

# INDUSTRIAL HOSES

## PRODUCT CATALOGUE

# 2026



**INTRODUCTION** ..... 1

**INDEX BY APPLICATION** ..... 5

**INDEX BY WORKING PRESSURE** ..... 7

**HOSES** ..... 8

    WATER, AIR & STEAM HOSES..... 8

    ANTI-STATIC FUEL HOSES..... 26

    CHEMICAL HOSES ..... 48

    FOOD & BEVERAGE HOSES ..... 55

    ABRASIVE FLUID HOSES ..... 62

**FITTINGS** ..... 71

**ASSEMBLY MACHINES** ..... 72

**APPENDICES** ..... 74

    SELECTING THE CORRECT HOSE ..... 74

    FLUID COMPATIBILITY CHART ..... 75

    CLEANING & SANITIZATION OF FOOD GRADE HOSES ..... 86

    BRANDING OF HOSES ..... 87

    STORAGE OF HOSES & ASSEMBLIES ..... 87

    HANDLING AND USAGE OF HOSES & ASSEMBLIES ..... 88

*“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.



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.

The Industrial Hose solutions offered in this document form a new chapter in the company's history, where we have taken decades of experience producing some of the most robust, and reliable high-pressure rubber hoses and transferred that expertise to the development of hoses for industrial conveying applications.

The Manuli Industrial Hose range is not just a simple addition to the already extensive range of Manuli rubber hoses but is a product sector in and of itself. Our in-house design engineers have ensured that the hose structures provide the perfect blend of pressure resistance, flexibility, and mechanical strength required for each specific application. We offer several different hose types dedicated to conveying specific fluids and materials, and each and every hose is tailored to suit the challenges of that particular application.

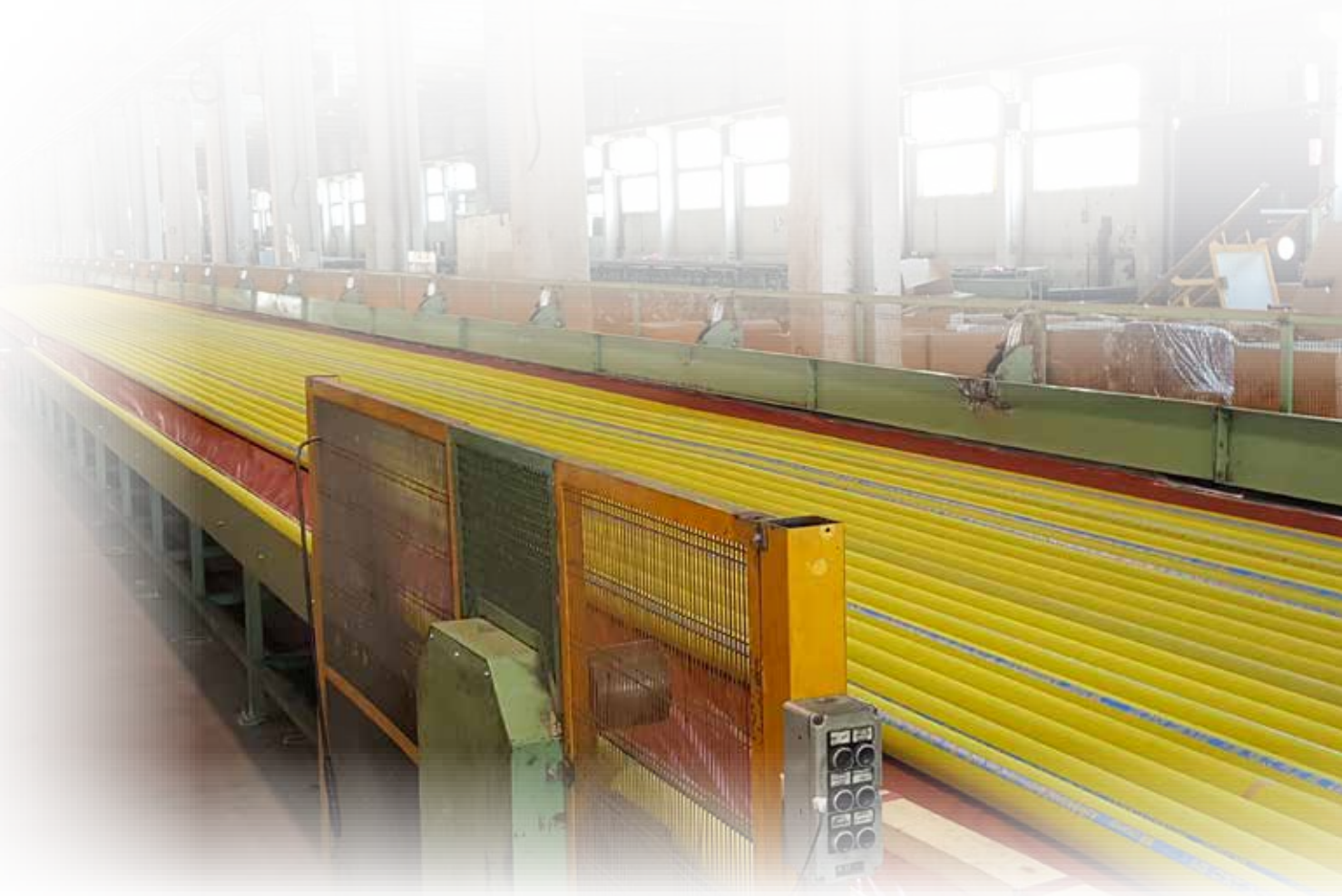
## FULLY INTEGRATED & CUSTOMIZED SOLUTIONS

The wide range of industrial applications makes it difficult to develop industrialized products for every possible scenario. However, at Manuli Hydraulics we are fully prepared to meet any application challenge that our customers can present us with. Our Design and Production Technology Team are dedicated to working directly with our customers, to ensure that their precise needs are met.

The Manuli Industrial Hose range is designed to work seamlessly with Manuli crimped hose connections comprising of two families:

- Serrated Range (SR)
- Full Flow (FF)

These fittings are available upon request. Please contact your local Manuli Hydraulics representative with your requirements.



## SAFETY GUIDE

Manuli Hydraulics hose and fitting products must be assembled in strict accordance with Manuli Hydraulics instructions and limitations. Don't mix and match: always use Manuli Hydraulics original hoses and fittings. Manuli Hydraulics hose, fittings, and assembling machines are tested as an effective and reliable system. The use of different products and machines will affect and nullify any representation and/or warranty on products, their features and/or performance that may have been provided, and may cause premature hose failures, property damage, serious injury or death for which Manuli Hydraulics does not assume any responsibility and/or liability at any title whatsoever. Inside our Digital Crimp Tools, you can find the only official technical crimping parameters relating to our products and/or services. Therefore, please be sure to use the latest version of our Crimp App and Web Tool.

MANULI HYDRAULICS MAKES NO REPRESENTATIONS AND/OR WARRANTIES, EXPRESS OR IMPLIED, AND ASSUMES NO RESPONSIBILITY AND/OR LIABILITY FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL WHICH MIGHT ARISE OUT FROM, OR IN CONNECTION WITH, IMPROPER AND/OR INCORRECT USE OF ITS PRODUCTS AND/OR ASSEMBLY EQUIPMENT OR FROM ANY USE OF CRIMPED HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE RYCO HOSE FITTINGS, HOSE AND EQUIPMENT, AND, IN GENERAL, NOT IN ACCORDANCE WITH OUR PROCESS SPECIFICATIONS FOR EACH SPECIFIC PRODUCT AND/OR ASSEMBLY EQUIPMENT.

**DISCLAIMERS**

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. No product is warranted as being fit for a particular purpose and we do not assume any liability in connection with the use of our products other than those technically approved in writing by us, or specified in the relevant official technical specifications released by us, for specific products. 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 Hydraulics Crimp App](#) or visit our [Crimp Web Tool](#). For more information, please visit our dedicated '[Contact](#)' page on the [Manuli Hydraulic's website](#).

APPLICATION	RANGE	HOSE	HOSE TYPE	MATERIAL TYPE		HOSE STRUCTURE	PAGE
				TUBE	COVER		
WATER & AIR	MULTISERVICE	MULTISERVICE/12 D	WATER & AIR HOSE	SBR	SBR	HIGH TENSILE SYNTHETIC CORD	10
		MULTISERVICE/12 SD	WATER & AIR HOSE	SBR	SBR	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	11
		MULTISERVICE/21 D	WATER & AIR HOSE, HEAVY DUTY	SBR	SBR	HIGH TENSILE SYNTHETIC CORD	12
		MULTISERVICE/21 SD	WATER & AIR HOSE, HEAVY DUTY	SBR	SBR	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	13
WATER	GLACIER	GLACIER/60	WATER HOSE FOR SNOW GUNS	EPDM	EPDM	HIGH TENSILE SYNTHETIC CORD	14
		GLACIER/100	WATER HOSE FOR SNOW GUNS	EPDM	EPDM	HIGH TENSILE STEEL WIRE SPIRALS	15
	WATERFLAT	WATERFLAT 5/10	LAYFLAT HOSE FOR GENERAL PURPOSE WATER	SBR	SBR	HIGH TENSILE SYNTHETIC CORD	16
	FIREX	FIREX	ABS APPROVED FIRE SUPPRESSION HOSE	CR	CR	HIGH TENSILE STEEL WIRE SPIRALS; GLASS-FIBRE	17
COMPRESSED AIR	AIRSERVICE	AIRSERVICE	AIR COMPRESSOR HOSE, HEAVY DUTY	SBR	NBR/PVC	TWO WIRE BRAIDS OR MULTIPLE PIECES OF HIGH TENSILE STEEL WIRE SPIRALS	18
		AIRSERVICE/27	WATER & AIR COMPRESSOR HOSE, HEAVY DUTY	SBR	NBR/PVC	HIGH TENSILE TEXTILE LAYERS	19
	AIRKING	AIRKING/40	HEAVY DUTY PNEUMATIC TOOLS	EPM	EPDM	HIGH TENSILE SYNTHETIC CORD	20
STEAM & HOT WATER	STEAMER	STEAMER/18	STEAM & VAPOUR HOSE	EPM	EPM	HIGH TENSILE STEEL WIRE SPIRALS	21
		STEAMER/18 OR	STEAM & VAPOUR HOSE	EPM	EPM	HIGH TENSILE STEEL WIRE SPIRALS	22
	STEAMSAFE	STEAMSAFE/7	STEAM & VAPOUR HOSE FOR FOOD INDUSTRY CLEANING	EPM	EPDM	HIGH TENSILE SYNTHETIC CORD	23
	COOLER	COOLER/5	INDUSTRY & GENERAL PURPOSE COOLING HOSE	VMQ	VMQ	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	24
	COOLSERVICE	COOLSERVICE/G	HIGH FLEXIBILITY WATER GLYCOL COOLING HOSE	EPDM	EPDM	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	25
FUEL	FUELSERVICE	FUELSERVICE/5 SDC	FUEL HOSE WITH HIGH FLEXIBILITY	NBR	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	28
		FUELSERVICE/10 D	FUEL & OIL HOSE	NBR	SBR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	29
		FUELSERVICE/10 SD	FUEL & OIL HOSE	NBR	SBR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	30
		FUELSERVICE/10 R4	FUEL & OIL HOSE	NBR	SBR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	31
		FUELSERVICE/16 D	EN 12115 FUEL & MINERAL OIL HOSE	NBR	CR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	32
		FUELSERVICE/16 SD	EN 12115 FUEL & MINERAL OIL HOSE	NBR	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	33
		FUELSERVICE/20 D EN ISO 1825-B	EN ISO 1825 TYPE B FUEL HOSE FOR AIRCRAFT REFUELLING	NBR	CR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	34
		FUELSERVICE/20 D EN ISO 1825-C	EN ISO 1825 TYPE C FUEL HOSE FOR AIRCRAFT REFUELLING	NBR	CR	HIGH TENSILE SYNTHETIC CORD	35
		FUELSERVICE/20 D EN ISO 1825-E	EN ISO 1825 TYPE E FUEL HOSE FOR AIRCRAFT REFUELLING	NBR	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	36
		FUELSERVICE/21 D	FUEL & OIL HOSE, HEAVY DUTY	NBR	SBR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	37
	FUELSERVICE/SD	FUEL & OIL HOSE, HEAVY DUTY	NBR	SBR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	38	
	FUELDISPENSER	FUELDISPENSER/D	EN 1360 TYPE 1 FUEL & MINERAL OIL HOSE	NBR	CR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	39
		FUELDISPENSER/SD	EN 1360 TYPE 2 FUEL & MINERAL OIL HOSE	NBR	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	40

APPLICATION	RANGE	HOSE	HOSE TYPE	MATERIAL TYPE		HOSE STRUCTURE	PAGE
				TUBE	COVER		
FUEL	FUELTRUCK	FUELTRUCK/16 D	EN 1761 TYPE D HOSE FOR TRUCK SYSTEMS	NBR	CR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	41
		FUELTRUCK/16 SD	EN 1761 TYPE SD HOSE FOR TRUCK SYSTEMS	NBR	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	42
	FUELFLEX	FUELFLEX/17 SDC	FUEL DELIVERY WITH HIGH FLEXIBILITY	NBR	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	43
	FUELTANKER	FUELTANKER/10 SD	FUEL DELIVERY WITH HIGH ABRASION RESISTANCE	NBR	NBR/PVC	HIGH TENSILE SYNTHETIC CORD, THERMOPLASTIC OUTER HELIX & COPPER GROUNDING WIRES	44
FRACKING	MUDSERVICE	MUDSERVICE/28 D	DRILLING MUDDS, OIL & ABRASIVE SLURRIES	X-NBR	CR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	45
LPG	PROGAS	PROGAS LPG D	LPG HOSE	NBR	CR	HIGH TENSILE SYNTHETIC CORD	46
		PROGAS LPG SD	LPG HOSE	NBR	CR	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	47
CHEMICAL	CHEMKING	CHEMKING/10 D	FKM HOSE FOR AGGRESSIVE CHEMICALS	FKM	CR	HIGH TENSILE SYNTHETIC CORD	50
		CHEMKING/10 SD	FKM HOSE FOR AGGRESSIVE CHEMICALS	FKM	CR	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	51
		CHEMKING/16 SDE	EN 12115 ANTI-STATIC EPDM HOSE FOR CHEMICAL PRODUCTS	EPDM	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	52
		CHEMKING/16 SDA	EN 12115 ANTI-STATIC UHMWPE HOSE FOR CHEMICAL PRODUCTS	UHMWPE	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	53
		CHEMKING/16 SD	EN 12115 FEP HOSE FOR CHEMICAL PRODUCTS	FEP	CR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	54
LIQUID FOOD & BEVERAGE	BREWERS	BREWERS/12 SD	BEER, WINE & ALCOHOL HOSE	BIIR	EPDM	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	57
	BREWERS	BREWERS/12 SDC	BEER, WINE & ALCOHOL HOSE	BIIR	EPDM	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	58
	MILKYWAY	MILKYWAY/ 10 SD	MILK & FATTY FOODS HOSE	NBR	NBR	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	59
	MULTIFOOD	MULTIFOOD/10 SD	MULTI-PURPOSE LIQUID FOOD HOSE	EPDM	EPDM	HIGH TENSILE SYNTHETIC CORD & 2 STEEL HELIX BODY WIRES	60
DRY FOOD	ABRAFOOD	ABRAFOOD/10	LAYFLAT HOSE FOR DRY FOODS	NR	CR	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	61
ABRASIVE SOLIDS	ABRADRY	ABRADRY	LAYFLAT HOSE FOR ABRASIVE DRY MATERIALS	NR/SBR	SBR/NR/PVC	HIGH TENSILE SYNTHETIC CORD	64
	SANDSERVICE	SANDSERVICE/21 D/4	SANDBLASTING & ABRASIVE FLUID HOSE	NR/SBR	NR/SBR	HIGH TENSILE SYNTHETIC CORD	65
ABRASIVE FLUIDS	ABRASERVICE	ABRASERVICE/10 D	ABRASIVE FLUID HOSE, HEAVY DUTY	NR/SBR	NR/SBR	HIGH TENSILE SYNTHETIC CORD, COPPER GROUNDING WIRES	66
		ABRASERVICE/10 SD	ABRASIVE FLUID HOSE, HEAVY DUTY	NR/SBR	NR/SBR	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	67
		ABRASERVICE/35 SD	REVERSE CYCLE DRILLING HOSE	NR/SBR	NR/SBR	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	68
		ABRASERVICE/40 D	PLASTER SPRAYING HOSE	NR/SBR	NR/SBR	HIGH TENSILE SYNTHETIC CORD	69
		ABRASERVICE/100 D	HIGH-PRESSURE CONCRETE PUMPING HOSE	NR/SBR	NR/SBR	HIGH TENSILE STEEL CORD	70

Refer to the Manuli Crimp App for the latest crimping parameters.

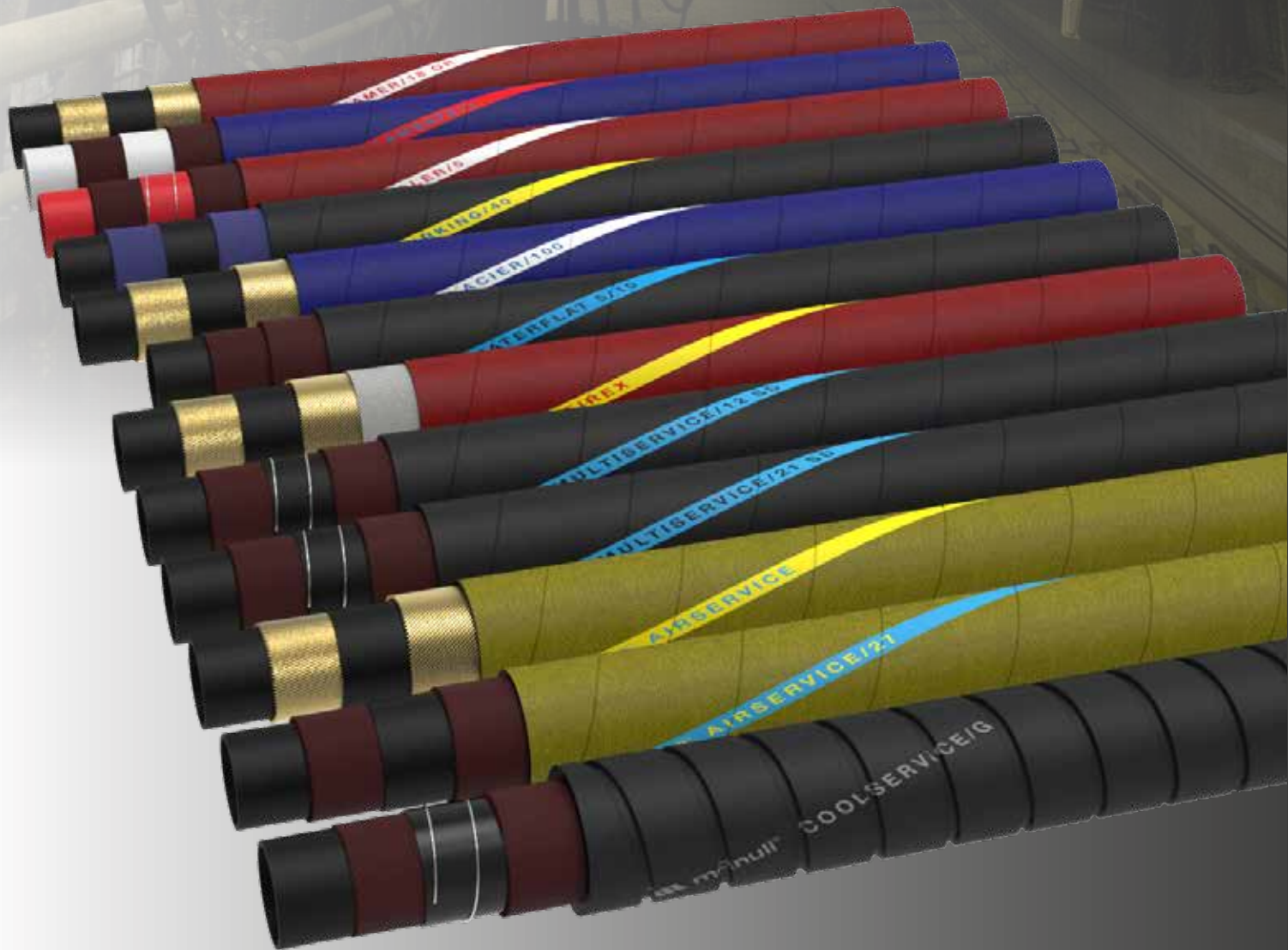
DN	6	8	10	12	16	19	22	25	31	35	38	40	45	51	63	76	89	90	102	127	152	203	254	305	457	609	
INCH	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/4"	1 3/8"	1 1/2"	1 9/16"	1 3/4"	2"	2 1/2"	3"	3 1/2"	3 35/64"	4"	5"	6"	8"	10"	12"	18"	24"	
ABRADRY																		6	4	4	4	4					
ABRAFOOD/10																				10	10						
ABRASERVICE/10 D														10		10											
ABRASERVICE/10 SD														10	10	10				10	10						
ABRASERVICE/35 SD															35	35				35							
ABRASERVICE/40 D						40		40	40	40	40			40													
ABRASERVICE/100 D														100	100	100				100	100						
AIRKING/40														40		40				40							
AIRSERVICE						45		45	45		45			45	45	45				35							
AIRSERVICE/27				27		27		27	27		27			27		27											
BREWERS/12 SD						12		12	12		12			12	12	12				12							
BREWERS/12 SDC									12		12			12	12	12				12							
CHEMKING/10 D	10	10	10	10	10	10		10	10		10			10													
CHEMKING/10 SD						10		10	10		10			10	10	10				10							
CHEMKING/16 SD				16		16		16	16		16			16													
CHEMKING/16 SDA						16		16	16		16			16	16	16				16							
CHEMKING/16 SDE						16		16	16		16			16	16	16				16							
COOLER/5					5	5		5	5		5			5		5				5							
COOLSERVICE					5	5	5	5	5		5																
FIREX														20		20				20	20	20					
FUELDISPENSER/D				16	16	16		16	16		16																
FUELDISPENSER/SD						16		16	16		16																
FUELFLEX/17 SDC						17		17	17		17			17	17	17				17		17					
FUELSERVICE/5 SDC						5		5	5		5			5	5	5				5							
FUELSERVICE/10 D						10		10	10		10			10	10	10											
FUELSERVICE/10 SD						10		10	10		10			10	10	10				10	10	10			10		
FUELSERVICE/10 R4						21		17	14		11	10	10	10	10	10				10							
FUELSERVICE/16 D						16		16	16		16			16	16	16				16							
FUELSERVICE/16 SD						16		16	16		16			16	16	16				16							
FUELSERVICE/20 D EN ISO 1825-B						20		20	20		20			20	20	20				20							
FUELSERVICE/20 D EN ISO 1825-C						20		20	20		20			20	20	20				20							
FUELSERVICE/20 D EN ISO 1825-E						20		20	20		20			20	20	20				20							
FUELSERVICE/21 D						21		21	21		21			21	21	21				21		21	21				
FUELSERVICE/21 SD														21		21											
FUELTANKER/10 SD														10	10	10				10							
FUELTRUCK/16 D						16		16	16		16			16	16	16				16	16	16					
FUELTRUCK/16 SD						16		16	16		16			16	16	16				16	16	16					
GLACIER/100								100	100		100																
GLACIER/60								60	60		60																
MILKYWAY/ 10 SD						10		10	10		10			10	10	10				10							
MUDSERVICE/28 D																28				28	28	28					
MULTIFOOD/10 SD														10		10	10	10		10							
MULTISERVICE/12 D						12		12	12		12			12	12	12											
MULTISERVICE/12 SD						12		12	12		12			12	12	12				12		12					
MULTISERVICE/21 D						21		21	21		21			21	21	21											
MULTISERVICE/21 SD														21		21				21		21					
PROGAS LPG D					25	25	25	25	25		25			25	25	25				25							
PROGAS LPG SD					25	25	25	25	25		25			25	25	25				25							
SANDSERVICE/21 D						21		21	21		21			21													
STEAMER/18					18	18	18	18	18		18			18	18	18				18							
STEAMER/18 OR					18	18	18	18	18		18			18	18	18				18							
STEAMSAFE/7				7	7	7	7	7																			
WATERFLAT 5/10														10		10				10		10	10	10	10	5	5

Refer to the Manuli Crimp App for the latest crimping parameters.

# WATER, AIR & STEAM HOSES

**manuli**<sup>®</sup>  
INDUSTRIAL

Manuli's range of water, air and steam hoses comprises over 15 individual references designed to cover the majority of common uses for these hoses. From mixed fluid hoses for general purpose use, to hoses specifically designed for a single dedicated application, this family of hoses casts a wide net.



APPLICATION	RANGE	HOSE	HOSE TYPE	HOSE STRUCTURE	PAGE
WATER & AIR	MULTISERVICE	MULTISERVICE/12 D	WATER & AIR HOSE	HIGH TENSILE SYNTHETIC CORD	10
		MULTISERVICE/12 SD	WATER & AIR HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	11
		MULTISERVICE/21 D	WATER & AIR HOSE, HEAVY DUTY	HIGH TENSILE SYNTHETIC CORD	12
		MULTISERVICE/21 SD	WATER & AIR HOSE, HEAVY DUTY	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	13
WATER	GLACIER	GLACIER/60	WATER HOSE FOR SNOW GUNS	HIGH TENSILE SYNTHETIC CORD	14
		GLACIER/100	WATER HOSE FOR SNOW GUNS	HIGH TENSILE STEEL WIRE SPIRALS	15
	WATERFLAT	WATERFLAT 5/10	LAYFLAT HOSE FOR GENERAL PURPOSE WATER	HIGH TENSILE SYNTHETIC CORD	16
	FIREX	FIREX	ABS APPROVED FIRE SUPPRESSION HOSE	HIGH TENSILE STEEL WIRE SPIRALS; GLASS-FIBRE	17
COMPRESSED AIR	AIRSERVICE	AIRSERVICE	AIR COMPRESSOR HOSE, HEAVY DUTY	TWO WIRE BRAIDS OR MULTIPLE PIECES OF HIGH TENSILE STEEL WIRE SPIRALS	18
		AIRSERVICE/27	WATER & AIR COMPRESSOR HOSE, HEAVY DUTY	HIGH TENSILE TEXTILE LAYERS	19
	AIRKING	AIRKING/40	HEAVY DUTY PNEUMATIC TOOLS	HIGH TENSILE SYNTHETIC CORD	20
STEAM & HOT WATER	STEAMER	STEAMER/18	STEAM & VAPOUR HOSE	HIGH TENSILE STEEL WIRE SPIRALS	21
		STEAMER/18 OR	STEAM & VAPOUR HOSE	HIGH TENSILE STEEL WIRE SPIRALS	22
	STEAMSAFE	STEAMSAFE/7	STEAM & VAPOUR HOSE FOR FOOD INDUSTRY CLEANING	HIGH TENSILE SYNTHETIC CORD	23
	COOLER	COOLER/5	INDUSTRY & GENERAL PURPOSE COOLING HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	24
	COOLSERVICE	COOLSERVICE/G	HIGH FLEXIBILITY WATER GLYCOL COOLING HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	25

# MULTISERVICE/12 D

## WATER & AIR HOSE



HOSES 10

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80007013*	12	1/2"	20.6	0.81	12	170	36	520	90	3.54	206	0.14	SR+D08000 SERIES
H80007019*	19	3/4"	31.0	1.22	12	170	36	520	110	4.33	453	0.30	SR+D08000 SERIES
H80007025*	25	1"	37.4	1.47	12	170	36	520	135	5.31	565	0.38	SR+D08000 SERIES
H80007031*	31	1.1/4"	44.0	1.73	12	170	36	520	165	6.50	720	0.48	SR+D08000 SERIES
H80007038*	38	1.1/2"	52.1	2.05	12	170	36	520	205	8.07	773	0.52	SR+D08000 SERIES
H80007051*	51	2"	65.3	2.57	12	170	36	520	260	10.24	1,026	0.69	SR+D08000 SERIES
H80007063*	63	2.1/2"	78.5	3.09	12	170	36	520	360	14.17	1,520	1.02	SR+D08000 SERIES
H80007076*	76	3"	94.1	3.70	12	170	36	520	470	18.50	1,849	1.24	SR+D08000 SERIES
H01204031*	31	1.1/4"	44.5	1.75	210	3040	840	12183	210.0	8.26	2069	1.39	MF + M00920-20
H01204038*	38	1.1/2"	52.1	2.05	210	3040	840	12183	260.0	10.23	2987	2.01	IP + M01500-24
H01204051*	51	2"	66.8	2.62	210	3040	840	12183	330.0	12.99	4329	2.91	IP + M01500-32

### KEY FEATURES

- Softwall delivery structure
- Highly robust hose structure
- Long lasting in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Water or compressed air, to be used in mining, construction, shipyards, etc.

### CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
80 °C, 176 °F

### TUBE

Black, smooth, synthetic SBR rubber

### REINFORCEMENT

High tensile synthetic cord

### COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant. Cover is pin-pricked.

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

# MULTISERVICE/12 SD

## WATER & AIR HOSE



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80008019*	19	3/4"	28.1	1.11	12	170	36	520	100	3.94	384	0.26	SR+D08000 SERIES
H80008025*	25	1"	34.5	1.36	12	170	36	520	125	4.92	482	0.32	SR+D08000 SERIES
H80008031*	31	1.1/4"	41.1	1.62	12	170	36	520	150	5.91	605	0.41	SR+D08000 SERIES
H80008038*	38	1.1/2"	47.5	1.87	12	170	36	520	190	7.48	701	0.47	SR+D08000 SERIES
H80008051*	51	2"	61.3	2.41	12	170	36	520	250	9.84	1,122	0.75	SR+D08000 SERIES
H80008063*	63	2.1/2"	74.4	2.93	12	170	36	520	350	13.78	1,600	1.07	SR+D08000 SERIES
H80008076*	76	3"	87.5	3.44	12	170	36	520	450	17.72	2,203	1.48	SR+D08000 SERIES
H80008102*	102	4"	114.3	4.50	12	170	36	520	500	19.69	3,330	2.24	SR+D08000 SERIES
H80008152*	152	6"	172.0	6.77	12	170	36	520	760	29.92	6,600	4.48	MARKET FITTINGS

### KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Water or compressed air, to be used in mining, construction, shipyards, etc.

### CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
80 °C, 176 °F

### TUBE

Black, smooth, synthetic SBR rubber

### REINFORCEMENT

High tensile synthetic cord and steel helix body wire

### COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant. Cover is pin-pricked.

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# MULTISERVICE/21 D

WATER & AIR HOSE, HEAVY DUTY



HOSES

12

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80009013*	12	1/2"	20.6	0.81	21	300	63	910	90	3.54	215	0.14	SR+D08000 series
H80009019*	19	3/4"	31.6	1.24	21	300	63	910	110	4.33	457	0.31	SR+D08000 series
H80009025*	25	1"	38.2	1.50	21	300	63	910	135	5.31	519	0.35	SR+D08000 series
H80009031*	31	1.1/4"	45.0	1.77	21	300	63	910	165	6.50	659	0.44	SR+D08000 series
H80009038*	38	1.1/2"	51.6	2.03	21	300	63	910	205	8.07	928	0.62	SR+D08000 series
H80009051*	51	2"	65.0	2.56	21	300	63	910	260	10.24	1,224	0.82	SR+D08000 series
H80009063*	63	2.1/2"	78.9	3.11	21	300	63	910	360	14.17	1,583	1.06	SR+D08000 series
H80009076*	76	3"	94.0	3.70	21	300	63	910	470	18.50	1,849	1.24	SR+D08000 series

## KEY FEATURES

- Softwall delivery structure
- Highly robust heavy duty hose structure
- Long lasting in severe applications
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Water or compressed air with oil traces, to be used in heavy duty mining, construction, shipyards, etc.

## CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
80 °C, 176 °F

## TUBE

Black, smooth, synthetic SBR rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant. Cover is pin-pricked.

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# MULTISERVICE/21 SD

WATER & AIR HOSE, HEAVY DUTY



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80022051*	51	2"	61.3	2.41	21	300	63	910	250	9.84	1,130	0.76	SR+D08000 SERIES
H80022076*	76	3"	88.3	3.48	21	300	63	910	450	17.72	2,285	1.53	SR+D08000 SERIES
H80022102*	102	4"	115.1	4.53	21	300	63	910	500	19.69	3,378	2.27	SR+D08000 SERIES
H80022152*	152	6"	174.0	6.85	21	300	63	910	760	29.92	6,800	4.57	MARKET FITTINGS

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Water or compressed air with oil traces, to be used in heavy duty mining, construction, shipyards, etc.

## CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
80 °C, 176 °F

## TUBE

Black, smooth, synthetic SBR rubber

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire

## COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant. Cover is pin-pricked.

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# GLACIER/60

## WATER HOSE FOR SNOW GUNS



HOSES 14

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80054025*	25	1"	39.0	1.54	60	900	180	2,700	100	3.94	810	0.54	SR+D08000 series
H80054031*	31	1.1/4"	46.0	1.81	60	900	180	2,700	128	5.04	990	0.66	SR+D08000 series
H80054038*	38	1.1/2"	52.0	2.05	60	900	180	2,700	152	5.98	1,140	0.76	SR+D08000 series

### KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Delivery hose for water in snow gun equipment

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
120 °C, 248 °F

### TUBE

Black EPDM rubber

### REINFORCEMENT

High tensile synthetic cord

### COVER

Blue synthetic EPDM rubber, ozone, abrasion and weathering resistant

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

# GLACIER/100

## WATER HOSE FOR SNOW GUNS



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80055025*	25	1"	40.0	1.57	100	1,500	250	3,750	110	4.33	1,300	0.87	SR+D08000 series
H80055031*	31	1.1/4"	47.0	1.85	100	1,500	250	3,750	140	5.51	1,740	1.16	SR+D08000 series
H80055038*	38	1.1/2"	54.0	2.13	100	1,500	250	3,750	170	6.69	2,250	1.50	SR+D08000 series

### KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Delivery hose for water in snow gun equipment

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
120 °C, 248 °F

### TUBE

Black EPDM rubber

### REINFORCEMENT

High tensile steel spirals

### COVER

Blue synthetic EPDM rubber, ozone, abrasion and weathering resistant

### APPLICABLE SPECS

Manuli design, safety factor 2.5:1

### STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# WATERFLAT 5/10

LAYFLAT DELIVERY HOSE FOR GENERAL PURPOSE WATER



HOSES 16

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80056051*	51	2"	59.0	2.32	10	150	30	450	-	-	580	0.39	MARKET FITTINGS
H80056076*	76	3"	84.0	3.3	10	150	30	450	-	-	1,180	0.79	MARKET FITTINGS
H80056102*	102	4"	111.0	4.37	10	150	30	450	-	-	1,570	1.05	MARKET FITTINGS
H80056152*	152	6"	162.0	6.37	10	150	30	450	-	-	2,650	1.77	MARKET FITTINGS
H80056203*	203	8"	215.0	8.46	10	150	30	450	-	-	5,320	3.55	MARKET FITTINGS
H80056254*	254	10"	267.0	10.51	10	150	30	450	-	-	7,180	4.79	MARKET FITTINGS
H80056305*	305	12"	319.0	12.56	10	150	30	450	-	-	9,260	6.17	MARKET FITTINGS
H80056457*	457	18"	476.0	18.74	5	75	15	225	-	-	18,400	12.27	MARKET FITTINGS
H80056609*	609	24"	635.0	25.00	5	75	15	225	-	-	31,200	20.80	MARKET FITTINGS

## KEY FEATURES

- Layflat delivery hose
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- 10 bar: Max length: 61m (DN51 - DN152); 40m (DN203); 20m (DN254 - DN305)
- 5 bar: Max length: 12m

## APPLICATIONS & FLUIDS

- Water, liquid fertilizer and non-corrosive inert fluids for irrigation
- Submersible pumps and general industrial applications

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
80 °C, 176 °F

## TUBE

Black SBR rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Black synthetic SBR rubber, abrasion and weathering resistant

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# FIREX

FIRE SUPPRESSION HOSE, ABS APPROVED FOR OFFSHORE



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80016051*	51	2"	80.0	3.15	20	300	100	1,500	420	16.54	4,900	3.27	MARKET FITTINGS
H80016076*	76	3"	108.0	4.25	20	300	100	1,500	535	21.06	7,500	5.00	MARKET FITTINGS
H80016102*	102	4"	134.0	5.28	20	300	100	1,500	640	25.20	11,000	7.33	MARKET FITTINGS
H80016127*	127	5"	160.0	6.30	20	300	100	1,500	1,100	43.31	13,400	8.93	MARKET FITTINGS
H80016152*	152	6"	185.0	7.28	20	300	100	1,500	1,210	47.64	15,700	10.47	MARKET FITTINGS

## KEY FEATURES

- Hardwall delivery structure
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
100 °C, 212 °F

## TUBE

Black CR rubber

## REINFORCEMENT

High tensile steel spirals

## COVER

Glass-fibre layers, co-vulcanized with an external layer of red CR rubber; fire, sea-water, abrasion and ozone resistant (black cover available on request)

## APPLICABLE SPECS

EN 15540:1999 (800°C X 30') / ABS approval (required)

## STANDARD PACKAGING

Coil

## APPLICATIONS & FLUIDS

- Delivery hose for fire-water deluge hose applications on oil rigs

Refer to the Manuli Crimp App for the latest crimping parameters.

# AIRSERVICE

## AIR COMPRESSOR HOSE, HEAVY DUTY



HOSES 18

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80010019*	19	3/4"	31.4	1.24	45	650	180	2610	95	3.74	780	0.52	SR+D08000 SERIES
H80010025*	25	1"	37.8	1.49	45	650	180	2610	125	4.92	1,014	0.68	SR+D08000 SERIES
H80010031*	31	1.1/4"	44.8	1.76	45	650	180	2610	160	6.30	1,283	0.86	SR+D08000 SERIES
H80010038*	38	1.1/2"	51.2	2.02	45	650	180	2610	190	7.48	1,534	1.03	SR+D08000 SERIES
H80010051*	51	2"	65.0	2.56	45	650	180	2610	255	10.04	2,277	1.53	SR+D08000 SERIES
H80010063*	63	2.1/2"	79.4	3.13	35	500	140	2030	315	12.40	2,915	1.95	SR+D08000 SERIES
H80010076*	76	3"	94.2	3.71	35	500	140	2030	380	14.96	4,068	2.73	SR+D08000 SERIES
H80010102*	102	4"	122.0	4.80	35	500	140	2030	510	20.08	5,800	3.85	SR+D08000 SERIES

### KEY FEATURES

- Heavy duty softwall delivery structure
- Robust hose structure
- Long lasting in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- High pressure compressed air and oil traces, to be used in mining, construction, etc. Typically used in compressed air systems and power transmission.

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

### TUBE

Black, smooth, synthetic SBR rubber

### REINFORCEMENT

Two wire braids or multiple plies of high tensile steel wire spirals

### COVER

Yellow synthetic NBR/PVC rubber, long lasting, weathering and ozone resistant. Cover is pin-pricked.

### APPLICABLE SPECS

Manuli design, safety factor 4:1

### STANDARD PACKAGING

Coil

# AIRSERVICE/27

WATER AND AIR COMPRESSOR HOSE,  
HEAVY DUTY



PART REF.	HOSE SIZE		O.D.		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80017013*	12	1/2"	20.6	0.81	27	400	81	1175	100	3.93	246	0.16	SR+D08000 series
H80017019*	19	3/4"	30.3	1.19	27	400	81	1175	150	5.90	466	0.31	SR+D08000 series
H80017025*	25	1"	36.8	1.45	27	400	81	1175	185	7.28	589	0.39	SR+D08000 series
H80017031*	31	1.1/4"	43.3	1.70	27	400	81	1175	320	12.59	749	0.50	SR+D08000 series
H80017038*	38	1.1/2"	48.9	1.93	27	400	81	1175	380	14.96	898	0.60	SR+D08000 series
H80017051*	51	2"	62.1	2.44	27	400	81	1175	500	19.68	1,195	0.80	SR+D08000 series
H80017076*	76	3"	88.5	3.48	27	400	81	1175	750	29.52	1,986	1.33	SR+D08000 series

HOSES  
19

## KEY FEATURES

- Softwall delivery structure
- Robust heavy duty hose structure
- Long lasting in severe applications
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Water or compressed air with oil traces, to be used in mining, construction, etc.

## CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
80 °C, 176 °F

## TUBE

Black, synthetic SBR rubber, resistant to oil traces

## REINFORCEMENT

High tensile textile layers

## COVER

Yellow synthetic NBR/PVC rubber, long lasting, weathering and ozone resistant. Cover is pin-pricked.

## APPLICABLE SPECS

Manuli design: safety factor 3:1

## STANDARD PACKAGING

Coil

# AIRKING/40

HEAVY-DUTY PNEUMATIC TOOLS IN ROAD CONSTRUCTION, RAILWAYS, TUNNELLING, MINING ETC.



HOSES 20

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80053051*	51	2"	70.0	2.75	40	600	120	1800	500	19.69	1,930	1.71	SR+D08000 series
H80053076*	76	3"	100.0	3.94	40	600	120	1800	740	29.13	3,750	3.32	SR+D08000 series
H80053102*	102	4"	128.0	5.05	40	600	120	1800	970	38.19	5,120	4.53	SR+D08000 series

## KEY FEATURES

- Hardwall delivery structure
- Compact and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Delivery hose for high temperature compressed air suitable for heavy duty pneumatic tools in road construction, railway works, tunnelling and mining

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
160 °C, 320 °F

## TUBE

Black EPM rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Black EPDM rubber, abrasion and weathering resistant (yellow cover available on request). Cover is pin-pricked.

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# STEAMER/18

## STEAM & VAPOUR HOSE



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80037012*	12	1/2"	25.0	0.98	18	270	180	2,700	120	4.72	530	0.35	MARKET FITTINGS
H80037016*	16	5/8"	30.0	1.18	18	270	180	2,700	155	6.10	750	0.50	MARKET FITTINGS
H80037019*	19	3/4"	33.0	1.30	18	270	180	2,700	185	7.28	780	0.52	MARKET FITTINGS
H80037025*	25	1"	40.0	1.57	18	270	180	2,700	240	9.45	1,030	0.69	MARKET FITTINGS
H80037031*	31	1.1/4"	48.0	1.89	18	270	180	2,700	330	12.99	1,410	0.94	MARKET FITTINGS
H80037038*	38	1.1/2"	54.0	2.13	18	270	180	2,700	390	15.35	1,780	1.19	MARKET FITTINGS
H80037051*	51	2"	69.0	2.72	18	270	180	2,700	520	20.47	2,580	1.72	MARKET FITTINGS
H80037063*	63	2.1/2"	81.0	3.19	18	270	180	2,700	640	25.20	3,160	2.11	MARKET FITTINGS
H80037076*	76	3"	94.0	3.70	18	270	180	2,700	745	29.33	4,020	2.68	MARKET FITTINGS
H80037102*	102	4"	122.0	4.80	18	270	180	2,700	990	38.98	6,220	4.15	MARKET FITTINGS

HOSES 21

### KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m (DN12 to DN16); 61m (DN19 to DN102)

### APPLICATIONS & FLUIDS

- Delivery of high pressure saturated steam
- Suitable for steam cleaning of tanks and pipelines in the petrochemical industry

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
210 °C, 410 °F

### TUBE

Black EPM rubber

### REINFORCEMENT

High tensile steel reinforcement

### COVER

Red, synthetic EPM pin-pricked rubber, ozone, abrasion and weathering resistant

### APPLICABLE SPECS

ISO 6134 - Type 2 Class A Grade M

### STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# STEAMER/18 OR

## STEAM & VAPOUR HOSE



HOSES 22

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80038012*	12	1/2"	25.0	0.98	18	270	180	2,700	120	4.72	530	0.35	MARKET FITTINGS
H80038016*	16	5/8"	30.0	1.18	18	270	180	2,700	155	6.10	750	0.50	MARKET FITTINGS
H80038019*	19	3/4"	33.0	1.30	18	270	180	2,700	185	7.28	780	0.52	MARKET FITTINGS
H80038025*	25	1"	40.0	1.57	18	270	180	2,700	240	9.45	1,030	0.69	MARKET FITTINGS
H80038031*	31	1.1/4"	48.0	1.89	18	270	180	2,700	330	12.99	1,410	0.94	MARKET FITTINGS
H80038038*	38	1.1/2"	54.0	2.13	18	270	180	2,700	390	15.35	1,780	1.19	MARKET FITTINGS
H80038051*	51	2"	69.0	2.72	18	270	180	2,700	520	20.47	2,580	1.72	MARKET FITTINGS
H80038063*	63	2.1/2"	81.0	3.19	18	270	180	2,700	640	25.20	3,160	2.11	MARKET FITTINGS
H80038076*	76	3"	94.0	3.70	18	270	180	2,700	745	29.33	4,020	2.68	MARKET FITTINGS
H80038102*	102	4"	122.0	4.80	18	270	180	2,700	990	38.98	6,220	4.15	MARKET FITTINGS

### KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m (DN12 to DN16); 61m (DN19 to DN102)

### APPLICATIONS & FLUIDS

- Delivery of high pressure saturated steam
- Suitable for steam cleaning of tanks and pipelines in the petrochemical industry

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
210 °C, 410 °F

### TUBE

Black EPM rubber

### REINFORCEMENT

High tensile steel reinforcement

### COVER

Red, synthetic EPM pin-pricked rubber, oil, ozone, abrasion and weathering resistant

### APPLICABLE SPECS

ISO 6134 - Type 2 Class B Grade M

### STANDARD PACKAGING

Coil

# STEAMSAFE/7

STEAM & VAPOUR HOSE FOR  
FOOD INDUSTRY CLEANING



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80040010*	10	3/8"	20.0	0.79	7	105	70	1,050	55	2.17	280	0.19	MARKET FITTINGS
H80040012*	12	1/2"	23.0	0.91	7	105	70	1,050	65	2.56	370	0.25	MARKET FITTINGS
H80040016*	16	5/8"	26.0	1.02	7	105	70	1,050	85	3.35	430	0.29	MARKET FITTINGS
H80040019*	19	3/4"	31.0	1.22	7	105	70	1,050	100	3.94	580	0.39	MARKET FITTINGS
H80040025*	25	1"	37.0	1.46	7	105	70	1,050	125	4.92	750	0.50	MARKET FITTINGS

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m

## APPLICATIONS & FLUIDS

- Potable hot water mixed with steam and detergents
- Suitable for washdown and sterilization in the food industry

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
170 °C, 338 °F

## TUBE

White EPM rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Blue synthetic EPDM rubber, ozone, abrasion and weathering resistant. Cover is pin-pricked.

## APPLICABLE SPECS

FDA Title 21, art. 177.2600 for aqueous foods

## STANDARD PACKAGING

Coil

# COOLER/5

INDUSTRY & GENERAL PURPOSE WATER COOLING HOSE



HOSES 24

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80041016*	16	5/8"	26.0	1.02	5	75	15	225	80	3.15	400	0.27	SR+D08000 series
H80041019*	19	3/4"	29.0	1.14	5	75	15	225	95	3.74	450	0.30	SR+D08000 series
H80041025*	25	1"	35.0	1.38	5	75	15	225	125	4.92	580	0.39	SR+D08000 series
H80041031*	31	1.1/4"	42.0	1.65	5	75	15	225	160	6.30	680	0.45	SR+D08000 series
H80041038*	38	1.1/2"	48.0	1.89	5	75	15	225	190	7.48	830	0.55	SR+D08000 series
H80041051*	51	2"	61.0	2.40	5	75	15	225	260	10.24	1,300	0.87	SR+D08000 series
H80041076*	76	3"	96.0	3.78	5	75	15	225	380	14.96	1,900	1.27	SR+D08000 series
H80041102*	102	4"	114.0	4.49	5	75	15	225	480	18.90	2,810	1.87	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and extremely flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m (DN16 to DN76); 20m (DN102)

## APPLICATIONS & FLUIDS

- Suction & delivery of hot air and water in engine cooling systems

## CONTINUOUS SERVICE TEMPERATURE RANGE

-60 °C, -76 °F  
200 °C, 392 °F

## TUBE

Red, VMQ silicone

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire

## COVER

Red VMQ silicone, high temperature and weathering resistant

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# COOLSERVICE/G

## HIGH FLEXIBILITY WATER GLYCOL COOLING SUCTION & DELIVERY HOSE



PART REF.	HOSE SIZE		O.D.		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80059016*	16	5/8"	26.3	1.03	5	75	20	290	33	1.29	450	0.3	SR+D08000 series
H80059019*	19	3/4"	29.3	1.15	5	75	20	290	36	1.41	500	0.34	SR+D08000 series
H80059022*	22	7/8"	34.5	1.37	5	75	20	290	36	1.41	540	0.36	SR+D08000 series
H80059025*	25	1"	37.0	1.46	5	75	20	290	36	1.41	580	0.39	SR+D08000 series
H80059031*	31	1.1/4"	44.0	1.73	5	75	20	290	50	1.96	730	0.49	SR+D08000 series
H80059038*	38	1.1/2"	50.5	1.99	5	75	20	290	70	2.76	980	0.66	SR+D08000 series

### KEY FEATURES

- Hardwall hose used for the suction and delivery of water-glycol cooling lines at high temperature
- Flat corrugated (grooved) cover for improved flexibility and reduced bend radius
- Long lasting in severe applications
- Resistance to Vacuum
- Max. length: 40m

### APPLICATIONS & FLUIDS

- Suction and Delivery hose for hot water and coolant fluids, applied in engine cooling and heating systems
- Radiator hose
- Outstanding flexibility, installation in very narrow spaces
- Water and water-glycol solutions

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
125 °C, 257 °F

### TUBE

EPDM rubber

### REINFORCEMENT

High tensile synthetic cord and steel helix body wire

### COVER

Environmental resistant synthetic rubber, flat corrugated cover style

### APPLICABLE SPECS

Manuli design, safety factor 4:1

### STANDARD PACKAGING

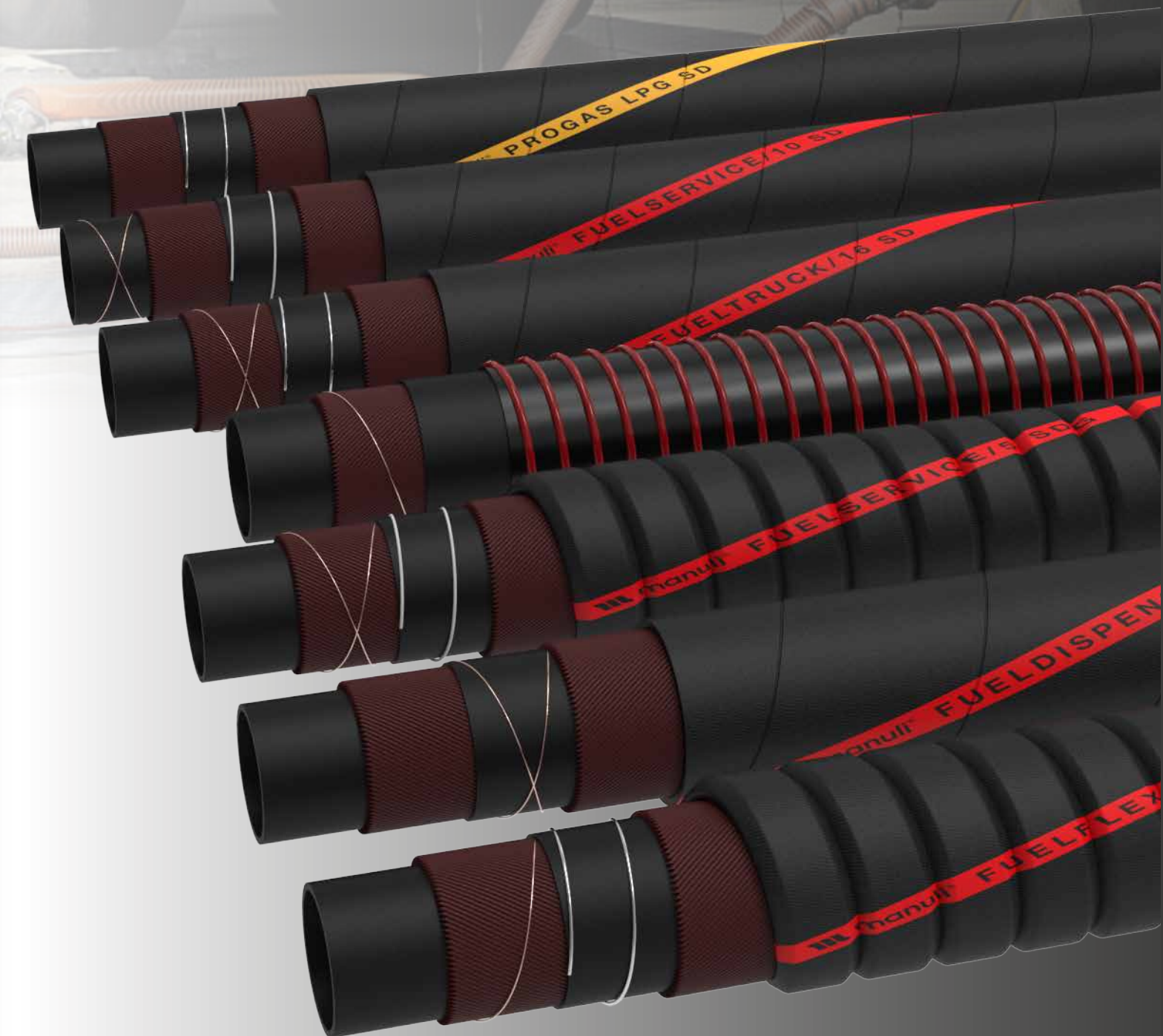
Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# ANTI-STATIC FUEL HOSES

**manuli**<sup>®</sup>  
INDUSTRIAL

When conveying fuels the last thing you want is the possibility of static discharges. Manuli's anti-static fuel hoses incorporate various combinations of copper grounding wires and anti-static rubber compounds to ensure that the risk of static build-up is eliminated.



APPLICATION	RANGE	HOSE	HOSE TYPE	HOSE STRUCTURE	PAGE
FUEL	FUELSERVICE	FUELSERVICE/5 SDC	FUEL HOSE WITH HIGH FLEXIBILITY	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	28
		FUELSERVICE/10 D	FUEL & OIL HOSE	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	29
		FUELSERVICE/10 SD	FUEL & OIL HOSE	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	30
		FUELSERVICE/10 R4	FUEL & OIL HOSE	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	31
		FUELSERVICE/16 D	EN 12115 FUEL & MINERAL OIL HOSE	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	32
		FUELSERVICE/16 SD	EN 12115 FUEL & MINERAL OIL HOSE	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	33
		FUELSERVICE/20 D EN ISO 1825-B	EN ISO 1825 TYPE B FUEL HOSE FOR AIRCRAFT REFUELLING	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	34
		FUELSERVICE/20 D EN ISO 1825-C	EN ISO 1825 TYPE C FUEL HOSE FOR AIRCRAFT REFUELLING	HIGH TENSILE SYNTHETIC CORD	35
		FUELSERVICE/20 D EN ISO 1825-E	EN ISO 1825 TYPE E FUEL HOSE FOR AIRCRAFT REFUELLING	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	36
		FUELSERVICE/21 D	FUEL & OIL HOSE, HEAVY DUTY	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	37
		FUELSERVICE/SD	FUEL & OIL HOSE, HEAVY DUTY	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	38
	FUELDIPENSER	FUELDIPENSER/D	EN 1360 TYPE 1 FUEL & MINERAL OIL HOSE	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	39
		FUELDIPENSER/SD	EN 1360 TYPE 2 FUEL & MINERAL OIL HOSE	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	40
	FUELTRUCK	FUELTRUCK/16 D	EN 1761 TYPE D HOSE FOR TRUCK SYSTEMS	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	41
FUELTRUCK/16 SD		EN 1761 TYPE SD HOSE FOR TRUCK SYSTEMS	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	42	
FUELFLEX	FUELFLEX/17 SDC	FUEL DELIVERY WITH HIGH FLEXIBILITY	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	43	
FUELTANKER	FUELTANKER/10 SD	FUEL DELIVERY WITH HIGH ABRASION RESISTANCE	HIGH TENSILE SYNTHETIC CORD, THERMOPLASTIC OUTER HELIX & COPPER GROUNDING WIRES	44	
FRACKING	MUDSERVICE	MUDSERVICE/28 D	DRILLING MUDS, OIL & ABRASIVE SLURRIES	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	45
LPG	PROGAS	PROGAS LPG D	LPG HOSE	HIGH TENSILE SYNTHETIC CORD	46
		PROGAS LPG SD	LPG HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	47

# FUELSERVICE/5 SDC

FUEL SUCTION & DELIVERY HOSE  
WITH HIGH FLEXIBILITY



HOSES 28

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80024019*	19	3/4"	30.0	1.18	5	75	15	225	20	0.79	500	0.33	SR+D08000 series
H80024025*	25	1"	36.0	1.42	5	75	15	225	25	0.98	610	0.41	SR+D08000 series
H80024031*	31	1.1/4"	43.0	1.69	5	75	15	225	30	1.18	740	0.49	SR+D08000 series
H80024038*	38	1.1/2"	49.0	1.93	5	75	15	225	40	1.57	830	0.55	SR+D08000 series
H80024051*	51	2"	62.0	2.44	5	75	15	225	50	1.97	1,150	0.77	SR+D08000 series
H80024063*	63	2.1/2"	76.0	2.99	5	75	15	225	65	2.56	1,370	0.91	SR+D08000 series
H80024076*	76	3"	88.0	3.46	5	75	15	225	75	2.95	1,810	1.21	SR+D08000 series
H80024102*	102	4"	115.0	4.53	5	75	15	225	110	4.33	2,700	1.80	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Normal corrugated cover offers lowest bend radius in category
- Compact, lightweight and extremely flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
100 °C, 212 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord with steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic, normal corrugated CR rubber, anti-static (R<10<sup>6</sup> Ohm/m), oil, fuel, abrasion and weathering resistant

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# FUELSERVICE/10 D

## FUEL & OIL HOSE



HOSES 29

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80004019*	19	3/4"	31.4	1.24	10	150	31	450	90	3.54	503	0.34	SR+D08000 series
H80004025*	25	1"	37.8	1.49	10	150	31	450	115	4.53	629	0.42	SR+D08000 series
H80004031*	31	1.1/4"	44.4	1.75	10	150	31	450	150	5.91	788	0.53	SR+D08000 series
H80004038*	38	1.1/2"	52.5	2.07	10	150	31	450	180	7.09	857	0.58	SR+D08000 series
H80004051*	51	2"	65.3	2.57	10	150	31	450	240	9.45	1,129	0.76	SR+D08000 series
H80004063*	63	2.1/2"	78.5	3.09	10	150	31	450	300	11.81	1,679	1.13	SR+D08000 series
H80004076*	76	3"	94.3	3.71	10	150	31	450	380	14.96	2,045	1.37	SR+D08000 series

### KEY FEATURES

- Softwall delivery structure
- Highly robust hose structure
- Long lasting in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Fuels, oils & diesel with aromatic content up to 50%

### CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
90 °C, 194 °F

### TUBE

Black NBR rubber

### REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

### COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# FUELSERVICE/10 SD

## FUEL & OIL HOSE



HOSES 30

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80005019*	19	3/4"	28.1	1.11	10	150	31	450	80	3.15	413	0.28	SR+D08000 SERIES
H80005025*	25	1"	34.5	1.36	10	150	31	450	105	4.13	521	0.35	SR+D08000 SERIES
H80005031*	31	1.1/4"	41.1	1.62	10	150	31	450	135	5.31	637	0.43	SR+D08000 SERIES
H80005038*	38	1.1/2"	47.5	1.87	10	150	31	450	165	6.50	760	0.51	SR+D08000 SERIES
H80005051*	51	2"	61.3	2.41	10	150	31	450	230	9.06	1,217	0.82	SR+D08000 SERIES
H80005063*	63	2.1/2"	74.4	2.93	10	150	31	450	290	11.42	1,723	1.15	SR+D08000 SERIES
H80005076*	76	3"	87.5	3.44	10	150	31	450	360	14.17	2,386	1.60	SR+D08000 SERIES
H80005102*	102	4"	114.9	4.52	10	150	31	450	450	17.72	3,530	2.37	SR+D08000 SERIES
H80005127*	127	5"	145.0	5.70	10	150	31	450	510	20.08	5,800	3.90	MARKET FITTINGS
H80005152*	152	6"	170.0	6.69	10	150	31	450	610	24.02	7,200	4.85	MARKET FITTINGS
H80005305*	305	12"	325.0	12.80	10	150	31	450	1,200	47.24	10,200	6.80	MARKET FITTINGS

### KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Fuels, oils & diesel with aromatic content up to 50%

### CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
90 °C, 194 °F

### TUBE

Black NBR rubber

### REINFORCEMENT

High tensile synthetic cord and steel helix body wire, and 2 crossing copper wires for grounding

### COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

# FUELSERVICE/10 R4

## FUEL & OIL HOSE



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80064019*	19	3/4"	29.5	1.16	21	300	84	1218	80	3.14	530	0.36	SR+D08000 SERIES
H80064025*	25	1"	36	1.41	17	240	70	1015	100	3.93	660	0.44	SR+D08000 SERIES
H80064031*	31	1.1/4"	42.5	1.67	14	200	56	812	130	5.11	810	0.54	SR+D08000 SERIES
H80064038*	38	1.1/2"	49.5	1.94	11	160	44	638	170	6.69	1,050	0.71	SR+D08000 SERIES
H80064040*	40	1.9/16"	50.0	1.97	10	150	40	580	170	6.69	1,280	0.85	MARKET FITTINGS
H80064045*	45	1.3/4"	56.0	2.20	10	150	40	580	180	7.09	1,490	0.99	MARKET FITTINGS
H80064051*	51	2"	61.5	2.42	10	150	40	580	200	7.87	1,217	0.82	SR+D08000 SERIES
H80064063*	63	2.1/2"	74.5	2.93	10	150	40	580	250	9.84	1,723	1.16	SR+D08000 SERIES
H80064076*	76	3"	88.5	3.48	10	150	40	580	300	11.81	2,500	1.68	SR+D08000 SERIES
H80064102*	102	4"	116	4.56	10	150	40	580	400	15.74	3,600	2.42	SR+D08000 SERIES
H80064127*	127	5"	144.0	5.67	10	150	40	580	510	20.08	5,360	3.57	MARKET FITTINGS

HOSES 31

### KEY FEATURES

- Suitable as SAE J517 Type 100R4
- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m
- Vacuum resistance: -0.9 bar

### APPLICATIONS & FLUIDS

- Fuels & oils with aromatic content up to 50%

### CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
90 °C, 194 °F

### TUBE

Black NBR rubber

### REINFORCEMENT

High tensile synthetic cord and steel helix body wire, and 2 crossing copper wires for grounding

### COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant

### APPLICABLE SPECS

Manuli design, safety factor 4:1; Exceeds performance SAE 100R4

### STANDARD PACKAGING

Coil



- Hydraulic oils temperature range -40°C to 100°C (-40°F to +212°F)

Refer to the Manuli Crimp App for the latest crimping parameters.

# FUELSERVICE/16 D

FUEL & MINERAL OIL DELIVERY HOSE  
EN 12115



HOSES 32

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80028019*	19	3/4"	31.0	1.22	16	240	64	960	125	4.92	600	0.40	Std 1 SR+D08000 series
H80028025*	25	1"	37.0	1.46	16	240	64	960	150	5.91	890	0.59	SR+D08000 series
H80028031*	31	1.1/4"	44.0	1.73	16	240	64	960	175	6.89	1,000	0.67	SR+D08000 series
H80028038*	38	1.1/2"	51.0	2.01	16	240	64	960	225	8.86	1,350	0.90	SR+D08000 series
H80028051*	51	2"	67.0	2.64	16	240	64	960	275	10.83	2,000	1.33	SR+D08000 series
H80028063*	63	2.1/2"	80.0	3.15	16	240	64	960	300	11.81	2,500	1.67	SR+D08000 series
H80028076*	76	3"	92.0	3.62	16	240	64	960	350	13.78	2,850	1.90	SR+D08000 series
H80028102*	102	4"	122.0	4.80	16	240	64	960	450	17.72	4,150	2.77	SR+D08000 series

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%
- Cover compound is tested and approved according to EN 60079-0:2012 ( $R \leq 10^9$  Ohm/m)
- Hose structure designed to assure and maintain the requirements for the ATEX working conditions

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
80 °C, 176 °F

## TUBE

Black anti-static NBR rubber

## REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static ( $R < 1G$  Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 12115 (Grade  $\Omega/T$ ) / TRbF; EN 60079-0

## STANDARD PACKAGING

Coil

# FUELSERVICE/16 SD

FUEL & MINERAL OIL SUCTION & DELIVERY  
HOSE EN 12115



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80029019*	19	3/4"	31.0	1.22	16	240	64	960	125	4.92	700	0.47	Std 1 SR+D08000 series
H80029025*	25	1"	37.0	1.46	16	240	64	960	150	5.91	900	0.60	SR+D08000 series
H80029031*	31	1.1/4"	44.0	1.73	16	240	64	960	175	6.89	1,200	0.80	SR+D08000 series
H80029038*	38	1.1/2"	51.0	2.01	16	240	64	960	225	8.86	1,500	1.00	SR+D08000 series
H80029051*	51	2"	67.0	2.64	16	240	64	960	275	10.83	2,300	1.53	SR+D08000 series
H80029063*	63	2.1/2"	80.0	3.15	16	240	64	960	300	11.81	2,800	1.87	SR+D08000 series
H80029076*	76	3"	92.0	3.62	16	240	64	960	350	13.78	3,300	2.20	SR+D08000 series
H80029102*	102	4"	118.0	4.65	12	180	48	720	450	17.72	4,700	3.13	SR+D08000 series

HOSES 33

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%
- Cover compound is tested and approved according to EN 60079-0:2012 ( $R \leq 10^9$  Ohm/m)
- Hose structure designed to assure and maintain the requirements for the ATEX working conditions

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
80 °C, 176 °F

## TUBE

Black anti-static NBR rubber

## REINFORCEMENT

High tensile synthetic cord with steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static ( $R < 1G$  Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 12115 (Grade  $\Omega/T$ ) / TRbF; EN 60079-0

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# FUELSERVICE/20 D EN ISO 1825-B

FUEL DELIVERY, AIRCRAFT GROUND  
REFUELLING EN ISO 1825 TYPE B



HOSES 34

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80032019*	19	3/4"	29.0	1.14	20	300	80	1,200	113	4.45	520	0.35	SR+D08000 series
H80032025*	25	1"	38.0	1.50	20	300	80	1,200	150	5.91	840	0.56	SR+D08000 series
H80032031*	31	1.1/4"	45.0	1.77	20	300	80	1,200	200	7.87	1,000	0.67	SR+D08000 series
H80032038*	38	1.1/2"	51.0	2.01	20	300	80	1,200	230	9.06	1,160	0.77	SR+D08000 series
H80032051*	51	2"	65.0	2.56	20	300	80	1,200	305	12.01	1,700	1.13	SR+D08000 series
H80032063*	63	2.1/2"	79.0	3.11	20	300	80	1,200	390	15.35	2,070	1.38	SR+D08000 series
H80032076*	76	3"	92.0	3.62	20	300	80	1,200	460	18.11	2,560	1.71	SR+D08000 series
H80032102*	102	4"	120.0	4.72	20	300	80	1,200	610	24.02	3,740	2.49	SR+D08000 series

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Aircraft ground refuelling
- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static, chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN ISO 1825 Type B / TRbF

## STANDARD PACKAGING

Coil

# FUELSERVICE/20 D EN ISO 1825-C

FUEL DELIVERY, AIRCRAFT GROUND  
REFUELLING EN ISO 1825 TYPE C



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80033019*	19	3/4"	29.0	1.14	20	300	80	1,200	113	4.45	520	0.35	Std 1 SR+D08000 series
H80033025*	25	1"	38.0	1.50	20	300	80	1,200	150	5.91	840	0.56	SR+D08000 series
H80033031*	31	1.1/4"	45.0	1.77	20	300	80	1,200	200	7.87	1,000	0.67	SR+D08000 series
H80033038*	38	1.1/2"	51.0	2.01	20	300	80	1,200	230	9.06	1,160	0.77	SR+D08000 series
H80033051*	51	2"	65.0	2.56	20	300	80	1,200	305	12.01	1,700	1.13	SR+D08000 series
H80033063*	63	2.1/2"	79.0	3.11	20	300	80	1,200	390	15.35	2,070	1.38	SR+D08000 series
H80033076*	76	3"	92.0	3.62	20	300	80	1,200	460	18.11	2,560	1.71	SR+D08000 series
H80033102*	102	4"	120.0	4.72	20	300	80	1,200	610	24.02	3,740	2.49	SR+D08000 series

HOSES 35

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Aircraft ground refuelling
- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black NBR conductive rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Black synthetic CR rubber, fire-proof, anti-static (R<10<sup>6</sup> Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN ISO 1825 Type C / TRbF

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# FUELSERVICE/20 SD EN ISO 1825-E

FUEL SUCTION & DELIVERY, AIRCRAFT GROUND  
REFUELLING EN ISO 1825 TYPE E



HOSES 36

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80034019*	19	3/4"	31.0	1.22	20	300	80	1,200	85	3.35	690	0.46	Std 1 SR+D08000 series
H80034025*	25	1"	39.0	1.54	20	300	80	1,200	115	4.53	970	0.65	SR+D08000 series
H80034031*	31	1.1/4"	46.0	1.81	20	300	80	1,200	150	5.91	1,220	0.81	SR+D08000 series
H80034038*	38	1.1/2"	53.0	2.09	20	300	80	1,200	180	7.09	1,590	1.06	SR+D08000 series
H80034051*	51	2"	67.0	2.64	20	300	80	1,200	250	9.84	2,320	1.55	SR+D08000 series
H80034063*	63	2.1/2"	81.0	3.19	20	300	80	1,200	325	12.80	2,860	1.91	SR+D08000 series
H80034076*	76	3"	95.0	3.74	20	300	80	1,200	400	15.75	3,700	2.47	SR+D08000 series
H80034102*	102	4"	123.0	4.84	20	300	80	1,200	550	21.65	5,170	3.45	SR+D08000 series

## KEY FEATURES

- Hardwall suction & delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Aircraft ground refuelling
- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black NBR anti-static rubber

## REINFORCEMENT

High tensile synthetic cord with steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static (R<10<sup>6</sup> Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN ISO 1825 Type E / TRbF

## STANDARD PACKAGING

Coil

# FUELSERVICE/21 D

FUEL & OIL HOSE, HEAVY DUTY



HOSES  
37

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80006019*	19	3/4"	31.4	1.24	21	300	63	910	90	3.54	508	0.34	SR+D08000 series
H80006025*	25	1"	38.2	1.50	21	300	63	910	115	4.53	575	0.39	SR+D08000 series
H80006031*	31	1.1/4"	45.0	1.77	21	300	63	910	150	5.91	729	0.49	SR+D08000 series
H80006038*	38	1.1/2"	51.6	2.03	21	300	63	910	180	7.09	1,027	0.69	SR+D08000 series
H80006051*	51	2"	62.1	2.44	21	300	63	910	240	9.45	1,293	0.87	SR+D08000 series
H80006063*	63	2.1/2"	78.2	3.08	21	300	63	910	300	11.81	1,746	1.17	SR+D08000 series
H80006076*	76	3"	88.9	3.50	21	300	63	910	380	14.96	2,039	1.37	SR+D08000 series

## KEY FEATURES

- Softwall delivery structure
- Highly robust heavy duty hose structure
- Long lasting in severe applications
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Fuels, oils & diesel with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
90 °C, 194 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

## COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# FUELSERVICE/21 SD

FUEL & OIL HOSE, HEAVY DUTY



HOSES 38

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80020051*	51	2"	62.1	2.44	21	300	63	910	230	9.06	1,288	0.86	SR+D08000 SERIES
H80020076*	76	3"	88.9	3.50	21	300	63	910	360	14.17	2,497	1.67	SR+D08000 SERIES
H80020102*	102	4"	115.1	4.53	21	300	63	910	510	20.08	3,633	2.44	SR+D08000 SERIES
H80020152*	152	6"	174.0	6.85	21	300	63	910	610	24.02	8,250	5.55	MARKET FITTINGS
H80020203*	203	8"	230.0	9.05	21	300	63	910	800	31.50	12,300	8.28	MARKET FITTINGS

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
90 °C, 194 °F

## TUBE

NBR rubber, abrasion resistant, thick tube

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire, and 2 crossing copper wires for grounding

## COVER

Black synthetic SBR rubber, long lasting, weathering and ozone resistant

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

## APPLICATIONS & FLUIDS

- Fuels, oils & diesel with aromatic content up to 50%

# FUELDISPENSER/D

FUEL & MINERAL OIL DELIVERY  
EN 1360 TYPE 1



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80026012*	12	1/2"	22.0	0.87	16	240	48	720	60	2.36	340	0.23	SR+D08000 series
H80026016*	16	5/8"	26.0	1.02	16	240	48	720	80	3.15	480	0.32	SR+D08000 series
H80026019*	19	3/4"	30.0	1.18	16	240	48	720	100	3.94	530	0.35	SR+D08000 series
H80026025*	25	1"	38.0	1.50	16	240	48	720	150	5.91	740	0.49	SR+D08000 series
H80026031*	31	1.1/4"	45.0	1.77	16	240	48	720	175	6.89	1,100	0.73	SR+D08000 series
H80026038*	38	1.1/2"	51.0	2.01	16	240	48	720	225	8.86	1,240	0.83	SR+D08000 series

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static (R<1G Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 1360 Type 1

## STANDARD PACKAGING

Coil

# FUELDISPENSER/SD

FUEL & MINERAL OIL SUCTION & DELIVERY  
EN 1360 TYPE 2



HOSES 40

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80027019*	19	3/4"	30.0	1.18	16	240	48	720	100	3.94	630	0.42	SR+D08000 series
H80027025*	25	1"	38.0	1.50	16	240	48	720	150	5.91	930	0.62	SR+D08000 series
H80027031*	31	1.1/4"	45.0	1.77	16	240	48	720	175	6.89	1,180	0.79	SR+D08000 series
H80027038*	38	1.1/2"	51.0	2.01	16	240	48	720	225	8.86	1,450	0.97	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black anti-static NBR rubber

## REINFORCEMENT

High tensile synthetic cord with steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static, chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 1360 Type 2 / TRbF

## STANDARD PACKAGING

Coil

# FUELTRUCK/16 D

FUEL & MINERAL OIL DELIVERY HOSE  
FOR TRUCK SYSTEMS  
EN 1761 TYPE D



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80030019*	19	3/4"	31.0	1.22	16	240	48	720	125	4.92	630	0.42	Std 1
H80030025*	25	1"	37.0	1.46	16	240	48	720	150	5.91	730	0.49	SR+D08000 series
H80030031*	31	1.1/4"	44.0	1.73	16	240	48	720	175	6.89	940	0.63	SR+D08000 series
H80030038*	38	1.1/2"	51.0	2.01	16	240	48	720	225	8.86	1,190	0.79	SR+D08000 series
H80030051*	51	2"	67.0	2.64	16	240	48	720	275	10.83	2,000	1.33	SR+D08000 series
H80030063*	63	2.1/2"	79.0	3.11	16	240	48	720	300	11.81	2,240	1.49	SR+D08000 series
H80030076*	76	3"	92.0	3.62	16	240	48	720	350	13.78	2,730	1.82	SR+D08000 series
H80030102*	102	4"	118.0	4.65	16	240	48	720	450	17.72	3,700	2.47	SR+D08000 series
H80030127*	127	5"	145.0	5.71	16	240	48	720	635	25.00	4,820	3.21	MARKET FITTINGS
H80030152*	152	6"	172.0	6.77	16	240	48	720	750	29.53	6,140	4.09	MARKET FITTINGS

HOSES  
41

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static, chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 1761 Type D

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# FUELTRUCK/16 SD

FUEL & MINERAL OIL SUCTION & DELIVERY HOSE FOR TRUCK SYSTEMS EN 1761 TYPE SD



HOSES 42

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80031019*	19	3/4"	31.0	1.22	16	240	48	720	125	4.92	670	0.45	SR+D08000 series
H80031025*	25	1"	37.0	1.46	16	240	48	720	150	5.91	810	0.54	SR+D08000 series
H80031031*	31	1.1/4"	44.0	1.73	16	240	48	720	175	6.89	1,040	0.69	SR+D08000 series
H80031038*	38	1.1/2"	51.0	2.01	16	240	48	720	225	8.86	1,380	0.92	SR+D08000 series
H80031051*	51	2"	67.0	2.64	16	240	48	720	275	10.83	2,220	1.48	SR+D08000 series
H80031063*	63	2.1/2"	79.0	3.11	16	240	48	720	300	11.81	2,630	1.75	SR+D08000 series
H80031076*	76	3"	92.0	3.62	16	240	48	720	350	13.78	3,380	2.25	SR+D08000 series
H80031102*	102	4"	118.0	4.65	16	240	48	720	450	17.72	4,420	2.95	SR+D08000 series
H80031127*	127	5"	145.0	5.71	16	240	48	720	635	25.00	5,800	3.87	MARKET FITTINGS
H80031152	152	6"	172.0	6.77	16	240	48	720	750	29.53	8,150	5.43	MARKET FITTINGS

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 50%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord with steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static, chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 1761 Type SD

## STANDARD PACKAGING

Coil

# FUELFLEX/17 SDC

FUEL SUCTION & DELIVERY HOSE WITH HIGH FLEXIBILITY



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80025019*	19	3/4"	31.0	1.22	17	255	68	1,020	19	0.75	670	0.45	SR+D08000 series
H80025025*	25	1"	37.0	1.46	17	255	68	1,020	25	0.98	840	0.56	SR+D08000 series
H80025031*	31	1.1/4"	44.0	1.73	17	255	68	1,020	32	1.26	980	0.65	SR+D08000 series
H80025038*	38	1.1/2"	49.0	1.93	17	255	68	1,020	38	1.50	1,120	0.75	SR+D08000 series
H80025051*	51	2"	64.0	2.48	17	255	68	1,020	51	2.01	1,480	0.99	SR+D08000 series
H80025063*	63	2.1/2"	77.0	3.03	15	225	60	900	63	2.48	1,950	1.30	SR+D08000 series
H80025076*	76	3"	89.0	3.50	15	225	60	900	76	2.99	2,150	1.43	SR+D08000 series
H80025102*	102	4"	117.0	4.61	10	150	40	600	102	4.02	3,000	2.00	SR+D08000 series
H80025152*	152	6"	170.0	6.69	10	150	40	600	152	5.98	5,700	3.80	MARKET FITTINGS

## KEY FEATURES

- Hardwall suction and delivery structure
- Normal corrugated cover offers lowest bend radius in category
- Compact, lightweight and extremely flexible
- Outstanding abrasion resistance
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m

## APPLICATIONS & FLUIDS

- Fuels, oils, petroleum & its derivatives with aromatic content up to 60%

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
100 °C, 212 °F

## TUBE

Black NBR rubber

## REINFORCEMENT

High tensile synthetic cord with steel helix body wire and copper wire for grounding

## COVER

Black synthetic, normal corrugated CR rubber, anti-static (R<10<sup>6</sup> Ohm/m), oil, fuel, abrasion and weathering resistant

## APPLICABLE SPECS

Manuli design, safety factor 4:1

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# FUELTANKER/10 SD

SUCTION & DELIVERY HOSE FOR FUEL AND MINERAL OIL



HOSES 44

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80060051*	51	2"	60.0	2.36	10	150	30	450	110	4.33	1,550	1.05	MARKET FITTINGS
H80060063*	63	2.1/2"	73.5	2.89	10	150	30	450	138	5.43	1,970	1.33	MARKET FITTINGS
H80060076*	76	3"	86.0	3.39	10	150	30	450	170	6.69	2,250	1.52	MARKET FITTINGS
H80060102*	102	4"	116.0	4.57	10	150	30	450	230	9.06	3,000	2.02	MARKET FITTINGS

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Extreme abrasion resistance
- Designed for tankers
- Long length assemblies available - Max length: 40m

## APPLICATIONS & FLUIDS

- Suction & delivery hose for mineral oils, diesel fuel and gasoline with aromatic contents up to 50%
- Very light and flexible
- Extraordinarily resistant to abrasion
- Ideal for fuel distribution company road tankers

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

## TUBE

Black NBR anti-static rubber

## REINFORCEMENT

High tensile synthetic cord and 1 copper wire for grounding

## COVER

Black, smooth, glossy NBR/PVC rubber with red thermoplastic spiral, resistant to abrasion, ozone and weathering

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

## REMARKS



- Hose wall thickness: DN 51: 4.5mm; DN 63 & DN 76: 5.0mm; DN 102: 7.0mm
- Red thermoplastic spiral diameter: DN 51 & DN 63: 6mm; DN 76 & DN 102: 8mm

# MUDSERVICE/28 D

DELIVERY HOSE FOR DRILLING MUDS,  
OIL & ABRASIVE SLURRIES



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80035076*	76	3"	96.0	3.78	28	400	112	1,600	559	22.01	3,700	3.27	MARKET FITTINGS
H80035102*	102	4"	124.0	4.88	28	400	112	1,600	762	30.00	4,900	4.33	MARKET FITTINGS
H80035127*	127	5"	153.0	6.02	28	400	112	1,600	1,118	44.02	7,000	6.19	MARKET FITTINGS
H80035152*	152	6"	178.0	7.01	28	400	112	1,600	1,524	60.00	8,400	7.43	MARKET FITTINGS

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Delivery of petroleum muds, drilling rig services and crude oil with aromatic contents up to 50%
- Fracking operations in oilfields

## CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
80 °C, 176 °F

## TUBE

Black X-NBR rubber

## REINFORCEMENT

High tensile synthetic cord and 2 crossing copper wires for grounding

## COVER

Black CR rubber, flame retardant, oil, grease, sea water and ozone resistance

## APPLICABLE SPECS

Manuli design, safety factor 4:1

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# PROGAS LPG D

## DELIVERY HOSE FOR LPG



HOSES 4/6

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80011012*	12	1/2"	23.0	0.91	25	375	100	1,500	100	3.94	390	0.26	Std 1 SR+D08000 series
H80011016*	16	5/8"	26.0	1.02	25	375	100	1,500	120	4.72	470	0.31	SR+D08000 series
H80011019*	19	3/4"	31.0	1.22	25	375	100	1,500	160	6.30	630	0.42	SR+D08000 series
H80011025*	25	1"	38.0	1.50	25	375	100	1,500	200	7.87	840	0.56	SR+D08000 series
H80011031*	31	1.1/4"	45.0	1.77	25	375	100	1,500	250	9.84	1,050	0.70	SR+D08000 series
H80011038*	38	1.1/2"	52.0	2.05	25	375	100	1,500	320	12.60	1,200	0.80	SR+D08000 series
H80011051*	51	2"	67.0	2.64	25	375	100	1,500	400	15.75	1,830	1.22	SR+D08000 series
H80011063*	63	2.1/2"	81.0	3.19	25	375	100	1,500	550	21.65	2,500	1.67	SR+D08000 series
H80011076*	76	3"	94.0	3.70	25	375	100	1,500	650	25.59	3,020	2.01	SR+D08000 series
H80011102*	102	4"	120.0	4.72	25	375	100	1,500	800	31.50	3,860	2.57	SR+D08000 series

### KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m (DN12 - DN19) / 50m (DN25 - DN 51) / 61m (DN 63 - DN 102)

### APPLICATIONS & FLUIDS

- Delivery hose for LPG

### CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

### TUBE

Black NBR conductive rubber

### REINFORCEMENT

High tensile synthetic cord

### COVER

Black, pin-pricked CR rubber, fire-proof, anti-static (R<10<sup>6</sup> Ohm/m), oil, abrasion and weathering resistant

### APPLICABLE SPECS

EN 1762 Type D / TRbF

### STANDARD PACKAGING

Coil

# PROGAS LPG SD

## SUCTION & DELIVERY HOSE FOR LPG



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80057012*	12	1/2"	23.0	0.91	25	375	100	1,500	55	2.17	440	0.29	Std 1
H80057016*	16	5/8"	26.0	1.02	25	375	100	1,500	75	2.95	520	0.35	SR+D08000 series
H80057019*	19	3/4"	31.0	1.22	25	375	100	1,500	100	3.94	680	0.45	SR+D08000 series
H80057025*	25	1"	38.0	1.50	25	375	100	1,500	140	5.51	900	0.60	SR+D08000 series
H80057031*	31	1.1/4"	45.0	1.77	25	375	100	1,500	190	7.48	1,180	0.79	SR+D08000 series
H80057038*	38	1.1/2"	52.0	2.05	25	375	100	1,500	200	7.87	1,500	1.00	SR+D08000 series
H80057051*	51	2"	67.0	2.64	25	375	100	1,500	280	11.02	2,200	1.47	SR+D08000 series
H80057063*	63	2.1/2"	81.0	3.19	25	375	100	1,500	380	14.96	2,900	1.93	SR+D08000 series
H80057076*	76	3"	94.0	3.70	25	375	100	1,500	460	18.11	3,580	2.39	SR+D08000 series
H80057102*	102	4"	120.0	4.72	25	375	100	1,500	625	24.61	4,560	3.04	SR+D08000 series

### KEY FEATURES

- Hardwall suction & delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m (DN12 - DN19) / 50m (DN25 - DN 51) / 61m (DN 63 - DN 102)

### APPLICATIONS & FLUIDS

- Suction & delivery hose for LPG

### CONTINUOUS SERVICE TEMPERATURE RANGE

-30 °C, -22 °F  
70 °C, 158 °F

### TUBE

Black NBR conductive rubber

### REINFORCEMENT

High tensile synthetic cord and steel helix body wire

### COVER

Black, pin-pricked CR rubber, fire-proof, anti-static (R<10<sup>6</sup> Ohm/m), oil, abrasion and weathering resistant

### APPLICABLE SPECS

EN 1762 Type SD / TRbF

### STANDARD PACKAGING

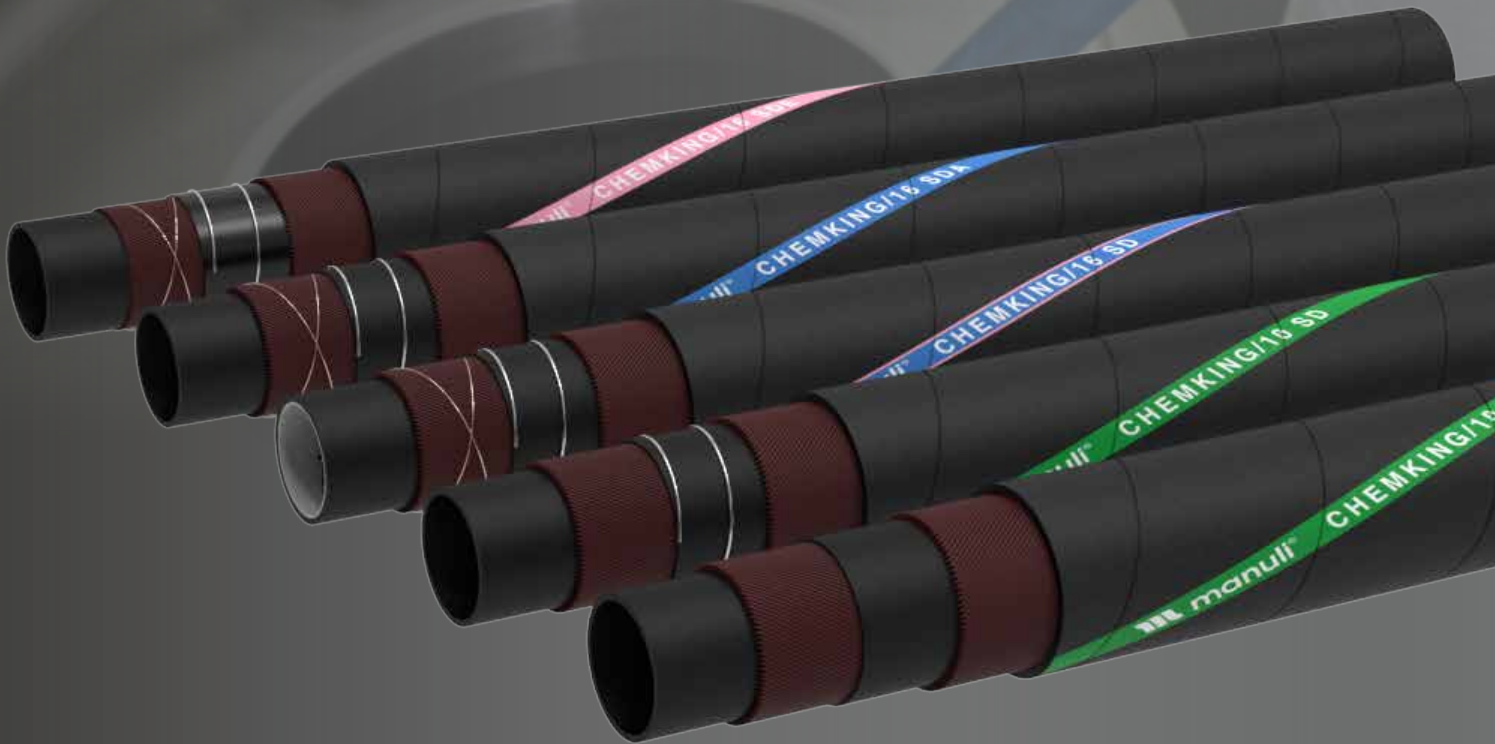
Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# CHEMICAL HOSES



The transport of aggressive chemicals is fraught with dangers and technical difficulties, so the Manuli range of chemical hoses is designed with safety as our watchword. With a range of different tube materials designed to suit a wide range of fluids, the chemical hose family offers peace of mind when transporting even the most aggressive chemicals.



APPLICATION	RANGE	HOSE	HOSE TYPE	HOSE STRUCTURE	PAGE
CHEMICAL	CHEMKING	CHEMKING/10 D	FKM HOSE FOR AGGRESSIVE CHEMICALS	HIGH TENSILE SYNTHETIC CORD	50
		CHEMKING/10 SD	FKM HOSE FOR AGGRESSIVE CHEMICALS	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	51
		CHEMKING/16 SDE	EN 12115 ANTI-STATIC EPDM HOSE FOR CHEMICAL PRODUCTS	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	52
		CHEMKING/16 SDA	EN 12115 ANTI-STATIC UHMWPE HOSE FOR CHEMICAL PRODUCTS	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	53
		CHEMKING/16 SD	EN 12115 FEP HOSE FOR CHEMICAL PRODUCTS	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	54

# CHEMKING/10 D

FKM DELIVERY HOSE FOR AGGRESSIVE CHEMICALS



HOSES 50

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80049006*	6	1/4"	16.0	0.63	10	150	40	600	-	-	270	0.18	SR+D08000 series
H80049008*	8	5/16"	18.0	0.71	10	150	40	600	-	-	320	0.21	SR+D08000 series
H80049010*	10	3/8"	20.0	0.79	10	150	40	600	-	-	380	0.25	SR+D08000 series
H80049012*	12	1/2"	23.0	0.91	10	150	40	600	-	-	450	0.30	SR+D08000 series
H80049016*	16	5/8"	26.0	1.02	10	150	40	600	-	-	530	0.35	SR+D08000 series
H80049019*	19	3/4"	29.0	1.14	10	150	40	600	-	-	600	0.40	SR+D08000 series
H80049025*	25	1"	35.0	1.38	10	150	40	600	-	-	750	0.50	SR+D08000 series
H80049031*	31	1.1/4"	44.0	1.73	10	150	40	600	-	-	1,150	0.77	SR+D08000 series
H80049038*	38	1.1/2"	50.0	1.97	10	150	40	600	-	-	1,330	0.89	SR+D08000 series
H80049051*	51	2"	65.0	2.56	10	150	40	600	-	-	2,100	1.40	SR+D08000 series

## KEY FEATURES

- Hardwall delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 20m (DN6 to DN10); 40m (DN12 to DN51)

## APPLICATIONS & FLUIDS

- Delivery of aggressive chemicals and acids in high concentrations

## CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
100 °C, 212 °F

## TUBE

Black FKM rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Black synthetic CR rubber, chemical, oil, ozone and weathering resistant

## APPLICABLE SPECS

Manuli design, safety factor 4:1

## STANDARD PACKAGING

Coil

# CHEMKING/10 SD

FKM SUCTION & DELIVERY HOSE FOR AGGRESSIVE CHEMICALS



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80050019*	19	3/4"	31.0	1.22	10	150	40	600	85	3.35	740	0.49	SR+D08000 series
H80050025*	25	1"	37.0	1.46	10	150	40	600	112	4.41	960	0.64	SR+D08000 series
H80050031*	31	1.1/4"	44.0	1.73	10	150	40	600	144	5.67	1,250	0.83	SR+D08000 series
H80050038*	38	1.1/2"	51.0	2.01	10	150	40	600	171	6.73	1,400	0.93	SR+D08000 series
H80050051*	51	2"	67.0	2.64	10	150	40	600	229	9.02	2,150	1.43	SR+D08000 series
H80050063*	63	2.1/2"	80.0	3.15	10	150	40	600	317	12.48	2,600	1.73	SR+D08000 series
H80050076*	76	3"	92.0	3.62	10	150	40	600	380	14.96	3,200	2.13	SR+D08000 series
H80050102*	102	4"	118.0	4.65	10	150	40	600	510	20.08	4,600	3.07	SR+D08000 series

51 HOSES

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 40m

## APPLICATIONS & FLUIDS

- Suction & delivery of aggressive chemicals and acids in high concentrations

## CONTINUOUS SERVICE TEMPERATURE RANGE

-35 °C, -31 °F  
100 °C, 212 °F

## TUBE

Black FKM rubber

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire

## COVER

Black synthetic CR rubber, chemical, oil, ozone and weathering resistant

## APPLICABLE SPECS

Manuli design, safety factor 4:1

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# CHEMKING/16 SDE

ANTI-STATIC EPDM SUCTION & DELIVERY HOSE FOR CHEMICAL PRODUCTS - EN 12115



HOSES 52

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80061019*	19	3/4"	31.0	1.22	16	240	64	960	125	4.92	700	0.47	Std 1 SR+D08000 series
H80061025*	25	1"	37.0	1.46	16	240	64	960	150	5.91	920	0.62	SR+D08000 series
H80061031*	31	1.1/4"	44.0	1.73	16	240	64	960	175	6.89	1,090	0.73	SR+D08000 series
H80061038*	38	1.1/2"	51.0	2.01	16	240	64	960	225	8.86	1,350	0.91	SR+D08000 series
H80061051*	51	2"	67.0	2.64	16	240	64	960	275	10.83	1,840	1.24	SR+D08000 series
H80061063*	63	2.1/2"	80.0	3.15	16	240	64	960	300	11.81	2,540	1.71	SR+D08000 series
H80061076*	76	3"	92.0	3.62	16	240	64	960	350	13.78	3,200	2.15	SR+D08000 series
H80061102*	102	4"	118.0	4.65	12	180	48	720	450	17.71	4,430	2.98	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Suction & delivery for chemicals as per EN 12115 specification
- Fireproof and anti-static cover ( $R < 10^6 \text{ Ohm/m}$ )

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
100 °C, 212 °F

## TUBE

Black, smooth anti-static EPDM rubber

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static ( $R < 1\text{M Ohm/m}$ ), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 12115 (Grade  $\Omega$ ) / TRbF

## STANDARD PACKAGING

Coil

# CHEMKING/16 SDA

ANTI-STATIC UHMWPE SUCTION & DELIVERY HOSE FOR CHEMICAL PRODUCTS - EN 12115



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80047019*	19	3/4"	31.0	1.22	16	240	64	960	125	4.92	710	0.47	Std 1 SR+D08000 series
H80047025*	25	1"	37.0	1.46	16	240	64	960	150	5.91	870	0.58	SR+D08000 series
H80047031*	31	1.1/4"	44.0	1.73	16	240	64	960	175	6.89	1,070	0.71	SR+D08000 series
H80047038*	38	1.1/2"	51.0	2.01	16	240	64	960	225	8.86	1,350	0.90	SR+D08000 series
H80047051*	51	2"	67.0	2.64	16	240	64	960	275	10.83	2,290	1.53	SR+D08000 series
H80047063*	63	2.1/2"	80.0	3.15	16	240	64	960	300	11.81	2,510	1.67	SR+D08000 series
H80047076*	76	3"	92.0	3.62	16	240	64	960	350	13.78	3,080	2.05	SR+D08000 series
H80047102*	102	4"	118.0	4.65	12	180	48	720	450	17.71	4,510	3.01	SR+D08000 series

53 HOSES

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Suction & delivery for chemicals, oils, fuels and bunkering
- Cover compound is tested and approved according to EN 60079-0:2012 ( $R \leq 10^9 \text{ Ohm/m}$ )
- Hose structure designed to assure and maintain the requirements for the ATEX working conditions

## CONTINUOUS SERVICE TEMPERATURE RANGE

-20 °C, -4 °F  
100 °C, 212 °F

## TUBE

Black conductive UHMWPE

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static ( $R < 1G \text{ Ohm/m}$ ), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 12115 (Grade  $\Omega/T$ ) / TRbF / FDA; EN 60079-0

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# CHEMKING/16 SD

FEP SUCTION & DELIVERY HOSE FOR CHEMICAL PRODUCTS - EN 12115



HOSES 54

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80048012*	12	1/2"	25.0	0.98	16	240	64	960	84	3.31	320	0.21	SR+D08000 series
H80048019*	19	3/4"	31.0	1.22	16	240	64	960	125	4.92	470	0.31	SR+D08000 series
H80048025*	25	1"	37.0	1.46	16	240	64	960	150	5.91	580	0.39	SR+D08000 series
H80048031*	31	1.1/4"	44.0	1.73	16	240	64	960	175	6.89	920	0.61	SR+D08000 series
H80048038*	38	1.1/2"	51.0	2.01	16	240	64	960	225	8.86	1,200	0.80	SR+D08000 series
H80048051*	51	2"	67.0	2.64	16	240	64	960	275	10.83	2,120	1.41	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Max length: 20m

## APPLICATIONS & FLUIDS

- Suction & delivery for chemicals, petroleum and food stuffs as per EN 12115 specifications
- Hose tube is FDA approved

## CONTINUOUS SERVICE TEMPERATURE RANGE

-50 °C, -58 °F  
170 °C, 338 °F

## TUBE

White glossy non-conductive FEP (Fluorinated ethylene propylene)

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire and 2 crossing copper wires for grounding

## COVER

Black synthetic CR rubber, fire-proof, anti-static (R<10<sup>6</sup> Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

EN 12115 (Grade M)/ TRbF / FDA

## STANDARD PACKAGING

Coil

# FOOD & BEVERAGE HOSES



All Manuli food and beverage hoses incorporate a taste- and odour-free inner tube ideally suited for use with both alcoholic and non-alcoholic liquids, as well as fatty and dry foods. All hoses are compliant with the relevant food preparation equipment regulations, and their high temperature resistance also allows them to be sterilised at 110°C to eliminate the risk of cross-contamination.



APPLICATION	RANGE	HOSE	HOSE TYPE	HOSE STRUCTURE	PAGE
<b>LIQUID FOOD &amp; BEVERAGE</b>	<b>BREWERS</b>	BREWERS/12 SD	BEER, WINE & ALCOHOL HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	57
	<b>BREWERS</b>	BREWERS/12 SDC	BEER, WINE & ALCOHOL HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	58
	<b>MILKYWAY</b>	MILKYWAY/ 10 SD	MILK & FATTY FOODS HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	59
	<b>MULTIFOOD</b>	MULTIFOOD/10 SD	MULTI-PURPOSE LIQUID FOOD HOSE	HIGH TENSILE SYNTHETIC CORD & 2 STEEL HELIX BODY WIRES	60
<b>DRY FOOD</b>	<b>ABRAFOOD</b>	ABRAFOOD/10	LAYFLAT HOSE FOR DRY FOODS	HIGH TENSILE SYNTHETIC CORD & COPPER GROUNDING WIRES	61

# BREWERS/12 SD

BEER, WINE & ALCOHOL SUCTION & DELIVERY HOSE



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80042019*	19	3/4"	32.0	1.26	12	180	36	540	80	3.15	780	0.52	Std 1 SR+D08000 series
H80042025*	25	1"	38.0	1.50	12	180	36	540	115	4.53	920	0.61	SR+D08000 series
H80042031*	31	1.1/4"	46.0	1.81	12	180	36	540	145	5.71	1,190	0.79	SR+D08000 series
H80042038*	38	1.1/2"	52.0	2.05	12	180	36	540	180	7.09	1,480	0.99	SR+D08000 series
H80042051*	51	2"	65.0	2.56	12	180	36	540	245	9.65	1,890	1.26	SR+D08000 series
H80042063*	63	2.1/2"	81.0	3.19	12	180	36	540	340	13.39	2,910	1.94	SR+D08000 series
H80042076*	76	3"	95.0	3.74	12	180	36	540	410	16.14	3,410	2.27	SR+D08000 series
H80042102*	102	4"	122.0	4.80	12	180	36	540	580	22.83	4,960	3.31	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Suction & delivery for beer, wine, alcohol and soft drinks

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
120 °C, 248 °F (sterilization at 110 °C/230 °F for 30 minutes)

## TUBE

White BIIR (butyl) rubber, food quality, odourless & taste-free

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire

## COVER

Orange EPDM rubber, ozone, abrasion and weathering resistant

## APPLICABLE SPECS

FDA title 21 art. 177.2600 (e) for liquid foods; BfR; ADI free; CE 1935/2004; PHTHALATE free

## STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# BREWERS/12 SDC

BEER, WINE & ALCOHOL SUCTION & DELIVERY HOSE, IMPROVED FLEXIBILITY



HOSES 58

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80043031*	31	1.1/4"	46.0	1.81	12	180	36	540	115	4.53	1,040	0.69	SR+D08000 series
H80043038*	38	1.1/2"	52.0	2.05	12	180	36	540	140	5.51	1,510	1.01	SR+D08000 series
H80043051*	51	2"	65.0	2.56	12	180	36	540	195	7.68	1,950	1.30	SR+D08000 series
H80043063*	63	2.1/2"	81.0	3.19	12	180	36	540	270	10.63	3,100	2.07	SR+D08000 series
H80043076*	76	3"	95.0	3.74	12	180	36	540	285	11.22	3,600	2.40	SR+D08000 series
H80043102*	102	4"	122.0	4.80	12	180	36	540	335	13.19	5,100	3.40	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Normal corrugated cover for improved flexibility
- Compact, lightweight
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Suction & delivery for beer, wine, alcohol and soft drinks

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
120 °C, 248 °F (sterilization at 110 °C/230 °F for 30 minutes)

## TUBE

White BIIR (butyl) rubber, food quality, odourless & taste-free

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire

## COVER

Orange, normal corrugated EPDM rubber, ozone, abrasion and weathering resistant

## APPLICABLE SPECS

FDA title 21 art. 177.2600 (e) for liquid foods; BfR; ADI free; CE 1935/2004; PHTHALATE free

## STANDARD PACKAGING

Coil

# MILKYWAY/10 SD

MILK & FATTY FOODS SUCTION & DELIVERY HOSE



PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H80044019*	19	3/4"	29.0	1.14	10	150	30	450	40	1.57	650	0.43	Std 1 SR+D08000 series
H80044025*	25	1"	35.0	1.38	10	150	30	450	55	2.17	820	0.55	SR+D08000 series
H80044031*	31	1.1/4"	44.0	1.73	10	150	30	450	74	2.91	1,250	0.83	SR+D08000 series
H80044038*	38	1.1/2"	50.0	1.97	10	150	30	450	86	3.39	1,450	0.97	SR+D08000 series
H80044051*	51	2"	64.0	2.52	10	150	30	450	112	4.41	1,960	1.31	SR+D08000 series
H80044063*	63	2.1/2"	77.0	3.03	10	150	30	450	136	5.35	2,450	1.63	SR+D08000 series
H80044076*	76	3"	90.0	3.54	10	150	30	450	160	6.30	2,970	1.98	SR+D08000 series
H80044102*	102	4"	116.0	4.57	10	150	30	450	380	14.96	6,700	4.47	SR+D08000 series

## KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Suction & delivery of milk and fatty foods

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F (sterilization at 110°C/230°F for 30 minutes)

## TUBE

White NBR rubber, food quality odourless and taste-free

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire

## COVER

Blue NBR rubber, ozone, abrasion and weathering resistant

## APPLICABLE SPECS

FDA title 21 art. 177.2600 (f) for fatty foods; BfR; ADI free; D.M. 21/03/73; CE 1935/2004; PHTHALATE free

## STANDARD PACKAGING

Coil

# MULTIFOOD/10 SD

## MULTI-PURPOSE LIQUID FOOD SUCTION & DELIVERY HOSE



HOSES 60

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80045038*	38	1.1/2"	50.0	1.97	10	150	30	450	150	5.91	1,440	0.96	SR+D08000 series
H80045051*	51	2"	63.0	2.48	10	150	30	450	205	8.07	2,100	1.40	SR+D08000 series
H80045063*	63	2.1/2"	78.0	3.07	10	150	30	450	285	11.22	2,530	1.69	SR+D08000 series
H80045076*	76	3"	91.0	3.58	10	150	30	450	390	15.35	3,220	2.15	SR+D08000 series
H80045102*	102	4"	120.0	4.72	10	150	30	450	500	19.69	4,630	3.09	SR+D08000 series

### KEY FEATURES

- Hardwall suction and delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

### APPLICATIONS & FLUIDS

- Suction & delivery multi-purpose hose,
- Fatty foods, wine, beer, potable water etc.

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
140 °C, 284 °F (sterilization at 110°C/230°F for 30 minutes)

### TUBE

White EPDM rubber, food quality odourless and taste-free

### REINFORCEMENT

High tensile synthetic cord and 2 steel helix body wires

### COVER

Blue EPDM rubber, ozone, abrasion and weathering resistant

### APPLICABLE SPECS

FDA title 21 art. 177.2600 (f) for fatty foods; BfR; ADI free; D.M. 21/03/73; CE 1935/2004; PHTHALATE free

### STANDARD PACKAGING

Coil

# ABRAFOOD/10

LAYFLAT HOSE FOR DRY FOODS  
(GRAINS, SEED, RICE ETC.)



PART REF.	HOSE SIZE		O.D.		MAX. W.P.		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80046102*	102	4"	112.0	4.41	10	150	30	450	-	-	2,430	1.62	SR+D08000 series
H80046152*	152	6"	166.0	6.54	10	150	30	450	-	-	4,790	3.19	MARKET FITTINGS

## KEY FEATURES

- Layflat delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m

## APPLICATIONS & FLUIDS

- Delivery hose for dry and abrasive food stuffs (eg: grains, seed, rice, sugar, flour and animal food)
- Cover compound is tested and approved according to EN 60079-0:2012 ( $R \leq 10^9$  Ohm/m)
- Hose structure designed to assure and maintain the requirements for the ATEX working conditions

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

80 °C, 176 °F (sterilization at 110°C/230°F for 30 minutes)

## TUBE

White NR rubber, food quality odourless and taste-free

## REINFORCEMENT

High tensile synthetic cord and 2 crossed copper wires for hose grounding

## COVER

Black CR rubber, fire proof, anti-static ( $R < 1G$  Ohm/m), chemical, ozone and weathering resistant

## APPLICABLE SPECS

FDA title 21 art. 177.2600 (a, b, c, d) for dry foods; BfR; ADI free; D.M. 21/03/73; CE 1935/2004; PHTHALATE free; EN 60079

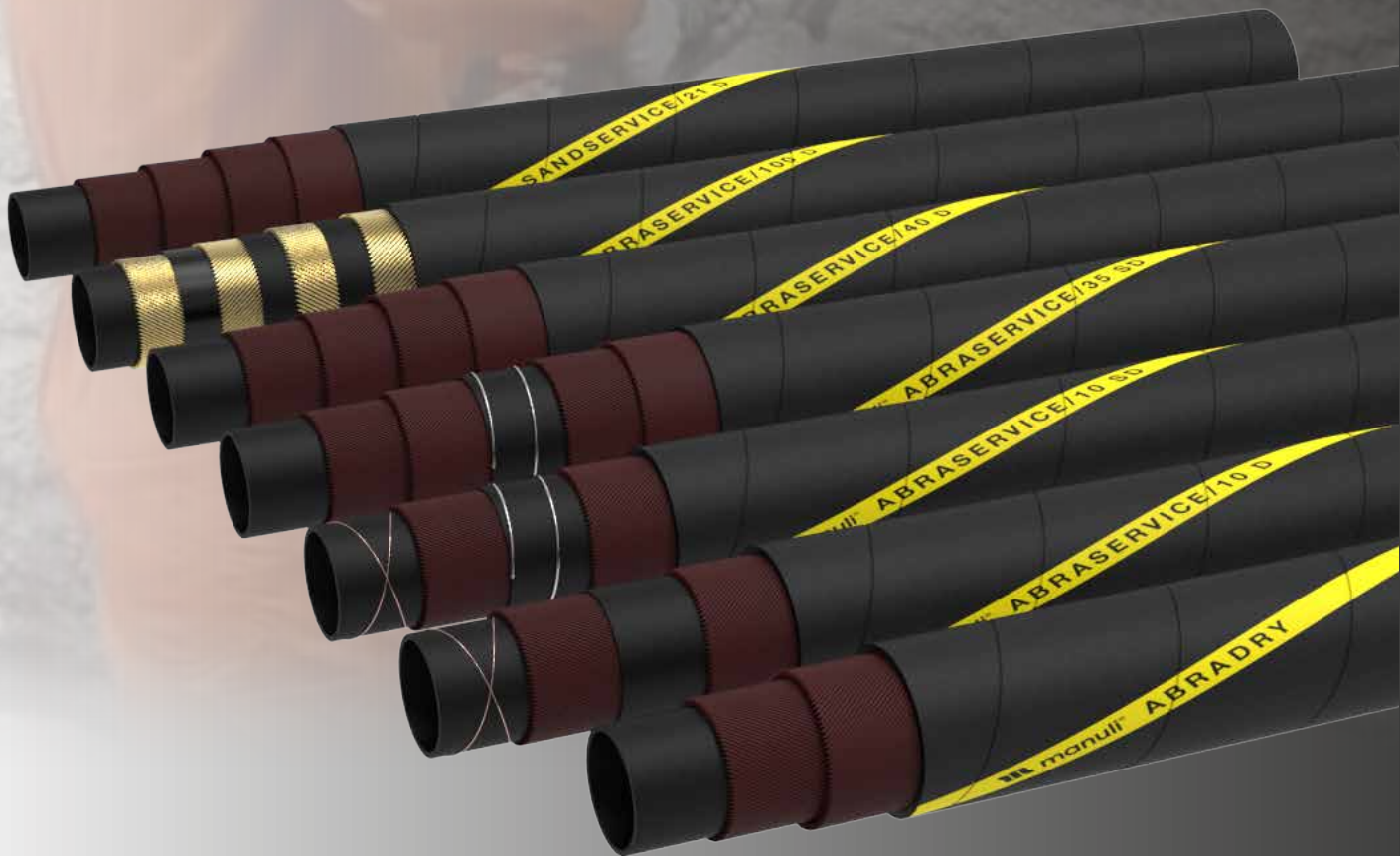
## STANDARD PACKAGING

Coil

# ABRASIVE FLUID HOSES



The abrasive fluid hose family from Manuli is specifically designed to withstand the damaging action of the fluids they convey. Ranging from sand and other dry materials, to high-pressure concrete slurries, the Manuli abrasive fluid hose family has you covered.



APPLICATION	RANGE	HOSE	HOSE TYPE	HOSE STRUCTURE	PAGE
<b>ABRASIVE SOLIDS</b>	<b>ABRADRY</b>	ABRADRY	LAYFLAT HOSE FOR ABRASIVE DRY MATERIALS	HIGH TENSILE SYNTHETIC CORD	64
	<b>SANDSERVICE</b>	SANDSERVICE/21 D/4	SANDBLASTING & ABRASIVE FLUID HOSE	HIGH TENSILE SYNTHETIC CORD	65
<b>ABRASIVE FLUIDS</b>	<b>ABRASERVICE</b>	ABRASERVICE/10 D	ABRASIVE FLUID HOSE, HEAVY DUTY	HIGH TENSILE SYNTHETIC CORD,COPPER GROUNDING WIRES	66
		ABRASERVICE/10 SD	ABRASIVE FLUID HOSE, HEAVY DUTY	HIGH TENSILE SYNTHETIC CORD, STEEL HELIX BODY WIRE & COPPER GROUNDING WIRES	67
		ABRASERVICE/35 SD	REVERSE CYCLE DRILLING HOSE	HIGH TENSILE SYNTHETIC CORD & STEEL HELIX BODY WIRE	68
		ABRASERVICE/40 D	PLASTER SPRAYING HOSE	HIGH TENSILE SYNTHETIC CORD	69
		ABRASERVICE/100 D	HIGH-PRESSURE CONCRETE PUMPING HOSE	HIGH TENSILE STEEL CORD	70

# ABRADRY

LAYFLAT DELIVERY HOSE FOR CONCRETE, SAND, GRAVEL & OTHER ABRASIVE DRY MATERIALS



HOSES 64

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80051090*	90	3-35/64"	100.0	3.94	6	90	18	270	-	-	1,250	0.83	MARKET FITTINGS
H80051102*	102	4"	112.0	4.41	4	60	12	180	-	-	1,390	0.93	MARKET FITTINGS
H80051127*	127	5"	137.0	5.39	4	60	12	180	-	-	1,720	1.15	MARKET FITTINGS
H80051152*	152	6"	162.0	6.38	4	60	12	180	-	-	2,050	1.37	MARKET FITTINGS
H80051203*	203	8"	213.0	8.39	4	60	12	180	-	-	2,740	1.83	MARKET FITTINGS

## KEY FEATURES

- Layflat delivery structure
- Compact, lightweight and flexible
- Robust hose structure for longer life in severe applications
- Long length assemblies available - Max length: 61m (8" 40m)

## APPLICATIONS & FLUIDS

- Delivery hose for dry abrasive materials, concrete, sand and gravel

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
70 °C, 158 °F

## TUBE

Black NR/SBR rubber

## REINFORCEMENT

High tensile synthetic cord

## COVER

Black synthetic SBR/NR/PVC rubber, anti-static, abrasion and weathering resistant

## APPLICABLE SPECS

DIN 53516 70 ±5mm<sup>3</sup>

## STANDARD PACKAGING

Coil

# SANDSERVICE/21 D

## SANDBLASTING & ABRASIVE FLUID HOSE



HOSES 65

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80019019*	19	3/4"	32.8	1.29	21	300	63	910	90	3.54	524	0.35	SR+D08000 series
H80019025*	25	1"	39.2	1.54	21	300	63	910	115	4.53	668	0.45	SR+D08000 series
H80019031*	31	1.1/4"	49.0	1.93	21	300	63	910	150	5.91	1,072	0.72	SR+D08000 series
H80019038*	38	1.1/2"	56.8	2.24	21	300	63	910	180	7.09	1,575	1.06	SR+D08000 series
H80019051*	51	2"	71.4	2.81	21	300	63	910	240	9.45	2,326	1.56	SR+D08000 series

### KEY FEATURES

- Softwall delivery structure
- Highly robust construction
- Long life in extreme conditions
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Sand blasting or transfer of highly abrasive materials such as grit and gravel.

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

### TUBE

Black, NR/SBR rubber, abrasion resistant thick tube

### REINFORCEMENT

High strength synthetic cord

### COVER

Black, NR/SBR rubber, abrasion resistant . Cover is pin-pricked.

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

# ABRASERVICE/10 D

ABRASIVE FLUID HOSE, HEAVY DUTY



HOSES 66

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80021051*	51	2"	67.8	2.67	10	150	30	450	-	-	1,656	1.11	SR+D08000 series
H80021076*	76	3"	96.4	3.80	10	150	30	450	-	-	3,151	2.11	SR+D08000 series

## KEY FEATURES

- Softwall delivery structure
- High resistance to continuous abrasion
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Dry and liquid abrasive mix transfer

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

## TUBE

Black, NR/SBR rubber, abrasion resistant thick tube

## REINFORCEMENT

High strength synthetic cord, 2 crossing copper wires for grounding

## COVER

Black, NR/SBR rubber, abrasion resistant

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# ABRASERVICE/10 SD

ABRASIVE FLUID HOSE, HEAVY DUTY



HOSES  
67

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80012051*	51	2"	69.6	2.74	10	150	30	450	200	7.87	2,392	1.60	SR+D08000 SERIES
H80012063*	63	2.1/2"	85.5	3.37	10	150	30	450	250	9.84	3,636	2.44	SR+D08000 SERIES
H80012076*	76	3"	98.4	3.87	10	150	30	450	300	11.81	4,590	3.08	SR+D08000 SERIES
H80012102*	102	4"	124.6	4.91	10	150	30	450	450	17.72	6,019	4.04	SR+D08000 SERIES
H80012127*	127	5"	149.0	5.87	10	150	30	450	600	23.62	7,250	4.87	MARKET FITTINGS

## KEY FEATURES

- Hardwall suction and delivery structure
- High resistance to continuous abrasion
- Long length assemblies available - Max length: 60m

## APPLICATIONS & FLUIDS

- Dry and liquid abrasive mix transfer

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

## TUBE

NR/SBR rubber, abrasion resistant, thick tube

## REINFORCEMENT

High tensile synthetic cord and steel helix body wire, and 2 crossing copper wires for grounding

## COVER

Black NR/SBR abrasion resistant rubber

## APPLICABLE SPECS

Manuli design, safety factor 3:1

## STANDARD PACKAGING

Coil

# ABRASERVICE/35 SD

## REVERSE CYCLE DRILLING HOSE



HOSES 68

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80018063*	63	2.1/2"	89.7	3.53	35	508	105	1,523	250	9.8	4,327	2.91	MARKET FITTINGS
H80018076*	76	3"	104.7	4.12	35	508	105	1,523	300	11.8	5,714	3.84	MARKET FITTINGS
H80018102*	102	4"	136.0	5.35	35	508	105	1,523	400	15.75	9,272	6.23	MARKET FITTINGS

### KEY FEATURES

- High robustness of the hose structures
- Long lasting in severe applications
- High abrasion resistance of the tube compound
- Max Length: 60m

### APPLICATIONS & FLUIDS

- Drilling slurry with stones and mixed materials during reverse cycle drilling operations

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

80 °C, 176 °F

### TUBE

NR/SBR rubber, antistatic rubber, abrasion resistant, thick tube

### REINFORCEMENT

High tensile synthetic cord and steel helix body wire

### COVER

Black antistatic abrasion resistance NR/SBR. Cover is pin-pricked.

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

# ABRASERVICE/40 D

## PLASTER SPRAYING HOSE



HOSES 69

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80014019*	19	3/4"	32.5	1.28	40	580	120	1,740	150	5.90	540	0.36	SR+D08000 series
H80014025*	25	1"	39.3	1.55	40	580	120	1,740	170	6.69	682	0.46	SR+D08000 series
H80014031*	31	1.1/4"	45.2	1.78	40	580	120	1,740	200	7.87	883	0.59	SR+D08000 series
H80014035*	35	1.3/8"	51.0	2.01	40	580	120	1,740	200	7.87	1,101	0.74	SR+D08000 series
H80014038*	38	1.1/2"	54.6	2.15	40	580	120	1,740	230	9.05	1,236	0.83	SR+D08000 series
H80014051*	51	2"	67.8	2.67	40	580	120	1,740	270	10.62	1,852	1.24	SR+D08000 series

### KEY FEATURES

- Softwall delivery structure
- High resistance to continuous abrasion
- Long length assemblies available - Max length: 60m

### APPLICATIONS & FLUIDS

- Mortar, gypsum, grout spraying at open air, indoor or underground construction sites, etc.

### CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

### TUBE

Black, NR/SBR rubber, abrasion resistant thick tube

### REINFORCEMENT

High strength synthetic cord

### COVER

Black, NR/SBR rubber, abrasion resistant

### APPLICABLE SPECS

Manuli design, safety factor 3:1

### STANDARD PACKAGING

Coil

Refer to the Manuli Crimp App for the latest crimping parameters.

# ABRASERVICE/100 D

DELIVERY HOSE FOR HIGH-PRESSURE CONCRETE PUMPING



HOSES 70

PART REF.	HOSE SIZE		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS
	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1
H80015051*	51	2"	70.6	2.78	100	1,450	250	3,626	250.0	9.84	2,991	2.01	FF + D08000 SERIES
H80015063*	63	2.1/2"	83.0	3.27	100	1,450	250	3,626	320.0	12.59	3,688	2.48	FF + D08000 SERIES
H80015076*	76	3"	95.4	3.76	100	1,450	250	3,626	380.0	14.96	4,404	2.96	FF + D08000 SERIES
H80015089*	89	3.1/2"	109.6	4.31	100	1,450	250	3,626	450.0	17.71	5,353	3.6	FF + D08000 SERIES
H80015102*	102	4"	122.5	4.82	100	1,450	250	3,626	500.0	19.68	6,363	4.28	FF + D08000 SERIES
H80015127*	127	5"	153.0	6.02	100	1450	250	3625	630	24.80	11,000	7.39	FF + D08000 SERIES

## KEY FEATURES

- Hardwall delivery structure
- Robust hose structure for longer life in severe applications
- High abrasion resistance
- Integrated crimped fitting solution
- Long length assemblies available - Max length: 40m

## APPLICATIONS & FLUIDS

- High-pressure pumping of concrete, plaster, bentonite etc. in construction

## CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F  
80 °C, 176 °F

## TUBE

Black, NR/SBR anti-static rubber, abrasion resistant thick tube

## REINFORCEMENT

High tensile steel cord

## COVER

Black NR/SBR rubber, anti-static, abrasion and weathering resistant

## APPLICABLE SPECS

Manuli design safety factor 2.5:1

## STANDARD PACKAGING

Coil

The Manuli Hydraulics fittings range for crimped hose connections comprises of two families, the Serrated Range and Full Flow:

- **Serrated Range (SR)** - universal solution for low and medium pressure hose lines.
- **Full Flow (FF)** - Fittings for high pressure lines, designed to provide low resistance to flowing of concrete during working operations (such as Abraservice/100 D).

These fittings are available upon request. Please contact your local Manuli Hydraulics representative with your requirements.

<b>DN</b>	16	19	22	25	31	38	51	63	76	102
<b>Inch</b>	5/8"	3/4"	7/8"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
<b>Size</b>	-10	-12	-14	-16	-20	-24	-32	-40	-48	-64

**FERRULES**

SERRATED										
FULL FLOW										

**BEVELLED TO WELD**

EN 14420-4, SERIES 1										
EN 14420-4, SERIES 2										

**BSP FEMALE FRONT SEAL FULL HEXAGON**

EN 14420-5 / DIN 2817, TYPE A										
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**BSP FEMALE FRONT SEAL GROOVE HEXAGON**

EN 14420-5 / DIN 2817, TYPE B										
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**BSP MALE FRONT SEAL**

EN 14420-5 / DIN 2817										
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**FIXED FLANGE**

EN 14420-4, PN16										
ASA 150, ASME B16.5										
ASA 300, ASME B16.5										

**SWIVEL FLANGE**

EN 14420-4, PN16										
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**VICTAULIC GROOVED END**

SERRATED										
FULL FLOW										

**CALIFORNIA RAISED END**

SERRATED										
FULL FLOW										

As one of the world's leading suppliers of hose connector solutions Manuli Hydraulics is able to offer some of the most technically advanced, robust and reliable hose assembly equipment on the market today.

With a product range that encompasses all stages of the hose assembly process, the Manuli range of machines can cater for everything from on-site repairs to high volume, large-bore production cells.

Full details of the entire range can be found in the **Manuli Equipment Catalogue**, but some machines that are specifically suited to industrial hose assembly operations can be found below:

## DECOILER



### INDUSTRIAL DECOILER

- Max. Capacity: 6"
- Adjustable centre pins
- Remote start / stop controller
- High torque 3kW motor with speed control

## CUTTING MACHINES



### M75 CUT

- Max. Capacity: 3"
- Powerful 7.5kW motor
- High visibility
- Integrated safety cover



### M90 CUT

- Max. Capacity: 3½"
- Heavy duty design
- Electronic soft start
- Integrated smoke extraction



### MDH 15 CUT

- Max. Capacity: 10"
- Sensor for blade tensioning
- Water cooling system
- Automatic cutting cycle



INSERT PUSHING MACHINES



M2000 INS

- Max. Capacity: 6"
- Compact design
- Sturdy
- Available with both automatic and manual operation

CRIMPING MACHINES



MB 450-200

- Max. Capacity: 6"
- Crimp force up to 450 tonnes
- Ergonomic and robust
- Large opening and long master dies



MS 320 OPEN HEAD

- Max. Capacity: 6"
- Crimp force up to 320 tonnes
- Lateral opening and no limit on end connector dimension
- Separate power pack and integrated safety system



MS 550 / MS 550-16

- Max. Capacity: 12" / 16"
- Crimp force up to 550 tonnes
- Safe Crimp System (SCS) control
- Step crimping capability



The Manuli Hydraulics Industrial Hoses range is a specialised selection of products dedicated to the conveyance of specific substances in non-hydraulic applications. Each hose type has been designed to cope with the unique rigours associated with the transport of substances as diverse as fluids, solids and gases. This dedicated range of products is made from the highest quality materials using state-of-the-art manufacturing techniques to ensure quality, reliability and long service life.

**The Manuli Hydraulics Industrial Hoses range comprises the following product categories:**

**WATER, AIR & STEAM HOSES** - Dedicated to the transport of water, steam and compressed air.

**FUEL HOSES** - Dedicated to the transport of fuels, oils and fluids with an aromatic content of up to 50%.

**CHEMICAL HOSES** - Dedicated to the transport of highly aggressive chemicals.

**FOOD & BEVERAGE HOSES** - Dedicated to the transport of beverages and solid and liquid foodstuffs.

**ABRASIVE HOSES** - Dedicated to the transport of abrasive fluids such as concrete, plaster, cement and dry powders.

### CHOOSING THE CORRECT HOSE

In order to choose a hose suitable for a specific use it is necessary to determine at least the following basic points:

#### APPLICATION

Manuli Industrial Hoses have been designed to suit specific types of applications such as water, air, fuel, etc, which should be considered when selecting a hose type.

#### DELIVERY OR SUCTION

Delivery and suction of materials require different properties in hose structure. In addition to the high strength cords of delivery hoses, suction hoses have an interior helical wire to prevent hose collapse during suction.

#### PRESSURE

The maximum working pressure of the system should be evaluated when selecting an industrial hose. The working pressure allowance should include any peaks and surges that can occur during normal usage.

#### FLUID COMPATIBILITY

The nature, designation, concentration, temperature and state (liquid, solid, gaseous) of the conveyed fluid must be determined. In the case of solid substances the granulometry, density and quantity of the solid substance should be considered as well as the nature, speed and flow of the fluid carrying it.

#### TEMPERATURE

Ambient temperatures should be considered when selecting hose types.

#### ENVIRONMENT AND LOCATION

The environmental factors which could affect hose performance and service life should be evaluated when selecting a hose. Factors such as humidity, exposure to atmospheric agents etc. should be considered. Environmental conditions such as UV rays, ozone, sea water, chemicals and aggressive elements can cause premature degradation of the hose. Also consider whether the hose will be located on the ground, suspended or immersed in a liquid.

#### MECHANICAL STRESS

The minimum bend radius (ref. product data sheet) required must be evaluated as well as any stresses related to traction, torsion, bending, vibration, compression, deflection and longitudinal or transversal loads.

#### ABRASION RESISTANCE

Manuli Industrial Hoses are manufactured to ensure a good overall resistance to abrasion. However, if the hose is to be used in conditions where there may be excessive corrosion, dragging or impact then it is advisable to use additional protection to prevent untimely wear of the cover.

#### FITTINGS

In order to guarantee safe and reliable performance, the fittings used must be selected according to the manufacturer's recommendation(s). The complete assembly must guarantee the working pressure listed by the hose manufacturer and fittings must be crimped in accordance to the latest published specifications.

**POLYMERS USED IN INDUSTRIAL HOSES**

**MAIN CHARACTERISTICS AND RESISTANCE INFORMATION**

Elastomer	International Symbol	Common / Trade Name	Physical Strength	Resistance to:						
				Abrasion	Weather / Ozone	Gas permeation	Mineral oils	Gasolines	High temperatures	Low temperatures
Natural Rubber	NR	Gum Rubber	E	E	P	G	P	P	F	G
Acrylonitrile-Butadiene	NBR	Nitrile (Buna-N)	G	F	P	G	E	E	G	F
Styrene-Butadiene	SBR	Buna-S	E	E	P	G	P	P	F	G
Polychloroprene	CR	Neoprene	E	E	G	G	G	F	G	G
Chlorinated Isobutylene-Isoprene	CIIR	Chloro Butyl	F	P	E	E	P	P	E	E
Bromobutyl rubber	BIIR	Bromo Butyl	G	P	E	E	P	P	E	E
Chlorosulfonated Polyethylene	CSM	Hypalon	G	F	E	E	G	F	E	G
Chlorinated Polyethylene	CM	CPE	G	F	E	G	G	G	E	G
Ethylene Propylene Diene	EPDM	EPDM	G	F	E	F	P	P	E	E
Ethylene Propylene Copolymer	EPM	EPM	G	F	E	G	P	P	E	E
Ultra High Molecular Weight Polyethylene	UHMWPE	UHPE	G	E	E	G	G	G	F	G
Polyester resin	PET	PET	G	E	G	G	G	G	G	G
Polyamid Resin	PA	Nylon	G	E	E	E	E	E	E	G
Polyurethane	PU	Urethane	E	E	G	F	G	F	G	E
Polyvinyl Chloride (plasticized)	PVC	PVC	F	G	E	G	G	G	P	P
Fluorinated Ethylene Propylene	PTFE	Teflon	G	F	E	E	E	E	E	G
Silicone	VMQ	Silicone	G	G	G	G	F	F	E	E
Fluoropolymer	FKM	Viton	G	G	E	E	E	E	E	E
Carboxylated Nitrile Rubber	X-NBR	Carboxylated Nitrile	G	E	G	G	E	E	G	G
Fluorinated ethylene propylene	FEP	FEP	G	G	G	G	E	E	E	G

**LEGEND (IN ORDER OF PERFORMANCE)**

- E - Excellent
- G - Good
- F - Fair
- P - Poor

**CHEMICAL COMPATIBILITY CHART FOR INDUSTRIAL HOSES**

**BEHAVIOUR TO CHEMICALS FOR INDUSTRIAL HOSES APPLICATIONS**

**BASED ON LITERATURE DATA**

Tube polymers in contact with the fluid

Manuli Hydraulics Industrial Hoses are designed for fluid transfer applications with a specific transfer fluid which is specified in the relevant hose data sheet. They are not intended for diversified applications with various chemicals.

The following recommendations regarding generic chemicals are based on literature data regarding the polymers used for the tube compound. The actual field results of the fluid conveyed in the hose should be carefully tested and field validated by users.

**LEGEND OF HOSE TYPES BY TUBE COMPOUNDS**

Tube compound categories	Hose Types
Nitrile (NBR)	FUELSERVICE/5 SDC, FUELSERVICE/10 D, FUELSERVICE/10 SD, FUELSERVICE/16 D, FUELSERVICE/16 SD, FUELSERVICE/20 D, FUELSERVICE/21 D, FUELSERVICE/21 SD, FUELDISPENSER/D, FUELDISPENSER/SD, FUELTRUCK/16 D, FUELTRUCK/16 SD, FUELFLEX/17 SDC, PROGAS LPG D, PROGAS LPG SD, MILKYWAY/10 SD,
Styrene-butadiene (SBR)	MULTISERVICE/12 D, MULTISERVICE/12 SD, MULTISERVICE/21 D, MULTISERVICE/21 SD, AIRSERVICE, AIRSERVICE/27, WATERFLAT 5/10,
Natural rubber (NR)	ABRAFOOD/10, ABRADRY, SANDSERVICE/21 D, ABRASERVICE/10 D, ABRASERVICE/10 SD, ABRASERVICE/35 SD, ABRASERVICE/40 D, ABRASERVICE/100 D
Vinyl-Methyl-Silicone (VMQ)	COOLER/5
Ethylene-Propylene-Diene-Monomer (EPDM)	GLACIER/60, GLACIER/100, MULTIFOOD/10 SD, CHEMKING/16 SDE, COOLSERVICE/G
Polychloroprene (CR)	FIREX
Ethylene-Propylene (EPM)	AIRKING/40, STEAMER/18, STEAMER/18 OR, STEAMSAFE/7
Carboxylated Nitrile (X-NBR)	MUDSERVICE/28 D
Fluoroelastomer (FKM)	CHEMKING/10 D, CHEMKING/10 SD
Ultra-High Molecular Weight Polyethylene (UHMWPE)	CHEMKING/16 SDA
Fluorinated-Ethylene-Propylene (FEP)	CHEMKING/16 SD
Butyl (BIIR)	BREWERS/12 SD, BREWERS/12 SDC

**LEGEND OF RATINGS**

**E = Excellent** - Small or negligible changes of compound properties: no problem for use. Service life can exceed the expectations.

**G = Good** - There are only minor changes of some compound properties. Service life is normally in line with state of the art (standard) expectations.

**FT = Field Test recommended** - A field test is recommended to allow the end user to either validate the selection in the actual working conditions or to reject the selection. Compatibility data shows significant changes on some compound properties, service life can be reduced. Higher durability can be achieved with reduced severity of working conditions (temperature in particular) or with an upgraded hose selection. After the results of the recommended field test, if the end user decides to use the selected hoses under his validation, the end users assumes all responsibility with regard to any possible effects and consequences arising out of the using of hoses in the actual working conditions and Manuli Hydraulics cannot be held responsible for any claims in relation to or connected with the hoses for which it was recommended to perform a field test.

**X = Not recommended** - Unsuitable, severe effects on physical properties.

**REMARKS**

O-Rings used with couplings must also be considered for chemical compatibility with the fluid to be conveyed. This includes fittings containing internal O-Rings. Standard O-Ring of Manuli Hydraulics fittings are made of Nitrile rubber (NBR). If you use special fluids or very high temperatures, different O-Ring materials should be used, contact Manuli Hydraulics for specific information.

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE
	ACETALDEHYDE	X	FT	FT	G	G	G	E	G	E	E
	ACETHIL ACETONE	X	E	X	X	E	-	X	X	E	X
	ACETIC ACID 10%	G	E	G	FT	E	G	FT	G	E	E
	ACETIC ACID 50%	X	FT	X	X	G	G	FT	G	E	FT
	ACETIC ACID GLACIAL 100%	X	X	X	X	FT	G	FT	X	E	G
	ACETIC ANHYDRIDE 50%	FT	FT	G	X	E	G	E	X	E	FT
	ACETONE	X	FT	FT	X	E	E	G	X	E	E
	ACETYLENE (GAS)	E	E	E	G	E	G	E	E	E	E
	ACRYLIC NITRATE	X	E	G	-	E	-	G	G	E	E
	ADIPIC ACID	E	E	E	-	E	-	-	E	E	E
	AIR ATMOSPHERIC UP TO °C	70	80	70	70	120	120	175	200	100	90
	AIR COMPRESSED UP TO °C	X	80	X	X	X	120	175	200	100	90
	ALIMENTARY VINEGAR	E	E	E	FT	E	-	E	FT	E	E
	ALLYL CHLORIDE	X	X	X	-	X	-	E	-	E	X
	ALUMINIUM ACETATE (AQUEOUS)	E	E	E	FT	E	E	X	-	E	E
	ALUMINIUM AND POTASSIUM SULPHATE (DOUBLE)	G	E	E	G	E	E	G	E	E	E
	ALUMINIUM CHLORIDE (AQUEOUS)	E	E	E	G	E	e	X	E	E	E
	ALUMINIUM FLUORIDE	E	E	E	FT	E	E	E	E	E	E
	ALUMINIUM HYDROXIDE	E	E	E	G	E	-	E	E	E	E
	ALUMINIUM NITRATE (AQUEOUS)	E	E	E	G	E	E	G	-	E	E
	ALUMINIUM PHOSPHATE (AQUEOUS)	E	E	E	-	E	-	E	E	E	E
A	AMMONIA (AQUEOUS)	E	E	E	FT	E	G	E	E	E	E
	AMMONIA (LIQUID)	G	G	G	FT	E	G	FT	X	E	E
	AMMONIA 20°C (VAPOUR)	E	E	E	-	E	G	E	E	E	E
	AMMONIUM CARBONATE (AQUEOUS)	G	E	G	-	E	E	G	E	E	E
	AMMONIUM CHLORIDE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	AMMONIUM DIPHOSFATE (AQUEOUS)	E	E	E	-	E	E	G	E	E	E
	AMMONIUM METAPHOSPHATE	E	E	E	-	E	E	E	E	E	E
	AMMONIUM NITRATE	E	E	E	-	E	E	G	-	E	-
	AMMONIUM NITRATE (AQUEOUS)	E	E	E	FT	E	E	E	E	E	E
	AMMONIUM PERSULPHATE (AQUEOUS)	E	E	E	-	E	E	E	-	E	E
	AMMONIUM PHOSPHATE (AQUEOUS)	E	E	E	G	E	E	G	E	E	E
	AMMONIUM SULPHATE	E	E	E	G	E	E	E	E	E	E
	AMMONIUM THIOCYANATE	E	E	E	-	E	E	E	-	E	E
	AMYL CHLORIDE	X	X	X	X	X	X	FT	-	E	X
	AMYLIC ALCOHOL	E	E	E	FT	E	G	E	E	E	E
	ANILINE	X	FT	X	X	X	G	G	G	E	E
	ANIMAL GLUE	E	E	G	-	FT	-	E	E	E	E
	ANTIMONY CHLORIDE 50%	FT	E	E	-	E	X	X	E	E	E
	AQUA REGIA	G	X	X	X	FT	-	FT	G	E	X
	ARGON (GAS)	E	E	E	G	E	E	E	E	E	E
	ARSENIC ACID	E	E	G	FT	E	E	E	E	E	E
	ASPHALT	G	G	X	X	X	X	G	E	E	E
B	BARIUM CHLORIDE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	BARIUM HYDROXIDE	E	E	E	G	E	E	E	E	E	E
	BARIUM SULPHATE	E	E	E	G	E	-	E	E	E	E
	BENZALDEHYDE	X	X	FT	X	G	E	FT	G	E	-
	BENZENE, BENZOL	X	X	X	X	X	X	X	G	E	X
	BENZOIC ACID (AQUEOUS)	X	X	X	X	X	X	X	E	E	E
	BENZYL ALCOHOL	X	FT	G	X	E	-	E	E	E	FT
	BENZYL BENZOATE	X	X	X	-	G	G	-	E	E	-
	BENZYL CHLORIDE	X	FT	FT	-	X	X	G	E	E	FT

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE
B	BISMUTH CARBONATE	E	E	E	-	E	E	E	E	E	E
	BISULPHATE (SO2 SOLUTION)	FT	-	E	-	E	-	-	E	E	E
	BITUMEN UP TO °C	120	X	X	-	X	X	X	180	130	X
	BORIC ACID (AQUEOUS)	E	E	E	-	E	E	FT	E	E	E
	BRINE (KITCHEN SALT SOLUTION)	E	E	E	G	E	E	E	E	E	E
	BROMINE	X	X	X	X	X	X	X	E	E	X
	BROMINE WATER	X	X	X	X	X	X	X	E	E	X
	BROMOBENZENE	X	X	X	X	X	-	X	E	E	X
	BROMOCHLOROMETHANE	X	X	X	X	FT	X	X	E	E	X
	BUTADIENE	X	G	X	X	FT	X	-	E	E	E
	BUTANE (GAS)	E	E	G	X	G	X	FT	E	E	X
	BUTANE (LIQUID)	E	E	X	X	X	X	FT	E	E	E
	BUTIL ACETATE	X	X	FT	X	G	G	FT	X	E	-
	BUTYL ALCOHOL (BUTANOL)	E	E	E	G	E	G	G	E	E	X
	BUTYL AMINE	FT	X	X	-	X	X	G	X	E	-
	BUTYL BENZOATE	X	X	X	-	E	X	-	E	E	-
	BUTYL ETHER	E	G	X	X	FT	FT	FT	-	E	E
	BUTYL GLYCOLE	E	FT	E	-	E	G	G	E	E	E
	BUTYL OIL	-	X	X	X	G	-	-	E	E	-
	BUTYL PHTALATE (DIBUTYL PHTHALATE)	FT	FT	FT	X	G	-	G	G	E	FT
BUTYL STEARATE	G	X	X	X	FT	X	E	E	E	X	
BUTYLENE (LIQUID)	G	FT	FT	-	G	X	-	E	E	X	
BUTYRALDEHYDE (BUTIRIC ALDEHYDE)	FT	G	FT	X	G	E	FT	-	E	E	
BUTYRIC ACID (AQUEOUS)	X	FT	X	G	G	G	G	FT	E	X	
C	CALCIUM ACETATE	G	G	E	X	E	E	-	X	E	E
	CALCIUM BICARBONATE	E	E	E	E	E	E	E	E	E	E
	CALCIUM BISULPHATE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	CALCIUM BISULPHITE	FT	G	G	G	E	E	G	E	E	E
	CALCIUM CARBONATE	E	E	E	G	E	E	E	E	E	E
	CALCIUM CHLORIDE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	CALCIUM HYDROXIDE (AQUEOUS)	G	E	E	G	E	E	G	E	E	E
	CALCIUM NITRATE	E	E	E	G	E	E	G	E	E	E
	CALCIUM OXIDE	E	E	E	-	E	E	G	E	E	E
	CALCIUM SULPHATE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	CALCIUM SULPHIDE	G	E	G	G	E	G	G	E	E	-
	CARBON OXIDE (CARBON MONOXIDE)	G	G	G	-	FT	E	E	E	E	E
	CARBONIC ACID GAS	E	E	E	G	E	E	E	E	E	E
	CARBONIC ANHYDRIDE	E	G	X	X	G	E	E	E	E	E
	CARBONIC GAS	E	E	E	-	E	-	E	E	E	E
	CASTOR OIL	E	E	E	-	G	FT	E	E	E	FT
	CELLULOSE ACETATE	E	FT	FT	X	G	G	E	-	E	E
	CHLORIC ACID (AQUEOUS)	G	FT	E	-	E	E	E	E	E	E
	CHLORINATED WATER 3%	FT	G	FT	FT	FT	E	G	G	E	G
	CHLORINE (DRY)	FT	X	G	X	FT	X	X	E	E	X
	CHLORINE (HUMID)	X	X	FT	X	FT	-	X	E	E	X
	CHLORO PEROXIDE	X	X	X	-	FT	-	FT	E	E	X
	CHLORODIPHENIL	X	X	X	-	X	-	G	E	E	E
	CHLOROFORM (TRICHLOROMETHANE)	X	X	X	X	X	X	X	E	E	X
	CHLOROSULFONIC ACID	X	X	X	X	X	X	X	E	E	X
	CHROMIC ACID 10%	X	X	X	X	G	X	FT	E	E	E
	CHROMIC ACID 25%	X	X	X	X	G	X	X	E	E	E
	CHROMIC ACID 50%	X	X	X	X	G	X	X	E	E	FT
	CITRIC ACID	E	E	G	G	E	G	E	E	E	E

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE	
C	COAL TETRACHLORIDE	FT	X	X	-	X	X	X	E	E	X	
	COCONUT OIL	E	G	X	X	E	FT	E	E	E	X	
	COLZA OIL	G	G	X	X	E	-	X	E	E	-	
	COPPER CHLORIDE	E	E	E	FT	E	E	E	E	E	E	
	COPPER CYANIDE	E	E	E	FT	E	E	E	E	E	E	
	COPPER HYDROXIDE	X	G	E	-	E	-	E	-	E	E	
	COPPER NITRATE	E	E	E	FT	E	-	E	E	E	E	
	COPPER SULPHATE (AQUEOUS)	E	E	E	FT	E	G	E	E	E	E	
	CORN OIL	E	G	X	X	G	FT	E	E	E	X	
	COTTONSEED OIL	E	G	X	X	E	FT	G	E	E	E	
	CREOSOTE	X	X	X	X	G	X	G	E	E	X	
	CRESOLS	FT	FT	X	X	X	-	G	E	E	X	
	CRUDE OIL	FT	X	X	X	X	X	X	E	E	FT	
	CYCLOEXANE (HEXAIDROBENZENE)	E	X	X	X	X	X	X	E	E	E	
	CYCLOEXANOL	G	E	G	X	X	-	G	E	E	E	
	CYCLOHEXANONE	X	X	X	X	FT	G	G	X	E	E	
	D	DECAHYDRONAPHTALENE (DECALIN)	G	X	X	X	X	X	E	E	E	E
DETERGENTS SYNTHETIC 20°C		E	E	E	FT	E	E	E	E	E	E	
DIACETONE ALCOHOL		X	FT	X	FT	E	E	E	X	E	G	
DIAMINE ETHYLENE		G	E	E	FT	E	-	FT	G	E	E	
DIBENZYL ETHER		X	X	X	X	G	G	G	E	E	-	
DIBUTHYL PHTLATE		G	FT	FT	X	X	FT	-	G	E	FT	
DIBUTHYL SEBACATE		X	X	X	X	G	FT	E	G	E	E	
DIBUTHYLAMINE		X	X	X	X	X	X	FT	X	E	-	
DIBUTHYLKETONE		X	FT	FT	X	G	G	-	-	E	G	
DICHLORBENZENE		FT	X	X	X	X	X	X	E	E	FT	
DICHLORETHYLENE		X	X	X	X	X	X	X	G	E	X	
DICHLOROMETHANE		FT	X	X	X	X	X	X	G	E	X	
DIESEL FUEL (50°C) - FLUID TRANSFER ONLY		E	FT	X	X	X	X	X	E	E	X	
DIESEL FUEL BIO RME		E	FT	X	X	X	X	X	E	E	X	
DIESEL OIL		G	FT	X	X	X	X	X	E	E	G	
DIETHANOLAMINE		FT	-	-	FT	E	E	-	-	E	E	
DIETHYL ESTER OF ADIPIC ACID		X	FT	FT	-	E	-	-	X	E	-	
DIETHYL ETHER		X	FT	X	X	X	-	X	X	E	X	
DIETHYLAMINE		FT	FT	G	FT	G	-	G	X	E	FT	
DIETHYLBENZENE		X	X	X	X	X	X	X	-	E	-	
DIETHYLENE GLYCOL		E	E	E	G	E	-	G	E	E	E	
DIETHYLPHTALATE (DEPH)		X	X	X	X	X	-	-	FT	E	E	
DIMETHYLAMINE		X	X	X	FT	G	-	-	X	E	FT	
DIMETHYLANILINE		X	X	FT	-	G	X	G	E	E	-	
DIMETHYLETHER		FT	FT	X	X	X	-	-	FT	E	G	
DIMETHYLFORMAMIDE		G	FT	E	-	G	G	G	X	E	E	
DIOCTYL PHTHALATE		X	X	X	X	G	-	FT	G	E	FT	
DIOCTYL SEBACATE		X	X	X	-	G	FT	FT	G	E	-	
DIOXIN		X	X	X	-	G	G	X	X	E	E	
DIPHELYL		FT	X	X	-	X	X	X	E	E	G	
DIPHENIL OXIDE		X	X	X	-	X	-	G	FT	E	-	
DISTILLED WATER		E	E	E	E	E	E	E	E	E	E	
DODECYL ALCOHOL		E	E	-	-	E	G	-	E	E	-	
E		EPICHLOROHYDRIN (LIQUID)	X	X	X	-	G	G	X	X	E	E
		ESSENCES WITH HIGH AROMATIC CONTENT	G	FT	X	-	X	X	X	E	E	X
	ESSENCES WITH LOW AROMATIC CONTENT	E	FT	X	-	X	X	X	E	E	X	
	ESSENTIAL OILS	G	X	X	X	-	X	X	E	E	X	

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE	
E	ETHANE (GAS)	E	G	X	-	X	X	FT	E	E	E	
	ETHANOLAMINE	G	E	E	FT	E	G	FT	G	E	E	
	ETHYL ACETATE	X	FT	FT	X	G	G	G	X	E	G	
	ETHYL ACRYLATE (ETHYLACRILIC ESTER)	X	FT	FT	X	G	G	G	X	E	-	
	ETHYL ALCOHOL	E	E	E	G	E	E	E	E	E	E	
	ETHYL BENZENE	FT	X	X	X	X	X	X	G	E	X	
	ETHYL BROMIDE	E	E	G	-	E	X	X	E	E	G	
	ETHYL CHLORIDE (CHLOROETHYL)	X	X	X	X	X	FT	X	G	E	X	
	ETHYL ETHER	X	FT	X	X	X	-	X	X	E	X	
	ETHYL GLYCOL	X	X	G	-	G	G	-	X	E	E	
	ETHYL MERCAPTAN	X	FT	X	-	FT	X	FT	X	E	-	
	ETHYLENE (GAS)	E	G	X	X	-	X	G	E	E	E	
	ETHYLENE CHLORIDE (DICHLOROETHYLENE)	FT	FT	FT	X	G	X	X	E	E	X	
	ETHYLENE GLYCOL	E	E	G	G	E	E	E	E	E	E	
ETHYLENE OXIDE	X	X	X	-	FT	FT	X	X	E	X		
F	FERROUS CHLORIDE (AQUEOUS)	E	E	E	G	E	-	E	E	E	E	
	FERROUS SULPHATE	E	E	E	-	E	-	E	E	E	E	
	FLUORINE	-	-	-	-	FT	-	-	G	E	X	
	FLUOROBENZENE	X	X	X	-	X	X	X	E	E	-	
	FLUOROBORIC ACID 65%	G	G	G	FT	G	-	X	-	E	E	
	FLUOROSILICIC ACID	G	FT	E	FT	G	-	X	X	E	E	
	FORMALDEHYDE	G	G	G	FT	G	G	E	E	E	E	
	FORMALIN	G	E	E	FT	E	-	G	E	E	E	
	FORMIC ACID	G	E	E	FT	E	-	G	FT	E	G	
	FUEL A (iso-octane)	E	FT	X	X	X	X	X	E	E	X	
	FUEL B (70% iso-octane, 30% toluene)	G	FT	X	X	X	X	X	E	E	X	
	FUEL C (50% iso-octane, 50% toluene)	G	X	X	X	X	X	X	E	E	X	
	FUEL HIGH AROMATIC	FT	X	X	X	X	X	X	E	E	X	
	FUEL LOW AROMATIC	G	X	X	X	X	X	X	E	E	X	
	FURFURYL ALCOHOL	X	G	G	X	G	G	G	FT	E	X	
	G	GALLIC ACID	X	X	FT	-	G	G	E	E	E	E
		GLUCOSE	E	E	E	G	E	E	E	E	E	E
		GLYCERINE	E	E	E	G	E	E	E	FT	E	E
		GREASY ACIDS IN GENERAL	G	G	FT	-	FT	X	FT	E	E	FT
H	HELIUM	E	E	E	G	E	E	E	E	E	E	
	HEPTANE	E	G	X	X	X	X	X	E	E	E	
	HEXALDEHYDE	X	G	FT	X	G	G	FT	-	E	E	
	HEXANE	E	E	X	X	X	X	X	E	E	E	
	HEXIL ALCOHOL (HEXANOL)	G	G	E	G	E	-	FT	-	E	E	
	HYDRAULIC BRAKES FLUID	G	FT	X	X	X	FT	X	E	E	G	
	HYDRAULIC OILS ESTER BASED	G	X	X	X	G	X	X	G	G	-	
	HYDRAULIC OILS GLYCOL BASED	E	G	X	X	E	FT	G	FT	E	E	
	HYDRAULIC OILS MINERAL BASED	E	FT	X	X	X	X	X	E	E	FT	
	HYDRAULIC OILS PHOSPHATE ESTER BASED	X	X	X	X	G	G	G	E	E	X	
	HYDRAZINE	G	G	G	X	E	E	X	X	E	E	
	HYDRAZINE HYDRATE (AQUEOUS)	FT	FT	X	X	E	G	FT	E	E	E	
	HYDROBROMIC ACID	FT	G	FT	G	G	E	G	E	E	E	
	HYDROCHLORIC ACID (GAS)	X	X	X	X	G	G	-	X	E	E	
	HYDROCHLORIC ACID 15% (MURIATIC ACID)	G	FT	E	G	E	FT	E	E	E	E	
	HYDROCHLORIC ACID 38% (MURIATIC ACID)	FT	FT	G	FT	E	X	FT	E	E	E	
	HYDROCYANIC ACID 20%	FT	FT	X	X	E	-	G	E	E	-	
	HYDROFLUORIC ACID 10%	FT	X	FT	X	X	-	E	G	E	G	
	HYDROFLUORIC ACID 30%	X	X	X	X	X	-	E	G	E	G	

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE
H	HYDROFLUORIC ACID 75%	X	X	X	X	X	-	G	G	E	X
	HYDROGEN (GAS)	E	E	G	FT	E	G	FT	E	E	E
	HYDROGEN PEROXIDE 10% (PERHYDROL)	FT	X	FT	X	G	G	E	G	E	G
	HYDROGEN PEROXIDE 30% (PERHYDROL)	X	X	X	X	G	G	E	E	E	E
	HYDROGEN SULPHIDE	X	FT	X	X	E	E	-	G	-	-
I	IODINE (ALCOHOLIC SOL. 5-10%)	G	X	G	-	G	-	X	E	E	FT
	ISOBUTYL ALCOHOL	G	E	G	FT	E	E	E	E	E	E
	ISO-OCTANE	E	G	X	X	X	X	E	E	E	X
	ISOPROPYL ACETATE	X	X	FT	X	G	G	G	X	E	-
	ISOPROPYL ALCOHOL	G	E	E	G	E	E	E	E	E	E
	ISOPROPYL BENZOL	X	X	X	G	X	-	X	E	E	-
	ISOPROPYL CHLORIDE	X	-	X	-	X	-	-	E	E	-
	ISOPROPYL ETHER	FT	FT	X	X	FT	X	-	FT	E	FT
K	KEROSENE	G	FT	X	X	X	X	FT	E	E	X
L	LACTIC ACID (AQUEOUS)	FT	FT	G	FT	G	G	E	E	E	G
	LANOLIN	E	G	X	-	FT	-	FT	E	E	G
	LAURYL ALCOHOL	E	E	-	-	E	-	-	E	E	-
	LEAD ACETATE (AQUEOUS)	E	E	E	FT	E	E	E	-	E	E
	LEAD NITRATE	E	E	E	-	E	E	G	-	E	-
	LEAD SULPHATE	E	E	E	G	E	E	E	-	E	E
	LINSEED OIL	E	G	X	X	FT	FT	E	E	E	X
M	MAGNESIUM CHLORIDE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	MAGNESIUM HYDROXIDE	G	E	G	FT	E	E	-	E	E	-
	MAGNESIUM SILICATE (TALC)	E	E	E	-	E	E	E	E	E	E
	MAGNESIUM SULPHATE	G	E	G	G	E	E	E	E	E	E
	MAGNESIUM SULPHITE (AQUEOUS)	E	E	E	-	E	E	E	E	E	E
	MALEIC ACID (AQUEOUS)	X	X	FT	X	FT	X	-	E	E	E
	MALIC ACID (AQUEOUS)	E	E	E	FT	E	X	E	E	E	E
	MERCURY	E	E	E	G	E	E	E	E	E	E
	MERCURY CHLORIDE	FT	G	E	-	E	E	E	E	E	E
	MERCURY NITRATE	E	E	E	-	E	E	E	-	E	E
	MESITYL OXYDE	X	X	X	X	G	X	X	X	E	-
	METHANE (GAS)	E	FT	X	X	FT	X	FT	E	E	E
	METHIL ACETATE	X	X	X	X	G	G	X	X	E	E
	METHYL ALCOHOL (METHANOL)	E	E	E	G	E	E	E	G	E	E
	METHYL CHLORIDE	X	X	FT	X	G	FT	X	FT	E	X
	METHYL GLYCOL	-	G	X	-	G	-	-	X	E	E
	METHYL PHTHALATE	X	X	X	-	G	-	-	G	E	-
	METHYLAMINE (AQUEOUS)	X	E	E	-	E	-	-	E	E	E
	METHYLETHYLKETONE	X	X	X	X	G	FT	FT	X	E	E
	METHYLISOBUTHYLKETONE	X	X	X	-	FT	FT	FT	X	E	E
	METHYLMETACRYLATE	X	X	X	X	X	X	-	X	E	G
	MILK	-	-	-	-	E	E	G	-	G	E
	MONOCHLOROACETIC ACID	X	X	X	FT	G	E	X	X	E	X
MONOCHLOROBENZOL	X	X	X	-	X	-	FT	G	E	X	
N	NAPHTA (OIL)	E	X	X	X	X	X	G	E	E	X
	NATURAL GAS	E	E	E	X	E	X	X	E	E	E
	NATURAL GAS (HUMID)	E	E	FT	X	FT	X	X	E	E	G
	NICKEL SULPHATE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E
	NITRIC ACID 10%	FT	FT	FT	X	E	-	FT	G	E	E
	NITRIC ACID 25%	X	X	X	X	E	-	X	G	E	E
	NITRIC ACID 40%	X	X	X	X	G	-	X	G	E	X
	NITRIC ACID 60%	X	X	X	X	FT	-	X	G	E	X

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE
N	NITROBENZENE	X	X	FT	X	X	FT	X	G	E	X
	NITROGEN	E	E	E	G	E	E	E	E	E	E
	NITROPROPANE	X	X	X	-	G	G	X	X	E	-
	NITROTOLUENE	FT	X	X	-	FT	FT	-	FT	E	E
	NITROUS OXIDE (GAS)	E	E	E	G	E	-	E	E	E	E
	NONYLALCOHOL (NONANOL)	X	E	X	-	E	-	G	E	E	E
O	OCTANE	E	FT	X	X	X	X	X	E	E	E
	OCTYL ALCOHOL	G	E	G	FT	E	G	G	E	E	E
	OIL & GREASES ANIMAL BASED	E	G	X	X	G	X	FT	E	E	E
	OIL & GREASES MINERALS BASED UP TO °C	120	80	X	X	X	X	X	200	130	70
	OIL & GREASES SILICONE BASED	E	E	E	G	E	X	G	E	E	E
	OIL & GREASES VEGETABLE BASED	E	FG	FT	X	FT	FT	FT	E	E	G
	Oil IRM (ASTM) n°1, 100°C	E	G	X	X	X	X	G	E	E	G
	Oil IRM (ASTM) n°2, 100°C	E	G	X	X	X	X	FT	G	E	FT
	Oil IRM (ASTM) n°3, 100°C	E	FT	X	X	X	X	FT	G	E	FT
	OLEIC ACID	G	FT	X	X	X	X	X	G	E	G
	OLIVE OIL	E	E	X	X	FT	G	G	E	E	E
	OXALIC ACID	G	G	G	X	G	E	E	E	E	E
	OXYGEN UP TO °C	X	90	X	FT	120	120	175	200	130	70
	OZONE	X	G	X	X	E	G	E	E	E	G
	P	PALM OIL	E	G	X	X	E	G	E	E	E
PALMITIC ACID		FT	G	FT	X	FT	G	E	G	E	E
PARAFFIN, PARAFFIN OIL		E	G	X	X	FT	X	G	E	E	FT
PARAFORMALDEHYDE		G	G	FT	-	G	E	E	G	E	E
PENTACHLOROPHENOL		X	X	X	-	G	E	FT	-	E	-
PENTANE		E	E	X	X	X	X	X	-	E	X
PERCHLORIC ACID (AQUEOUS)		FT	FT	G	X	G	G	X	E	E	E
PERCHLOROETHYLENE (TETRACHLOROETHYLENE)		FT	X	X	X	X	X	G	E	E	X
PETROLEUM 70°C		G	FT	X	X	X	X	X	E	G	FT
PHENOL (PHENIC ACID)		X	FT	FT	X	X	X	G	E	E	X
PHOSPHORIC ACID 20%		FT	G	FT	G	E	-	G	E	E	E
PHOSPHORIC ACID 50%		G	E	E	FT	E	-	G	E	E	E
PHOSPHORIC ACID 85%		FT	E	E	FT	E	-	FT	E	E	E
PHOSPHOROUS OSSYCHLORIDE (PHOSPHORYL CHLORIDE)		X	X	X	-	E	-	-	E	E	FT
PHOSPHORYL CHLORIDE		X	X	X	-	G	-	-	E	E	FT
PHTHALIC ACID		X	E	E	-	E	E	-	X	E	E
PICRIC ACID (TRINITROPHENOL)		FT	FT	FT	FT	E	E	E	G	E	E
PINE OIL		G	X	X	X	X	X	G	E	E	FT
POTASSIUM ACETATE (AQUEOUS)		G	G	X	X	E	E	X	X	E	E
POTASSIUM BICARBONATE (AQUEOUS)		E	E	E	G	E	E	E	E	E	E
POTASSIUM BROMIDE		E	E	E	-	E	E	E	E	E	E
POTASSIUM CARBONATE (POTASH)		E	E	E	G	E	E	E	E	E	E
POTASSIUM CHLORATE		E	E	E	-	E	E	G	E	E	E
POTASSIUM CHLORIDE		E	E	E	G	E	E	E	E	E	E
POTASSIUM CYANIDE		E	E	E	G	E	E	E	G	E	E
POTASSIUM DICHROMATE		G	FT	FT	-	E	E	E	E	E	E
POTASSIUM HYDROXIDE (CAUSTIC POTASSIUM)		E	E	E	FT	E	E	FT	E	E	E
POTASSIUM HYPOCHLORITE (JAVEL WATER)		G	X	G	-	G	E	G	E	E	FT
POTASSIUM IODIDE 10% (AQUEOUS)		E	E	FT	FT	E	E	-	E	E	E
POTASSIUM NITRATE (AQUEOUS)		E	E	E	G	E	E	E	E	E	E
POTASSIUM PERMANGANATE 10 % (AQUEOUS)	G	FT	FT	-	E	E	E	E	E	E	

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE	
P	POTASSIUM PHOSPHATE	E	G	E	-	E	E	X	E	E	E	
	POTASSIUM SULPHATE	E	E	E	-	E	E	E	E	E	E	
	POTASSIUM SULPHITE	E	E	E	-	E	E	E	E	E	E	
	PROPANE (GAS)	E	G	G	X	FT	X	X	E	E	G	
	PROPANE (LIQUID)	E	G	X	X	X	X	FT	E	E	X	
	PROPIONIC ACID	X	FT	X	-	E	E	-	E	E	E	
	PROPYL ACETATE	X	E	X	X	E	G	-	X	E	G	
	PROPYL ALCOHOL	G	E	E	G	E	E	G	E	E	E	
	PROPYL AMINE	X	X	X	-	X	E	X	X	E	-	
	PROPYLENE	FT	X	X	X	X	X	X	E	E	-	
	PROPYLENE CHLORIDE	X	X	X	X	X	X	X	-	E	X	
	PROPYLENE GLYCOL	FT	E	E	G	E	G	E	E	E	E	
	PROPYLENE GLYCOL	G	E	E	G	E	E	-	E	E	E	
	PROPYLENE OXIDE	X	X	X	-	G	G	X	X	E	-	
	PRUSSIC ACID 20% (HYDROCYANIC ACID)	FT	FT	G	X	E	-	G	G	E	E	
	PRUSSIC ACID 80% (CONC.)	FT	FT	FT	X	G	-	G	G	E	E	
	PURINE	E	E	E	-	E	-	E	E	E	E	
	PYRANOLS (OIL FOR TRANSFORMER)	E	X	X	-	X	-	G	E	E	FT	
	PYRIDINE	X	X	X	-	E	G	X	FT	E	E	
	S	SEA WATER (BRINE, BRACKISH)	E	G	G	G	E	E	E	E	E	E
		SILICA	E	E	E	-	E	E	E	E	E	E
		SOAP AND SOAP SOLUTIONS	E	E	E	FT	E	E	E	E	E	E
		SODIUM ACETATE	E	E	E	X	E	FT	E	G	E	E
		SODIUM BICARBONATE	E	E	E	G	E	E	E	E	E	E
		SODIUM BISULPHATE	E	E	E	FT	E	-	E	E	E	E
SODIUM BISULPHITE		E	E	E	FT	E	-	E	E	E	E	
SODIUM CARBONATE (SODIUM CALCINATE)		E	E	E	G	E	E	E	E	E	E	
SODIUM CHLORATE		E	E	E	-	E	X	E	E	E	E	
SODIUM CHLORIDE (KITCHEN SALT)		E	E	E	G	E	E	E	E	E	E	
SODIUM CYANIDE		E	E	E	X	E	-	E	E	E	E	
SODIUM DICHROMATE		FT	G	FT	X	E	-	G	E	E	E	
SODIUM FLUORIDE		E	E	E	-	E	E	G	E	E	E	
SODIUM HYDROXIDE 20°C (CAUSTIC SODA, SODIUM HYDRATE)		G	E	E	X	E	E	G	FT	E	E	
SODIUM HYDROXIDE CONC. 100°C		X	FT	X	X	G	G	X	X	E	X	
SODIUM HYPOCHLORITE 30%		G	X	FT	-	E	G	FT	FT	E	G	
SODIUM METAPHOSPHATE		E	E	E	FT	E	-	E	E	E	E	
SODIUM NITRATE		E	E	E	G	E	E	E	E	E	E	
SODIUM PERBORATE		E	E	E	FT	E	E	E	E	E	E	
SODIUM PEROXIDE		G	FT	G	FT	G	E	X	G	E	-	
SODIUM PHOSPHATE AND TRISODIC PHOSPHATE		E	E	E	-	E	E	E	E	E	E	
SODIUM SILICATE (AQUEOUS)		E	E	E	G	E	E	E	E	E	E	
SODIUM SULPHATE (AQUEOUS)		E	E	E	-	G	E	E	E	E	E	
SODIUM SULPHITE		E	E	E	-	E	G	E	E	E	E	
SODIUM THIOSULPHATE (ANTICHLORINE)		E	E	E	-	E	E	E	E	E	E	
SOYBEAN OIL		E	G	X	X	FT	FT	E	E	E	X	
STANNOUS CHLORIDE		E	E	E	G	G	E	G	E	E	E	
STARCH (AQUEOUS)		E	E	E	-	E	-	E	E	E	E	
STARCH SYRUP		E	E	E	-	E	-	E	E	E	E	
STEARIC ACID		G	G	G	X	G	G	E	G	E	X	
STYRENE (MONOMER)		X	X	X	X	X	X	X	G	E	X	
SUGAR (AQUEOUS)		E	E	E	G	E	E	E	E	E	E	

**COMPATIBILITY BEHAVIOUR OF TUBE POLYMERS CONTACTING FLUIDS (BASED ON LITERATURE DATA)**

CHEMICALS		NBR / X-NBR	CHLOROPRENE	SBR	NR	EPDM / EPM	CIIR	VMQ	FKM	FEP	UHMWPE
S	SULPHONITRIC ACID	X	X	X	X	X	-	X	X	E	X
	SULPHOPHOSPHORIC ACID	X	FT	X	X	G	-	-	E	E	FT
	SULPHUR 90°C (MOLTEN)	X	X	X	-	X	FT	E	E	E	X
	SULPHUR DIOXIDE	X	FT	X	X	E	G	FT	E	E	G
	SULPHUR TRIOXIDE	FT	X	G	X	G	G	FT	E	E	E
	SULPHURIC ACID 10%	E	E	E	FT	E	G	G	E	E	E
	SULPHURIC ACID 30% (FOR ACCUMULATORS)	G	G	G	FT	E	FT	X	E	E	E
	SULPHURIC ACID 50%	FT	FT	FT	X	E	X	X	E	E	E
	SULPHURIC ACID 75%	X	X	X	X	G	X	X	E	E	FT
	SULPHURIC ACID 90%	X	X	X	X	FT	X	X	E	E	X
	SULPHURIC ACID OR OLEUM (STEAMING)	X	X	X	X	X	FT	X	E	E	X
	SULPHUROUS ACID 10% HUMID	FT	FT	FT	FT	E	G	E	G	E	E
	SULPHUROUS ACID 75% HUMID	X	X	X	X	G	FT	FT	G	E	FT
	SULPHUROUS HYDROGEN (DRY)	G	FT	FT	-	G	-	E	E	E	E
SULPHUROUS HYDROGEN (HUMID)	FT	FT	X	-	G	-	E	E	E	E	
T	TALC (MAGNESIUM SILICATE)	E	E	E	-	E	E	E	E	E	E
	TANNIC ACID	G	G	G	FT	G	E	G	G	E	E
	TARTARIC ACID (AQUEOUS)	E	E	E	X	G	G	E	E	E	E
	TETRACHLOROETHYLENE	G	X	X	X	X	X	G	E	E	X
	TETRAHYDROFURAN	FT	X	X	X	X	G	-	X	E	FT
	TETRALYNE (TETRAHYDRONAPHTALENE)	FT	X	X	X	X	-	X	E	E	FT
	TOLUENE, TOLUOL	FT	X	X	X	X	X	X	E	E	X
	TRIBUTYL PHOSPHATE	X	X	X	-	E	X	-	X	E	E
	TRICHLOROETHANE (CHLOROETHANE)	X	X	X	X	X	X	X	E	E	X
	TRICHLOROETHYLENE	FT	X	X	X	X	X	X	G	E	X
	TRICHLOROMETHANE (CHLOROFORM)	X	X	X	-	X	X	X	E	E	X
	TRICRESYLPHOSPHATE	X	FT	E	X	E	-	E	G	E	FT
	TRIETHANOLAMINE	G	E	FT	FT	FT	G	E	E	E	E
	TRIETHYLAMINE	FT	-	-	X	X	-	-	-	E	E
	TRIOCTHYLPHOSPHATE	G	X	X	X	X	E	FT	X	E	E
	TRISODIC PHOSPHATE	E	E	E	-	E	E	E	-	E	E
	TURPENTINE (ESSENCE, OIL)	E	X	X	X	X	X	X	E	E	FT
	U	UREA	E	E	E	-	E	E	E	E	E
VASELINE		G	G	G	G	G	-	-	-	-	G
V	VINYL ACETATE	E	E	E	X	E	-	-	G	E	-
	VINYL CHLORIDE (MONOMER)	X	X	G	X	G	X	X	E	E	X
W	WATER	E	G	E	E	E	E	G	G	G	G
	WATER STEAM UP TO °C	80	X	X	X	130	130	120	150	120	X
	WEATHER (EXPOSURE TO): GEN. REG.	X	G	X	FT	E	E	E	E	E	G
	WOOD OIL	G	FT	X	X	X	-	FT	E	E	G
X	XYLENE, XYLOLO	X	X	X	X	X	X	X	G	E	X
	XYLENOL	X	X	X	-	X	X	X	G	E	X
Z	ZINC ACETATE (AQUEOUS)	G	G	X	G	E	-	X	X	E	E
	ZINC CHLORIDE (AQUEOUS)	E	E	E	G	E	E	E	G	E	E
	ZINC SULPHATE (AQUEOUS)	E	E	E	G	E	E	E	E	E	E

**WARNING**

MANULI HYDRAULICS HAVE NOT PERFORMED TESTING ON FINISHED HOSE ASSEMBLIES WITH ANY OF THE CHEMICALS MENTIONED ABOVE.

THE RATING OF THE TUBE POLYMERS IN RELATION TO SPECIFIC CHEMICALS AND FLUIDS IS BASED ON LITERATURE DATA AND DOES NOT IMPLY ANY GUARANTEE FROM MANULI HYDRAULICS THAT A HOSE USING THAT SPECIFIC POLYMER IS SUITABLE FOR CONVEYING SAID CHEMICAL OR FLUID. ANY USE OF MANULI INDUSTRIAL HOSES WITH FLUIDS OTHER THAN THOSE SPECIFIED IN THE HOSE DATA SHEETS IS DONE UNDER THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE END USER AND NO LIABILITY WHATSOEVER CAN BE ATTRIBUTED TO MANULI HYDRAULICS IN THAT REGARD.

ANY APPLICATION OF INDUSTRIAL HOSES WITH VARIOUS FLUIDS AND CHEMICALS, MUST BE FIELD TESTED AND APPROVED BY USERS.

COMPATIBILITY OF HOSE AND FITTINGS WITH CONVEYED FLUID IS AN ESSENTIAL FACTOR IN AVOIDING CHEMICAL REACTIONS THAT MAY RESULT IN RELEASE OF FLUIDS OR FAILURE OF THE HOSE OR CONNECTION. THIS CHEMICAL COMPATIBILITY GUIDE MUST NOT BE USED IN CONJUNCTION WITH ANY OTHER COMPATIBILITY GUIDES FROM PREVIOUS OR FUTURE CATALOGUE EDITIONS, BULLETINS OR PUBLICATIONS. INCORRECT USE OF THESE CHARTS COULD RESULT IN DEATH, PERSONAL INJURY OR PROPERTY DAMAGE.

**EXAMPLES OF SUBSTANCES IN CHEMICAL FAMILIES**

The following table summarizes some relevant characteristic substances that are typical representatives of some chemical families used in various industrial sectors

<b>Aromatic solvents</b>	Benzene, cumene, p-cumene, naphtalene, toluene, xylene, cresol, styrene, cyclohexanol and combinations
<b>Aliphatic solvents</b>	Propane, butane, pentane, hexane, heptane, dipentene, tripropylene
<b>Halogenated solvents</b>	Chloroform, dichlorobenzene, dichloroethylene, methylenbromide, methylenchloride, benzylchloride, carbon tetrachloride, trichloroethylene, carbon bisulphite, turnetine, perchloroethylene, dichloroethane
<b>Ketonic solvents</b>	Acetone, methylketone, isobutylketone, methylethylketone, methylisobuthylketone
<b>Esters solvents</b>	Butyl acetate, methyl acetate, amyl acetate, isobutyl acetate
<b>Amines</b>	Aniline, ethylene diamine, diethanol amine, triethanolamine, dimethyl amine, monoethanolamine
<b>Alcohols</b>	Methanol, ethanol, propanol, butanol, glycerol

## CLEANING & SANITIZATION OF FOOD GRADE HOSES

The quality of food products depends on many factors from the composition and hygienic storage conditions of raw materials, to technology, production equipment, environment and stocking methods.

For this reason it is critical that, in addition to using common sense, all required production steps are correctly followed – especially those related to cleaning and sanitization of equipment.

Manuli rubber food hose products are ideal for use in the delivery of many dry and liquid foodstuffs and, if correctly cleaned and sanitized in accordance with industrial norms and specifications, will provide long lasting, reliable foodstuff conveyance with no adverse effects on the quality or taste of the product.

Due to the huge variation in cleaning regulations and requirements in the food industry Manuli Hydraulics does not presume to provide a definitive cleaning and sanitization handbook, but rather offers the following recommendations which the end user is free to determine the appropriate schedule and usage of.

**Table 1**

STEP	PRODUCT	CONC.	TEMP.	MAX. TIME	COMMENTS
PRE-WASH	DRINKING WATER	-	20°C	10 mins	Drainage & elimination of organic solid waste
CLEANSING & WHITENING	LIQUID DETERGENT (see Table 2)	5% - 15%*	Max. 100°C	15 mins	See manufacturer's instructions for correct usage - Manuli only indicates the temperature and time that must not be exceeded
INTERMEDIATE RINSE	DRINKING WATER	-	20°C	5 mins	Drainage to complete removal of organic waste
SANITIZATION	PESTICIDES PURSUANT TO APPLICABLE LAW IN COUNTRY OF USE	5% - 15%*	Max. 100°C	30 mins	See manufacturer's instructions for correct usage - Manuli only indicates the temperature and time that must not be exceeded
FINAL RINSE	DRINKING WATER	-	20°C	10 mins	Continue to flush hose until all visible residue and foam from detergents and disinfectants is removed
FINAL DRYING & ANTI-MOLD TREATMENT	<b>STATIC:</b> DRAINING <b>DYNAMIC:</b> AIR BLOWING DRY & CLEAN	-	* †	10 mins	Recommended to ensure that future hose use does not result in taste or smell contamination of foodstuffs

\* As indicated by the manufacturer

† According to convenience to avoid condensation

The recommendations listed below are intended to prevent damage to the rubber hoses. For more accurate cleaning & sanitization procedures follow your regional and national laws concerning foodstuff hose cleaning.

**Table 2**

PRODUCT	RUBBER COMPOUNDS	CONCENTRATION	TEMPERATURE
HOT WATER	ALL	0	Max. 95°C
STEAM	ALL	0	Max. 110°C
CAUSTIC SODA	ALL	Max. 2%	Max. 85°C
		Max. 5%	Max. 25°C
NITRIC ACID	NO SBR/NR	Max. 0.1%	Max. 85°C
		Max. 2%	Max. 25°C
CHLORINE ACETIC ACID	NO SBR/NR	Max. 1%	Max. 25°C
PER ACETIC ACID	NO SBR/NR	Max. 1.5%	Max. 25°C
PHOSPHORIC ACID	NO SBR/NR	Max. 2%	Max. 65°C
OTHER	T.B.C.	T.B.C.	T.B.C.

## BRANDING OF HOSES

Manuli Industrial Hoses are clearly marked with indelible mylar tape and are branded with the Manuli group logo.

## STORAGE OF HOSES AND ASSEMBLIES

**All hose products manufactured by Manuli Hydraulics are designed to be robust, reliable and long-lasting. Our proprietary rubber compounds are among some of the most advanced in the world and, as a company, we fully stand behind the quality and reliability of our products.**

However, by its nature even the highest quality rubber will degrade over time, and certain environmental conditions have been categorically linked to an increase in the rate at which this deterioration can occur. Industrial standards such as **BS 5244, SAE J1273, DIN 20066, ISO 8331 & ISO 2230** all vary in their recommendations of safe storage conditions and maximum shelf-life.

Manuli hoses can be safely stored for extended periods in most typical warehousing conditions, but in order to minimise deterioration of stored hoses Manuli Hydraulics recommends the following:

- Bulk hoses should be stored for no longer than 6 years (based on hose production date), including no more than 6 months storage time as assemblies.
- Extremes of temperature and humidity, along with abnormal fluctuations in temperature, can affect storage life. Manuli recommends a cool, dry storage location away from direct sunlight.
- If bulk hoses are stored coiled, the inside coil diameter should not be less than 2x the minimum bend radius of the specific hose. Coiled hoses should also never be stacked on top of one another.



## HANDLING AND USAGE OF HOSES AND ASSEMBLIES

**Manuli Hydraulics has a global reputation as one of the premium suppliers of high quality, robust rubber hoses. Our products are designed with ease of use and durability in mind, but as with any technical product it is important that Manuli hoses are used according to their purpose and within their limits of operation. This includes how the hoses are handled both before and during use.**

### HANDLING

Most precautions necessary when handling Manuli hoses are simple common sense and, as long as the user respects the technical nature of the hose and treats it accordingly, it is unlikely that they will encounter any issues caused due to incorrect handling.

A few considerations to bear in mind are:

- If a hose is twisted do not pull it suddenly to attempt to untwist it.
- Avoid dragging hoses over abrasive surfaces. If you are moving bulk hose or large assemblies, consider using pallets or other similar methods.

### PRE-USAGE

All Manuli hoses are made to meet or exceed their stated specifications, so assuming the hose is properly assembled you can be confident that the hose will perform as expected without any issues.

To ensure that the hose is correctly assembled:

- Always ensure that the fittings are fully inserted into the hose and that the ferrule is crimped to the proper diameter according to the crimping data provided by the fitting manufacturer.
- It is advisable to perform pressure and leak testing on all assemblies prior to putting them into service. Testing should be carried out according to the relevant instructions for the testing equipment.

### USAGE

Similarly, general good practice for the intended application will usually prevent any excessive wear or damage to the hose.

A few important considerations are:

- Do not kink or crush the hose as this can irreparably damage the hose reinforcement structure which can lead to bursting.
- Only use the hoses to convey their intended fluids / substances.
- Do not exceed the stated working pressure of the hose.

### MAINTENANCE

Manuli hoses are designed to be reliable and easy to maintain. Standard equipment maintenance schedules should be sufficient to ensure that any signs of damage or wear on hoses can be spotted well in advance of them becoming problematic.

### REPAIR

Used rubber hoses are not usually considered to be repairable if signs of deterioration are noted during maintenance inspections. However, if damage or wear is limited to the ends of the hose then it may be possible to cut off the worn section and reassemble the hose. However, a reassembled hose will not have the expected service life of a new hose and should still be replaced according to the maintenance schedule as if it were the original hose assembly.





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CONTACT INFORMATION

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[www.manuli-hydraulics.com](http://www.manuli-hydraulics.com)