

FOR NO-SKIVE SOLUTION UP TO 410 BAR HEAVY DUTY



HOSE FITTINGS
One Piece Pre-Crimped Type

Topfits

CONTENTS

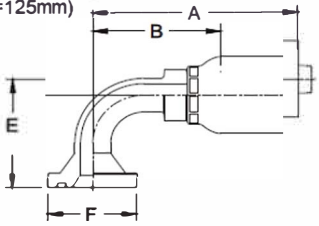
- NOMENCLATURE
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- FITTINGS
 - ▶ 09 SERIES
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 - ▶ 13 SERIES
 - ▶ CT SERIES
 - ▶ CA SERIES

FITTING NOMENCLATURE

TS 1 G2 13 - 16 - 16 S 100

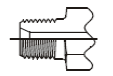
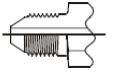



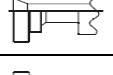

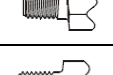
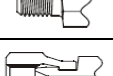


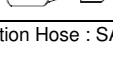
1.Type 2.Shape 3.Head Configuration 4.Hose Series 5.Connect Size 6.Hose Size 7.Material 8.Option

Example Description : Crimp Type, Straight, SAE Flange 62 Code, SAE 100R13 Hose, Connection Size 1", Hose Size 1", Stainless Steel, Special Drop Length 100mm

<p>1.Type TS : Topfits Single Piece Crimping/Permanent Type with No-Skive Hose</p> <p>2.Shape Straight : 1 22.5° Elbow : 2 30° Elbow : 3 45° Elbow : 4 60° Elbow : 6 67.5° Elbow : 7 90° Elbow : 9</p> <p>3. Head Configuration or Connection Type C : JIS B8363 60° Cone with PF Thread Nut F : JIS B8363 30° Flare with PF Thread Nut M : JIS B8363 30° Flare with Metric Thread Nut X : SAE J516 37° Flare (74° Cone) with UN(F) Thread Y : Male JIC 37° R : SAE J516 O-ring Face Seal with UN(F) Thread L : SAE J516 Long O-ring Face Seal with UN(F) Thread G1 : SAE J518 Flange 61 Code G2 : SAE J518 Flange 62 Code P : PT Male Pipe Taper Thread N : NPTF Male Pipe Taper Thread U : PF Male Thread</p> <p>4. Hose Series 09 : SAE 100R1,2,3,9, EN853 1SN, 2SN 12 : SAE 100R12 13 : SAE 100R13 CT : Pilot Hose Fittings CA : Caterpillar Flange</p> <p>7. Material Blank : Steel B : Brass S : Stainless Steel</p> <p>8. Option Drop Length : Actual Drop Length Eg, D100(E=100mm), D125(E=125mm)</p>  <p>B : Cut-Off Allowance, F : Flange Dia., E : Drop Length</p>	<p>6. Hose Size</p> <table border="1"> <thead> <tr> <th>Dash Size</th> <th>Hose Inner Dia.</th> </tr> </thead> <tbody> <tr><td>-2</td><td>1/8"</td></tr> <tr><td>-3</td><td>3/16"</td></tr> <tr><td>-4</td><td>1/4"</td></tr> <tr><td>-5</td><td>5/16"</td></tr> <tr><td>-6</td><td>3/8"</td></tr> <tr><td>-8</td><td>1/2"</td></tr> <tr><td>-10</td><td>5/8"</td></tr> <tr><td>-12</td><td>3/4"</td></tr> <tr><td>-14</td><td>7/8"</td></tr> <tr><td>-16</td><td>1"</td></tr> <tr><td>-20</td><td>1-1/4"</td></tr> <tr><td>-24</td><td>1-1/2"</td></tr> <tr><td>-32</td><td>2"</td></tr> </tbody> </table>		Dash Size	Hose Inner Dia.	-2	1/8"	-3	3/16"	-4	1/4"	-5	5/16"	-6	3/8"	-8	1/2"	-10	5/8"	-12	3/4"	-14	7/8"	-16	1"	-20	1-1/4"	-24	1-1/2"	-32	2"	<p>5. Connect Size</p> <table border="1"> <thead> <tr> <th>Dash Size</th> <th>JIS B 8363 PT/PF Th.d</th> </tr> </thead> <tbody> <tr><td>-2</td><td>1/8-28</td></tr> <tr><td>-4</td><td>1/4-19</td></tr> <tr><td>-6</td><td>3/8-19</td></tr> <tr><td>-8</td><td>1/2-14</td></tr> <tr><td>-12</td><td>3/4-14</td></tr> <tr><td>-16</td><td>1-11</td></tr> <tr><td>-20</td><td>1-1/4-11</td></tr> <tr><td>-24</td><td>1-1/2-11</td></tr> <tr><td>-32</td><td>2-11</td></tr> </tbody> </table>		Dash Size	JIS B 8363 PT/PF Th.d	-2	1/8-28	-4	1/4-19	-6	3/8-19	-8	1/2-14	-12	3/4-14	-16	1-11	-20	1-1/4-11	-24	1-1/2-11	-32	2-11	<p>5. Connect Size</p> <table border="1"> <thead> <tr> <th>Dash Size</th> <th>NPT(F) Thread</th> </tr> </thead> <tbody> <tr><td>-2</td><td>1/8-27</td></tr> <tr><td>-4</td><td>1/4-18</td></tr> <tr><td>-6</td><td>3/8-18</td></tr> <tr><td>-8</td><td>1/2-14</td></tr> <tr><td>-12</td><td>3/4-14</td></tr> <tr><td>-16</td><td>1-11.5</td></tr> <tr><td>-20</td><td>1-1/4-11.5</td></tr> <tr><td>-24</td><td>1-1/2-11.5</td></tr> <tr><td>-32</td><td>2-11.5</td></tr> </tbody> </table>		Dash Size	NPT(F) Thread	-2	1/8-27	-4	1/4-18	-6	3/8-18	-8	1/2-14	-12	3/4-14	-16	1-11.5	-20	1-1/4-11.5	-24	1-1/2-11.5	-32	2-11.5	<p>5. Connect Size</p> <table border="1"> <thead> <tr> <th>Dash Size</th> <th>SAE J514 37° Flare UNF</th> </tr> </thead> <tbody> <tr><td>-2</td><td>5/16-24</td></tr> <tr><td>-3</td><td>3/8-24</td></tr> <tr><td>-4</td><td>7/16-20</td></tr> <tr><td>-5</td><td>1/2-20</td></tr> <tr><td>-6</td><td>9/16-18</td></tr> <tr><td>-8</td><td>3/4-16</td></tr> <tr><td>-10</td><td>7/8-14</td></tr> <tr><td>-12</td><td>1-1/16-12</td></tr> <tr><td>-14</td><td>1-3/16-12</td></tr> <tr><td>-16</td><td>1-5/16-12</td></tr> <tr><td>-20</td><td>1-5/8-12</td></tr> <tr><td>-24</td><td>1-7/8-12</td></tr> <tr><td>-32</td><td>2-1/2-12</td></tr> </tbody> </table>		Dash Size	SAE J514 37° Flare UNF	-2	5/16-24	-3	3/8-24	-4	7/16-20	-5	1/2-20	-6	9/16-18	-8	3/4-16	-10	7/8-14	-12	1-1/16-12	-14	1-3/16-12	-16	1-5/16-12	-20	1-5/8-12	-24	1-7/8-12	-32	2-1/2-12			
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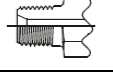
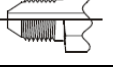
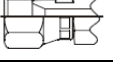


FITTING SELECTION CHART

09 SERIES

Spec.	Shape	Code	Description	Thread	Straight	22.5°	30°	45°	60°	67.5°	90°
SAE		N	Male NPTF	NPTF	TS1N09						
		Y	Male JIC 37°	UN	TS1Y09						
		X	Female JIC 37° Swivel	UN	TS1X09			TS4X09			TS9X09
		R	Female Swivel O-Ring Face Seal	UN	TS1R09			TS4R09			TS9R09 TS9R09D
		L	Female Swivel (Long) O-Ring Face Seal	UN	TS1L09						
SAE JIS		G1	SAE Code 61 Flange		TS1G109			TS4G109			TS9G109
		G2	SAE Code 62 Flange		TS1G209			TS4G209			TS9G209
JIS		P	Male JIS/BSP Taper Pipe Rigid Straight	PT	TS1P09						
		U	Male JIS/BSP Parallel Pipe Rigid Straight (30° Flare)	PF	TS1U09						
		M	Female JIS/Metric Swivel(30° Flare)	METRIC	TS1M09						
		C	Female JIS/BSP Parallel Pipe Swivel(60° Cone)	PF	TS1C09			TS4C09			TS9C09
		F	Female JIS/BSP Parallel Pipe Swivel(30° Flare)	PF	TS1F09						

Application Hose : SAE 100R1,2,3,9, EN853,1SN,2SN

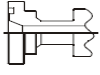
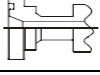
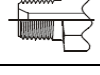
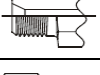


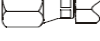
12 SERIES

Spec.	Shape	Code	Description	Thread	Straight	22.5°	30°	45°	60°	67.5°	90°
SAE		N	Male NPTF	NPTF	TS1N12						
		Y	Male JIC 37°	UN	TS1Y12						
		X	Female JIC 37° Swivel	UN	TS1X12			TS4X12			TS9X12
		R	Female Swivel O-Ring Face Seal	UN	TS1R12			TS4R12			TS9R12 TS9R12D
		L	Female Swivel (Long) O-Ring Face Seal	UN	TS1L12						

Application Hose : SAE 100R12

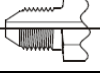
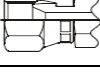
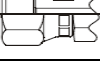
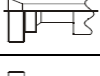

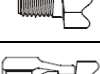
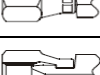


FITTING SELECTION CHART

12 SERIES

Spec.	Shape	Code	Description	Thread	Straight	22.5°	30°	45°	60°	67.5°	90°
SAE JIS		G1	SAE Code 61 Flange		TS1G112	TS2G112	TS3G112	TS4G112	TS6G112	TS7G112	TS9G112
		G2	SAE Code 62 Flange		TS1G212	TS2G212	TS3G212	TS4G212	TS6G212	TS7G212	TS9G212
JIS		P	Male JIS/BSP Taper Pipe Rigid Straight	PT	TS1P12						
		U	Male JIS/BSP Parallel Pipe Rigid Straight (30° Flare)	PF	TS1U12						
		M	Female JIS/Metric Swivel(30° Flare)	METRIC	TS1M12						
		C	Female JIS/BSP Parallel Pipe Swivel(60° Cone)	PF	TS1C12			TS4C12			TS9C12
		F	Female JIS/BSP Parallel Pipe Swivel(30° Flare)	PF	TS1F12						

Application Hose : SAE 100R12 and EN856 4SP/4SH

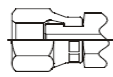
13 SERIES

Spec.	Shape	Code	Description	Thread	Straight	22.5°	30°	45°	60°	67.5°	90°
SAE		Y	Male JIC 37°	UN	TS1Y13						
		X	Female JIC 37° Swivel	UN	TS1X13						
		R	Female Swivel O-Ring Face Seal	UN	TS1R13			TS4R13			TS9R13
SAE JIS		G1	SAE Code 61 Flange		TS1G113	TS2G113	TS3G113	TS4G113	TS6G113	TS7G113	TS9G113
		G2	SAE Code 62 Flange		TS1G213	TS2G213	TS3G213	TS4G213	TS6G213	TS7G213	TS9G213
JIS		P	Male JIS/BSP Taper Pipe Rigid Straight	PT	TS1P13						
		C	Female JIS/BSP Parallel Pipe Swivel(60° Cone)	PF	TS1C13			TS4C13			TS9C13
		F	Female JIS/BSP Parallel Pipe Swivel(30° Flare)	PF	TS1F13						
		U	Male JIS/BSP Parallel Pipe Rigid Straight (30° Flare)	PF	TS1U13						

Application Hose : SAE 100R13

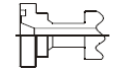
FITTING SELECTION CHART

CT SERIES

Spec.	Shape	Code	Description	Thread	Straight	22.5°	30°	45°	60°	67.5°	90°
SAE		R	Female Swivel O-Ring Face Seal	UN	TS1RCT			TSRCT			TS9RCT

Application Hose : Pilot Hose

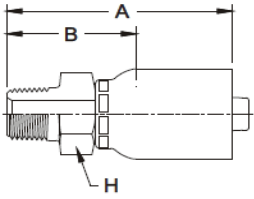
CA SERIES

Spec.	Shape	Code	Description	Thread	Straight	22.5°	30°	45°	60°	67.5°	90°
SAE		CA	Caterpillar Flange		TS1CA13	TS2CA13	TS3CA13	TS4CA13	TS6CA13	TS7CA13	TS9CA13

Application Hose : 420Bar Heavy Duty

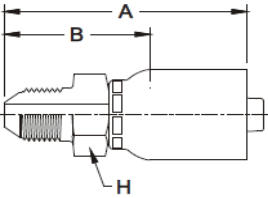
09 SERIES FITTING

TS1N09/Male NPTF



Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
	NPTF		inch	mm		inch	mm
TS1N09-2-4	1/8X27	1/4	1.79	45	9/16	1.04	26
TS1N09-4-4	1/4X18	1/4	2.01	51	9/16	1.26	32
TS1N09-6-4	3/8X18	1/4	1.86	47	11/16	1.11	28
TS1N09-6-6	3/8X18	3/8	2.37	60	3/4	1.34	34
TS1N09-8-6	1/2X14	3/8	2.39	61	7/8	1.36	35
TS1N09-8-8	1/2X14	1/2	2.84	72	7/8	1.58	40
TS1N09-12-8	3/4X14	1/2	2.68	68	1-1/16	1.42	36
TS1N09-12-10	3/4X14	5/8	2.87	73	1-1/16	1.43	36
TS1N09-12-12	3/4X14	3/4	3.09	78	1-1/16	1.65	42
TS1N09-16-12	1X11-1/2	3/4	3.09	78	1-3/8	1.65	42
TS1N09-16-16	1X11-1/2	1	3.59	91	1-3/8	1.97	50
TS1N09-20-20	1-1/4X11-1/2	1 1/4	4.08	104	1-3/4	2.39	61
TS1N09-24-24	1-1/2X11-1/2	1 1/2	3.50	89	2	2.13	54
TS1N09-32-32	2X11-1/2	2	4.05	103	2-1/2	2.27	58

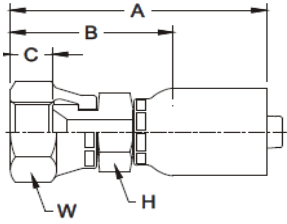
TS1Y09/Male JIS 37°



Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
	UN		inch	mm		inch	mm
TS1Y09-4-4	7/16X20	1/4	1.99	51	9/16	1.24	31
TS1Y09-5-4	1/2X20	1/4	1.83	47	9/16	1.08	27
TS1Y09-5-5	1/2X20	5/16	1.91	49	9/16	1.16	29
TS1Y09-6-4	9/16X18	4/16	1.84	47	11/16	1.09	28
TS1Y09-6-6	9/16X18	3/8	2.36	60	3/4	1.33	34
TS1Y09-8-6	3/4X16	3/8	2.30	58	7/8	1.27	32
TS1Y09-8-8	3/4X16	1/2	2.68	68	7/8	1.42	36
TS1Y09-10-8	7/8X14	1/2	2.62	66	15/16	1.36	35
TS1Y09-10-10	7/8X14	5/8	3.03	77	15/16	1.59	40
TS1Y09-12-12	1-1/16X12	3/4	3.19	81	1-1/8	1.75	44
TS1Y09-16-16	1-5/16X12	1	3.63	92	1-3/8	2.01	51
TS1Y09-20-20	1-5/8X12	1 1/4	3.96	101	1-7/8	2.27	58
TS1Y09-24-24	1-7/8X12	1 1/2	3.34	85	2	1.97	50

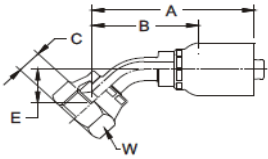
09 SERIES FITTING

TS1X09/ Female JIS 37° Swivel



Part No	Thread Size UN	Hose Size inch	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1X09-4-4	7/16X20	1/4	1.93	49	9/16	9/16	1.18	30	0.34	8.6
TS1X09-5-4	1/2X20	1/4	2.02	51	9/16	5/8	1.27	32	0.37	9.4
TS1X09-5-5	1/2X20	5/16	2.07	53	11/16	5/8	1.32	33	0.37	9.4
TS1X09-6-4	9/16X18	1/4	2.04	52	9/16	11/16	1.29	33	0.37	9.4
TS1X09-6-5	9/16X18	5/16	2.09	53	11/16	11/16	1.34	34	0.37	9.4
TS1X09-6-6	9/16X18	3/8	2.28	58	11/16	11/16	1.25	32	0.37	9.4
TS1X09-8-6	3/4X16	3/8	2.39	61	11/16	7/8	1.36	35	0.42	10.7
TS1X09-8-8	3/4X16	1/2	2.61	66	13/16	7/8	1.35	34	0.42	10.7
TS1X09-10-6	7/8X14	3/8	2.49	63	7/8	1	1.46	37	0.49	12.4
TS1X09-10-8	7/8X14	1/2	2.83	72	7/8	1	1.57	40	0.49	12.4
TS1X09-10-10	7/8X14	5/8	2.91	74	15/16	1	1.47	37	0.49	12.4
TS1X09-12-8	1-1/16X12	1/2	2.77	70	1-1/16	1-1/4	1.51	38	0.56	14.2
TS1X09-12-10	1-1/16X12	5/8	3.09	79	1-1/16	1-1/4	1.65	42	0.56	14.2
TS1X09-12-12	1-1/16X12	3/4	3.16	80	1-1/16	1-1/4	1.72	44	0.56	14.2
TS1X09-12-16	1-1/16X12	1	3.48	88	1-3/8	1-1/4	1.86	47	0.56	14.2
TS1X09-16-12	1-5/16X12	3/4	3.30	84	1-1/4	1-1/2	1.86	47	0.60	15.2
TS1X09-16-16	1-5/16X12	1	3.61	92	1-3/8	1-1/2	1.99	51	0.60	15.2
TS1X09-20-16	1-5/8X12	1	3.79	96	1-5/8	2	2.17	55	0.62	15.7
TS1X09-20-20	1-5/8X12	1 1/4	3.92	100	1-7/8	2	2.23	57	0.62	15.7
TS1X09-24-20	1-7/8X12	1 1/4	4.12	105	2-1/8	2-1/4	2.43	62	0.74	18.8
TS1X09-24-24	1-7/8-12	1 1/2	3.83	97	2-1/8	2-1/4	2.46	62	0.74	18.8
TS1X09-32-32	2-1/2X12	2	4.71	120	2-1/2	2-7/8	2.93	74	0.93	23.6

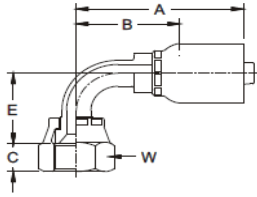
TS4X09/Female JIS 37° Swivel - 45° Elbow



Part No	Thread Size UN	Hose Size inch	A		HEX W	Cut-Off Allowance B		DROP E		NUT C inch
			inch	mm		inch	mm	inch	mm	
TS4X09-4-4	7/16X20	1/4	1.97	50	9/16	1.22	31	0.39	10	0.34
TS4X09-5-4	1/2X20	1/4	1.97	50	5/8	1.22	31	0.39	10	0.37
TS4X09-6-4	9/16X18	1/4	2.00	51	11/16	1.25	32	0.43	11	0.37
TS4X09-6-6	9/16X18	3/8	2.34	59	11/16	1.31	33	0.43	11	0.37
TS4X09-8-6	3/4X16	3/8	2.46	63	7/8	1.44	36	0.55	14	0.42
TS4X09-8-8	3/4X16	1/2	2.82	72	7/8	1.57	40	0.59	15	0.42
TS4X09-10-8	7/8X14	1/2	2.86	73	1	1.61	41	0.59	15	0.49
TS4X09-10-10	7/8X14	5/8	3.17	80	1	1.72	44	0.63	16	0.49
TS4X09-12-10	1-1/16X12	5/8	3.63	92	1-1/4	2.19	56	0.83	21	0.56
TS4X09-12-12	1-1/16X12	3/4	3.91	99	1-1/4	2.47	63	1.06	27	0.56
TS4X09-16-12	1-5/16X12	3/4	3.75	95	1-1/2	2.32	59	0.94	24	0.60
TS4X09-16-16	1-5/16X12	1	4.76	121	1-1/2	3.14	80	1.30	33	0.60
TS4X09-20-20	1-5/8X12	1 1/4	5.84	148	2	4.15	105	1.77	45	0.62

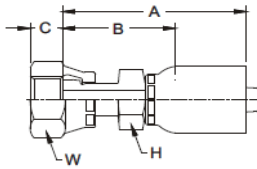
09 SERIES FITTING

TS9X09/Female JIS 37° Swivel - 90° Elbow



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	UN		inch	mm		inch	mm	inch	mm	
TS9X09-4-4	7/16X20	1/4	1.79	45	9/16	1.04	26	0.83	21	0.34
TS9X09-5-4	1/2X20	1/4	1.79	45	5/8	1.03	26	0.83	21	0.37
TS9X09-6-4	9/16X18	1/4	1.78	45	11/16	1.02	26	0.87	22	0.37
TS9X09-6-6	9/16X18	6/16	2.21	56	11/16	1.18	30	0.91	23	0.37
TS9X09-8-6	3/4X16	3/8	2.21	56	7/8	1.18	30	1.10	28	0.42
TS9X09-8-8	3/4X16	1/2	2.58	66	7/8	1.32	34	1.22	31	0.42
TS9X09-10-8	7/8X14	1/2	2.58	66	1	1.32	34	1.22	31	0.49
TS9X09-10-10	7/8X14	5/8	2.97	76	1	1.53	39	1.34	34	0.49
TS9X09-12-10	1-1/16X12	5/8	2.98	76	1-1/4	1.53	39	1.89	48	0.56
TS9X09-12-12	1-1/16X12	3/4	3.49	89	1-1/4	2.05	52	2.09	53	0.56
TS9X09-16-12	1-5/16X12	3/4	3.49	89	1-1/2	2.05	52	2.20	56	0.60
TS9X09-16-16	1-5/16X12	1	4.31	109	1-1/2	2.69	68	2.91	74	0.60
TS9X09-20-16	1-5/8X12	1	4.37	111	2	2.75	70	3.07	78	0.62
TS9X09-20-20	1-5/8X12	1 1/4	5.10	129	2	3.41	87	3.35	85	0.62
TS9X09-24-24	1-7/8X12	1 1/2	5.64	143	2-1/4	4.27	109	4.33	110	0.74

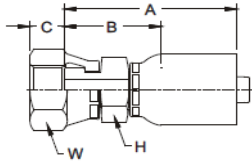
TS1L09/Female Swivel Straight (Long) O-Ring Face Seal



Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	UN		inch	mm			inch	mm	inch	mm
TS1L09-4-4	9/16X18	1/4	2.07	53	9/16	11/16	1.32	33	0.30	7.6
TS1L09-6-4	11/16X16	1/4	2.14	54	11/16	13/16	1.39	35	0.33	8.4
TS1L09-6-6	11/16X16	3/8	2.28	58	11/16	13/16	1.25	32	0.33	8.4
TS1L09-8-6	13/16X16	3/8	2.53	64	13/16	15/16	1.50	38	0.42	10.7
TS1L09-8-8	13/16X16	1/2	2.65	67	13/16	15/16	1.39	35	0.42	10.7
TS1L09-8-10	13/16X16	5/8	2.82	72	15/16	15/16	1.38	35	0.42	10.7
TS1L09-10-10	1X14	5/8	3.09	79	15/16	1-1/8	1.65	42	0.46	11.7
TS1L09-12-12	1-3/16X12	3/4	3.31	84	1-1/8	1-3/8	1.87	48	0.54	13.7
TS1L09-16-16	1-7/16X12	1	3.62	92	1-3/8	1-5/8	2.00	51	0.55	14.0

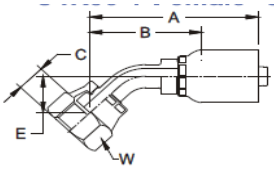
09 SERIES FITTING

TS1R09/ Female Swivel Straight O-Ring Face Seal



Part No	Thread Size UN	Hose Size inch	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1R09-4-4	9/16X18	1/4	1.63	41	9/16	11/16	0.88	22	0.30	7.6
TS1R09-4-4M	9/16X18	1/4	1.63	41	17	17	0.88	22	0.30	7.6
TS1R09-4-6	9/16X18	3/8	1.90	48	11/16	11/16	0.87	22	0.30	7.6
TS1R09-6-4	11/16X16	1/4	1.67	42	11/16	13/16	0.92	23	0.33	8.4
TS1R09-6-4M	11/16X16	1/4	1.67	42	17	22	0.92	23	0.33	8.4
TS1R09-6-5	11/16X16	5/16	1.75	44	11/16	13/16	1.00	25	0.33	8.4
TS1R09-6-6	11/16X16	6/16	1.94	49	11/16	13/16	0.91	23	0.33	8.4
TS1R09-6-6M	11/16X16	3/8	1.94	49	19	22	0.91	23	0.33	8.4
TS1R09-6-8	11/16X16	1/2	2.16	55	13/16	13/16	0.90	23	0.33	8.4
TS1R09-8-6	13/16X16	3/8	2.00	51	13/16	15/16	0.97	25	0.42	10.7
TS1R09-8-6M	13/16X16	3/8	2.00	51	19	24	0.97	25	0.42	10.7
TS1R09-8-8	13/16X16	1/2	2.22	56	13/16	15/16	0.96	24	0.42	10.7
TS1R09-8-8M	13/16X16	1/2	2.22	56	22	24	0.96	24	0.42	10.7
TS1R09-8-10M	13/16X16	5/8	2.39	61	22	24	0.95	24	0.42	10.7
TS1R09-8-12	13/16X16	3/4	2.54	65	1-1/8	15/16	1.10	28	0.42	10.7
TS1R09-10-8	1X14	1/2	2.30	58	15/16	1-1/8	1.04	26	0.46	11.7
TS1R09-10-8M	1X14	1/2	2.30	58	24	30	1.04	26	0.46	11.7
TS1R09-10-10	1X14	5/8	2.49	63	15/16	1-1/8	1.05	27	0.46	11.7
TS1R09-10-10M	1X14	5/8	2.49	63	24	30	1.05	27	0.46	11.7
TS1R09-12-8	1-3/16X12	1/2	2.48	63	1-1/8	1-3/8	1.22	31	0.54	13.7
TS1R09-12-8M	1-3/16X12	1/2	2.48	63	32	36	1.22	31	0.54	13.7
TS1R09-12-10	1-3/16X12	5/8	2.67	68	1-1/8	1-3/8	1.23	31	0.54	13.7
TS1R09-12-10M	1-3/16X12	5/8	2.67	68	32	36	1.23	31	0.54	13.7
TS1R09-12-12	1-3/16X12	3/4	2.68	68	1-1/8	1-3/8	1.24	31	0.54	13.7
TS1R09-12-12M	1-3/16X12	3/4	2.68	68	32	36	1.24	32	0.54	13.7
TS1R09-12-16	1-3/16X12	1	2.99	76	1-5/16	1-3/8	1.37	35	0.54	13.7
TS1R09-16-12	1-7/16X12	3/4	2.83	72	1-3/8	1-5/8	1.39	35	0.55	14.0
TS1R09-16-12M	1-7/16X12	3/4	2.83	72	36	41	1.39	35	0.55	14.0
TS1R09-16-16	1-7/16X12	1	3.14	80	1-3/8	1-5/8	1.52	39	0.55	14.0
TS1R09-16-16M	1-7/16X12	1	3.14	80	36	41	1.52	39	0.55	14.0
TS1R09-20-16	1-11/16X12	1	3.08	78	1-5/8	1-7/8	1.46	37	0.57	14.5
TS1R09-20-16M	1-11/16X12	1	3.08	78	41	50	1.46	37	0.57	14.5
TS1R09-20-20	1-11/16X12	1 1/4	3.27	83	1-7/8	1-7/8	1.58	40	0.57	14.5
TS1R09-20-20M	1-11/16X12	1 1/4	3.27	83	50	50	1.58	40	0.57	14.5

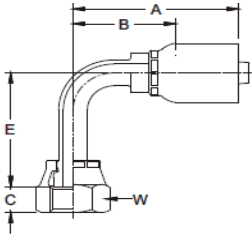
TSCR09/Female Swivel 45° Elbow O-Ring Face Seal



Part No	Thread Size UN	Hose Size inch	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS4R09-4-4	9/16X18	1/4	1.97	50	11/16	1.21	31	0.39	10	0.30
TS4R09-6-4	11/16X16	1/4	2.00	51	13/16	1.24	32	0.43	11	0.33
TS4R09-6-6	11/16X16	3/8	2.34	59	13/16	1.31	33	0.43	11	0.33
TS4R09-6-6M	11/16X16	3/8	2.61	66	22	1.58	40	0.71	18	0.33
TS4R09-8-6	13/16X16	3/8	2.53	64	15/16	1.50	38	0.59	15	0.42
TS4R09-8-8	13/16X16	1/2	2.82	72	15/16	1.57	40	0.59	15	0.42
TS4R09-8-8M	13/16X16	1/2	2.82	72	24	1.57	40	0.59	15	0.42
TS4R09-10-8	1X14	1/2	2.93	74	1-1/8	1.67	42	0.63	16	0.46
TS4R09-10-10	1X14	5/8	3.18	81	1-1/8	1.73	44	0.63	16	0.46
TS4R09-12-12	1-3/16X12	3/4	3.63	92	1-3/8	2.19	56	0.83	21	0.54
TS4R09-12-12M	1-3/16X12	3/4	3.63	92	36	2.19	56	0.83	21	0.54
TS4R09-16-12	1-7/16X12	3/4	3.75	95	1-5/8	2.32	59	0.94	24	0.55
TS4R09-16-16	1-7/16X12	1	4.38	111	1-5/8	2.76	70	0.94	24	0.55
TS4R09-16-16M	1-7/16X12	1	4.38	111	41	2.76	70	0.94	24	0.55
TS4R09-20-20	1-11/16X12	1 1/4	5.70	145	1-7/8	4.02	102	1.61	41	0.57
TS4R09-24-24	2X12	1 1/2	6.14	156	2-1/4	4.77	121	1.89	48	0.60

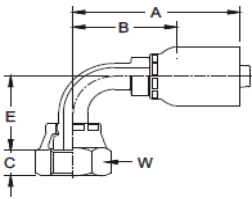
09 SERIES FITTING

TS9R09D/Female Swivel 90° Elbow (Long) O-Ring Face Seal



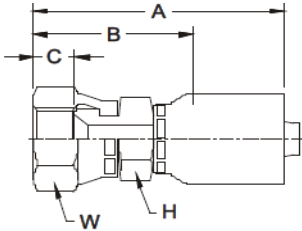
Part No	Thread Size UN	Hose Size inch	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS9R09-4-4D	9/16X18	1/4	1.87	47	11/16	1.11	28	1.81	46	0.30
TS9R09-6-6D	11/16X16	3/8	2.39	61	13/16	1.36	35	2.13	54	0.33
TS9R09-8-8D	13/16X16	1/2	2.58	66	15/16	1.32	34	2.51	64	0.42
TS9R09-10-10D	1X14	5/8	3.19	81	1-1/8	1.74	44	2.76	70	0.46
TS9R09-12-12D	1-3/16X12	3/4	3.49	89	1-3/8	2.05	52	3.78	96	0.54
TS9R09-12-12DM	1-3/16X12	3/4	3.49	89	36	2.05	52	3.78	96	0.54

TS9R09/Female Swivel 90° Elbow (Short) O-Ring Face Seal



Part No	Thread Size UN	Hose Size inch	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS9R09-4-4	9/16X18	1/4	1.78	45	11/16	1.02	26	0.83	21	0.30
TS9R09-4-4M	9/16X18	1/4	1.78	45	17	1.02	26	0.83	21	0.30
TS9R09-6-4	11/16X16	1/4	1.81	46	13/16	1.06	27	0.91	23	0.33
TS9R09-6-6	11/16X16	3/8	2.20	56	13/16	1.18	30	0.91	23	0.33
TS9R09-6-6M	11/16X16	3/8	2.20	56	22	1.18	30	0.91	23	0.33
TS9R09-8-6	13/16X16	3/8	2.28	58	15/16	1.25	32	1.14	29	0.42
TS9R09-8-8	13/16X16	1/2	2.58	66	15/16	1.32	34	1.14	29	0.42
TS9R09-8-8M	13/16X16	1/2	2.58	66	24	1.32	34	1.14	29	0.42
TS9R09-10-8	1X14	1/2	2.74	70	1-1/8	1.48	38	1.26	32	0.46
TS9R09-10-10	1X14	5/8	2.97	76	1-1/8	1.53	39	1.26	32	0.46
TS9R09-12-10	1-3/16X12	5/8	3.20	81	1-3/8	1.75	45	1.89	48	0.54
TS9R09-12-12	1-3/16X12	3/4	3.49	89	1-3/8	2.05	52	1.89	48	0.54
TS9R09-12-12M	1-3/16X12	3/4	3.49	89	36	2.05	52	1.89	48	0.54
TS9R09-16-16	1-7/16X12	1	4.31	110	1-5/8	2.69	68	2.20	56	0.55
TS9R09-16-16M	1-7/16X12	1	4.31	110	41	2.69	68	2.20	56	0.55
TS9R09-20-20	1-11/16X12	1 1/4	5.10	129	1-7/8	3.41	87	3.23	82	0.57
TS9R09-24-24	2X12	1 1/2	5.52	140	2-1/4	4.15	105	3.96	101	0.60

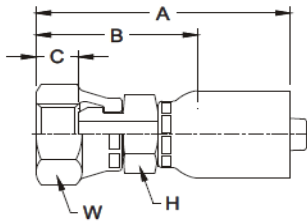
TS1F09/Female JIS/BSP Parallel Pipe Swivel Straight (30° Flare)



Part No	Thread Size PF	Hose Size inch	A		HEX H mm	HEX W mm	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1F09-4-4	1/4X19	1/4	2.01	51	19	19	1.26	32	0.35	8.9
TS1F09-6-4	3/8X19	1/4	2.16	55	24	22	1.41	36	0.39	9.9
TS1F09-6-6	3/8X19	3/8	2.43	62	24	22	1.40	36	0.39	9.9
TS1F09-8-8	1/2X14	1/2	2.78	71	27	27	1.52	39	0.47	11.9
TS1F09-12-10	3/4X14	5/8	3.16	80	36	36	1.72	44	0.50	12.7
TS1F09-12-12	3/4X14	3/4	3.17	80	36	36	1.73	44	0.50	12.7
TS1F09-16-16	1X11	1	3.64	92	41	41	2.02	51	0.58	14.7
TS1F09-20-20	1-1/4X11	1 1/4	3.98	100	50	50	2.29	58	0.60	15.2

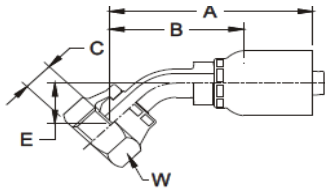
09 SERIES FITTING

TS1C09/Feamle JIS/BSP Parallel Pipe Swivel Straight (60° Cone)



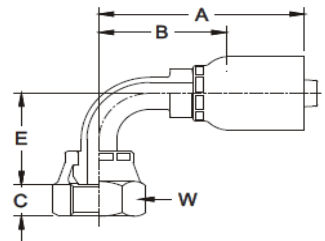
Part No	Thread Size PF	Hose Size inch	A		HEX H mm	HEX W mm	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1C09-4-4	1/4X19	1/4	2.07	53	19	19	1.32	33	0.23	5.8
TS1C09-6-4	3/8X19	1/4	2.17	55	22	22	1.42	36	0.27	6.9
TS1C09-6-5	3/8X19	5/16	2.25	57	22	22	1.49	38	0.27	6.9
TS1C09-6-6	3/8X19	3/8	2.44	62	22	22	1.41	36	0.27	6.9
TS1C09-8-6	1/2X14	3/8	2.57	65	27	27	1.54	39	0.35	8.9
TS1C09-8-8	1/2X14	1/2	2.79	71	27	27	1.54	39	0.35	8.9
TS1C09-12-8	3/4X14	1/2	3.02	77	36	36	1.77	45	0.38	9.7
TS1C09-12-10	3/4X14	5/8	3.22	82	36	36	1.78	45	0.38	9.7
TS1C09-12-12	3/4X14	3/4	3.22	82	36	36	1.79	45	0.38	9.7
TS1C09-16-12	1X11	3/4	3.42	87	41	41	1.98	50	0.46	11.7
TS1C09-16-16	1X11	1	3.73	95	41	41	2.11	54	0.46	11.7
TS1C09-20-20	1-1/4X11	1 1/4	4.05	103	50	50	2.36	60	0.48	12.2
TS1C09-24-24	1-1/2X11	1 1/2	3.91	99	60	60	2.54	65	0.48	12.2
TS1C09-32-24	2X11	1 1/2	4.09	104	70	70	2.72	69	0.58	14.7
TS1C09-32-32	2X11	2	4.49	114	70	70	2.71	69	0.58	14.7

TS4C09/Female JIS/BSP Parallel Pipe Swivel 45° Elbow (60° Cone)



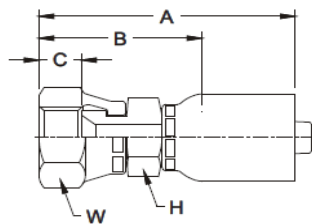
Part No	Thread Size PF	Hose Size inch	A		HEX W mm	Cut-Off Allowance B		DROP E		NUT C inch
			inch	mm		inch	mm	inch	mm	
TS4C09-4-4	1/4X19	1/4	2.20	56	19	1.45	37	0.63	16	0.23
TS4C09-6-6	3/8X19	3/8	2.57	65	22	1.55	39	0.67	17	0.27
TS4C09-8-8	1/2X14	1/2	3.06	78	27	1.80	46	0.83	21	0.35
TS4C09-12-12	3/4X14	3/4	3.82	97	36	2.38	61	1.02	26	0.38
TS4C09-16-16	1X11	1	4.80	122	41	3.18	81	1.30	33	0.46
TS4C09-20-20	1-1/4X11	1 1/4	5.86	149	50	4.17	106	1.81	46	0.48
TS4C09-24-24	1-1/2X11	1 1/2	6.33	161	60	4.96	126	2.09	53	0.48

TS9C09/Female JIS/BSP Parallel Pipe Swivel 90° Elbow (60° Cone)



Part No	Thread Size PF	Hose Size inch	A		HEX W mm	Cut-Off Allowance B		DROP E		NUT C inch
			inch	mm		inch	mm	inch	mm	
TS9C09-4-4	1/4X19	1/4	1.78	45	19	1.03	26	1.14	29	0.23
TS9C09-6-6	3/8X19	3/8	2.20	56	22	1.18	30	1.30	33	0.27
TS9C09-8-6	1/2X14	3/8	2.45	62	27	1.42	36	1.61	41	0.35
TS9C09-8-8	1/2X14	1/2	2.70	69	27	1.44	37	1.61	41	0.35
TS9C09-12-12	3/4X14	3/4	3.49	89	36	2.05	52	2.17	55	0.38
TS9C09-16-16	1X11	1	4.70	119	41	3.08	78	2.89	74	0.46
TS9C09-20-20	1-1/4X11	1 1/4	5.10	129	50	3.41	87	3.48	89	0.48
TS9C09-24-24	1-1/2X11	1 1/2	5.57	141	60	4.20	107	4.33	110	0.48

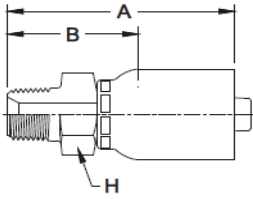
TS1M09/Female JIS/Metric Swivel Straight (30° Flare)



Part No	Thread Size Metric	Hose Size inch	A		HEX H mm	HEX W mm	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1M09-4-4	M14X1.5	1/4	2.06	52	19	19	1.31	33	0.40	10.20
TS1M09-6-4	M18X1.5	1/4	2.17	55	24	24	1.42	36	0.40	10.20
TS1M09-6-6	M18X1.5	3/8	2.44	62	24	24	1.41	36	0.40	10.20
TS1M09-8-8	M22X1.5	1/2	2.82	72	27	27	1.56	40	0.51	13.00
TS1M09-12-12	M27X2	3/4	3.16	80	36	36	1.72	44	0.49	12.40
TS1M09-16-16	M33X2	1	3.57	91	41	41	1.95	50	0.51	13.00
TS1M09-20-20	M42X2	1 1/4	3.95	100	50	50	2.26	57	0.57	14.50

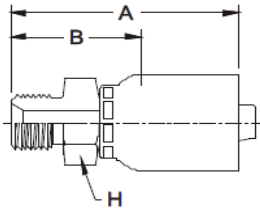
09 SERIES FITTING

TS1P09/Male JIS/BSP Taper Pipe - Rigid Straight



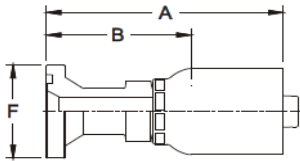
Part No	Thread Size PT	Hose Size inch	A		HEX H mm	Cut-Off Allowance B	
			inch	mm		inch	mm
TS1P09-4-4	1/4X19	1/4	1.92	49	19	1.17	30
TS1P09-6-4	3/8X19	1/4	1.98	50	22	1.23	31
TS1P09-6-6	3/8X19	3/8	2.24	57	22	1.22	31
TS1P09-8-8	1/2X14	1/2	2.68	68	27	1.42	36
TS1P09-12-12	3/4X14	3/4	2.98	76	36	1.54	39
TS1P09-16-16	1X11	1	3.48	88	41	1.86	47
TS1P09-20-20	1-1/4X11	1 1/4	3.79	96	50	2.10	53
TS1P09-24-24	1-1/2X11	1 1/2	3.43	87	60	2.06	52
TS1P09-32-32	2-11	2	4.20	107	70	2.42	61

TS1U09/Male JIS/BSP Parallel Pipe-Rigid Straight (30° Flare)



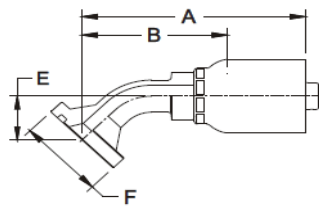
Part No	Thread Size PF	Hose Size inch	A		HEX H mm	Cut-Off Allowance B	
			inch	mm		inch	mm
TS1U09-4-4	1/4X19	1/4	1.93	49	19	1.18	30
TS1U09-6-6	3/8X19	3/8	2.29	58	22	1.26	32
TS1U09-8-8	1/2X14	1/2	2.65	67	27	1.39	35
TS1U09-12-12	3/4X14	3/4	3.02	77	36	1.58	40
TS1U09-16-16	1X11	1	3.45	88	41	1.83	46
TS1U09-20-20	1-1/4X11	1 1/4	3.77	96	50	2.08	53
TS1U09-24-24	1-1/2X11	1 1/2	3.58	91	60	2.21	56

TS1G109/SAE Code 61 Flange Straight



Part No	Flange Size	Hose Size inch	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1G109-8-8	1/2	1/2	3.48	88	2.22	56	1.19	30.2
TS1G109-12-12	3/4	3/4	3.86	98	2.42	61	1.50	38.1
TS1G109-12-8	3/4	3/4	2.46	62	1.20	31	1.50	38.1
TS1G109-16-12	1	1	2.74	70	1.31	33	1.75	44.5
TS1G109-16-16	1	1	4.25	108	2.63	67	1.75	44.5
TS1G109-20-16	1 1/4	1 1/4	3.20	81	1.58	40	2.00	50.8
TS1G109-20-20	1 1/4	1 1/4	4.70	119	3.01	76	2.00	50.8
TS1G109-24-20	1 1/2	1 1/2	3.22	82	1.54	39	2.38	60.3
TS1G109-24-24	1 1/2	1 1/2	4.59	117	3.22	82	2.38	60.3
TS1G109-32-24	2	2	3.14	80	1.77	45	2.81	71.4
TS1G109-32-32	2	2	4.99	127	3.21	82	2.81	71.4

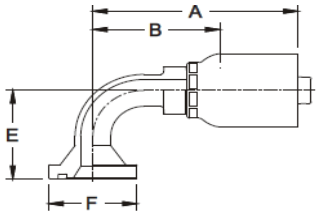
TS4G109/SAE Code 61 Flange 45° Elbow



Part No	Flange Size	Hose Size inch	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4G109-12-12	3/4	3/4	3.85	98	2.41	61	1.50	38.1	1.02	26
TS4G109-16-12	1	3/4	3.85	98	2.41	61	1.75	44.5	1.1	28
TS4G109-16-16	1	1	4.76	121	3.14	80	1.75	44.5	1.26	32
TS4G109-20-16	1 1/4	1	4.76	121	3.14	80	2.00	50.8	1.26	32
TS4G109-20-20	1 1/4	1 1/4	5.61	142	3.92	100	2.00	50.8	1.5	38
TS4G109-24-20	1 1/2	1 1/4	5.72	145	4.03	102	2.38	60.3	1.69	43
TS4G109-24-24	1 1/2	1 1/2	5.84	148	4.47	114	2.38	60.3	1.61	41
TS4G109-32-32	2	2	7.19	183	5.41	138	2.81	71.4	1.97	50

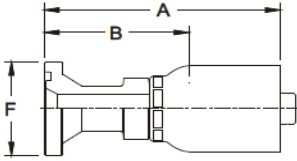
09 SERIES FITTING

TS9G109/SAE Code 61 Flange 90° Elbow



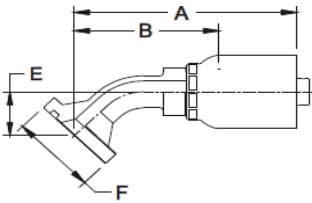
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9G109-12-12	3/4	3/4	3.51	89	2.07	53	1.50	38.1	2.28	58
TS9G109-16-12	1	3/4	3.52	89	2.08	53	1.75	44.5	2.28	58
TS9G109-16-16	1	1	4.28	109	2.66	68	1.75	44.5	2.76	70
TS9G109-20-16	1 1/4	1	4.28	109	2.66	68	2.00	50.8	2.76	70
TS9G109-20-20	1 1/4	1 1/4	5.39	137	3.70	94	2.00	50.8	3.54	90
TS9G109-24-20	1 1/2	1 1/4	5.09	129	3.41	86	2.38	60.3	3.54	90
TS9G109-24-24	1 1/2	1 1/2	5.55	141	4.18	106	2.38	60.3	4.09	104
TS9G109-32-32	2	2	7.11	181	5.33	135	2.81	71.4	4.72	120

TS1G209/SAE Code 62 Flange Straight



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1G209-12-12	3/4	3/4	4.12	105	2.68	68	1.63	41.3
TS1G209-16-16	1	1	4.81	122	3.19	81	1.88	47.6
TS1G209-20-20	1 1/4	1 1/4	5.01	127	3.32	84	2.13	54
TS1G209-24-24	1 1/2	1 1/2	4.28	109	2.91	74	2.50	63.5
TS1G209-32-32	2	2	4.66	118	2.88	73	3.13	79.4

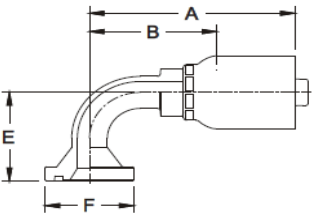
TS4G209/SAE Code 62 Flange 45° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4G209-12-12	3/4	3/4	3.89	99	2.45	62	1.63	41.3	1.06	27
TS4G209-16-16	1	1	4.76	121	3.14	80	1.88	47.6	1.26	32
TS4G209-20-20	1 1/4	1 1/4	5.61	142	3.92	100	2.13	54.0	1.50	38
TS4G209-24-24	1 1/2	1 1/2	5.92	150	4.55	115	2.50	63.5	1.73	44

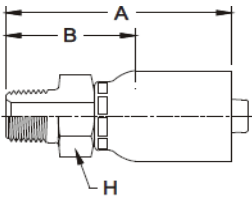


TS9G209/SAE Code 62 Flange 90° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9G209-12-12	3/4	3/4	3.51	89	2.07	53	1.63	41.3	2.28	58
TS9G209-16-12	1	3/4	3.52	89	2.08	53	1.88	47.6	2.28	58
TS9G209-16-16	1	1	4.28	109	2.66	67	1.88	47.6	2.76	70
TS9G209-20-20	1 1/4	1 1/4	5.18	132	3.50	89	2.13	54.0	3.54	90
TS9G209-24-24	1 1/2	1 1/2	5.44	138	4.07	103	2.50	63.5	4.09	104
TS9G209-32-32	2	2	7.11	181	5.33	135	3.13	79.4	4.88	124

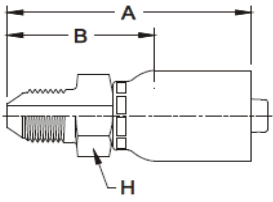
TS1N12/Male NPTF



Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
			inch	mm		inch	mm
TS1N12-12	3/4X14	3/4	3.09	78	1-1/16	1.71	43
TS1N12-16-16	1X11-1/2	1	3.67	93	1-3/8	1.89	48
TS1N12-20-20	1-1/4X11-1/2	1 1/4	4.08	104	1-3/4	2.39	61
TS1N12-24-24	1-1/2X11-1/2	1 1/2	4.38	111	2	2.19	56
TS1N12-32-32	2X11-1/2	2	4.72	120	2-1/2	2.52	64

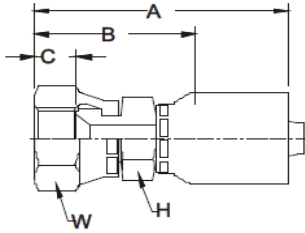
12 SERIES FITTING

TS1Y12/Male JIS 37°



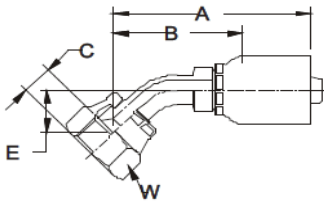
Part No	Thread Size UN	Hose Size inch	A		HEX H	Cut-Off Allowance B	
			inch	mm		inch	mm
TS1Y12-12-12	1-1/16X12	3/4	3.19	81	1-1/8	1.81	46
TS1Y12-16-16	1-5/16X12	1	3.71	94	1-3/8	1.93	49
TS1Y12-20-20	1-5/8X12	1 1/4	3.96	101	1-7/8	2.27	58
TS1Y12-24-24	1-7/8X12	1 1/2	4.30	109	2	2.11	54
TS1Y12-32-32	2-1/2X12	2	4.96	126	2-5/8	2.76	70

TS1X12/Female JIS 37° Swivel



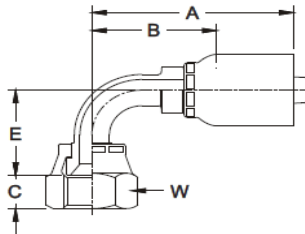
Part No	Thread Size UN	Hose Size inch	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1X12-10-10	7/8X14	5/8	2.82	72	15/16	1	1.57	40	0.49	12.4
TS1X12-12-10	1-1/16X12	5/8	3.00	76	1-1/16	1-1/4	1.75	44	0.56	14.2
TS1X12-12-12	1-1/16X12	3/4	3.16	80	1-1/16	1-1/4	1.78	45	0.56	14.2
TS1X12-16-12	1-5/16X12	3/4	3.30	84	1-1/4	1-1/2	1.92	49	0.60	15.2
TS1X12-16-16	1-5/16X12	1	3.69	94	1-3/8	1-1/2	1.91	48	0.60	15.2
TS1X12-20-16	1-5/8X12	1	3.87	98	1-5/8	2	2.09	53	0.62	15.7
TS1X12-20-20	1-5/8X12	1 1/4	3.92	100	1-7/8	2	2.23	57	0.62	15.7
TS1X12-24-20	1-7/8X12	1 1/4	4.12	105	2-1/8	2-1/4	2.43	62	0.74	18.8
TS1X12-24-24	1-7/8X12	1 1/2	4.71	120	2-1/8	2-1/4	2.52	64	0.74	18.8
TS1X12-32-32	2-1/2X12	2	5.38	137	2-1/2	2-7/8	3.18	81	0.93	23.6

TS4X12/Female JIS 37° Swivel - 45° Elbow



Part No	Thread Size UN	Hose Size inch	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS4X12-12-10	1-1/16X12	5/8	3.54	90	1-1/4	2.29	58	0.83	21	0.56
TS4X12-12-12	1-1/16X12	3/4	3.91	99	1-1/4	2.53	64	1.06	27	0.56
TS4X12-16-12	1-5/16X12	3/4	3.75	95	1-1/2	2.38	60	0.94	24	0.60
TS4X12-16-16	1-5/16X12	1	4.84	123	1-1/2	3.06	78	1.30	33	0.60
TS4X12-20-20	1-5/8X12	1 1/4	5.84	148	2	4.15	105	1.77	45	0.62
TS4X12-24-24	1-7/8X12	1 1/2	7.25	184	2-1/4	5.06	128	2.05	52	0.74

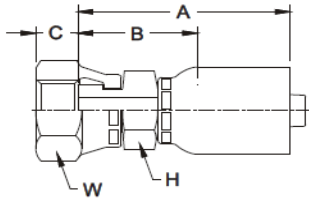
TS9X12/Female JIS 37° Swivel - 90° Elbow



Part No	Thread Size UN	Hose Size inch	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS9X12-12-12	1-1/16X12	3/4	3.49	89	1-1/4	2.11	54	2.09	53	0.56
TS9X12-16-12	1-5/16X12	3/4	3.49	89	1-1/2	2.11	54	2.20	56	0.60
TS9X12-16-16	1-5/16X12	1	4.39	111	1-1/2	2.61	66	2.91	74	0.60
TS9X12-20-20	1-5/8X12	1 1/4	5.10	129	2	3.41	87	3.35	85	0.62
TS9X12-24-24	1-7/8X12	1 1/2	6.44	163	2-1/4	4.24	108	4.21	107	0.74

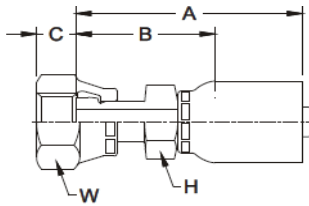
12 SERIES FITTING

TS1R12/ Female Swivel Straight O - Ring Face Seal



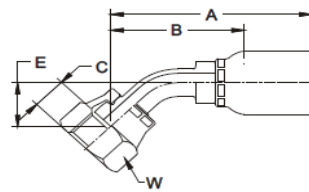
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1R12-12-12	1-3/16X12	3/4	2.68	68	1-1/8	1-3/8	1.30	33	0.54	13.7
TS1R12-12-12M	1-3/16X12	3/4	2.68	68	32	36	1.30	33	0.54	13.7
TS1R12-16-12M	1-7/16X12	3/4	2.83	72	36	41	1.45	37	0.55	14.0
TS1R12-16-16	1-7/16X12	1	3.22	82	1-3/8	1-5/8	1.44	37	0.55	14.0
TS1R12-16-16M	1-7/16X12	1	3.22	82	36	41	1.44	37	0.55	14.0
TS1R12-20-16M	1-11/16X12	1	3.16	80	41	50	1.38	35	0.57	14.5
TS1R12-20-20	1-11/16X12	1 1/4	3.27	83	1-7/8	1-7/8	1.58	40	0.57	14.5
TS1R12-20-20M	1-11/16X12	1 1/4	3.27	83	50	50	1.58	40	0.57	14.5
TS1R12-24-24	2X12	1 1/2	3.86	98	2	2-1/4	1.67	42	0.60	15.2

TS1L12/Female Swivel Straight (Long) O-Ring Face Seal



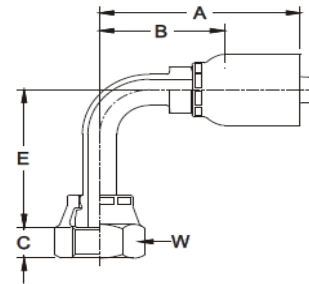
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
			inch	mm			inch	mm	inch	mm
TS1L12-10-10	1X14	5/8	3.00	76	15/16	1-1/8	1.75	45	0.46	11.7
TS1L12-12-12	1-3/16X12	3/4	3.31	84	1-1/8	1-3/8	1.93	49	0.54	13.7
TS1L12-16-16	1-7/16X12	1	3.70	94	1-3/8	1-5/8	1.92	49	0.55	14.0
TS1L12-20-20	1-11/16X12	1 1/4	3.77	96	1-3/4	1-7/8	2.08	53	0.57	14.5
TS1L12-24-24	2X12	1 1/2	4.75	121	2	2-1/4	2.56	65	0.60	15.2

TS4R12/Female Swivel 45° Elbow O-Ring Face Seal



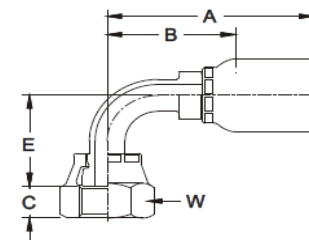
Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS4R12-12-12	1-3/16X12	3/4	3.63	92	1-3/8	2.25	57	0.83	21	0.54
TS4R12-16-12	1-7/16X12	3/4	3.75	95	1-5/8	2.38	60	0.94	24	0.55
TS4R12-16-16	1-7/16X12	1	4.46	113	1-5/8	2.68	68	0.94	24	0.55
TS4R12-20-20	1-11/16X12	1 1/4	5.70	144	1-7/8	4.02	102	1.61	41	0.57

TS9R12/Female Swivel 90° Elbow (Long) O-Ring Face Seal



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS9R12-12-12	1-3/16X12	3/4	3.49	89	1-3/8	2.11	54	3.78	96	0.54
TS9R12-12-12D	1-3/16X12	3/4	3.49	89	36	2.11	54	3.78	96	0.54

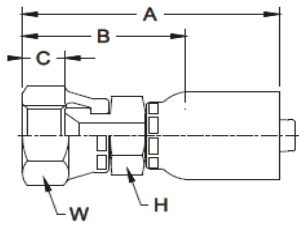
TS9R12D/Female "SEAL -LOK" Swivel 90° Elbow (Short) O-Ring Face Seal



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
			inch	mm		inch	mm	inch	mm	
TS9R12-10-10	1X14	5/8	2.88	73	1-1/8	1.63	41	1.26	32	0.46
TS9R12-12-12	1-3/16X12	3/4	3.49	89	1-3/8	2.11	54	1.89	48	0.54
TS9R12-16-12	1-7/16X12	3/4	3.49	89	1-5/8	2.11	54	2.20	56	0.55
TS9R12-16-16	1-7/16X12	1	4.39	111	1-5/8	2.61	66	2.20	56	0.55
TS9R12-20-16	1-11/16X12	1	4.76	121	1-7/8	2.98	76	2.52	64	0.57
TS9R12-20-20	1-11/16X12	1 1/4	5.10	129	1-7/8	3.41	87	3.23	82	0.57

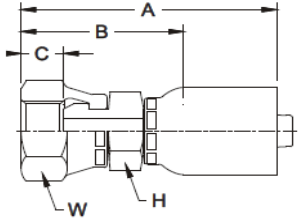
12 SERIES FITTING

TS1F12/Female JIS/BSP Parallel Pipe Swivel Straight (30° Flare)



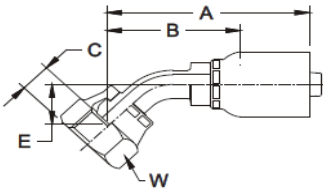
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	PF		inch	mm	mm	mm	inch	mm	inch	mm
TS1F12-12-12	3/4X14	3/4	3.17	80	36	36	1.79	45	0.50	12.7
TS1F12-16-16	1X11	1	3.72	94	41	41	1.94	49	0.58	14.7
TS1F12-20-20	1-1/4X11	1 1/4	3.98	101	50	50	2.29	58	0.60	15.2
TS1F12-24-24	1-1/2X11	1 1/2	4.78	121	60	60	2.59	66	0.64	16.3
TS1F12-32-32	2X11	2	5.11	130	70	70	2.91	74	0.69	17.5

TS1C12/Female JIS/BSP Parallel Pipe Swivel Straight (60° Cone)



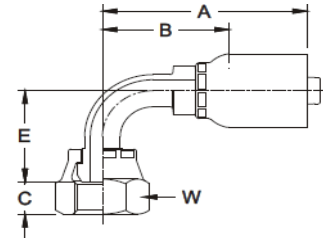
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	PF		inch	mm	mm	mm	inch	mm	inch	mm
TS1C12-12-10	3/4X14	5/8	3.12	79	36	36	1.88	48	0.38	9.7
TS1C12-12-12	3/4X14	3/4	3.22	82	36	36	1.85	47	0.38	9.7
TS1C12-16-12	1X11	3/4	3.42	87	41	41	2.04	52	0.46	11.7
TS1C12-16-16	1X11	1	3.80	97	41	41	2.03	51	0.46	11.7
TS1C12-20-20	1-1/4X11	1 1/4	4.05	103	50	50	2.36	60	0.48	12.2
TS1C12-24-24	1-1/2X11	1 1/2	4.8	122	60	60	2.61	66	0.48	12.2
TS1C12-32-32	2X11	2	5.15	131	70	70	2.95	75	0.58	14.7

TS4C12/Female JIS/BSP Parallel Pipe Swivel 45° Elbow (60° Cone)



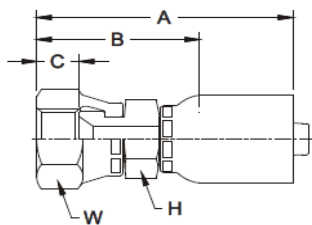
Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	PF		inch	mm	mm	inch	mm	inch	mm	inch
TS4C12-12-12	3/4X14	3/4	3.82	97	36	2.44	62	1.02	26	0.38
TS4C12-16-16	1X11	1	4.88	124	41	3.1	79	1.30	33	0.46
TS4C12-20-20	1-1/4X11	1 1/4	5.86	149	50	4.17	106	1.81	46	0.48

TS9C12/Female JIS/BSP Parallel Pipe Swivel 90° Elbow (60° Cone)



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	PF		inch	mm	mm	inch	mm	inch	mm	inch
TS9C12-12-12	3/4X14	3/4	3.49	89	36	2.11	54	2.17	55	0.38
TS9C12-16-16	1X11	1	4.78	121	41	3.00	76	2.89	74	0.46
TS9C12-20-20	1-1/4X11	1 1/4	5.10	129	50	3.41	87	3.48	89	0.48
TS9C12-24-24	1-1/2X11	1 1/2	6.45	164	60	4.26	108	4.33	110	0.48

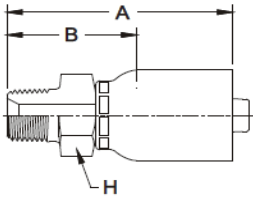
TS1M12/Female JIS/Metric Swivel Straight (30° Flare)



Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	Metric		inch	mm	mm	mm	inch	mm	inch	mm
TS1M12-12-12	M27X2	3/4	3.16	80	36	36	1.78	45	0.49	12.4
TS1M12-16-16	M33X2	1	3.65	93	41	41	1.87	47	0.51	13.0
TS1M12-20-20	M42X2	1 1/4	3.95	100	50	50	2.26	57	0.57	14.5

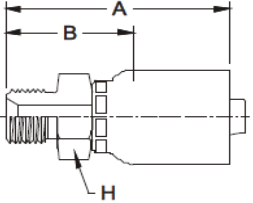
12 SERIES FITTING

TS1P12/Male/BSP Taper Pipe-Rigid Straight



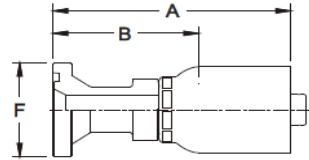
Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
	PT		inch	mm		inch	mm
TS1P12-12-12	3/4X14	3/4	2.98	76	36	1.60	41
TS1P12-16-16	1X11	1	3.56	90	41	1.78	45
TS1P12-20-20	1-1/4X11	1 1/4	3.79	96	50	2.10	53
TS1P12-24-24	1-1/2X11	1 1/2	4.46	113	60	2.27	58
TS1P12-32-32	2X11	2	4.95	126	70	2.75	70

TS1U12/Male JIS/BSP Parallel Pipe-Rigid Straight (30° Flare)



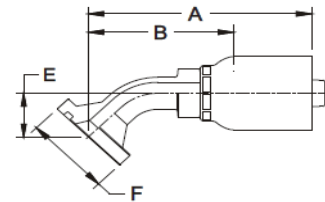
Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
	PF		inch	mm		inch	mm
TS1U12-12-12	3/4X14	3/4	3.02	77	36	1.64	42
TS1U12-16-16	1X11	1	3.53	90	41	1.75	44
TS1U12-20-20	1-1/4X11	1 1/4	3.77	96	50	2.08	53
TS1U12-24-24	1-1/2X11	1 1/2	4.40	112	60	2.21	56

TS1G112/SAE Code 61 Flange Straight



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1G112-12-12	3/4	3/4	3.86	98	2.48	63	1.50	38.1
TS1G112-16-12	1	3/4	2.74	70	1.36	35	1.75	44.5
TS1G112-16-16	1	1	4.32	110	2.55	65	1.75	44.5
TS1G112-20-16	1 1/4	1	3.27	83	1.50	38	2.00	50.8
TS1G112-20-20	1 1/4	1 1/4	4.70	119	3.01	76	2.00	50.8
TS1G112-24-20	1 1/2	1 1/4	3.22	82	1.54	39	2.38	60.3
TS1G112-24-24	1 1/2	1 1/2	5.47	139	3.28	83	2.38	60.3
TS1G112-32-24	2	1 1/2	4.01	102	1.82	46	2.81	71.4
TS1G112-32-32	2	2	5.65	143	3.45	88	2.81	71.4

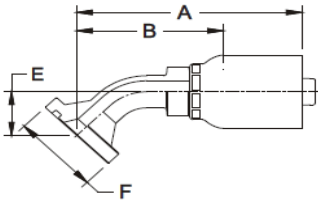
TS2G112/SAE Code 61 Flange 22.5° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS2G112-12-12	3/4	3/4	4.13	105	2.68	68	1.50	38.1	0.71	18.0
TS2G112-16-16	1	1	7.09	180	5.12	130	1.75	44.5	3.31	84.0
TS2G112-20-20	1 1/4	1 1/4	5.90	150	4.13	105	2.00	50.8	1.10	28.0
TS2G112-24-24	1 1/2	1 1/2	7.12	180.8	4.85	123.1	2.38	60.3	1.15	29.1
TS2G112-32-32	2	2	7.96	202.1	5.55	140.9	2.81	71.4	1.22	31.0

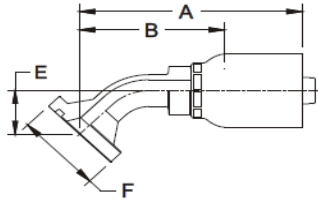
12 SERIES FITTING

TS3G112/SAE Code 61 Flange 30° Elbow



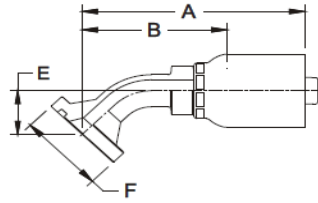
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS3G112-12-12	3/4	3/4	3.94	100	2.56	65	1.50	38.1	0.91	23.0
TS3G112-16-16	1	1	4.96	126	3.50	89	1.75	44.5	0.98	25.0
TS3G112-20-20	1 1/4	1 1/4	5.79	147	4.04	102.5	2.00	50.8	1.26	32.0
TS3G112-24-24	1 1/2	1 1/2	7.07	179.5	4.02	102	2.38	60.3	1.52	38.5
TS3G112-32-32	2	2	7.73	196.3	5.43	137.8	2.81	71.4	1.64	41.7

TS4G112/SAE Code 61 Flange 45° Elbow



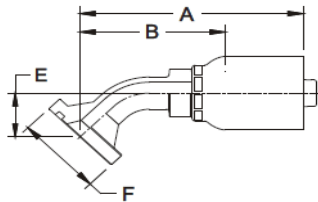
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4G112-12-12	3/4	3/4	3.85	98	2.47	63	1.50	38.1	1.02	26.0
TS4G112-16-12	1	3/4	3.85	98	2.47	63	1.75	44.5	1.10	28.0
TS4G112-16-16	1	1	4.83	123	3.05	78	1.75	44.5	1.26	32.0
TS4G112-20-16	1 1/4	1	4.83	123	3.06	78	2.00	50.8	1.26	32.0
TS4G112-20-20	1 1/4	1 1/4	5.61	142	3.92	100	2.00	50.8	1.50	38.0
TS4G112-24-20	1 1/2	1 1/4	5.72	145	4.03	102	2.38	60.3	1.69	43.0
TS4G112-24-24	1 1/2	1 1/2	6.72	171	4.53	115	2.38	60.3	1.61	41.0
TS4G112-32-24	2	1 1/2	7.10	180	4.91	125	2.81	71.4	1.97	50.0
TS4G112-32-32	2	2	7.86	200	5.66	144	2.81	71.4	1.93	49.0

TS6G112/SAE Code 61 Flange 60° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS6G112-12-12	3/4	3/4	4.25	108.0	2.68	68	1.50	38.1	2.17	55.0
TS6G112-16-16	1	1	5.20	132.0	3.74	95	1.75	44.5	2.48	63.0
TS6G112-20-20	1 1/4	1 1/4	6.23	159.0	4.49	114	2.00	50.8	3.19	81.0
TS6G112-24-24	1 1/2	1 1/2	8.15	207.0	5.71	145.1	2.38	60.3	4.63	117.6
TS6G112-32-32	2	2	9.08	230.6	6.59	167.5	2.81	71.4	4.26	108.1

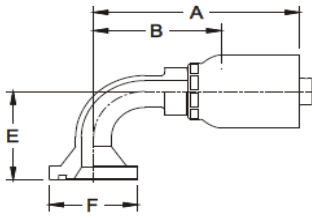
TS7G112/SAE Code 61 Flange 67.5° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS7G112-12-12	3/4	3/4	4.09	104.0	2.52	64	1.50	38.1	2.20	56.0
TS7G112-16-16	1	1	4.84	123.0	3.39	86	1.75	44.5	2.80	71.0
TS7G112-20-20	1 1/4	1 1/4	5.98	152.0	4.21	107	2.00	50.8	3.35	85.0
TS7G112-24-24	1 1/2	1 1/2	7.75	196.8	5.10	129.6	2.38	60.3	4.09	103.8
TS7G112-32-32	2	2	8.98	228.0	6.28	159.4	2.81	71.4	4.55	115.6

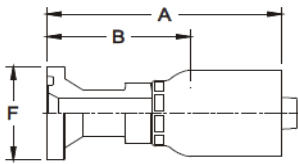
12 SERIES FITTING

TS9G112/SAE Code 61 Flange 90° Elbow



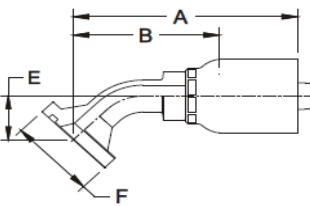
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9G112-12-12	3/4	3/4	3.51	89.0	2.13	54	1.50	38.1	2.28	58.0
TS9G112-12-12D130	3/4	3/4	3.53	90.0	2.16	55	1.50	38.1	5.12	130.0
TS9G112-16-12	1	3/4	3.52	89.0	2.14	54	1.75	44.5	2.28	58.0
TS9G112-16-12D130	1	3/4	3.52	89.0	2.14	54	1.75	44.5	5.12	130.0
TS9G112-16-16	1	1	4.36	111.0	2.58	66	1.75	44.5	2.76	70.0
TS9G112-16-16D130	1	1	4.36	111	2.58	66	1.75	44.5	5.12	130.0
TS9G112-20-16	1 1/4	1	4.36	111	2.58	66	2.00	50.8	2.76	70.0
TS9G112-20-16D100	1 1/4	1	4.36	111	2.58	66	2.00	50.8	3.94	100.0
TS9G112-20-20	1 1/4	1 1/4	5.39	137	3.70	94	2.00	50.8	3.54	90.0
TS9G112-20-20D100	1 1/4	1 1/4	5.39	137	3.70	94	2.00	50.8	3.94	100.0
TS9G112-20-20D130	1 1/4	1 1/4	5.39	137	3.70	94	2.00	50.8	5.12	130.0
TS9G112-24-20	1 1/2	1 1/4	5.09	129	3.41	86	2.38	60.3	3.54	90.0
TS9G112-24-24	1 1/2	1 1/2	6.42	163	4.23	107	2.38	60.3	4.09	104.0
TS9G112-32-32	2	2	7.78	198	5.58	142	2.81	71.4	4.72	120.0

TS1G212/SAE Code 62 Flange Straight



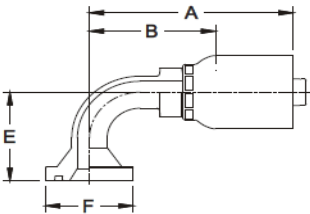
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1G212-12-12	3/4	3/4	4.12	105	2.74	70	1.63	41.3
TS1G212-16-12	1	3/4	3.10	79	1.72	44	1.88	47.6
TS1G212-16-16	1	1	4.89	124	3.11	79	1.88	47.6
TS1G212-20-16	1 1/4	1	3.68	93	1.90	48	2.13	54.0
TS1G212-20-20	1 1/4	1 1/4	5.01	127	3.32	84	2.13	54.0
TS1G212-24-24	1 1/2	1 1/2	6.34	161	4.15	105	2.50	63.5
TS1G212-32-32	2	2	7.16	182	4.96	126	3.13	79.4

TS4G212/SAE Code 62 Flange 45° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4G212-12-12	3/4	3/4	3.89	99.0	2.51	64	1.63	41.3	1.06	27.0
TS4G212-16-12	1	3/4	4.69	119.0	3.31	84	1.88	47.6	1.22	31.0
TS4G212-16-16	1	1	4.83	123.0	3.05	78	1.88	47.6	1.26	32.0
TS4G212-20-16	1 1/4	1	4.83	123.0	3.06	78	2.13	54.0	1.26	32.0
TS4G212-20-20	1 1/4	1 1/4	5.61	142.0	3.92	100	2.13	54.0	1.50	38.0
TS4G212-24-24	1 1/2	1 1/2	6.80	173	4.61	117	2.50	63.5	1.73	44.0

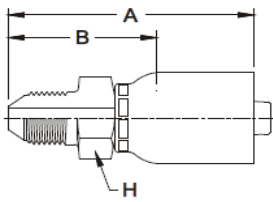
TS9G212/SAE Code 62 Flange 90° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9G212-12-12	3/4	3/4	3.51	89.0	2.13	54	1.63	41.3	2.28	58.0
TS9G212-12-12D100	3/4	3/4	3.51	89.0	2.13	54	1.63	41.3	3.94	100.0
TS9G212-16-12	1	3/4	3.52	89.0	2.14	54	1.88	47.6	2.28	58.0
TS9G212-16-12D90	1	3/4	3.52	89.0	2.14	54	1.88	47.6	3.54	90.0
TS9G212-16-16	1	1	4.35	110.0	2.57	65	1.88	47.6	2.76	70.0
TS9G212-16-16D130	1	1	4.35	110	2.57	65	1.88	47.6	5.12	130.0
TS9G212-20-16	1 1/4	1	4.36	111	2.58	66	2.13	54.0	2.76	70.0
TS9G212-20-20	1 1/4	1 1/4	5.18	132	3.50	89	2.13	54.0	3.54	90.0
TS9G212-20-20D130	1 1/4	1 1/4	5.39	137	3.70	94	2.13	54.0	4.72	120.0
TS9G212-24-24	1 1/2	1 1/2	6.32	161	4.13	105	2.50	63.5	4.09	104.0
TS9G212-32-32	2	2	7.78	198	5.58	142	3.13	79.4	4.88	124.0

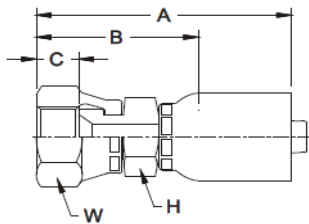
13 SERIES FITTING

TS1Y13/Male JIS 37°



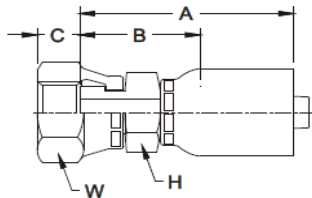
Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
	NPTF		inch	mm		inch	mm
TS1Y13-16-16	1-5/16X12	1	3.81	97	1-3/8	1.96	50

TS1X13/Female JIS 37° Swivel



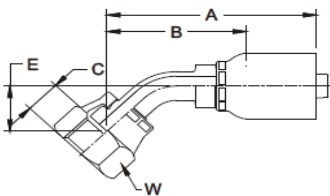
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	UN		inch	mm			inch	mm	inch	mm
TS1X13-12-12	1-1/16X12	3/4	3.65	93	1-1/8	1-1/4	1.89	48	0.56	14.2
TS1X13-16-16	1-5/16X12	1	4.02	102	1-3/8	1-1/2	2.17	55	0.60	15.2
TS1X13-20-20	1-5/8X12	1 1/4	4.91	125	1-3/4	2	2.52	64	0.62	15.7
TS1X13-24-24	1-7/8X12	1 1/2	5.03	128	2	2-1/4	2.82	72	0.74	18.8
TS1X13-32-32	2-1/2X12	2	5.89	150	2-1/2	2-7/8	3.32	84	0.93	23.6

TS1R13/Female Swivel Straight O-Ring Face Seal



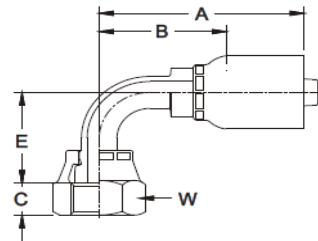
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	UN		inch	mm			inch	mm	inch	mm
TS1R13-12-12	1-3/16X12	3/4	3.17	81	1-1/8	1-3/8	1.41	36	0.54	13.7
TS1R13-12-12	1-3/16X12	3/4	3.17	81	1-1/8	1-3/8	1.41	36	0.54	13.7
TS1R13-12-12M	1-3/16X12	3/4	3.17	81	32	36	1.41	36	0.54	13.7

TS4R13/Female Swivel 45° Elbow O-Ring Face Seal



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	UN		inch	mm		inch	mm	inch	mm	
TS4R13-12-12	1-3/16X12	3/4	4.11	104	1-3/8	2.35	60	0.83	21	0.54
TS4R13-12-12M	1-3/16X12	3/4	4.11	104	36	2.35	60	0.83	21	0.54
TS4R13-16-16	1-7/16X12	1	4.69	119	1-5/8	2.84	72	0.94	24	0.55
TS4R13-16-16M	1-7/16X12	1	4.69	119	41	2.84	72	0.94	24	0.55

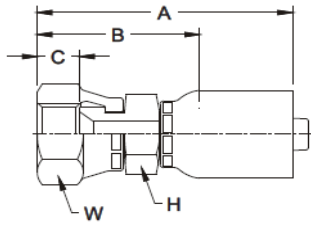
TS9R13/Female Swivel 90° Elbow (Short) O-Ring Face Seal



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	UN		inch	mm		inch	mm	inch	mm	
TS9R13-12-12	1-3/16X12	3/4	3.97	101	1-3/8	2.21	56	1.93	49	0.54
TS9R13-12-12M	1-3/16X12	3/4	3.97	101	36	2.21	56	1.93	49	0.54
TS9R13-16-16	1-7/16X12	1	4.62	117	1-5/8	2.77	70	2.20	56	0.55
TS9R13-16-16M	1-7/16X12	1	4.62	117	41	2.77	70	2.20	56	0.55
TS9R13-16-16D100	1-7/16X12	1	4.71	120	1-5/8	2.86	73	3.94	100	0.55

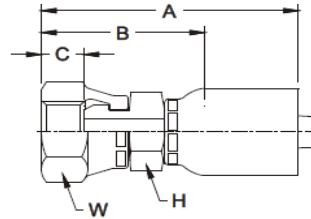
13 SERIES FITTING

TS1F13/Female JIS/BSP Parallel Pipe Swivel Straight (30° Flare)



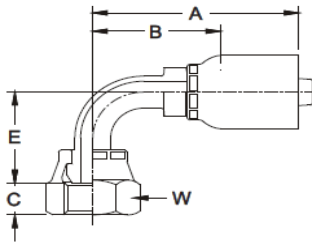
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	PF		inch	mm			inch	mm	inch	mm
TS1F13-12-12	3/4X14	3/4	3.65	93	36	36	1.89	48	0.50	12.7
TS1F13-16-16	1X11	1	3.99	101	41	41	2.14	54	0.58	14.7
TS1F13-20-20	1-1/4X11	1 1/4	4.82	122	50	50	2.43	62	0.60	15.2
TS1F13-32-32	2X11	2	5.69	145	70	70	3.12	79	0.69	17.5

TS1C13/Female JIS/BSP Parallel Pipe Swivel Straight (60° Cone)



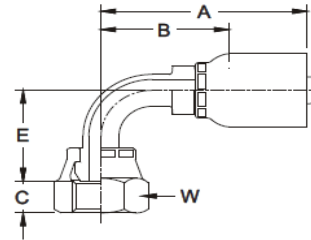
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	PF		inch	mm			inch	mm	inch	mm
TS1C13-12-12	3/4X14	3/4	3.75	95	36	36	1.99	51	0.38	9.7
TS1C13-16-16	1X11	1	4.13	105	41	41	2.28	58	0.46	11.7
TS1C13-20-20	1-1/4X11	1 1/4	4.95	126	50	50	2.56	65	0.48	12.2
TS1C13-24-24	1-1/2X11	1 1/2	5.33	135	60	60	3.12	79	0.48	12.2
TS1C13-32-32	2X11	2	5.57	142	70	70	3.00	76	0.58	14.7

TS4C13/Female JIS/BSP Parallel Pipe Swivel 45° Elbow (60° Cone)



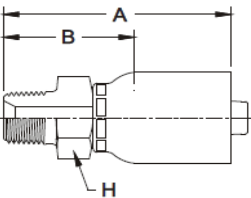
Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	PF		inch	mm		inch	mm	inch	mm	
TS4C13-12-12	3/4X14	3/4	4.99	127	36	3.23	82	1.14	29	0.38
TS4C13-16-16	1X11	1	5.15	131	41	3.30	84	1.30	33	0.46

TS9C13/Female JIS/BSP Parallel Pipe Swivel 90° Elbow (60° Cone)



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	PF		inch	mm		inch	mm	inch	mm	
TS9C13-12-12	3/4X14	3/4	4.01	102	36	2.25	57	2.17	55	0.38
TS9C13-16-16	1X11	1	4.68	119	41	2.83	72	2.83	72	0.46

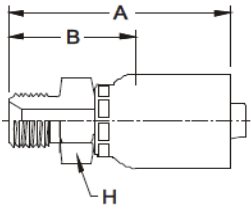
TS1P13/Male JIS/BSP Taper Pipe-Rigid Straight



Part No	Thread Size	Hose Size	A		HEX H	Cut-Off Allowance B	
	PT		inch	mm		inch	mm
TS1P13-12-12	3/4X14	3/4	3.42	87	36	1.66	42
TS1P13-16-16	1X11	1	3.77	96	41	1.92	49
TS1P13-20-20	1-1/4X11	1 1/4	4.63	118	50	2.24	57
TS1P13-24-24	1-1/2X11	1 1/2	4.54	115	60	2.33	59

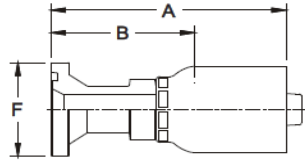
13 SERIES FITTING

TS1U13/Male JIS/BSP Parallel Pipe-Rigid Straight (30° Flare)



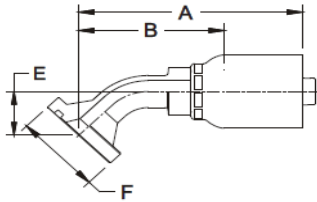
Part No	Thread Size PF	Hose Size inch	A		HEX H mm	Cut-Off Allowance B	
			inch	mm		inch	mm
TS1U13-12-12	3/4X14	3/4	3.02	77	36	1.64	42
TS1U13-16-16	1X11	1	3.53	90	41	1.75	44
TS1U13-20-20	1-1/4X11	1 1/4	3.77	96	50	2.08	53
TS1U13-24-24	1-1/2X11	1 1/2	4.40	112	60	2.21	56

TS1G113/SAE Code 61 Flange Straight



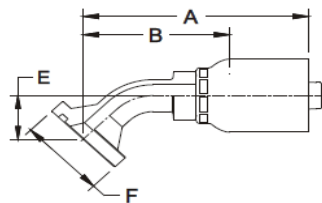
Part No	Flange Size	Hose Size inch	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1G113-12-12	3/4	3/4	4.34	110	2.58	66	1.50	38.1
TS1G113-16-16	1	1	4.59	117	2.74	70	1.75	44.5
TS1G113-20-20	1 1/4	1 1/4	5.53	140	3.14	80	2.00	50.8
TS1G113-24-24	1 1/2	1 1/2	5.16	131	2.95	75	2.38	60.3
TS1G113-32-32	2	2	6.12	155	3.55	90	2.81	71.4

TS2G113/SAE Code 61 Flange 22.5° Elbow



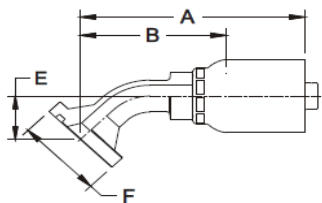
Part No	Flange Size	Hose Size inch	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS2G113-12-12	3/4	3/4	4.65	118.0	2.80	71	1.50	38.1	0.71	18.0
TS2G113-16-16	1	1	7.40	188.0	5.35	136	1.75	44.5	3.31	84.0
TS2G113-20-20	1 1/4	1 1/4	6.81	173.0	4.33	110	2.00	50.8	1.10	28.0
TS2G113-24-24	1 1/2	1 1/2	7.28	185.0	5.00	127.1	2.37	60.3	1.15	29.1
TS2G113-32-32	2	2	8.23	209.1	5.78	146.9	2.81	71.4	1.22	31.0

TS3G113/SAE Code 61 Flange 30° Elbow



Part No	Flange Size	Hose Size inch	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS3G113-12-12	3/4	3/4	4.45	113.0	2.68	68.0	1.50	38.1	0.91	23.0
TS3G113-16-16	1	1	5.28	134.0	3.74	95.0	1.75	44.5	0.98	25.0
TS3G113-20-20	1 1/4	1 1/4	6.69	170.0	4.23	107.5	2.00	50.8	1.26	32.0
TS3G113-24-24	1 1/2	1 1/2	7.26	184.5	4.17	106.0	2.37	60.3	1.52	38.5
TS3G113-32-32	2	2	8.00	203.3	5.66	143.8	2.81	71.4	1.64	41.7

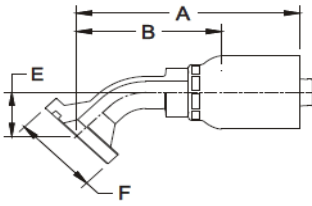
TS4G113/SAE Code 61 Flange 45° Elbow



Part No	Flange Size	Hose Size inch	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4G113-12-12	3/4	3/4	4.31	110.0	2.55	65.0	1.50	38.1	1.02	26.0
TS4G113-16-16	1	1	5.01	127.0	3.16	80.0	1.75	44.5	1.26	32.0
TS4G113-20-20	1 1/4	1 1/4	6.34	161.0	3.95	100.0	2.00	50.8	1.38	35.0
TS4G113-24-24	1 1/2	1 1/2	7.01	178.0	4.80	122.0	2.38	60.3	1.69	43.0

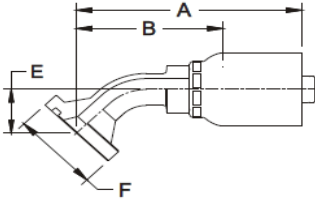
13 SERIES FITTING

TS6G113/SAE Code 61 Flange 60° Elbow



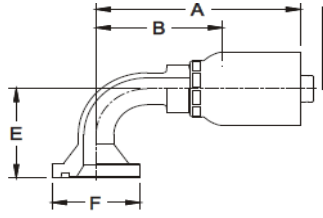
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS6G113-12-12	3/4	3/4	4.76	121.0	2.80	71.0	1.50	38.1	2.17	55.0
TS6G113-16-16	1	1	5.51	140.0	3.98	101.0	1.75	44.5	2.48	63.0
TS6G113-20-20	1 1/4	1 1/4	7.17	182.0	4.69	119.0	2.00	50.8	3.19	81.0
TS6G113-24-24	1 1/2	1 1/2	8.35	212.0	5.87	149.1	2.37	60.3	4.63	117.6
TS6G113-32-32	2	2	9.35	237.6	6.83	173.5	2.81	71.4	4.26	108.1

TS7G113/SAE Code 61 Flange 67.5° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS7G113-12-12	3/4	3/4	4.61	117.0	2.64	67.0	1.50	38.1	2.20	56.0
TS7G113-16-16	1	1	5.16	131.0	6.62	92.0	1.75	44.5	6.19	81.0
TS7G113-20-20	1 1/4	1 1/4	6.89	175.0	4.41	112.0	2.00	50.8	3.35	85.0
TS7G113-24-24	1 1/2	1 1/2	7.94	201.8	5.26	133.6	2.37	60.3	4.09	103.8
TS7G113-32-32	2	2	9.25	235.0	6.51	165.4	2.81	71.4	4.55	115.6

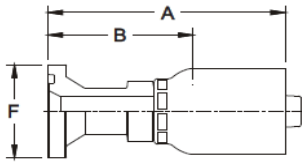
TS9G113/SAE Code 61 Flange 90° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9G113-12-12	3/4	3/4	4.02	102.0	2.26	57.0	1.50	38.1	2.28	58.0
TS9G113-12-12D90	3/4	3/4	4.02	102.0	2.26	57.0	1.50	38.1	3.54	90.0
TS9G113-12-12D130	3/4	3/4	4.02	102.0	2.26	57.0	1.50	38.1	5.12	130.0
TS9G113-16-12	1	3/4	4.03	102.0	2.27	58.0	1.75	44.5	2.28	58.0
TS9G113-16-12D80	1	3/4	4.07	103.0	2.31	59.0	1.75	44.5	3.15	80.0
TS9G113-16-12D130	1	3/4	4.07	103.0	2.31	59.0	1.75	44.5	5.12	130.0
TS9G113-16-16	1	1	4.67	118.0	2.82	72.0	1.75	44.5	2.76	70.0
TS9G113-16-16D130	1	1	4.67	118.0	2.82	72.0	1.75	44.5	5.12	130.0
TS9G113-20-20	1 1/4	1 1/4	6.77	172.0	4.38	111.0	2.00	50.8	2.99	76.0
TS9G113-24-20	1 1/2	1 1/4	7.17	182.0	4.78	122.0	2.38	60.3	3.94	100.0
TS9G113-24-24	1 1/2	1 1/2	6.52	166.0	4.30	109.0	2.38	60.3	4.09	104.0
TS9G113-32-32	2	2	8.25	210.0	5.68	144.0	2.81	71.4	4.72	120.0

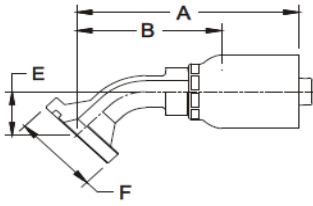
13 SERIES FITTING

TS1G213/SAE Code 62 Flange Straight



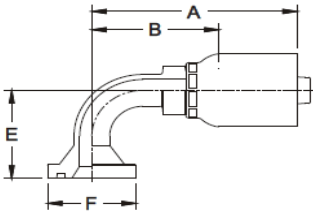
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1G213-12-12	3/4	3/4	4.60	117	2.84	72	1.63	41.3
TS1G213-16-12	1	3/4	3.58	91	1.82	46	1.88	47.6
TS1G213-16-16	1	1	5.16	131	3.31	84	1.88	47.6
TS1G213-20-16	1 1/4	1	3.95	100	2.10	53	2.13	54.0
TS1G213-20-20	1 1/4	1 1/4	5.85	149	3.46	88	2.13	54.0
TS1G213-24-20	1 1/2	1 1/4	4.77	121	2.38	60	2.50	63.5
TS1G213-24-24	1 1/2	1 1/2	6.54	166	4.33	110	2.50	63.5
TS1G213-32-32	2	2	7.63	194	5.06	128	3.13	79.4

TS4G213/SAE Code 62 Flange 45° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4G213-12-12	3/4	3/4	4.31	110.0	2.55	65.0	1.63	41.3	1.02	26.0
TS4G213-16-12	1	3/4	4.33	110.0	2.57	65.0	1.88	47.6	1.02	26.0
TS4G213-16-16	1	1	5.01	127.0	3.16	80.0	1.88	47.6	1.26	32.0
TS4G213-20-16	1 1/4	1	5.56	141.0	3.71	94.0	2.13	54.0	1.26	32.0
TS4G213-20-20	1 1/4	1 1/4	6.40	163.0	4.01	102.0	2.13	54.0	1.50	38.0
TS4G213-24-24	1 1/2	1 1/2	6.99	178.0	4.78	121.0	2.50	63.5	1.73	44.0
TS4G213-32-32	2	2	8.41	214.0	5.84	148.0	3.13	79.4	2.20	56.0

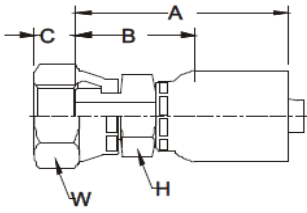
TS9G213/SAE Code 62 Flange 90° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9G213-12-12	3/4	3/4	4.00	102.0	2.24	57.0	1.63	41.3	2.28	58.0
TS9G213-12-12D80	3/4	3/4	4.00	102.0	2.24	57.0	1.63	41.3	3.15	80.0
TS9G213-12-12D130	3/4	3/4	4.02	102.0	2.26	57.0	1.63	41.3	5.12	130.0
TS9G213-16-12	1	3/4	4.00	102.0	2.24	57.0	1.88	47.6	2.28	58.0
TS9G213-16-12D90	1	3/4	4.06	103.0	2.30	58.0	1.88	47.6	3.54	90.0
TS9G213-16-16	1	1	4.63	118.0	2.78	71.0	1.88	47.6	2.76	70.0
TS9G213-16-16D130	1	1	4.70	119.0	2.85	72.0	1.88	47.6	5.12	130.0
TS9G213-20-16	1 1/4	1	4.64	118.0	2.79	71.0	2.13	54.0	2.76	70.0
TS9G213-20-16D130	1 1/4	1	4.71	120.0	2.86	73.0	2.13	54.0	5.12	130.0
TS9G213-20-20	1 1/4	1 1/4	6.09	155.0	3.70	94.0	2.13	54.0	3.54	90.0
TS9G213-20-20D147	1 1/4	1 1/4	6.09	155.0	3.70	94.0	2.13	54.0	5.79	147.0
TS9G213-24-20	1 1/2	1 1/4	7.09	180.0	4.70	119.0	2.50	63.5	4.35	111.0
TS9G213-24-24	1 1/2	1 1/2	6.52	166.0	4.30	109.0	2.50	63.5	4.09	104.0
TS9G213-24-24D140	1 1/2	1 1/2	6.54	166.0	4.33	110.0	2.50	63.5	5.51	140.0
TS9G213-32-32	2	2	7.99	203.0	5.42	138.0	3.13	79.4	5.43	138.0

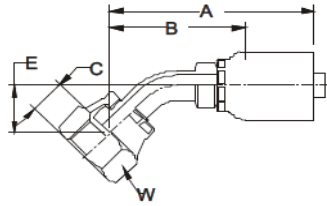
CT SERIES FITTING

TS1RCRT / Female Swivel O-Ring Face Seal



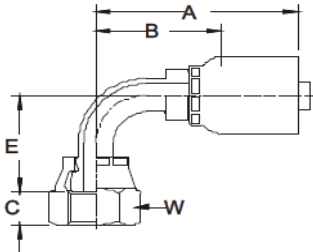
Part No	Thread Size	Hose Size	A		HEX H	HEX W	Cut-Off Allowance B		NUT C	
	UN		inch	mm	mm	mm	inch	mm	inch	mm
TS1RCT-04-04	9/16X18	1/4	1.58	40.1	17	19	1.10	28	0.32	8.1
TS1RCT-06-06	11/16X16	3/8	1.64	41.7	19	22	0.80	20.3	0.38	9.7
TS1RCT-08-08	13/16X16	1/2	1.80	45.6	22	24	1.02	26	0.43	10.9

TS4RCT/Female Swivel 45° Elbow O-Ring Face Seal



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	UN		inch	mm	mm	inch	mm	inch	mm	inch
TS4RCT-04-04	9/16X18	1/4	2.20	56	19	1.31	33.3	0.39	10	0.32
TS4RCT-06-06	11/16X16	3/8	2.42	61.5	22	1.81	30	0.43	11	0.38
TS4RCT-08-08	13/16X16	1/2	2.80	71	24	1.46	37	0.59	15	0.43

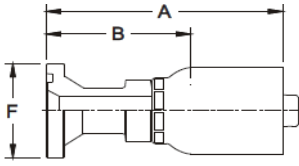
TS9RCT/Female Swivel 90° Elbow (Short) O-Ring Seal



Part No	Thread Size	Hose Size	A		HEX W	Cut-Off Allowance B		DROP E		NUT C
	UN		inch	mm	mm	inch	mm	inch	mm	inch
TS9RCT-04-04	9/16X18	1/4	1.81	46	19	0.95	24	0.83	21	0.32
TS9RCT-06-06	11/16X16	3/8	1.97	50	22	1.06	27	0.91	23	0.38
TS9RCT-08-08	13/16X16	1/2	2.25	57.2	24	1.23	31.2	1.14	29	0.43

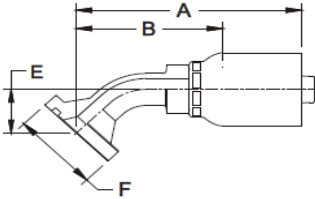
CA SERIES FITTING (420Bar Heavy Duty)

TS1CA13/SAE Code 61 Flange Straight



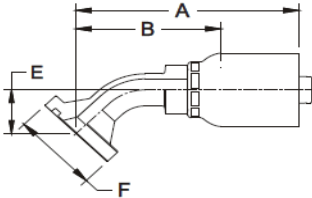
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F	
			inch	mm	inch	mm	inch	mm
TS1CA13-12-12	3/4	3/4	4.34	110	2.58	66	1.50	38.1
TS1CA13-16-16	1	1	4.59	117	2.74	70	1.75	44.5
TS1CA13-20-20	1 1/4	1 1/4	5.53	140	3.14	80	2.00	50.8
TS1CA13-24-24	1 1/2	1 1/2	5.16	131	2.95	75	2.38	60.3
TS1CA13-32-32	2	2	6.12	155	3.55	90	2.81	71.4

TS2CA13/SAE Code 61 Flange 22.5° Elbow



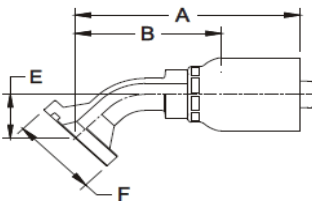
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS2CA13-12-12	3/4	3/4	4.65	118.0	2.80	71.0	1.50	38.1	0.71	18.0
TS2CA13-16-16	1	1	7.40	188.0	5.35	136.0	1.75	44.5	3.31	84.0
TS2CA13-20-20	1 1/4	1 1/4	6.81	173.0	4.33	110.0	2.00	50.8	1.10	28.0
TS2CA13-24-24	1 1/2	1 1/2	7.28	185.0	5.00	127.1	2.37	60.3	1.15	29.1
TS2CA13-32-32	2	2	8.23	209.1	5.78	146.9	2.81	71.4	1.22	31.0

TS3CA13/SAE Code 61 Flange 30° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS3CA13-12-12	3/4	3/4	4.45	113.0	2.68	68.0	1.50	38.1	0.91	23.0
TS3CA13-16-16	1	1	5.28	134.0	3.74	95.0	1.75	44.5	0.98	25.0
TS3CA13-20-20	1 1/4	1 1/4	6.69	170.0	4.23	107.5	2.00	50.8	1.26	32.0
TS3CA13-24-24	1 1/2	1 1/2	7.26	184.5	4.17	106.0	2.37	60.3	1.52	38.5
TS3CA13-32-32	2	2	8.00	203.3	5.66	143.8	2.81	71.4	1.64	41.7

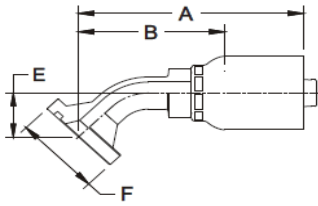
TS4CA13/SAE Code 61 Flange 45° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS4CA13-12-12	3/4	3/4	4.31	110.0	2.55	65.0	1.50	38.1	1.02	26.0
TS4CA13-16-16	1	1	5.01	127.0	3.16	80.0	1.75	44.5	1.26	32.0
TS4CA13-20-20	1 1/4	1 1/4	6.34	161.0	3.95	100.0	2.00	50.8	1.38	35.0
TS4CA13-24-24	1 1/2	1 1/2	7.01	178.0	4.80	122.0	2.38	60.3	1.69	43.0

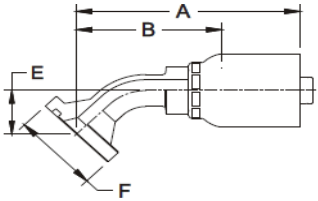
CA SERIES FITTING (420Bar Heavy Duty)

TS6CA13/SAE Code 61 Flange 60° Elbow



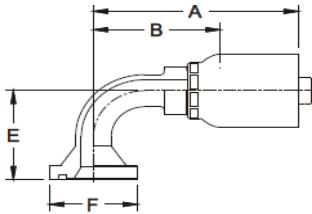
Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS6CA13-12-12	3/4	3/4	4.76	121.0	2.80	71.0	1.50	38.1	2.17	55.0
TS6CA13-16-16	1	1	5.51	140.0	3.98	101.0	1.75	44.5	2.48	63.0
TS6CA13-20-20	1 1/4	1 1/4	7.17	182.0	4.69	119.0	2.00	50.8	3.19	81.0
TS6CA13-24-24	1 1/2	1 1/2	8.35	212.0	5.87	149.1	2.37	60.3	4.63	117.6
TS6CA13-32-32	2	2	9.35	237.6	6.83	173.5	2.81	71.4	4.26	108.1

TS7CA13/SAE Code 61 Flange 67.5° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS7CA13-12-12	3/4	3/4	4.61	117.0	2.64	67.0	1.50	38.1	2.20	56.0
TS7CA13-16-16	1	1	5.16	131.0	6.62	92.0	1.75	44.5	6.19	81.0
TS7CA13-20-20	1 1/4	1 1/4	6.89	175.0	4.41	112.0	2.00	50.8	3.35	85.0
TS7CA13-24-24	1 1/2	1 1/2	7.94	201.8	5.26	133.6	2.37	60.3	4.09	103.8
TS7CA13-32-32	2	2	9.25	235.0	6.51	165.4	2.81	71.4	4.55	115.6

TS9CA13/SAE Code 61 Flange 90° Elbow



Part No	Flange Size	Hose Size	A		Cut-Off Allowance B		Flange Dia. F		DROP E	
			inch	mm	inch	mm	inch	mm	inch	mm
TS9CA13-12-12	3/4	3/4	4.02	102.0	2.26	57.0	1.50	38.1	2.28	58.0
TS9CA13-12-12D90	3/4	3/4	4.02	102.0	2.26	57.0	1.50	38.1	5.12	130.0
TS9CA13-12-12D130	3/4	3/4	4.02	102.0	2.27	58.0	1.75	44.5	2.28	58.0
TS9CA13-16-12	1	3/4	4.03	102.0	2.27	58.0	1.75	44.5	3.15	80.0
TS9CA13-16-12D80	1	3/4	4.07	103.0	2.31	59.0	1.75	44.5	5.12	130.0
TS9CA13-16-12D130	1	3/4	4.07	103.0	2.31	59.0	1.75	44.5	5.12	130.0
TS9CA13-16-16	1	1	4.67	118.0	2.82	72.0	1.75	44.5	2.76	70.0
TS9CA13-16-16D130	1	1	4.67	118.0	2.82	72.0	1.75	44.5	5.12	130.0
TS9CA13-20-20	1 1/4	1 1/4	6.77	172.0	4.38	111.0	2.00	50.8	2.99	76.0
TS9CA13-24-20	1 1/2	1 1/4	7.17	182.0	4.78	122.0	2.38	60.3	3.94	100.0
TS9CA13-24-24	1 1/2	1 1/2	6.52	166.0	4.30	109.0	2.38	60.3	4.09	104.0
TS9CA13-32-32	2	2	8.25	210.0	5.68	144.0	2.81	71.4	4.72	120.0

For further information please contact our office below, or visit our website at www.gmors.com.sg

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