

PTFE TYPE

factors of suitability

Permeation & Corrosion through a Hose Liner made from TEFLON®

Permeation rate of a given chemical through a liner made from TEFLON® is difficult to quantify in most cases.

Diffusion of a chemical through a hose liner is extremely complex. Even under laboratory conditions, it depends on factors such as temperature, concentration of vapour pressure, flow-regime (static system or flow under laminar or turbulent conditions), polymer crystallinity and micro-porosity.

In addition, people often require permeation rates of a chemical in the presence of solvents and other reactants. These other components can have a dramatic effect on the permeation rates because they can interact with the fluid (through association, complex-information or coupled-diffusion) or with the TEFLON® (through absorption, swelling, plasticisation or cluster-information).

Permeation in plastics is also an activated process —

Pressure Temperature Rating

Approximate Temperature Derating Curves for PTFE Hose.

i.e. it has an activation energy which determines how sensitive the process is to temperature change. In practice, this means that, when comparing the permeation rate of a chemical through two plastics (A and B), it is impossible to predict the effect of changing temperature from single permeation rate values. For example, if at 20°C bromine permeates plastic A at rate 'x' and plastic B at rate '2x', it is wrong to assume that it will also permeate twice as quickly through plastic B at 100°C. In fact the opposite could be observed at 100°C if the activation energy for bromine diffusion in B was much lower than in A.

Permeation of High Pressure Gases

From this it can be seen that it is equally difficult to comment on the permeation of high pressure gases.

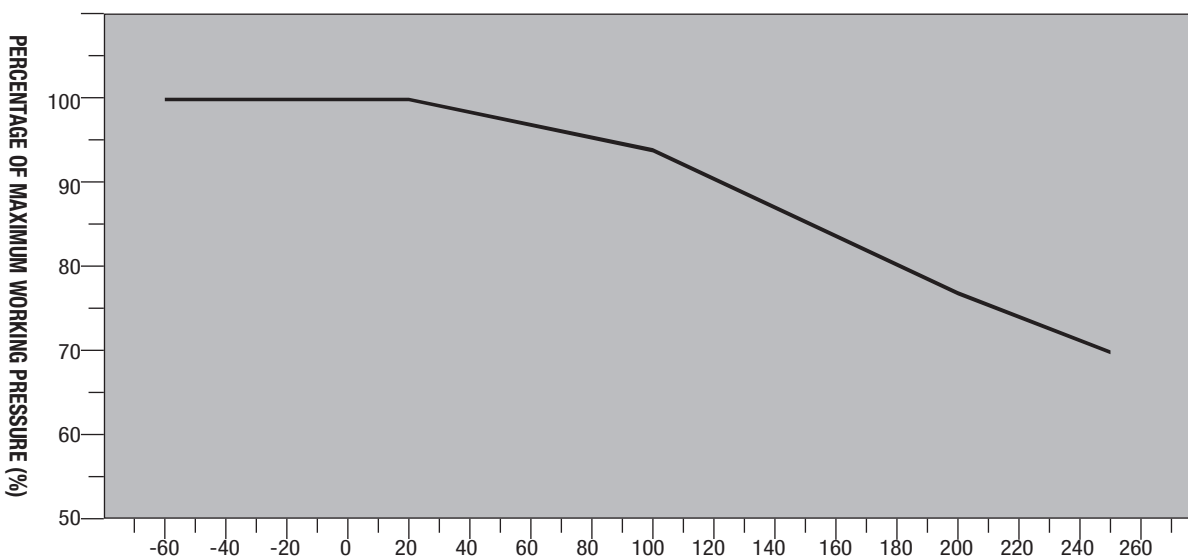
Indeed, field testing under normal conditions of use is probably the only means of determining the correct rate.

In all cases, our advice is always to subject a piece of hose to a trial under field conditions to determine its precise performance and suitability for use.

Based on information kindly supplied by Du Pont Fluoropolymer Division, Geneva.

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VARIATION OF WORKING PRESSURE WITH TEMPERATURE FOR HOSE TYPES EFL1 & EFH1



PTFE

PTFE TYPE

standard wall PTFE hose

Hose
Type

A smooth bore PTFE hose suitable for many severe applications involving solvents, paints, gases, fuels, hydraulic oils and many others where requirements of high temperature, medium pressure, chemical resistance and flex-life are paramount.

Construction

Type EFL1 comprises of a TEFLON® 62 liner with an A.I.S.I. 304 Stainless Steel outer braid.

Specification

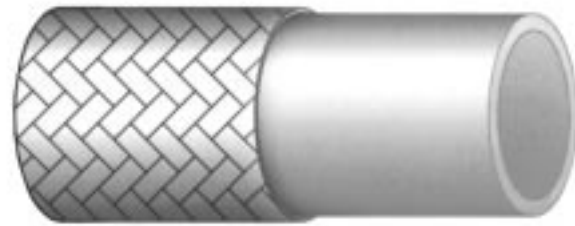
This hose meets Europower 'DMQ' approval specification when using the designated Europower permanently swaged fittings.

Fittings

Europower 'U' series non-skived permanently swaged fittings are fully 'DMQ' approved.

Applications

- Chemical Transfer
- Steam Transfer
- High/Low Temperature Applications
- Solvent Transfer
- Compressor Discharge
- Diesel/Petrol Feed
- Mould Heating Hot Oil



Performance

- Min/max continuous service temperature range – 60°C to 260°C.
- Excellent dielectric properties independent of frequency and temperature (non-conductive).
- Virtually inert to chemical attack.
- Non-inflammable.
- Excellent fatigue resistance, particularly in applications involving flexing and vibration.
- 4:1 Safety Factor.

Note

1. EFL1-02 requires special inserts and ferrules, to be advised on order.
2. Not recommended for impulse pressure applications without prior consultation with our Technical Department.

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HOSE TYPE	NOMINAL INSIDE DIAMETER		NOMINAL OUTSIDE DIAMETER		NOMINAL WALL THICKNESS		MINIMUM BEND RADIUS		DYNAMIC WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT		FERRULE PART NO
	IN	MM	IN	MM	IN	MM	IN	MM	PSI	BAR	PSI	BAR	LB/FT	KG/M	2 PIECE
EFL1-02	1/8	3.6	0.25	6.2	0.04	1.02	1.0	25	3250	224	13000	897	0.06	0.09	–
EFL1-03	3/16	5.1	0.32	8.0	0.03	0.76	2.0	51	3000	207	12000	828	0.06	0.09	U7000-03
EFL1-04	1/4	6.6	0.38	9.5	0.025	0.64	3.0	76	2750	190	11000	759	0.07	0.10	U7000-04
EFL1-05	5/16	8.3	0.43	10.8	0.025	0.64	4.0	102	2250	155	9000	621	0.07	0.11	U7000-05
EFL1-06	3/8	9.8	0.49	12.3	0.025	0.64	4.5	114	2000	138	8000	552	0.09	0.14	U7000-06
EFL1-08	1/2	13.1	0.63	16.0	0.035	0.89	5.0	127	1500	103	6000	414	0.15	0.23	U7000-08
EFL1-10	5/8	16.1	0.75	19.1	0.035	0.89	6.0	152	1375	95	5500	379	0.18	0.27	U8000-10
EFL1-12	3/4	19.4	0.88	22.4	0.035	0.89	8.0	203	1125	78	4500	310	0.22	0.32	U7000-12
EFL1-16	1	25.8	1.13	28.7	0.04	1.02	12.0	305	875	60	3500	241	0.30	0.45	U7000-16

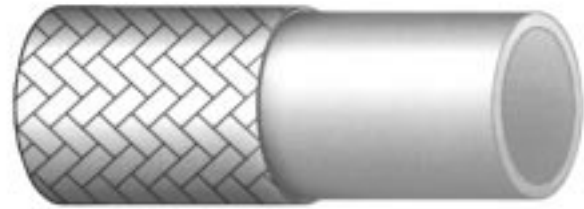
PTFE TYPE

heavy wall PTFE hose

Hose
Type

A smooth bore heavy PTFE hose suitable for many severe applications involving solvents, paints, gases, fuels, hydraulic oils and many others where requirements of high temperature, medium pressure, chemical resistance and flex-life are paramount.

Type EFH1 is more robust than type EFL1 and is particularly suitable for applications involving extreme low temperature flexing and thermal cycling.



Construction

Type EFH1 comprises of a TEFLON® 62 heavy wall liner with an A.I.S.I. 304 Stainless Steel outer braid.

Specification

This hose meets Europower 'DMQ' approval specification when using the designated Europower permanently swaged fittings.

Fittings

Europower 'U' series non-skived permanently swaged fittings are fully 'DMQ' approved.

Applications

- Chemical Transfer
- Steam Transfer
- High/Low Temperature Applications
- Compressor Discharge
- Diesel/Petrol Feed
- Mould Heating Hot Oil

Performance

- Min/max continuous service temperature range – 60°C to 260°C.
- Excellent dielectric properties independent of frequency and temperature (non-conductive).
- Virtually inert to chemical attack.
- Non-inflammable.
- Excellent fatigue resistance, particularly in applications involving flexing and vibration.
- Greater kink resistance.
- 4:1 Safety Factor.

Note

1. Not recommended for impulse pressure applications without prior consultation with our Technical Department.

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HOSE TYPE	NOMINAL INSIDE DIAMETER		NOMINAL OUTSIDE DIAMETER		NOMINAL WALL THICKNESS		MINIMUM BEND RADIUS		DYNAMIC WORKING PRESSURE		MINIMUM BURST PRESSURE		WEIGHT		FERRULE PART NO
	IN	MM	IN	MM	IN	MM	IN	MM	PSI	BAR	PSI	BAR	LB/FT	KG/M	2 PIECE
EFH1-04	1/4	6.6	0.39	9.91	0.04	1.02	1.5	38	2750	190	11000	759	0.09	0.13	U7000-04
EFH1-05	5/16	8.3	0.45	11.4	0.04	1.02	2.2	56	2250	155	9000	621	0.09	0.14	U7000-05
EFH1-06	3/8	9.8	0.52	13.2	0.04	1.02	2.5	64	2000	138	8000	552	0.11	0.17	U7000-06
EFH1-08	1/2	13.1	0.64	16.1	0.04	1.12	3.5	89	1500	103	6000	414	0.17	0.26	U7000-08
EFH1-10	5/8	16.1	0.79	19.9	0.044	1.12	4.5	114	1375	95	5500	379	0.21	0.31	U8000-10
EFH1-12	3/4	19.4	0.91	23.1	0.047	1.19	5.75	146	1125	78	4500	310	0.25	0.37	U7000-12
EFH1-16	1	25.8	1.15	29.21	0.047	1.19	10.0	254	875	60	3500	241	0.32	0.47	U7000-16