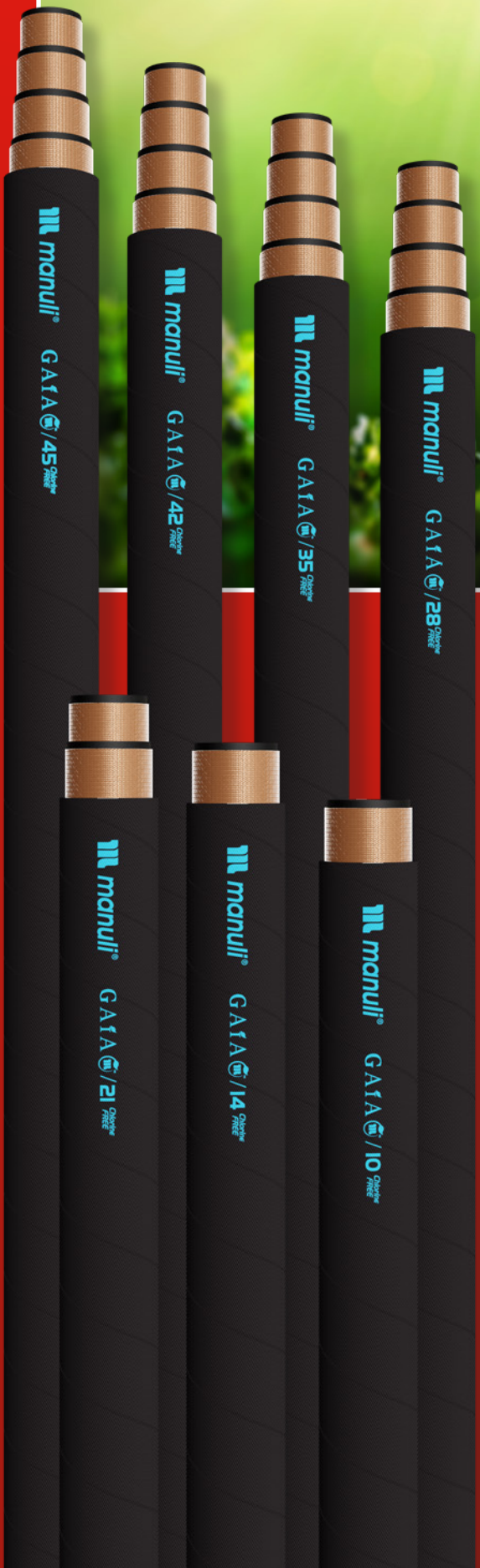
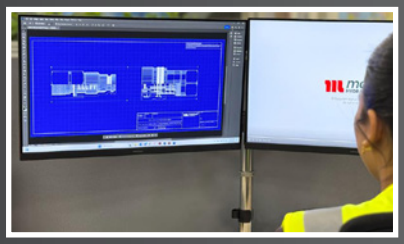
GAIA™



The first 100% recyclable hydraulic hose.

manuli® HYDRAULICS

"Manuli Hydraulics is focused on achieving excellence in the design, manufacture, and supply of fluid conveyance solutions, components and associated equipment for high pressure hydraulics, industrial material conveyance, refrigeration and cooling applications."



Our experienced Research & Development team take 2D drawings to 3D models to real life products.

Our world-class hoses, fittings and assembly equipment are manufactured in-house to the highest standards.

We test and validate our products to meet and exceed technical industry standards.

DESIGN → **MANUFACTURE** → **TEST** → **INTEGRATED SYSTEMS** → **SUPPLY**

We provide the complete solution: hoses, fittings, crimping parameters and assembly equipment for a fully integrated system.

We supply fluid conveyance solutions directly to our customers whenever and wherever they are.

From design to manufacture, and assembly, Manuli Hydraulics' continual commitment to this unified philosophy makes us a global leader in providing integrated solutions for fluid and material transfer connector applications including hydraulics, refrigeration & air conditioning, oil & gas, water and industrial low-pressure.

Manuli Hydraulics offer a complete range of hoses, fittings and assembly equipment which are purposely designed to work seamlessly together. This harmonized approach allows us to guarantee the quality and performance of our hose assemblies.

Every metre of hose and every single fitting is backed by industry knowledge and experience, made available to you through our dedicated team of application engineers.

From advice on component selection and configuration, our technical expertise allows us to support and work directly with our customers whenever and wherever they are based.

Disclaimer: We reserve the right to modify our products and/or related services and/or discontinue the manufacture and/or supply of any of the products and/or related services, without notice. This document supersedes all previous versions and previously issued documentation. The only official source of technical crimping parameters regarding our products is our Digital Crimp Tools. Printed copies are uncontrolled therefore, please be sure to use the latest versions of our Manuli Crimp App or Crimp Web Tool. Do not mix and match: always use Manuli original hoses and fittings. For more information, see our 'Safety Guide' by scanning the QR code.

DON'T MIX & MATCH

GAIA - THE FIRST 100% RECYCLABLE HOSE

Recycling and re-purposing of hydraulic hoses has always been a challenge.

GAIA hoses have been specifically designed to meet the ever-increasing performance demands of high-pressure hydraulics, whilst maintaining a focus on end-of-life disposal.

Environmental & Sustainability Credentials:

- Rubber compounds do not contain chlorine, making them fully recyclable.
- Reduction in end-of-life disposal / recycling costs.
- Generally contributes towards an improved ESG performance.
- Productions scraps can be recycled or disposed of in a more environmentally friendly way.
- Compliant with some of the world's leading OEM manufacturers' Green Policies.

THE MANULI EARTH-FIRST PROJECT

Earth-First is a global sustainability initiative throughout the entire Manuli Hydraulics organisation.

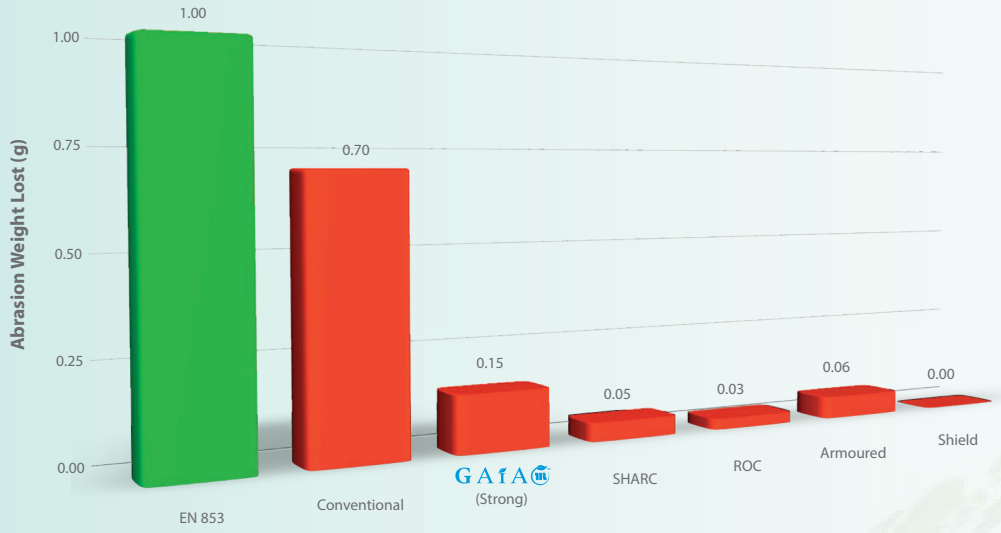
We focus on the development of environmentally-conscious products, utilizing sustainable raw materials and greener manufacturing processes. In this way we are leading the way towards a more sustainable future.

When you see the Manuli Earth-First badge on a product, you can be sure that it has been developed to be as sustainable and environmentally-sound as possible, without compromising on performance and quality.

Additional Features:

- High impulse resistance - 500,000 cycles (ISO 18752 Type C).
- Excellent flexibility and ultra-low minimum bend radius.
- Chlorine-free cover has the same abrasion, ozone, aging and fire resistance properties as the Manuli "STRONG" cover.
- Skive and no-skive fully integrated fitting solutions available.
- Cover compound MSHA approved and mining properties FRAS approved.

Weight loss after 2,000 cycles (EN 853 abrasion test)



FULLY INTEGRATED SOLUTIONS

GAIA hoses are designed to work seamlessly with a wide range of both skive and no-skive Manuli fittings, making them ideal for OEM and workshop assembly, as well as for on-site assembly in maintenance situations.

Multifit & Interlock Plus Skive Fittings:

Multifit is a universal fitting solution and is the core of the Manuli Hydraulics integrated approach.
Interlock Plus is a highly robust, double-skive fitting solution.

One-Piece & Spiralfit No-Skive Fittings:

Manuli also offers no-skive fitting solutions, including one-piece fittings and Spiralfit two-piece fittings.

GAIA/10

CHLORINE-FREE LINE

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01207025*	25	-16	1"	31.3	1.23	33.1	1.3	105	1520	420	6091	160.0	6.29	810	0.54	MF + M03400-16	
H01207038*	38	-24	1.1/2"	47.7	1.87	50.7	1.99	105	1520	420	6091	300.0	11.81	1820	1.22	MF + M03400-24	
H01207051*	51	-32	2"	60.4	2.37	63.4	2.49	105	1520	420	6091	400.0	15.74	2356	1.58	MF + M03400-32	

KEY FEATURES:

- Compact dimension
- Very low bend radius, suitable for difficult installations
- High flexibility
- Outstanding abrasion and ozone resistance
- Flame retardant MSHA approved cover

APPLICATIONS & FLUIDS:

- Hydraulics: low pressure lines, auxiliary hydraulic systems for OEMs and high performance applications
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

One high tensile steel braid (DN 25), two high tensile steel braids (DN 38, 51)

Cover

CHLORINE FREE cover Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

Applicable Specifications

ISO 18752 Grade C extension

Type Approvals

MSHA

GAIA/14

CHLORINE-FREE LINE

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01206006*	6	-4	1/4"	9.9	0.38	11.5	0.45	140	2030	560	8122	25.0	0.98	160	0.11	MF + M03300-04	
H01206016*	16	-10	5/8"	20.6	0.81	22.4	0.88	140	2030	560	8122	90.0	3.54	446	0.3	MF + M03400-10	
H01206019*	19	-12	3/4"	23.9	0.94	25.9	1.01	140	2030	560	8122	100.0	3.93	571	0.38	MF + M03400-12	
H01206031*	31	-20	1.1/4"	41.1	1.61	43.6	1.71	140	2030	560	8122	250.0	9.84	1558	1.05	MF + M03400-20	

KEY FEATURES:

- Compact dimension
- Very low bend radius, suitable for difficult installations
- High flexibility
- Outstanding abrasion and ozone resistance
- Flame retardant MSHA approved cover
- MiniFit special dedicated fittings, compact dimensions

APPLICATIONS & FLUIDS:

- Hydraulics: low pressure lines, auxiliary hydraulic systems for OEMs and high performance applications
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

One high tensile steel braid (DN 31 with two wire braids)

Cover

Chlorine-Free STRONG cover style, synthetic rubber with extreme abrasion and ozone resistance

Applicable Specifications

ISO 18752 Grade C

Type Approvals

MSHA

GAIA/21

CHLORINE-FREE LINE

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01204006	6	-4	1/4"	10.2	0.4	12.0	0.47	210	3040	840	12183	50.0	1.96	183	0.12	MF + M03300-04	
H01204008*	8	-5	5/16"	11.5	0.45	13.6	0.53	210	3040	840	12183	55.0	2.16	214	0.14	MF + M03300-05	
H01204010*	10	-6	3/8"	14.4	0.56	16.2	0.63	210	3040	840	2183	65.0	2.55	300	0.2	MF + M03300-06	
H01204012*	12	-8	1/2"	17.9	0.7	19.7	0.77	210	3040	840	12183	90.0	3.54	418	0.28	MF + M03300-08	
H01204016*	16	-10	5/8"	22.2	0.87	24.0	0.94	210	3040	840	12183	100.0	3.93	615	0.41	MF + M03400-10	
H01204019*	19	-12	3/4"	25.6	1.0	27.7	1.09	210	3040	840	12183	120.0	4.72	772	0.52	MF + M03400-12	
H01204025*	25	-16	1"	33.0	1.29	35.2	1.38	210	3040	840	12183	150.0	5.9	1194	0.8	MF + M03400-16	
H01204031*	31	-20	1.1/4"	41.7	1.64	44.5	1.75	210	3040	840	12183	210.0	8.26	2069	1.39	MF + M00920-20	
H01204038*	38	-24	1.1/2"	48.9	1.92	52.1	2.05	210	3040	840	12183	260.0	10.23	2987	2.01	IP + M01500-24	
H01204051*	51	-32	2"	63.2	2.48	66.8	2.62	210	3040	840	12183	330.0	12.99	4329	2.91	IP + M01500-32	

KEY FEATURES:

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS:

- Chlorine free requirements
- Medium pressure power lines for general hydraulics
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

One high tensile steel wire braids (DN 6 to 12), two wire braids (DN 16, 19, 25), four wire spirals (DN 31, 38, 51)

Cover

Special cover compound designed to be chlorine-free with high abrasion and ozone resistance

Applicable Specifications

Wire braid structures (DN 6 to 25): ISO 18752-C, SAE J517-R17, ISO 11237-R17

Wire spiral structures (DN 31, 38, 51): ISO 18752-C/D

Type Approvals

MSHA

GAIA/28

CHLORINE-FREE LINE

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10146006*	6	-4	1/4"	11.6	0.45	13.2	0.51	280	4060	1120	16244	50.0	1.96	250	0.17	MF + M00120-04	OPF-04
H10146010*	10	-6	3/8"	15.4	0.6	17.0	0.66	280	4060	1120	16244	63.0	2.48	396	0.27	MF + M00120-06	OPF-06
H10146012*	12	-8	1/2"	18.5	0.72	20.3	0.79	280	4060	1120	16244	80.0	3.14	515	0.35	MF + M00120-08	OPF-08
H10146016*	16	-10	5/8"	22.7	0.89	24.7	0.97	280	4060	1120	16244	90.0	3.54	754	0.51	MF + M00120-10	OPF-10
H10146019*	19	-12	3/4"	26.9	1.05	29.3	1.15	280	4060	1120	16244	120.0	4.72	1077	0.72	MF + M00930-12	OPK-12
H10146025*	25	-16	1"	34.1	1.34	36.5	1.43	280	4060	1120	16244	150.0	5.9	1565	1.05	MF + M00930-16	OPK-16
H10146031*	31	-20	1.1/4"	41.7	1.64	44.5	1.75	280	4060	1120	16244	210.0	8.26	2137	1.44	MF + M00920-20	SP + M05400-20
H10146038*	38	-24	1.1/2"	48.9	1.92	52.1	2.05	280	4060	1120	16244	280.0	11.02	2989	2.01	IP + M01500-24	SP + M05400-24
H10146051*	51	-32	2"	63.9	2.51	67.5	2.65	280	4060	1120	16244	350.0	13.77	4652	3.13	IP + M01500-32	SP + M05400-32

KEY FEATURES:

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS:

- Chlorine free requirements
- High pressure power lines for general hydraulics
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

Two high tensile steel wire braids (DN 10, 12,16), four high tensile steel wire spirals (DN 19, 51)

Cover

Special cover compound designed to be chlorine-free with high abrasion and ozone resistance

Applicable Specifications

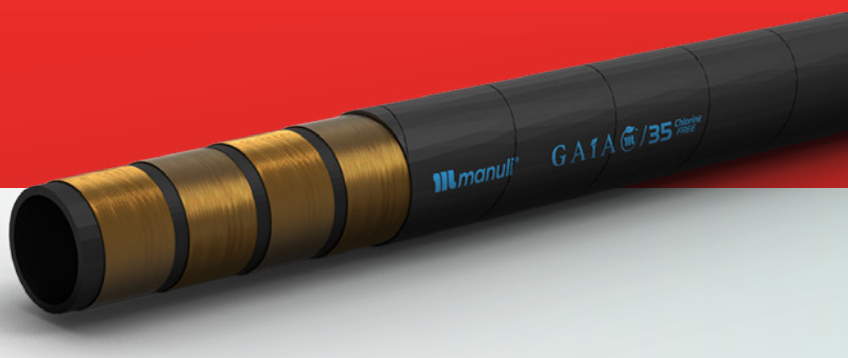
ISO 18752-C/D (WB structures are Grade C, WS structures are Grade D with STD1 only); JIS K6349

Type Approvals

MSHA

GAIA/35

CHLORINE-FREE LINE



PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10144006*	6	-4	1/4"	11.3	0.44	13.1	0.51	350	5070	1400	20305	45.0	1.77	290	0.19	MF +M00120-04	
H10144008*	8	-5	5/16"	12.9	0.5	14.7	0.57	350	5070	1400	20305	55.0	2.16	325	0.22	MF +M00120-05	
H10144010*	10	-6	3/8"	15.0	0.59	16.8	0.66	350	5070	1400	20305	65.0	2.55	395	0.27	MF +M00120-06	
H10144012*	12	-8	1/2"	18.6	0.73	20.4	0.8	350	5070	1400	20305	80.0	3.14	559	0.38	MF + M00120-08	OPF-08
H10144016*	16	-10	5/8"	23.5	0.92	25.7	1.01	350	5070	1400	20305	100.0	3.93	931	0.63	MF + M00910-10	OPK-10
H10144019*	19	-12	3/4"	27.5	1.08	29.9	1.17	350	5070	1400	20305	120.0	4.72	1215	0.82	IP + M01500-12	SP + M05400-12
H10144025*	25	-16	1"	34.6	1.36	37.0	1.45	350	5070	1400	20305	150.0	5.9	1823	1.22	IP + M01500-16	SP + M05400-16
H10144031*	31	-20	1.1/4"	42.1	1.65	44.9	1.76	350	5070	1400	20305	230.0	9.05	2435	1.64	IP + M01500-20	SP + M05400-20

KEY FEATURES:

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS:

- Chlorine free requirements
- High pressure power lines for general hydraulics
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

Two high tensile steel wire braids (DN 6 to 12), four high tensile steel wire spirals (DN 16 to 31)

Cover

Special cover compound designed to be chlorine-free with high abrasion and ozone resistance

Applicable Specifications

ISO 18752-C/D (WB structures are Grade C, WS structures are Grade D with STD1 only), JIS K6349, DN 19 and larger sizes meet and exceed EN 856-R13 & ISO 3862-R13 performance

Type Approvals

MSHA

GAIA/42

CHLORINE-FREE LINE

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10145006*	6	-4	1/4"	11.3	0.44	13.1	0.51	420	6090	1680	24366	45.0	1.77	290	0.19	MF + M00120-04	MF + M03300-04
H10145010*	10	-6	3/8"	17.6	0.69	20.0	0.78	420	6090	1680	24366	100.0	3.93	690	0.46	MF + M00920-06	
H10145012*	12	-8	1/2"	20.3	0.79	22.7	0.89	420	6090	1680	24366	120.0	4.72	828	0.56	MF + M00910-08	MF + M03500-08
H10145016*	16	-10	5/8"	23.9	0.94	26.4	1.03	420	6090	1680	24366	140.0	5.51	1019	0.68	IP + M01500-10	SP + M05400-10
H10145019*	19	-12	3/4"	27.7	1.09	30.2	1.18	420	6090	1680	24366	150.0	5.9	1330	0.89	IP + M01500-12	SP + M05400-12
H10145025*	25	-16	1"	35.0	1.37	37.5	1.47	420	6090	1680	24366	210.0	8.26	2060	1.38	IP + M01500-16	SP + M05400-16
H10145031*	31	-20	1.1/4"	46.3	1.82	49.5	1.94	420	6090	1680	24366	260.0	10.23	3655	2.46	IP + M01600-20	SP + M05500-20
H10145038*	38	-24	1.1/2"	53.2	2.09	56.4	2.22	420	6090	1680	24366	310.0	12.2	4450	2.99	IP + M01600-24	SPGX + M05500-24GX
H10145051*	51	-32	2"	68.9	2.71	72.4	2.85	420	6090	1680	24366	500.0	19.68	7310	4.91	IS + M02700-32	SPGX + M05500-32GX

KEY FEATURES:

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional R13 hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS:

- Chlorine free requirements
- High pressure power lines for general hydraulics
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

Two high tensile steel wire braids (DN 6), four high tensile steel wire spirals (DN 10 to 25), six high tensile steel wire spirals (DN 31 to 51)

Cover

Special cover compound designed to be chlorine-free with high abrasion and ozone resistance

Applicable Specifications

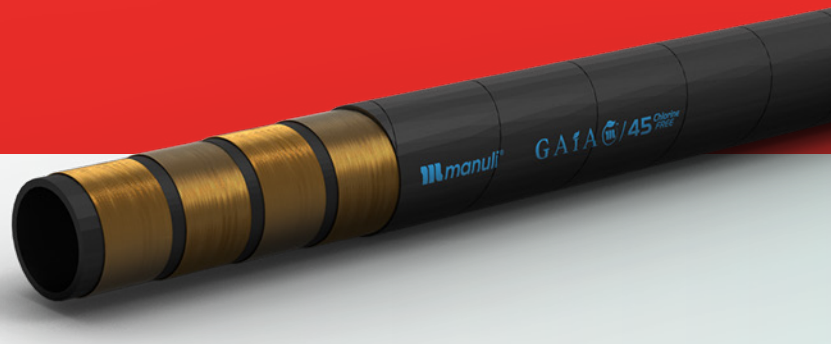
ISO 18752-C (Grade C “Plus” approved 1 million impulse cycles with STD1 fittings), DN 19 and larger sizes meet and exceed ISO 3862-R15 performance; JIS K6349

Type Approvals

MSHA

GAIA/45

CHLORINE-FREE LINE



PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10149006*	6	-4	1/4"	14.7	0.57	17.1	0.67	460	6670	1840	26687	125.0	4.92	567	0.38	IP + M01500-04	
H10149019*	19	-12	3/4"	28.4	1.11	32.0	1.25	460	6670	1840	26687	280.0	11.02	1530	1.03	IP + M01500-12	
H10149025*	25	-16	1"	35.4	1.39	38.2	1.5	460	6670	1840	26687	340.0	13.38	2150	1.44	IP + M01500-16	
H10149031*	31	-20	1.1/4"	46.3	1.82	49.5	1.94	450	6520	1800	26107	420.0	16.53	3790	2.55	IP + M01850-20	

KEY FEATURES:

- Designed for original equipment
- Long-term mission profile in severe applications
- Over standard pressure rating
- High impulse resistance exceeding the ISO 18752 requirements
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic properties of the cover
- Wide compatibility with hydraulic fluids, mineral and biodegradable oils
- Low bend radius, better than the standard requirements
- Interlock-Plus easy mounting system for a very high-level robustness
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS:

- Heavy duty pressure lines, hydrostatic transmissions, heavy duty earth moving equipment, hydraulic presses, injection moulding machines, specific installations with severe abrasion conditions and/or harsh environmental conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

Continuous Service Temperature Range

-46 °C, -50 °F
121 °C, 250 °F

Tube

Oil resistant synthetic rubber

Reinforcement

Four high tensile steel wire spirals (DN 6 to 25), six high tensile steel wire spirals (DN 31 to 38)

Cover

CHLORINE FREE cover Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

Applicable Specifications

MANULI® Design exceeds SAE J517 type100R15; ISO 3862 R15; ISO 18752-D extension

Type Approvals

MSHA

www.manuli-hydraulics.com

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