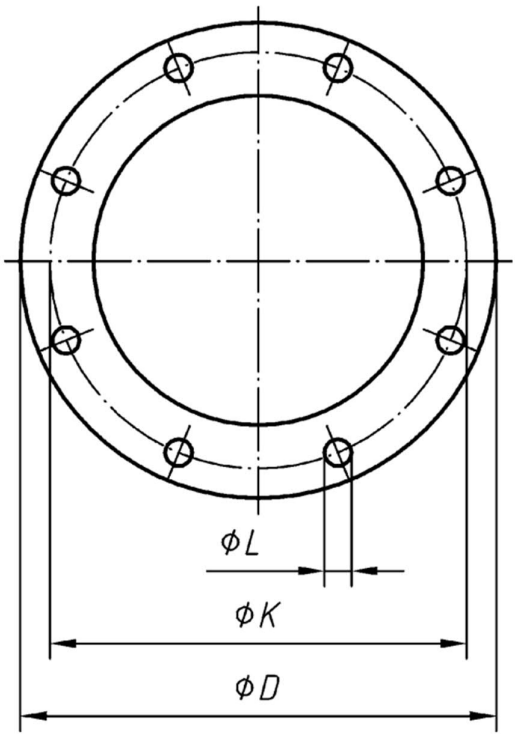
Areas of use: Typically used for flexibility between sump and pump. Flexibility is necessary at suction side of pump for disassembly during maintenance.

Characteristics: A rubber compensator with split steel flanges that combines elastic properties of rubber with various types of reinforcements to provide a flexible pipe joint.
Technical description: Working pressure is 10 bar/150 Psi & the safety factor is 1.5 times working pressure. Lateral movement is 5 mm up to ID 102mm and 10mm for ID 127 to ID 610mm. Angular movement is 3° for all dimensions.

Installation: Combined Flange drilling according to DIN PN10 and ASME 150lbs flange standard.
Two exceptions are for ID355 and ID457 where flanges are different.

Item code	ID		Length	Permissible movements (mm)				Vacuum	Operating pressure		Weight inc. Flanges	
	mm	inch	mm	Comp-ression	Elon-gation	Lateral	Angular		MPa	psi	kg	lbs
SH-489299-51-F	51	2	200	2	2	5	3°	90 %	1.0	150	4.3	9.5
SH-489299-76-F	76	3	200	2	2	5	3°	90 %	1.0	150	4.3	9.5
SH-489299-102-F	102	4	200	2	2	5	3°	90 %	1.0	150	4.3	9.5
SH-489299-127-F	127	5	200	2	2	10	3°	90 %	1.0	150	5.8	12.8
SH-489299-152-F	152	6	250	2.5	2.5	10	3°	90 %	1.0	150	7.3	16.1
SH-489299-204-F	204	8	250	2.5	2.5	10	3°	90 %	1.0	150	10.0	22.0
SH-489299-254-F	254	10	250	2.5	2.5	10	3°	50 %	1.0	150	13.9	30.6
SH-489299-305-F	305	12	250	2.5	2.5	10	3°	50 %	1.0	150	16.0	35.3
SH-489299-355-F	-	14	250	2.5	2.5	10	3°	50 %	1.0	150	20.9	46.1
SH-489299-1355-F	355	14	250	2.5	2.5	10	3°	50 %	1.0	150	20.9	46.1
SH-489299-405-F	405	16	250	2.5	2.5	10	3°	50 %	1.0	150	29.3	64.6
SH-489299-457-F	457	18	300	3	3	10	3°	50 %	1.0	150	33.7	74.3
SH-489299-1457-F	-	18	300	3	3	10	3°	50 %	1.0	150	33.7	74.3
SH-489299-508-F	508	20	300	3	3	10	3°	50 %	1.0	150	42.8	94.4
SH-489299-610-F	610	24	300	3	3	10	3°	50 %	1.0	150	56.0	124

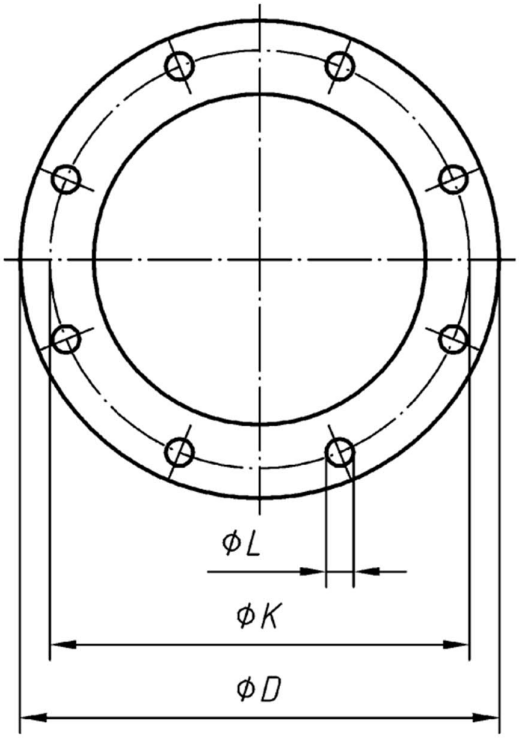
Flange standard EN1092-1



Matching flange drilling according to EN1092-1 PN10

Flange size mm	ØK	ØL	Bolting		ØD
			Number	Size	
50	125	18	4	M16	165
80	160	18	8	M16	200
100	180	18	8	M16	220
125	210	18	8	M16	250
150	240	22	8	M20	285
200	295	22	8	M20	340
250	350	22	12	M20	395
300	400	22	12	M20	445
350	460	22	16	M20	505
400	515	26	16	M24	565
450	565	26	20	M24	615
500	620	26	20	M24	670
600	725	30	20	M27	780

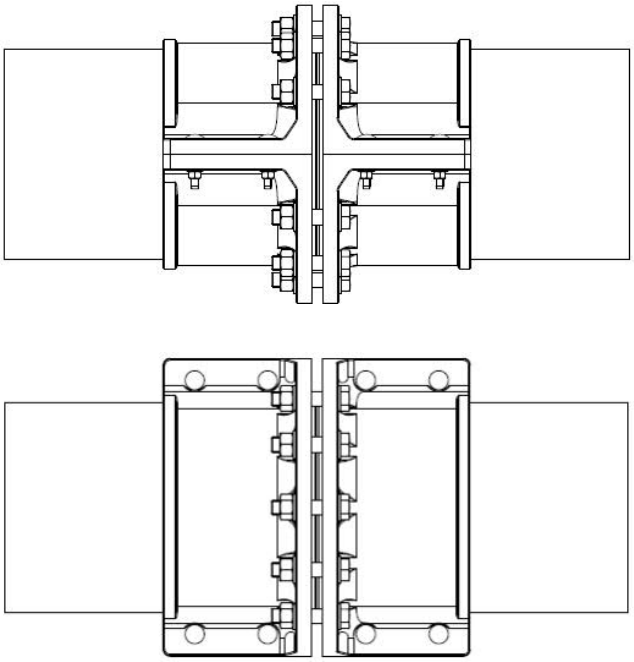
Flange standard ANSI 150



Matching flange drilling according to ANSI/ ASME B16.5 Class 150

Flange size inch	ØK	ØL	Bolting		ØD
			Number	Size	
2´´	120,7	¾´´	4	5/8´´	150
3´´	152,4	¾´´	4	5/8´´	190
4´´	190,5	¾´´	8	5/8´´	230
5´´	215,9	7/8´´	8	¾´´	255
6´´	241,3	7/8´´	8	¾´´	280
8´´	298,5	7/8´´	8	¾´´	345
10´´	362,0	1´´	12	7/8´´	405
12´´	431,8	1´´	12	7/8´´	485
14”	476,3	1 1/8´´	12	1´´	535
16´´	539,8	1 1/8´´	16	1´´	595
18´´	577,9	1 ¼´´	16	1 1/8´´	635
20´´	635,0	1 ¼´´	20	1 1/8´´	700
24´´	749,3	1 3/8´´	20	1 ¼´´	815

Connection type: Trellex coupling – TO – Trellex coupling



Recommended fasteners Metric

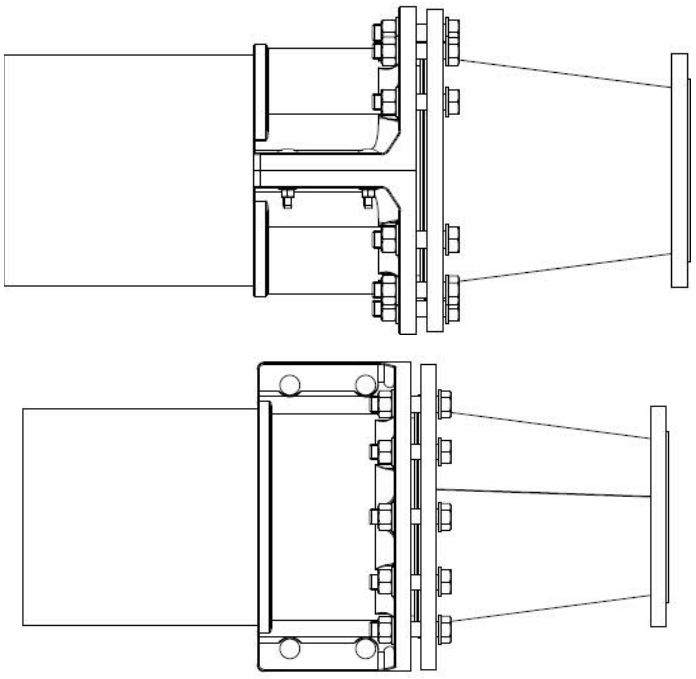
Screw:	SCREW HEX ISO4017-DIM x L-8.8-TZN	HEX Screw Fully Threaded Hot dip Galvanized
Nut:	NUT HEX ISO4032-DIM-8-A3A	Nut Hot dip Galvanized
Washer:	PLAIN WASHER ISO7089-DIM-200HV-A3A	Washer Hot dip Galvanized

Recommended fasteners UNC

Screw:	STUD BOLT ASME B18.2.1 DIM - L, A193 B7, Zinc plated	Stud Bolt, ASTM A193, GR B7, Fully Threaded, Zinc plated
Nut:	NUT HEX ASME B18.2.2 DIM, A194 2H, Zinc plated	Hex Nut, ASTM A194, GR 2H, Zinc plated
Washer:	PLAIN WASHER ASME B18.21.1-DIM-200HV, Zinc plated	Plain Washer, Hardness 200HV, Zinc plated

ID mm	Totally fasteners per joint, ISO/ASME	Dim Bolt ISO 4017	Minimum Hex ISO 4017 bolt length, mm	Dim Stud Bolt ASME B18.2.1	Minimum Stud Bolt ASME B18.2.1 length mm
51	4	M16	120	5/8"	120
76	4	M16	120	5/8"	120
102	6	M16	120	5/8"	120
127	6	M16	120	3/4"	140
152	6	M20	120	3/4"	140
204	6	M20	120	3/4"	140
254	10	M20	120	7/8"	140
305	10	M20	120	7/8"	140
355	12/8	M20	120	1"	140
405	12	M24	140	1"	140
457	16/12	M24	140	1"	140
508	16	M24	140	1"	140
610	16	M27	140	1 1/8"	160

Connection type: Trellex coupling – TO – Flange Type 01



Recommended fasteners Metric

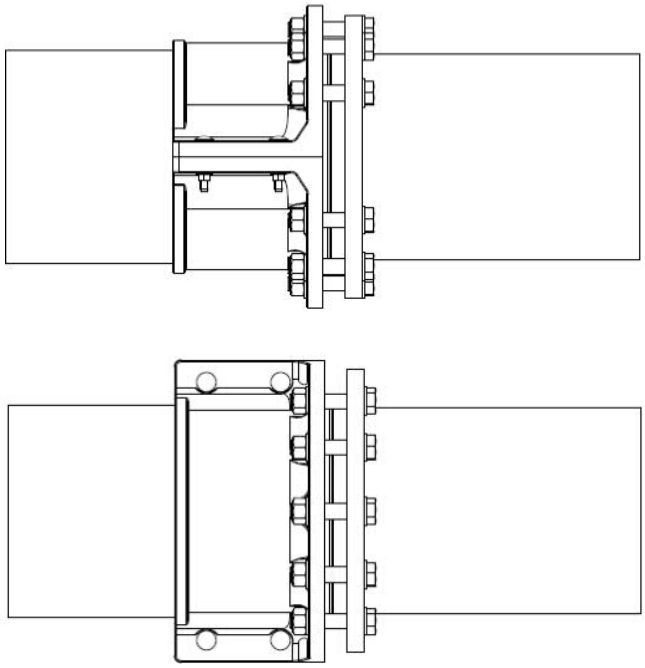
Screw:	SCREW HEX ISO4017-DIM x L-8.8-TZN	HEX Screw Fully Threaded Hot dip Galvanized
Nut:	NUT HEX ISO4032-DIM-8-A3A	Nut Hot dip Galvanized
Washer:	PLAIN WASHER ISO7089-DIM-200HV-A3A	Washer Hot dip Galvanized

Recommended fasteners UNC

Screw:	STUD BOLT ASME B18.2.1 DIM - L, A193 B7, Zinc plated	Stud Bolt, ASTM A193, GR B7, Fully Threaded, Zinc plated
Nut:	NUT HEX ASME B18.2.2 DIM, A194 2H, Zinc plated	Hex Nut, ASTM A194, GR 2H, Zinc plated
Washer:	PLAIN WASHER ASME B18.21.1-DIM-200HV, Zinc plated	Plain Washer, Hardness 200HV, Zinc plated

ID mm	Totally fasteners per joint, ISO/ASME	Dim Bolt ISO 4017	Minimum Hex ISO 4017 bolt length, mm	Dim Stud Bolt ASME B18.2.1	Minimum Stud Bolt ASME B18.2.1 length mm
51	4	M16	100	5/8"	100
76	4	M16	100	5/8"	100
102	6	M16	100	5/8"	100
127	6	M16	100	3/4"	100
152	6	M20	100	3/4"	120
204	6	M20	120	3/4"	120
254	10	M20	120	7/8"	120
305	10	M20	120	7/8"	120
355	12/8	M20	120	1"	120
405	12	M24	120	1"	140
457	16/12	M24	120	1"	140
508	16	M24	120	1"	140
610	16	M27	140	1 1/8"	160

Connection type: Trellex coupling – TO – Flange type 02/32
(E.G. Trellex hose – TO – Trellex steel rubber lines pipe)



Recommended fasteners Metric

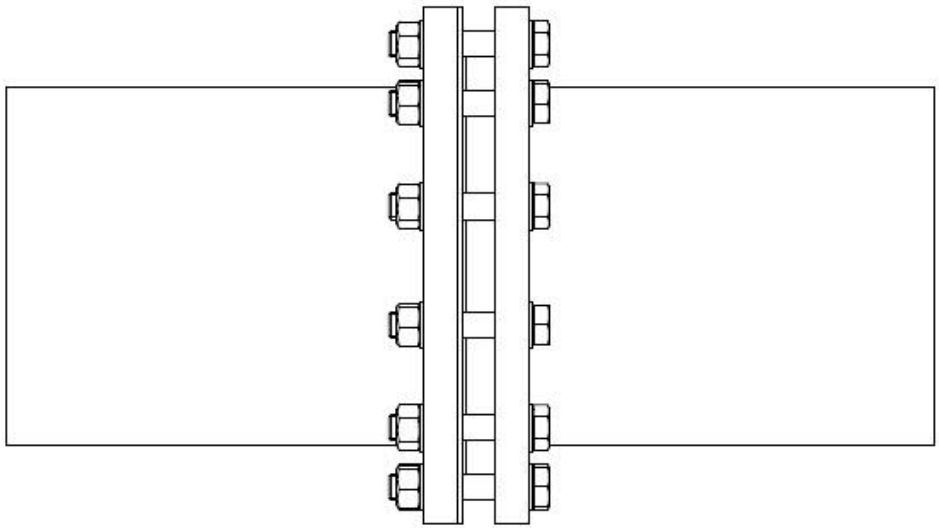
Screw:	SCREW HEX ISO4017-DIM x L-8.8-TZN	HEX Screw Fully Threaded Hot dip Galvanized
Nut:	NUT HEX ISO4032-DIM-8-A3A	Nut Hot dip Galvanized
Washer:	PLAIN WASHER ISO7089-DIM-200HV-A3A	Washer Hot dip Galvanized

Recommended fasteners UNC

Screw:	STUD BOLT ASME B18.2.1 DIM - L, A193 B7, Zinc plated	Stud Bolt, ASTM A193, GR B7, Fully Threaded, Zinc plated
Nut:	NUT HEX ASME B18.2.2 DIM, A194 2H, Zinc plated	Hex Nut, ASTM A194, GR 2H, Zinc plated
Washer:	PLAIN WASHER ASME B18.21.1-DIM-200HV, Zinc plated	Plain Washer, Hardness 200HV, Zinc plated

ID mm	Totally fasteners per joint, ISO/ASME	Dim Bolt ISO 4017	Minimum Hex ISO 4017 bolt length, mm	Dim Stud Bolt ASME B18.2.1	Minimum Stud Bolt ASME B18.2.1 length mm
51	4	M16	120	5/8"	140
76	4	M16	120	5/8"	140
102	6	M16	140	5/8"	140
127	6	M16	140	3/4"	140
152	6	M20	140	3/4"	160
204	6	M20	140	3/4"	160
254	10	M20	140	7/8"	160
305	10	M20	160	7/8"	180
355	12/8	M20	160	1"	180
405	12	M24	160	1"	180
457	16/12	M24	180	1"	200
508	16	M24	120	1"	140
610	16	M27	140	1 1/8"	160

Connection type: Flange type 01 – TO – Flange type 02/32
(E.G. Trellex steel rubber lined pipe – Trellex steel rubber lines pipe)



Recommended fasteners Metric

Screw:	SCREW HEX ISO4017-DIM x L-8.8-TZN	HEX Screw Fully Threaded Hot dip Galvanized
Nut:	NUT HEX ISO4032-DIM-8-A3A	Nut Hot dip Galvanized
Washer:	PLAIN WASHER ISO7089-DIM-200HV-A3A	Washer Hot dip Galvanized

Recommended fasteners UNC

Screw:	STUD BOLT ASME B18.2.1 DIM - L, A193 B7, Zinc plated	Stud Bolt, ASTM A193, GR B7, Fully Threaded, Zinc plated
Nut:	NUT HEX ASME B18.2.2 DIM, A194 2H, Zinc plated	Hex Nut, ASTM A194, GR 2H, Zinc plated
Washer:	PLAIN WASHER ASME B18.21.1-DIM-200HV, Zinc plated	Plain Washer, Hardness 200HV, Zinc plated

ID mm	Totally fasteners per joint, ISO/ASME	Dim Bolt ISO 4017	Minimum Hex ISO 4017 bolt length, mm	Dim Stud Bolt ASME B18.2.1	Minimum Stud Bolt ASME B18.2.1 length mm
102	8	M16	140	5/8"	120
127	8	M16	140	3/4"	120
152	8	M20	140	3/4"	140
204	8	M20	140	3/4"	140
254	12	M20	140	7/8"	160
305	12	M20	160	7/8"	160
355	16/12	M20	160	1"	160
405	16	M24	180	1"	180
457	20/16	M24	180	1 1/8"	200
508	20	M24	120	1 1/8"	200
610	20	M27	120	1 1/4"	200

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change.**

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