

Eaton Hydraulics - Weatherhead

Facility	Registration	Registrar Number	Product Responsibility
Cleveland, TN	ISO9002	Boston Weatherhead Division 1100 SGSUS98/1495 Vinita, OK 74301	Distribution of Weatherhead
Columbia City, IN	ISO9002 ISO14001	Product 97-956 ULA9299	Crimping Equipment
Hohenwald, TN	ISO9001/QS9000 ISO14001	ULA5216 ULA10804	Industrial and Hydraulic Hose
Newbern, TN	ISO9001 ISO14001	ULA5754 ULA11348	Industrial and Hydraulic Hose
Vinita, OK	ISO/QS9000 ISO14001	ULA5225 ULA6947	Brass Fittings, Brass Hose Ends, and Valves

Conversion Chart

Conversion

Inches			Inches			Inches			Inches		
Fractions	Decimals	MM	Fractions	Decimals	MM	Fractions	Decimals	MM	Fractions	Decimals	MM
-	.0004	.0100	-	.6693	17.0000	1-25/32	1.7810	45.2440	-	3.1102	79.0000
-	.0040	.1000	43/64	.6720	17.0660	-	1.8110	46.0000	3-1/8	3.1250	79.3750
-	.0100	.2500	11/16	.6875	17.4630	1-13/16	1.8125	46.0380	-	3.1496	80.0000
1/64	.0156	.3970	45/64	.7030	17.8590	1-27/32	1.8440	46.8310	3-5/32	3.1560	80.1690
-	.0197	.5000	-	.7087	18.0000	-	1.8504	47.0000	3-3/16	3.1875	80.9630
-	.0295	.7500	23/32	.7190	18.2560	1-7/8	1.8750	47.6250	-	3.1890	81.0000
1/32	.0313	.7940	-	.7283	18.5000	-	1.8898	48.0000	3-7/32	3.2190	81.7560
-	.0394	1.0000	47/64	.7340	18.6530	1-29/32	1.9062	48.4190	-	3.2283	82.0000
3/64	.0469	1.1910	-	.7480	19.0000	-	1.9291	49.0000	3-1/4	3.2500	82.5500
-	.0590	1.5000	3/4	.7500	19.0500	1-15/16	1.9375	49.2130	-	3.2677	83.0000
1/16	.0620	1.5880	49/64	.7656	19.4470	-	1.9685	50.0000	3-9/32	3.2810	83.3440
5/64	.0781	1.9840	25/32	.7810	19.8440	1-31/32	1.9690	50.0060	-	3.3071	84.0000
-	.0787	2.0000	-	.7874	20.0000	2	2.0000	50.8000	3-5/16	3.3120	84.1377
3/32	.0940	2.3810	51/64	.7970	20.2410	-	2.0079	51.0000	3-11/32	3.3440	84.9314
-	.0984	2.5000	13/16	.8125	20.6380	2-1/32	2.0313	51.5940	-	3.3464	85.0000
7/64	.1090	2.7780	-	.8268	21.0000	-	2.0472	52.0000	3-3/8	3.3750	85.7250
-	.1181	3.0000	53/64	.8280	21.0340	2-1/16	2.0620	52.3880	-	3.3858	86.0000
1/8	.1250	3.1750	27/32	.8440	21.4310	-	2.0866	53.0000	3-13/32	3.4060	86.5190
-	.1378	3.5000	55/64	.8590	21.8280	2-3/32	20.9400	53.1810	-	3.4252	87.0000
9/64	.1410	3.5720	-	.8662	22.0000	2-1/8	2.1250	53.9750	3-7/16	3.4380	87.3130
5/32	.1560	3.9690	7/8	.8750	22.2250	-	2.1260	54.0000	-	3.4646	88.0000
-	.1575	4.0000	57/64	.8906	22.6220	2-5/32	2.1560	54.7690	3-15/32	3.4690	88.1060
11/64	.1720	4.3660	-	.9055	23.0000	-	2.1650	55.0000	3-1/2	3.5000	88.9000
-	.1770	4.5000	29/32	.9062	23.0190	2-3/16	2.1875	55.5630	3-17/32	3.5310	89.6940
3/16	.1875	4.7630	59/64	.9220	23.4160	-	2.2047	56.0000	-	3.5433	89.9000
-	.1969	5.0000	15/16	.9375	23.8130	2-7/32	2.2190	56.3560	3-9/16	3.5620	90.4877
13/64	.2030	5.1590	-	.9449	24.0000	-	2.2440	57.0000	-	3.5827	91.0000
-	.2165	5.5000	61/64	.9530	24.2090	2-1/4	2.2500	57.1500	3-19/32	3.5940	91.2810
7/32	.2190	5.5560	31/32	.9690	24.6060	2-9/32	2.2810	57.9440	-	3.6220	92.0000
15/64	.2340	5.9530	-	.9843	25.0000	2-5/16	2.3120	58.7380	3-5/8	3.6250	92.0750
-	.2362	6.0000	63/64	.9844	25.0030	-	2.3228	59.0000	3-21/32	3.6560	92.8960
1/4	.2500	6.3500	1	1.0000	25.4000	2-11/32	2.3440	59.5310	-	3.6614	93.0000
-	.2559	6.5000	-	1.0236	26.0000	-	2.3622	60.0000	3-11/16	3.6875	93.6630
17/64	.2656	6.7470	1-1/32	1.0312	26.1940	2-3/8	2.3750	60.3250	-	3.7008	94.0000
-	.2756	7.0000	1-1/16	1.0620	26.9880	-	2.4016	61.0000	3-23/32	3.7190	94.5560
9/32	.2810	7.1440	-	1.0630	27.0000	2-13/32	2.4060	61.1190	-	3.7401	95.0000
-	.2953	7.5000	1-3/32	1.0940	27.7810	2-7/16	2.4380	61.9130	3-3/4	3.7500	92.2500
19/64	.2970	7.5410	-	1.1024	28.0000	-	2.4409	62.0000	-	3.7795	96.0000
5/16	.3120	7.9380	1-1/8	1.1250	28.5750	2-15/32	2.4690	62.7060	3-25/32	3.7810	96.0440
-	.3150	8.0000	-	1.1417	29.0000	-	2.4803	63.0000	3-13/16	3.8125	96.8380
21/64	.3280	8.3340	1-5/32	1.1560	29.3690	2-1/2	2.5000	63.5000	-	3.8189	97.0000
-	.3350	8.5000	-	1.1811	30.0000	-	2.5197	64.0000	3-26/32	3.8440	97.6310
11/32	.3440	8.7310	1-3/16	1.1875	30.1630	2-17/32	2.5310	64.2940	-	3.8583	98.0000
-	.3543	9.0000	1-7/32	1.2190	30.9560	-	2.5590	65.0000	3-7/8	3.8750	98.4250
23/64	.3590	9.1280	-	1.2205	31.0000	2-9/16	2.5620	65.0880	-	3.8976	99.0000
-	.3740	9.5000	1-1/4	1.2500	31.7500	2-19/32	2.5940	65.8810	3-29/32	3.9062	99.2190
3/8	.3750	9.5250	-	1.2598	32.0000	-	2.5984	66.0000	-	3.9370	100.0000
25/64	.3910	9.9220	1-9/32	1.2810	32.5440	2-5/8	2.6250	66.6750	3-15/16	3.9675	100.0130
-	.3937	10.0000	1-5/16	1.3120	33.3380	-	2.6380	67.0000	3-31/32	3.9690	100.8060
13/32	.4060	10.3190	-	1.3386	34.0000	2-21/32	2.6560	67.4690	-	3.9764	101.0000
-	.4130	10.5000	1-11/32	1.3440	34.1310	-	2.6772	68.0000	4	4.0000	101.6000
27/64	.4220	10.7160	1-3/8	1.3750	34.9250	2-11/16	2.6875	68.2630	4-1/16	4.0620	103.1880
-	.4331	11.0000	-	1.3779	35.0000	-	2.7165	69.0000	4-1/8	4.1250	104.7750
7/16	.4380	11.1130	1-13/32	1.4060	35.7190	2-23/32	2.7190	69.0560	-	4.1338	105.0000
29/64	.4530	11.5090	-	1.4173	36.0000	2-3/4	2.7500	69.8500	4-3/16	4.1875	106.3630
15/32	.4690	11.9060	1-7/16	1.4380	36.5130	-	2.7559	70.0000	4-1/4	4.2500	107.9500
-	.4724	12.0000	-	1.4567	37.0000	2-25/32	2.7810	70.6439	4-5/16	4.3120	109.5380
31/64	.4840	12.3030	1-15/32	1.4690	37.3060	-	2.7953	71.0000	4-3/8	4.3307	110.0000
-	.4920	12.5000	-	1.4961	38.0000	2-13/16	2.8125	71.4376	4-7/16	4.4380	111.1250
1/2	.5000	12.7000	1-1/2	1.5000	38.1000	-	2.8346	72.0000	4-7/8	4.5000	114.3000
33/64	.5118	13.0070	1-17/32	1.5310	38.8940	2-27/32	2.8440	72.2314	4-1/2	4.5000	114.3000
17/32	.5310	13.4940	-	1.5354	39.0000	-	2.8740	73.0000	-	4.5275	115.0000
35/64	.5470	13.8910	1-9/16	1.5620	39.6880	2-7/8	2.8750	73.0250	4-9/16	4.5620	115.8880
-	.5512	14.0000	-	1.5748	40.0000	2-29/32	2.9062	73.8190	4-5/8	4.6250	117.4750
9/16	.5630	14.2880	1-19/32	1.5940	40.4810	-	2.9134	74.0000	4-11/16	4.6875	119.0630
-	.5710	14.5000	-	1.6142	41.0000	2-15/16	2.9375	74.8130	-	4.7244	120.0000
37/64	.5790	14.6840	1-5/8	1.6250	41.2750	-	2.9527	75.0000	4-3/4	4.7500	120.6500
-	.5906	15.0000	-	1.6535	42.0000	2-31/32	2.9690	75.4060	4-13/16	4.8125	122.2380
19/32	.5940	15.0810	1-31/32	1.6562	42.0690	-	2.9921	76.0000	4-7/8	4.8750	123.8250
39/64	.6090	15.4780	1-11/16	1.6875	42.8630	3	3.0000	76.2000	-	4.9212	125.0000
5/8	.6250	15.8750	-	1.6929	43.0000	3-1/32	3.0312	76.9940	4-5/16	4.9375	125.4130
-	.6299	16.0000	1-23/32	1.7190	43.6560	-	3.0315	77.0000	5	5.0000	127.0000
41/64	.6406	16.2720	-	1.7323	44.0000	3-1/16	3.0620	77.7880	-	-	-
-	.6496	16.5000	1-3/4	1.7500	44.4500	-	3.0709	78.0000	-	-	-
21/32	.6560	16.6690	-	1.7717	45.0000	3-3/32	3.0940	78.5810	-	-	-

JIC 37° and SAE 45° Flare Fittings
For Zinc Plated Carbon without Thread Sealant or Lubrication

Size	Fraction	Decimal	Lb. / In.	Lb. / Ft.	Newton Meters	Additional Turns of Hex-Flats**
- 04	1/4"	0.250	130-150	11-12	15-17	2
- 05	5/16"	0.312	165-195	14-16	19-22	2
- 06	3/8"	0.375	235-265	20-22	27-30	1-1/4
- 08	1/2"	0.500	525-575	44-48	59-65	1
- 10	5/8"	0.625	600-700	50-58	68-79	1
- 12	3/4"	0.750	950-1050	79-88	107-119	1
- 16	1"	1.000	1400-1500	117-125	158-170	1
- 20	1-1/4"	1.250	1900-2100	158-175	215-237	1
- 24	1-1/2"	1.500	2250-2550	188-213	254-288	1
- 32	2"	2.000	3000-3400	250-283	339-384	1

****Additional Turns of Hex-Flats required after finger tightening. THIS IS THE RECOMMEND METHOD OF TIGHTENING BOTH 37° SWIVELS & 45° FLARE FITTINGS.**

Straight Thread O-Ring Fittings
For Zinc Plated Steel without Sealant or Lubrication

Size	Fraction	Decimal	Lb. / In.	Lb. / Ft.	Newton Meters
- 04	1/4"	0.250	156-180	13-15	18-20
- 05	5/16"	0.312	204-228	17-19	23-26
- 06	3/8"	0.375	264-288	22-24	30-33
- 08	1/2"	0.500	480-516	40-43	54-58
- 10	5/8"	0.625	516-576	43-48	58-65
- 12	3/4"	0.750	816-900	68-75	92-102
- 16	1"	1.000	1344-1476	112-123	152-167
- 20	1-1/4"	1.250	1752-1932	146-161	198-218
- 24	1-1/2"	1.500	1848-2040	154-170	209-231
- 32	2"	2.000	2616-2880	218-240	296-325

For-Seal® Fittings
For Zinc Plated Steel without Thread Sealant or Lubrication

Size	Fraction	Decimal	For-Seal® Swivel Nut Fitting			O-Ring Boss Straight Thread O-Ring Locknut		
			Lb. / In.	Lb. / Ft.	Newton Meters	Lb. / In.	Lb. - Ft.	Newton Meters
- 04	1/4"	0.250	120-144	10-12	14-16	168-192	14-16	19-22
- 06	3/8"	0.375	216-240	18-20	24-27	288-312	24-26	33-35
- 08	1/2"	0.500	384-420	32-35	43-48	600-720	50-60	68-81
- 10	5/8"	0.625	552-600	46-50	62-68	864-960	72-80	98-109
- 12	3/4"	0.750	780-840	65-70	88-95	1500-1620	125-135	170-183
- 16	1"	1.000	1104-1200	92-100	125-136	2400-2640	200-220	271-298
- 20	1-1/4"	1.250	1500-1680	125-140	170-190	2520-3360	210-280	285-380
- 24	1-1/2"	1.500	1800-1980	150-165	203-224	3240-4320	270-360	366-488

Torque Value Conversion Chart

Lb. / Inch	=	Pound Foot (Lb./Ft.) x 12	Lb. / Foot	=	Pound Inch (Lb./In.) x 0.083
Lb. / Inch	=	Newton Meter x 8.850	Lb. / Foot	=	Newton Meter x 0.737
Newton Meter	=	Pound Inch (Lb./In.) x 0.113	Newton Meter	=	Pound Foot (Lb./Ft.) x 1.356

NOTE: See introduction page of each catalog section for specific ratings.

252 Please consult Boston Weatherhead for other material torque ratings.

Boston Weatherhead Tech Support 1-800-776-3262

Our "800" service is provided for your benefit and is available from 8:00 AM to 7:00 PM Monday through Friday Eastern time.

The Technical Support Group **will** assist you with information relative to:

- Part number interchanges
- Weatherhead part number verification
- Hose, hose ends, and fitting identification based on application information
- Identification of tube and pipe fittings based on description and dimensions
- Applications not listed in current catalogs
- Chemical resistance ratings
- Dimensions
- Coll-O-Crimp hose crimper information, troubleshooting, and replacement parts
- Selection of correct Coll-O-Crimp tooling
- Construction, materials, and properties of hose and fittings
- Weatherhead tools and accessories
- Hose assembly troubleshooting and problem solving
- Referral to a Weatherhead distributor or District Sales Manager

The Technical Support Group **cannot** respond to the following:

- Transfer of calls to another department or the warehouse
- Inventory status
- Backorders
- Pricing and placing orders
- Literature orders
- Competitive pricing

**We appreciate the opportunity to provide these services to you.
Your comments and suggestions are welcome.**

**NO PRODUCT LISTED IN THIS CATALOG HAS BEEN CERTIFIED
FOR AVIATION USE.**

**This catalog and all information herein supersede all previous Weatherhead
catalogs and information material.**

A:

abrasion: external damage to a hose assembly caused by its being rubbed on a foreign object; a wearing away by friction.

ABS: Air-Brake Swivel

absorption: regarding hose, the process of taking in fluid. Hose materials are often compared with regard to relative rates and total amounts of absorption as they pertain to specific fluids.

acid resistant: having the ability to withstand the action of identified acids within specified limits of concentration and temperature.

adapter, adaptor: 1) fittings of various sizes and materials used to change an end fitting from one type to another type or one size to another. (i.e., a male SAE to male pipe adapter is often attached to a female SAE to create a male end union fitting); 2) the grooved portion of a cam & groove coupling.

adhesion: the strength of bond between cured rubber surfaces or between a cured rubber surface and a non-rubber surface.

adhesive: a material which, when applied, will cause two surfaces to adhere.

ambient/atmospheric conditions: The surrounding conditions, such as temperature, pressure, and corrosion, to which a hose assembly is exposed.

anchor: a restraint applied to eliminate motion and restrain forces.

annular: refers to the convolutions on a hose that are a series of complete circles or rings located at right angles to the longitudinal axis of the hose (sometimes referred to as "bellows").

anodize, anodized: an electrolytic process used to deposit protective or cosmetic coatings in a variety of colors on metal, primarily used with aluminum.

ANSI: American National Standards Institute.

Application working pressure: unique to customer's application. See pressure, working.

armor: a protective cover slid over and affixed to a hose assembly; used to prevent over bending or for the purpose of protecting hose from severe external environmental conditions such as hot materials, abrasion or traffic.

assembly: a general term referring to any hose coupled with end fittings of any style attached to one or both ends.

ASTM: American Society for Testing and Materials.

axial movement: compression or elongation along the longitudinal axis.

B:

backing: a soft rubber layer between a hose tube and/or cover and carcass to provide adhesion.

barb: the portion of a fitting (coupling) that is inserted into the hose, usually comprised of two or more radial serrations or ridges designed to form a redundant seal between the hose and fitting.

barbed and ferrule fitting: a two-piece hose fitting comprised of a barbed insert (nipple), normally with peripheral ridges or backward-slanted barbs, for inserting into a hose and a ferrule, usually crimped or swaged.

Barb-Tite™: a line of low pressure push-on brass hose end fittings that is a Trademark of Dana Corporation.

bend radius: the radius of a bent section of hose measured to the innermost surface of the curved portion.

bend radius, minimum: the smallest radius at which hose or tubing can be used. For Metal Hose: the radius of a bend measured to the hose centerline, as recommended by the manufacturer.

blister: a raised area on the surface or a separation between layers usually creating a void or air-filled space in a vulcanized article.

body wire: normally a round or flat wire helix embedded in the hose wall to increase strength or to resist collapse.

bore: (1) an internal cylindrical passageway, as of a tube, hose or pipe; (2) the internal diameter of a tube, hose, or pipe.

braided: the woven portion of a hose used as reinforcement to increase pressure rating and add hoop strength. Various materials such as polyester, cotton or metal wire are used. A hose may have one or more braids, outside or between layers of hose material.

braided ply: a layer of braided reinforcement.

brand: a mark or symbol identifying or describing a product and/or manufacturer, that is embossed, inlaid or printed.

brass: a family of copper/zinc alloys.

brazing: a process of joining metals using a non-ferrous filler metal having a melting point that is lower than the "parent metals" to be joined, typically over +800°F.

bronze: an alloy of copper, tin and zinc.

BSPP/BSPT: British Standard Pipe Parallel / British Standard Pipe Tapered. See Fitting/Coupling - Pipe Thread Fittings.

C:

carcass: the fabric, cord and/or metal reinforcing section of a hose as distinguished from the hose tube or cover.

chalking: the formation of a powdery surface condition due to disintegration of surface binder or elastomer by weathering or other destructive environments.

checking: the short, shallow cracks on the surface of a rubber product resulting from damaging action of environmental conditions.

chemical compatibility: the relative degree to which a material may contact another without corrosion, degradation or adverse change of properties.

chemical resistance: the ability of a particular polymer, rubber compound, or metal to exhibit minimal physical and/or chemical property changes when in contact with one or more chemicals

for a specified length of time, at specified concentrations, pressure, and temperature.

cold flexibility: relative ease of bending while being exposed to specified low temperature.

collar: 1) the portion of a fitting that is compressed by crimping to seal the hose onto the fitting bars and create a permanent attachment; also called a ferrule. (With field attachable fittings, the lock and seal are accomplished mechanically by the collar without crimping); 2) a raised portion on the hose shank which functions as a connection for a ferrule or other locking device or functions as a hose stop.

Coll-O-Crimp®: a line of hydraulic and pneumatic hose, hose end fittings, and fabrication equipment that is a registered trademark of Dana Corporation.

combustible liquid: a combustible liquid is one having a flash point at or above +100°F (37.8°C).

compound: the mixture of rubber or plastic and other materials, which are combined to give the desired properties when, used in the manufacture of a product.

compression fitting: see fitting/coupling - Compression

conductive: the ability to transfer electrical potential.

configuration: the combination of fittings on a particular assembly.

convoluted: description of hose or innercore having annular or helical ridges formed to enhance flexibility.

core: the inner portion of a hose, usually referring to the material in contact with the medium.

corrosion: the process of material degradation by chemical or electrochemical means.

corrosion resistance: ability of metal components to resist oxidation.

corrugated hose: hose with a carcass fluted, radially or helically, to enhance its flexibility or reduce its weight.

coupling: a frequently used alternative term for hose end fitting.

cover: the outer component usually intended to protect the carcass of a product.

CPE: chlorinated polyethylene, a rubber elastomer.

cracking: a sharp break or fissure in the surface, generally caused by strain and environmental conditions.

crimp diameter: the distance across opposite flats after crimping.

crimp/crimping: a hose end fitting attachment method utilizing a number of dies mounted in a radial configuration. The dies close perpendicular to the hose and fitting axis, compressing the collar, ferrule, or sleeve around the hose.

cure: the act of vulcanization. See vulcanization.

cut off factor: the hose length to be subtracted from the overall assembly length that allows for the hose coupling end connection extension beyond the end of the hose.

D:

date code: any combination of numbers, letters, symbols or other methods used by a manufacturer to identify the time of manufacture of a product.

debur: to remove ragged edges from the inside diameter of a hose end.

design factor: a ratio used to establish the working pressure of the hose, based on the burst strength of the hose.

DOT: Department of Transportation.

DIN: Deutsche Industrie Norme.

duplex assembly: an assembly consisting of two hose assemblies-one inside the other, and connected at the ends; also known as "jacketed assemblies."

durometer: an instrument for measuring the hardness of rubber and plastic compounds.

E:

eccentricity: the condition resulting from the inside and outside diameters not having a common center.

effusion: the escape, usually of gases, through a material. See permeation.

elastic limit: the limiting extent to which a body may be deformed and yet return to its original shape after removal of the deforming force.

elastomer: any one of a group of polymeric materials, usually designated thermoset, such as natural rubber, or thermoplastic, which will soften with application of heat.

elongation: the increase in length expressed numerically as a percentage of the initial length.

ERMETO™: a steel fitting product trademarked by Dana Corporation.

endurance test: a service or laboratory test, conducted to product failure, usually under normal use conditions.

EPDM: Ethylene Propylene Diene Monomer; an elastomer.

extrude/extruded/extrusion: forced through the shaping die of an extruder; extrusion may have a solid or hollow cross section.

F:

fabric impression: impression formed on the rubber surface during vulcanization by contact with fabric jacket or wrapper.

fabricator: the producer of hose assemblies.

fatigue: the weakening or deterioration of a material occurring when a repetitious or continuous application of stress causes strain, which could lead to failure.

FDA: United States Food and Drug Administration.

fire sleeve: slip-on or integrally extruded sleeve used to retard the effects of fire in certain applications; most often made with

silicone and/or ceramic fiber.

fitting/coupling: a device attached to the end of the hose to facilitate connection. The following is only a partial list of types of fittings available-

Compression Fitting - a fitting style that seals on a mating tube by compressing an internal ferrule against the tube O.D.

Field Attachable Fitting - a fitting designed to be attached to hose without crimping or swaging. This fitting is not always a reusable type fitting.

Flange Style Fittings - pipe flanges and flanged fitting standards are listed under ANSI B16.5. Flanges are rated for pressure and listed as "American Class 150, 300, 400, 600, 900, 1,500 or 2,500". Pressure-Temperature ratings can be obtained by consulting the ANSI specification or ASME B16.5 (American Society of Mechanical Engineers). Designs vary by neck and face style, or other dimensional changes based on use. Various finishes or grooves may be applied to the face for sealing on a gasket or o-ring. Bolt holes and other dimensions are per the ANSI standard.

Inverted Flare Fitting - a fitting consisting of a male or female nut, trapped on a tube by flaring the end of the tube material to either 37° or 45°.

JIC Fittings - joint Industrial Council (no longer in existence). An engineering group that established an industry standard fitting design incorporating a 37° mating surface, male and female styles. These standards are now governed by SAE.

O-ring Fittings - a fitting that seals by means of an elastomeric ring of a specified material.

Pipe Thread Fittings -

NPT - National Pipe Taper. Pipe thread per ANSI B1.20.1

NPTF - National Pipe Tapered for Fuels.
(Same as above except dry-seal per ANSI B1.20.3)

NPSH - National Pipe Straight Hose per ANSI B1.20.7

NPSM - National Pipe Straight Mechanical.
Straight thread per ANSI B1.20.1

NPSL - National Pipe Straight Loosefit per ANSI B1.20.1

BSPP, BSPT - British Standard Pipe
Parallel, British Standard Pipe Taper. BS21

Quick Connect Fitting - a fitting designed to quickly connect and disconnect. These fittings come in many styles and types.

Split Flange Fitting - a fitting consisting of a flange retainer and a flange of two halves. This design allows the flanges to be installed after the retainer has been attached to the hose, making the flange reusable. SAE Code 61 and 62.

Tube Fitting - a hose fitting of which the mating end conforms to a tube diameter. The mate or male end of a compression fitting.

flammable gases/liquid/media: a flammable gas, including liquefied gas, is one having a closed cup flash point below +100°F (+37.8°C) and a vapor pressure greater than 25 psi. (174.2 KPa).

flex cracking: a surface cracking induced by repeated bending and straightening.

flow rate: a volume of media being conveyed in a given time period.

fluid: a gas or liquid medium.

fluorocarbon: an organic compound containing fluorine directly bonded to carbon. The ability of the carbon atom to form a large variety of structural chains gives rise to many fluorocarbons and fluorocarbon derivatives.

FOR-SEAL™: a product name for a hose end configuration using an o-ring sealing method, trademarked by Dana Corporation.

G:

GPM: gallons per minute.

H:

heat resistance: the property or ability to resist the deteriorating effects of elevated temperatures.

helix: a shape formed by spiraling a wire or other reinforcement around the cylindrical body of a hose; typically used in suction hose.

hose: a flexible conduit consisting of a tube, reinforcement, and usually an outer cover.

hydrostatic testing: the use of liquid pressure to test a hose or hose assembly for leakage, twisting, and/or hose change-in-length.

Hytre®: a DuPont registered trademark.

I:

I.D.: the abbreviation for inside diameter.

identification yarn: a yarn of single or multiple colors, usually embedded in the hose wall, used to identify the manufacturer.

impression: a design formed during vulcanization in the surface of a hose by a method of transfer, such as fabric impression or molded impression.

impulse: an application of force in a manner to produce sudden strain or motion, such as hydraulic pressure applied in a hose.

innertube: the innermost layer of a hose; the hose material in contact with the medium.

insert: optional term for nipple. See nipple.

interlocking clamp: a clamp which engages the fitting in a manner which prevents the clamp from sliding off the fitting, typically

a bolt or U-bolt style with interlocking fingers which engage an interlock ring on the fitting.

interlocking ferrule: a ferrule, which physically attaches to the fitting preventing the ferrule from sliding off the fitting.

ISO: International Organization for Standardization.

J:

jacket: a seamless tubular braided or woven ply generally on the outside of a hose.

JIC: see fitting/coupling-JIC.

K:

kinking: a temporary or permanent distortion of the hose induced by bending beyond the minimum bend radius.

L:

layline: the line of printed information that runs parallel on the side of a manufactured hose giving details such as part number, PSI rating, hose size and manufacturing data.

layer: a single thickness of rubber or fabric between adjacent parts.

loop installation: the assembly is installed in a loop or "U" shape, and is most often used when frequent and/or large amounts of motion are involved.

LPG, LP Gas: the abbreviation for liquefied petroleum gas.

M:

MAWP: see pressure, maximum allowable working.

manufacturer's identification: a code symbol used on or in some hose to indicate the manufacturer.

media, medium: the substance(s) being conveyed through a system.

N:

NAHAD: the abbreviation for the National Association of Hose & Accessories Distributors.

Neoprene®: a registered trademark of DuPont.

nipple: the internal member or portion of a hose fitting.

nitrile rubber (NB/Buna-N): a family of acrylonitrile elastomers used extensively for industrial hose.

nominal: a size indicator for reference only.

nomograph: a chart used to compare hose size to flow rate to recommended velocity.

non-conductive: the inability to transfer an electrical charge.

NPT/NPTF: abbreviation for national pipe threads. See fitting/coupling - Pipe Thread Fittings.

nylon: a family of polyamide materials.

O:

OAL: see overall length

O.D.: the abbreviation for outside diameter.

OE/OEM: original equipment manufacturer.

oil resistance: the ability of the materials to withstand exposure to oil.

oil swell: the change in volume of a rubber article resulting from contact with oil.

operating conditions: the pressure, temperature, motion, and environment to which a hose assembly is subjected.

o-ring fitting: see fitting/coupling, O-Ring.

overall length (OAL): the total length of a hose assembly, which consists of the free hose length plus the length of the coupling(s).

oxidation: the reaction of oxygen on a material, usually evidenced by a change in the appearance or feel of the surface or by a change in physical properties.

ozone cracking: the surface cracks, checks or crazing caused by exposure to an atmosphere containing ozone.

ozone resistance: the ability to withstand the deteriorating effects of ozone (generally cracking).

P:

permanent fitting: the type of fitting which, once installed, may not be removed for re-use.

permeation: the process of migration of a substance into and through another, usually the movement of a gas into and through a hose material; the rate of permeation is specific to the substance, temperature, pressure and the material being permeated.

pin pricked: perforations through the cover of a hose to vent permeating gases.

pitch: 1) the distance from one point on a helix to the corresponding point on the next turn of the helix, measured parallel to the axis; 2) the distance between the two peaks of adjacent corrugation or convolution.

plating: a material, usually metal, applied to another metal by electroplating, for the purpose of reducing corrosion; typically a more noble metal such as zinc is applied to steel.

ply: an individual layer in hose construction.

polymer: a macromolecular material formed by the chemical combination of monomers, having either the same or different chemical compositions.

pressure: force + unit area. For purposes of this document, refers to PSIG (pounds per square inch gauge).

pressure drop: the measure of pressure reduction or loss over a specific length of hose.

pressure, burst: the pressure at which rupture occurs.

pressure, maximum allowable working: the maximum pressure at which a hose or hose assembly is designed to be used.

pressure, working: the maximum pressure to which a hose will be subjected, including the momentary surges in pressure, which can occur during service. Abbreviated as WP.

psi (PSI): pounds per square inch.

PTFE: polytetrafluoroethylene, a high molecular weight fluoroplastic polymer with carbon atoms shielded by fluorine atoms having very strong inter atomic bonds, giving it chemical inertness.

Push > Connect™: (Push > Connect™ Metric, Push > Connect™ Flow Controls, Push > Connect™ Plus) A Reusable, easy to assemble fitting recommended on compressed air, lubrication, and pneumatic instrumentation applications. Use with approved tubing material.

PVC: polyvinyl chloride. A low cost thermoplastic material typically used in the manufacture of industrial hoses. The operating temperature range is -500°F to +1750°F (-295.5°C to +954.4°C).

Q:

Quick > Connect™: A reusable easy to assemble air brake fitting used on NT100 series tubing. This fitting meets D.O.T. performance requirements.

R:

reinforcement: the strengthening members, consisting of either fabric, cord, and/or metal, of a hose. See ply.

reusable fitting/coupling: see fitting/coupling, Field Attachable Fittings.

RhinoHide®: a product's name for an abrasion resistant covered hydraulic hose that is a registered trademark of Dana Corporation.

RMA: The Rubber Manufacturers Association, Inc.

S:

SAE: Society of Automotive Engineers.

shank: that portion of a fitting, which is inserted into the bore of a hose.

skive: the removal of a short length of cover and/or tube to permit the attachment of a fitting directly over the hose reinforcement.

sleeve: a metal cylinder, which is not physically attached to the fitting, for the purpose of forcing the hose into the serrations of the fitting.

smooth bore: a term used to describe the type of innercore in a hose.

specification: a document setting forth pertinent details of a product.

spiral: a method of applying reinforcement in which there is not interlacing between individual strands of the reinforcement.

spring guard: a helically wound component applied internally or externally to a hose assembly, used for strain relief, abrasion resistance, collapse resistance.

standard: a document, or an object for physical comparison, for defining product characteristics, products, or processes, prepared by a consensus of a properly constituted group of those substantially affected and having the qualifications to prepare the standard for use.

static wire: wire incorporated in a hose to conduct static electricity.

stem: see nipple.

surge (spike): a rapid and transient rise in pressure.

swelling: an increase in volume or linear dimension of a specimen immersed in liquid or exposed to a vapor.

T:

Teflon®: a registered trademark of E.I. DuPont. See PTFE, FEP and PFA.

tube: the innermost continuous all-rubber or plastic element of a hose.

tube fitting: see fitting/coupling-Tube.

tubing: a non-reinforced, homogeneous conduit, generally of circular cross-section.

V:

vacuum resistance: the measure of a hoses ability to resist negative gauge pressure.

vibration: amplitude motion occurring at a given frequency.

viscosity: the resistance of a material to flow.

vulcanization: a process during which a rubber compound, through a change in its chemical structure, improves or extends elastic properties over a greater range of temperature.

W:

weathering: the surface deterioration of a hose cover during outdoor exposure, as shown by checking, cracking, crazing and chalking.

wire reinforced: a hose containing wires to give added strength, increased dimensional stability, crush resistance. See reinforcement.

working temperature: the temperature range of the application, may include the temperature of the fluid conveyed or the environmental conditions the assembly is exposed to in use.

WP: the abbreviation for working pressure.

The preceding Glossary of Terms, as utilized in the hose industry, includes some definitions from The Hose Handbook, published by the Rubber Manufacturers Association.

A55SCUX.....	76	BA-56X.....	240	C5755x.....	180
A555.....	111	BA-84.....	239	C5880x.....	171
A555P.....	113	BA-84X.....	239	C5924x.....	167
A555S.....	111	BF-40.....	236	C9200.....	125
A556P.....	113	BF-40X.....	235, 235, 236, 237, 242	C9240.....	125
A557MCUX.....	76	BF-41.....	236	C-5X.....	248
A557SCUX.....	76	BF-42.....	237	C-15X.....	231, 232
A655.....	111	BF-43.....	237	C-63X.....	231, 232, 234, 241, 248
A655S.....	111	BL-456.....	247	C-632X.....	232, 232, 233
A660.....	111	BL-456X.....	244, 246	CA-10X.....	245
A664.....	119	C3059x.....	140	CA-130.....	245
A690.....	111	C3069x.....	142	CA-230.....	245
A690P.....	113	C3109x.....	141	CA-631.....	234
A690S.....	111	C3159x.....	140	CA-631CO.....	234
A694.....	119	C3169x.....	140	CA-632.....	232, 232, 233
A694S.....	119	C3179x.....	140	CA-632CO.....	232, 233
A735.....	111	C3209x.....	141	CB-63X.....	231, 232, 234
A6690.....	111	C3239x.....	142, 186	CD-15.....	231, 232
A6690S.....	111	C3249x.....	142, 184	CD-15D.....	231
A6754.....	119	C3269x.....	141, 184	CL-16-1.....	230, 234
A6754S.....	119	C3309x.....	142	CL-16-2.....	230, 243
A6755.....	111	C3359x.....	143	CL-16-3.....	91, 230, 241
A6755S.....	111	C3409x.....	144	CL-434.....	230, 249
A6759.....	119	C3459x.....	145, 192	CL-490.....	37, 42, 48, 104, 230, 233, 234
A6760.....	111	C3469x.....	145, 193	CL-491.....	97, 230
A6760P.....	113	C3509x.....	144	CL-492.....	230
A6760S.....	111	C3529x.....	146	CL-493.....	230
A6763.....	111	C3559x.....	143	CL-494.....	230
A6763S.....	111	C3609x.....	146	CL-496.....	79, 230
A6764.....	119	C3709x.....	146	CL-497.....	230, 241
A6764S.....	119	C3759x.....	147	CL-498.....	60, 230
A6765.....	111	C3959x.....	147	CL-499.....	65, 230, 238
A6765S.....	111	C5015x.....	167	CL-500.....	54, 230
A6769.....	119	C5105x.....	166	CL-501.....	230
A6769S.....	119	C5115x.....	166	CL-502.....	230, 248
A6770.....	111	C5125x.....	166	CL-503.....	83, 230, 242
A6774.....	119	C5129x.....	167	DC-121.....	238
A6775.....	111	C5165x.....	166, 184	FA-100.....	247
A6775S.....	111	C5165x-MM.....	166, 213, 248	FA-100-CO.....	247
A6779.....	119	C5205x.....	169	FC-16X.....	231, 234, 238, 241, 242, 243
A6779S.....	119	C5216x.....	172, 188	FC-161.....	234
A6793.....	118	C5229x.....	167	FH-15X.....	231, 243, 247, 249
A6845.....	111	C5255x.....	169	FL-310.....	249
A6845S.....	111	C5256x.....	172	FL-310X.....	249
A6855.....	111	C5275x.....	169	FS-100.....	230
A6855S.....	111	C5305x.....	168	FS-200.....	164, 230
A6860.....	111	C5306x.....	168	FS-300.....	208, 209, 230
A6860P.....	113	C5314x.....	184	FS-500.....	230
A6860S.....	111	C5315x.....	170, 187	FS-501.....	230, 246
AB-8.....	245	C5316x.....	170, 187	FS-800.....	97, 230, 243
AB-8L.....	245	C5325x.....	168	FS-900.....	91, 230
AB-8X.....	245	C5355x.....	172	FS-1000.....	79, 230
AB-9.....	245	C5356x.....	173	FS-1600.....	195, 230
AB-9L.....	245	C5365x.....	174, 188	FS-2000.....	139, 230
AB-9X.....	245	C5405x.....	175	FS-2100.....	60, 230
AB-28.....	243	C5425x.....	176	FS-2400.....	154, 230
AB-45.....	243	C5455x.....	177	FS-2500.....	249
AB-140.....	241	C5505x.....	174	FS-3300.....	83, 230
AB-1400.....	241	C5506x.....	177	FS-SA-2.....	244
B735.....	111	C5515x.....	178, 190	H05703.....	246
BA-24.....	240	C5525x.....	176	H05704.....	246, 249
BA-24X.....	240	C5605x.....	181	H05705.....	246, 249
BA-28.....	240	C5655x.....	182	H05706.....	246, 249
BA-28X.....	240	C5705x.....	179	H06904.....	247
BA-38.....	240	C5706x.....	180	H06906.....	247
BA-38X.....	240	C5707x.....	182	H06908.....	247
BA-48.....	240	C5715x.....	183, 193	H06910.....	247
BA-48X.....	240	C5716x.....	181, 193	H10104.....	247
BA-56.....	240	C5726x.....	181	H10105.....	246

H10106.....	246	PT24006.....	34	SJ312.....	128, 240
H16606.....	247	PT24008.....	34	SJ320.....	128, 240
H16608.....	247	PT24010.....	34	SJ330.....	128, 240
H33806.....	247	PT24012.....	34	SJ340.....	128, 240
HA-574.....	246	PT24016.....	34	SJ351.....	128, 240
HC-574X.....	246	QC-18.....	242	SJ360.....	128, 240
HD-1X.....	247	QC-18X.....	242	SS-85.....	235
M7629x.....	214, 248	QC-180.....	242	SS-86.....	235
M7630x.....	214	QC-1800.....	242	SS-87.....	235
M9600x.....	217, 248	RG-24.....	223	SS-88.....	236
M9700x.....	214, 248	S306.....	128, 223, 239	T-100.....	227
M9800x.....	217, 248	S308.....	128, 239	T-104.....	227
M41157x.....	124	S310.....	128	T-105.....	227
MA-100.....	248	S312.....	128, 239, 240	T-106.....	227
MA-200.....	249	S320.....	128, 239, 240	T-107.....	227
MB5315x.....	217, 248	S330.....	128, 239, 240	T-108.....	227
MB5515x.....	218, 248	S340.....	128, 239, 240	T-125B.....	226
MB7629x.....	218	S351.....	128, 239, 240	T-135.....	226
MB7630x.....	218	S360.....	128, 239, 240	T-135B.....	226
MC3069x.....	216	S372.....	128, 239	T-138.....	226
MC3159x.....	215	S408.....	128	T-138B.....	226
MC3309x.....	215	S412.....	128, 239, 240	T-139.....	225
MC5019x.....	171, 212	S420.....	128, 239, 240	T-139P.....	225
MC5205x.....	216, 248	S430.....	128, 239, 240	T-140.....	225
MC5206x.....	212, 248	S440.....	128, 239, 240	T-141.....	225
MC5207x.....	212, 248	S451.....	128, 239, 240	T-142.....	225
MC5208x.....	212, 248	S460.....	128, 239, 240	T-143.....	225
MC5315x.....	213, 248	S512.....	128, 239, 240	T-144.....	225
MC5405x.....	218, 248	S520.....	128, 239, 240	T-145.....	225
MC5515x.....	214, 248	S530.....	128, 239, 240	T-146.....	225
MH7105x.....	211, 248, 249	S540.....	128, 239, 240	T-147.....	225
ML7105x.....	211, 248, 249	S551.....	128, 239, 240	T-148.....	225
MTP16004.....	35	S560.....	128, 239, 240	T-149.....	225
MTP16005.....	35	S612.....	128, 240	T-150.....	225, 228
MTP16006.....	35	S620.....	128, 240	T-151.....	225
MTP16008.....	35	S630.....	128, 240	T-152.....	225
MTP16010.....	35	S640.....	128, 240	T-152P.....	225
MTP16012.....	35	S651.....	128, 240	T-191.....	226, 242
NT10002.....	33, 244	S660.....	128, 240	T-191B.....	226
NT10025.....	33	SA-1.....	244	T-200.....	227
NT10033.....	33	SA-2.....	244	T-210.....	228
NT10044.....	33, 244	SB308.....	128, 240	T-220.....	228
NT10055.....	33	SB312.....	128, 240	T-221.....	228
NT10066.....	33, 244	SB320.....	128, 240	T-345.....	228
NT10088.....	33	SB330.....	128, 240	T-345K.....	228
NT10010.....	33	SB340.....	128, 240	T-346x.....	228
NT10012.....	33	SB351.....	128, 240	T-372.....	227
PC-48.....	238	SB360.....	128, 240	T-373.....	227
PD-15.....	231	SC308.....	128, 240	T-374.....	227
PD-49.....	231, 232, 248	SC312.....	128, 240	T-375.....	227
PD-75.....	231, 232, 248	SC320.....	128, 240	T-376.....	227
PD-95.....	231	SC330.....	128, 240	T-378.....	227
PT20004.....	33	SC340.....	128, 240	T-450-3.....	222
PT20044.....	33	SC351.....	128, 240	T-460-2.....	222
PT20005.....	33	SC360.....	128, 240	T-560.....	230
PT20006.....	33	SFK-8.....	208	T-560-1.....	230
PT20008.....	33	SFK-12.....	208	T-560-2.....	230
PT20010.....	33	SFK-16.....	208	T-560-3.....	230
PT20012.....	33	SFK-20.....	208	T-560-4.....	230
PT20016.....	33	SFK-24.....	208	T-560-5.....	230
PT23002.....	34	SFK-32.....	208	T-560-6.....	230
PT23003.....	34	SFK62-8.....	209	T-560-7.....	230
PT23004.....	34	SFK62-12.....	209	T-560-8.....	230
PT23005.....	34	SFK62-16.....	209	T-562.....	229
PT23006.....	34	SFK62-20.....	209	T-570.....	222
PT23008.....	34	SFK62-24.....	209	T-570-1.....	222
PT24004.....	34	SFK62-32.....	209	T-570-4.....	222
PT24044.....	34	SH-53.....	230	T-570-6.....	222
PT24005.....	34	SJ308.....	128, 240	T-570-8.....	222

T-570-12.....	222	TF3959x.....	147	10U.....	249
T-570-16.....	222	TF5355x.....	172	12U.....	249
T-571-4.....	222	TF5356x.....	173	16U.....	249
T-571-6.....	222	TF5365x.....	174, 188	05703B-102.....	233
T-571-8.....	222	TF5375x.....	173	05704B-102.....	233, 249
T-571-12.....	222	TF5405x.....	175	05704B-104.....	233, 249
T-571-16.....	222	TF5406x.....	178	05704B-C02.....	233, 249
T-1010.....	227	TF5425x.....	176	05705B-102.....	233, 249
T-1022.....	228	TF5435x.....	176	05705B-104.....	233, 249
T-1037.....	226	TF5455x.....	177	05705B-C02.....	233, 249
T-1037B.....	226	TF5505x.....	174	05705B-C04.....	233, 249
T-1037H.....	226	TF5506x.....	177	05705B-1560.....	233, 249
T-1290.....	228	TF5515x.....	178, 190	05705B-1561.....	233, 249
T-1295.....	229	TF5515x-L.....	179, 190	05706B-102.....	233, 249
T-1422R.....	225, 228	TF5515x-LL.....	179, 191	05706B-104.....	233, 249
T-1430.....	225	TF5525x.....	176	05706B-106.....	233, 249
T-3710.....	227	TF5605x.....	181	05706B-C02.....	233, 249
T-3712.....	227	TF5655x.....	182	05706B-C04.....	233, 249
T-3716.....	227	TF5705x.....	179	05706B-1568.....	233, 249
T-5002.....	223	TF5706x.....	180	05706B-1570.....	233, 249
T-5003.....	223	TF5707x.....	182	05710B-106.....	121
T-5004.....	223	TF5715x.....	183, 193	05710B-108.....	121
T-5005.....	223	TF5716x.....	181, 193	05710B-C06.....	124
T-5006.....	223	TF5725x.....	182	05712B-108.....	121
T-5008.....	223	TF5726x.....	181	5X6 PB.....	230
T-5010.....	223	TF5755x.....	180	6X10 PB.....	230
T-5012.....	223	TF5805x.....	180	8X12 PB.....	230
T-5016.....	223	TF5955x.....	183	8x251.....	208
T-5020.....	223	TH7008.....	222	8x252.....	208, 209, 223
T-5024.....	223	TH7010.....	222	8x254.....	208, 209
T-5032.....	223	TH7012.....	222	8x262.....	209
T-5102.....	223	TH7014.....	222	8x853.....	208
T-5103.....	223	TH7016.....	222	8x863.....	209
T-5104.....	223	TH7020.....	222	12x251.....	208
T-5105.....	223	TH7025.....	222	12x252.....	208, 209, 223
T-5106.....	223	TH7030.....	222	12x254.....	208, 209
T-5108.....	223	TL7008.....	222	12x262.....	209
T-5110.....	223	TL7010.....	222	12x853.....	208
T-5112.....	223	TL7012.....	222	12x863.....	209
T-5116.....	223	TL7015.....	222	16x251.....	208
T-5120.....	223	TL7018.....	222	16x252.....	208, 209, 223
T-5124.....	223	TL7022.....	222	16x254.....	208, 209
T-5132.....	223	TL7028.....	222	16x262.....	209
T-7002.....	222	TP16002.....	35	16x853.....	208
T-7003.....	222	TP16025.....	35	16x863.....	209
T-7004.....	222	TP16004.....	35	20x251.....	208
T-7005.....	222	TP16005.....	35	20x252.....	208, 209, 223
T-7006.....	222	TP16006.....	35	20x254.....	208, 209
T-7008.....	222	TP16008.....	35	20x262.....	209
T-7010.....	222	W05465.....	143, 243	20x853.....	208
T-7012.....	222	W05498.....	143	20x863.....	209
T-7014.....	222	W05499.....	143	24x251.....	208
T-7016.....	222	W05730.....	143	24x252.....	208, 209, 223
T-7020.....	222	W1206.....	219	24x254.....	208
T-7024.....	222	W1212.....	219	24x262.....	209
T-7032.....	222	W1512.....	219	24x264.....	209
TA-1002.....	224, 248	W14630.....	219, 243	24x853.....	208
TA-1004.....	224	W15310.....	101, 118, 241, 243	24x863.....	209
TF3359x.....	143	W17709.....	143	32x251.....	208
TF3409x.....	144	W20332.....	101, 119	32x252.....	208, 209, 223
TF3459x.....	145, 192	W21204.....	143	32x262.....	209
TF3509x.....	144	W23464.....	143	32x264.....	209
TF3529x.....	146	W76150.....	219, 243	32x863.....	209
TF3559x.....	143	W79850.....	219, 243	39x.....	43
TF3569x.....	145, 189	W79851.....	219, 243	40x.....	43
TF3609x.....	146	W-8022.....	37, 42, 48, 104, 230	41x.....	43, 233, 234
TF3709x.....	146	04U.....	249	42x.....	43, 233
TF3759x.....	147	06U.....	249	43x.....	44
TF3805x.....	147	08U.....	249	44x.....	47

45x.....	47	252x.....	39, 233	1161x.....	66
46x.....	44	270.....	114, 233	1161x-M.....	71
48x.....	44, 233, 234	302x.....	38, 128, 233, 234, 235, 236, 237	1162x.....	67, 238
49x.....	46, 233, 234	320.....	113	1162x-M.....	71
50x.....	46	325.....	113	1164x.....	69, 238
51x.....	47	330.....	113	1164x-M.....	73
54x.....	44	352x.....	39	1165x.....	68, 238
55x.....	45	402x.....	40, 233, 234, 235	1165x-M.....	73
56x.....	47	452x.....	40	1166x.....	68, 238
59x4.....	125	502x.....	40	1166x-M.....	72
60x.....	49, 233, 234, 235	530.....	113	1168Px.....	77
61x.....	49, 233, 234, 235	537.....	119	1168x.....	68, 238
62x.....	50, 233, 234, 235	601x.....	56, 244	1168x-M.....	72
63x.....	51	602x.....	41	1169Px.....	78
64x.....	53, 233	611x.....	56, 244	1169x.....	69
65x.....	52	621x.....	57, 244	1169x-M.....	73
66x.....	51, 233	630.....	113	1169x-MS.....	73
68x.....	50, 233, 234, 235	632.....	119	1169x-S.....	69, 238
69x.....	52, 233, 234, 235	631x.....	57	1171Px.....	78
70x.....	52	641x.....	59	1171x-M.....	74
71x.....	53	651x.....	58	1171x-S.....	69, 238
72x.....	53	652x.....	41	1172Px.....	78
74x.....	50, 51	661x.....	57, 244	1172x-M.....	74
76x.....	53	681x.....	57, 244	1172x-S.....	70, 238
100x.....	38, 233	691x.....	58, 244	1174x.....	67, 238
105x.....	38, 111, 126, 233, 234, 235, 236, 237	695.....	113	1174x-M.....	71
108.....	114	700.....	113	1180x.....	67
110.....	117, 238	701x.....	58	1180x-M.....	71
111.....	117, 238	702.....	119	1181x.....	70
112.....	117, 238	702x.....	41	1182x.....	70
113.....	117, 238	703.....	119	1183x.....	70
114.....	117, 238	705.....	115	1184x.....	70
115.....	117, 238	711x.....	59	1185x.....	70
116.....	117, 238	721x.....	59	1202x.....	62
117.....	117, 238	741x.....	56, 58	1260x.....	61
118.....	117	752x.....	41	1260x-B.....	61
119.....	117	0102x.....	50, 56	1261x.....	61
120.....	115	1062x.....	80	1261x-A.....	61
121.....	117	1064x.....	82	1261x-B.....	62
122.....	117	1065x.....	81	1262x.....	62
123.....	117	1066x.....	80	1264x.....	64
124.....	117	1067x.....	81	1266x.....	63
125.....	117	1068x.....	80	1268x.....	62
126.....	117	1069x.....	81	1269x.....	63
127.....	117	1070x.....	81	1270x.....	63
128.....	117	1071x.....	82	1271x.....	64
130.....	114	1072x.....	82	1272x.....	64
131x.....	38, 233, 234	1073x.....	80	1274x.....	62, 63
135.....	114, 233, 234, 238	1074.....	126	1340.....	101, 108
140.....	114, 233	1074x.....	81	1341.....	101, 108
145.....	101, 114, 233, 234, 238, 241, 243	1075x.....	82	1342.....	101, 108
150.....	115	1077x.....	82	1343.....	101, 108
162x.....	50	1077x.....	80	1344.....	101, 108
163x.....	51	1078x.....	80	1345.....	101, 108
164x.....	53	1079x.....	80	1346.....	101, 108
165x.....	52	1100x-MM.....	217	1351.....	101, 108
166x.....	51	1100x-PP.....	217	1360x.....	98, 243
168x.....	50	1105x.....	66	1361x.....	98, 243
169x.....	52	1105x-M.....	71	1362x.....	98, 243
170x.....	52	1107x.....	67	1364x.....	100
171x.....	53	1107x-M.....	72	1365x.....	99
172x.....	53	1108Px.....	77	1366x.....	99
174x.....	51	1108x-S.....	68	1368x.....	98, 243
176x.....	53	1108x-M.....	72	1369x.....	99, 243
185.....	114	1109x.....	66	1369x-L.....	99
190.....	114	1109x-M.....	71	1370x.....	100
202x.....	39, 233, 234, 235	1110x.....	43	1371x.....	100
230.....	114	1129x.....	66	1372x.....	100
		1129x-MRP.....	71	1380x.....	99
		1150x-PP.....	216		

1382x.....	100	1563.....	39, 45, 123	1914.....	137
1408.....	121	1564x.....	134	1915.....	137
1410.....	121	1564Px.....	134	1916.....	137
1421-7.....	116	1565x.....	134	1917.....	137
1421-18.....	116	1565Px.....	134	1918.....	137
1421-24.....	116	1566x.....	132	1920.....	137
1421-32.....	116	1566Px.....	132	1921.....	137
1421-60.....	116	1568x.....	131	1922.....	137
1421-60A.....	116	1568Px.....	131	1923.....	137
1422.....	116	1569x.....	133	1924.....	137
1423.....	116	1569Px.....	133	1925.....	137
1424A.....	115	1570x.....	133	1927.....	137
1425A.....	115	1570Px.....	133	1928.....	137
1426A.....	115	1571x.....	135	1929.....	137
1427.....	116	1571Px.....	135	1930.....	137
1428.....	121	1572x.....	134	1931.....	137
1429.....	121	1572Px.....	134	1932.....	137
1432.....	121	1574x.....	131	1933.....	137
1433.....	116	1574Px.....	131	1935.....	137
1437.....	122	1584x.....	135	1936.....	137
1439.....	122	1584Px.....	135	1937.....	137
1440.....	122	1596.....	123	1938.....	137
1441.....	126	1597.....	123	1939.....	137
1442.....	127, 233	1611x.....	50, 56	1940.....	137
1443.....	127, 233	1621x.....	57	1942.....	137
1444.....	122	1631x.....	57	1943.....	137
1445.....	122	1641x.....	59	1944.....	137
1446.....	122	1651x.....	58	1945.....	137
1447.....	122	1661x.....	57	1946.....	137
1451.....	116	1681x.....	57	1948.....	137
1460x.....	92, 241, 241, 244	1691x.....	58	1949.....	137
1461x.....	92, 241, 241, 244	1701x.....	58	1950.....	137
1462x.....	92, 241, 241, 244	1711x.....	59	2030x.....	49, 56, 233
1464x.....	95, 241, 244	1721x.....	59	3081x.....	142
1465x.....	94	1741x.....	58	3121x.....	141
1466x.....	93, 241, 244	1800Kx.....	90, 242	3129x.....	105, 233
1468x.....	93, 241, 241, 244	1800T.....	90, 242	3150x.....	105, 233, 234
1469x.....	94, 241, 241, 244	1800TRK.....	90, 242	3151x.....	105, 233, 234, 235
1469x-L.....	94	1829x.....	90	3152x.....	105, 233, 234, 236
1470x.....	94	1861x.....	85	3153x.....	105
1471x.....	95, 241	1862x.....	85, 242	3171x.....	140
1472x.....	95, 241, 244	1864x.....	88	3200x.....	105, 233, 234
1474x.....	93	1865x.....	87	3220x.....	106, 233, 234, 235, 236
1477x.....	95	1866x.....	86	3221x.....	141
1480x.....	93, 241	1868x.....	86, 242	3250x.....	106
1482x.....	96	1869x.....	87, 242	3300x.....	106, 233, 234, 235, 236
1484x.....	96, 241, 241, 244	1869x-L.....	87	3321x.....	142
1485x.....	96, 244	1869x-S.....	88	3325x.....	107, 233, 234
1502x.....	136	1870x.....	88	3326x.....	107, 233, 234, 236
1502Px.....	136	1871x.....	89	3327x.....	107, 233, 234
1512.....	106, 122	1871x-S.....	89	3328x.....	107, 233, 234
1513.....	123, 125	1872x.....	89	3329x.....	107
1514.....	40, 106, 123, 233	1872x-S.....	90	3330x.....	107
1518.....	39, 45, 123	1873x.....	85	3331x.....	107
1521.....	45, 123	1874x.....	85, 242	3350x.....	108, 233, 234, 236
1522.....	39, 45, 123	1877x.....	90	3371x.....	143
1529x.....	136	1880x.....	86, 242	3400x.....	108, 233, 234, 236
1529Px.....	136	1880x-S.....	87	3421x.....	144
1531x.....	136	1883x.....	90	3500x.....	109, 233, 236
1538.....	233	1900.....	137	3521x.....	144
1539.....	233	1901.....	137	3541x.....	146
1540.....	233	1902.....	137	3600x.....	109, 233
1548.....	221, 233	1903.....	137	3621x.....	146
1553.....	39, 45, 123	1906.....	137	3700x.....	109, 233, 234
1554.....	39, 45, 123	1907.....	137	3721x.....	146
1561x.....	135	1908.....	137	3750x.....	109, 233, 235
1561Px.....	135	1911.....	137	3771x.....	147
1562x.....	132	1912.....	137	3950x.....	109
1562Px.....	132	1913.....	137	4105x.....	157

4129x.....	157	6206-004.....	245	7504.....	117
4165x.....	157	6206-006.....	245	7505x.....	204
4205x.....	142, 159	6300x.....	103	7506.....	117
4213x.....	159, 170	6400x.....	103	7508.....	117
4229x.....	158	6600.....	116	7509.....	117
4305x.....	158	6660.....	115, 233	7515x.....	192, 205
4307x.....	199	6700.....	113	7517x.....	204
4315x.....	158, 184	6703.....	113	7527x.....	205
4316x.....	159, 186	6707.....	120	7605x.....	206
4325x.....	158	6708.....	120	7617x.....	206
4355x.....	160	6709.....	120	7629x.....	138, 147, 171, 183, 194, 207, 223
4365x.....	160, 189	6715.....	112	7655x.....	206
4375x.....	160	6719.....	118	7667x.....	206
4405x.....	161	6724.....	118	7709.....	127
4505x.....	160	6729.....	118	7705x.....	205
4515x.....	161	6737.....	120	7715x.....	194, 207
4525x.....	161	6746.....	120	7716x.....	193, 206
4535x.....	162, 191	6747.....	120	7717x.....	205
4629x.....	138, 163, 223	6748.....	120	7727.....	126, 194
4640x.....	157	6749.....	120, 233	7727x.....	207
4705x.....	162	6783.....	115	7728x.....	206
4715x.....	162, 191, 194	6788.....	114	7732.....	126
4716x.....	163, 194	6800.....	112	7755x.....	205
4726x.....	163	6804.....	120	7765.....	127
4924x.....	157	6805.....	112	7767x.....	205
4955x.....	163	6809.....	120, 233	7771.....	126
5027x.....	167	6810.....	112	7805.....	127
5117x.....	166	6815.....	112	7805x.....	205
5141x.....	167	6820.....	112	7812.....	127
5177x.....	166	6824.....	119	7817.....	126
5188.....	127	6825.....	112	7818.....	126, 233, 236
5217x.....	169	6828.....	120	7828.....	126, 233, 236
5241x.....	167	6829.....	119, 233	7829.....	126, 233, 236
5267x.....	169	6891.....	118	7896x.....	38, 126, 233, 235, 236, 237
5317x.....	168	6892.....	118, 233	7897.....	126, 236
5318x.....	168	6893.....	118	7898.....	127, 236, 237
5327x.....	170, 187	7015x.....	202	7900.....	127, 236, 237
5337x.....	168	7027x.....	202	7901.....	127, 236, 237
5367x.....	172	7033x.....	184	7904.....	127, 233, 236, 237
5368x.....	173	7105x.....	201	7905.....	127, 236, 237
5417x.....	175	7117x.....	201	7906.....	127, 233, 236, 237
5467x.....	177	7129x.....	202	7908.....	126, 233, 236
5517x.....	174	7141x.....	202	7909.....	126
5518x.....	177	7165x.....	201	7910.....	126, 236
5527x.....	178, 190	7165x-MM.....	211, 248, 249	7911.....	126, 236
5537x.....	176	7176x.....	201	7912.....	126, 236
5617x.....	181	7205x.....	203	7913.....	126, 236
5667x.....	182	7217x.....	203	7914.....	127, 233, 236, 237
5717x.....	179	7229x.....	202	7915.....	125, 126
5718x.....	180	7237x.....	184	7916.....	125, 126
5719x.....	182	7238x.....	184	7917.....	126, 236
5737x.....	182	7241x.....	202	7921.....	237
5767x.....	180	7255x.....	203	7924x.....	201
5967x.....	183	7267x.....	203	7933.....	127, 236, 237
6100x.....	103, 125, 233	7305x.....	202	7934A.....	128, 233, 237
6200x.....	103, 233	7306x.....	202	7935.....	127, 233, 237
6202.....	233	7315x.....	186, 203	7936.....	127, 233, 237
6203-010.....	245	7317x.....	202	7936x.....	167, 201
6203-016.....	245	7318x.....	202	7937.....	127, 233, 237
6203-020.....	245	7325x.....	203	7940.....	128, 233, 237
6203-024.....	245	7327x.....	186, 203	7941.....	128, 233, 237
6203-036.....	245	7337x.....	203	7955x.....	207
6204-010.....	245	7355x.....	204	7967x.....	207
6204-016.....	245	7367x.....	204	7970.....	127, 237
6204-020.....	245	7405x.....	204	7972.....	237
6204-024.....	245	7417x.....	204	7974.....	237
6204-036.....	245	7455x.....	204	7975.....	127, 237
6205-004.....	245	7467x.....	204	7977.....	124
6205-006.....	245	7502.....	117	7978.....	124

8112x.....	201	24706N-606.....	247	60012.....	209
8165x.....	201	24706N-608.....	247	60016.....	209
8367.....	221	24706N-756.....	247	60020.....	209
8370.....	220, 221	24706N-B06.....	247	60024.....	209
8371.....	220, 221	24708N-106.....	247	60032.....	209
8372.....	220, 221	24808N-108.....	247	64508.....	209
8373.....	220, 221	24808N-406.....	247	64512.....	209
8374.....	220, 221	24808N-608.....	247	64516.....	209
8375.....	221	24710B-Y58.....	247	64520.....	209
8376.....	221	24710B-Y60.....	247	64524.....	209
8377.....	221	24710N-108.....	247	64532.....	209
8378.....	221	24710N-608.....	247	69008.....	209
9100x.....	148, 171	24710N-610.....	247	69012.....	209
9151x.....	46, 152	33806-A.....	243, 247	69016.....	209
9154x.....	45, 150	33806-B.....	247	69020.....	209
9205x.....	148	33806B-Y06.....	243, 247	69024.....	209
9255x.....	149	33806B-Y24.....	243, 247	69032.....	209
9315x.....	149, 186	33806B-Y26.....	243, 247	106370.....	221
9355x.....	150	33806B-Y28.....	243, 247	106470.....	221
9365x.....	151, 189	33806B-Y34.....	243, 247	211273A.....	116
9385x.....	150	33806B-Y36.....	247	211280A.....	116
9405x.....	151	33806B-Y38.....	243, 247		
9405x-LL.....	151	38166-01812.....	245		
9406x.....	153	38166-02137.....	245		
9435x.....	153	38166-02412.....	245		
9455x.....	152	38166-02837.....	245		
9456x.....	153	38166-03012.....	245		
9515x.....	152, 153	38166-03200.....	245		
9705x.....	219	38166-03437.....	245		
10004B-102.....	246	38166-03612.....	245		
10004B-104.....	246	38166-04112.....	245		
10004B-304.....	246	38353-01800.....	245		
10004B-305.....	246	38353-02037.....	245		
10004B-405.....	246	38353-02400.....	245		
10004B-604.....	246	38353-02837.....	245		
10004B-A04.....	246	38353-03000.....	245		
10004B-A05.....	246	38353-03200.....	245		
10004B-B03.....	246	38353-03437.....	245		
10004B-B04.....	246	38353-03600.....	245		
10004B-B05.....	246	38353-04112.....	245		
10004B-Y04.....	246	41157x.....	124, 171		
10005B-102.....	246	50008.....	208		
10005B-104.....	246	50008x12.....	208		
10005B-405.....	246	50012.....	208		
10005B-B05.....	246	50016.....	208		
10005B-B06.....	246	50016x20.....	208		
10005B-C02.....	246	50020x16.....	208		
10005B-C04.....	246	50020.....	208		
10005B-Y05.....	246	50024.....	208		
10006B-102.....	246	50032.....	208		
10006B-104.....	246	54508.....	208		
10006B-106.....	246	54508x12.....	208		
10006B-306.....	246	54512.....	208		
10006B-406.....	246	54516.....	208		
10006B-606.....	246	54516x20.....	208		
10006B-B06.....	246	54520x16.....	208		
10006B-Y06.....	246	54520.....	208		
24704N-102.....	247	54524.....	208		
24704N-104.....	247	54532.....	208		
24704N-604.....	247	59008.....	208		
24704N-B04.....	247	59008x12.....	208		
24705N-104.....	247	59012.....	208		
24705N-605.....	247	59016.....	208		
24705N-B05.....	247	59016x20.....	208		
24706N-104.....	247	59020x16.....	208		
24706N-106.....	247	59020.....	208		
24706N-406.....	247	59024.....	208		
24706N-604.....	247	59032.....	208		
24706N-605.....	247	60008.....	209		

Warranty

WEATHERHEAD WARRANTY

WARRANTY:

For one year after date of purchase, Weatherhead warrants its products to be free from defects in materials and workmanship when properly installed and maintained. Products covered include those items contained in this catalog.

If during the warranty period, a product is discovered to be defective, Weatherhead will, at its option, replace the warranted product or grant the purchaser a credit for the product claimed to be defective. Weatherhead will have the sole discretion to determine whether the product was defective.

This warranty is null and void if the product has been used in the wrong application or has been damaged from an accident or willfully destroyed. In addition, this warranty will not apply to Weatherhead assembly equipment, Weatherhead end fittings, and Weatherhead hose if the claimed defective product has been used in an assembly made from other than Weatherhead parts.

NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE BY WEATHERHEAD. THE FOREGOING STATES DANA CORPORATION'S ENTIRE AND EXCLUSIVE LIABILITY AND BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR DAMAGES IN CONNECTION WITH THE SALE OF THE PRODUCTS HEREUNDER. IN NO EVENT SHALL WEATHERHEAD BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER LEGAL RIGHTS WHICH VARY FROM STATE TO STATE.

CLAIM INFORMATION:

To make a claim under this warranty:

1. Return the defective product along with the purchase receipt and a copy of this certificate to your local distributor or Weatherhead sales representative or to the attention: Engineering Lab, at the following address:

Eaton Hydraulics
Boston Weatherhead
1750 Hardeman Lane
Cleveland, TN 37312

Tooling
Boston Weatherhead Division
1380 South Williams Drive
Columbia City, IN 46725

2. In the event of a question or difficulty, contact your local distributor, Weatherhead sales representative or Weatherhead Product Engineering at the above address.