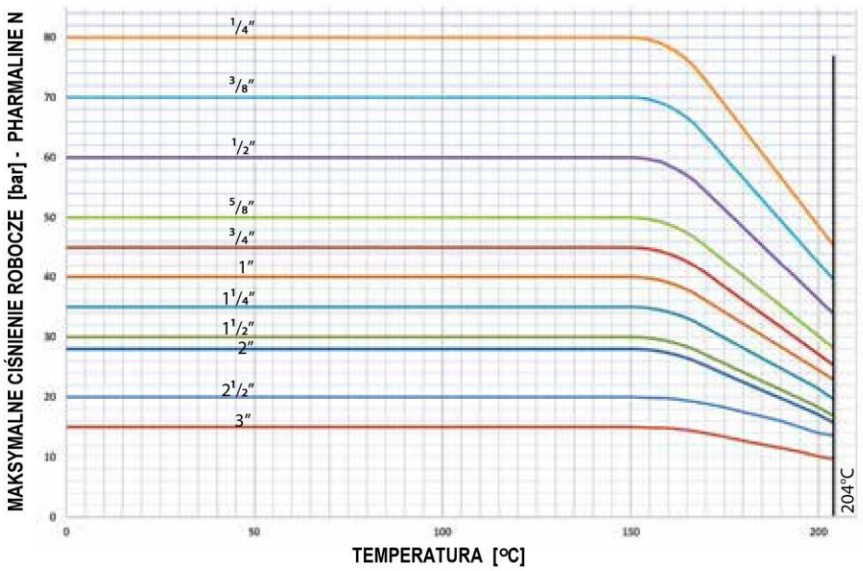
PHARMALINE

PHARMALINE X (without braid, with transparent silicone) - technical specifications

DN [inch].	DN [mm].	index (natural PTFE)	index (anti-static PTFE)	internal diameter [mm]	external diameter [mm]	working pressure* [bar]	burst pressure [bar]	vacuum [bar]	bend radius [mm]	mass [kg/m]	max. section length** [m]
1/4"	6	AF-PHGP-X-06	AF-PHGP-X-06AS	6,6	11,6	7,5	30		30	0,09	
3/8"	10	AF-PHGP-X-10	AF-PHGP-X-10AS	9,7	15,5	6,0	24		38	0,14	
1/2"	13	AF-PHGP-X-13	AF-PHGP-X-13AS	13,1	21,4	5,8	23		60	0,28	20
5/8"	16	AF-PHGP-X-16	AF-PHGP-X-16AS	16,2	25,2	5,0	20		64	0,31	
3/4"	20	AF-PHGP-X-20	AF-PHGP-X-20AS	19,3	28,5	5,0	20	0,9	75	0,55	
1"	25	AF-PHGP-X-25	AF-PHGP-X-25AS	25,7	37,0	4,0	16		120	0,65	
1.1/4"	32	AF-PHGP-X-32	AF-PHGP-X-32AS	32,2	44,6	3,0	12		140	0,75	6
1.1/2"	38	AF-PHGP-X-38	AF-PHGP-X-38AS	38,5	51,7	2,0	8		180	1,10	6
2"	50	AF-PHGP-X-50	AF-PHGP-X-50AS	51,1	65,6	2,0	8		300	1,90	6

Notes: * - working pressure dependent on temperature; ** - maximum length of section on special order, standard sections of various shorter lengths;

TEMPERATURE AND OPERATING PRESSURE LIMITS FOR PHARMALINE N and PHARMALINE X hoses



Operating pressure:

The working pressures for PHARMALINE N hose are given in the index table and on the diagram. For elevated temperatures above 150°C, the maximum working pressure of PHARMALINE N hose given in the table must be reduced according to the diagram.

The operating pressures for PHARMALINE X hose are given in the index table. They are constant over the entire temperature range.

Temperature range:

PHARMALINE N -73°C÷ +204°C
PHARMALINE X -73°C÷ +204°C

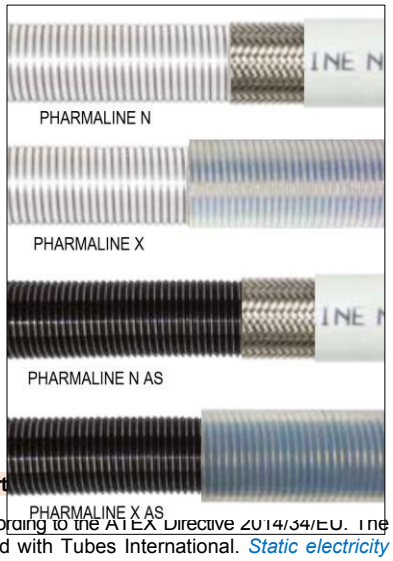
Vacuum:

PHARMALINE N and PHARMALINE X are resistant to a vacuum of 0.9 bar up to 200°C.

Antistatic and electrical properties of PHARMALINE N and X hoses

The standard, non-electrostatic version of **t h e natural PTFE inner layer** (sometimes referred to as GP - *General Purpose*) is designed for all applications where the flow of liquids and gases does not create a risk of electrical charges, while also taking into account cleaning and sterilisation conditions (CIP, SIP).

The AS antistatic version of the inner layer with black PTFE is used because, with the flow of many substances, there is a risk of the formation and accumulation of electrical charges on the inner surface of natural PTFE. This results in the possibility of their rapid discharge to a grounded component through the hose wall or end, which can cause hose damage, ignition or explosion. The antistatic Teflon of the AS version is **black** (containing carbon suitably distributed in the PTFE) and has a resistance R <$10^{(8)}$ Ω(ISO 8031), many times lower than natural PTFE. **This ensures the dissipation and dissipation (dispersion) of electrical charges.** In the case of PHARMALINE N AS and PHARMALINE X AS hoses (with antistatic PTFE), the hose meets the requirements of EN 16643 for the Ω-L type (resistance between the foam electrode on the inner layer and the metal tip $10^{(3)}$ ÷$10^{(8)}$ Ω, ISO 8031).



Electrical conductivity is a different property and indicates electrical continuity between the ends (resistance between ends less than 100 Ω, requirements EN 16643, BRG 132, ISO 8031). A properly assembled PHARMALINE N hose in both AS and natural PTFE versions meets these requirements (type M according to EN16643). **PHARMALINE X in both AS and natural PTFE versions is not electrically continuous.**

The silicone **outer layer of** the PHARMALINE N and PHARMALINE X hoses is not antistatic.

In an application requiring dissipation and dissipation of electrical charges, **at least one terminal must be eart**

PHARMALINE hose in a suitably selected version can be used in explosion risk zones 0, 1, 2 and 20, 21 and 22 according to the ATEX Directive 2014/34/EU. The selection of a standard natural PTFE or antistatic version of the hose and ATEX application must be confirmed with Tubes International. *Static electricity issues are presented in more detail in the introduction and in the section "Teflon hoses - general information".*