

Composite hoses HIGRADE 101

Specifically designed for the transfer of special Aviation fuels, Jet Fuel (JET A-1 and JP-6), Jet biofuels, Synthetic jet fuel (SPK) or Aviation Turbine fuel (ATF).



HIGRADE 101 is a high purity fuel hose and manufactured from multiple layers of polypropylene, polyethylene and polyester films as well as polypropylene fabrics, covered with a weather- and abrasion-proof outer skin. All the different layers are wrapped together and tensioned between internal and external wire spirals.

This enables our product to meet the requirement of the petrochemical and tank truck industry. Outer cover is also available in **ELASTAR**, a special PU coated fabric, offering increased UV-, ozone-, sunlight- and weathering-resistance, as well as superior temperature and abrasion characteristics.

HIGRADE 101 is manufactured according to the requirement of the European Standards EN 13765:2010 Type 3 (BS 5842:1980) and in accordance with Australian Standards AS 2683. It complies to the recommendations of NAHAD Guidelines (NAHAD 600/2005).

Manufactured with special procedures, particularly developed to eliminate any contaminants, **HIGRADE 101** hoses fully complies BS 3492:1987 for carrying gasoline, kerosene, fuel and lubrication oils, including aviation fuels with high aromatic content at temperatures up to 100°C.



The hose core is made from high purity, Ultra High Molecular Weight Polyethylene (**UHMW PLT**) to avoid any possible absorption or contamination. The stainless steel inner wire ensures that no metallic flakes are released into the conveyed products. The tube is produced in a high purity and constantly monitored manufacturing processes. In order to avoid any possible contamination, during the entire process no oils or lubricants are used.

Being extremely flexible, easy to handle and bend, **HIGRADE 101** hoses are used for transfer, loading and discharging, storage tank and in-plant handling. All hoses are 100% aromatic resistant and perfectly antistatic and can be used for delivery or suction of vapours. **HIGRADE 101** assemblies are fitted with an extensive range of standard couplings, externally swaged with stainless steel or aluminium ferrules.

HIGRADE 101 shows its full potential in very exceptional applications :

- **Jet fuel or aviation turbine fuel (ATF)** is a type of aviation fuel designed for use in aircraft turbine engines. It appears from colourless to straw-coloured. The most commonly fuels, produced to standardized international specifications for commercial aviation are **Jet A** and **Jet A-1**. Another jet fuel commonly used in civilian aviation is **Jet B**, which is characterized by its enhanced cold-weather performance.
- **High performance fuels 109 octane** for F1 racing cars and for alcohol-based fuels used in American open-wheel racing (Firetec version).



Electrical continuity is achieved by the two wires bonded to the end fittings, this helps dissipating accumulated charge and avoiding static flash. The electric resistance of hose assemblies is less than 1 Ω/m, as required by EN ISO 8031:2009 - 4.7. Upon request it's possible to manufacture these composite hoses in accordance to the Directive 94/9/EC "ATEX", with a special outer antistatic black cover, ground connection cable, for explosive environment.

Assemblies are suitable for use with a vacuum not exceeding 0.9 Bar.

According to the standard, **HIGRADE 101** hose meets the requirements for type AX & BX, for all products included in "Class 1".

All assemblies are tested at ambient temperature and 1½ times the rated working pressures as per EN ISO 1402 (BS 5173 section 102.10:1990). The securing ferrule, at one end of the hose, is permanently engraving with manufacturer's name, nominal bore, the hose assembly serial number and the test date. The marking of hose assemblies is made in compliance with PED directive (97/23/CE). Full test certification can be supplied on request.

Acc. to Standard EN 13765:2010 Annex G, hoses can be supplied in the FIRETEC version with ADR self-extinguishing CL1 cover. **FIRETEC** hose utilize a series of fire retardant barriers.

Furthermore, on request, **HIGRADE 101** hose can be produced in the HIPRESS version with extra **ARAMEX** fabric reinforcements to withstand higher pressures in special applications : WP 20, 25 up to 40 bar

All meets the EN, CE, AS, U.S. Coast Guard requirements, NAHAD Guidelines, are Lloyd's and DNV approved.



HEAVY DUTY AVIATION FUEL HOSE EN 13765:2010 - TYPE 3

Code	HYGRADE 101 HD ZZ	HYGRADE 101 HD ZX	HYGRADE 101 HD XZ	HYGRADE 101 HD XX
Applications	AVIATION FUEL /OIL LIQUIDS			
Colour	NATO Green / Black			
Temperature	-40 +100°C			
Inner wire	galv. steel	galv. steel	st. steel	st. steel
Outer wire	galv. steel	st. steel	galv. steel	st. steel

Size		Max. W.P.		Safety Factor	Bend Radius EN ISO 1746		Weight kg/m	Maximum Length	
mm	Inch	bar	P.S.I.		mm	Inch		m	Feet
20	3/4"	15	200	5:1	75	3	0,78	40	132
25	1"	15	200	5:1	100	4	0,94	40	132
32	1¼"	15	200	5:1	125	5	1,27	40	132
40	1½"	15	200	5:1	140	5½	1,49	40	132
50	2"	15	200	5:1	180	7	2,18	40	132
65	2½"	15	200	5:1	220	8½	3,09	40	132
75/80	3"	15	200	5:1	180	11	3,66	40	132
100	4"	15	200	5:1	400	16	5,28	40	132
150	6"	15	200	5:1	575	23	11,90	40	132
200	8"	15	200	5:1	800	32	16,20	40	132
250	10"	15	200	5:1	1000	40	22,78	25	82
300	12"	15	200	5:1	1200	48	31,78	25	82



STANDARD DUTY AVIATION FUEL HOSE EN 13765:2010 - TYPE 2

Code	HYGRADE 101 SD ZZ	HYGRADE 101 SD ZX	HYGRADE 101 SD XZ	HYGRADE 101 SD XX
Applications	AVIATION FUEL /OIL LIQUIDS			
Colour	NATO Green / Black			
Temperature	-40 +100°C			
Inner wire	galv. steel	galv. steel	st. steel	st. steel
Outer wire	galv. steel	st. steel	galv. steel	st. steel

Size		Max. W.P.		Safety Factor	Bend Radius EN ISO 1746		Weight kg/m	Maximum Length	
mm	Inch	bar	P.S.I.		mm	Inch		m	Feet
40	1 ½"	10	150	5:1	100	4	1,23	40	132
50	2"	10	150	5:1	150	6	1,66	40	132
65	2½"	10	150	5:1	200	8	2,10	40	132
75/80	3"	10	150	5:1	250	10	2,53	40	132
100	4"	10	150	5:1	300	12	4,10	40	132
150	6"	10	150	5:1	500	20	9,85	40	132
200	8"	10	150	5:1	740	29	13,31	40	132



Burst pressure indicated is at ambient temperature.
Maximum temperature rating can only be maintained when working within limits of working pressure.

We reserve the right to change specification without prior notice !