

INSTRUMENTATION PIPE FITTINGS



INSTRUMENTATION PIPE FITTINGS



1CLN
Close Nipple



1FMA
Female to
Male Adapter



1FPC
Female
Pipe Cap



1FPRU
Female Pipe
Reducer Union



1FPU
Female
Pipe Union



1HLN
Hex Long Nipple



1HN
Hex Nipple



1MPP
Male
Pipe Plug



1HRN
Hex
Reducing Nipple



1RAFM
Reducer Adapter -
Female to Male



1RBMF
Reducer Bushing -
Male to Female



2FF
Female Pipe
Elbow



2FM
Female - Male
Pipe Elbow



2FMR
Female - Male
Reducer Pipe Elbow



2MM
Male Pipe
Elbow



3FFF
All Female
Pipe Tee



3FFM
Pipe Tee - Female -
Female - Male



3FMF
Pipe Tee - Female -
Male - Female



3MMM
All Male
Pipe Tee



4FPCR
Female Pipe Cross

Instrumentation Pipe Fittings

Tylok® Instrumentation Pipe Fittings are offered in popular configurations such as reducing adapters, reducing bushings, pipe unions, elbows, tees, crosses, etc.

Fittings are manufactured to the same high quality standards as other Tylok® Fittings. Each fitting is thoroughly cleaned to eliminate system contamination and features an attractive surface finish to enhance the appearance of modern scientific instrumentation and equipment.

Fittings are manufactured from materials meeting applicable ASTM or ASME specifications, with pipe threads which meet or exceed ANSI/ASME B1.20.1 requirements. Strict quality controls procedures are followed throughout production.

Pipe thread connections are very common in today's industry. They are relatively easy to work with because of the common sizes and dimensions throughout manufacturing. It is important to use a thread sealant.

These products range from pipe "dopes" to Teflon tape, all of which can be purchased through your local Tylok® Distributor.

Design/Features

Tylok® Instrumentation Pipe Fittings are manufactured to the same high quality standards as other Tylok® Fittings. Each fitting is thoroughly cleaned to eliminate system contamination and features an attractive surface finish to enhance the appearance of modern scientific instrumentation and equipment.

Technical Support & Training

Tylok® Instrumentation Inc. ensures all of its Distributors are trained on the proper installation of fittings and valves. Tylok® Distributors are trained to provide the technical support you deserve. Additionally, our Distributors will help in finding solutions for specific applications. Contact your local Tylok® Distributor for further information.

Quality Management System

SAI Global has registered Tylok® International's Quality Management System to ISO 9001. The quality system complies with the international standard ISO 9001 and its technical equivalent, ANSI/ISO/ASQ 9001. Tylok® strives to continuously improve the effectiveness of the Quality Management System.

Tylok® Instrumentation Pipe Fittings are ordered as listed in this catalog by inserting the material code before the part number.

Tylok® Instrumentation Pipe Fittings can be identified through the part number as to material, pipe size, configuration, and thread connection. The part number describes a complete fitting. The size nomenclature to describe a tee fitting is from left (1) to right (2) and down (3).

Special Configurations available upon request.



Chart 1- Material	
B	Brass
S	Steel
SS	Stainless Steel

Chart 2- Pipe Size		
Designator	Pipe Thread (NPT)	Pipe Thread BSPP/BSPT
1	1/16-27	1/16-28
2	1/8-27	1/8-28
4	1/4-18	1/4-19
6	3/8-18	3/8-19
8	1/2-14	1/2-14
12	3/4-14	3/4-14
16	1-11-1/2	1-11

Chart 3- Style	
1	Straight
2	Elbow
3	Tee
4	Cross

Chart 4- Description	
1CLN	Close Nipple
1FMA	Female to Male Adapter
1FPC	Female Pipe Cap
1FPU	Female Pipe Union
1FPRU	Female Pipe Reducer Union
1HLN	Hex Long Nipple
1HN	Hex Nipple
1HRN	Hex Reducing Nipple
1MPP	Male Pipe Plug
1RAFM	Reducer Adapter-Female to Male
1RBMF	Reducer Bushing-Male to Female
2FF	Female Pipe Elbow
2FM	Female-Male Pipe Elbow
2FMR	Female-Male Reducer Pipe Elbow
2MM	Male Pipe Elbow
3FFF	All Female Pipe Tee
3FFM	Pipe Tee-Female-Female-Male
3FMF	Pipe Tee-Female-Male-Female
3MMM	All Male Pipe Tee
4FPCR	Female Pipe Cross

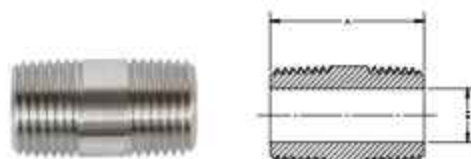
Chart 5- Options	
BSPT	BSPT Male Connector
CL	Clean & Lubricated to ASTM G93 Level C
SPCL	Clean & Lubricated to CGA G-4.1-2009
NACE	NACE Compliant

1CLN, 1FMA, 1FPC, 1FPRU

Part No.	Interchanges With	Male Pipe Size	A	E Thru Hole
2-1CLN	2-CN	1/8	0.75	0.19
4-1CLN	4-CN	1/4	1.13	0.28
6-1CLN	6-CN	3/8	1.13	0.38
8-1CLN	8-CN	1/2	1.5	0.47
12-1CLN	12-CN	3/4	1.5	0.63
16-1CLN	16-CN	1	1.88	0.88

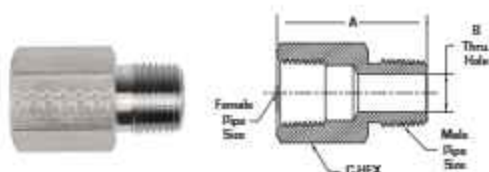
1CLN

Close Nipple



1FMA

Female to Male Adapter

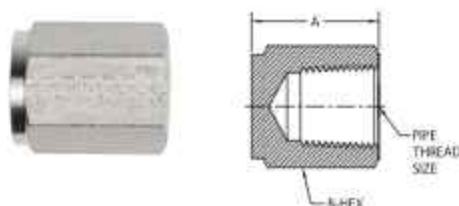


Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B Thru Hole	C Hex
2-1FMA	2-A	1/8	1/8	1.06	.187	9/16
4-1FMA	4-A	1/4	1/4	1.38	.281	3/4
6-1FMA	6-A	3/8	3/8	1.56	.375	7/8
8-1FMA	8-A	1/2	1/2	1.91	.468	1-1/16
12-1FMA	12-A	3/4	3/4	1.94	.625	1-5/16
16-1FMA	16-A	1	1	2.28	.875	1-5/8

Part No.	Interchanges With		A	B Hex
2-1FPC	2-CP	1/8	.750	9/16
4-1FPC	4-CP	1/4	.906	3/4
6-1FPC	6-CP	3/8	1.03	7/8
8-1FPC	8-CP	1/2	1.34	1-1/16
12-1FPC	12-CP	3/4	1.44	1-5/16
16-1FPC	16-CP	1	1.63	1-5/8
20-1FPC	20-CP	1-1/4	1.81	2-1/2
24-1FPC	24-CP	1-1/2	1.88	3
32-1FPC	32-CP	2	2.00	3-5/8

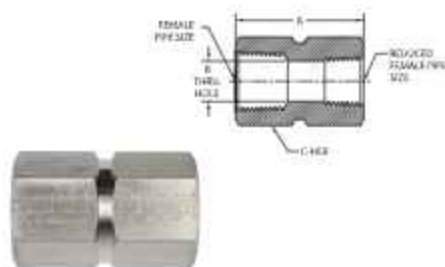
1FPC

Female Pipe Cap



1FPRU

Female Pipe Reducer Union

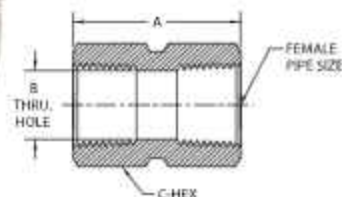


Part No.	Interchanges With	Female Pipe Size	Reduced Female Pipe Size	A	B Thru Hole	C Hex
4-1FPRU-2	4-HRCG-2	1/4	1/8	1.06	.187	9/16
6-1FPRU-4	6-HRCG-4	3/8	1/4	1.38	.281	3/4
8-1FPRU-2	8-HRCG-2	1/2	1/8	1.56	.375	7/8
8-1FPRU-4	8-HRCG-4	1/2	1/4	1.91	.468	1-1/16
8-1FPRU-6	8-HRCG-6	1/2	3/8	1.94	.625	1-5/16
12-1FPRU-4	12-HRCG-4	3/4	1/4	2.28	.875	1-5/8
12-1FPRU-8	12-HRCG-8	3/4	1/2	1.91	.468	1-1/16
16-1FPRU-8	16-HRCG-8	1	1/2	1.94	.625	1-5/16
16-1FPRU-12	16-HRCG-12	1	3/4	2.28	.875	1-5/8

Part No.	Interchanges With	Female Pipe Size	A	B Thru Hole	C Hex
2-1FPU	2-HCG	1/8	.812	.328	9/16
4-1FPU	4-HCG	1/4	1.19	.421	3/4
6-1FPU	6-HCG	3/8	1.31	.562	7/8
8-1FPU	8-HCG	1/2	1.63	.687	1-1/16
12-1FPU	12-HCG	3/4	1.69	.890	1-5/16
16-1FPU	16-HCG	1	2.00	1.13	1-5/8

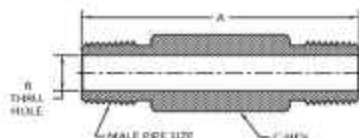
1FPU

Female Pipe Union



1HLN

Hex Long Nipple

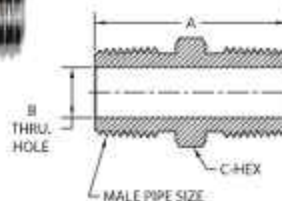


Part No.	Interchanges With	Male Pipe Size	A	B Thru Hole	C Hex
2-1HLN*	2-HLN- 2.00	1/8	* - Made to Order Specify Size	.187	7/16
4-1HLN*	4-HLN- 2.00	1/4		.281	9/16
6-1HLN*	6-HLN- 2.00	3/8		.375	1-1/16
8-1HLN*	8-HLN- 2.00	1/2		.468	7/8
12-1HLN*	12-HLN- 2.00	3/4		.625	1-1/16
16-1HLN*	16-HLN- 2.00	1		.875	1-3/8

Part No.	Interchanges With	Male Pipe Size	A	B Thru Hole	C Hex
1-1HN	1-HN	1/16	1.01	.125	3/8
2-1HN	2-HN	1/8	1.01	.187	7/16
4-1HN	4-HN	1/4	1.40	.281	9/16
6-1HN	6-HN	3/8	1.43	.375	1-1/16
8-1HN	8-HN	1/2	1.84	.468	7/8
12-1HN	12-HN	3/4	1.84	.625	1-1/16
16-1HN	16-HN	1	2.32	.875	1-3/8
20-1HN	20-HN	1-1/4	2.32	.875	1-3/8
24-1HN	24-HN	1-1/2	2.61	1.44	2
32-1HN	32-HN	2	2.82	1.75	2-1/2

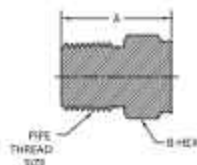
1HN

Hex Nipple



1MPP

Male Pipe Plug



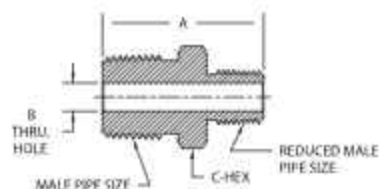
Part No.	Interchanges With	Pipe Thread Size	A	B Hex
1-1MPP	1-P	1/16	.750	3/8
2-1MPP	2-P	1/8	.750	7/16
4-1MPP	4-P	1/4	1.000	9/16
6-1MPP	6-P	3/8	1.000	1-1/16
8-1MPP	8-P	1/2	1.312	7/8
12-1MPP	12-P	3/4	1.375	1-1/16
16-1MPP	16-P	1	1.500	1-3/8
20-1MPP	20-P	1-1/4	1.625	1-3/4
24-1MPP	24-P	1-1/2	1.500	1-7/8
32-1MPP	32-P	2	1.875	1-7/8

1HRN, 1RAFM

Part No.	Interchanges With	Male Pipe Size	Reduced Male Pipe Size	A	B Thru Hole	C Hex
2-1HRN-1	2-HRN-1	1/8	1/16	1.00	.125	7/16
4-1HRN-2	4-HRN-2	1/4	1/8	1.19	.187	9/16
6-1HRN-2	6-HRN-2	3/8	1/8	1.22	.1871	1 1/16
6-1HRN-4	6-HRN-4	3/8	1/4	1.41	.281	1 1/16
8-1HRN-2	8-HRN-2	1/2	1/8	1.41	.187	7/8
8-1HRN-4	8-HRN-4	1/2	1/4	1.59	.281	7/8
8-1HRN-6	8-HRN-6	1/2	3/8	1.63	.375	7/8
12-1HRN-4	12-HRN-4	3/4	1/4	1.63	.281	1-1/16
12-1HRN-8	12-HRN-8	3/4	1/2	1.81	.468	1-1/16
16-1HRN-4	16-HRN-4	1	1/4	1.91	.281	1-3/8
16-1HRN-8	16-HRN-8	1	1/2	2.09	.468	1-3/8
16-1HRN-12	16-HRN-12	1	3/4	2.09	.625	1-3/8

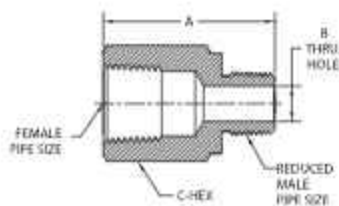
1HRN

Hex Reducing Nipple



1RAFM

Reducer Adapter - Male to Female



Part No.	Interchanges With	Female Pipe Size	Reduced Male Pipe Size	A	B Thru Hole	C Hex
2-1RAFM-1	2-RA-1	1/8	1/16	1.09	.125	9/16
4-1RAFM-2	4-RA-2	1/4	1/8	1.25	.187	3/4
6-1RAFM-2	6-RA-2	3/8	1/8	1.44	.187	7/8
6-1RAFM-4	6-RA-4	3/8	1/4	1.56	.281	7/8
8-1RAFM-2	8-RA-2	1/2	1/8	1.69	.187	1-1/16
8-1RAFM-4	8-RA-4	1/2	1/4	1.81	.281	1-1/16
8-1RAFM-6	8-RA-6	1/2	3/8	1.81	.375	1-1/16
12-1RAFM-4	12-RA-4	3/4	1/4	1.97	.281	1-5/16
12-1RAFM-6	12-RA-6	3/4	3/8	1.97	.375	1-5/16
12-1RAFM-8	12-RA-8	3/4	1/2	2.06	.468	1-5/16
16-1RAFM-4	16-RA-4	1	1/4	2.13	.281	1-5/8
16-1RAFM-8	16-RA-8	1	1/2	2.25	.468	1-5/8
16-1RAFM-12	16-RA-12	1	3/4	2.25	.625	1-5/8

Part No.	Interchanges With	Male Pipe Size	Reduced Female Pipe Size	A	B Thru Hole	C Hex
2-1RBMF-1	2-RB-1	1/8	1/16	1.00	.19	7/16
4-1RBMF-2	4-RB-2	1/4	1/8	1.00	.28	9/16
6-1RBMF-2	6-RB-2	3/8	1/8	.843	.33	11/16
6-1RBMF-4	6-RB-4	3/8	1/4	1.13	.38	3/4
8-1RBMF-2	8-RB-2	1/2	1/8	1.06	.33	7/8
8-1RBMF-4	8-RB-4	1/2	1/4	1.06	.42	7/8
8-1RBMF-6	8-RB-6	1/2	3/8	1.31	.47	7/8
12-1RBMF-4	12-RB-4	3/4	1/4	1.06	.42	1-1/16
12-1RBMF-6	12-RB-6	3/4	3/8	1.06	.56	1-1/16
12-1RBMF-8	12-RB-8	3/4	1/2	1.56	.63	1-1/16
16-1RBMF-4	16-RB-4	1	1/4	1.34	.42	1-3/8
16-1RBMF-6	16-RB-6	1	3/8	1.34	.56	1-3/8
16-1RBMF-8	16-RB-8	1	1/2	1.34	.69	1-3/8
16-1RBMF-12	16-RB-12	1	3/4	1.75	.88	1-3/8
20-1RBMF-8	20-RB-8	1-1/4	1/2	1.47	.69	1-3/4
20-1RBMF-12	20-RB-12	1-1/4	3/4	1.47	.89	1-3/4
20-1RBMF-16	20-RB-16	1-1/4	1	1.47	1.13	1-3/4
24-1RBMF-8	24-RB-8	1-1/2	1/2	1.57	.69	2
24-1RBMF-12	24-RB-12	1-1/2	3/4	1.57	.89	2
24-1RBMF-16	24-RB-16	1-1/2	1	1.57	1.13	2
32-1RBMF-24	32-RB-24	2	1-1/2	1.75	1.71	2-1/2

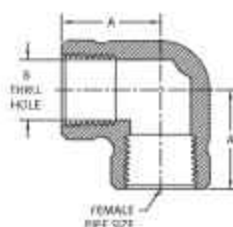
1RBMF

Reducer Bushing-
Male to Female



2FF

Female Pipe Elbow

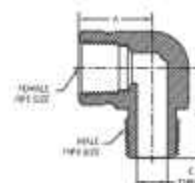


Part No.	Interchanges With	Female Pipe Size	A	B Thru Hole
2-2FF-2	2-E	1/8	.843	.328
4-2FF-4	4-E	1/4	.968	.421
6-2FF-6	6-E	3/8	1.00	.562
8-2FF-8	8-E	1/2	1.13	.687
12-2FF-12	12-E	3/4	1.44	.890

Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C Thru Hole
1-2FM-1	1-SE	1/16	1/16	.750	.718	.125
2-2FM-2	2-SE	1/8	1/8	.843	.843	.187
4-2FM-4	4-SE	1/4	1/4	.843	1.09	.281
6-2FM-6	6-SE	3/8	3/8	1.00	1.13	.375
8-2FM-8	8-SE	1/2	1/2	1.13	1.38	.468
12-2FM-12	12-SE	3/4	3/4	1.44	1.56	.625
16-2FM-16	16-SE	1	1	1.91	1.91	.875

2FM

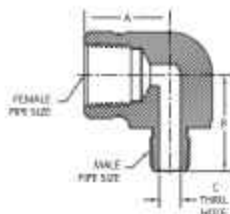
Female-Male Pipe Elbow



2FMR, 2MM, 3FFF

2FMR

Female-Male Reducer
Pipe Elbow

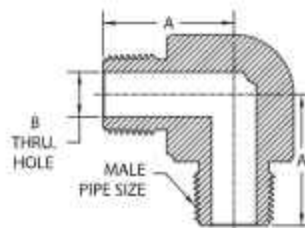


Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C Thru Hole
2-2FMR-1	2-RSE-1	1/8	1/16	.750	.750	.125
4-2FMR-2	4-RSE-2	1/4	1/8	.843	.937	.187
6-2FMR-4	6-RSE-4	3/8	1/4	1.06	1.06	.281
8-2FMR-4	8-RSE-4	1/2	1/4	1.13	1.25	.281
8-2FMR-6	8-RSE-6	1/2	3/8	1.13	1.25	.375

Part No.	Interchanges With	Male Pipe Size	A	B Thru Hole
2-2MM-2	2-ME	1/8	.843	.328
4-2MM-4	4-ME	1/4	.968	.421
6-2MM-6	6-ME	3/8	1.00	.562
8-2MM-8	8-ME	1/2	1.13	.687
12-2MM-12	12-ME	3/4	1.44	.890
16-2MM-16	16-ME	3/4	1.44	.890

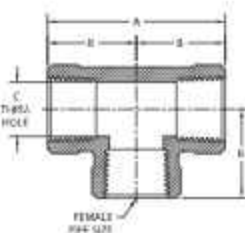
2MM

Male Pipe Elbow



3FFF

All Female Pipe Tee



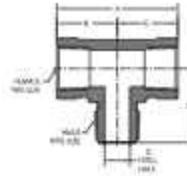
Part No.	Interchanges With	Female Pipe Size	A	B	C Thru Hole
2-3FFF-2	2-T	1/8	1.69	.843	.328
4-3FFF-4	4-T	1/4	1.69	.843	.421
6-3FFF-6	6-T	3/8	2.00	1.00	.562
8-3FFF-8	8-T	1/2	2.63	1.13	.687
12-3FFF-12	12-T	3/4	1.13	1.31	.890
16-3FFF-16	16-T	1	3.25	1.63	.125

3FFM, 3FMF, 3MMM, 4FPCR

Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C	D Thru Hole
2-3FFM-2	2-BT	1/8	1/8	1.69	.843	.843	.187
4-3FFM-4	4-BT	1/4	1/4	1.88	.937	1.00	.281
6-3FFM-6	6-BT	3/8	3/8	2.00	1.00	1.13	.375
8-3FFM-8	8-BT	1/2	1/2	2.25	1.13	1.38	.468
12-3FFM-12	12-BT	3/4	3/4	2.75	1.38	1.63	.625

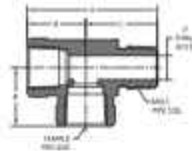
3FFM

Pipe Tee Female -
Female - Male



3FMF

Pipe Tee - Female -
Male - Female

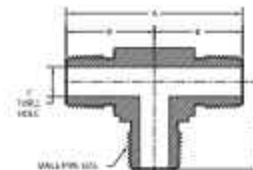


Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C	D Thru Hole
2-3FMF-2	2-ST	1/8	1/8	1.69	.843	.843	.187
4-3FMF-4	4-ST	1/4	1/4	1.89	.843	1.05	.281
6-3FMF-6	6-ST	3/8	3/8	2.13	1.00	1.13	.375
8-3FMF-8	8-ST	1/2	1/2	2.50	1.13	1.38	.468
12-3FMF-12	12-ST	3/4	3/4	2.94	1.44	1.50	.625

Part No.	Interchanges With	Male Pipe Size	A	B	C Thru Hole
2-3MMM-2	2-MT	1/8	1.44	.718	.187
4-3MMM-4	4-MT	1/4	1.88	.937	.281
6-3MMM-6	6-MT	3/8	2.00	1.00	.375
8-3MMM-8	8-MT	1/2	2.75	1.38	.468
12-3MMM-12	12-MT	3/4	2.75	1.38	.625

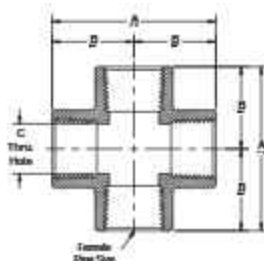
3MMM

All Male Pipe Tee



4FPCR

Female Pipe Cross



Part No.	Interchanges With	Female Pipe Size	A	B	C Thru Hole
2-4FPCR	2-CS	1/8	1.69	.843	.328
4-4FPCR	4-CS	1/4	1.69	.843	.421
6-4FPCR	6-CS	3/8	2.13	1.06	.562
8-4FPCR	8-CS	1/2	2.25	1.13	.687
12-4FPCR	12-CS	3/4	2.88	1.44	.890
16-4FPCR	16-CS	1	3.25	1.63	1.13

END CONNECTIONS

Suggested Allowable Working Pressure Tables



NPT & BSPT Pipe Threads

PSIG					
Size	Thread	Stainless Steel & Carbon Steel		Brass	
		Male	Female	Male	Female
1	1/16	11000	6700	5500	3300
2	1/8	10000	6500	5000	3200
4	1/4	8000	6600	4000	3300
6	3/8	7800	5300	3900	2600
8	1/2	7700	4900	3800	2400
12	3/4	7300	4600	3600	2300
16	1	5300	4400	2600	2200
20	1-1/4	5000	5000	3000	2500
24	1-1/2	5000	4600	2500	2300
32	2	3900	3900	1900	1900

Note: Pressure ratings calculated in accordance with ASME B31.3 with NPT threads per ASME B1.20.1 and BSPT threads per ISO 7-1.

FITTING TEMPERATURE RATINGS

316 Stainless	Brass	Steel
-325°F to 1000°F (-198°C to 648°C)	-40°F to 400°F (-40°C to 204°C)	-65°F to 375°F (-54°C to 190°C)

Pressure derating factors elevated temperatures

Temperatures		Fitting Material		
°F	°C	Carbon	316 SS	Copper
100	38			1.00
150	66			0.85
200	93	0.95	1.00	0.80
250	121			0.80
300	149	0.90	1.00	0.78
350	177			0.66
400	204	0.87*	0.96	0.50
500	260		0.89	
600	316		0.85	
700	371		0.81	
800	427		0.79	
900	482		0.77	
1000	538		0.76	

* Based on 375°F (190°C) max.