

REFRIGERATION & AIR CONDITIONING

products & services



 **the manufacturer**
at your doorstep

fluidconnecto[®]
— by **manuli**[®] —

Why is it beneficial to work with us

- refrigeration hoses
- crimped & field clamped solution for field assembly
- rigid connections
- air dryers, filters
- machines & tools
- accessories

PRODUCTS DIRECTLY FROM THE MANUFACTURER

- MH offers hoses, inserts and ferrules or clamped solutions as well as assembly equipment to provide a leak-proof hose assembly



Manuli Integrated System

DURABLE AND LEAK-PROOF HOSE ASSEMBLY

- Hydroslops
- Service On-Site VAN 24H
- safety stock
- fast delivery
- technical support

SPEED & FLEXIBILITY OF WORKING WITH US

- all hoses compatible with HFO-1234yf refrigerant
- constant product development in R&D centers
- 80 years of Manuli experience
- references of industry leaders

QUALITY AND EXPERIENCE YOU CAN TRUST

- kitting services for machine manufacturers
- rigid connections made to order
- hose assembly testing
- custom fittings
- hose tagging with individual codes

SERVICES FOR MACHINE MANUFACTURERS

BUY ALL

from one supplier

SAVE TIME

& improve aftersales



Application

Refrigeration hose assemblies ❄️

With the widespread of long distance food transport and as well as air conditioned vehicles, refrigeration hose assemblies can be found everywhere.



Off highway vehicles

Manuli Refrigeration products are being supplied to many of the world's leading off highway equipment manufacturers.

Our hose assemblies are used to meeting the needs of these tough and demanding machines, where extreme conditions are the norm.



Agriculture & forestry

Large cabs in close proximity to high heat areas are common in this sector. Careful consideration to heat pick up is paramount to achieve the maximum performance from the HVAC system.



Bus & public transport

There are many diverse applications in this sector and vary widely from buses, trams, trains, mono rails and aircrafts. For this market a large diameter hose range is vital to deliver the large cooling capacity that these demanding systems require.



Truck

With operator comfort demanded at all times, in cab systems could be required to function on a 24 hour basis as overnight operation is becoming increasingly common.



Trailer & transporter

Design solutions for trailer and transporters include anything from compact roof top mounted units for small delivery transporters to fully integrated trailer modules that run independently, either by an external electrical supply or onboard generators.



Leisure

The leisure industry is a growing market and air conditioning systems are becoming far more common. Systems on pleasure crafts may also need extra corrosion resistance of the fittings because of the environment they operate in.

Services



Installation
of hose assemblies



Custom fittings
made to order



Testing
for pressure resistance



Kitting
of hoses in sets



Hose tagging
with individual codes



Delivery
at your doorstep



Tube bending
made to order



Repair
of refri hose assemblies

Manuli Hydraulics

MADE IN
manuli

80 years of experience
in the design and manufacturing of hoses & fittings.

compatibility with modern refrigerants
in mobile refrigeration and air conditioning, we have you covered

low permeability and high flexibility
expect high performance in low and high external temperatures

Manuli – The Refrigeration Product Range Compatible with any Refrigerant and Oil

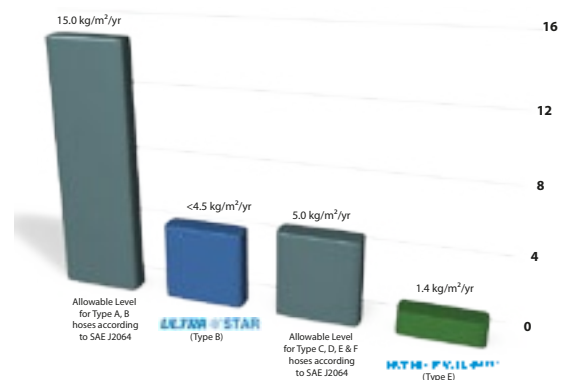
Refrigerant gases were subject to several evolutions over the years. Those evolutions were driven by the Refrigeration & Air Conditioning Technology development, and by the Environmental Protocols (Montreal 1987, Kyoto 1997) which required chemical engineers to study new challenging solutions. As a consequence, new gases were developed to protect the ozone layer.

Manuli has addressed these issues by conducting new research on Molecular Barrier compounds.

As the graph on the right presents, the result are hoses fully compatible both with old and modern refrigerants (including the new HFO1234yf that is a probable candidate for R134a replacement) ensuring a **PERMEABILITY LEVEL** which **EXCEED** the most demanding specification (type E of SAE J2064) with a cost effective construction (type B with no PA barrier layers).

This new product range is also **FULLY COMPATIBLE** with all the relevant Lubricants used for those applications (PAG & POE).

Comparison of Refrigerant Permeation Through Hoses



Hoses & fittings

REFRI[®] MASTER PLUS

TYPE E - SAE J2064



Textile braid reinforcement

Synthetic rubber outer cover made from an improved EPDM based compound

Synthetic rubber inner tube with a thermoplastic (PA) veneer

Fittings

FRIGOCLIC™ SYSTEM

INSERT

one insert - 2 solutions
39 different insert varieties: straight, angle, with valves, adaptors, connectors and other.

FERRULE - CRIMPED SOLUTION

designed for maximum robustness and service life; allows repeatable and controlled crimping in workshop conditions.

CLAMP - CLAMPED SOLUTION

designed for field maintenance; easy hose assembly; facilitates complex hose routings.



Universal, compact (Type E - SAE J2064) hose with .

- Suitable for refrigeration and climate control
- 2 hose assembly options: machine crimped and field attachable solution (clamps)
- Excellent compatibility with common refrigerant gases - R134a, R404a, R407C, R401A & HFO1234yf
- Extremely low permeability rate - average of 1.4kg/m²/yr across all sizes
- Improved flexibility and minimum bending radius
- High temperature resistance - up to +140°C
- Great resistance to kinking and collapse

REFRIMASTER PLUS is compatible with the refrigerant of the future - HFO1234YF. It has been tested & approved by the manufacturer - Manuli Hydraulics.



PART. REF.	HOSE SIZE			R.O.D.		O.D.		WORKING PRESSURE		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Crimped	Clamp
H09071008*	8	-6	5/16"			12,9	0,51	35	500	250	3620	40	1,57	80	0,05	FC+C00700-06	FC+C01000-06
H09071010*	10	-8	13/32"			16,2	0,64	35	500	250	3620	50	1,97	140	0,09	FC+C00700-08	FC+C01000-08
H09071013*	13	-10	1/2"			20,6	0,81	35	500	150	2170	70	2,76	235	0,16	FC+C00750-10	FC+C01050-10
H09071016*	16	-12	5/8"			24,0	0,94	35	500	150	2170	80	3,15	285	0,19	FC+C00750-12	FC+C01050-12
H09071022*	22	-16	7/8"			31,0	1,22	35	500	150	2170	120	4,72	405	0,27	FC+C00750-16	FC+C01050-16



CONTINUOUS SERVICE TEMPERATURE

-40°C / 125°F
-40°F / 257°F

TUBE

High temperature resistant thermoplastic (PA) veneer

APPLICABLE SPECS

SAE J2064 Type E Class I



MAX OPERATING TEMPERATURE

140°C / 284°F

COVER

High temperature and environmental resistant synthetic rubber (EPDM)

REINFORCEMENT

One textile braid

Hoses & fittings

ULTRA STAR

TYPE B - SAE J2064



Wire braid reinforcement

High temperature resistance, synthetic rubber outer cover

Unique molecular barrier compound made from synthetic rubber (IIR)

Fittings

STAR-CRIMP™ Crimped solution

The factory standard crimped fitting solution designed for controlled and repeatable crimping operations; includes over 25 insert designs and a dedicated ferrule



STAR-FIT™ Screw-type solution

Reusable and field attachable fitting solution designed to reduce maintenance costs and time both in the factory and in the field includes over 35 insert designs with a special screw-type ferrule



A hydraulic style (Type B - SAE J2064), rubber hose with superior permeability performance.

- Suitable for refrigeration and climate control applications
- 2 hose assembly solutions: crimped and reusable (screw type) fitting
- Excellent structural strength
- Unique compound allows superb performance <math><4.5 \text{ kg/m}^2/\text{yr}</math> - giving a Type B hose performance in excess of Type C, D, E & F requirements (SAE J2064)
- Excellent flexibility and low minimum bend radius

ULTRASTAR is compatible with the refrigerant of the future - HFO1234YF. It has been tested & approved by the manufacturer - Manuli Hydraulics.



PART. REF.	HOSE SIZE			R.O.D.		O.D.		WORKING PRESSURE		BURST PRESSURE		MIN.BEND RADIUS		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Crimped	Screw type
H01133005*	5	-4	3/16"	11,2	0,44	13,0	0,51	35	500	150	2170	85	3,35	217	0,15	SC+C00300-04	SF+K00400-04
H01133008*	8	-6	5/16"	15,4	0,61	17,2	0,68	35	500	150	2170	85	3,35	336	0,23	SC+C00300-06	SF+K00400-06
H01133010*	10	-8	13/32"	17,5	0,69	19,3	0,76	35	500	150	2170	95	3,74	385	0,26	SC+C00300-08	SF+K00400-08
H01133012*	12	-10	1/2"	21,6	0,85	23,4	0,92	35	500	150	2170	115	4,53	533	0,36	SC+C00300-10	SF+K00400-10
H01133016*	16	-12	5/8"	25,5	1,00	27,3	1,07	35	500	150	2170	135	5,31	676	0,45	SC+C00300-12	SF+K00400-12
H01133022*	22	-16	7/8"	29,5	1,16	31,4	1,24	35	500	150	2170	100	3,94	724	0,49	SC+C00300-16	SF+K00400-16
H01133028*	28	-20	1.1/8"	36,1	1,42	38,0	1,50	35	500	150	2170	120	4,72	874	0,59	SC+C00300-20	SF+K00400-20
H01133035*	35	-24	1.3/8"	42,8	1,69	44,8	1,76	35	500	150	2170	120	4,72	1214	0,82		SF+K00400-24



CONTINUOUS SERVICE TEMPERATURE
-40°C / 125°C
-40°F / 257°F

TUBE
Unique molecular barrier compound made from synthetic rubber (IIR)

APPLICABLE SPECS
SAE J2064 Type B Class I



MAX OPERATING TEMPERATURE
140°C / 284°F

COVER
High temperature and environmental resistant synthetic rubber

APPROVALS
GOST-R

REINFORCEMENT
One steel wire braid

Accessories

Hoses & filters

hot air hose
santoprene



hot air hose
fiber glass



air filters



air dryers



Tools & machines

manual
crimper



small
bench -top crimper



medium
bench -top crimper



hose cleaning
equipment



manual
pipe bending tool



specific dies
for refrigeration fittings



hose cutting
tool

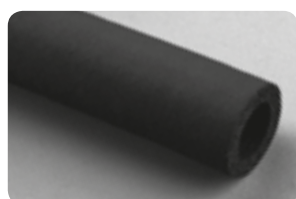


clamp tool for
FrigoClic fittings

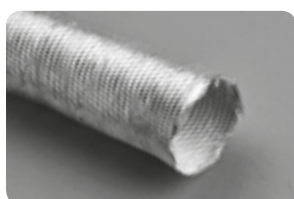


Hose covers

elastomeric thermal
insulating sleeve



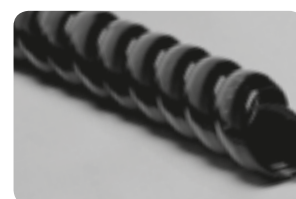
metal thermal shield



thermoplastic
thermal shield



protection spring



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