

Balflex[®]

Textile Braid Hydraulic Hoses



GESFLUID



Textile Braid Hydraulic Hoses

Balflex® hydraulic textile braided hoses are produced to Balflex® specifications and according to ISO 4079, SAE J517 and EN 854 standards. They cover a wide variety of low and medium 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 textile braid 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°C (+212°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°C (+158°F). For conveyance of Hot Air working temperature should be reduced to a maximum of +60°C (+140°F).

Selection, assembly and installation of hydraulic textile 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.

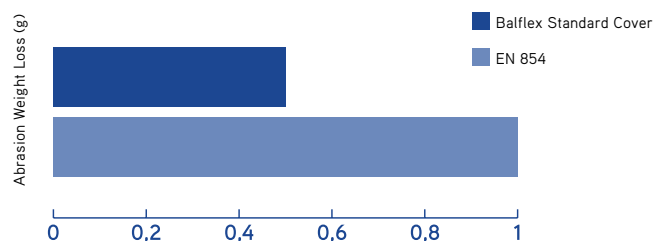
The failure of a hydraulic textile braided hose assembly may be dangerous and expose people and property to irreversible damage. Among other occurrences that must be prevented are the high velocity and high temperature projections of hydraulic fluid, the projection of fittings and their parts, the whipping 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.



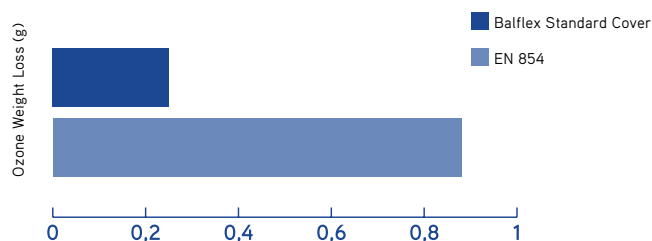
Balflex Hoses are manufactured with a tough outer cover that increases the resistance to environmental and external application damages and present the following main features:

- × 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 1: Rated working pressure at 20 °C (+68 °F) of Balflex® Hydraulic Textile 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"	3.1/2"	4"
		-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	-56 DN90	-64 DN100
TEXMASTER 1	DIN EN 854 1TE / ISO 4079 / SAE J517 R6	3.4 500	2.8 410	2.8 410	2.8 410	2.8 410	2.4 350	2.1 310	1.7 250							
TEXMASTER 2	DIN EN 854 2TE / ISO 4079	8.0 1200	7.5 1100	6.8 990	6.3 920	5.8 850	5.5 730	4.5 660	4.0 580							
TEXMASTER 3	DIN EN 854 1TE / ISO 4079 / SAE J517 R3	16.0 2400	14.5 2200	13.0 1900	11.0 1600											
TEXMASTER 3	SAE J517 R3 / ISO 4079					7.0 1100	6.1 950	5.2 800	3.9 600	2.6 400						
TEXMASTER 3T	DIN EN 854 1TE / ISO 4079					9.3 1400	8.0 1200	7.0 1100	5.5 800	4.5 660	4.0 580	3.3 480				
MULTIPURPOSE		2.0 300	2.0 300	2.0 300	2.0 300	2.0 300	2.0 300	2.0 300	2.0 300	2.0 300	2.0 300	2.0 300				
PUSH-ON			2.4 350	2.4 350	2.4 350	2.1 310	2.1 310	2.1 310	1.4 210							
TORNARE	SAE J517 R4							2.1 310	1.7 250	1.4 210	1.05 160	0.7 110	0.4 60	0.4 60	0.3 50	0.25 40

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 ; 1MPa = 10,0bar

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 = 25,4mm

Example: : +100 °C = +212 °F



Fluid Compatibility and Resistance Chart for Balflex Textile Braid 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 Hypochloryde 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.

TEXMASTER 1



DIN EN 854 1TE / SAE 100R6 – 10.1216.

Medium pressure, single textile braid reinforced hydraulic hose

REFERENCE	#	DN	inch	SAE Dash	ID mm	OD mm	MPa	PSI	MPa	PSI	MIN BEND RAD mm	KG kg/m
1TE-R6-03	10.1216.03	DN5	3/16"	-3	4,8	10,8	3.4	500	13.8	2000	51	0,13
1TE-R6-04	10.1216.04	DN6	1/4"	-4	6,3	12,4	2.8	410	11.0	1640	64	0,14
1TE-R6-05	10.1216.05	DN8	5/16"	-5	8,0	13,9	2.8	410	11.0	1640	76	0,18
1TE-R6-06	10.1216.06	DN10	3/8"	-6	9,5	15,4	2.8	410	11.0	1640	76	0,19
1TE-R6-08	10.1216.08	DN12	1/2"	-8	12,7	18,6	2.8	410	11.0	1640	102	0,27
1TE-R6-10	10.1216.10	DN16	5/8"	-10	16,0	22,9	2.4	350	9.7	1400	127	0,31
1TE-R6-12	10.1216.12	DN19	3/4"	-12	19,0	26,6	2.1	310	8.3	1240	152	0,43
1TE-R6-14	10.1216.14	DN22	7/8"	-14	22,0	31,3	2.2	320	8.8	1280	200	0,59
1TE-R6-16	10.1216.16	DN25	1"	-16	25,4	33,0	1.7	250	6.8	1000	203	0,59

INNER TUBE: seamless oil resistant synthetic rubber

REINFORCEMENT: 1 high resistance synthetic fiber braid

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

SAFETY FACTOR: 4:1

TEMPERATURE RANGE: -40°C (-40°F)

+100°C (+212°F); Max. temperature recommended for water base hydraulic fluids: +70°C (+158°F); Max. temperature recommended for air: +50°C (+122°F)

COUPLINGS: Balflex® 2-piece fittings

serie 23 with 20 serie ferrules

APPLICATION: petroleum base hydraulic fluids

COVER: U.S. MSHA APPROVED

NOTES: Sizes -14 (DN 22) 7/8" and -16 (DN 25) 1" not included in the standards

BALFLEX // TEXMASTER 1 SAE 100R6 / EXCEEDS DIN EN 854 - 1TE - DN5 - 3/16" - ISO 4079 - WP 3.4 MPa 500 PSI - Flame Resistant - MSHA IC-252/00

TEXMASTER 2



DIN EN 854 2TE – 10.1217.

Medium pressure, single textile braid reinforced hydraulic hose

REFERENCE	#	DN	inch	SAE Dash	ID mm	OD mm	MPa	MPa	MPa	MPa	MIN BEND RAD mm	KG kg/m
2TE-03	10.1217.03	DN5	3/16"	-3	4,8	11,8	8.0	1200	32.0	4800	25	0,12
2TE-04	10.1217.04	DN6	1/4"	-4	6,3	13,4	7.5	1100	30.0	4400	40	0,14
2TE-05	10.1217.05	DN8	5/16"	-5	8,0	14,9	6.8	990	27.2	3960	50	0,18
2TE-06	10.1217.06	DN10	3/8"	-6	9,5	16,5	6.3	920	25.2	3680	60	0,19
2TE-08	10.1217.08	DN12	1/2"	-8	12,7	19,7	5.8	850	23.2	3400	70	0,27
2TE-10	10.1217.10	DN16	5/8"	-10	16,0	23,9	5.0	730	20.0	2920	90	0,31
2TE-12	10.1217.12	DN19	3/4"	-12	19,0	27,0	4.5	660	18.0	2640	110	0,43
2TE-16	10.1217.16	DN25	1"	-16	25,4	34,4	4.0	580	16.0	2320	150	0,59

INNER TUBE: seamless oil resistant synthetic rubber

REINFORCEMENT: 1 high resistance synthetic fiber braid

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

SAFETY FACTOR: 4:1

APPLICATION: petroleum base hydraulic fluids

TEMPERATURE RANGE: -40°C (-40°F)

+100°C (+212°F); Max. temperature recommended for water base hydraulic fluids: +70°C (+158°F); Max. temperature recommended for air: +50°C (+122°F)

COUPLINGS: Balflex® 2-piece fittings

serie 23 with 20 serie ferrules

COVER: U.S. MSHA APPROVED

BALFLEX // TEXMASTER 2 DIN EN 854 - 2TE - DN5 - 3/16" - ISO 4079 - WP 8 MPa 1200 PSI - Flame Resistant - MSHA IC-252/00



TEXMASTER 3



SAE 100R3 / DIN EN 854 3TE – 10.1220

Medium pressure, double textile braid reinforced hydraulic hose

REFERENCE	#	DN	inch	SAE Dash	ID mm	OD mm	MPa	PSI	MPa	PSI	MIN BEND RAD mm	KG kg/m
R3-3TE-03	10.1220.03	DN5	3/16"	-3	4,8	12,8	16.0	2400	64.0	9600	40	0,13
R3-3TE-04	10.1220.04	DN6	1/4"	-4	6,3	14,4	14.5	2200	58.0	8800	45	0,18
R3-3TE-05	10.1220.05	DN8	5/16"	-5	8,0	16,9	13.0	1900	52.0	7600	55	0,25
R3-3TE-06	10.1220.06	DN10	3/8"	-6	9,5	18,5	11.0	1600	44.0	6400	70	0,28
R3-08	10.1220.08	DN12	1/2"	-8	12,7	23,8	7.0	1100	28.0	4400	125	0,44
R3-10	10.1220.10	DN16	5/8"	-10	16,0	27,0	6.1	950	24.4	3800	140	0,49
R3-12	10.1220.12	DN19	3/4"	-12	19,0	31,8	5.2	800	20.8	3200	150	0,70
R3-16	10.1220.16	DN25	1"	-16	25,4	38,1	3.9	600	15.6	2400	205	0,79
R3-20	10.1220.20	DN31	1 1/4"	-20	32,0	44,5	2.6	400	10.4	1600	250	0,88
R3-24	10.123T.24	DN38	1 1/2"	-24	38,0	49,6	4.0	580	16.0	2320	240	1,17
R3-32	10.123T.32	DN51	2"	-32	50,8	62,3	3.3	480	13.2	1920	300	1,63

INNER TUBE: seamless oil resistant synthetic rubber

REINFORCEMENT: 2 high resistance synthetic fiber braids

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

SAFETY FACTOR: 4:1

APPLICATION: petroleum base hydraulic fluids

TEMPERATURE RANGE: -40°C (-40°F)

+100°C (+212°F); Max. temperature recommended for water base hydraulic fluids: +70°C (+158°F); Max. temperature recommended for air: +50°C (+122°F)

COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules

COVER: U.S. MSHA APPROVED

NOTES: Size -24 (1-1/2") and -32 (2") not included in the Standard SAE J517 100R3 Balflex® propriety standard

BALFLEX /// TEXMASTER 3 SAE 100R3 - DN12 - 1/2" - ISO 4079 - WP 7 MPa 1100 PSI - Flame Resistant - MSHA IC-252/00

MULTIPURPOSE



2.0MPa / 300PSI (100% rubber hose) – 10.1215.

Oil, Fuel and Gasoline

REFERENCE	#	inch	SAE Dash	ID mm	OD mm	MPa PSI	MPa PSI	MIN BEND RAD mm	KG kg/m
MULTI-03	10.1215.03	3/16"	-3	4,8	11,0	2,0 300	6,0 1200	50	0,10
MULTI-04	10.1215.04	1/4"	-4	6,3	12,8	2,0 300	6,0 1200	60	0,16
MULTI-05	10.1215.05	5/16"	-5	8,0	14,9	2,0 300	6,0 1200	80	0,24
MULTI-06	10.1215.06	3/8"	-6	9,5	16,7	2,0 300	6,0 1200	100	0,29
MULTI-08	10.1215.08	1/2"	-8	12,7	21,0	2,0 300	6,0 1200	125	0,40
MULTI-10	10.1215.10	5/8"	-10	16,0	24,2	2,0 300	6,0 1200	160	0,50
MULTI-12	10.1215.12	3/4"	-12	19,0	28,0	2,0 300	6,0 1200	190	0,66
MULTI-16	10.1215.16	1"	-16	25,4	35,0	2,0 300	6,0 1200	254	0,90
MULTI-20	10.1215.20	1.1/4"	-20	32,0	42,8	2,0 300	6,0 1200	320	1,20
MULTI-24	10.1215.24	1.1/2"	-24	38,0	49,8	2,0 300	6,0 1200	380	1,42
MULTI-32	10.1215.32	2"	-32	50,8	62,2	2,0 300	6,0 1200	510	1,89

INNER TUBE: seamless oil, fuel and gasoline resistant synthetic rubber

REINFORCEMENT: 1 high resistance synthetic fiber braid

SAFETY FACTOR: 3:1

OUTER TUBE: black wrapped, weather and abrasion resistant synthetic rubber

APPLICATION: oil, fuel and gasoline

TEMPERATURE RANGE: -40°C (-40°F) +100°C (+212°F); Max. temperature recommended for water base hydraulic fluids: +70°C (+158°F); Max. temperature recommended for air: +50°C (+122°F)

COVER: U.S. MSHA APPROVED

WARNING: this hose is not according to any particular standards,so should not be used in automotive applications

BALFLEX / MULTIPURPOSE OIL - FUEL - AIR - GASOLINE - DN5 - 3/16" - WP 2 MPa 300 PSI - Flame Resistant - MSHA IC-252/00



TORNARE 4



SAE 100R4 – 10.1219.

According to SAE J517 type SAE 100R4, suction & delivery hydraulic hose.

REFERENCE	#	inch	SAE Dash	ID mm	OD mm	MPa PSI	MPa PSI	MIN BEND RAD mm	KG kg/m
R4-12	10.1219.12	3/4"	-12	19,0	34,9	2.1 310	8.4 1240	127	0,75
R4-16	10.1219.16	1"	-16	25,4	41,3	1.7 250	6.8 1000	152	0,93
R4-20	10.1219.20	1.1/4"	-20	31,8	50,8	1.4 210	5.6 840	203	1,25
R4-24	10.1219.24	1.1/2"	-24	38,1	57,2	1.05 160	4.2 640	254	1,54
R4-32	10.1219.32	2"	-32	50,8	69,9	0.7 110	2.8 440	305	2,00
R4-40	10.1219.40	2.1/2"	-40	63,5	82,6	0.4 60	1.6 240	356	2,50
R4-48	10.1219.48	3"	-48	76,2	95,3	0.4 60	1.6 240	457	3,20
R4-56	10.1219.56	3.1/2"	-56	88,9	108,0	0.3 50	1.2 200	533	4,03
R4-64	10.1219.64	4"	-64	101,6	121,0	0.25 40	1.0 160	610	5,04

INNER TUBE: seamless oil resistant synthetic rubber

REINFORCEMENT: textile braids and 2 high strength steel wire helix

SAFETY FACTOR: 4:1

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

APPLICATION: suction, delivery, return & discharge of petroleum base hydraulic fluids

TEMPERATURE RANGE: -40°C (-40°F)

+100°C (+212°F); Intermittent service: +120°C (+248°F); Max. temperature recommended for water base hydraulic fluids: +70°C (+158°F); Max. temperature recommended for air: +60°C (+140°F)

COUPLINGS: Balflex® 2-piece fittings serie 23 with 20 serie ferrules. Balflex® multicrimp fittings serie BW23

COVER: U.S. MSHA approved

BALFLEX TORNARE 4 SAE 100R4 - DN19 - 3/4" - WP 2.1 MPa 310 PSI - Flame Resistant - MSHA IC-252/00