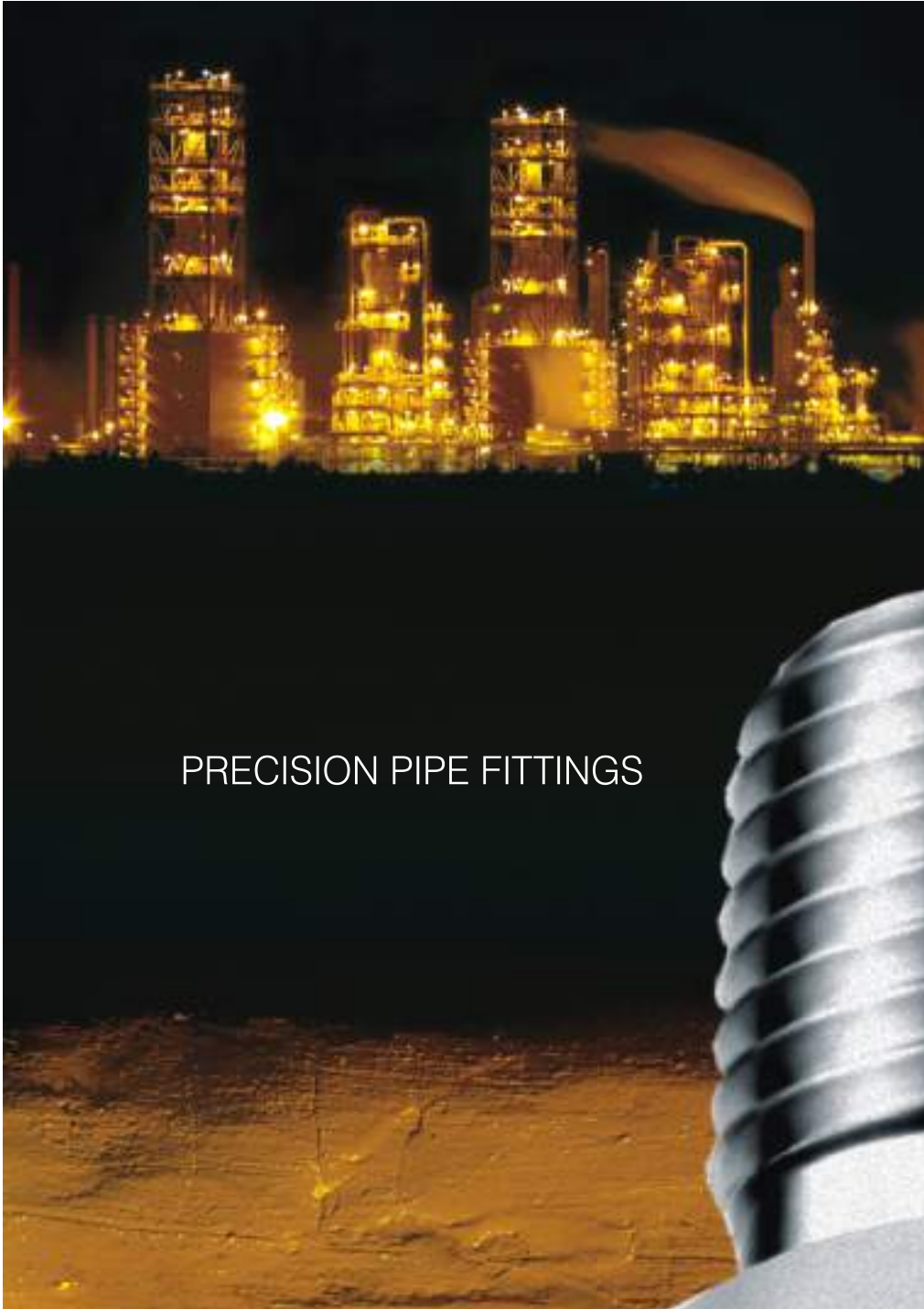


FIT&FORGET™



PRECISION PIPE FITTINGS



the story of the 'FIT & FORGET' Fittings.....

Founded by Late Mr. Avtar Singh Kohli in the year 1965, 'ASTECC' rolled the first batch of quality fittings & valves from a small engineering workshop with limited resources in Mumbai, India. We were the first Indian company to have developed the Compression Tube Fittings and Valves range for the Nuclear Power Plants in India. ASTEC's key asset has been its people, which comprise of qualified & experienced team that has been trained regularly to support most major oil and gas, power, other operating companies around the world.

India's no. 1

	<p>2004 'RASHTRIYA EKTA AWARD' (National Unity Award, Rajiv Gandhi Award for services to the nations Oil, Gas & Alternate Fuel Industry)</p>
<p>2003 'RASHTRIYA UDYOG AWARD' (National Industry Award)</p>	
	<p>Certified to ISO9001: 2000 PED 97/23/EC - European Union, AD 2000 MERKBLATT - Germany, CE 0038, Type Tested by Det Norske Veritas, others.</p>
<p>Since 1965. 400% Growth since we went Global. Over a MILLION fluid components installations in over 30 countries.</p>	
	<p>Completely AIR-CONDITIONED, Dust Free factory environment with CNC machining capability.</p>

Contents...

Brief Introduction	1.
Quality	1.
Features	1.
Pressure & Temperature Rating	1.
Pipe Information	1.
Pipe Thread Specification	2.
Pipe End Pressure Rating	2.
SAE/MS Pressure Rating	2.
O-Seal Pressure Rating	2.
ISO Parallel Pipe Thread Installation	3.
Gasket, O-Ring Materials	3.
SAE/MS Straight Thread Installation	3.
O-Rings for SAE/MS Fitting Boss	3.
O-Rings for ISO Positional Parallel Threads	3.
SAE/MS Straight Thread Boss	4.
ISO Internal Parallel Thread	4.
Product Index	5 - 8.
Product Dimensional Data	9 - 28.
Caution	29.
Ordering Information	29.

Brief Introduction

ASTEC® has been the Nos.1 manufacturing Instrument Valves & Fittings company of India for the Process, Control & Instrumentation industry. This catalogue will give you detailed information of the Instrument Valves and accessories that are used in various applications. Available in a variety of material choices and end connections ASTEC® valves are manufactured from carefully selected Raw Material from around the globe. We have a vast experience in designing & manufacturing valves for various applications needs of our customers i.e. Emerson, WIKA, Yokogawa others.

Quality

ASTEC® Quality Management System has been certified to comply with the requirements of ISO 9001:2000 Standard. This confirms commitment of ASTEC® towards Quality. Above this, all Astec Tubelok fittings are manufactured to the Technical Design specifications and Stringent Quality Control with the use of SPC and SQC techniques.

With the help of Statistical techniques, Astec Production Team is able to find out timely, meaningful feedback, which ultimately helps in continually improving the Process capability.

Quality is taken care on each and every product right from the conceptual phase with the help of DFMEA and further PFMEA. Astec products are been tested by reputed Agencies like DNV, Lloyds, others in accordance with BS 4368 Pt. IV.

Features

Straight Bodies machined from ASTM Bar Stock and Bend Bodies machined from Close Grain Forgings.

Available in different Exotic Materials.

External Threads are capped to avoid damages. CNC machined with superior finish for Instrument applications.

Working Pressure are calculated in accordance with Power Piping code ANSI B13.1 & Refinery Piping code ANSI B31.3

Pipe Threads are available in NPT and exceeds the requirement of ANSI B 1.20.1., BSPT (ISO 7/1) BSPP (ISO 228/1).

Straight Bodies machined from ASTM Bar Stock and Bend Bodies machined from Close Grain Forgings.

Available in different Exotic Materials.

External Threads are capped to avoid damages

Pressure Ratings

Material	Allowable Stress Value
SS 316	20,000 psig (1378 bar)
Brass	10,000 psig (689 bar)
Carbon Steel	20,000 psig (1378 bar)

Temperature Ratings

Material	Max. Temperature
SS 316	1000 degree F
Brass	400 degree F
Carbon Steel	375 degree F

The above ratings are based on ASME Code for Pressure Piping B31.3 process Piping, at ambient Temperature.

For determining pressure ratings in accordance with V31.1 Power Piping, multiply 0.94 for Stainless Steel, 0.75 for Carbon Steel and Brass remains the same.

To determine Pressure rating in Mega Pascal (Mpa), multiply bar by 0.10.

Pipe Information

A hollow, elongated metallic structure used to convey fluid is defined as a Pipe. Pipe sizes, however are not what it is expected.

For e.g 1/4" Nominal Bore (NB) Pipe has an outside diameter of 0.540". 1/2" NB Pipe has an actual Outside diameter of 0.840". Wall thickness, expressed by a schedule number may vary. The Wall thickness and Pressure ratings re directly proportional to the Schedule number. For eg. Greater the Wall thickness, higher the schedule number and higher the pressure rating of pipe. The table below shows the Actula Outside diameter with respect to Pipe size in NB.

Pipe Size	NPT Pipe Thread	Actual Outside Diameter
1/8" NB	1/8" - 27	0.405 / 10.3 mm
1/4" NB	1/4" - 18	0.540 / 13.7 mm
3/8" NB	3/8" - 18	0.675 / 17.1 mm
1/2" NB	1/2" - 14	0.840 / 21.3 mm
3/4" NB	3/4" - 14	1.050 / 26.7 mm
1" NB	1" - 11-1/2	1.315 / 33.4 mm
1-1/4" NB	1-1/4" - 11-1/2	1.662 / 42.2 mm
1-1/2" NB	1-1/2" - 11-1/2	1.902 / 48.3 mm

Pipe Thread Specification

Thread Type	NPT	ISOP / BSP	ISOT / BSPT	SAE
Reference specification	ASME B1.20.1, ASME	ISO 228, BS 2779, JIS B 0202	ISO 7, BS 21, JIS B 0203	SAE As71051

CAUTION : While Assembling Tapered threads, a thread sealant / PTFE Tape shall always be used (Refer Astec Installation Manual for more information).

Pipe End Pressure Rating

A Tube Fitting has both Tube Ends as well as Pipe Ends. The Lowest Pressure Rating of the two will determine the Pressure Rating of the Tube Fitting. The Pipe end Pressure Rating chart is as under.

Pressure Rating Calculations (Ref. ASME B 31.3 - Code for Process Piping)

NPT/ISO Pipe Size in.	SS 316 and Carbon Steel				Brass			
	Male		Female		Male		Female	
	Kpa	bar	Kpa	bar	Kpa	bar	Kpa	bar
1/16	75790	760	46163	460	37895	380	0	230
1/8	68900	690	44785	440	34450	340	0	220
1/4	55120	550	45474	450	27560	270	0	220
3/8	53742	540	36517	360	26871	270	0	180
1/2	53053	530	33761	330	26182	260	0	160
3/4	50297	500	31694	320	24804	250	0	160
1	36517	370	30316	300	17914	180	0	150
1-1/4	41340	410	34450	350	20670	200	0	170
1-1/2	34450	340	31694	310	17225	170	0	150
2	26871	270	26871	270	13091	130	0	130

For SS 316 multiply psi by 0.94
 For Carbon Steel multiply psi by 0.75
 For Brass the ratings remain same.
 To determine Working psi divide kPa by 6.89

To determine working Psig, divide Kpa by 6.89

SAE/MS Pressure Ratings

Pressure Rating Calculations (Ref. SAE J 1926/3)

SAE/MS Thread Size	SS 316 and Carbon Steel			
	Nonpositionable		Positionable	
	Kpa	bar	Kpa	bar
5/16-24			31474	315
7/16-20			31474	315
1/2-20	31474	315		
9/16-18			24983	250
3/4-16			24983	250
7/8-14	24983	250	19981	200
1-1/16-12			19981	200
1-3/16-12	19981	200	15985	160
1-5/16-12			15985	160
1-5/8-12	15985	160	12492	125
1-7/8-12			12492	125
2-1/2-12	12492	125	9991	100

To determine working Psig, divide Kpa by 6.89

Materials	Allowable Stress Value		Design Factor	Ultimate Tensile Strength	
	psi	bar		psi	bar
SS 316	20,000	1378	3.75 : 1	75,000	5170
Brass	10,000	689	4:01	40,000	2760
Steel	20,000	1378	3:01	60,000	4140

Stress values (Ref. ASME B 31.3 - Code for Process Piping)

O-Seal Pressure Ratings

O-Seal Fittings are rated for 3000 psi / 206 bars.

Note: Some Fittings with SAE/MS, O-Seal and AN may have lower Pressure Ratings. For more information contact team ASTEC.



ISO parallel Pipe Thread Installation

Reference Standards : ISO 228/1 and 7/1 (also BS 2779 - BSPP, DIN - ISO 2281, JIS B 0202.



ISOP / RS

Used with Bonded Washer Seals, usually of Metal and Elastomer.



ISOP / RP

Used with Gasket, usually Copper.



ISOP / RG

Used with Gasket, usually Copper to seal at the bottom of Female Threads of Pressure Gauges.

Gasket, O-ring for Adapter Fittings

Component	Material	Max. Temperature in Degree Degree F	Min Temperature in degree F
RS Gaskets	Buna N , Fluorocarbon (FKM)	230	-13
RG, RP Gaskets	Copper	400	-235
SAE O-Rings	Fluorocarbon (FKM)	400	-20

SAE/MS Straight Thread Fittings Installation

1. Use appropriate lubricant compatible with the system and environment.
2. Install the SAE/MS thread fitting over the boss until the metal washer touches the face of it.
3. Position the fitting as required and backed out of no more than ONE turn counterclockwise.
4. Use proper wrench and tighten the lock nut until the washer touches the face of the boss.
5. SAE/MS fittings are compatible with J1926, MS16142 and JIC female straight thread O-Ring bosses.

O-Rings for SAE/MS Fitting Boss

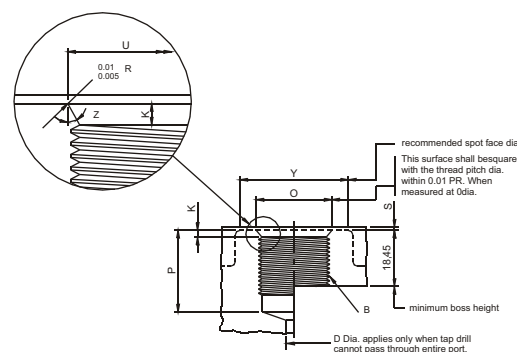
Port size (in)	Uniform Size Number	Ordering Number
1/8	902	SM-OR-902
3/16	903	SM-OR-903
1/4	904	SM-OR-904
5/16	905	SM-OR-905
3/8	906	SM-OR-906
1/2	908	SM-OR-908
5/8	910	SM-OR-910
3/4	912	SM-OR-912
7/8	914	SM-OR-914
1	916	SM-OR-916
1-1/4	920	SM-OR-920
1-1/2	924	SM-OR-924
2	932	SM-OR-932

O-Rings for ISO Positional Parallel Threads

Port size (in)	Uniform Size Number	Ordering Number
1/8	502 [Ⓢ]	IP-OR-502
1/4	111	IP-OR-111
3/8	113	IP-OR-113
1/2	508 [Ⓢ]	IP-OR-508
3/4	119	IP-OR-119
1	217	IP-OR-217

SAE/MS Straight Thread Boss

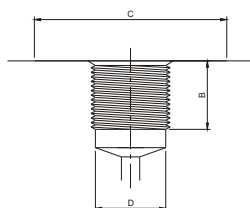
1. Use appropriate lubricant compatible with the system and environment.
2. Install the SAE/MS thread fitting over the boss until the metal washer touches the face of it.
3. Position the fitting as required and backed out of no more than ONE turn counterclockwise.
4. Use proper wrench and tighten the lock nut until the washer touches the face of the boss.
5. SAE/MS fittings are compatible with J1926, MS16142 and JIC female straight thread O-Ring bosses.



Data SAE/MS Straight Threaded Boss (In inches)

B Straight Threads		Pitch Dia		Minor Dia		D Dia	Full Thread Depth		K	O Dia	P	S	U Dia	Y Dia	Z
Nom Tube OD	Thread size	Min	Max	Min	Max	Min	Min	+0.015 -0.000	Min	Min	Max	+0.015 -0.000			
		+/- 1 Deg													
1/8	5/16-24	0.2854	0.2902	0.267	0.277	0.062	0.39	0.074	0.438	0.468	0.062	0.358	0.672	12	
3/16	3/8-24	0.3479	0.3528	0.330	0.340	0.125	0.390	0.074	0.5	0.468	0.062	0.421	0.75	12	
1/4	7/16-20	0.4050	0.4104	0.383	0.395	0.172	0.454	0.093	0.563	0.547	0.062	0.487	0.828	12	
5/16	1/2-20	0.4675	0.4731	0.446	0.457	0.234	0.454	0.093	0.625	0.547	0.062	0.55	0.906	12	
3/8	9/16-18	0.5264	0.5323	0.502	0.515	0.297	0.500	0.097	0.688	0.609	0.062	0.616	0.969	12	
1/2	3/4-16	0.7094	0.7159	0.682	0.696	0.391	0.562	0.100	0.875	0.688	0.094	0.811	1.188	15	
5/8	7/8-14	0.8286	0.8356	0.798	0.814	0.484	0.656	0.100	1	0.781	0.094	0.942	1.344	15	
3/4	1-1/16-12	1.0084	1.0158	0.972	0.990	0.609	0.750	0.130	1.25	0.906	0.094	1.148	1.625	15	
7/8	1-3/16-12	1.1334	1.1409	1.097	1.115	0.719	0.750	0.130	1.375	0.906	0.094	1.273	1.765	15	
1	1-5/16-12	1.2584	1.2659	1.222	1.240	0.844	0.750	0.130	1.5	0.906	0.125	1.398	1.91	15	
1-1/4	1-5/8-12	1.5709	1.5785	1.535	1.553	1.078	0.750	0.132	1.875	0.906	0.125	1.713	2.27	15	
1-1/2	1-7/8-12	1.8209	1.8287	1.785	1.803	1.312	0.750	0.132	2.125	0.906	0.125	1.962	2.56	15	
2	2-1/2-12	2.4459	2.4540	2.410	2.428	1.781	0.750	0.132	2.75	0.906	0.125	2.587	3.48	15	

ISO Internal Parallel Thread



ISO Female Parallel Pipe size	B	D	C	C
	Min. Full Thread Depth	Thread Minor Dia	Min. Flat Dia for RS, RP	Min. Flat Dia for PME, PMBT, PMRT
1/8	0.31	0.337/0.348	0.59	0.68
1/4	0.47	0.450/0.468	0.75	0.9
3/8	0.47	0.588/0.606	0.91	1.04
1/2	0.55	0.733/0.755	1.06	1.26
3/4	0.63	0.949/0.971	1.3	1.62
1	0.71	1.193/1.218	1.57	1.91

Close Nipple



NPT (M) X NPT (M)
Page 9

Hex Nipple



NPT (M) X NPT (M)
Page 9

Hex Reducing Nipple



NPT (M) X NPT (M)
Page 9

Hex Long Nipple



NPT (M) X NPT (M)
Page 10

Adapter



NPT (F) X NPT (M)
Page 10

Reducing Adapter



NPT (F) X NPT (M)
Page 10

Reducing Bushing



NPT (M) X NPT (F)
Page 11

Hex Coupling



NPT (F) X NPT (F)
Page 11

Hex Reducing Coupling



NPT (F) X NPT (F)
Page 12

Elbow Female



NPT (F) X NPT (F)
Page 12

Elbow Street



NPT (F) X NPT (M)
Page 13

Elbow Reducing Street



NPT (F) X NPT (M)
Page 13

Male Elbow



NPT (M) X NPT (M)
Page 14

45° Elbow Female



NPT (F) X NPT (F)
Page 14

45° Elbow Street



NPT (F) X NPT (M)
Page 14

Tee Female



NPT (F) X NPT (F) X NPT (F)
Page 15

Tee Street



NPT (F) X NPT (M) X NPT (F)
Page 15

Tee Branch



NPT (F) X NPT (F) X NPT (M)
Page 15

Tee Male



NPT (M) X NPT (M) X NPT (M)
Page 16

Cross Female



NPT (F) X 4 SIDES
Page 16

PRECISION PIPE FITTING (1/16" - 2" NPT)

Union Ball Joint



NPT (F) X NPT (F)

Page 16

Hex Female Cap



NPT (F)

Page 17

Hex Male Plug



NPT (M)

Page 17

Allen Plug



NPT (M)

Page 17

PRECISION PIPE FITTING (1/8" - 1/2" BSPT/ISOT)

Hex Nipple



ISOT (M) X ISOT (M)

Page 18

Adapter



ISOT (F) X ISOT (M)

Page 18

Reducing Adapter



ISOT (F) X ISOT (M)

Page 18

Reducing Bushing



ISOT (M) X ISOT (F)

Page 18

Hex Coupling



ISOT (F) X ISOT (F)

Page 19

Hex Reducing Coupling



ISOT (F) X ISOT (F)

Page 19

Elbow Female



ISOT (F) X ISOT (F)

Page 19

Tee Female



ISOT (F) X ISOT (F) X ISOT (F)

Page 19

PRECISION PIPE FITTING (SAE/MS)

Hex SAE Plug



UNF (M)

Page 20

Allen SAE Plug



UNF (M)

Page 20

SAE Adapter



UNF (F) X UNF (M)

Page 20

SAE Adapter



SAE-(M) X NPT (F)

Page 20

ADAPTER FITTING

Hex Nipple



NPT (M) X ISOT (M)

Page 21

Hex Nipple



ISOP (M) X NPT (M)

Page 21

Hex Nipple



SAE/MS X NPT (M)

Page 21

Adapter



NPT (F) X ISOT (M)

Page 21

Adapter



NPT (F) X ISOP (M)

Page 22

Adapter



ISOT (F) X NPT (M)

Page 22

RS Bonded Gasket



Page 22

RP Fitting Gasket



Page 22

RG Fitting Gasket



Page 23

Hex Pipe Plug



BSPT (M)

Page 23

Hex Pipe Plug



BSPP (M)

Page 23

Gauge Adapter



ISOP (F) X NPT (M)

Page 23

WELD FITTING

Male Connector



FTSW X NPT (M)

Page 24

Male Elbow



FTSW X NPT (M)

Page 24

Female Connector



FTSW X NPT (F)

Page 24

Female Elbow



FTSW X NPT (F)

Page 24

Union



FTSW ENDS

Page 25

Union Elbow



FTSW ENDS

Page 25

Union Tee



FTSW ENDS

Page 25

Union Cross



FTSW ENDS

Page 25



WELD FITTING

Reducing Adapter



FTBW OR FTSW X TSW

Page 26

Reducing Adapter



FPBW OR PIPE SW X TUBE SW

Page 26

Union



PSW ENDS

Page 26

HOSE ADAPTER

Hose Tube Adapter



Fractional Stub
X Serreted Hose Ends

Page 27

Hose Male Adapter



Serreted Hose Ends X NPTM

Page 27

Hose Tube Adapter Swaged



Hose Ends
X Astec Tube Swaged

Page 27

Hose Connector Sleeve



Fractional Tube

Page 27

Barbed Male Adapter



Barbed X Male Pipe

Page 28

Barbed Tube Adapter



Barbed X Stub

Page 28

Hose Port Connector-Serreted

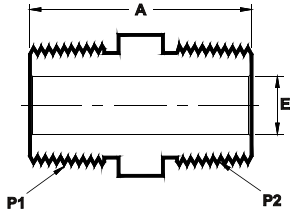
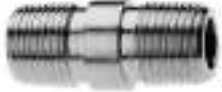


Hose Ends X Stub

Page 28

Close Nipple

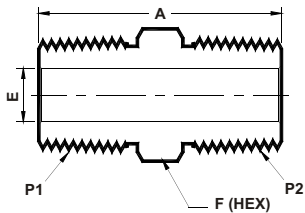
NPT (M) X NPT (M)



ASTEC Part No.	P1 NPT (M)	P2 NPT (M)	A	E
1N-CN	1/16	1/16	1.01	0.12
2N-CN	1/8	1/8	1.01	0.19
4N-CN	1/4	1/4	1.43	0.28
6N-CN	3/8	3/8	1.43	0.38
8N-CN	1/2	1/2	1.84	0.47
12N-CN	3/4	3/4	1.84	0.62
16N-CN	1	1	2.32	0.88
20N-CN	1-1/4	1-1/4	2.36	1.10
24N-CN	1-1/2	1-1/2	2.68	1.32
32N-CN	2	2	2.76	1.76

Hex Nipple

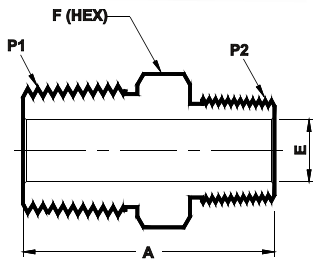
NPT (M) X NPT (M)



ASTEC Part No.	P1 NPT (M)	P2 NPT (M)	A	E	F (Hex)
1N-HN	1/16	1/16	1.01	0.12	7/16
2N-HN	1/8	1/8	1.01	0.19	7/16
4N-HN	1/4	1/4	1.43	0.28	9/16
6N-HN	3/8	3/8	1.43	0.38	23/32
8N-HN	1/2	1/2	1.84	0.47	7/8
12N-HN	3/4	3/4	1.84	0.62	1-1/16
16N-HN	1	1	2.32	0.88	1-3/8
20N-HN	1-1/4	1-1/4	2.36	1.10	1-23/32
24N-HN	1-1/2	1-1/2	2.68	1.32	1-31/32
32N-HN	2	2	2.76	1.76	2-7/16

Hex Reducing Nipple

NPT (M) X NPT (M)

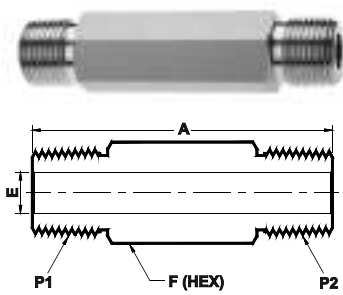


ASTEC Part No.	P1 NPT (M)	P2 NPT (M)	A	E	F (Hex)
2-HRN-1N	1/8	1/16	1.01	0.12	7/16
4-HRN-1N	1/4	1/16	1.25	0.12	9/16
4-HRN-2N	1/4	1/8	1.22	0.19	9/16
6-HRN-1N	3/8	1/16	1.27	0.12	11/16
6-HRN-2N	3/8	1/8	1.25	0.19	23/32
6-HRN-4N	3/8	1/4	1.43	0.28	23/32
8-HRN-2N	1/2	1/8	1.47	0.19	7/8
8-HRN-4N	1/2	1/4	1.65	0.28	7/8
8-HRN-6N	1/2	3/8	1.65	0.38	7/8
12-HRN-4N	3/4	1/4	1.65	0.28	1-1/16
12-HRN-8N	3/4	1/2	1.84	0.47	1-1/16
12-HRN-2N	3/4	1/8	1.59	0.19	1-1/16
16-HRN-2N	1	1/8	1.78	0.19	1-3/8
16-HRN-4N	1	1/4	1.97	0.28	1-3/8
16-HRN-6N	1	3/8	1.97	0.38	1-3/8
16-HRN-8N	1	1/2	2.13	0.47	1-3/8
16-HRN-12N	1	3/4	2.13	0.62	1-3/8
20-HRN-8N	1-1/4	1/2	2.17	0.47	1-23/32
20-HRN-12N	1-1/4	3/4	2.17	0.62	1-23/32
20-HRN-16N	1-1/4	1	2.36	0.88	1-23/32
24-HRN-8N	1-1/2	1/2	2.36	0.47	1-31/32
24-HRN-12N	1-1/2	3/4	2.36	0.62	1-31/32
24-HRN-16N	1-1/2	1	2.56	0.88	1-31/32
24-HRN-20N	1-1/2	1-1/4	2.56	1.10	1-31/32
32-HRN-12N	2	3/4	2.44	0.62	2-7/16
32-HRN-16N	2	1	2.64	0.88	2-7/16
32-HRN-20N	2	1-1/4	2.64	1.10	2-7/16
32-HRN-24N	2	1-1/2	2.75	1.32	2-7/16

Note:- All Dimension are for reference only & are subject to change.

Hex Long Nipple

NPT (M) X NPT (M)

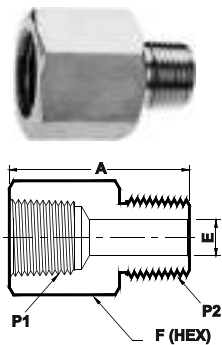


ASTEC Part No.	P1 NPT (M)	P2 NPT (M)	A	E	F (Hex)
1N-HLN	1/16	1/16	XL	0.12	7/16
2N-HLN	1/8	1/8	XL	0.19	7/16
4N-HLN	1/4	1/4	XL	0.28	9/16
6N-HLN	3/8	3/8	XL	0.38	23/32
8N-HLN	1/2	1/2	XL	0.47	7/8
12N-HLN	3/4	3/4	XL	0.62	1-1/16
16N-HLN	1	1	XL	0.88	1-3/8
20N-HLN	1-1/4	1-1/4	XL	1.10	1-23/32
24N-HLN	1-1/2	1-1/2	XL	1.32	1-31/32
32N-HLN	2	2	XL	1.76	2-7/16

Note:- To order, insert the material designator as a prefix and "XL" (length) as a suffix to the basic ordering number.
Eg. S6-32N-HLN-2. Material SS 316 and Length 2" long.

Adapter

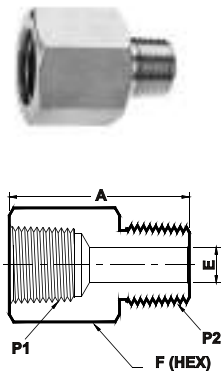
NPT (F) X NPT (M)



ASTEC Part No.	P1 NPT (F)	P2 NPT (M)	A	E	F (Hex)
2-A-2N	1/8	1/8	1.10	0.19	5/8
4-A-4N	1/4	1/4	1.40	0.28	3/4
6-A-6N	3/8	3/8	1.45	0.38	7/8
8-A-8N	1/2	1/2	1.94	0.47	1-1/16
12-A-12N	3/4	3/4	2.02	0.62	1-1/4
16-A-16N	1	1	2.28	0.88	1-23/32
20-A-20N	1-1/4	1-1/4	2.32	1.10	2-5/32
24-A-20N	1-1/2	1-1/2	2.60	1.32	2-3/8
32-A-32N	2	2	2.64	1.76	2-31/32

Reducing Adapter

NPT (F) X NPT (M)

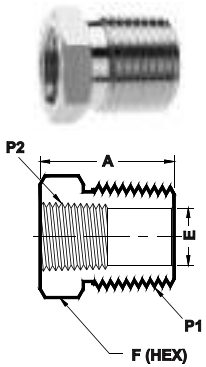


ASTEC Part No.	P1 NPT (F)	P2 NPT (M)	A	E	F (Hex)
2-RA-1N	1/8	1/16	1.03	0.12	5/8
4-RA-1N	1/4	1/16	1.20	0.12	3/4
4-RA-2N	1/4	1/8	1.26	0.19	3/4
6-RA-1N	3/8	1/16	1.25	0.12	7/8
6-RA-2N	3/8	1/8	1.33	0.19	7/8
6-RA-4N	3/8	1/4	1.50	0.28	7/8
8-RA-2N	1/2	1/8	1.58	0.19	1-1/16
8-RA-4N	1/2	1/4	1.76	0.28	1-1/16
8-RA-6N	1/2	3/8	1.75	0.38	1-1/16
12-RA-2N	3/4	1/8	1.56	0.19	1-1/4
12-RA-4N	3/4	1/4	1.75	0.28	1-1/4
12-RA-6N	3/4	3/8	1.75	0.38	1-1/4
12-RA-8N	3/4	1/2	1.95	0.47	1-1/4
16-RA-2N	1	1/8	1.81	0.19	1-23/32
16-RA-4N	1	1/4	1.96	0.28	1-23/32
16-RA-6N	1	3/8	1.97	0.38	1-23/32
16-RA-8N	1	1/2	2.16	0.47	1-23/32
16-RA-12N	1	3/4	2.17	0.62	1-23/32
20-RA-8N	1-1/4	1/2	2.09	0.47	2-5/32
20-RA-12N	1-1/4	3/4	2.09	0.62	2-5/32
20-RA-16N	1-1/4	1	2.28	0.88	2-5/32
24-RA-8N	1-1/2	1/2	2.25	0.47	2-3/8
24-RA-12N	1-1/2	3/4	2.25	0.62	2-3/8
24-RA-16N	1-1/2	1	2.44	0.88	2-3/8
24-RA-20N	1-1/2	1-1/4	2.44	1.10	2-3/8
32-RA-12N	2	3/4	2.25	0.62	2-31/32
32-RA-16N	2	1	2.44	0.88	2-31/32
32-RA-20N	2	1-1/4	2.44	1.10	2-31/32
32-RA-24N	2	1-1/2	2.56	1.32	2-31/32

Note:- All Dimension are for reference only & are subject to change.

Reducing Bushing

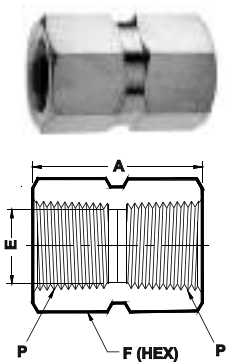
NPT (M) X NPT (F)



ASTEC Part No.	P1 NPT (M)	P2 NPT (F)	A	E	F (Hex)
2-RB-1N	1/8	1/16	1.03	0.12	7/16
4-RB-1N	1/4	1/16	0.86	0.19	9/16
4-RB-2N	1/4	1/8	1.06	0.28	5/8
4-RB-6N	1/4	3/8	0.87	0.37	3/4
6-RB-1N	3/8	1/16	0.86	0.19	23/32
6-RB-2N	3/8	1/8	0.86	0.34	23/32
6-RB-4N	3/8	1/4	1.19	0.38	3/4
8-RB-2N	1/2	1/8	1.08	0.34	7/8
8-RB-4N	1/2	1/4	1.08	0.45	7/8
8-RB-6N	1/2	3/8	1.41	0.47	7/8
12-RB-2N	3/4	1/8	1.17	0.28	1-1/16
12-RB-4N	3/4	1/4	1.08	0.45	1-1/16
12-RB-6N	3/4	3/8	1.08	0.59	1-1/16
12-RB-8N	3/4	1/2	1.63	0.62	1-1/16
16-RB-2N	1	1/8	1.36	0.28	1-3/8
16-RB-4N	1	1/4	1.37	0.45	1-3/8
16-RB-6N	1	3/8	1.37	0.59	1-3/8
16-RB-8N	1	1/2	1.37	0.73	1-3/8
16-RB-12N	1	3/4	1.85	0.88	1-3/8
20-RB-8N	1-1/4	1/2	1.42	0.71	1-23/32
20-RB-12N	1-1/4	3/4	1.42	0.92	1-23/32
20-RB-16N	1-1/4	1	1.78	1.16	1-23/32
24-RB-8N	1-1/2	1/2	1.61	0.71	1-31/32
24-RB-12N	1-1/2	3/4	1.61	0.92	1-31/32
24-RB-16N	1-1/2	1	1.61	1.16	1-31/32
24-RB-20N	1-1/2	1-1/4	1.75	1.49	2-5/32
32-RB-12N	2	3/4	1.70	0.92	2-7/16
32-RB-16N	2	1	1.70	1.16	2-7/16
32-RB-20N	2	1-1/4	1.75	1.49	2-7/16
32-RB-24N	2	1-1/2	1.75	1.73	2-7/16

Hex Coupling

NPT (F) X NPT (F)

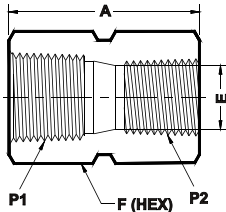


ASTEC Part No.	P NPT (F)	A	E	F (Hex)
2N-HC	1/8	0.83	0.34	5/8
4N-HC	1/4	1.19	0.45	3/4
6N-HC	3/8	1.19	0.57	7/8
8N-HC	1/2	1.56	0.71	1-1/16
12N-HC	3/4	1.57	0.91	1-1/4
16N-HC	1	2.05	1.15	1-11/16
20N-HC	1-1/4	2.05	1.47	2-5/32
24N-HC	1-1/2	2.22	1.71	2-3/8
32N-HC	2	2.22	2.19	2-31/32

Note:- All Dimension are for reference only & are subject to change.

Hex Reducing Coupling

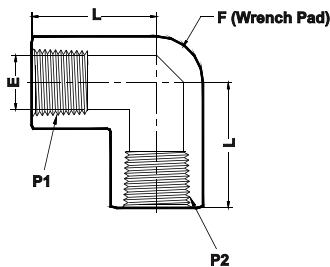
NPT (F) X NPT (F)



ASTEC Part No.	P1 NPT (F)	P2 NPT (F)	A	E	F (Hex)
4-HRC-1N	1/4	1/16	0.92	0.34	3/4
4-HRC-2N	1/4	1/8	1.22	0.34	3/4
6-HRC-1N	3/8	1/16	0.95	0.34	7/8
6-HRC-2N	3/8	1/8	1.03	0.34	7/8
6-HRC-4N	3/8	1/4	1.38	0.45	7/8
8-HRC-2N	1/2	1/8	1.56	0.34	1-1/16
8-HRC-4N	1/2	1/4	1.57	0.45	1-1/16
8-HRC-6N	1/2	3/8	1.78	0.59	1-1/16
12-HRC-2N	3/4	1/8	1.39	0.34	1-1/4
12-HRC-4N	3/4	1/4	1.81	0.45	1-1/4
12-HRC-6N	3/4	3/8	1.69	0.45	1-1/4
12-HRC-8N	3/4	1/2	1.73	0.71	1-1/4
16-HRC-2N	1	1/8	1.44	0.41	1-23/32
16-HRC-4N	1	1/4	1.63	0.45	1-23/32
16-HRC-6N	1	3/8	1.63	0.45	1-23/32
16-HRC-8N	1	1/2	2.19	0.71	1-23/32
16-HRC-12N	1	3/4	2.25	0.94	1-23/32
20-HRC-8N	1-1/4	1/2	1.73	0.71	2-5/32
20-HRC-12N	1-1/4	3/4	1.73	0.94	2-5/32
20-HRC-16N	1-1/4	1	1.87	1.15	2-5/32
24-HRC-8N	1-1/2	1/2	1.85	0.71	2-3/8
24-HRC-12N	1-1/2	3/4	1.85	0.94	2-3/8
24-HRC-16N	1-1/2	1	2.11	1.15	2-3/8
24-HRC-20N	1-1/2	1-1/4	2.11	1.47	2-3/8
32-HRC-12N	2	3/4	1.91	0.94	2-31/32
32-HRC-16N	2	1	2.11	1.15	2-31/32
32-HRC-20N	2	1-1/4	2.11	1.47	2-31/32
32-HRC-24N	2	1-1/2	2.22	1.71	2-31/32

Elbow Female

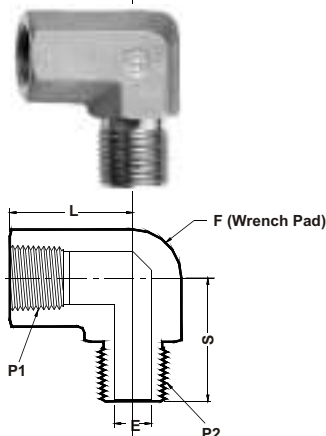
NPT (F) X NPT (F)



ASTEC Part No.	P1 NPT (F)	P2 NPT (F)	E	F	L
1-EF-1N	1/16	1/16	0.28	19/32	0.50
2-EF-2N	1/8	1/8	0.34	19/32	0.85
4-EF-4N	1/4	1/4	0.45	13/16	0.98
6-EF-6N	3/8	3/8	0.57	7/8	1.22
8-EF-8N	1/2	1/2	0.71	1-1/16	1.18
12-EF-12N	3/4	3/4	0.94	1-1/4	1.34
16-EF-16N	1	1	1.15	1-3/4	1.81
20-EF-20N	1-1/4	1-1/4	1.47	2-5/32	2.17
24-EF-24N	1-1/2	1-1/2	1.71	2-3/8	2.41
32-EF-32N	2	2	2.19	2-31/32	2.75

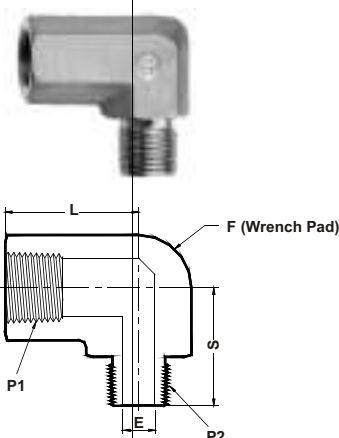
Note:- All Dimension are for reference only & are subject to change.

Elbow Street NPT (F) X NPT (M)



ASTEC Part No.	P1 NPT (F)	P2 NPT (M)	E	F	L	S
1-ES-1N	1/16	1/16	0.12	19/32	0.75	0.84
2-ES-2N	1/8	1/8	0.19	19/32	0.75	0.84
4-ES-4N	1/4	1/4	0.28	13/16	0.94	1.13
6-ES-6N	3/8	3/8	0.38	7/8	1.02	1.18
8-ES-8N	1/2	1/2	0.47	1-1/16	1.22	1.48
12-ES-12N	3/4	3/4	0.62	1-1/4	1.30	1.60
16-ES-16N	1	1	0.88	1-3/4	1.73	2.08
20-ES-20N	1-1/4	1-1/4	1.10	2-5/32	2.17	2.29
24-ES-24N	1-1/2	1-1/2	1.32	2-3/8	2.41	2.54
32-ES-32N	2	2	1.76	2-31/32	2.75	2.88

Elbow Reducing Street NPT (F) X NPT (M)

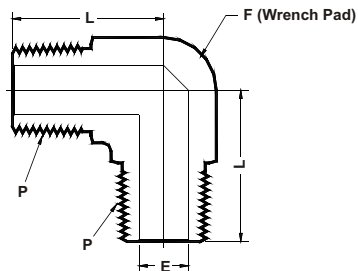


ASTEC Part No.	P1 NPT (F)	P2 NPT (M)	E	F	L	S
2-ERS-1N	1/8	1/16	0.12	19/32	0.84	0.82
4-ERS-1N	1/4	1/16	0.12	13/16	1.13	0.95
4-ERS-2N	1/4	1/8	0.19	13/16	1.13	0.95
6-ERS-1N	3/8	1/16	0.12	7/8	1.18	1.00
6-ERS-2N	3/8	1/8	0.19	7/8	1.18	1.00
6-ERS-4N	3/8	1/4	0.28	7/8	1.18	1.18
8-ERS-2N	1/2	1/8	0.19	1-1/16	1.47	1.11
8-ERS-4N	1/2	1/4	0.28	1-1/16	1.47	1.30
8-ERS-6N	1/2	3/8	0.38	1-1/16	1.47	1.30
12-ERS-2N	3/4	1/8	0.19	1-1/4	1.59	1.23
12-ERS-4N	3/4	1/4	0.28	1-1/4	1.59	1.40
12-ERS-6N	3/4	3/8	0.38	1-1/4	1.59	1.40
12-ERS-8N	3/4	1/2	0.47	1-1/4	1.59	1.60
16-ERS-2N	1	1/8	0.19	1-3/4	2.08	1.52
16-ERS-4N	1	1/4	0.28	1-3/4	2.08	1.70
16-ERS-6N	1	3/8	0.28	1-3/4	2.08	1.70
16-ERS-8N	1	1/2	0.47	1-3/4	2.08	1.89
16-ERS-12N	1	3/4	0.62	1-3/4	2.08	1.89
20-ERS-8N	1-1/4	1/2	0.47	2-5/32	2.17	2.10
20-ERS-12N	1-1/4	3/4	0.62	2-5/32	2.17	2.10
20-ERS-16N	1-1/4	1	0.88	2-5/32	2.17	2.30
24-ERS-8N	1-1/2	1/2	0.47	2-3/8	2.41	2.24
24-ERS-12N	1-1/2	3/4	0.62	2-3/8	2.41	2.24
24-ERS-16N	1-1/2	1	0.88	2-3/8	2.41	2.43
24-ERS-20N	1-1/2	1-1/4	1.10	2-3/8	2.41	2.43
32-ERS-12N	2	3/4	0.62	2-31/32	2.75	2.57
32-ERS-16N	2	1	0.88	2-31/32	2.75	2.77
32-ERS-20N	2	1-1/4	1.10	2-31/32	2.75	2.88
32-ERS-24N	2	1-1/2	1.32	2-31/32	2.75	2.88

Note:- All Dimension are for reference only & are subject to change.

Male Elbow

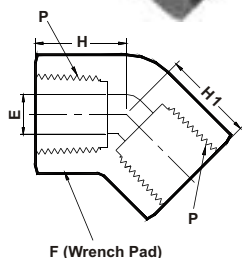
NPT (M) X NPT (M)



ASTECC Part No.	P NPT(M)	E	F	L
1N-ME	1/16	0.12	19/32	0.82
2N-ME	1/8	0.19	19/32	0.82
4N-ME	1/4	0.28	19/32	1.01
6N-ME	3/8	0.38	13/16	1.13
8N-ME	1/2	0.47	7/8	1.38
12N-ME	3/4	0.62	1-1/16	1.48
16N-ME	1	0.88	1-1/4	1.79
20N-ME	1-1/4	1.10	1-3/4	2.08
24N-ME	1-1/2	1.32	2-5/32	2.41
32N-ME	2	1.76	2-7/16	2.56

45° Elbow Female

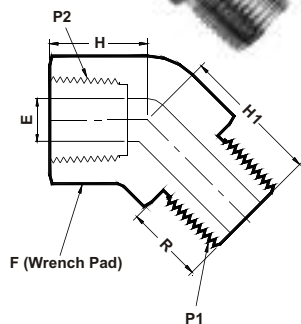
NPT (F) X NPT (F)



ASTECC Part No.	P NPT (F)	F	E	H	H1
1N-45EF	1/16	7/16	0.12	0.47	0.47
2N-45EF	1/8	9/16	0.19	0.47	0.47
4N-45EF	1/4	3/4	0.28	0.69	0.69
6N-45EF	3/8	7/8	0.38	0.75	0.75
8N-45EF	1/2	1-1/16	0.47	0.94	0.94
12N-45EF	3/4	1-5/16	0.65	1.00	1.00
16N-45EF	1	1-5/8	0.87	1.19	1.19

45° Elbow Street

NPT (F) X NPT (M)

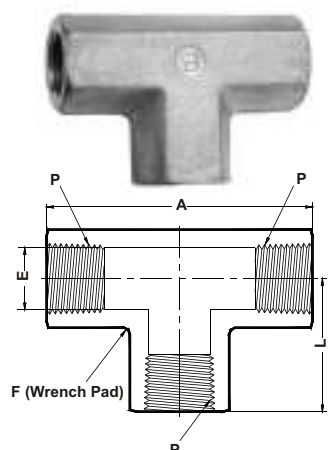


ASTECC Part No.	P1 NPT (M)	P2 NPT (F)	F	E	H	H1	R
1-45ES-1N	1/16	1/16	7/16	0.12	0.47	0.66	0.38
2-45ES-2N	1/8	1/8	9/16	0.19	0.47	0.72	0.38
4-45ES-4N	1/4	1/4	3/4	0.28	0.63	1.05	0.56
6-45ES-6N	3/8	3/8	7/8	0.38	0.72	1.06	0.56
8-45ES-8N	1/2	1/2	1-1/16	0.47	0.91	1.34	0.75
12-45ES-12N	3/4	3/4	1-5/16	0.65	0.97	1.38	0.75
16-45ES-16N	1	1	1-5/8	0.87	1.13	1.13	0.94

Note:- All Dimension are for reference only & are subject to change.

Tee Female

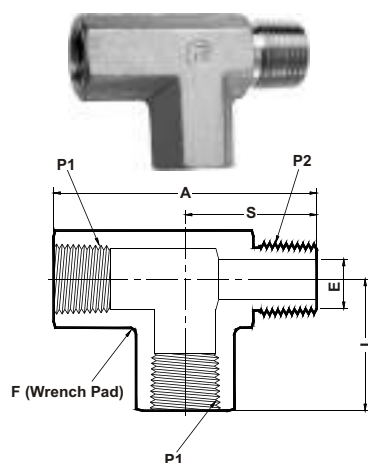
NPT (F) X NPT (F) X NPT (F)



ASTEC Part No.	P NPT (F)	A	E	F	L
1N-TF	1/16	1.70	0.24	19/32	0.85
2N-TF	1/8	1.70	0.34	19/32	0.85
4N-TF	1/4	1.96	0.45	13/16	0.98
6N-TF	3/8	2.44	0.57	7/8	1.22
8N-TF	1/2	2.36	0.71	1-1/16	1.18
12N-TF	3/4	2.68	0.91	1-1/4	1.34
16N-TF	1	3.62	1.15	1-3/4	1.81
20N-TF	1-1/4	4.34	1.47	2-5/32	2.17
24N-TF	1-1/2	4.82	1.71	2-3/8	2.41
32N-TF	2	5.50	2.19	2-31/32	2.75

Tee Street

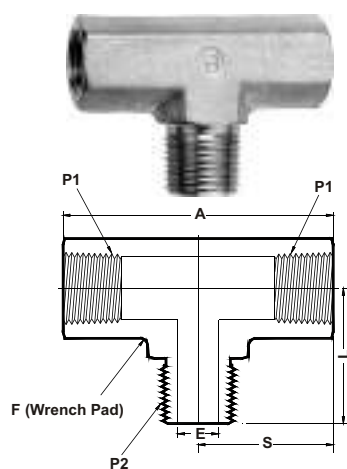
NPT (F) X NPT (M) X NPT (F)



ASTEC Part No.	P1 NPT (F)	P2 NPT (M)	A	E	F	L	S
1N-TS	1/16	1/16	1.22	0.12	19/32	0.85	0.83
2N-TS	1/8	1/8	1.67	0.19	19/32	0.85	0.83
4N-TS	1/4	1/4	2.34	0.28	13/16	0.98	0.98
6N-TS	3/8	3/8	2.68	0.38	7/8	1.22	1.17
8N-TS	1/2	1/2	3.12	0.47	1-1/16	1.18	1.48
12N-TS	3/4	3/4	3.70	0.62	1-1/4	1.34	1.59
16N-TS	1	1	4.50	0.88	1-3/4	1.81	2.08
20N-TS	1-1/4	1-1/4	4.46	1.10	2-5/32	2.17	2.29
24N-TS	1-1/2	1-1/2	4.95	1.32	2-3/8	2.41	2.54
32N-TS	2	2	5.63	1.76	2-31/32	2.75	2.88

Tee Branch

NPT (F) X NPT (F) X NPT (M)

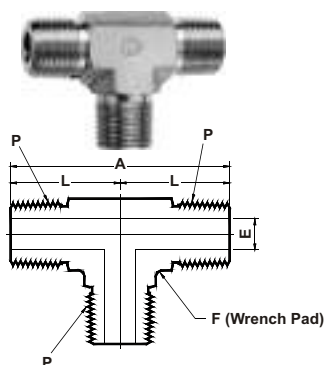


ASTEC Part No.	P1 NPT (F)	P2 NPT (M)	A	E	F	L	S
1N-BT	1/16	1/16	1.44	0.12	19/32	0.72	0.72
2N-BT	1/8	1/8	1.70	0.19	19/32	0.85	0.85
4N-BT	1/4	1/4	1.96	0.28	13/16	0.98	0.98
6N-BT	3/8	3/8	2.44	0.38	7/8	1.22	1.22
8N-BT	1/2	1/2	2.36	0.47	1-1/16	1.18	1.18
12N-BT	3/4	3/4	2.68	0.62	1-1/4	1.34	1.34
16N-BT	1	1	3.62	0.88	1-3/4	1.81	1.81
20N-BT	1-1/4	1-1/4	4.54	1.10	2-5/32	2.37	2.17
24N-BT	1-1/2	1-1/2	5.06	1.32	2-3/8	2.63	2.41
32N-BT	2	2	5.63	1.76	2-31/32	2.88	2.75

Note:- All Dimension are for reference only & are subject to change.

Tee Male

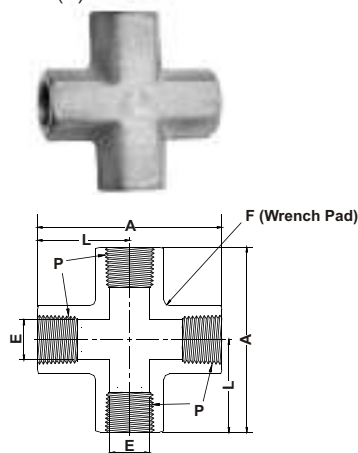
NPT (M) X NPT (M) X NPT (M)



ASTEC Part No.	P NPT (M)	A	E	F	L
1N-TM	1/16	1.68	0.12	19/32	0.84
2N-TM	1/8	1.68	0.19	19/32	0.84
4N-TM	1/4	2.02	0.28	19/32	1.01
6N-TM	3/8	2.26	0.38	13/16	1.13
8N-TM	1/2	2.74	0.47	7/8	1.37
12N-TM	3/4	2.96	0.62	1-1/16	1.48
16N-TM	1	3.76	0.88	1-7/16	1.88
20N-TM	1-1/4	4.16	1.10	1-3/4	2.08
24N-TM	1-1/2	4.82	1.32	2-5/32	2.41
32N-TM	2	5.16	1.76	2-7/16	2.58

Cross Female

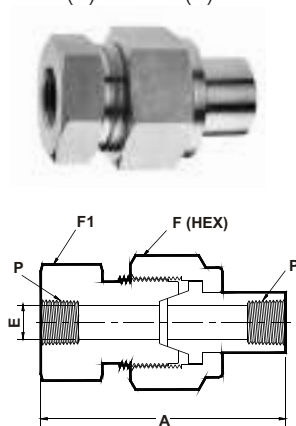
NPT (F) X 4 Sides



ASTEC Part No.	P NPT (F)	A	E	F	L
1N-CF	1/16	1.70	0.24	19/32	0.85
2N-CF	1/8	1.70	0.34	19/32	0.85
4N-CF	1/4	1.96	0.45	13/16	0.98
6N-CF	3/8	2.44	0.57	7/8	1.18
8N-CF	1/2	2.36	0.71	1-1/16	1.34
12N-CF	3/4	2.68	0.91	1-1/4	1.81
16N-CF	1	3.62	1.15	1-13/16	1.81
20N-CF	1-1/4	4.34	1.47	2-5/32	2.17
24N-CF	1-1/2	4.82	1.71	2-3/8	2.41
32N-CF	2	5.50	2.19	2-31/32	2.75

Union Ball Joint

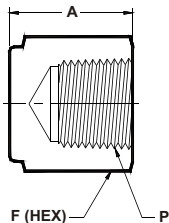
NPT (F) X NPT (F)



ASTEC Part No.	P NPT (F)	A	E	F (HEX)	F1
2N-UBJ	1/8	1.81	0.27	1-1/8	15/16
4N-UBJ	1/4	2.34	0.36	1-3/8	1-3/16
6N-UBJ	3/8	2.50	0.52	1-1/2	1-5/16
8N-UBJ	1/2	2.69	0.62	1-3/4	1-5/8
12N-UBJ	3/4	3.12	0.88	2	1-7/8
16N-UBJ	1	3.56	1.03	2-1/2	2-3/8

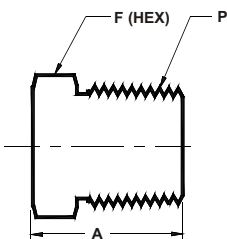
Note:- All Dimension are for reference only & are subject to change.

Hex Female Cap NPT (F)



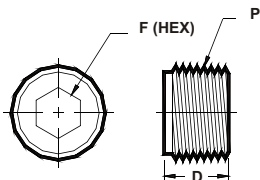
ASTEC Part No.	P NPT (F)	A	F (Hex)
2N-HFC	1/8	0.75	9/16
4N-HFC	1/4	0.91	3/4
6N-HFC	3/8	1.03	7/8
8N-HFC	1/2	1.34	1-1/16
12N-HFC	3/4	1.34	1-1/4
16N-HFC	1	1.61	1-23/32
20N-HFC	1-1/4	1.61	2-5/32
24N-HFC	1-1/2	1.81	2-3/8
32N-HFC	2	1.81	2-31/32

Hex Male Plug NPT (M)



ASTEC Part No.	P NPT (M)	A	F (Hex)
1N-HMP	1/16	0.62	7/16
2N-HMP	1/8	0.62	7/16
4N-HMP	1/4	0.83	9/16
6N-HMP	3/8	0.83	23/32
8N-HMP	1/2	1.07	7/8
12N-HMP	3/4	1.07	1-1/16
16N-HMP	1	1.34	1-3/8
20N-HMP	1-1/4	1.42	1-23/32
24N-HMP	1-1/2	1.62	1-31/32
32N-HMP	2	1.70	2-7/16

Allen Plug NPT (M)

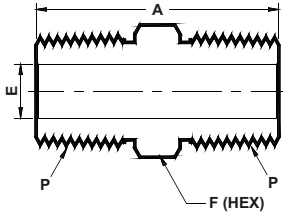


ASTEC Part No.	P NPT (M)	D	F (Hex)
1N-AP	1/16	0.30	5/32
2N-AP	1/8	0.30	3/16
4N-AP	1/4	0.47	1/4
6N-AP	3/8	0.47	5/16

Note:- All Dimension are for reference only & are subject to change.

Hex Nipple

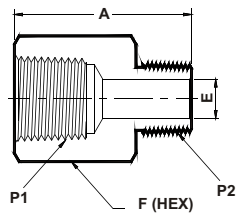
ISOT (M) X ISOT (M)



ASTECC Part No.	P ISOT (M)	A	E	F (Hex)
2IT-HN	1/8-28	1.01	0.19	7/16
4IT-HN	1/4-19	1.40	0.28	9/16
6IT-HN	3/8-19	1.43	0.38	11/16
8IT-HN	1/2-14	1.84	0.47	7/8
12IT-HN	3/4-14	1.84	0.62	1-1/16
16IT-HN	1-11	2.32	0.88	1-3/8

Adapter

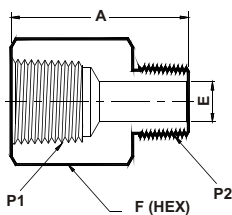
ISOT (F) X ISOT (M)



ASTECC Part No.	P1 ISOT (F)	P2 ISOT (M)	A	E	F (Hex)
2IT-A	1/8-28	1/8-28	1.09	0.18	9/16
4IT-A	1/4-19	1/4-19	1.42	0.28	3/4
6IT-A	3/8-19	3/8-19	1.50	0.37	7/8
8IT-A	1/2-14	1/2-14	1.95	0.46	1-1/16
12IT-A	3/4-14	3/4-14	2.02	0.62	1-1/4
16IT-A	1-11	1-11	2.30	0.88	1-23/32

Reducing Adapter

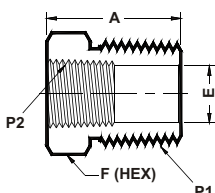
ISOT (F) X ISOT (M)



ASTECC Part No.	P1 ISOT (F)	P2 ISOT (M)	A	E	F (Hex)
4-RA-2IT	1/4-19	1/8-28	1.26	0.18	3/4
6-RA-4IT	3/8-19	1/4-19	1.50	0.28	7/8
8-RA-4IT	1/2-14	1/4-19	1.76	0.28	1-1/16
8-RA-6IT	1/2-14	3/8-19	1.75	0.37	1-1/16

Reducing Bushing

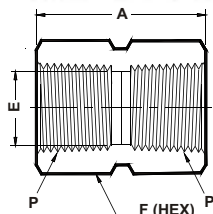
ISOT (M) X ISOT (F)



ASTECC Part No.	P1 ISOT (M)	P2 ISOT (F)	A	E	F (Hex)
4-RB-2IT	1/4-19	1/8-28	1.06	0.28	9/16
6-RB-4IT	3/8-19	1/4-19	1.19	0.37	3/4
8-RB-4IT	1/2-14	1/4-19	1.08	0.43	7/8
8-RB-6IT	1/2-14	3/8-19	1.41	0.46	7/8

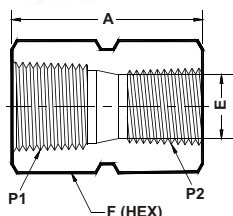
Note:- All Dimension are for reference only & are subject to change.

Hex Coupling ISOT (F) X ISOT (F)



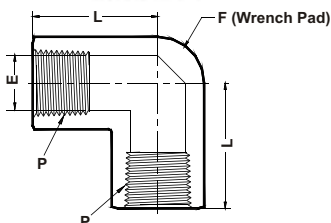
ASTEC Part No.	P ISOT (F)	A	E	F (Hex)
2IT-HC	1/8-28	0.81	0.32	9/16
4IT-HC	1/4-19	1.19	0.43	3/4
6IT-HC	3/8-19	1.31	0.57	7/8
8IT-HC	1/2-14	1.56	0.71	1-1/16

Hex Reducing Coupling ISOT (F) X ISOT (F)



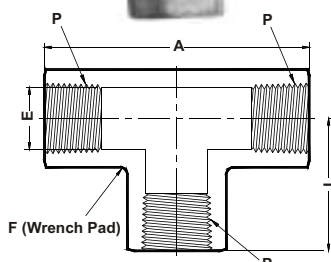
ASTEC Part No.	P1 ISOT (F)	P2 ISOT (F)	A	E	F (Hex)
6-HRC-4IT	3/8-19	1/4-19	1.38	0.43	7/8
8-HRC-4IT	1/2-14	1/4-19	1.75	0.43	1-1/16
8-HRC-6IT	1/2-14	3/8-19	1.78	0.57	1-1/16

Elbow Female ISOT (F) X ISOT (F)



ASTEC Part No.	P ISOT (F)	E	F	L
4IT-EF	1/4-19	0.43	11/16	1.17
6IT-EF	3/8-19	0.57	13/16	1.42
8IT-EF	1/2-14	0.71	1	1.56

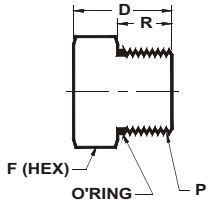
Tee Female ISOT (F) X ISOT (F) X ISOT (F)



ASTEC Part No.	P ISOT (F)	A	E	F	L
4IT-TF	1/4-19	2.34	0.43	11/16	1.17
6IT-TF	3/8-19	2.84	0.57	13/16	1.42
8IT-TF	1/2-14	3.12	0.71	1	1.56

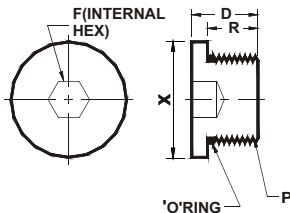
Note:- All Dimension are for reference only & are subject to change.

Hex SAE Plug UNF (M)



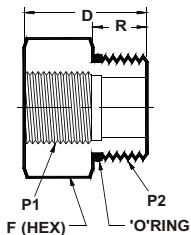
ASTEC Part No.	P UNF (M)	D	F (Hex)	R	ST-ORING
7U-HSP	7/16-20	0.76	9/16	0.36	3-904
9U-HSP	9/16-18	0.82	11/16	0.39	3-906
12U-HSP	3/4-16	0.89	7/8	0.44	3-908
17U-HSP	1-1/16-12	1.12	1-1/4	0.59	3-912
21U-HSP	1-5/16-12	1.18	1-1/2	0.59	3-916

Allen SAE Plug UNF (M)



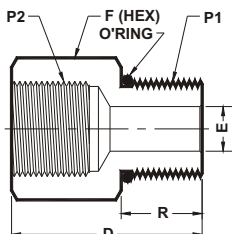
ASTEC Part No.	P UNF (M)	D	F (Hex)	R	X Dia	ST-ORING
7U-ASP	7/16-20	0.45	3/16	0.36	0.56	3-904
9U-ASP	9/16-18	0.48	1/4	0.39	0.69	3-906
12U-ASP	3/4-16	0.56	5/16	0.44	0.88	3-908
17U-ASP	1-1/16-12	0.75	9/16	0.59	1.25	3-912
21U-ASP	1-5/16-12	0.75	5/8	0.59	1.50	3-916

SAE Adapter UNF (F) X UNF(M)



ASTEC Part No.	P1 UNF (F)	P2 UNF (M)	D	F (Hex)	R	ST-ORING
7-SA-9U	7/16-20	9/16-18	1.03	11/16	0.36	3-904
7-SA-12U	7/16-20	3/4-16	1.09	7/8	0.36	3-904
12-SA-17U	3/4-16	1-1/16-12	1.00	1-1/4	0.44	3-908
17-SA-21U	1-1/16	1-5/16-12	1.00	1-1/4	0.44	3-908

SAE Adapter SAE-(M) X NPT(F)

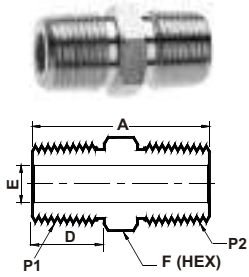


ASTEC Part No.	P1 SAE-(M)	P2 NPT (F)	D	E	F (Hex)	R	ST-ORING
7SM-SA-4N	7/16-20	1/4	1.32	0.20	3/4	0.36	3-904
9SM-SA-6N	9/16-18	3/8	1.39	0.28	7/8	0.39	3-906
12SM-SA-8N	3/4-16	1/2	1.76	0.42	1-1/16	0.44	3-308
17SM-SA-12N	1-1/16-12	3/4	1.99	0.66	1-3/8	0.59	3-912
21SM-SA-16N	1-5/16-12	1	2.12	0.88	1-5/8	0.59	3-916

Note:- All Dimension are for reference only & are subject to change.

Hex Nipple

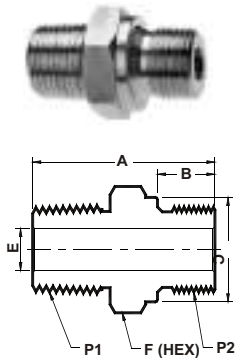
NPT (M) X ISOT (M)



ASTECC Part No.	P1 NPT (M)	P2 ISOT (M)	A	D	E	F (Hex)
2N-AHN-2IT	1/8	1/8-28	1.01	0.38	0.19	7/16
4N-AHN-4IT	1/4	1/4-19	1.40	0.56	0.28	9/16
6N-AHN-6IT	3/8	3/8-19	1.43	0.56	0.38	11/16
8N-AHN-8IT	1/2	1/2-14	1.84	0.75	0.47	7/8
12N-AHN-12IT	3/4	3/4-14	1.84	0.75	0.62	1-1/16
16N-AHN-16IT	1	1-11	2.32	0.94	0.88	1-3/8

Hex Nipple

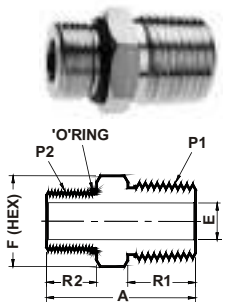
NPT (M) X ISOP (M)



ASTECC Part No.	P2 NPT (M)	P1 ISOP (M)	A	B	E	F (Hex)	C-DIA
2N-AHN-2IP	1/8	1/8-28	1.07	0.28	0.16	9/16	0.54
4N-AHN-4IP	1/4	1/4-19	1.44	0.44	0.23	3/4	0.71
6N-AHN-6IP	3/8	3/8-19	1.47	0.44	0.31	7/8	0.85
8N-AHN-8IP	1/2	1/2-14	1.78	0.56	0.47	1-1/16	1.02
12N-AHN-12IP	3/4	3/4-14	1.95	0.62	0.62	1-5/16	1.26
16N-AHN-16IP	1	1-11	2.26	0.72	0.78	1-5/8	1.53

Hex Nipple

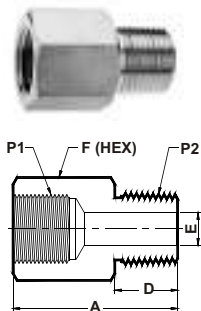
SAE - (M) X NPT (M)



ASTECC Part No.	P1 NPT (M)	P2 SAE-(M)	A	F (Hex)	R1	R2	ST-ORING
7N-AHN-4SM	7/16-20	1/4-18	1.2	9/16	0.56	0.36	3-904
9N-AHN-6SM	9/16-18	3/8-18	1.26	11/16	0.56	0.36	3-906
12N-AHN-8SM	3/4-16	1/2-14	1.53	7/8	0.75	0.44	3-908
17N-AHN-12SM	1-1/16-12	3/4-14	1.75	1-1/4	0.75	0.59	3-912
21N-AHN-12SM	1-5/16-12	1-11-1/2	2	1-1/2	0.94	0.59	3-916

Adapter

NPT (F) X ISOT (M)

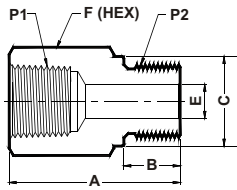


ASTECC Part No.	P1 NPT (F)	P2 ISOT (M)	A	D	E	F (Hex)
2N-AA-2IT	1/8-28	1/8-27	1.09	0.38	0.18	9/16
4N-AA-4IT	1/4-19	1/4-18	1.42	0.56	0.28	3/4
6N-AA-6IT	3/8-19	3/8-18	1.49	0.56	0.38	7/8
8N-AA-8IT	1/2-14	1/2-14	1.94	0.75	0.47	1-1/16
12N-AA-12IT	3/4-14	3/4-14	2	0.75	0.59	1-5/16
16N-AA-16IT	1-11	1-11 1/2	2.28	0.94	0.69	1-5/8

Note:- All Dimension are for reference only & are subject to change.

Adapter

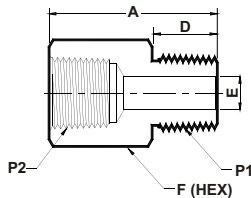
NPT (F) X ISOP (M)



ASTEC Part No.	P1 NPT (F)	P2 ISOP (M)	A	B	E	F (Hex)	C-DIA
2N-AA-2IP	1/8	1/8-28	0.99	0.28	0.16	9/16	0.54
4N-AA-4IP	1/4	1/4-19	1.32	0.44	0.23	3/4	0.71
6N-AA-6IP	3/8	3/8-19	1.41	0.44	0.31	7/8	0.85
8N-AA-8IP	1/2	1/2-14	1.74	0.56	0.47	1-1/16	1.02
12N-AA-12IP	3/4	3/4-14	1.89	0.62	0.62	1-5/16	1.26
16N-AA-16IP	1	1-11	2.1	0.72	0.78	1-5/8	1.53

Adapter

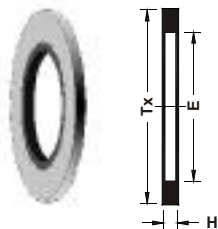
ISOT (F) X NPT (M)



ASTEC Part No.	P1 NPT (M)	P2 ISOT (F)	A	D	E	F (Hex)
2N-AA-2IT	1/8	1/8-28	1.09	0.38	0.19	9/16
4N-AA-4IT	1/4	1/4-19	1.42	0.56	0.28	3/4
6N-AA-6IT	3/8	3/8-19	1.50	0.56	0.38	7/8
8N-AA-8IT	1/2	1/2-14	1.94	0.75	0.47	1-1/16
12N-AA-12IT	3/4	3/4-14	2.02	0.75	0.62	1-5/16
16N-AA-16IT	1	1-11	2.30	0.94	0.88	1-5/8

RS Bonded Gasket (SS Bonded to Viton)

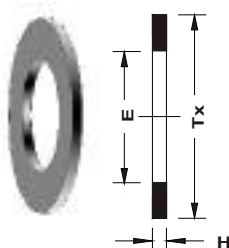
Fractional



ASTEC Part No.	H	E	TX
2-ARSG	0.08	0.41	0.63
4-ARSG	0.08	0.54	0.81
6-ARSG	0.08	0.68	0.94
8-ARSG	0.10	0.85	1.13
12-ARSG	0.10	1.06	1.38
16-ARSG	0.10	1.33	1.69

RP Fitting Gasket (In Copper)

Fractional

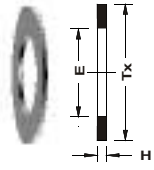


ASTEC Part No.	H	E	TX
CU-2-ARPG	0.04	0.39	0.59
CU-4-ARPG	0.06	0.53	0.74
CU-6-ARPG	0.06	0.67	0.90
CU-8-ARPG	0.06	0.84	1.06
CU-12-ARPG	0.08	1.05	1.30
CU-16-ARPG	0.08	1.32	1.57

Note:- All Dimension are for reference only & are subject to change.

RG Fitting Gasket (In Copper)

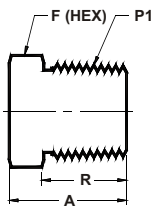
Fractional



ASTEC Part No.	H	E	TX
4-ARGG	0.07	0.30	0.42
6-ARGG	0.09	0.34	0.56
8-ARGG	0.10	0.36	0.70

Hex Pipe Plug BSPT (M)

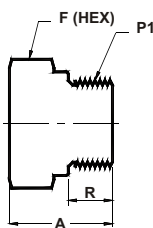
BSPT (M)



ASTEC Part No.	P1 BSPT (M)	A	F (Hex)	R
2IT-AHPP	1/8-28	0.62	7/16	0.38
4IT-AHPP	1/4-19	0.83	9/16	0.56
6IT-AHPP	3/8-19	0.83	23/32	0.56
8IT-AHPP	1/2-14	1.07	7/8	0.75
12IT-AHPP	3/4-14	1.07	1-1/16	0.75
16IT-AHPP	1-11	1.34	1-3/8	0.94
20IT-AHPP	1-1/4	1.42	1-23/32	0.94
24IT-AHPP	1-1/2	1.62	1-31/32	1.06
32IT-AHPP	2	1.70	2-7/16	1.06

Hex Pipe Plug BSPP (M)

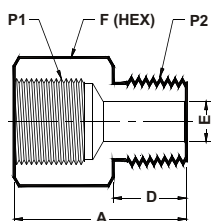
BSPP (M)



ASTEC Part No.	P1 BSPP (M)	A	F (Hex)	R
2IP-AHPP	1/8-28	0.55	9/16	0.28
4IP-AHPP	1/4-19	0.78	3/4	0.44
6IP-AHPP	3/8-19	0.78	7/8	0.44
8IP-AHPP	1/2-14	0.99	1-1/16	0.56
12IP-AHPP	3/4-14	1.13	1-5/16	0.63
16IP-AHPP	1-11	1.21	1-5/8	0.72

Gauge Adapter ISOP (F) X NPT (M)

ISOP (F) X NPT (M)

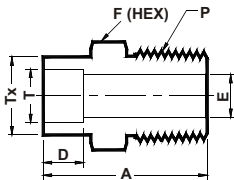


ASTEC PART No.	P1 ISOP (F)	P2 NPT (M)	A	D	E	F (Hex)
2IP-AGA-4N	1/8-28	1/8-27	1.09	0.38	0.18	3/4
4IP-AGA-4N	1/4-19	1/4-18	1.19	0.56	0.22	3/4
6IP-AGA-6N	3/8-19	3/8-18	1.27	0.56	0.26	15/16
8IP-AGA-8N	1/2-14	1/2-14	1.68	0.75	0.28	1-1/16
12IP-AGA-12N	3/4-14	3/4-14	2.00	0.75	0.32	1-5/16
16IP-AGA-16N	1-11	1-11 1/2	2.28	0.94	0.36	1-5/8

Note:- All Dimension are for reference only & are subject to change.

Male Connector

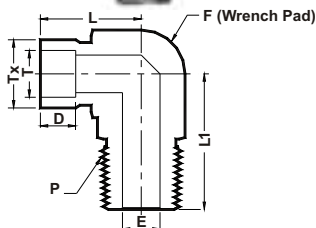
Fractional Tube Socket
Weld X NPT (M)



ASTEC Part No.	Tube OD (T)	Thread (P) NPT (M)	A	D	E	F (Hex)	Tx
4-WMC-4N	1/4	1/4	1.15	0.28	0.18	9/16	0.48
6-WMC-4N	3/8	1/4	1.25	0.31	0.28	5/8	0.60
6-WMC-6N	3/8	3/8	1.25	0.31	0.28	23/32	0.60
6-WMC-8N	3/8	1/2	1.47	0.31	0.28	7/8	0.60
8-WMC-4N	1/2	1/4	1.31	0.38	0.28	3/4	0.73
8-WMC-6N	1/2	3/8	1.31	0.38	0.37	3/4	0.73
8-WMC-8N	1/2	1/2	1.53	0.38	0.40	7/8	0.73

Male Elbow

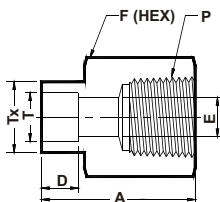
Fractional Tube Socket
Weld X NPT (M)



ASTEC Part No.	Tube OD (T)	Thread (P) NPT (M)	D	E	F	L	L1	Tx
4-WME-4N	1/4	1/4	0.28	0.18	13/32	0.79	1.05	0.48
6-WME-4N	3/8	1/4	0.31	0.28	13/13	1.04	1.05	0.62
6-WME-6N	3/8	3/8	0.31	0.28	13/16	0.97	1.17	0.60
6-WME-8N	3/8	1/2	0.31	0.28	7/8	1.02	1.45	0.60
8-WME-8N	1/2	1/2	0.38	0.40	7/8	1.08	1.45	0.73
12-WME-12N	3/4	3/4	0.44	0.62	1-1/16	1.56	1.56	1.12

Female Connector

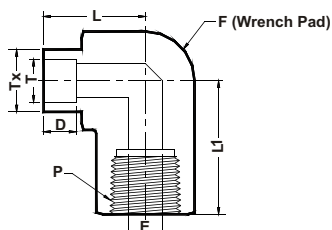
Fractional Tube Socket
Weld X NPT (F)



ASTEC Part No.	Tube OD (T)	Thread (P) NPT (M)	A	D	E	F (Hex)	Tx
2-WFC-2N	1/8	1/8	0.83	0.10	0.09	5/8	0.29
4-WFC-2N	1/4	1/8	1.05	0.28	0.18	5/8	0.48
4-WFC-4N	1/4	1/4	1.18	0.28	0.18	3/4	0.48
6-WFC-4N	3/8	1/4	1.24	0.31	0.28	3/4	0.60
8-WFC-6N	1/2	3/8	1.36	0.38	0.40	7/8	0.73
8-WFC-8N	1/2	1/2	1.59	0.38	0.40	1-1/16	0.73
10-WFC-8N	5/8	1/2	1.65	0.41	0.50	1-1/16	0.92
12-WFC-12N	3/4	3/4	1.73	0.44	0.62	1-1/4	1.04

Female Elbow

Fractional Tube Socket
Weld X NPT (F)



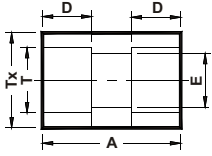
ASTEC Part No.	Tube OD (T)	Thread (P) NPT (F)	D	E	F	L	L1	Tx
4-WFE-4N	1/4	1/4	0.28	0.19	13/16	0.9	1.17	0.48
6-WFE-4N	3/8	1/4	0.31	0.28	13/16	0.99	1.17	0.60
6-WFE-8N	3/8	1/2	0.31	0.28	1-1/16	1.13	1.56	0.60
8-WFE-8N	1/2	1/2	0.38	0.40	1-1/16	1.19	1.56	0.73

Note:- All Dimension are for reference only & are subject to change.



Union

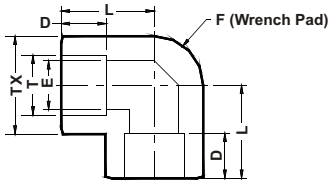
Fractional Tube Socket
Weld Ends



ASTEC Part No.	Tube OD (T)	A	D	E	Tx
4-WU	1/4	0.75	0.28	0.18	0.48
6-WU	3/8	0.88	0.31	0.28	0.60
8-WU	1/2	1.06	0.38	0.40	0.73
10-WU	5/8	1.19	0.41	0.50	0.92
12-WU	3/4	1.31	0.44	0.62	1.04
16-WU	1	1.44	0.62	0.87	1.36

Union Elbow

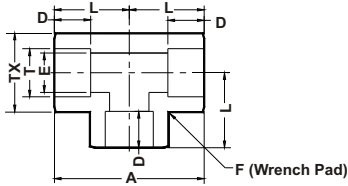
Fractional Tube Socket
Weld Ends



ASTEC Part No.	Tube OD (T)	D	E	F	L	Tx
4-WUE	1/4	0.28	0.18	19/32	0.86	0.53
6-WUE	3/8	0.31	0.28	13/16	1.04	0.63
8-WUE	1/2	0.38	0.40	7/8	1.17	0.81
10-WUE	5/8	0.41	0.50	1-1/16	1.42	0.94
12-WUE	3/4	0.44	0.62	1-1/4	1.56	1.12
16-WUE	1	0.62	0.87	1-3/4	1.92	1.44

Union Tee

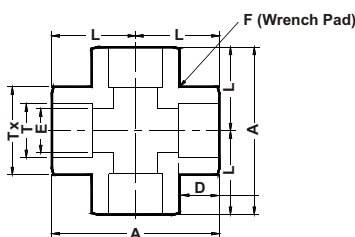
Fractional Tube Socket
Weld Ends



ASTEC Part No.	Tube OD (T)	A	D	E	F	L	Tx
2-WUT	1/8	1.18	0.10	0.09	19/32	0.59	0.29
4-WUT	1/4	1.72	0.28	0.18	19/32	0.86	0.53
6-WUT	3/8	2.08	0.31	0.28	13/16	1.04	0.63
8-WUT	1/2	2.34	0.38	0.40	7/8	1.17	0.81
10-WUT	5/8	2.84	0.41	0.50	1-1/16	1.42	0.94
12-WUT	3/4	3.12	0.44	0.62	1-1/4	1.56	1.12
16-WUT	1	3.84	0.62	0.87	1-3/4	1.92	1.44

Union Cross

Fractional Tube Socket
Weld Ends

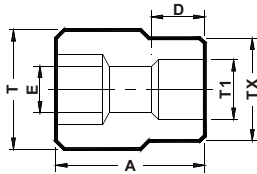


ASTEC Part No.	Tube OD (T)	A	D	E	F	L	Tx
4-WUC	1/4	1.72	0.28	0.18	19/32	0.86	0.53
6-WUC	3/8	2.08	0.31	0.28	13/16	1.04	0.63
8-WUC	1/2	2.34	0.38	0.40	7/8	1.17	0.81
10-WUC	5/8	2.84	0.41	0.50	1-1/16	1.42	0.94
12-WUC	3/4	3.12	0.44	0.62	1-1/4	1.56	1.12
16-WUC	1	3.84	0.62	0.87	1-3/4	1.92	1.44

Note:- All Dimension are for reference only & are subject to change.

Reducing Adapter

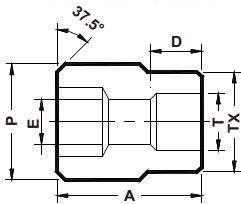
Fractional Tube Butt
Weld OR Tube Socket
Weld X Tube Socket Weld



ASTEC Part No.	Tube OD (T)	Tube SW (T1)	A	D	E	Tx
4-WA-2	1/4	1/8	0.56	0.10	0.09	0.29
6-WA-4	3/8	1/4	0.75	0.28	0.18	0.48
8-WA-4	1/2	1/4	0.88	0.28	0.18	0.50
8-WA-6	1/2	3/8	0.88	0.31	0.32	0.60
12-WA-8	3/4	1/2	1.12	0.38	0.40	0.75
16-WA-8	1	1/2	1.38	0.38	0.40	0.75

Reducing Adapter

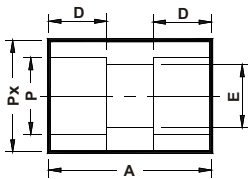
Fractional Pipe Butt
Weld OR Pipe Socket
Weld X Tube Socket Weld



ASTEC Part No.	Pipe (P)	Tube SW (T)	A	D	E	Tx
4-WRA-4	1/4	1/4	0.88	0.28	0.18	0.48
6-WRA-6	3/8	3/8	1.03	0.31	0.28	0.60
6-WRA-8	3/8	1/2	1	0.38	0.42	0.73
8-WRA-4	1/2	1/4	1.12	0.28	0.18	0.48
8-WRA-6	1/2	3/8	1.12	0.31	0.28	0.60
8-WRA-8	1/2	1/2	1.19	0.38	0.40	0.73
12-WRA-6	3/4	3/8	1.5	0.31	0.28	0.60
12-WRA-8	3/4	1/2	1.5	0.38	0.40	0.73
12-WRA-12	3/4	3/4	1.5	0.44	0.62	1.05
16-WRA-6	1	3/8	1.38	0.31	0.28	0.60
16-WRA-8	1	1/2	1.56	0.38	0.40	0.73

Union

Pipe Socket Weld Ends

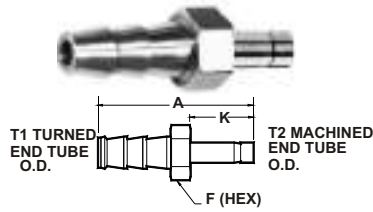


ASTEC Part No.	Pipe (P)	A	D	E	Px
4-UPSW	1/4	1.06	0.38	0.40	0.98
6-UPSW	3/8	1.12	0.44	0.50	1.11
8-UPSW	1/2	1.12	0.50	0.73	1.36
12-UPSW	3/4	1.75	0.62	0.93	1.48
16-UPSW	1	1.75	0.62	1.06	1.86

Note:- All Dimension are for reference only & are subject to change.

Hose Tube Adapter

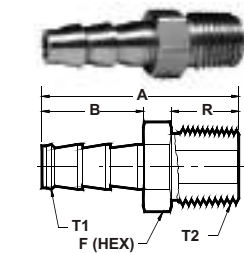
Fractional Stub X
Serreated Hose End



ASTEC Part No.	Tube OD (T1)	Hose (T2)	A	K	F (Hex)
4-HTA-4	1/4	1/4	1.85	0.64	7/16
6-HTA-6	3/8	3/8	1.99	0.72	9/16
8-HTA-8	1/2	1/2	2.34	0.98	11/16

Hose Male Adapter

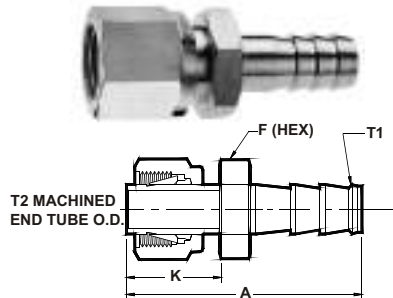
Serreated Hose End
X NPT (M)



ASTEC Part No.	Hose (T1)	NPT (M) (T2)	A	B	R	F (Hex)
4-HMA-4N	1/4	1/4	1.65	0.80	0.56	9/16
6-HMA-6N	3/8	3/8	1.74	0.88	0.56	11/16
8-HMA-8N	1/2	1/2	2.03	0.94	0.75	7/8

Hose Tube Adapter Swaged

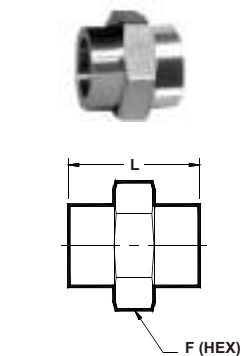
Hose End X ASTEC
Tube Swaged



ASTEC Part No.	Tube OD (T2)	Hose (T1)	A	K	F
4-HTAS-4	1/4	1/4	1.77	0.72	7/16
6-HTAS-6	3/8	3/8	1.98	0.78	9/16
8-HTAS-8	1/2	1/2	2.42	1.03	11/16

Hose Connector Sleeve

Fractional Tube

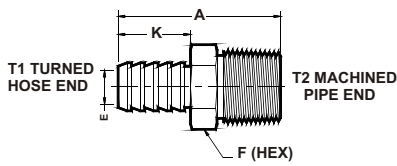


ASTEC PART No.	Hose (ID)	Hose (OD)	F (Hex)	L
2-HCS-4	1/8	1/4	3/8	0.41
4-HCS-6	1/4	3/8	9/16	0.78
4-HCS-7	1/4	7/16	5/8	0.78
4-HCS-8	1/4	1/2	11/16	0.78
5-HCS-7	5/16	7/16	5/8	0.88
6-HCS-8	3/8	1/2	11/16	0.88
6-HCS-9	3/8	9/16	3/4	0.88
8-HCS-11	1/2	11/16	7/8	0.94
12-HCS-16	3/4	1	1-1/14	1.06

Note:- All Dimension are for reference only & are subject to change.

Barbed Male Adapter

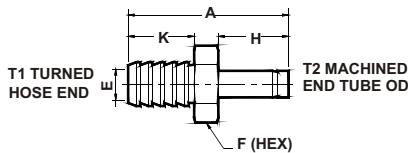
Barbed X Male Pipe



ASTEC Part No.	Male Pipe (T2)	Hose (T1)	A	E	F (Hex)	K
2N-BMA-2	1/8	1/8	1.00	0.78	7/16	0.41
2N-BMA-4	1/8	1/4	1.22	0.78	9/16	0.41
4N-BMA-2	1/4	1/8	1.41	0.188	7/16	0.75
4N-BMA-4	1/4	1/4	1.59	0.188	9/16	0.78
5N-BMA-2	5/16	1/8	1.50	0.188	7/16	0.88
5N-BMA-4	5/16	1/4	1.69	0.250	9/16	0.88
6N-BMA-4	3/8	1/4	1.72	0.281	9/16	0.88
6N-BMA-6	3/8	3/8	1.72	0.297	11/16	0.88
8N-BMA-6	1/2	3/8	1.81	0.375	3/4	0.94
8N-BMA-8	1/2	1/2	2.00	0.375	7/8	0.94
12N-BMA-12	3/4	3/4	2.13	0.625	1-1/16	1.03

Barbed Tube Adapter

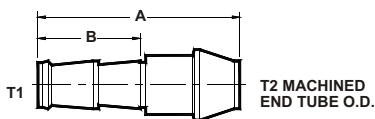
Barbed X Stub



ASTEC Part No.	Hose (T1)	Tube Stub (T2)	A	E	F (Hex)	H	K
2-BTA-2	1/8	1/8	1.16	0.078	5/16	0.53	0.41
4-BTA-2	1/8	1/4	1.26	0.078	3/8	0.64	0.41
4-BTA-4	1/4	1/4	1.64	0.156	3/8	0.64	0.78
6-BTA-4	1/4	3/8	1.75	0.156	7/16	0.72	0.78

Hose Port Connector - Serreated

Serreated Hose End X Stub



ASTEC Part No.	Hose (T1)	Tube Stub (T2)	A	B
4M-HPC-6	3/8	3/8	1.40	0.80

Note:- All Dimension are for reference only & are subject to change.

Caution

1.

Tapered Pipe Fittings are prone to leakage because they are torque-sensitive. Over-tightening can distort the threads too much and create a leakage path. Also, tapered pipe threads are prone to loosening when exposed to high vibration and wide temperature variation. Repeated assembly and disassembly only aggravates the leakage problem by distorting the threads further.

2.

Tapered pipe threads are not to be used for mechanically joining components in a system where load would be placed perpendicular to the Line. This weight will further weaken the sealing joint. In light of its sealing mechanism, assembly restrictions and design limitations, pipe thread connections are optimal only when the following conditions exist:

- i. Minimum hydraulic shocks or vibration
 - ii. The fitting is limited to one or two re-uses
 - iii. The system utilizes low pressure; or few operating cycles (static condition) for higher pressure service
 - iv. Skilled workers trained in the pros and cons of pipe fitting assembly are present
- For these reasons, tapered pipe threaded connections are not recommended for dynamic pressure systems.

3.

Always ensure that the PTFE tape does not over hang the first thread. This may cause deterioration of the tape thus contaminating the fluid system.

4.

While using Stainless Steel Fitting, a double wrap of Teflon type is recommended to minimize possibility of galling, while providing appropriate minimum number of threads have been wrapped.

Nominal Pipe Size	Tape Width	Effective Thread Length (External)	App. Number of Threads
1/8"	1/8" - 1/4"	1/4"	7
1/4"	1/4"	3/8"	7 1/3
3/8"	1/4"	3/8"	7 1/2
1/2"	1/4" - 1/2"	1/2"	7 1/2
3/4"	1/4" - 1/2"	9/16"	7 2/3
1"	1/4" - 1/2"	11/16"	8

Ordering Information

Example:

S6 - 1N - HN
 Material Code Basic Part Number
 (as shown in table)

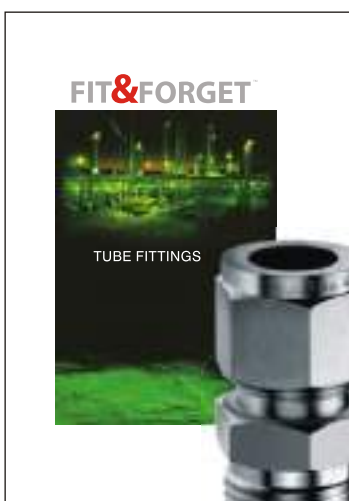
Material Designator

Material	Designator	Material	Designator
SS 316/316L	S6	Alloy 600	A6
Brass	B	Alloy 20	A20
Carbon Steel	CS	Alloy C276	H
Alluminum	AL	Titanium	TI
Alloy 400 / R-405	M	PTFE	T
Alloy 600	A6	Nylon	N
Alloy 20	A20	SAF 2507 TM	SAF



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