Continental
The Future in Motion

Industrial Hose
Assembly Manual

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ContiTech

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Crimp Procedures

Crimp Fabrication Procedures reprinted with permission from the National Association of Hose and Accessories Distributors (NAHAD) Hose Assembly Guidelines™ in compliance with all stated conditions and terms of use.

Fabrication Procedures:

1. Cut hose end square and clean any debris from tube interior.
2. Bend grounding wire inside of hose, extending wire approximately 1/2 in. (12.7mm).
3. Measure the outer diameter of the hose, preferably with a pi tape.
4. Based on the hose outer diameter, select the proper ferrule. Mark a line on the hose cover at the distance from the end of the hose that equals the insertion depth. This becomes a visual check to determine if the hose is fully bottomed into the fitting.
5. Slide the ferrule over the stem collar. If the ferrule has flats, be sure they line up with the flats on the hose collar.
6. Lubrication should only be used if necessary.
7. Insert the stem into the hose squarely without causing damage to the tube.
8. Select the desired crimp length and crimp OD using manufacturer's recommendations.
9. Based on #8, select the proper die set using the crimp machine manufacturer's recommendations.
10. Place the hose assembly in the die opening.
11. Jog the crimp dies until they just contact the ferrule. Be sure the ferrule and crimp dies are lined up properly to achieve the desired crimp length.
12. Crimp the ferrule to the desired diameter.
13. Retract the dies and remove the hose assembly.
14. Measure the crimp diameter to ensure it meets manufacturer's specifications.
15. If the OD is too large, re-crimp the ferrule until it meets the required specification. If the crimp diameter is too small, consult the coupling manufacturer.
16. Repeat steps 1 through 15 for the other end.

Testing:

Hydrostatic testing as required.
Conductivity test required.

Crimp Solutions by Application

A = Chart A B = Chart B C = Chart C D = Chart D
E = Chart E F = Chart F G = Chart G
– = Not available or not applicable

Air

	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1¼"	1½"	2"
Frontier 200	D	D	D	D	D	D	D	D	D	D
Frontier 250	D	D	D	D	D	D	D	D	D	D
Frontier 300	D	D	D	D	D	D	D	D	D	D
Ortac® 250	D	D	D	D	D	D	D	D	D	D
Ortac® 300	D	D	D	D	D	D	D	D	D	D
Variflex™ 200	D	D	D	D	D	D	D	D	D	D
Variflex™ 300	D	D	D	D	D	D	D	D	D	D
Gorilla®	D	D	D	D	D	D	D	D	D	D
Mine Spray	–	–	–	–	–	D	D	D	D	–
Super Ortac®	–	–	–	–	–	D	D	D	D	–
Prospector™ Air	D	–	–	–	–	–	D	–	–	–
Prospector™ Plus Air	D	–	–	–	–	–	D	–	–	–

Chemical

	1/2"	5/8"	3/4"	1"	1¼"	1½"	2"	2½"	3"	4"
ExtremeFlex™ Brown	–	–	–	A	A	A	A	–	A	A
ExtremeFlex™ Purple	–	–	–	–	–	A	A	–	A	A
Chem One™	–	–	–	A	–	A	A	A	A	–
Hi-Per®	A	–	A	A	A	A	A	A	A	A
Viper™	–	–	–	A	–	A	A	A	A	A
Fabchem™	A	–	A	A	A	A	A	A	A	A
Blue Flexwing®	A	–	A	A	A	A	A	A	A	A
Green XLPE	A	–	A	A	A	A	A	A	A	A
Brown Flexwing®	A	–	A	A	A	A	A	A	A	A
Purple Flexwing®	A	–	–	A	–	A	A	–	A	A
Orange Flexwing®	–	–	A	A	A	A	A	A	A	A
DEF Transfer Hose	A	–	A	A	A	A	A	A	A	A
DEF Dispensing Hose	–	–	F	–	–	–	–	–	–	–
Hydrocarbon Drain Hose	–	–	G	–	–	–	–	–	–	–
Infinity	–	–	–	–	–	–	B	–	B	B

Crimp Solutions by Application

A = Chart A B = Chart B C = Chart C D = Chart D
E = Chart E F = Chart F G = Chart G
– = Not available or not applicable

Cleaning Equipment

	1/4"	3/8"	1/2"	5/8"	3/4"
Neptune™	C	C	C	–	–
Gauntlet®	C	C	C	–	–
Fortress®	–	C	–	–	–
Galvanator®	–	C	C	–	–
Whitewater®	–	C	C	–	–
SpiraFlow®	–	C	–	–	–

Food

	3/4"	1"	1¼"	1½"	2"	2½"	3"	4"
ExtremeFlex™ Food Grade Gray	–	–	–	–	A	A	A	A
ExtremeFlex™ Food Grade White	–	–	–	–	A	A	A	A
White Flexwing®	A	A	A	A	A	A	A	A
Plicord® Gray Food	A	A	A	A	A	A	A	A
White Flextra®	–	–	–	A	A	A	A	A
White Softwall	–	A	A	A	A	A	A	A
Exstatic®	–	–	–	–	A	–	A	A
Harvest™	–	–	–	–	A	–	A	A
Potable Water Discharge	A	A	A	A	A	A	A	A
Vintner™	–	A	A	A	A	A	A	–
Pyroflex® III	–	–	–	A	A	A	A	A
ExtremeFlex™ Beverage	–	–	–	A	A	A	A	A

Material Handling Bulk

	1/2"	5/8"	3/4"	1"	1¼"	1½"	2"	2½"	3"	4"	6"
Black Softwall	–	–	–	–	–	–	A	A	A	A	A
Plicord® Torridair™	A	–	–	–	A	A	A	A	A	A	A
Pyroflex® II Hot Air	–	–	–	–	–	–	A	–	A	A	A
Flextra® Dry Material (75 psi)	–	–	–	–	–	–	A	A	A	A	A
Tan Flextra® (75 psi)	–	–	–	–	–	A	A	A	A	A	A
Tan Softwall (75 psi)	A	–	A	–	–	–	A	A	A	A	A

Crimp Solutions by Application

A = Chart A B = Chart B C = Chart C D = Chart D
E = Chart E F = Chart F G = Chart G
– = Not available or not applicable

Petroleum Bulk Transfer

	1/2"	5/8"	3/4"	1"	1¼"	1½"	2"	2½"	3"	4"	6"
Arctic® ExtremeFlex™ Blue	–	–	–	–	–	–	A	–	A	A	–
Arctic® ExtremeFlex™ Black	–	–	–	–	–	–	A	–	A	A	–
Plicord® ExtremeFlex™	A	–	A	A	A	A	A	A	A	A	A
Flexwing® VersaFuel™	A	–	A	A	A	A	A	A	A	A	A
Plicord® Flexwing® Petroleum	A	–	A	A	A	A	A	A	A	A	A
Red Flextra® 150	–	–	–	–	–	–	A	–	A	A	–
Red Flextra® 100	–	–	–	–	–	A	A	A	A	A	–
Plicord® LW Black Flextra™ II	–	–	–	–	–	–	A	A	A	A	–
Infinity™/Paladin® Drop	–	–	–	–	–	–	B	–	B	B	–
Plicord® Fuel Discharge	–	–	A	A	A	A	A	A	A	A	A
Plicord® Arctic Flexwing®	–	–	–	A	A	A	A	A	A	A	–
Prospector Oilfield 150	–	–	A	A	A	A	A	A	A	A	A
Prospector Oilfield 300	–	–	A	A	A	A	A	A	A	A	A
Prospector Flex Oilfield	–	–	–	A	A	A	A	A	A	A	–
Plicord® Super Black Flexwing®	–	–	A	A	A	A	A	A	A	A	A

Steam

	1/2"	3/4"	1"	1¼"	1½"	2"
Flexsteel® 250 Steam Black	E	E	E	–	–	E
Flexsteel® 250 Steam Red	–	E	E	–	–	E
Flexsteel® 250 CB Extreme	–	E	–	–	–	–
Flexsteel® 250 ORS Steam	–	E	–	–	–	–

Vacuum

	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1¼"	1½"	2"	2½"	3"	4"
Plicord® LW Vacuum	–	–	–	–	–	–	A	A	A	A	A	A
Plicord® HD Vacuum	–	–	–	–	–	A	A	–	–	A	A	A
Plicord® HD Ind. Vacuum	–	–	–	–	–	–	–	–	A	A	A	A

Crimp Solutions by Application

A = Chart A B = Chart B C = Chart C D = Chart D
E = Chart E F = Chart F G = Chart G
– = Not available or not applicable

Water Discharge

	1"	1¼"	1½"	2"	2½"	3"	4"	6"
Plicord® Versiflo™ 125 Discharge	–	–	–	–	–	–	–	A
Plicord® Water Discharge 150	A	A	A	A	A	A	A	A
Plicord® HD Water Discharge	A	A	A	A	A	A	A	A
Potable Water	A	A	A	A	A	A	A	–
Jetting & Utility	A	–	A	A	A	A	A	–
Plicord® Furnace Door	–	–	–	–	–	–	–	–

Water S&D

	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"
Flexwing® Water S&D	A	A	A	A	A	A	A	A	–
Versiflo™ 150 Water S&D	A	A	A	A	A	A	A	A	–
Plicord® Con-Ag™ Water S&D	A	A	A	A	A	A	A	A	–
Velocity® Water S&D	–	–	H	H	–	H	H	H	H

½ in. Chart A | Insta-Lock™

Insta-Lock™ ½ in. Crimp Chart*

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Insta-Lock™ Ferrule Part #	Perma-Crimp™ Die Set**	Perma-Crimp™ Approximate Setting
0.846 / 0.858	54/64	60/64	0.89	57/64	FRSSO50060	19	3.61
0.859 / 0.870	55/64	60/64	0.90	58/64	FRSSO50060	19	3.86
0.871 / 0.882	56/64	60/64	0.91	58/64	FRSSO50060	19	4.11
0.883 / 0.894	57/64	60/64	0.92	59/64	FRSSO50060	19	4.37
0.895 / 0.906	58/64	1	0.93	60/64	FRSSO50100	19	4.62
0.907 / 0.918	58/64	1	0.94	60/64	FRSSO50100	19	4.88
0.919 / 0.930	59/64	1	0.95	61/64	FRSSO50100	23	1.13
0.931 / 0.942	60/64	1	0.96	61/64	FRSSO50100	23	1.38
0.943 / 0.955	61/64	1	0.97	62/64	FRSSO50100	23	1.64
0.956 / 0.967	61/64	1 4/64	0.98	63/64	FRSSO50104	23	1.89
0.968 / 0.979	62/64	1 4/64	0.99	63/64	FRSSO50104	23	2.15
0.980 / 0.991	63/64	1 4/64	1.00	1	FRSSO50104	23	2.40
0.992 / 1.003	1	1 4/64	1.01	1 1/64	FRSSO50104	23	2.65
1.004 / 1.015	1 1/64	1 4/64	1.02	1 1/64	FRSSO50104	23	2.91
1.016 / 1.027	1 1/64	1 8/64	1.03	1 2/64	FRSSO50108	23	3.16
1.028 / 1.039	1 2/64	1 8/64	1.04	1 3/64	FRSSO50108	23	3.42
1.040 / 1.052	1 3/64	1 8/64	1.05	1 3/64	FRSSO50108	23	3.67
1.053 / 1.064	1 4/64	1 8/64	1.06	1 4/64	FRSSO50108	23	3.92
1.065 / 1.076	1 4/64	1 8/64	1.07	1 4/64	FRSSO50108	23	4.18
1.077 / 1.088	1 5/64	1 12/64	1.08	1 5/64	FRSSO50112	23	4.43
1.089 / 1.100	1 6/64	1 12/64	1.09	1 6/64	FRSSO50112	27	0.69
1.101 / 1.112	1 7/64	1 12/64	1.10	1 6/64	FRSSO50112	27	0.94
1.113 / 1.124	1 8/64	1 12/64	1.11	1 7/64	FRSSO50112	27	1.19
1.125 / 1.136	1 8/64	1 12/64	1.12	1 8/64	FRSSO50112	27	1.45
1.137 / 1.148	1 9/64	1 16/64	1.13	1 8/64	FRSSO50116	27	1.70
1.149 / 1.161	1 10/64	1 16/64	1.14	1 9/64	FRSSO50116	27	1.96
1.162 / 1.173	1 11/64	1 16/64	1.15	1 10/64	FRSSO50116	27	2.21
1.174 / 1.185	1 11/64	1 16/64	1.16	1 10/64	FRSSO50116	27	2.46

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

¾ in. Chart A | Insta-Lock™

Insta-Lock™ ¾ in. Crimp Chart*

Perma-Crimp™

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Insta-Lock™ Ferrule Part #	Die Set**	Approximate Setting
1.060 / 1.071	1 4/64	1 2/16	1.11	1 7/64	FRSS075108	27	1.19
1.072 / 1.083	1 5/64	1 2/16	1.12	1 8/64	FRSS075108	27	1.45
1.084 / 1.095	1 6/64	1 3/16	1.13	1 8/64	FRSS075112	27	1.70
1.096 / 1.108	1 6/64	1 3/16	1.14	1 9/64	FRSS075112	27	1.96
1.109 / 1.120	1 7/64	1 3/16	1.15	1 10/64	FRSS075112	27	2.21
1.121 / 1.132	1 8/64	1 3/16	1.16	1 10/64	FRSS075112	27	2.46
1.133 / 1.144	1 9/64	1 3/16	1.17	1 11/64	FRSS075112	27	2.72
1.145 / 1.156	1 10/64	1 4/16	1.18	1 12/64	FRSS075116	27	2.97
1.157 / 1.168	1 10/64	1 4/16	1.19	1 12/64	FRSS075116	27	3.23
1.169 / 1.180	1 11/64	1 4/16	1.20	1 13/64	FRSS075116	27	3.48
1.181 / 1.192	1 12/64	1 4/16	1.21	1 13/64	FRSS075116	27	3.73
1.193 / 1.205	1 13/64	1 4/16	1.22	1 14/64	FRSS075116	27	3.99
1.206 / 1.217	1 13/64	1 5/16	1.23	1 15/64	FRSS075120	27	4.24
1.218 / 1.229	1 14/64	1 5/16	1.24	1 15/64	FRSS075120	31	0.50
1.230 / 1.241	1 15/64	1 5/16	1.25	1 16/64	FRSS075120	31	0.75
1.242 / 1.253	1 16/64	1 5/16	1.26	1 17/64	FRSS075120	31	1.00
1.254 / 1.265	1 17/64	1 5/16	1.27	1 17/64	FRSS075120	31	1.26
1.266 / 1.277	1 17/64	1 6/16	1.28	1 18/64	FRSS075124	31	1.51
1.278 / 1.289	1 18/64	1 6/16	1.29	1 19/64	FRSS075124	31	1.77
1.290 / 1.302	1 19/64	1 6/16	1.30	1 19/64	FRSS075124	31	2.02
1.303 / 1.314	1 20/64	1 6/16	1.31	1 20/64	FRSS075124	31	2.27
1.315 / 1.326	1 20/64	1 6/16	1.32	1 20/64	FRSS075124	31	2.53
1.327 / 1.338	1 21/64	1 7/16	1.33	1 21/64	FRSS075128	31	2.78
1.339 / 1.350	1 22/64	1 7/16	1.34	1 22/64	FRSS075128	31	3.04

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

1 in. Chart A | Insta-Lock™

Insta-Lock™ 1 in. Crimp Chart*

For Ferrule Wall Thickness of .060 in.

Perma-Crimp™

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Insta-Lock™ Ferrule Part #	Die Set**	Approximate Setting
1.300 / 1.312	1 20/64	1 28/64	1.37	1 24/64	FRSS100128	34	0.80
1.313 / 1.324	1 20/64	1 28/64	1.38	1 24/64	FRSS100128	34	1.05
1.325 / 1.336	1 21/64	1 28/64	1.39	1 25/64	FRSS100128	34	1.31
1.337 / 1.348	1 22/64	1 28/64	1.40	1 26/64	FRSS100128	34	1.56
1.349 / 1.360	1 23/64	1 28/64	1.41	1 26/64	FRSS100128	34	1.81
1.361 / 1.372	1 23/64	1 32/64	1.42	1 27/64	FRSS100132	34	2.07
1.373 / 1.384	1 24/64	1 32/64	1.43	1 28/64	FRSS100132	34	2.32
1.385 / 1.396	1 25/64	1 32/64	1.44	1 28/64	FRSS100132	34	2.58
1.397 / 1.408	1 26/64	1 32/64	1.45	1 29/64	FRSS100132	34	2.83
1.409 / 1.421	1 27/64	1 32/64	1.46	1 29/64	FRSS100132	34	3.08
1.422 / 1.433	1 27/64	1 36/64	1.47	1 30/64	FRSS100136	34	3.34
1.434 / 1.445	1 28/64	1 36/64	1.48	1 31/64	FRSS100136	34	3.59
1.446 / 1.457	1 29/64	1 36/64	1.49	1 31/64	FRSS100136	34	3.85
1.458 / 1.469	1 30/64	1 36/64	1.50	1 32/64	FRSS100136	34	4.10
1.470 / 1.481	1 30/64	1 36/64	1.51	1 33/64	FRSS100136	34	4.35
1.482 / 1.493	1 31/64	1 36/64	1.52	1 33/64	FRSS100136	34	4.61
1.494 / 1.505	1 32/64	1 40/64	1.53	1 34/64	FRSS100140	34	4.86
1.506 / 1.518	1 33/64	1 40/64	1.54	1 35/64	FRSS100140	34	5.12
1.519 / 1.530	1 34/64	1 40/64	1.55	1 35/64	FRSS100140	34	5.37
1.531 / 1.542	1 34/64	1 40/64	1.56	1 36/64	FRSS100140	34	5.62
1.543 / 1.554	1 35/64	1 40/64	1.57	1 36/64	FRSS100140	34	5.88
1.555 / 1.566	1 36/64	1 44/64	1.58	1 37/64	FRSS100144	34	6.13
1.567 / 1.578	1 37/64	1 44/64	1.59	1 38/64	FRSS100144	34	6.39
1.579 / 1.590	1 37/64	1 44/64	1.60	1 38/64	FRSS100144	34	6.64
1.591 / 1.602	1 38/64	1 44/64	1.61	1 39/64	FRSS100144	34	6.39
1.603 / 1.615	1 39/64	1 44/64	1.62	1 40/64	FRSS100144	34	7.15

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted on pages 4-7 (Crimp Solutions by Application) and is for ferrule wall thickness of .060".
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

1¼ in. Chart A | Insta-Lock™

Insta-Lock™ 1¼ in. Crimp Chart*

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Perma-Crimp™ Die Set**	Perma-Crimp™ Approximate Setting
1.548 / 1.559	1 35/64	1 44/64	1.63	1 40/64	FSSR125144	41	0.40
1.560 / 1.571	1 36/64	1 44/64	1.64	1 41/64	FSSR125144	41	0.66
1.572 / 1.583	1 37/64	1 44/64	1.65	1 42/64	FSSR125144	41	0.91
1.584 / 1.595	1 38/64	1 44/64	1.66	1 42/64	FSSR125144	41	1.16
1.596 / 1.608	1 38/64	1 44/64	1.67	1 43/64	FSSR125144	41	1.42
1.609 / 1.620	1 39/64	1 48/64	1.68	1 44/64	FSSR125148	41	1.67
1.621 / 1.632	1 40/64	1 48/64	1.69	1 44/64	FSSR125148	41	1.93
1.633 / 1.644	1 41/64	1 48/64	1.70	1 45/64	FSSR125148	41	2.18
1.645 / 1.656	1 42/64	1 48/64	1.71	1 45/64	FSSR125148	41	2.43
1.657 / 1.668	1 42/64	1 48/64	1.72	1 46/64	FSSR125148	41	2.69
1.669 / 1.680	1 43/64	1 52/64	1.73	1 47/64	FSSR125152	41	2.94
1.681 / 1.692	1 44/64	1 52/64	1.74	1 47/64	FSSR125152	41	3.20
1.693 / 1.705	1 45/64	1 52/64	1.75	1 48/64	FSSR125152	41	3.45
1.706 / 1.717	1 45/64	1 52/64	1.76	1 49/64	FSSR125152	41	3.70
1.718 / 1.729	1 46/64	1 52/64	1.77	1 49/64	FSSR125152	41	3.96
1.730 / 1.741	1 47/64	1 56/64	1.78	1 50/64	FSSR125156	41	4.21
1.742 / 1.753	1 48/64	1 56/64	1.79	1 51/64	FSSR125156	45	0.47
1.754 / 1.765	1 49/64	1 56/64	1.80	1 51/64	FSSR125156	45	0.72
1.766 / 1.777	1 49/64	1 56/64	1.81	1 52/64	FSSR125156	45	0.97
1.778 / 1.789	1 50/64	1 56/64	1.82	1 52/64	FSSR125156	45	1.23
1.790 / 1.802	1 51/64	1 60/64	1.83	1 53/64	FSSR125160	45	1.48
1.803 / 1.814	1 52/64	1 60/64	1.84	1 54/64	FSSR125160	45	1.74
1.815 / 1.826	1 52/64	1 60/64	1.85	1 54/64	FSSR125160	45	1.99
1.827 / 1.838	1 53/64	1 60/64	1.86	1 55/64	FSSR125160	45	2.24
1.839 / 1.850	1 54/64	1 60/64	1.87	1 56/64	FSSR125160	45	2.50
1.851 / 1.862	1 55/64	1 60/64	1.88	1 56/64	FSSR125160	45	2.75

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

1½ in. Chart A | Insta-Lock™

Insta-Lock™ 1½ in. Crimp Chart*

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Perma-Crimp™ Die Set**	Perma-Crimp™ Approximate Setting
1.798 / 1.809	1 51/64	1 60/64	1.88	1 56/64	FRSS150160	45	2.75
1.810 / 1.821	1 52/64	1 60/64	1.89	1 57/64	FRSS150160	45	3.01
1.822 / 1.833	1 53/64	1 60/64	1.90	1 58/64	FRSS150160	45	3.26
1.834 / 1.845	1 54/64	1 60/64	1.91	1 58/64	FRSS150160	45	3.51
1.846 / 1.858	1 54/64	1 60/64	1.92	1 59/64	FRSS150160	45	3.77
1.859 / 1.870	1 55/64	2	1.93	1 60/64	FRSS150200	45	4.02
1.871 / 1.882	1 56/64	2	1.94	1 60/64	FRSS150200	45	4.28
1.883 / 1.894	1 57/64	2	1.95	1 61/64	FRSS150200	45	4.53
1.895 / 1.906	1 58/64	2	1.96	1 61/64	FRSS150200	45	4.78
1.907 / 1.918	1 58/64	2	1.97	1 62/64	FRSS150200	45	5.04
1.919 / 1.930	1 59/64	2 4/64	1.98	1 63/64	FRSS150204	45	5.29
1.931 / 1.942	1 60/64	2 4/64	1.99	1 63/64	FRSS150204	50	0.55
1.943 / 1.955	1 61/64	2 4/64	2.00	2	FRSS150204	50	0.80
1.956 / 1.967	1 61/64	2 4/64	2.01	2 1/64	FRSS150204	50	1.05
1.968 / 1.979	1 62/64	2 4/64	2.02	2 1/64	FRSS150204	50	1.31
1.980 / 1.991	1 63/64	2 8/64	2.03	2 2/64	FRSS150208	50	1.56
1.992 / 2.003	2	2 8/64	2.04	2 3/64	FRSS150208	50	1.82
2.004 / 2.015	2 1/64	2 8/64	2.05	2 3/64	FRSS150208	50	2.07
2.016 / 2.027	2 1/64	2 8/64	2.06	2 4/64	FRSS150208	50	2.32
2.028 / 2.039	2 2/64	2 8/64	2.07	2 4/64	FRSS150208	50	2.58
2.040 / 2.052	2 3/64	2 12/64	2.08	2 5/64	FRSS150212	50	2.83
2.053 / 2.064	2 4/64	2 12/64	2.09	2 6/64	FRSS150212	50	3.09
2.065 / 2.076	2 4/64	2 12/64	2.10	2 6/64	FRSS150212	50	3.34
2.077 / 2.088	2 5/64	2 12/64	2.11	2 7/64	FRSS150212	50	3.59
2.089 / 2.100	2 6/64	2 12/64	2.12	2 8/64	FRSS150212	50	3.85
2.101 / 2.112	2 7/64	2 12/64	2.13	2 8/64	FRSS150212	50	4.10
2.113 / 2.124	2 8/64	2 16/64	2.14	2 9/64	FRSS150216	50	4.36
2.125 / 2.136	2 8/64	2 16/64	2.15	2 10/64	FRSS150216	50	4.61
2.137 / 2.148	2 9/64	2 16/64	2.16	2 10/64	FRSS150216	50	4.86
2.149 / 2.161	2 10/64	2 16/64	2.17	2 11/64	FRSS150216	50	5.12
2.162 / 2.173	2 11/64	2 16/64	2.18	2 12/64	FRSS150216	50	5.37

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

2 in. Chart A | Insta-Lock™

Insta-Lock™ 2 in. Crimp Chart*

Perma-Crimp™

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Die Set**	Approximate Setting
2.346 / 2.358	2 22/64	2 32/64	2.42	2 27/64	FRSS200232	56	5.47
2.359 / 2.370	2 23/64	2 32/64	2.43	2 28/64	FRSS200232	56	5.72
2.371 / 2.382	2 24/64	2 32/64	2.44	2 28/64	FRSS200232	56	5.98
2.383 / 2.394	2 25/64	2 32/64	2.45	2 29/64	FRSS200232	56	6.23
2.395 / 2.406	2 26/64	2 32/64	2.46	2 29/64	FRSS200232	56	6.48
2.407 / 2.418	2 26/64	2 32/64	2.47	2 30/64	FRSS200232	62	0.74
2.419 / 2.430	2 27/64	2 36/64	2.48	2 31/64	FRSS200236	62	0.99
2.431 / 2.442	2 28/64	2 36/64	2.49	2 31/64	FRSS200236	62	1.25
2.443 / 2.455	2 29/64	2 36/64	2.50	2 32/64	FRSS200236	62	1.50
2.456 / 2.467	2 29/64	2 36/64	2.51	2 33/64	FRSS200236	62	1.75
2.468 / 2.479	2 30/64	2 36/64	2.52	2 33/64	FRSS200236	62	2.01
2.480 / 2.491	2 31/64	2 40/64	2.53	2 34/64	FRSS200240	62	2.26
2.492 / 2.503	2 32/64	2 40/64	2.54	2 35/64	FRSS200240	62	2.52
2.504 / 2.515	2 33/64	2 40/64	2.55	2 35/64	FRSS200240	62	2.77
2.516 / 2.527	2 33/64	2 40/64	2.56	2 36/64	FRSS200240	62	3.02
2.528 / 2.539	2 34/64	2 40/64	2.57	2 36/64	FRSS200240	62	3.28
2.540 / 2.552	2 35/64	2 44/64	2.58	2 37/64	FRSS200244	62	3.53
2.553 / 2.564	2 36/64	2 44/64	2.59	2 38/64	FRSS200244	62	3.79
2.565 / 2.576	2 36/64	2 44/64	2.60	2 38/64	FRSS200244	62	4.04
2.577 / 2.588	2 37/64	2 44/64	2.61	2 39/64	FRSS200244	62	4.29
2.589 / 2.600	2 38/64	2 44/64	2.62	2 40/64	FRSS200244	62	4.55
2.601 / 2.612	2 39/64	2 48/64	2.63	2 40/64	FRSS200248	62	4.80
2.613 / 2.624	2 40/64	2 48/64	2.64	2 41/64	FRSS200248	62	5.06
2.625 / 2.636	2 40/64	2 48/64	2.65	2 42/64	FRSS200248	62	5.31
2.637 / 2.648	2 41/64	2 48/64	2.66	2 42/64	FRSS200248	62	5.56
2.649 / 2.661	2 42/64	2 48/64	2.67	2 43/64	FRSS200248	62	5.82
2.662 / 2.673	2 43/64	2 52/64	2.68	2 44/64	FRSS200252	62	6.07
2.674 / 2.685	2 43/64	2 52/64	2.69	2 44/64	FRSS200252	62	6.33
2.686 / 2.697	2 44/64	2 52/64	2.70	2 45/64	FRSS200252	62	6.58
2.698 / 2.709	2 45/64	2 52/64	2.71	2 45/64	FRSS200252	62	6.83
2.710 / 2.721	2 46/64	2 52/64	2.72	2 46/64	FRSS200252	62	7.09
2.722 / 2.733	2 47/64	2 56/64	2.73	2 47/64	FRSS200256	62	7.34
2.734 / 2.745	2 47/64	2 56/64	2.74	2 47/64	FRSS200256	62	7.60
2.746 / 2.758	2 48/64	2 56/64	2.75	2 48/64	FRSS200256	62	7.85
2.759 / 2.770	2 49/64	2 56/64	2.76	2 49/64	FRSS200256	69	1.10

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

2½ in. Chart A | Insta-Lock™

Insta-Lock™ 2½ in. Crimp Chart*

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Perma-Crimp™ Die Set**	Perma-Crimp™ Approximate Setting
2.834 / 2.845	2 54/64	3	2.91	2 58/64	FRSS250300	69	4.91
2.846 / 2.858	2 54/64	3	2.92	2 59/64	FRSS250300	69	5.17
2.859 / 2.870	2 55/64	3	2.93	2 60/64	FRSS250300	69	5.42
2.871 / 2.882	2 56/64	3	2.94	2 60/64	FRSS250300	69	5.68
2.883 / 2.894	2 57/64	3	2.95	2 61/64	FRSS250300	69	5.93
2.895 / 2.906	2 58/64	3 4/64	2.96	2 61/64	FRSS250304	74	1.18
2.907 / 2.918	2 58/64	3 4/64	2.97	2 62/64	FRSS250304	74	1.44
2.919 / 2.930	2 59/64	3 4/64	2.98	2 63/64	FRSS250304	74	1.69
2.931 / 2.942	2 60/64	3 4/64	2.99	2 63/64	FRSS250304	74	1.95
2.943 / 2.955	2 61/64	3 4/64	3.00	3	FRSS250304	74	2.20
2.956 / 2.967	2 61/64	3 8/64	3.01	3 1/64	FRSS250308	74	2.45
2.968 / 2.979	2 62/64	3 8/64	3.02	3 1/64	FRSS250308	74	2.71
2.980 / 2.991	2 63/64	3 8/64	3.03	3 2/64	FRSS250308	74	2.96
2.992 / 3.003	3	3 8/64	3.04	3 3/64	FRSS250308	74	3.22
3.004 / 3.015	3 1/64	3 8/64	3.05	3 3/64	FRSS250308	74	3.47
3.016 / 3.027	3 1/64	3 12/64	3.06	3 4/64	FRSS250312	74	3.72
3.028 / 3.039	3 2/64	3 12/64	3.07	3 4/64	FRSS250312	74	3.98
3.040 / 3.052	3 3/64	3 12/64	3.08	3 5/64	FRSS250312	74	4.23
3.053 / 3.064	3 4/64	3 12/64	3.09	3 6/64	FRSS250312	74	4.49
3.065 / 3.076	3 4/64	3 12/64	3.10	3 6/64	FRSS250312	74	4.74
3.077 / 3.088	3 5/64	3 16/64	3.11	3 7/64	FRSS250316	74	4.99
3.089 / 3.100	3 6/64	3 16/64	3.12	3 8/64	FRSS250316	78	1.25
3.101 / 3.112	3 7/64	3 16/64	3.13	3 8/64	FRSS250316	78	1.50
3.113 / 3.124	3 8/64	3 16/64	3.14	3 9/64	FRSS250316	78	1.76
3.125 / 3.136	3 8/64	3 16/64	3.15	3 10/64	FRSS250316	78	2.01
3.137 / 3.148	3 9/64	3 20/64	3.16	3 10/64	FRSS250320	78	2.26
3.149 / 3.161	3 10/64	3 20/64	3.17	3 11/64	FRSS250320	78	2.52
3.162 / 3.173	3 11/64	3 20/64	3.18	3 12/64	FRSS250320	78	2.77
3.174 / 3.185	3 11/64	3 20/64	3.19	3 12/64	FRSS250320	78	3.03
3.186 / 3.197	3 12/64	3 20/64	3.20	3 13/64	FRSS250320	78	3.28

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

3 in. Chart A | Insta-Lock™

Insta-Lock™ 3 in. Crimp Chart*

For Ferrule Wall Thickness of .080 in.

Perma-Crimp™

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Die Set**	Approximate Setting
3.359 / 3.370	3 23/64	3 32/64	3.46	3 29/64	FRSS300332	86	1.88
3.371 / 3.382	3 24/64	3 32/64	3.47	3 30/64	FRSS300332	86	2.14
3.383 / 3.394	3 25/64	3 32/64	3.48	3 31/64	FRSS300332	86	2.39
3.395 / 3.406	3 26/64	3 36/64	3.49	3 31/64	FRSS300336	86	2.65
3.407 / 3.418	3 26/64	3 36/64	3.50	3 32/64	FRSS300336	86	2.90
3.419 / 3.430	3 27/64	3 36/64	3.51	3 33/64	FRSS300336	86	3.15
3.431 / 3.442	3 28/64	3 36/64	3.52	3 33/64	FRSS300336	86	3.41
3.443 / 3.455	3 29/64	3 36/64	3.53	3 34/64	FRSS300336	86	3.66
3.456 / 3.467	3 29/64	3 40/64	3.54	3 35/64	FRSS300340	86	3.92
3.468 / 3.479	3 30/64	3 40/64	3.55	3 35/64	FRSS300340	86	4.17
3.480 / 3.491	3 31/64	3 40/64	3.56	3 36/64	FRSS300340	90	0.42
3.492 / 3.503	3 32/64	3 40/64	3.57	3 36/64	FRSS300340	90	0.93
3.516 / 3.527	3 33/64	3 44/64	3.59	3 38/64	FRSS300344	90	1.19
3.528 / 3.539	3 34/64	3 44/64	3.60	3 38/64	FRSS300344	90	1.44
3.540 / 3.552	3 35/64	3 44/64	3.61	3 39/64	FRSS300344	90	1.69
3.553 / 3.564	3 36/64	3 44/64	3.62	3 40/64	FRSS300344	90	1.95
3.565 / 3.576	3 36/64	3 44/64	3.63	3 40/64	FRSS300344	90	2.20
3.577 / 3.588	3 37/64	3 48/64	3.64	3 41/64	FRSS300348	90	2.46
3.589 / 3.600	3 38/64	3 48/64	3.65	3 42/64	FRSS300348	90	2.71
3.601 / 3.612	3 39/64	3 48/64	3.66	3 42/64	FRSS300348	90	2.96
3.613 / 3.624	3 40/64	3 48/64	3.67	3 43/64	FRSS300348	90	3.22
3.625 / 3.636	3 40/64	3 48/64	3.68	3 44/64	FRSS300348	90	3.47
3.637 / 3.648	3 41/64	3 52/64	3.69	3 44/64	FRSS300352	90	3.73
3.649 / 3.661	3 42/64	3 52/64	3.70	3 45/64	FRSS300352	90	3.98
3.662 / 3.673	3 43/64	3 52/64	3.71	3 45/64	FRSS300352	90	4.23
3.674 / 3.685	3 43/64	3 52/64	3.72	3 46/64	FRSS300352	90	4.49
3.686 / 3.697	3 44/64	3 52/64	3.73	3 47/64	FRSS300352	90	4.74
3.698 / 3.709	3 45/64	3 56/64	3.74	3 47/64	FRSS300356	90	5.00
3.710 / 3.721	3 46/64	3 56/64	3.75	3 48/64	FRSS300356	90	5.25
3.722 / 3.733	3 47/64	3 56/64	3.76	3 49/64	FRSS300356	90	5.50
3.734 / 3.745	3 47/64	3 56/64	3.77	3 49/64	FRSS300356	90	5.76
3.746 / 3.758	3 48/64	3 56/64	3.78	3 50/64	FRSS300356	90	6.01
3.759 / 3.770	3 49/64	3 56/64	3.79	3 51/64	FRSS300356	90	6.27
3.771 / 3.782	3 50/64	3 60/64	3.80	3 51/64	FRSS300360	90	6.52
3.783 / 3.794	3 50/64	3 15/16	3.81	3 52/64	FRSS300315	90	6.77

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application) and is for ferrule wall thickness of .080".
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

4 in. Chart A | Insta-Lock™

Insta-Lock™ 4 in. Crimp Chart*

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Perma-Crimp™ Die Set**	Perma-Crimp™ Approximate Setting
4.448 / 4.459	4 29/64	4 40/64	4.54	4 35/64	FRSS400440	114	1.32
4.460 / 4.472	4 30/64	4 40/64	4.55	4 35/64	FRSS400440	114	1.57
4.473 / 4.484	4 31/64	4 40/64	4.56	4 36/64	FRSS400440	114	1.82
4.485 / 4.496	4 31/64	4 40/64	4.57	4 36/64	FRSS400440	114	2.08
4.497 / 4.508	4 32/64	4 40/64	4.58	4 37/64	FRSS400440	114	2.33
4.509 / 4.520	4 33/64	4 44/64	4.59	4 38/64	FRSS400444	114	2.59
4.521 / 4.532	4 34/64	4 44/64	4.60	4 38/64	FRSS400444	114	2.84
4.533 / 4.544	4 34/64	4 44/64	4.61	4 39/64	FRSS400444	114	3.09
4.545 / 4.556	4 35/64	4 44/64	4.62	4 40/64	FRSS400444	114	3.35
4.557 / 4.568	4 36/64	4 44/64	4.63	4 40/64	FRSS400444	114	3.60
4.569 / 4.581	4 37/64	4 48/64	4.64	4 41/64	FRSS400448	114	3.86
4.582 / 4.593	4 38/64	4 48/64	4.65	4 42/64	FRSS400448	114	4.11
4.594 / 4.605	4 38/64	4 48/64	4.66	4 42/64	FRSS400448	114	4.36
4.606 / 4.617	4 39/64	4 48/64	4.67	4 43/64	FRSS400448	114	4.62
4.618 / 4.629	4 40/64	4 48/64	4.68	4 44/64	FRSS400448	114	4.87
4.630 / 4.641	4 41/64	4 52/64	4.69	4 44/64	FRSS400452	118	1.13
4.642 / 4.653	4 41/64	4 52/64	4.70	4 45/64	FRSS400452	118	1.38
4.654 / 4.665	4 42/64	4 52/64	4.71	4 45/64	FRSS400452	118	1.63
4.666 / 4.678	4 43/64	4 52/64	4.72	4 46/64	FRSS400452	118	1.89
4.679 / 4.690	4 44/64	4 52/64	4.73	4 47/64	FRSS400452	118	2.14
4.691 / 4.702	4 45/64	4 52/64	4.74	4 47/64	FRSS400452	118	2.40
4.703 / 4.714	4 45/64	4 56/64	4.75	4 48/64	FRSS400456	118	2.65
4.715 / 4.726	4 46/64	4 56/64	4.76	4 49/64	FRSS400456	118	2.90
4.727 / 4.738	4 47/64	4 56/64	4.77	4 49/64	FRSS400456	118	3.16
4.739 / 4.750	4 48/64	4 56/64	4.78	4 50/64	FRSS400456	118	3.41
4.751 / 4.762	4 48/64	4 56/64	4.79	4 51/64	FRSS400456	118	3.67
4.763 / 4.775	4 49/64	4 60/64	4.80	4 51/64	FRSS400460	118	3.92
4.776 / 4.787	4 50/64	4 60/64	4.81	4 52/64	FRSS400460	118	4.17
4.788 / 4.799	4 51/64	4 60/64	4.82	4 52/64	FRSS400460	118	4.43
4.800 / 4.811	4 52/64	4 60/64	4.83	4 53/64	FRSS400460	118	4.68
4.812 / 4.823	4 52/64	4 60/64	4.84	4 54/64	FRSS400460	118	4.94
4.824 / 4.835	4 53/64	5	4.85	4 54/64	FRSS400500	118	5.19
4.836 / 4.847	4 54/64	5	4.86	4 55/64	FRSS400500	118	5.44
4.848 / 4.859	4 55/64	5	4.87	4 56/64	FRSS400500	118	5.70
4.860 / 4.872	4 55/64	5	4.88	4 56/64	FRSS400500	118	5.95
4.873 / 4.884	4 56/64	5	4.89	4 57/64	FRSS400500	118	6.21

The above Insta-Lock™ Crimp Chart is to be used ONLY for the Continental ContiTech Industrial Hoses and sizes denoted "A" on pages 4-7 (Crimp Solutions by Application).
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

6 in. Chart A | Insta-Lock™

Insta-Lock™ 6 in. Crimp Chart*

Perma-Crimp™

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Die Set**	Approximate Setting
6.254 / 6.261	6 33/64	6 40/64	6.67	6 43/64	FRCS600640*	166	3.30
6.262 / 6.269	6 34/64	6 56/64	6.68	6 43/64	FRSS600656	166	3.63
6.270 / 6.277	6 35/64	6 40/64	6.69	6 44/64	FRSS600656	166	3.96
6.278 / 6.285	6 36/64	6 40/64	6.70	6 45/64	FRSS600656	166	4.28
6.286 / 6.293	6 37/64	6 40/64	6.72	6 46/64	FRSS600656	166	4.61
6.293 / 6.300	6 38/64	6 40/64	6.73	6 47/64	FRSS600656	166	4.94
6.301 / 6.308	6 39/64	6 40/64	6.74	6 48/64	FRSS600656	166	5.27
6.309 / 6.316	6 40/64	6 40/64	6.76	6 48/64	FRSS600656	166	5.59
6.317 / 6.324	6 41/64	6 40/64	6.77	6 49/64	FRSS600656	166	5.92
6.325 / 6.332	6 42/64	6 40/64	6.78	6 50/64	FRSS600656	166	6.25
6.332 / 6.339	6 43/64	6 40/64	6.79	6 51/64	FRSS600656	166	6.58
6.340 / 6.347	6 44/64	6 40/64	6.81	6 52/64	FRSS600656	166	6.90
6.348 / 6.355	6 45/64	6 40/64	6.82	6 52/64	FRSS600656	166	7.23
6.356 / 6.363	6 46/64	6 40/64	6.83	6 53/64	FRSS600656	166	7.56
6.364 / 6.371	6 47/64	6 40/64	6.85	6 54/64	FRSS600656	166	7.88
6.372 / 6.379	6 48/64	6 40/64	6.86	6 55/64	FRSS600656	166	8.21
6.379 / 6.386	6 49/64	6 40/64	6.87	6 56/64	FRSS600656	166	8.54
6.387 / 6.394	6 50/64	7 8/64	6.88	6 57/64	FRSS600708	166	8.87
6.395 / 6.402	6 51/64	7 8/64	6.90	6 57/64	FRSS600708	166	9.19
6.403 / 6.410	6 52/64	7 8/64	6.91	6 58/64	FRSS600708	166	9.52
6.411 / 6.418	6 53/64	7 8/64	6.92	6 59/64	FRSS600708	166	9.85
6.418 / 6.425	6 54/64	7 8/64	6.94	6 60/64	FRSS600708	166	10.18
6.426 / 6.433	6 55/64	7 8/64	6.95	6 61/64	FRSS600708	166	10.50
6.434 / 6.441	6 56/64	7 8/64	6.96	6 62/64	FRSS600708	166	10.83
6.442 / 6.449	6 57/64	7 8/64	6.97	6 62/64	FRSS600708	166	11.16
6.450 / 6.457	6 58/64	7 8/64	6.99	6 63/64	FRSS600708	166	11.49
6.457 / 6.464	6 59/64	7 8/64	7.00	7	FRSS600708	166	11.81
6.465 / 6.472	6 60/64	7 8/64	7.01	7 1/64	FRSS600708	178	0.14
6.473 / 6.480	6 61/64	7 8/64	7.03	7 2/64	FRSS600708	178	0.47
6.481 / 6.488	6 62/64	7 8/64	7.04	7 3/64	FRSS600708	178	0.80
6.489 / 6.496	6 63/64	7 8/64	7.05	7 3/64	FRSS600708	178	1.12
6.497 / 6.504	7	7 8/64	7.07	7 4/64	FRSS600708	178	1.45
6.504 / 6.511	7 1/64	7 8/64	7.08	7 5/64	FRSS600708	178	1.78
6.512 / 6.519	7 2/64	7 24/64	7.09	7 6/64	FRSS600724	178	2.11
6.520 / 6.527	7 3/64	7 24/64	7.10	7 7/64	FRSS600724	178	2.43

*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

Chart continued on next page

6 in. Chart A | Insta-Lock™

Insta-Lock™ 6 in. Crimp Chart* (continued) Perma-Crimp™

Measured Hose OD, Decimal Min. / Max.	Measured Hose OD In Closest 64ths	Ferrule ID	Finished Crimp Diameter Inches	Finished Crimp Diameter Closest 64th	Stainless Steel Insta-Lock™ Ferrule Part #	Die Set**	Approximate Setting
6.528 / 6.535	7 4/64	7 24/64	7.12	7 7/64	FRSS600724	178	2.76
6.536 / 6.543	7 5/64	7 24/64	7.13	7 8/64	FRSS600724	178	3.09
6.543 / 6.550	7 6/64	7 24/64	7.14	7 9/64	FRSS600724	178	3.42
6.551 / 6.558	7 7/64	7 24/64	7.16	7 10/64	FRSS600724	178	3.74
6.559 / 6.566	7 8/64	7 24/64	7.17	7 11/64	FRSS600724	178	4.07
6.567 / 6.574	7 9/64	7 24/64	7.18	7 12/64	FRSS600724	178	4.40
6.575 / 6.582	7 10/64	7 24/64	7.19	7 12/64	FRSS600724	178	4.73
6.582 / 6.589	7 11/64	7 24/64	7.21	7 13/64	FRSS600724	178	5.05

*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

2 in. Chart B | Infinity™/Paladin®/Insta-Lock™

Insta-Lock™ 2 in. Crimp Chart*

For Infinity™/Paladin® Crimp Sleeves on Infinity™/Paladin® Hose

Perma-Crimp™

Hose OD	Hose OD 64ths	Wall	Crimp Diameter	Crimp Diameter 64th	Ferrule ID	Ferrule Part #	Sleeve ID	Sleeve Part #	Die Set**	Setting
2.64	2 41/64	0.32	2.68	2 44/64	2 48/64	FRSS200248	3	CSSS200300	62	6.09
2.66	2 42/64	0.33	2.69	2 44/64	2 52/64	FRSS200252	3	CSSS200300	62	6.43
2.68	2 44/64	0.34	2.71	2 45/64	2 52/64	FRSS200252	3	CSSS200300	62	6.76
2.70	2 45/64	0.35	2.72	2 46/64	2 52/64	FRSS200252	3	CSSS200300	69	0.09
2.72	2 46/64	0.36	2.73	2 47/64	2 56/64	FRSS200256	3	CSSS200300	69	0.42
2.74	2 47/64	0.37	2.75	2 48/64	2 56/64	FRSS200256	3	CSSS200300	69	0.75
2.76	2 49/64	0.38	2.76	2 49/64	2 56/64	FRSS200256	3	CSSS200300	69	1.08
2.78	2 50/64	0.39	2.77	2 49/64	2 60/64	FRSS200260	3	CSSS200300	69	1.41
2.80	2 51/64	0.40	2.78	2 50/64	2 60/64	FRSS200260	3	CSSS200300	69	1.74
2.82	2 52/64	0.41	2.80	2 51/64	2 60/64	FRSS200260	3	CSSS200300	69	2.07
2.84	2 54/64	0.42	2.81	2 52/64	–	–	3	CSSS200300	69	2.40
2.86	2 55/64	0.43	2.82	2 53/64	–	–	3	CSSS200300	69	2.73
2.88	2 56/64	0.44	2.84	2 53/64	–	–	3	CSSS200300	69	3.06
2.90	2 58/64	0.45	2.85	2 54/64	–	–	3	CSSS200300	69	3.39
2.92	2 59/64	0.46	2.86	2 55/64	–	–	3	CSSS200300	69	3.72
2.94	2 60/64	0.47	2.88	2 56/64	–	–	3	CSSS200300	69	4.05

Current Paladin® Crimp Sleeve CSSS200302 has been replaced by CSSS200300.
Over 75 psi it is recommended using Insta-Lock™ in combination with banding coil.
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

3 in. Chart B | Infinity™/Paladin®/Insta-Lock™

Insta-Lock™ 3 in. Crimp Chart*

For Infinity™/Paladin® Crimp Sleeves on Infinity™/Paladin® Hose

Perma-Crimp™

Hose OD	Hose OD 64ths	Wall	Crimp Diameter	Crimp Diameter 64th	Ferrule ID	Ferrule Part #	Sleeve ID	Sleeve Part #	Die Set**	Setting
3.64	3 41/64	0.32	3.73	3 47/64	3 52/64	FRSS300352	4	CSSS300400	90	4.76
3.66	3 42/64	0.33	3.74	3 48/64	3 52/64	FRSS300352	4	CSSS300400	90	5.10
3.68	3 44/64	0.34	3.76	3 48/64	3 52/64	FRSS300352	4	CSSS300400	90	5.43
3.70	3 45/64	0.35	3.77	3 49/64	3 56/64	FRSS300356	4	CSSS300400	90	5.76
3.72	3 46/64	0.36	3.78	3 50/64	3 56/64	FRSS300356	4	CSSS300400	90	6.09
3.74	3 47/64	0.37	3.80	3 51/64	3 56/64	FRSS300356	4	CSSS300400	90	6.42
3.76	3 49/64	0.38	3.81	3 52/64	3 60/64	FRSS300360	4	CSSS300400	90	6.75
3.78	3 50/64	0.39	3.82	3 53/64	3 60/64	FRSS300360	4	CSSS300400	90	7.08
3.80	3 51/64	0.40	3.83	3 53/64	3 60/64	FRSS300360	4	CSSS300400	90	7.41
3.82	3 52/64	0.41	3.85	3 54/64	4	FRSS300400	4	CSSS300400	90	7.74
3.84	3 54/64	0.42	3.86	3 55/64	4	FRSS300400	4	CSSS300400	90	8.07
3.86	3 54/64	0.43	3.87	3 56/64	4	FRSS300400	4	CSSS300400	90	8.40
3.88	3 56/64	0.44	3.89	3 57/64	4 8/64	FRSS300408	4	CSSS300400	90	8.73
3.90	3 58/64	0.45	3.90	3 58/64	4 8/64	FRSS300408	4	CSSS300400	90	9.06
3.92	3 59/64	0.46	3.91	3 58/64	4 8/64	FRSS300408	4	CSSS300400	90	9.39
3.94	3 60/64	0.47	3.93	3 59/64	4 8/64	FRSS300408	–	–	90	9.72
3.96	3 61/64	0.48	3.94	3 60/64	4 8/64	FRSS300408	–	–	90	10.05
3.98	3 63/64	0.49	3.95	3 61/64	4 8/64	FRSS300408	–	–	90	10.38
4.00	4	0.50	3.96	3 62/64	4 16/64	FRSS300416	–	–	90	10.71

Current Paladin® Crimp Sleeve CSSS200302 has been replaced by CSSS200300.
Over 75 psi it is recommended using Insta-Lock™ in combination with banding coil.
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

4 in. Chart B | Infinity™/Paladin®/Insta-Lock™

Insta-Lock™ 4 in. Crimp Chart*

For Infinity™/Paladin® Crimp Sleeves on Infinity™/Paladin® Hose

Perma-Crimp™

Hose OD	Hose OD 64ths	Wall	Crimp Diameter	Crimp Diameter 64th	Ferrule ID	Ferrule Part #	Sleeve ID	Sleeve Part #	Die Set**	Setting
4.68	4 44/64	0.34	4.76	4 48/64	4 56/64	FRSS400456	5	CSSS400500	118	2.83
4.70	4 45/64	0.35	4.77	4 49/64	4 56/64	FRSS400456	5	CSSS400500	118	3.16
4.72	4 46/64	0.36	4.78	4 50/64	4 56/64	FRSS400456	5	CSSS400500	118	3.49
4.74	4 47/64	0.37	4.80	4 51/64	4 56/64	FRSS400456	5	CSSS400500	118	3.82
4.76	4 49/64	0.38	4.81	4 52/64	4 60/64	FRSS400460	5	CSSS400500	118	4.15
4.78	4 50/64	0.39	4.82	4 53/64	4 60/64	FRSS400460	5	CSSS400500	118	4.48
4.80	4 51/64	0.4	4.83	4 53/64	4 60/64	FRSS400460	5	CSSS400500	118	4.81
4.82	4 52/64	0.41	4.85	4 54/64	5	FRSS400500	5	CSSS400500	118	5.14
4.84	4 54/64	0.42	4.86	4 55/64	5	FRSS400500	5	CSSS400500	118	5.47
4.86	4 55/64	0.43	4.87	4 56/64	5	FRSS400500	5	CSSS400500	118	5.80
4.88	4 56/64	0.44	4.89	4 57/64	5 4/64	FRSS400504	5	CSSS400500	118	6.13
4.90	4 58/64	0.45	4.90	4 58/64	5 4/64	FRSS400504	5	CSSS400500	118	6.46
4.92	4 59/64	0.46	4.91	4 58/64	5 4/64	FRSS400504	5	CSSS400500	118	6.79
4.94	4 60/64	0.47	4.93	4 59/64	–	–	5	CSSS400500	118	7.12
4.96	4 61/64	0.48	4.94	4 60/64	–	–	5	CSSS400500	118	7.45

Current Paladin® Crimp Sleeve CSSS200302 has been replaced by CSSS200300.
Over 75 psi it is recommended using Insta-Lock™ in combination with banding coil.
*Using OD Measurement Method **Quality of final crimp not verified with die selections, listed closest standard die set

Chart C | Pressure Washer Hose

Crimp Chart for 1/4 in. Pressure Washer Hose — Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Non-Swivel Male NPTF Product Code	Swivel Male NPTF Product Code	Crimp Diameter	Die Set**	Approximate Setting
Black Neptune™ 3000	539-085-008	1/4"	539-173-538-24000	539-173-538-23600	.665"	16	0.89
Blue Neptune™ 3000	539-089-008	1/4"	539-173-538-24000	539-173-538-23600	.665"	16	0.89
Gray Neptune™ 3000	539-090-008	1/4"	539-173-538-24000	539-173-538-23600	.665"	16	0.89
Black Gauntlet® 3000	539-099-008	1/4"	539-173-538-24000	539-173-538-23600	.665"	16	0.89
Yellow Gauntlet® 3000	539-100-008	1/4"	539-173-538-24000	539-173-538-23600	.665"	16	0.89
Yellow Neptune™ 3000	539-104-008	1/4"	539-173-538-24000	539-173-538-23600	.665"	16	0.89
Black Neptune™ 3000	539-085-008	1/4"	B2-NPM-04xx	B2-NPMX-04xx	0.670	16	1.02
Blue Neptune™ 3000	539-089-008	1/4"	B2-NPM-04xx	B2-NPMX-04xx	0.670	16	1.02
Gray Neptune™ 3000	539-090-008	1/4"	B2-NPM-04xx	B2-NPMX-04xx	0.670	16	1.02
Black Gauntlet® 3000	539-099-008	1/4"	B2-NPM-04xx	B2-NPMX-04xx	0.670	16	1.02
Yellow Gauntlet® 3000	539-100-008	1/4"	B2-NPM-04xx	B2-NPMX-04xx	0.670	16	1.02

The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule. The recommended crimp diameters are only related to Continental ContiTech hoses noted above, and the male NPTF fittings noted above.
**Quality of final crimp not verified with die selections, listed closest standard die set

Crimp Chart for 3/8 in. Pressure Washer Hose — Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Non-Swivel Male NPTF Product Code	Swivel Male NPTF Product Code	Crimp Diameter	Die Set**	Approximate Setting
Black Neptune™ 3000	539-085-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Blue Neptune™ 3000	539-089-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Black Gauntlet® 3000	539-099-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Yellow Gauntlet® 3000	539-100-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Yellow Neptune™ 3000	539-104-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Green Neptune™ 3000	539-154-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Yellow Fortress® 3000	539-400-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Yellow Galvanator® 3000	539-200-012	3/8"	539-173-538-22800	539-173-538-22900	.840"	19	2.34
Black Neptune™ 3000	539-085-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Blue Neptune™ 3000	539-089-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Black Gauntlet® 3000	539-099-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Yellow Gauntlet® 3000	539-100-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Yellow Neptune™ 3000	539-104-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Green Neptune™ 3000	539-154-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Yellow Fortress® 3000	539-400-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Yellow Galvanator® 3000	539-200-012	3/8"	B2-NPM-06xx	B2-NPMX-06xx	0.812	19	1.62
Black Neptune™ 4001	539-261-012	3/8"	539-173-538-22800	539-173-538-22900	.815"	19	1.70
Grey Neptune™ 4001	539-262-012	3/8"	539-173-538-22800	539-173-538-22900	.815"	19	1.70

Crimp chart for 3/8 in. pressure washer hose continued on next page

Chart C | Pressure Washer Hose

Crimp Chart for 3/8 in. Pressure Washer Hose (continued) Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Non-Swivel Male NPTF Product Code	Swivel Male NPTF Product Code	Crimp Diameter	Die Set**	Approximate Setting
Blue Neptune™ 4001	539-265-012	3/8"	539-173-538-22800	539-173-538-22900	0.815"	19	1.70
Yellow Neptune™ 4001	539-266-012	3/8"	539-173-538-22800	539-173-538-22900	0.815"	19	1.70
Black Neptune™ 4500	539-091-012	3/8"	539-173-538-22800	539-173-538-22900	0.840"	19	2.34
Red Neptune™ 4500	539-111-012	3/8"	539-173-538-22800	539-173-538-22900	0.840"	19	2.34
Yellow Gauntlet® 4500	539-120-012	3/8"	539-173-538-22800	539-173-538-22900	0.840"	19	2.34
Black Gauntlet® 4500	539-122-012	3/8"	539-173-538-22800	539-173-538-22900	0.840"	19	2.34
Blue Neptune™ 4500	539-124-012	3/8"	539-173-538-22800	539-173-538-22900	0.840"	19	2.34
Black Neptune™ 6000	539-149-012	3/8"	539-173-538-22800	539-173-538-22900	0.850"	19	2.59

The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule. The recommended crimp diameters are only related to Continental ContiTech hoses noted above, and the male NPTF fittings noted above. **Quality of final crimp not verified with die selections, listed closest standard die set

Crimp Chart for 1/2 in. Pressure Washer Hose (with Skive-to-Wire) Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Non-Swivel Male NPT Anchor Product Code*	Swivel Male NPT Anchor Product Code*	Skive Length	Crimp Diameter	Die Set**	Approximate Setting
Black Neptune™ 3000	539-085-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Blue Neptune™ 3000	539-089-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Black Gauntlet® 3000	539-099-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Yellow Gauntlet® 3000	539-100-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Galvanator® 3000	539-200-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Black Neptune™ 4500	539-091-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Blue Neptune™ 4500	539-124-016	1/2"	955-10-0808	955-11-0808	15/16"	0.925	23	0.50
Blue Neptune™ 3000	539-089-016	1/2"	B2-NPM-08xx	B2-NPMX-08xx	N/A	0.920	23	0.37
Yellow Fortress™ 3000	539-400-016	1/2"	B2-NPM-08xx	B2-NPMX-08xx	N/A	0.920	23	0.37
Yellow Gauntlet® 3000	539-100-016	1/2"	B2-NPM-08xx	B2-NPMX-08xx	N/A	0.920	23	0.37
Black Neptune™ 3000	539-085-016	1/2"	B2-NPM-08xx	B2-NPMX-08xx	N/A	0.920	23	0.37
Black Gauntlet® 3000	539-099-016	1/2"	B2-NPM-08xx	B2-NPMX-08xx	N/A	0.920	23	0.37

Crimp Chart for 3/8 in. SpiraFlow® (with Skive-to-OD) Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Non-Swivel Male NPTF Product Code	Swivel Male NPTF Product Code	Skive Length	Skive Diameter	Crimp Diameter	Die Set**	Approximate Setting
Black SpiraFlow®	539-185-012	3/8"	539-173-538-22800	539-173-538-22900	7/8"	.690"	0.815	19	1.70
Blue SpiraFlow®	539-186-012	3/8"	539-173-538-22800	539-173-538-22900	7/8"	.690"	0.815	19	1.70
Gray SpiraFlow®	539-187-012	3/8"	539-173-538-22800	539-173-538-22900	7/8"	.690"	0.815	19	1.70

Crimp Chart for 3/8 in. and 1/2 in. Whitewater® (with Skive-to-Wire) Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Non-Swivel Male NPT Anchor Product Code*	Skive Length	Crimp Diameter	Die Set**	Approximate Setting
Black Whitewater®	539-095-012	3/8"	955-10-0606	15/16"	0.800	19	1.32
Red Whitewater®	539-110-012	3/8"	955-10-0606	15/16"	0.800	19	1.32
Black Whitewater®	539-095-016	1/2"	955-10-0808	15/16"	0.925	23	0.50
Red Whitewater®	539-110-016	1/2"	955-10-0808	15/16"	0.925	23	0.50

*Fittings require skiving to the wire. The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule. The recommended crimp diameters are only related to Continental ContiTech hoses noted above and the male fittings noted above.

Chart D | Air & Multipurpose

Frontier — Uni-Crimp™

PSI	PSI	PSI	Hose ID	Male Rigid NPT Stem**	Ferrule	Crimp Diameter* (in.)	Die Set**	Approximate Setting
200	N/A	N/A	3/16"	UC-NPM-03XX	UCF2-03	0.636	14	2.15
200	250	300	1/4"	UC-NPM-04XX	UCF2-04	0.720	16	2.29
200	250	N/A	5/16"	UC-NPM-05XX	UCF2-05	0.750	19	0.05
200	250	300	3/8"	UC-NPM-06XX	UCF2-06	0.880	19	3.35
200	250	300	1/2"	UC-NPM-08XX	UCF2-08	1.040	23	3.40
200	250	300	5/8"	UC-NPM-10XX	UCF2-10	1.190	27	3.22
200	250	300	3/4"	UC-NPM-12XX	UCF2-12	1.350	31	3.29
200	250	300	1.0"	UC-NPM-16XX	UCF6-16	1.670	41	1.42
200	N/A	N/A	1.25"	UC-NPM-20XX	UCF6-20	1.820	45	1.23
200	N/A	N/A	1.5"	UC-NPM-24XX	UCF6-24	2.100	50	3.34
200	N/A	N/A	2.0"	UC-NPM-32XX	UCF6-32	2.650	62	5.30

Ortac® — Uni-Crimp™

PSI	PSI	PSI	Hose ID	Male Rigid NPT Stem**	Ferrule	Crimp Diameter* (in.)	Die Set**	Approximate Setting
N/A	300	N/A	3/16"	UC-NPM-03XX	UCF2-03	0.636	14	2.15
250	N/A	N/A	1/4"	UC-NPM-04XX	UCF2-04	0.720	16	2.29
N/A	300	D*	1/4"	UC-NPM-04XX	UCF6-04	0.710	16	2.03
250	300	400	5/16"	UC-NPM-05XX	UCF6-05	0.800	19	1.32
250	300	400	3/8"	UC-NPM-06XX	UCF6-06	0.8785	19	3.31
250	300	400	1/2"	UC-NPM-08XX	UCF6-08	0.945	23	1.00
250	300	N/A	5/8"	UC-NPM-10XX	UCF6-10	1.160	27	2.46
250	300	400	3/4"	UC-NPM-12XX	UCF6-12	1.285	31	1.64
250	300	400	1.0"	UC-NPM-16XX	UCF6-16	1.670	41	1.42
250	300	N/A	1.25"	UC-NPM-20XX	UCF6-20	1.840	45	1.73
250	300	N/A	1.5"	UC-NPM-24XX	UCF6-24	2.170	50	5.05
D*	N/A	N/A	2.0"	UC-NPM-32XX	UCF6-32	N/A	N/A	N/A

*In development
**The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule.
***Listed crimp specifications are also valid for all available types of UC stem ends and threads.
The recommended crimp diameters are only related to Continental ContiTech hoses noted above.

Chart D | Air & Multipurpose

Variflex™ Uni-Crimp™

PSI	PSI	PSI	Hose ID	Male Rigid NPT Stem***	Ferrule	Crimp Diameter** (in.)	Die Set***	Approximate Setting
D*	N/A	N/A	3/16"	UC-NPM-03XX	UCF2-03	0.636	14	2.15
200	N/A	300	1/4"	UC-NPM-04XX	UCF2-04	0.720	16	2.29
200	N/A	300	5/16"	UC-NPM-05XX	UCF6-05	0.800	19	1.32
200	N/A	300	3/8"	UC-NPM-06XX	UCF6-06	0.8785	19	3.31
200	N/A	300	1/2"	UC-NPM-08XX	UCF6-08	0.945	23	1.00
200	N/A	300	5/8"	UC-NPM-10XX	UCF6-10	1.160	27	2.46
200	N/A	300	3/4"	UC-NPM-12XX	UCF6-12	1.285	31	1.64
200	N/A	300	1.0"	UC-NPM-16XX	UCF6-16	1.670	41	1.42
N/A	250	D*	1.25"	UC-NPM-20XX	UCF6-20	1.840	45	1.73
N/A	250	D*	1.5"	UC-NPM-24XX	UCF6-24	2.170	50	5.12
N/A	N/A	D*	2.0"	UC-NPM-32XX	UCF6-32	N/A	N/A	N/A

Gorilla® Uni-Crimp™

PSI	Hose ID	Male Rigid NPT Stem***	Ferrule	Crimp Diameter** (in.)	Die Set***	Approximate Setting
500	1/4"	UC-NPM-04XX	UCF6-04	0.710	16	2.03
500	3/8"	UC-NPM-06XX	UCF6-06	0.8785	19	3.31
500	1/2"	UC-NPM-08XX	UCF6-08	0.945	23	1.00
500	5/8"	UC-NPM-10XX	UCF6-10	1.160	27	2.46
500	3/4"	UC-NPM-12XX	UCF6-12	1.285	31	1.64
500	1.0"	UC-NPM-16XX	UCF6-16	1.660	41	1.16
500	1.25"	UC-NPM-20XX	UCF6-20	1.844	45	1.84
500	1.5"	UC-NPM-24XX	UCF6-24	2.170	50	5.12
500	2.0"	UC-NPM-32XX	UCF6-32	2.740	69	0.60

*In development
**The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule.
***Listed crimp specifications are also valid for all available types of UC stem ends and threads.
The recommended crimp diameters are only related to ContiTech hoses noted above.

Chart D | Air & Multipurpose

Gorilla® Couplamatic Vari-Crimp™ Couplings — Finn Power Crimper

PSI	Size	Hose Product Code	Fitting	Ferrule & Coupling Stem Length (in.)	Die Set**	Crimp OD (in.)
500	1/4"	569-035-064	P/N 403V	16-19	16mm	0.630
500	3/8"	569-035-095	P/N 603V	19-23	19mm	0.795
500	1/2"	569-035-127	P/N 803V	23-27	23mm	0.940
500	5/8"	569-035-159	P/N 1003V	27-31	27mm	1.105
500	3/4"	569-035-191	P/N 1203V	27-31	27mm	1.210
500	1.0"	569-035-254	P/N 1600V	36-41	36mm	1.500
500	1 1/4"	569-035-318	P/N 2000V	41-47	41mm	1.850
500	1 1/2"	539-035-381	N/A	54-61	N/A	N/A

Recommended Crimp Diameter for Mine Spray Hoses — Perma-Crimp™

ID	Continental ContiTech Hydraulic Fitting Family	Crimp OD (in.)	Die Set**	Approximate Setting
3/4"	B2	1.265"	31	1.13
1"	B2	1.665"	41	1.29
1-1/4"	S4	1.935"	45	4.15
1-1/2"	S4	2.225"	56	0.52

Super Ortac® — Perma-Crimp™

ID	Continental ContiTech Hydraulic Fitting Family	Crimp OD (in.)	Die Set**	Approximate Setting
3/4"	B2	1.265"	31	1.13
1"	B2	1.665"	41	1.29
1-1/4"	S4	1.980"	50	0.29
1-1/2"	S4	2.225"	56	0.52

Prospector™ Air — Uni-Crimp™

Hose ID	Product Code	Two Piece UC™ Fittings NPT Stem**	Ferrule	Crimp Diameter* (in.)	Die Set**	Approximate Setting (mm)
3/4"	536509024	UC-NPM-12XX	UCF6-12	1.320"	31	2.53
1"	536509032	UC-NPM-16XX	UCF6-16	1.675"	41	1.54

Prospector™ Plus Air — Uni-Crimp™

Hose ID	Product Code	Two Piece UC™ Fittings NPT Stem**	Ferrule	Crimp Diameter* (in.)	Die Set**	Approximate Setting (mm)
3/4"	536508024	UC-NPM-12XX	UCF6-12	1.320"	31	2.53
1"	536508032	UC-NPM-16XX	UCF6-16	1.675"	41	1.54

*The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule.
**Listed crimp specifications are also valid for all available types of UC stem ends and threads.

Chart E | Steam Hose

Recommended Over-the-Cover Crimp Diameters for Continental ContiTech Branded Steam Hose

Perma-Crimp™

Hose Description	Hose Product Code	Hose ID	Campbell Female Ground Joint Female NPT Spud Low Profile Nut	Campbell Female Ground Joint Female NPT Spud Wing Nut	Campbell Male NPT	Campbell Male NPT Swivel	Female Spud	Crimp Diameter	Die Set**	Approximate Setting
Flexsteel® 250 Steam (Black, Red)	539-070-024 539-076-024	3/4"	RGJS-3V	GJS-3V	IMS-3V	IMS-3VSW	GFS-3	1.440"	34	2.60
Flexsteel® 250 Steam (Black, Red)	539-070-032 539-076-032	1"	RGJS-4V	GJS-4V	IMS-4V	IMS-4VSW	GFS-4	1.925"	45	3.90
Flexsteel® 250 EPDM-20 (Red)	539-486-024	3/4"	RGJF-3V	GJF-3V	IMS-3V	IMS-3VSW	GFS-3	1.420"	34	2.07
Flexsteel® 250 CB Extreme Crimp Steam (Black, Red)	539-870-024 539-876-024	3/4"	RGJF-3V	GJF-3V	IMS-3V	IMS-3VSW	GFS-3	1.430"	34	2.32
Flexsteel® 250 Steam Wrapped (Red)	539-476-016	1/2"	N/A	GJS-2V	IMS-2V	N/A	GFS-2	1.220"	27	3.99
Flexsteel® 250 Steam Wrapped (Black, Red)	539-470-024 539-476-024	3/4"	RGJS-3V	GJS-3V	IMS-3V	IMS-3VSW	GFS-3	1.440"	34	2.58
Flexsteel® 250 Steam Wrapped (Black, Red)	539-470-032 539-476-032	1"	RGJS-4V	GJS-4V	IMS-4V	IMS-4VSW	GFS-4	1.900"	45	3.26
Flexsteel® 250 Steam Wrapped (Black, Red)	559-201-510 559-202-510	2"	RGJS-8V	GJS-8V	IMS-8V			2.920"	74	0.17
Flexsteel® 250 ORS Steam	539-098-024	3/4"	RGJS-3V	GJS-3V	IMS-3V	IMS-3VSW	GFS-3	1.430"	34	2.32

Contact Campbell Fittings to purchase crimp-on steam hose fittings. The fitting part numbers are Campbell Fitting part numbers.
The tolerance for the crimp diameters is +/- .005". Crimp the full length of the ferrule. The recommended crimp diameters are listed in the table above. Assemblies must meet the electrical resistance test requirements as specified in section 5.5 of the NAHAD Hose Assembly Guidelines or as specified in the ARPM Hose Tech Bulletin IP-11.
**Quality of final crimp not verified with die selections, listed closest standard die set.

Chart F | DEF Hose

Crimp Chart for 3/4 in. DEF Dispensing

Size	Hose Part #	Stem Part #	Stem Description	Ferrule Part #	Crimp OD (in.)
3/4"	532-027-024	53217353232900	SS, 3/4" Male NPT	53217353233200	1.220
3/4"	532-027-024	53217353233000	SS, 3/4" Male BSPP	53217353233200	1.220
3/4"	532-027-024	53217353233100	SS, 1" Female BSPP	53217353233200	1.220

The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule.
Any company who installs a fitting on Continental ContiTech DEF hose takes responsibility for correct fitting installation, hose/fitting compatibility and grounding. This recommended crimp OD is only for the fittings above on Continental ContiTech DEF hose sold and manufactured by Continental ContiTech to be used specifically for DEF dispensing. The company installing the fitting must develop its own proper installation and quality control procedures. The installer must test and verify hose/fitting compatibility and ensure proper grounding. If requested, Continental ContiTech will test coupled assemblies and report the test results back to the company who installed the fittings.

Chart G | Hydrocarbon Drain Hose

Recommended Over-the-Cover Crimp Diameter for Continental ContiTech Branded Hydrocarbon Drain Hose

Hose Description	Hose Product Code	Hose ID	Hydraulic Fitting Family	Crimp Diameter	Die Set**	Approximate Setting
Hydrocarbon Drain Hose	547-819-024	3/4"	B2-xxx-12xx	1.272"	31	1.31

*The crimp diameter tolerance is +/- .005" and to be the full length of the ferrule.
**Quality of final crimp not verified with die selections, listed closest standard die set.

Chart H | Velocity® Water S&D Hose

Crimp Chart for 1½" Velocity® Water S&D Hose

Wall Thickness		Hose OD		Sleeve Selection	Crimp Diameter		
in.	mm	in.	mm		in.	in.	mm
0.203	5.16	1 58/64	48.4	SxS150160S	1.933	1 60/64	49.10
0.211	5.36	1 59/64	48.8	SxS150160S	1.945	1 60/64	49.40
0.219	5.56	1 60/64	49.2	SxS150200S	1.957	1 61/64	49.71
0.227	5.75	1 61/64	49.6	SxS150200S	1.970	1 62/64	50.04
0.234	5.95	1 62/64	50.0	SxS150200S	1.982	1 63/64	50.34
0.242	6.15	1 63/64	50.4	SxS150200S	1.994	2	50.65
0.250	6.35	2	50.8	SxS150204S	2.007	2	50.98
0.258	6.55	2 1/64	51.2	SxS150204S	2.019	2 1/64	51.28
0.266	6.75	2 2/64	51.6	SxS150204S	2.031	2 2/64	51.59
0.273	6.95	2 3/64	52.0	SxS150204S	2.044	2 3/64	51.92
0.281	7.14	2 4/64	52.4	SxS150208S	2.056	2 4/64	52.22
0.289	7.34	2 5/64	52.8	SxS150208S	2.068	2 4/64	52.53
0.297	7.54	2 6/64	53.2	SxS150208S	2.081	2 5/64	52.86
0.305	7.74	2 7/64	53.6	SxS150208S	2.093	2 6/64	53.16
0.313	7.94	2 8/64	54.0	SxS150212S	2.105	2 7/64	53.47
0.320	8.14	2 9/64	54.4	SxS150212S	2.118	2 8/64	53.80

Crimp Chart for 2" Velocity® Water S&D Hose

Wall Thickness		Hose OD		Sleeve Selection	Crimp Diameter		
in.	mm	in.	mm		in.	in.	mm
0.203	5.16	2 26/64	61.1	SxS200228S	2.433	2 28/64	61.80
0.211	5.36	2 27/64	61.5	SxS200228S	2.445	2 28/64	62.10
0.219	5.56	2 28/64	61.9	SxS200232S	2.457	2 29/64	62.41
0.227	5.75	2 29/64	62.3	SxS200232S	2.470	2 30/64	62.74
0.234	5.95	2 30/64	62.7	SxS200232S	2.482	2 31/64	63.04
0.242	6.15	2 31/64	63.1	SxS200232S	2.494	2 32/64	63.35
0.250	6.35	2 32/64	63.5	SxS200236S	2.507	2 32/64	63.68
0.258	6.55	2 33/64	63.9	SxS200236S	2.519	2 33/64	63.98
0.266	6.75	2 34/64	64.3	SxS200236S	2.531	2 34/64	64.29
0.273	6.95	2 35/64	64.7	SxS200236S	2.544	2 35/64	64.62
0.281	7.14	2 36/64	65.1	SxS200240S	2.556	2 36/64	64.92
0.289	7.34	2 37/64	65.5	SxS200240S	2.568	2 36/64	65.23
0.297	7.54	2 38/64	65.9	SxS200240S	2.581	2 37/64	65.56
0.305	7.74	2 39/64	66.3	SxS200240S	2.593	2 38/64	65.86
0.313	7.94	2 40/64	66.7	SxS200244S	2.605	2 39/64	66.17
0.320	8.14	2 41/64	67.1	SxS200244S	2.618	2 40/64	66.50

Chart H | Velocity® Water S&D Hose

Crimp Chart for 3" Velocity® Water S&D Hose

Wall Thickness		Hose OD		Sleeve Selection	Crimp Diameter		
in.	mm	in.	mm		in.	in.	mm
0.297	7.54	3 38/64	91.3	SxS300340S	3.627	3 40/64	92.13
0.305	7.74	3 39/64	91.7	SxS300340S	3.639	3 41/64	92.43
0.313	7.94	3 40/64	92.1	SxS300344S	3.651	3 42/64	92.74
0.320	8.14	3 41/64	92.5	SxS300344S	3.664	3 42/64	93.07
0.328	8.33	3 42/64	92.9	SxS300344S	3.676	3 43/64	93.37
0.336	8.53	3 43/64	93.3	SxS300344S	3.688	3 44/64	93.68
0.344	8.73	3 44/64	93.7	SxS300348S	3.701	3 45/64	94.01
0.352	8.93	3 45/64	94.1	SxS300348S	3.713	3 46/64	94.31
0.359	9.13	3 46/64	94.5	SxS300348S	3.725	3 46/64	94.62
0.367	9.33	3 47/64	94.9	SxS300348S	3.738	3 47/64	94.95
0.375	9.53	3 48/64	95.3	SxS300352S	3.750	3 48/64	95.25
0.383	9.72	3 49/64	95.6	SxS300352S	3.763	3 49/64	95.58
0.391	9.92	3 50/64	96.0	SxS300352S	3.775	3 50/64	95.89
0.398	10.12	3 51/64	96.4	SxS300352S	3.787	3 50/64	96.19
0.406	10.32	3 52/64	96.8	SxS300356S	3.800	3 51/64	96.52
0.414	10.52	3 53/64	97.2	SxS300356S	3.812	3 52/64	96.82
0.422	10.72	3 54/64	97.6	SxS300356S	3.824	3 53/64	97.13

Crimp Chart for 4" Velocity® Water S&D Hose

Wall Thickness		Hose OD		Sleeve Selection	Crimp Diameter		
in.	mm	in.	mm		in.	in.	mm
0.297	7.54	4 38/64	116.7	SxS400440S	4.627	4 40/64	117.53
0.305	7.74	4 39/64	117.1	SxS400440S	4.639	4 41/64	117.83
0.313	7.94	4 40/64	117.5	SxS400444S	4.651	4 42/64	118.14
0.320	8.14	4 41/64	117.9	SxS400444S	4.664	4 42/64	118.47
0.328	8.33	4 42/64	118.3	SxS400444S	4.676	4 43/64	118.77
0.336	8.53	4 43/64	118.7	SxS400444S	4.688	4 44/64	119.08
0.344	8.73	4 44/64	119.1	SxS400448S	4.701	4 45/64	119.41
0.352	8.93	4 45/64	119.5	SxS400448S	4.713	4 46/64	119.71
0.359	9.13	4 46/64	119.9	SxS400448S	4.725	4 46/64	120.02
0.367	9.33	4 47/64	120.3	SxS400448S	4.738	4 47/64	120.35
0.375	9.53	4 48/64	120.7	SxS400452S	4.750	4 48/64	120.65
0.383	9.72	4 49/64	121.0	SxS400452S	4.763	4 49/64	120.98
0.391	9.92	4 50/64	121.4	SxS400452S	4.775	4 50/64	121.29
0.398	10.12	4 51/64	121.8	SxS400452S	4.787	4 50/64	121.59
0.406	10.32	4 52/64	122.2	SxS400456S	4.800	4 51/64	121.92
0.414	10.52	4 53/64	122.6	SxS400456S	4.812	4 52/64	122.22
0.422	10.72	4 54/64	123.0	SxS400456S	4.824	4 53/64	122.53

Chart H | Velocity® Water S&D Hose

Crimp Chart for 6" Velocity® Water S&D Hose

Wall Thickness		Hose OD		Sleeve Selection	Crimp Diameter		
in.	mm	in.	mm		in.	in.	mm
0.516	13.10	7 2/64	178.6	SxS600708	7.042	7 3/64	178.87
0.523	13.30	7 3/64	179.0	SxS600708	7.055	7 4/64	179.20
0.531	13.49	7 4/64	179.4	SxS600708	7.067	7 4/64	179.50
0.539	13.69	7 5/64	179.8	SxS600708	7.079	7 5/64	179.81
0.547	13.89	7 6/64	180.2	SxS600708	7.092	7 6/64	180.14
0.555	14.09	7 7/64	180.6	SxS600708	7.104	7 7/64	180.44
0.563	14.29	7 8/64	181.0	SxS600716	7.116	7 7/64	180.75
0.570	14.49	7 9/64	181.4	SxS600716	7.129	7 8/64	181.08
0.578	14.68	7 10/64	181.8	SxS600716	7.141	7 9/64	181.38
0.586	14.88	7 11/64	182.2	SxS600716	7.153	7 10/64	181.69
0.594	15.08	7 12/64	182.6	SxS600716	7.166	7 11/64	182.02
0.602	15.28	7 13/64	183.0	SxS600716	7.178	7 11/64	182.32
0.609	15.48	7 14/64	183.4	SxS600716	7.190	7 12/64	182.63
0.617	15.68	7 15/64	183.8	SxS600716	7.203	7 13/64	182.96
0.625	15.88	7 16/64	184.2	SxS600724	7.215	7 14/64	183.26
0.633	16.07	7 17/64	184.5	SxS600724	7.228	7 15/64	183.59
0.641	16.27	7 18/64	184.9	SxS600724	7.240	7 15/64	183.90

Crimp Chart for 8" Velocity® Water S&D Hose

Wall Thickness		Hose OD		Sleeve Selection	Crimp Diameter		
in.	mm	in.	mm		in.	in.	mm
0.531	13.49	9 4/64	230.2	SPS800916	9.067	9 4/64	230.30
0.539	13.69	9 5/64	230.6	SPS800916	9.079	9 5/64	230.61
0.547	13.89	9 6/64	231.0	SPS800916	9.092	9 6/64	230.94
0.555	14.09	9 7/64	231.4	SPS800916	9.104	9 7/64	231.24
0.563	14.29	9 8/64	231.8	SPS800916	9.116	9 7/64	231.55
0.570	14.49	9 9/64	232.2	SPS800916	9.129	9 8/64	231.88
0.578	14.68	9 10/64	232.6	SPS800916	9.141	9 9/64	232.18
0.586	14.88	9 11/64	233.0	SPS800916	9.153	9 10/64	232.49
0.594	15.08	9 12/64	233.4	SPS800916	9.166	9 11/64	232.82
0.602	15.28	9 13/64	233.8	SPS800916	9.178	9 11/64	233.12
0.609	15.48	9 14/64	234.2	SPS800916	9.190	9 12/64	233.43
0.617	15.68	9 15/64	234.6	SPS800916	9.203	9 13/64	233.76
0.625	15.88	9 16/64	235.0	SPS800932	9.215	9 14/64	234.06
0.633	16.07	9 17/64	235.3	SPS800932	9.228	9 15/64	234.39
0.641	16.27	9 18/64	235.7	SPS800932	9.240	9 15/64	234.70
0.648	16.47	9 19/64	236.1	SPS800932	9.252	9 16/64	235.00
0.656	16.67	9 20/64	236.5	SPS800932	9.265	9 17/64	235.33
0.664	16.87	9 21/64	236.9	SPS800932	9.277	9 18/64	235.64

Crimping Equipment & Accessories | Perma-Crimp™

PC125M

Description

Carried to the job site with a handle and support stand, the PC125M is ideal for portable crimping requirements. Whether carried on-site or used in a vehicle, or even stationary at the shop, the PC125M is designed as a low-volume crimper or for occasional use. Crimp diameter is set and controlled with an easy-to-read micrometer. This affordable crimper is packaged in component parts to fit the need of the user. The PC125M has three power options. No electrical power source is required if using the hand or pneumatic pump option.

PC125M

A 1/2-HP, 110V electric pump is available as well. The PC125M includes die ring pusher, stand, compression ring, pressure plate and a metric micrometer. Pumps and dies are purchased separately.

Features

- Easy-to-read, fully adjustable metric micrometer allows precise setting of crimp diameters to an accuracy of +/- .1mm
- Open design with vertical feed for good operator visibility
- Removable pusher and spring-loaded die set for easy loading
- 60-ton cylinder
- Two-piece, "slide in" die design for easy installation
- Lightweight for portable field use
- Color-coded die sets to speed die selection and setup
- Attach hand, air or electric pump

Capability

- 1/4" through 1e" ID 2-braid hose and 1e" ID 4-spiral hose with all coupling end styles including most bent tubes

Power Source

- Optional Two Stage Hand Pump, 10,000 psi (PC125-HPump)
- Optional Air/Hydraulic Pump, 10,000 psi using 80 psi air (PC125-PPump)
- Optional 1/2-HP, 110V AC, single phase, 50-60 Hz Electric Pump (PC125M-.5EPump) with foot switch

Oil Capacity: 1 gallon

Mounting: Stand included

Dimensions: 14" L x 11" W x 23.5" H

Weight: 45 lbs.

Dies

Part Number	ID	Part Number	ID
PC125 - 8.5 Black	8.5mm	PC125 - 27 Brown	27mm
PC125 - 12 Black	12mm	PC125 - 31 Silver	31mm
PC125 - 14 Red	14mm	PC125 - 34 Purple	34mm
PC125 - 16 Blue	16mm	PC125 - 41 Orange	41mm
PC125 - 19 Green	19mm	PC125 - 45 Black	45mm
PC125 - 23 Yellow	23mm	PC125 - 50 Black	50mm

Options

- PC125M - SKit includes the PC125M crimper and 7 die sets including 16mm, 19mm, 23mm, 27mm, 31mm, 34mm and 41mm dies for 1/4" to 1" 1-braid and 2-braid hose
- PC125 - Shelf–Black Die Storage Shelf Unit 13" deep x 12.5" wide x 15" high, 12 lbs.
- PC125 - Hpump – Two Stage Hand Pump
- PC125 - Ppump – Air/Hydraulic Pump
- PC125M - .5EPump – 1/2-HP, 110V Electric Pump

Replacement Parts

- PC125M - Pusher – Die Ring Pusher
- PC125 - Cring – Compression Ring
- PC125 - Pplate – Pressure Plate
- PC125 - Die Screw – Die Screw
- PC125 - Die Spring – Die Spring
- PC125 - Hpump – Optional Two Stage Hand Pump
- PC125 - Ppump – Optional Air/Hydraulic Pump
- PC125M - .5EPump – Optional 1/2-HP, 110V Electric Pump
- PC900 - Grease-3 oz. – High-pressure grease in a 3 oz. tube
- PC900 - Grease-1 lb. – High-pressure grease in a 1 lb. can
- PC900 - AerosolLube – High-pressure grease in an aerosol can

Electric Pump (PC125M-.5EPump)

Metric Micrometer

PC125 Die Set

Air/Hydraulic Pump (PC125-PPump)

PC125 Die Storage Shelf

Hand Pump (PC125 HPump)

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PC125

PC125

Description

The PC125 portable crimper, with its open design, removable pusher and easy-to-use, spring-loaded die set, is designed for higher production volume and repetitive use. Crimp diameter is set and controlled with an easy-to-read micrometer. The PC125 is packaged for shop service and includes the crimper and 1-HP, 110V electric pump on a common base, compression ring, pressure plate, magnetized die ring pusher, stop/start remote pendant switch, metric micrometer, adjustable coupling stop and adjustable retraction stop.

Features

- Easy-to-read, fully adjustable metric micrometer allows precise setting of crimp diameters to an accuracy of +/-.1mm
- Open design with vertical feed for good operator visibility
- Removable pusher and spring-loaded die set for easy loading
- Magnetized pusher to attach compression ring for repetitive use
- 60-ton cylinder
- Automatic shutoff for precise crimps
- Adjustable retraction stop limits ram retractions for quick repetitive crimps
- Adjustable coupling stop for accurate, repetitive positioning of the assembly inside the dies
- Two-piece, "slide in" die design for easy installation
- Common base for bench mounting
- Color-coded die sets to speed die selection and setup
- 1-HP, 110V pump
- Pneumatic activation (no electric wires) of remote pendant switch

Capability

- 1/4" through 1e" ID 2-braid hose and 1e" ID 4-spiral hose with all coupling end styles including most bent tubes

Power Source

- 1-HP, 110V AC, single phase, 50-60 Hz, Electric Pump (PC125/150-E1PUMP) with pneumatic stop/start pendant switch

Oil Capacity: 1 gallon

Mounting: Crimper and pump installed on plate

Dimensions: 20" L x 11" W x 19" H

Weight: 125 lbs.

Dies

Part Number	ID	Part Number	ID
PC125 - 8.5 Black	8.5mm	PC125 - 27 Brown	27mm
PC125 - 12 Black	12mm	PC125 - 31 Silver	31mm
PC125 - 14 Red	14mm	PC125 - 34 Purple	34mm
PC125 - 16 Blue	16mm	PC125 - 41 Orange	41mm
PC125 - 19 Green	19mm	PC125 - 45 Black	45mm
PC125 - 23 Yellow	23mm	PC125 - 50 Black	50mm

Options

- PC125-SKit includes the PC125 crimper and 7 die sets including 16mm, 19mm, 23mm, 27mm, 31mm, 34mm and 41mm dies for 1/4" to 1" 1-braid and 2-braid hose
- PC125-Shelf – Black Die Storage Shelf Unit 13" deep x 12.5" wide x 15" high, 12 lbs.

Replacement Parts

- PC125 - Pusher – Die Ring Pusher With Magnets
- PC125 - Cring – Compression Ring
- PC125 - Pplate – Pressure Plate
- PC125 - Cstop – Adjustable Coupling Stop
- PC125 - Die Screw – Die Screw
- PC125 - Die Spring – Die Spring
- PC125/150 - Switch – Pneumatic Start/Stop Pendant Switch for 1-HP Pump
- PC125/150 - E1Pump – 1-HP 110V Electric Pump
- PC900 - Grease-3 oz. – High-pressure grease in a 3 oz. tube
- PC900 - Grease-1 lb. – High-pressure grease in a 1 lb. can
- PC900 - AerosolLube–High-pressure grease in an aerosol can

Metric Micrometer

PC125 Die Storage Shelf

PC125 Die Set

PC125 Coupling Stop

PC125 Retraction Stop

PC125 Magnetic Pusher

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PC150 Series Including PC150-1 & PC150-2

Description


PC150-2

The PC150-2 is a stationary crimper with more power to manufacture factory-quality hose assemblies quickly and easily. Its open design with removable pusher and "slide in" die configuration allow for good visibility and easy loading of dies and hose assemblies. Crimp diameter is set and controlled with an easy-to-read micrometer. Designed to handle higher volumes in a shop environment, the PC150-2 includes the crimper and 2-HP pump on a common base, pressure plate, compression ring, die ring pusher, stop/start remote pendant switch, metric micrometer, adjustable coupling stop, adjustable retraction stop and work light. The optional PC150-1 includes all the components of the PC150-2 and a 1-HP pump.

Features

- Easy-to-read, fully adjustable metric micrometer allows precise setting of crimp diameters to an accuracy of +/- .1mm
- Open design with vertical feed for good operator visibility
- Removable pusher and spring-loaded die set for easy loading
- 80-ton cylinder
- Automatic shutoff for precise crimps
- Adjustable retraction stop limits ram retractions for quick repetitive crimps
- Adjustable coupling stop for accurate, repetitive positioning of the assembly inside the dies
- Two-piece, "slide in" die set for easy installation
- Common base for bench mounting
- Color-coded die sets to speed die selection and setup
- 2-HP, 220V pump
- Pneumatic activation (no electric wires) of remote pendant switch

Capability

- 1/4" through 1**f**" ID 2-braid hose and 4-spiral hose with all coupling end styles including most bent tubes

Power Source

- 2-HP, 220V AC, single phase, 50-60 Hz Electric Pump (PC150-E2Pump) for PC150-2 crimper
- Optional 1-HP, 110V AC, single phase, 50-60 Hz Electric Pump (PC125/150-E1Pump) for PC150-1 crimper

Oil Capacity: 1 gallon

Mounting: Crimper and pump installed on plate

Dimensions: 32" L x 16.5" W x 29" H

Weight: 275 lbs.

Dies

Part Number	ID	Part Number	ID
PC150 - 8.5 Black	8.5mm	PC150 - 27 Brown	27mm
PC150 - 12 Black	12mm	PC150 - 31 Silver	31mm
PC150 - 14 Red	14mm	PC150 - 34 Purple	34mm
PC150 - 16 Blue	16mm	PC150 - 41 Orange	41mm
PC150 - 19 Green	19mm	PC150 - 45 Black	45mm
PC150 - 23 Yellow	23mm	PC150 - 50 Black	50mm
PC150 - 27 Brown	27mm	PC150 - 56 Black	56mm

Options

- PC150 - 1 SKit includes PC150-1 crimper and 7 die sets including 16mm, 19mm, 23mm, 31mm, 41mm, 50mm and 56mm dies for 1/4" to 1**f**" 1-braid to 4-spiral hose
- PC150 - 2 SKit includes PC150-2 crimper and 7 die sets including 16mm, 19mm, 23mm, 31mm, 41mm, 50mm and 56mm dies for 1/4" to 1**f**" 1-braid to 4-spiral hose
- PC150 - Shelf – Black Die Storage Shelf Unit 15" deep x 20.5" wide x 16" high, 25 lbs.
- PC150 - Spacer – Spacer Kit for Elbows
- PC150 - 1 with 1-HP Pump
- PC150 - 2 with 2-HP Pump

Replacement Parts

- PC150 - Pusher – Die Ring Pusher
- PC150 - Cring – Compression Ring
- PC150 - Pplate – Pressure Plate
- PC150 - Cstop – Adjustable Coupling Stop
- PC150 - Die Screw – Die Screw
- PC150 - Die Spring – Die Spring
- PC125/150 - Switch – Pneumatic Start/Stop Pendant Switch for 1-HP or 2-HP Pump
- PC150 - E2Pump – 2-HP Electric Pump for PC150-2 Crimper
- PC125/150 - E1Pump – 1-HP Electric Pump for PC150-1 Crimper
- PC900 - Grease-3oz.–High-pressure grease in a 3 oz. tube
- PC900 - Grease-1 lb.–High-pressure grease in a 1 lb. can
- PC900-AerosolLube–High-pressure grease in an aerosol can


PC150 Coupling Stop


PC150 Die Set


PC150 Die Storage Shelf


PC150 Retraction Stop

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PC150H Series Including PC150H-1 & PC150H-2

Description


PC150H

The PC150H offers the ease of use of a horizontal crimper with the power and precise adjustment capabilities usually found in more costly models. With the same crimping capability as the PC150 Series, the "H" model offers hose feed horizontally from either front or rear through a large 4.9 inch throat opening. The PC150H can be ordered with a 1-HP electric pump (PC150H-1) or a 2-HP electric pump (PC150H-2), producing maximum force in a small package. The PC150H makes repetitive crimps fast and easy to accomplish with a precise, direct-read digital adjustment and a built-in cylinder retraction stop. The PC150H also offers convenience features found in both our vertical and horizontal crimpers including a pneumatic start/stop pendant switch, a magnetic die change tool, an optional die rack for storing dies and master die grease fittings as a special feature for easy lubrication.

Features

- Easy-to-read micrometer provides precise crimp settings
- Hose feed is horizontal from both front and rear
- Easy die loading with magnetic die change tool
- Maximum die size 56mm
- 155-ton crimping force
- Automatic shutoff for precise crimps
- Retraction stop limits die travel for faster repetitive crimps
- Large 13-quart oil reservoir to cool components during repetitive crimps
- Pneumatic activation using remote pendant switch
- 1-HP and 2-HP power options

Capability

- 1/4" through 1f" ID 2-braid hose and 4-spiral hose with all coupling styles and most bent tubes

Power Source

- 1-HP, 110V AC, single phase (PC150H-1)
- 2-HP, 220V AC, single phase (PC150H-2)

Oil Capacity: 13 quarts

Mounting: Bench or cabinet

Dimensions: 15.0" L x 23.5" W x 20.5" H

Weight: 245 lbs.

Dies

Part Number	ID	Part Number	ID
PC150H-8.5	8.5mm	PC150H-31	31mm
PC150H-12	12mm	PC150H-34	34mm
PC150H-14	14mm	PC150H-41	41mm
PC150H-16	16mm	PC150H-45	45mm
PC150H-19	19mm	PC150H-50	50mm
PC150H-23	23mm	PC150H-56	56mm
PC150H-27	27mm		

Options

- PC150H - 1 SKit includes the PC150H-1 crimper and 7 die sets including 16mm, 19mm, 23mm, 31mm, 41mm, 50mm and 56mm
- PC150H - 2 SKit includes the PC150H-2 crimper and 7 die sets including 16mm, 19mm, 23mm, 31mm, 41mm, 50mm and 56mm
- PC150H-Rack – Black die cabinet 7" deep x 13" wide x 18" high, holds 9 dies

Replacement Parts

- PC900 - Grease-1lb. – High-pressure grease in 1 lb. can
- PC900 - AerosolLube – High-pressure grease in an aerosol can
- PC125/150 Switch – Pneumatic Start/Stop Pendant Switch for 1-HP or 2-HP Pump
- PC150H-DCT – Die Change Tool


PC150H Die Set


Die Change Tool


PC150H Die Rack


Digital Gauge

Information in this supersedes all previously printed material and is current as of April 2015. Due to continual product improvements, Continental ContiTech reserves the right to alter specs without prior notice.
For the most current product information, visit www.contitech.us.

Crimping Equipment & Accessories | Perma-Crimp™

PC200 Series Including PC200-1, PC200-2 & PC200-3

Description

The PC200 is a high-volume, high-capacity stationary crimper utilizing microprocessor control for the fastest, most accurate crimping system available. Crimp settings, dwell time, pre-set start positions and auto/manual operation are all easily set with electronic controls. This production crimper is a quick and easy way to make factory-quality hose assemblies. The standard package is the PC200-1 crimper, which includes a 7.5-HP, 230V/3 phase pump and foot pedal. The optional PC200-2 crimper includes a 7.5-HP, 480V/3 phase pump and foot pedal. The optional PC200-3 (single phase) crimper includes a 5-HP, 220V/single phase pump and foot pedal.

PC200-1

Features

- Hose feed is horizontal from both front or rear
- Accurate electronic PLC crimp diameter adjustment
- Manual or automatic model
- Max die size +78 mm
- 340-ton cylinder
- Automatic shutoff for precise crimps
- Power return stroke and return limit control
- Rapid retraction of die fingers through hydraulic system
- Die sets easily changed using hand tool.
- Accommodates bent tube/elbow couplings with the ability of installing 2", 90-degree fittings on both ends

Capability

- 1/4" through 2" ID 2-braid hose and 2" 6-spiral hose with all coupling end styles including most bent tubes

Power Source

- 7.5-HP, 230V AC, 3 phase, 60 Hz (PC200-E7.5-1Pump)
- Optional 7.5-HP, 480V AC, 3 phase, 60 Hz (PC200-E7.5-2 Pump) for the PC200-2 crimper
- Optional 5-HP, 220V AC, single phase, 60 Hz for the PC200-3 crimper

Oil Capacity: 8 gallons

Mounting: Bench or cabinet

Dimensions: 18.5" L x 27.5" W x 31.5" H (without die cabinet)

Weight: 573 lbs. (excluding cabinet)

Dies

Part Number	ID	Part Number	ID
PC200 - 8.5	8.5mm	PC200 - 41	41mm
PC200 - 12	12mm	PC200 - 45	45mm
PC200 - 14	14mm	PC200 - 50	50mm
PC200 - 16	16mm	PC200 - 56	56mm
PC200 - 19	19mm	PC200 - 62	62mm
PC200 - 23	23mm	PC200 - 69	69mm
PC200 - 27	27mm	PC200 - 74	74mm
PC200 - 31	31mm	PC200 - 78	78mm
PC200 - 34	34mm		

Options

- PC200 - 1 SKit includes the PC200-1 crimper and 10 die sets including 16mm, 19mm, 23mm, 31mm, 41mm, 50mm, 56mm, 62mm, 69mm and 78mm dies for 1/4" to 2" 1-braid to 6-spiral hose
- PC200 - 2 SKit includes the PC200-2 crimper and 10 die sets including 16mm, 19mm, 23mm, 31mm, 41mm, 50mm, 56mm, 62mm, 69mm and 78mm dies for 1/4" to 2" 1-braid to 6-spiral hose
- PC200 - 3 Skit includes the PC200-3 crimper and 10 die sets including 16mm, 19mm, 23mm, 27mm, 31mm, 34mm, 41mm, 50mm, 56mm and 69mm
- PC200 - Rack – Black Die Cabinet 20" deep x 30" wide x 29" high
- PC200 - MBS – Manual Back Stop
- PC200 - EBS – Electric Back Stop

Replacement Parts

- PC900 - Grease-1lb. – High-pressure grease in a 1 lb. can
- PC900 - AerosolLube – High-pressure grease in an aerosol can

PC200 Die Set

Optional Automatic Back Stop

Control Panel

Foot Switch

Die Cabinet

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PC400 Series Including PC400 & PC400-1

Description

The PC400 is a high-volume, high-capacity stationary crimper utilizing microprocessor control for the fastest, most accurate crimping system available. Crimp settings, dwell time, pre-set start positions and auto/manual operation are all easily set with electronic controls. This production crimper is a quick and easy way to make both hydraulic and industrial hose assemblies. The standard package is the PC400 crimper which includes a 7.5-HP, 230V/3 phase pump and foot pedal. The optional PC400-1 crimper includes a 5-HP, 230V/single phase pump and foot pedal.

PC400

Features

- Hose feed is horizontal from both front or rear
- Accurate electronic PLC crimp diameter adjustment
- Manual or automatic model
- Maximum die opening: die closed diameter + 78mm (hydraulic) and 122mm (industrial)
- 265-ton cylinder
- Automatic shutoff for precise crimps
- Power return stroke and return limit control
- Rapid retraction of die fingers through hydraulic system
- Die sets easily changed using hand tool
- Accommodates bent tube/elbow couplings with the ability of installing 2", 90-degree fittings on both ends

Capability

- 1/4" through 2" ID 2-braid hose, and 2" 6-spiral hose and 4" industrial hose with all coupling end styles including most bent tubes
- 1/2" through 4" ID industrial hose

Power Source

- 7.5-HP, 230V AC, 3 phase, 60 Hz for the PC400 crimper
- Optional 5-HP, 230V AC, single phase for the PC400-1 crimper

Oil Capacity: 8 gallons

Mounting: Bench or cabinet

Dimensions: 18.5" L x 27.5" W x 31.5" H (without die cabinet)

Weight: 573 lbs. (excluding cabinet)

Hydraulic Dies (PC400 utilizes PC200 dies)

Part Number	ID	Part Number	ID
PC200 - 8.5	8.5mm	PC200 - 34	34mm
PC200 - 12	12mm	PC200 - 41	41mm
PC200 - 14	14mm	PC200 - 45	45mm
PC200 - 16	16mm	PC200 - 50	50mm
PC200 - 19	19mm	PC200 - 56	56mm
PC200 - 23	23mm	PC200 - 62	62mm
PC200 - 27	27mm	PC200 - 69	69mm
PC200 - 31	31mm	PC200 - 74	74mm
		PC200 - 78	78mm

Industrial Dies

Part Number	ID	Part Number	ID
PC400 - 86-125L	86mm	PC400 - 114-125L	114mm
PC400 - 90-125L	90mm	PC400 - 118-125L	118mm

Options

- PC400 - SKit includes the PC400 crimper and 12 die sets including 16mm, 19mm, 23mm, 27mm, 31mm, 34mm, 41mm, 50mm, 56mm, 62mm, 69mm and 78mm dies for 1/4" to 2" 1-braid to 6-spiral hose
- PC400 - 1 SKit includes the PC400-1 crimper and 12 die sets including 16mm, 19mm, 23mm, 27mm, 31mm, 34mm, 41mm, 50mm, 56mm, 62mm, 69mm and 78mm dies for 1/4" to 2" 1-braid to 6-spiral hose
- PC200 - Rack – Black Die Cabinet 20" deep x 30" wide x 29" high
- PC200 - MBS – Manual Back Stop
- PC200 - EBS – Electric Back Stop

Replacement Parts

- PC900 - Grease -1lb. High-pressure grease in a 1 lb. can
- PC900 - AerosolLube - High-pressure grease in an aerosol can

Control Panel

Foot Switch

Die Cabinet

Optional Automatic Back Stop

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PC600 Crimper

Description
The PC600 is a high-volume, high-capacity stationary crimper utilizing the fully automatic ACT3™ microprocessor controller. The PC600 can produce 2,200 crimps per hour with 350 tons of crimping force to allow for both hydraulic and industrial hose assemblies, and it is ideal for production assembly applications. The standard PC600 crimper includes a 7.5-HP, 230 VAC, 3-phase hydraulic pump.

Features
› Fully automatic ACT3™ controller
› Manual and automatic operation
› Utilizes the PC200/400 dies with easy-to-change die tool
› 350-ton cylinder
› Built-in heavy-duty base with die holders
› Allows for 2,200 crimps per hour
› Automatic shutoff for precise crimps
› Power return stroke and return limit control

Capability
› 1/4" through 2.5" ID, 2-braid and 6-spiral hydraulic hose
› 3/16" through 6" ID industrial hose

Power Source
› 7.5-HP, 230V AC, 3 phase, 60 Hz

Dimensions
› Master die inside diameter – 145mm
› Master die opening w/o dies – 273mm
› Maximum swaging diameter – 192mm
› Maximum die opening – Die+128mm
› Pump size: 21" L x 34" W x 36.5" H
› Pump weight: 450 lbs. (205kg)
› Machine size: 22" L x 36" W x 57" H

Weight: 4,500 lbs. (2,041kg) die base/cabinet (shipping weight)

PC600

Optional Automatic Back Stop

The following dies are included in the standard PC600-P SKit

Hydraulic Dies

SAP #	Descriptive #	Description
20244976	PC200-16	16mm Die
20244977	PC200-19	19mm Die
20244978	PC200-23	23mm Die
20244980	PC200-31	31mm Die
20244982	PC200-41	41mm Die
20244984	PC200-50	50mm Die
20244985	PC200-56	56mm Die
20244986	PC200-62	62mm Die
20244987	PC200-69	69mm Die
20249890	PC200-78	78mm Die

Continental ContiTech Part Numbers

SAP #	Descriptive #	Description
20527520	PC600-P Skit	PC600-P Skit 16-23, 31, 41, 50, 56, 62, 69, 78
20548773	PC600-P Skit H&I	Includes Hydraulic & Industrial Dies (Hyd: 16-23, 31, 41, 50, 56, 62, 69, 79) (Ind: 84, 92, 100, 125, 166, 178)
20267266	PC200/400-DCT	Die Change Tool
20244972	PC200-EBS	Electric Back Stop (Optional)
20244971	PC200-MBS	Manual Back Stop

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PC1000 Crimper

Description
The PC1000 is a high-volume, high-capacity stationary crimper utilizing the fully automatic ACT3™ microprocessor controller. The PC1000 can produce 1,415 crimps per hour with 450 tons of crimping force to allow for both Hydraulic and Industrial hose assemblies, ideal for production assembly applications. The standard PC1000 crimper includes a 7.5-HP, 230 VAC, 3-phase hydraulic pump.

Features
› Fully automatic ACT3™ controller
› Manual and automatic operation
› Utilizes the PC200/400 dies with easy-to-change die tool
› 350-ton cylinder
› Built-in heavy-duty base with die holders
› Allows for 1,415 crimps per hour
› Automatic shutoff for precise crimps
› Power return stroke and return limit control

Capability
› Up through 2f" ID, 2-braid, 4-spiral and 6-spiral hydraulic hose
› 3/16" through 10" ID industrial hose

Power Source
› Standard: 7.5-HP, 230 VAC, 3 Phase, 60 Hz
› Optional: 7.5-HP, 460 VAC, 3 Phase, 60 Hz

Dimensions
› Master die inside diameter – 230mm
› Master die opening w/o dies – 350mm
› Maximum swaging diameter – 192mm
› Maximum die opening – Die+125mm
› Machine size: 30" L x 44" W x 74 " H

Weight: 6,185 lbs. (2,806kg)

Continental ContiTech Part Numbers

SAP #	Descriptive #	Description
20588181	PC1000-PX SKit	PC1000-PX SKit

(3 phase 230V dies 14-245) PC1000 utilizes PC200/400/600 dies and change tool

PC1000

Hydraulic Dies
The following dies are included in the standard PC1000-PX Skit

SAP #	Descriptive #	Description
20244975	PC200-14	14mm Die
20244976	PC200-16	16mm Die
20244977	PC200-19	19mm Die
20244978	PC200-23	23mm Die
20244980	PC200-31	31mm Die
20244982	PC200-41	41mm Die
20244984	PC200-50	50mm Die
20244985	PC200-56	56mm Die
20244986	PC200-62	62mm Die
20244987	PC200-69	69mm Die
20249890	PC200-78	78mm Die
20562098	PC600-84	84mm Die
20562099	PC600-92	92mm Die
20562650	PC600-100	100mm Die
20562651	PC600-108	108mm Die
20562652	PC600-116	116mm Die
20562653	PC600-126	126mm Die
20590712	PC1000-166	166mm Die
20590713	PC1000-178	178mm Die
20590714	PC1000-215	215mm Die
20590715	PC1000-245	245mm Die

Test Benches

PCTB1500 / PCTB2500

Description
Continental ContiTech PCTB Series Test Benches provide a safe and efficient method to test hose assemblies for burst or proof testing.

Features
› Optional electronic model with programmable control including paper printout
› 1/2" polycarbonate safety window
› Safety lock to prevent operation when door is not closed
› Standard garden hose inlet for water supply
› Factory air inlet supply, 85 psi min. required
› Powder-coated finish for durability
› Polyurethane bed liner material coating on interior
› 7-port outlet manifold for multiple testing
› Built-in work light for good visibility during testing

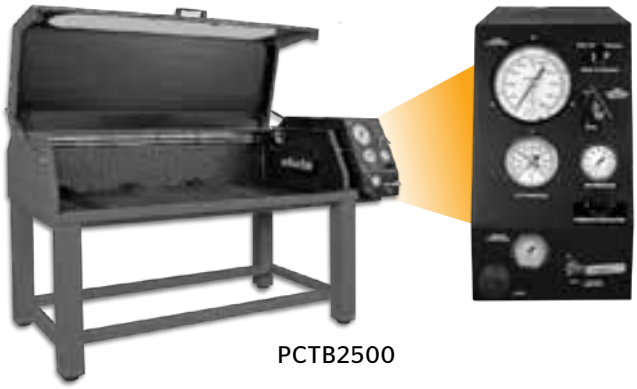
Capability
› PCTB1500 – Test pressure range to 21,500 psi (1500 bar)
› PCTB2500 – Test pressure range to 37,500 psi (2500 bar)

Power Source
› Standard 110 VAC, Single Phase Grounded Outlet

Dimensions
› Interior: 18" H x 35" W x 71" L
› Includes test bench legs – test area at a convenient working height
› Full opening allows for hose assemblies to be loaded on a skid

Weight: 750 lbs.

PCTB1500



PCTB2500

Continental ContiTech Part Numbers

SAP #	Descriptive #
20439763	PCTB-1500 Test Bench
20439764	PCTB-1500 PLC Test Bench
20554088	PCTB-2500 Test Bench
20554089	PCTB-2500 PLC Test Bench

Instructions for Replacing Handles, Pins and Rings on Insta-Lock™ Fittings

Before replacing the handles on an Insta-Lock™ fitting, examine the fitting for external damage. Some things to look for: the bowl on a “B, C, or D" type being out of round, damage to the hose shank barb, cracks in the casting, or general wear and abuse. If you find any damage or question the integrity of the fitting, immediately discard the fitting.

To remove the handles, locate the end of the pin with the notches. With a drift pin and a hammer, drive the pin out from the casting by driving the pin from the un-notched side toward the notched side. The pin can only be correctly removed and installed this way.

Reverse the above procedure to install the new handle and pin and pull ring. Ensure the pin is inserted completely and flush with the casting.

Always use all the parts in a kit.
Always replace both handles, pins and pull rings.
Always replace the gasket with the appropriate gasket for the service required.
Always use appropriate safety glasses.

Hose Testing Methods

Safety Warning!

Testing can be dangerous and should be done only by trained personnel using proper tools and procedures. Failure to follow such procedures might result in damage to property and/or serious bodily injury.

The Association of Rubber Product Manufacturers (ARPM) recognizes, accepts and recommends the testing methods of the American Society for Testing and Materials (ASTM).

Unless otherwise specified, all hose tests are to be conducted in accordance with ASTM Method No. D-380 (latest revision). Where an ASTM D-380 test is not available, another test method should be selected and described in detail.

ARPM participates with ASTM under the auspices of the American National Standards Institute (ANSI) in Technical Committee 45 (TC45) of The International Organization for Standardization (ISO) in developing both hose product and hose test method standards. Many of the hose test method standards published by ISO duplicate or closely parallel those shown in ASTM D-380. Many are unique and, in those cases, the RMA may be able to provide the necessary test standard references which may be purchased from the American National Standards Institute (ANSI).

Hydrostatic Pressure Tests

Hydrostatic pressure tests are classified as follows:

1. Destructive Type
   a. Burst test
   b. Hold test

2. Non-Destructive Type
   a. Proof pressure test
   b. Change in length test (elongation or contraction)
   c. Change in outside diameter or circumference test
   d. Warp test
   e. Rise test
   f. Twist test
   g. Kink test
   h. Volumetric expansion test

Destructive Tests

Destructive tests are conducted on short specimens of hose, normally 18 inches (460mm) to 36 inches (915 mm) in length and, as the name implies, the hose is destroyed in the performance of the test.

a. Burst pressure is recorded as the pressure at which actual rupture of a hose occurs.
b. A hold test, when required, is a means of determining whether weakness will develop under a given pressure for a specified period of time.

Non-Destructive Tests

Non-destructive tests are conducted on a full length of a hose or hose assembly. These tests are for the purpose of eliminating hose with defects which cannot be seen by visual examination or in order to determine certain characteristics of the hose while it is under internal pressure.

a. A proof pressure test is normally applied to hose for a specified period of time. On new hose, the proof pressure is usually 50% of the minimum specified burst except for woven jacket fire hose where the proof pressure is twice the service test pressure marked on the hose (67% of specified minimum burst). Hydrostatic tests performed on fire hose in service should be no higher than the service test pressure referred to above. The regulation of these pressures is extremely important so that no deteriorating stresses will be applied, thus weakening a normal hose.
b. With some type of hose, it is useful to know how a hose will act under pressure. All change in length tests, except when performed on wire braid or wire spiralled hose, are made with original length measurements taken under a pressure of 10 psi (0.069 MPa). The specified pressure, which is normally the proof pressure, is applied and immediate measurement of the characteristics desired are taken and recorded. Percent length change (elongation or contraction) is the difference between the length at 10 psi (0.069 MPa) (except wire braided or wire

Continued on next page

spiralled) and that at the proof pressure times 100 divided by the length at 10 psi (0.069 MPa). Elongation occurs if the length of the hose under the proof pressure is greater than at a pressure of 10 psi (0.069 MPa). Contraction occurs if the length at the proof pressure is less than at 10 psi (0.069 MPa). In testing wire braided or spiralled hose, the proof pressure is applied and the length recorded. The pressure is then released and, at the end of 30 seconds, the length is measured; the measurement obtained is termed the "original length."

c. Percent change in outside diameter or circumference is the difference between the outside diameter or circumference at 10 psi (0.069 MPa) and that obtained under the proof pressure times 100 divided by the outside diameter or circumference at 10 psi (0.069 MPa). Expansion occurs if the measurement at the proof pressure is greater than at 10 psi (0.069 MPa). Contraction occurs if the measurement at the proof pressure is less than at 10 psi (0.069 MPa).

d. Warp is the deviation from a straight line drawn from fitting to fitting; the maximum deviation from this line is warp. First, a measurement is taken at 10 psi (0.069 MPa) and then again at the proof pressure. The difference between the two, in inches, is the warp. Normally this is a feature measured on woven jacket fire hose only.

e. Rise is a measure of the height a hose rises from the surface of the test table while under pressure. The difference between the rise at 10 psi (0.069 MPa) and at the proof pressure is reported to the nearest 0.25 inch (6.4 mm). Normally, this is a feature measured on woven jacket fire hose only.

f. Twist is a rotation of the free end of the hose while under pressure. A first reading is taken at 10 psi (0.069 MPa) and a second reading at proof pressure. The difference, in degrees, between the 10 psi (0.069 MPa) base and that at the proof pressure is the twist. Twist is reported as right twist (to tighten couplings) or left twist. Standing at the pressure inlet and looking toward the free end of a hose, a clockwise turning is right twist and counterclockwise is left twist.

g. Kink test is a measure of the ability of woven jacket hose to withstand a momentary pressure while the hose is bent back sharply on itself at a point approximately 18 inches (457mm) from one end. Test is made at pressures ranging from 62% of the proof pressure on sizes 3 inches (76mm) and 3.5 inches (89mm) to 87% on sizes under 3 inches (76mm). This is a test applied to woven jacket fire hose only.

h. Volumetric expansion test is applicable only to specific types of hose, such as hydraulic or power steering hose, and is a measure of its volumetric expansion under ranges of internal pressure.

Design Considerations

In designing hose, it is customary to develop a design ratio, which is a ratio between the minimum burst and the maximum working pressure.

Burst test data is compiled and the minimum value is established by accepted statistical techniques. This is done as a check on theoretical calculations, based on the strength of reinforcing materials and on the characteristics of the method of fabrication.

Minimum burst values are used as one factor in the establishment of a reasonable and safe maximum working pressure.

MAXIMUM WORKING PRESSURE IS ONE OF THE ESSENTIAL OPERATING CHARACTERISTICS THAT A HOSE USER MUST KNOW AND RESPECT TO ASSURE SATISFACTORY SERVICE AND OPTIMUM LIFE.

It should be noted that design ratios are dependent on more than the minimum burst. The hose technologist must anticipate natural decay in strength of reinforcing materials, and the accelerated decay induced by the anticipated environments in which the hose will be used and the dynamic situations that a hose might likely encounter in service. Including all considerations, the following recommended design ratios are given for newly manufactured hose:

1. Water Hose up to 150 psi WP: 3:1

2. Hose for all other liquids, solid materials suspended in liquids or air, and water hose over 150 psi WP: 4:1

3. Hose for compressed air and other gases: 4:1

4. Hose for liquid media that immediately changes into gas under standard atmospheric conditions: 5:1

5. Steam Hose: 10:1

Electrical Resistance Tests For Hose and Hose Assemblies

1.0 Purpose: This procedure specifies methods for performing electrical resistance tests on rubber and/or plastic hose and hose assemblies.

2.0 Scope: These procedures are intended to test electrical conductive, antistatic and nonconductive (insulating) hoses, along with electrical continuity or discontinuity between fittings.

3.0 Definitions

3.1 Antistatic Hose - Antistatic hose constructions are those that are capable of dissipating the static electricity buildup that occurs during the high velocity flow of material through a hose.

3.2 Conductive Hose – Conductive hose constructions are those that are capable of conducting an electrical current.

3.3 Direct Current (D.C.): Flow of electrical current in one direction at a constant rate.

3.4 Electrical Conductivity: A measure of the ease with which a material is capable of conducting an electrical current. Conductivity = 1/Resistance.

3.5 Electrical Resistance: Property of an object to resist or oppose the flow of an electrical current.

3.6 Non-Conductive (Insulating) Hose: Non-conductive hose constructions are those that resist the flow of electrical current.

3.7 Ohm's Law: The electrical current, I, is equal to the applied voltage, V, divided by the resistance, R. In practical terms, the higher the electrical resistance at a constant voltage, the lower the electrical current flow through an object.

3.8 Ohm: The amount of resistance that limits the passage of current to one ampere when a voltage of one volt is applied to it.

4.0 Apparatus

4.1 Test Instruments
All test instruments shall have a gauge reliability and reproducibility (R&R) of less than 30%. Some instruments made to measure high electrical resistance may have an internal protection circuit built in which will cause test errors in the less than one megohm range. During the test, no more than 3 watts (W) shall be dissipated in the specimen, to prevent erroneous results due to effects of temperature.
The power dissipated shall be determined by the square of the open-circuit voltage divided by the measured resistance, see formula 1 (Power Dissipation).

$$1)\ \text{Power Dissipation} = \frac{(\text{Voltage})^2}{\text{Resistance in ohms}}$$

To determine the electrical resistance of non-conductive hose, the test should be made with an instrument designed specifically for measuring insulation resistance, having a nominal open-circuit voltage of 500 volts D.C., or with any other instrument known to give comparable results. For measuring electrical discontinuity, a 1,000 Volt D.C. source may
be used instead of a 500 volt D.C. source.

For hoses with a conductive tube or cover, the resistance values obtained may vary with the applied voltage, and errors may occur at low-test voltages. As a starting point, an ohmmeter (9 volts) can be used.

For tests requiring measurement of electrical continuity between end fittings or through continuous internal or external bonded wires, the instrument used shall be an ohmmeter (9 volts).

4.2 Electrodes and Contacts
When the test procedure calls for contact with the hose cover, electrodes shall be formed around the outer circumference of the hose as bands 25mm +2mm, 0mm (1 in. +1/16 in., 0 in.) wide by applying silver lacquer/conductive liquid and metallic copper foil tape (i.e. 3M Scotch Brand) as shown in Figure 1.

When a conductive silver lacquer (i.e. Colloidal Silver Liquid is available from Ted Pella, Inc. catalogue # 16031) is used, the surface resistance between any two points on a sample of the dried film shall not exceed 100 ø.

Continued on next page

When a conductive liquid is used the electrode contact area shall be completely wetted and shall remain so until the end of the test. The conductive liquid shall consist of:

- Anhydrous polyethylene glycol of relative molecular mass 600: 800 parts by mass
- Water: 200 parts by mass
- Wetting agent: 1 part by mass
- Potassium Chloride: 10 parts by mass

When the test procedure calls for contact with the hose tube, it is preferable to use a copper plug of external diameter equal to or slightly greater than the hose ID or a steel hose stem, coated with the conducting liquid, and pushed 25 mm (1 in.) into the hose. An alternative for 50 mm (2 in.) and above hose would be to apply the conductive silver lacquer onto the hose ID, then insert the plug or hose stem. The electrical leads from the test instrument shall be clean and they should make adequate contact with the metallic copper foil and/or copper plugs/hose stems.

5.0 Preparation and Cleaning for Test

The surfaces of the hose shall be clean. If necessary, the hose surface may be cleaned by rubbing with Fuller's earth (magnesium aluminum silicate) and water, followed by a distilled water rinse, and allowing the hose to dry in a non-contaminating environment. Do not use organic materials that attack or swell the rubber, and do not buff or abrade the test surfaces.

The surface of the hose shall not be deformed either during the application of the contacts or during the test. When using test pieces, the supports shall be outside the test length. When using a long length of hose, the hose shall be uncoiled and laid out straight on polyethylene or other suitable insulating material. Care should be taken to ensure that the hose is insulated from any electrical leakage path along the length of the hose.

6.0 Test Conditions

For lab testing, the hose or hose assemblies shall be conditioned for at least 16 hours at +23° C ± 2°C (73.4°F ± 3.6°F) with a relative humidity not to exceed 70%. However, it is permissible, by agreement between the supplier and the customer, to use the conditions prevailing in the factory, warehouse, or laboratory, provided that the relative humidity does not exceed 70%.

7.0 Test Pieces:

Prepare three test pieces approximately 300mm (12 in.) long from samples taken at random from a production run or lot. Condition the test pieces per section 6.0. Place the test piece on blocks of polyethylene, or other insulating material, to provide a resistance of greater than 1011 ø between the test piece and the surface on which the blocks are supported. Ensure that the leads from the instrument do not touch each other, the hose or any part except the terminal to which each is connected. Avoid breathing on the test surfaces and thus creating condensation that may lead to inaccuracies.

8.0 Procedure for hoses with conducting tube:

Apply the electrodes as specified to the inside surface of the hose at each end of the hose. The edge of the electrode plug shall be coincident with the end of the hose. When using a conductive liquid, care shall be taken to avoid creating a leakage path between the tube and the reinforcement or cover of the hose.

Apply the metal contacts to the electrodes.

Apply the test voltage (9V) and measure the resistance 5 seconds ± 1 second after the voltage is applied.

Note: In previous editions of the hose handbook, this method was referred to as the Plug Method.

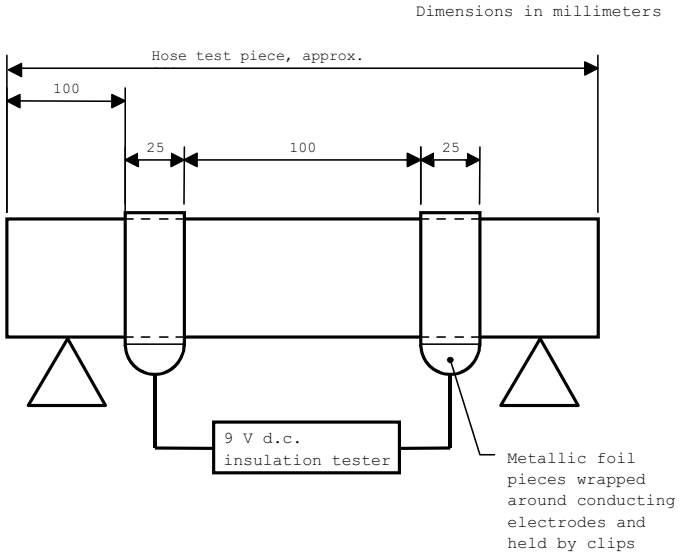


Figure 6-1 – Electrodes and contacts for testing hose

9.0 Procedure for hose with conducting cover

Apply the electrodes as specified to the outer circumference of the hose at each hose end. See Figure 6-1.
Ensure that contact is maintained with the electrodes around the circumference and that the contact pieces are sufficiently long enough for the two free ends to be held securely by a tensioning clip (see Figure 6-1) such that the fit of the electrodes is as tight as possible.

Apply the metal contacts.

Apply the test voltage (9V) and measure the resistance 5 seconds ± 1 second after the voltage is applied.

10.0 Procedure for hose with conducting or non-conducting compounds throughout

Apply the electrodes as specified on the inside surface at one end of the hose (end A) and on the outside surface at the other end of the hose (end B).

Apply the metal contacts to the electrodes.

Apply the test voltage (9V for conductive compounds and 500V for non-conductive compounds) and measure the resistance 5 seconds ± 1 second after the voltage is applied.

Alternative method for non-conductive hose – Nail or "Pot Room" Method

Conduct test as follows:
1. Cut sample hose, 24 inches long
2. Assure that both inside and outside of hose are free of oil, dirt, etc.
3. Pierce sample ends with clean nails, as shown in Fig. 6-2.

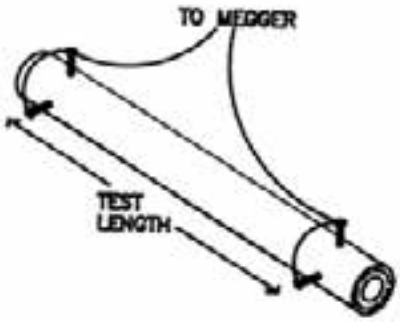


Fig. 6-2 - Nail or "Pot Room" Test

4. Connect nails to 1000-volt DC power source and megohm meter or 1000 volt "megger" as shown in Fig. 6-2.
5. Record total resistance, in megohms.
6. Measure "test length" as shown in Fig. 6-2.
7. Divide total resistance by test length to get megohms per inch.

11.0 Procedure for hose assemblies fitted with metal end fittings:

When it is required that the resistance of a hose assembly be measured, the leads of the test instrument shall be attached directly to the metal hose shank (threaded end connection, fixed flange, stub end of a floating flange, etc.) of the metal end fittings.

Some hoses, especially thermoplastic hoses, have conductive layers within the hose construction. These hoses shall be tested as assemblies made with fittings and assembly techniques specified by the hose and fitting manufacturer.

Apply the metal contacts to the metal end fittings.

Apply the test voltage (9V) and measure the resistance 5 seconds ± 1 second after the voltage is applied.

12.0 Procedure for measurement of electrical continuity:

In certain types of hose constructions, electrical continuity is provided between the end fittings by means of a continuous wire or wires bonded to each coupling. When the construction is such that there are internal and external wires, the electrical continuity of both wires shall be established. It is essential that contact resistance between the end fittings and the ohmmeter be minimized.

Apply the metal contacts to the metal end fittings.

Apply the test voltage (9V) and measure the resistance 5 seconds ± 1 second after the voltage is applied.

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Velocity® Crimp Instructions

Notes

The Velocity crimp specifications given are valid only for combination nipples, domestic suction couplings, ball and socket couplings, and the corresponding sleeves from Campbell Fittings, Inc. of Boyertown, PA, USA.

The crimp specifications in the charts are from Campbell Fittings with the following modification: The wall sizes are lined up with the proper crimp diameter for Velocity hose. If you are using Campbell's published crimp specification guide you must follow the suggestions for hoses with a PVC outer helix, that is, to move up one row for the crimp diameter.

Banding coils are necessary to assure a leak-free connection.

Instructions

(The following instructions are excerpted from Campbell's crimp specification guide.)

To determine the sleeve choice and crimp specification:

1. Install the banding coil.
2. Measure each end to be assembled, as hoses may vary from end to end.
3. Determine the hose wall thickness by measuring 3 separate locations on the hose end with a caliper, add them together and divide by 3. Measurements should be taken over the helix and banding coil.
4. On the chart locate the wall thickness closest to the average measured hose wall. Read across for the sleeve and crimp diameter.

NOTE 1: If the recommended sleeve is too tight, the hose ID is oversized. Measure the hose OD and use the recommended sleeve based on the OD. However, crimp to the diameter specified based on the hose wall thickness (step 3).

NOTE 2: When multiple crimp hits are needed, turn the assembly for each hit for best results.

Safety Note

All assemblies should be hydrostatically tested to a minimum of 2 times the assembly working pressure or as otherwise dictated by Veyance, NAHAD Assembly Guidelines, or your customer. Always refer to the NAHAD Assembly Guidelines for industry-accepted practices for assembling hose and hydrostatic testing.

Suggestions For Preparing The Assembly

1. Prior to assembly assure that the sleeve and hose end is clean. Assure the hose end has been cut squarely.
2. Generally for PVC hose, it is recommended to soak both the fitting and hose in hot water prior toinserting the fitting. Velocity hose is rated to 140°F. About half an hour in 140°F water should work well. Generally, no pounding or hammering is required, only force and perhaps a screwing motion as if screwing the PVC helix wire onto the fitting.
3. Lubrication is not recommended unless necessary. If lubrication is necessary for fitting/coupling insertion, a commercial hose lube is recommended.
4. Do not crimp the assembly while still hot. Allow the fitting and hose to cool to room temperature or about 70°F before crimping. Proof testing is recommended.

Positioning

1. The fitting/coupling should be inserted into the hose only as far as to cover the last serration. Insertion beyond that point does not enhance retention, but may harm the fitting/coupling or interlock.
2. Sleeves should be positioned so the end of the sleeve and the end of the hose are aligned.
3. When crimping, the dies should align over the end of the sleeve on the coupling side. The entire length of the sleeve should be crimped. If dies are too short, crimp the fitting/coupling end first, then the end toward the hose length.

ARPM Hose Care Inspection Procedures

Hose has a limited life and the user must be alert to signs of impending failure, particularly when the conditions of service include high working pressures and/or the conveyance or containment of hazardous materials. The periodic inspection and testing procedures described here provide a schedule of specific measures which constitute a minimum level of user action to detect signs indicating hose deterioration or loss of performance before conditions leading to malfunction or failure are reached.

Safety Warning!

Failure to properly follow the manufacturer's recommended procedures for the care, maintenance and storage of a particular hose might result in its failure to perform in the manner intended and might result in possible damage to property and serious bodily injury.

General instructions are also described for the proper care of hose to minimize deterioration from exposure to elements or environments which are known to be deleterious to rubber products. Proper storage conditions can enhance and extend substantially the ultimate life of hose products.

General Care and Maintenance

Hose should not be subjected to any form of abuse in service. It should be handled with reasonable care. Hose should not be dragged over sharp or abrasive surfaces unless specifically designed for such service. Care should be taken to protect hose from severe end loads for which the hose or hose assembly were not designed. Hose should be used at or below its rated working pressure; any changes in pressure should be made gradually so as to not subject the hose to excessive surge pressures.

Hose should not be kinked or be run over by equipment. In handling large size hose, dollies should be used whenever possible; slings or handling rigs, properly placed, should be used to support heavy hose used in oil suction and discharge service.

General Test & Inspection Procedures

An inspection and hydrostatic test should be made at periodic intervals to determine if a hose is suitable for continued service. A visual inspection of the hose should be made for loose covers, kinks, bulges or soft spots, which might indicate broken or displaced reinforcement. The couplings or fittings should be closely examined and, if there is any sign of movement of the hose from the couplings, the hose should be removed from service.

The periodic inspection should include a hydrostatic test for one minute at 150% of the recommended working pressure of the hose. An exception to this would be the woven jacketed fire hose.* During the hydrostatic test, the hose should be straight, not coiled or in a kinked position. Water is the usual test medium and, following the test, the hose may be flushed with alcohol to remove traces of moisture. A regular schedule for testing should be followed and inspection records maintained.

Safety Warning: Before conducting any pressure tests on hose, provisions must be made to ensure the safety of the personnel performing the tests and to prevent any possible damage to property. Only trained personnel using proper tools and procedures should conduct any pressure tests.

1. Air or any other compressible gas must never be used as the test media because of the explosive action of the hose should a failure occur. Such a failure might result in possible damage to property and serious bodily injury.

2. Air should be removed from the hose by bleeding it through an outlet valve while the hose is being filled with the test medium.

3. Hose to be pressure tested must be restrained by placing steel rods or straps close to each end and at approximate 10 foot (3m) intervals along its length to keep the hose from "whipping." If failure occurs; the steel rods or straps are to be anchored firmly to the test structure, but in such a manner that they do not contact the hose which must be free to move.

4. The outlet end of the hose is to be bulwarked so that a blown-out fitting will be stopped.

Continued on next page

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5. Provisions must be made to protect testing personnel from the forces of the pressure media if a failure occurs.

6. Testing personnel must never stand in front of or in back of the ends of a hose being pressure tested.

7. When liquids such as gasoline, oil, solvent or other hazardous fluids are used as the test fluid, precautions must be taken to protect against fire or other damage should a hose fail and the test liquid be sprayed over the surrounding area.

The Rubber Manufacturers Association has published separately a series of Hose Technical Information bulletins describing Maintenance, Testing and Inspection recommendations. Reference should be made to the current RMA Catalog of Publications to determine the availability of the latest edition. Bulletins published as of January 1996 include the following:

Publication Number
IP 11-1-Steam Hose
IP 11-2-Anhydrous Ammonia Hose
IP 11-4-Oil Suction and Discharge Hose
IP 11-5-Welding Hose
IP 11-7-Chemical Hose
IP 11-8-Fuel Dispensing Hose

Storage

Rubber hose products in storage can be affected adversely by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive materials.

The appropriate method for storing hose depends to a great extent on its size (diameter and length), the quantity to be stored, and the way in which it is packaged. Hose should not be piled or stacked to such an extent that the weight of the stack creates distortions on the lengths stored at the bottom. Since hose products vary considerably in size, weight, and length, it is not practical to establish definite recommendations on this point. Hose having a very light wall will not support as much load as could a hose having a heavier wall or hose having a wire reinforcement. Hose which is shipped in coils or bales should be stored so that the coils are in a horizontal plane.

Whenever feasible, rubber hose products should be stored in their original shipping containers, especially when such containers are wooden crates or cardboard cartons which provide some protection against the deteriorating effects of oils, solvents and corrosive liquids; shipping containers also afford some protection against ozone and sunlight. Certain rodents and insects will damage rubber hose products, and adequate protection from them should be provided.

Cotton-jacketed hose should be protected against fungal growths if the hose is to be stored for prolonged periods in humidity conditions in excess of 70%.

The ideal temperature for the storage of rubber products ranges from 50˚F to 70˚F (10˚C to 21˚C) with a maximum limit of 100˚F (38˚C). If stored below 32˚F (0˚C), some rubber products become stiff and would require warming before being placed in service. Rubber products should not be stored near sources of heat, such as radiators, base heaters, etc., nor should they be stored under conditions of high or low humidity.

To avoid the adverse effects of high ozone concentration, rubber hose products should not be stored near electrical equipment that may generate ozone or be stored for any lengthy period in geographical areas of known high ozone concentration. Exposure to direct or reflected sunlight, even through windows, should also be avoided. Uncovered hose should not be stored under fluorescent or mercury lamps which generate light waves harmful to rubber.

Storage areas should be relatively cool and dark, and free of dampness and mildew. Items should be stored on a first-in, first-out basis, since even under the best of conditions, an unusually long shelf life could deteriorate certain rubber products.

*Woven jacket fire hose should be tested in accordance with the service test provisions contained in the current edition of National Fire Protection Association Bulletin No. 1962 - Standard for the Care, Use and Service Testing of Fire Hose.

Notes

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