

Steel Wire Braid Hydraulic Hoses



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Balflex® hydraulic steel wire braided hoses are produced to Balflex® specifications and according to ISO 1436, ISO 11237, SAE J517 and EN 853 to EN 857 standards. They cover a wide variety of medium and high pressure applications, for petroleum and water base hydraulic fluids.

Balflex® optimized the production of these hoses and their compatibility with a wide range of connectors, in order to assure the highest performance and the most extensive range of applications.

General Guidelines

Balflex® hydraulic steel wire braided hoses are designed with a safety factor of 4:1 relating minimum burst pressure and recommended working pressure. Working pressure [W P] and nominal diameter [D N] are always branded on the hose.

Hydraulic hoses are designed for petroleum base hydraulic fluids applications with a temperature range of -40°C (-40°F) to $+100^{\circ}\text{C}$ ($+212^{\circ}\text{F}$). Special rubber compounds and other lining materials allow to exceed these limits. Hydraulic hoses may also be used for water base hydraulic fluids if the working temperature does not exceed $+70^{\circ}\text{C}$ ($+158^{\circ}\text{F}$). For conveyance of Hot Air working temperature should be reduced to a maximum of $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

Selection, assembly and installation of hydraulic steel wire braid hoses should follow **Balflex®** recommendations and **SAE J1273** and **DIN 20066** standards. **Hydraulic hose assemblies should always be thoroughly inspected and hydraulically tested before installation.** All hydraulics systems should be tested against leakage and malfunction in an appropriate area after any intervention.

Installations that do not comply with an adequate layout geometry of the hose assembly may significantly reduce the lifetime of the hose. Likewise, the use of wrongly dimensioned hoses or application in a system where working characteristics exceed the hose and / or end fitting specifications may shorten the hose assembly life drastically.

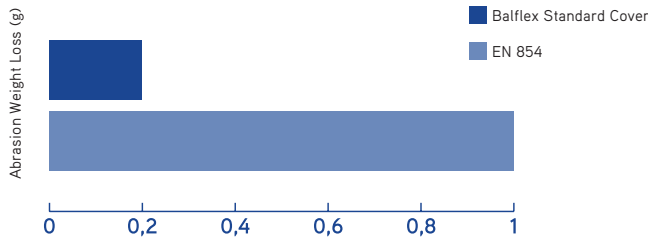
The failure of a hydraulic steel wire braided hose assembly may be dangerous and expose people and property to irreversible damage. Among other occurrences that must be prevented are the high velocity and high temperature projections of hydraulic fluid, the projection of fittings and their parts, the whipping of unrestrained hose, spillage or combustion of the fluid, electrical shocks through contact with electrical sources, immovability, fall or sudden movement of masses controlled by the hydraulic system.



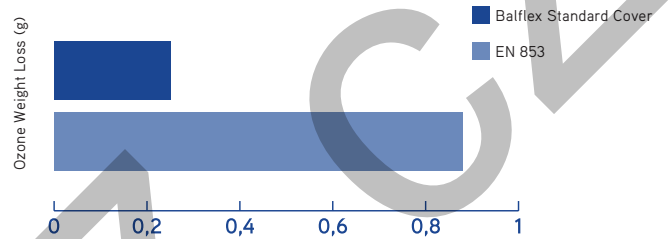
Balflex Hoses are manufactured with a tough outer cover that increases the resistance to environmental and external application damages and present the following main features:

- ✘ Excellent abrasion resistant when tested according to modified ISO 6945 method, and according to ISO 20444 new abrasion test methods.
- ✘ High level of resistance to cracking due to Ozone exposure, resulting in 4 times superior resistance than the relevant EN ISO 7326 requirement;

ABRASION RESISTANCE



OZONE RESISTANCE



- ✘ US MSHA Approved Cover (IC 252/00)

Table 1a: Rated working pressure at 20 °C (+68 °F) of Balflex® Hydraulic Steel Wire Braid Hoses (MPa / PSI)

Balflex	Standard	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"
		-3 DN5	-4 DN6	-5 DN8	-6 DN10	-8 DN12	-10 DN16	-12 DN19	-16 DN25	-20 DN31	-24 DN38	-32 DN51	-40 DN63	-48 DN76
FORZA UNO	DIN EN 853 1SN / ISO 1436 / SAE J517 R1AT	25.0 3700	22.5 3300	21.5 3200	18.0 2700	16.0 2400	13.0 1900	10.5 1600	8.8 1300	6.3 920	5.0 730	4.0 580	3.0 440	2.0 290
FORZA DUE	DIN EN 853 2SN / ISO 1436 / SAE J517 R2AT	41.5 6100	40.0 5800	35.0 5100	33.0 4800	27.5 4000	25.0 3700	21.5 3200	16.5 2400	12.5 1900	9.0 1400	8.0 1200	7.0 1100	5.5 800
BALPAC PREMIUM	DIN EN 857 2SC / ISO 11237 / SAE J517 R16		42.5 6200	40.0 5800	35.0 5100	34.5 5000	31.0 4500	28.0 4000	28.0 4000					
BALPAC 3000	DIN EN 857 1SC / ISO 11237 / SAE J517 R17		26.0 3800	26.0 3800	25.0 3625	21.0 3000								
BALPAC 3000	SAE J517 R17						21.0 3000	21.0 3000	21.0 3000					
BALPAC	DIN EN 857 1SC						13.0 1900	10.5 1600	8.8 1300					
2-MAX JACK			70.0 10000		70.0 10000	55.2 8100								
3-MAX					50.0 7300	47.0 6900	41.0 6100	37.5 5500	33.0 4800					

Table 1b: Rated working pressure at 20 °C (+68 °F) of Balflex® Hydraulic Hoses (MPa / PSI)

Balflex	type	3/16"	1/4"	5/16"	13/32"	1/2"	5/8"	7/8"	1.1/8"	1.3/8"	1.13/16"	23/32"	3"
		-4	-5	-6	-8	-10	-12	-16	-20	-24	-32	-40	-48
BRAKEMASTER	SAE J517 R5 / SAE J1402	20.7	20.7	15.5	13.8	12.1	10.3	5.5	4.3	3.4	2.4	2.4	1.4
		3002	3002	2248	2001	1755	1464	798	624	493	348	348	203

Table 2: Pressure Conversion

bar	0,00134	0,0025	0,0339	0,069	0,098	1,00	1,01	10,0	100
PSI	0,0194	0,036	0,492	1,001	1,421	14,504	14,69	145,04	1450,38
MPa	-	-	0,003	0,007	0,0098	0,10	0,101	1,00	10,00
1 atm	0,001	0,0025	0,0335	0,068	0,097	0,987	1	9,87	98,69
m H2O (20 °C)	0,014	0,026	0,346	0,704	1	10,207	10,34	102,074	3,4
in Hg (20 °C)	0,0396	0,074	1,001	2,04	2,89	29,53	29,91	295,3	3,4
in H2O (20 °C)	0,538	1,005	13,623	27,73	39,38	401,86	407,09	4018,65	40186,47
mm Hg (20 °C)	1,005	1,88	25,43	51,75	73,51	750,06	759,81	7500,62	75006,17

Example: 1 MPa = 145,04 PSI ; 1 MPa = 10,0 bar

Table 3: Conversion Factors

Unit	Factor	Converted Unit
1 m (meter)	1000	mm (millimeter)
1 m (meter)	1,09362	yard
1 m (meter)	3,28084	foot
1 mm (millimeter)	0,001	m (meter)
1 mm (millimeter)	0,03937	Inch
1 inch	25,4	mm (millimeter)
1 inch	0,0254	m (meter)
1 foot	0,3048	m (meter)
1 yard	0,9144	m (meter)
F°	C° x 1,8 + 32	F° (Fahrenheit)
C°	(F° - 32): 1,8	C° (Celsius)

Example: : 1 m = 3,28084 feet ; 1 inch = 25,4 mm

Example: : +100 °C = +212 °F



Fluid Compatibility and Resistance Chart for Balflex Steel Wire Braid Hydraulic Hoses

● Recommended ● Recommended with Restrictions ● Not Recommended

Acetic Acid		Ethyl Glycol	●	Oil of Turpentine	●
Acetic Acid (30%)	●	Ethyleneoxide	●	Oleic Acid	●
Acetone	●	Fluorine	●	Oxalic Acid	●
Acetylene	●	Formaldehyde	●	Perchloroethylene	●
Ammonia, Gas (Hot)	●	Formaldehyde 40%	●	Phenol	●
Ammonia, Liquid	●	Fuel Oil	●	Phosphoric Acid (10%)	●
Ammoniumchloride		Gaseous Hydrogen	●	Phosphoric Acid (70%)	●
Amyl Acetate	●	Gasoline	●	Phosphate Ester Base Oil	●
Aniline	●	Glycerin / Glycerol	●	Saturated Steam	●
Animal Oils	●	Glycol to 66 °C	●	Sea Water	●
Benzol / Benzene	●	Hexane	●	Silicone Oils	●
Butane	●	Hydraulic Oil	●	Soap Solutions	●
Butyl Acetate	●	Hydrochloric Acid 37%	●	Soda	●
Butyl Alcohol / Butanol	●	Hydroger Peroxide (Dil.)	●	Sodium Chloride Solutions	●
Calcium Chloride Solutions		Hydroger Peroxide (Conc.)	●	Sodium Hydroxide 20%	●
Carbon Dioxide	●	Isocyanates		Sodium Hypochloride 10%	●
Carbon Disulfide	●	Isopropil Alcohol	●	Sulphur	●
Carbonates	●	Kerosene	●	Sulphur Dioxide	●
Caustic Soda	●	Liquid Oxygen	●	Sulphuric Acid up to 50%	●
Chlorinated Solvents	●	LPG	●	Sulphuric Acid above 50%	●
Chlorine	●	Lubricating Oils	●	Toluene	●
Chloroform	●	Mercury	●	Trichloroethylene	●
Citric and Solutions	●	Methyl Alcohol / Methanol	●	Vegetable Greases	●
Compressed Air	●	Methyl Chloride (Cold)	●	Water	●
Cyclohexane	●	Methyl Ethyl Khetone	●	Xylene	●
Crude Petroleum Oil	●	Mineral Oils	●		
Diocetyl Phthalate		Naphtha	●		
Diesel Fuel	●	Naphthalene	●		
Ethers	●	Natural Gas	●		
Ethyl Acetate	●	Nitric Acid (Dil.)	●		
Ethyl Alcohol	●	Nitric Acid (Conc.)	●		
Ethyl Chloride	●	Nitrobenzen	●		

The following data is based on tests and believed to be reliable; however the tabulation should be used as a guide ONLY, since it does not take into consideration all variables, such as elevated temperatures, fluid contamination, concentration, etc. that may be encountered in actual use. All critical applications should be tested. Note: All data based on 20 °C/70 °F unless otherwise noted.



BALWASH 1W

Balflex® Balwash 155°C (+311°F) 1W 22.0MPa - 10.1W00.XX

High pressure, single wire braid reinforced high temperature car wash hose



#	inch	SAE Dash	ID		MPa	PSI	MIN BEND RAD		kg/m	
			mm	mm			mm	mm		
10.1W00.04	1/4"	-4	6,3	13,0	22,0	3200	90.0	12800	100	0,23
10.1W00.05	5/16"	-5	8,0	14,7	22,0	3200	85.0	12800	114	0,28
10.1W00.06	3/8"	-6	9,5	17,2	22,0	3200	72.0	12800	127	0,33
10.1W00.08	1/2"	-8	12,7	20,5	22,0	3200	64.0	12800	178	0,42

INNER TUBE: seamless hot water resistant synthetic rubber

REINFORCEMENT: 1 high tensile steel wire braid

OUTER TUBE: black wrapped, oil, weather and abrasion resistant wrapped pin-pricked synthetic rubber

SAFETY FACTOR: 4:1 in 1/4"; 3.9:1 in 5/16"; 3.3:1 in 3/8"; 2.9:1 in 1/2"

APPLICATION: high temperature and high pressure cleaning professional equipments

TEMPERATURE RANGE: 0°C (+32°F) +155°C (+311°F)

COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® Multicrimp fittings serie BW23/BF21/P23

BALFLEX // BALWASH UNO 1W - 155°C / 311°F - DN6 - 1/4" - WP 22 MPa 3180 PSI

BALWASH 2W

Balflex® Balwash 155°C (+311°F) 2W 40.0MPa - 10.2W00.XX

High pressure, double wire braid reinforced high temperature car wash hose



#	inch	SAE Dash	ID		MPa	PSI	MIN BEND RAD		kg/m	
			mm	mm			mm	mm		
10.2W00.04	1/4"	-4	6,3	14,7	40.0	5800	160.0	23200	100	0,38
10.2W00.05	5/16"	-5	8,0	16,5	40.0	5800	140.0	23200	114	0,45
10.2W00.06	3/8"	-6	9,5	18,7	40.0	5800	132.0	23200	127	0,53
10.2W00.08	1/2"	-8	12,7	21,9	40.0	5800	110.0	23200	178	0,65

INNER TUBE: seamless hot water resistant synthetic rubber

REINFORCEMENT: 2 high tensile steel wire braids

OUTER TUBE: black wrapped, oil, weather and abrasion resistant wrapped pin-pricked synthetic rubber

SAFETY FACTOR: 4:1 in 1/4"; 3.9:1 in 5/16"; 3.3:1 in 3/8"; 2.9:1 in 1/2"

APPLICATION: high temperature and high pressure cleaning professional equipments

TEMPERATURE RANGE: 0°C (+32°F) +155°C (+311°F)

COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® Multicrimp fittings serie BW23/BF21/P23

BALFLEX // BALWASH DUE 2W - 155°C / 311°F - DN6 - 1/4" - WP 40 MPa 5800 PSI

BALWASH 1W BLUE

Balflex® Balwash 155°C (+311°F) 1W 22.0MPa - 10.1W00.XXB

High pressure, single wire braid reinforced high temperature car wash hose



#	inch	SAE Dash	ID		MPa	PSI	MIN BEND RAD		KG	
			mm	mm			MPa	PSI		
10.1W00.04B	1/4"	-4	6,3	13,0	22,0	3200	90.0	12800	100	0,23
10.1W00.05B	5/16"	-5	8,0	14,7	22,0	3200	85.0	12800	114	0,28
10.1W00.06B	3/8"	-6	9,5	17,2	22,0	3200	72.0	12800	127	0,33
10.1W00.08B	1/2"	-8	12,7	20,5	22,0	3200	64.0	12800	178	0,42

INNER TUBE: seamless hot water resistant synthetic rubber
REINFORCEMENT: 1 high tensile steel wire braid

OUTER TUBE: blue, oil, weather and abrasion resistant wrapped pin-pricked synthetic rubber
SAFETY FACTOR: 4:1 in 1/4"; 3.9:1 in 5/16"; 3.3:1 in 3/8"; 2.9:1 in 1/2"

APPLICATION: high temperature and high pressure cleaning professional equipments

TEMPERATURE RANGE: 0°C (+32°F) +155°C (+311°F)
COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® Multicrimp fittings serie BW23/BF21/P23

BALFLEX // BALWASH UNO 1W - 155°C / 311°F - DN6 - 1/4" - WP 22 MPa (3200 PSI)

BALWASH 2W BLUE

Balflex® Balwash 155°C (+311°F) 2W 40.0MPa - 10.2W00.XXB

High pressure, double wire braid reinforced high temperature car wash hose



#	inch	SAE Dash	ID		MPa	PSI	MIN BEND RAD		KG	
			mm	mm			MPa	PSI		
10.2W00.04B	1/4"	-4	6,3	14,7	40,0	5800	160.0	23200	100	0,38
10.2W00.05B	5/16"	-5	8,0	16,5	40,0	5800	140.0	23200	114	0,45
10.2W00.06B	3/8"	-6	9,5	18,7	40,0	5800	132.0	23200	127	0,53
10.2W00.08B	1/2"	-8	12,7	21,9	40,0	5800	110.0	23200	178	0,65

INNER TUBE: seamless hot water resistant synthetic rubber
REINFORCEMENT: 2 high tensile steel wire braids

OUTER TUBE: blue, oil, weather and abrasion resistant wrapped pin-pricked synthetic rubber
SAFETY FACTOR: 4:1 in 1/4"; 3.9:1 in 5/16"; 3.3:1 in 3/8"; 2.9:1 in 1/2"

APPLICATION: high temperature and high pressure cleaning professional equipments
TEMPERATURE RANGE: 0°C (+32°F) +155°C (+311°F)

COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® Multicrimp fittings serie BW23/BF21/P23
AVAILABLE VERSIONS: Smooth cover (Shark Skin)

BALFLEX // BALWASH DUE 2W - 155°C / 311°F - DN6 - 1/4" - WP 40 MPa (5800 PSI)



BALWASH 1W - SHARK SKIN



Balflex® Balwash 155°C (+311°F) 1W 22.0MPa - 10.1WSK.XX

High pressure, single wire braid reinforced high temperature car wash hose

#	inch	SAE Dash	ID		MPa	PSI	MIN BEND RAD		kg/m	
			mm	mm			mm	mm		
10.1WSK.05	5/16"	-5	8,0	14,7	22,0	3200	85.0	12800	114	0,28
10.1WSK.06	3/8"	-6	9,5	17,2	22,0	3200	72.0	12800	127	0,33
10.1WSK.08	1/2"	-8	12,7	20,5	22,0	3200	64.0	12800	178	0,42

INNER TUBE: seamless hot water resistant synthetic rubber
REINFORCEMENT: 1 high tensile steel wire braid

OUTER TUBE: black smooth, oil, weather and abrasion resistant wrapped pin-pricked synthetic rubber
SAFETY FACTOR: 4:1 in 1/4"; 3.9:1 in 5/16"; 3.3:1 in 3/8"; 2.9:1 in 1/2"

APPLICATION: high temperature and high pressure cleaning professional equipments

TEMPERATURE RANGE: 0°C (+32°F) +155°C (+311°F)
COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® Multicrimp fittings serie BW23/BF21/P23

BALFLEX // BALWASH UNO 1W - 155°C / 311°F - DN6 - 1/4" - WP 22 MPa 3190 PSI

BALWASH 2W - SHARK SKIN



Balflex® Balwash 155°C (+311°F) 2W 40.0MPa - 10.2WSK.XX

High pressure, double wire braid reinforced high temperature car wash hose

#	inch	SAE Dash	ID		MPa	PSI	MIN BEND RAD		kg/m	
			mm	mm			mm	mm		
10.2WSK.04	1/4"	-4	6,3	14,7	40.0	5800	160.0	23200	100	0,38
10.2WSK.05	5/16"	-5	8,0	16,5	40.0	5800	140.0	23200	114	0,45
10.2WSK.06	3/8"	-6	9,5	18,7	40.0	5800	132.0	23200	127	0,53
10.2WSK.08	1/2"	-8	12,7	21,9	40.0	5800	110.0	23200	178	0,65

INNER TUBE: seamless hot water resistant synthetic rubber
REINFORCEMENT: 2 high tensile steel wire braids

OUTER TUBE: black smooth, oil, weather and abrasion resistant wrapped pin-pricked synthetic rubber
SAFETY FACTOR: 4:1 in 1/4"; 3.9:1 in 5/16"; 3.3:1 in 3/8"; 2.9:1 in 1/2"

APPLICATION: high temperature and high pressure cleaning professional equipments

TEMPERATURE RANGE: 0°C (+32°F) +155°C (+311°F)
COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® Multicrimp fittings serie BW23/BF21/P23

BALFLEX // BALWASH DUE 2W - 155°C / 311°F - DN6 - 1/4" - WP 40 MPa 5800 PSI