

Golden ISO™

NEW ISOBARIC PRODUCTS FOR COMPACT AND EFFICIENT HYDRAULICS



Today's hydraulics systems offer unbeatable power density and unique technology for high power applications. However this trend continues to evolve with ever increasing demands for a higher performance standard.

Equally today's designers, manufacturers and users are increasingly more sensitive to the cost and the simplicity of power management, giving preference to efficient and easy to use hydraulic systems.

These innovation trends involve both the conceptual design of the hydraulic system and the development of innovative components, able to contribute to the overall goals of power loss control, energy recovery and redeployment, compactness, weight, ergonomics, durability, comfort, recyclability, etc.

The traditional product specifications, that guided the design of any hydraulic components for decades, will be considered insufficient for the challenges of future hydraulics.

Flexible hose in particular has to evolve under more stringent requirements, such as:

- higher **stresses in hydraulic systems** (pressure, temperature, fluid velocity, etc.),
- higher **aggressiveness of hydraulic oils** (rubber compatibility, contamination, etc.),
- more **severe environmental conditions** (vibrations, abrasion, scratching, weathering, etc.),
- higher **installation and routing constraints** (bend radii, compactness, etc.),
- higher needs for **user-friendly solutions** (easy product selection, no-skive fittings, etc.),
- **environmentally friendly** materials and products (lightness, recyclability, materials identification, etc.).

New specifications, both from leading machine manufacturers and international standardization bodies, are developing in order to codify and harmonize these upgraded requirements. Hoses are no longer defined in detailed dimensions and constructions (the overall max outside diameter is recommended only), while performance and qualification criteria is specified in detail. Under these circumstances, the hose, fitting and machine integration becomes a critical success factor for hose performance, reliability and safety.

Among the various specifications, the new ISO 18752 deserves special consideration since it is to become the new reference for hydraulic hose assemblies. It details a complete isobaric approach for hose classification and selection. This modern isobaric approach (same pressure rating of a hose family in all sizes) is recognized to offer many advantages to all users along the product utilization cycle.

GOLDENISO

IMPORTANCE OF THE ISO 18752 SPECIFICATION

GoldenISO new hose and connectors range is designed to meet the severe requirements of the new isobaric specification ISO 18752.

Released in 2006, ISO 18752 represents a new approach in hydraulic hose industry, describing hoses with isobaric pressure levels (35 to 560 bar), that reflect the design practices of users, who typically design hydraulic systems and select the components based on performance.

Hydraulic hoses are classified in ISO 18752 according to their resistance to impulse pressure in four Grades: A, B, C, D. Each Grade is classified by the outer diameter (OD) of the hose into Standard Types (AS, BS, CS) or Compact Types (AC, BC, CC, DC).

As shown in Table 2 "Grades & Types" of ISO 18752, reported below, each Grade level requires a specific number of impulse cycles the hose must meet at a specified temperature and impulse test pressure.

Even though it is always difficult to predict the hose life in a specific application, the performance grades defined by this new specification help the users to select the most proper hose and fitting solution for a dedicated field application; for example if the need is for severe applications presenting many repeated pressure cycles in short time and long continuous service, the selection will be towards the grade C or D hose assemblies.

ISO 18752 PERFORMANCE GRADES AND TYPE (▼)
Table 2 - Grades and Types

Grade	Type ^a	Resistance to impulse		
		Temperature °C	Impulse pressure (% of MWP ^b)	Minimum number of cycles
A	AS	100	133 %	200 000
	AC			
B	BS	100	133 %	500 000
	BC			
C	CS	120	133 % and 120 % ^c	500 000
	CC			
D	DC	120	133 %	1 000 000

^a Standard or compact, e.g. CS is grade C and standard type.

As shown in Table 4 and Table 8, standard types have larger outside diameters and larger bend radii and compact types have smaller outside diameters and smaller bend radii.

^b Maximum working pressure.

^c 120 % of the MWP shall be used for classes 350, 420 and 560 instead of 1300 %.



(▼) Source: ISO 18752 Specification

GOLDENISO

PRODUCTS HIGHLIGHTS

The new GoldenISO hose and fitting line is the Manuli Hydraulics answer to the technological trend of modern hydraulics.

It comprises three innovative hose families: **Antiwear**, **LongLife** and the most recent **Xtraflex**.

GoldenISO AntiWear (3000, 4000 psi)

ISO 18752 Grade A

This line meets the Grade A (200,000 impulse cycles, T=100°C) with bend radii tighter than those listed in ISO 18752.

- The hose structures, with wire braid construction, are very compact and exceed the requirements of AC type of ISO 18752.
- The Super High Abrasion Resistant Cover (SHARC compound) offers extreme durability even in the most arduous environments.



GoldenISO Xtraflex (3000, 4000, 5000, 6000 psi)

ISO 18752 Grade C & D

The line meets the Grades C (500,000 impulse cycles, T=120°C) and D (1,000,000 impulse cycles, T=120°C) depending on the type of fittings used (type C with No-Skive fitting solutions, type D with MF2000 Skive and InterLock Plus fitting solutions), and the bend radii are tighter than those listed in ISO 18752.

- The hose structures, with wire spiral constructions, are very compact and exceed the requirements of CC and DC types of ISO 18752.
- GoldenISO Xtraflex is characterized by light weight and good flexibility.
- The durability is guaranteed with integrated fittings: Interlock Plus for maximum impulse resistance and SpiralFit for non-skive assembly.

GoldenISO LongLife (5500, 6500 psi)

Exceed ISO 18752 Grade D

This line meets and exceeds the Grade D (1,000,000 cycles, T=120°C), being successfully qualified with 2 million impulse cycles and higher pressure ratings than the Specification.

- The hose lines are designed with robust wire spiral construction, to meet the requirements of the most demanding OEMs, in severe applications where long durability is a must. For this reason, the fitting solution is only Interlock Plus.

New compact and efficient connectors lines.

XTRAFRANGE 61

Reduces the overall dimensions of flanges without reducing their performance.
6000 PSI FLANGE with code 61 port compatible.

- High pressure rating (420 Bar - 6000 psi) SAE code 61 interchangeable
- Integrated MONOclamp
- Patented toroidal profile for high mechanical resistance
- Width reduction for space saving
- Designed to adopt the new port distance used in modern compact directional valves

MQS-SH Screw High power CONNECTION

Manuli SH is a screw type quick release coupling with special internal components designed to reduce flow turbulence and, as a consequence, pressure drop value.

The robust design guarantees very high working pressure dynamic from 60Mpa to 70Mpa.
High flow rate, high working pressure = EFFICIENT connectors

- Screw-on connection/disconnection system
- Sleeve with hexagon area
- Hardened valve bodies
- Three-part poppet valve with a moulded shaped seal
- Mechanical backstop to prevent partial enclosures of valves due to peaks and reverse flow
- Interchangeable with other products and widely used in the market
- Accessories (plugs and caps) and spare part kits available
- Wide range of termination ends

Q.Safe MQS-DHI - Direct Hose Integration

New concept of quick coupling integrated with direct to hose insert.

- Avoiding intermediate connections components
- Improved resistance against oil leakage with the elimination of possible leakage points
- Risk elimination of unscrewing issues in the field
- Reduction of components to be assembled
- Design solution available for most common series ISO A; ISO B; Push-Pull & Flat-Face

ROTOFIT, swivel fitting driven by

- DIRECT to HOSE concept: fewer sealing surfaces lead to oil leakage risk reduction
- DIRECT to PORT concept: avoids the use of adapters, allows the direct connection on port

- Full flow design minimizes pressure drop for optimum system performance
- Cr3 surface coating for maximum corrosion resistance
- Safety factor 4:1
- High performance material with hardened areas in the most stressed points to increase service life
- High bearing number to guarantee a low rotation effort in all pressure conditions and reduce concentrated load
- Rotation system totally sealed to avoid dirt inclusion
- Full range of termination ends

GOLDENISO

CUSTOMER ADDED VALUES

Thanks to its structured approach, the GoldenISO hose range can successfully meet the requirements of most hydraulic applications.

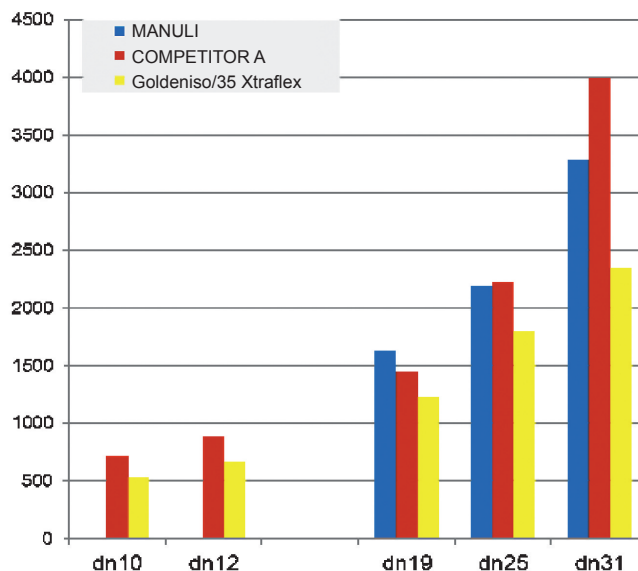
The Isobaric approach leads to **user friendly product selection, installation and replacement.**

GoldenISO Xtraflex is the ideal solution for most replacement applications. Hose assemblers will appreciate its **ease off use in crimping and installation**, thanks to its flexibility and the availability of no-skive fittings. With Interlock fittings, the line can meet most OEM requirements with **improved features of low weight and compactness**, which contribute to the overall energy efficiency of machines.

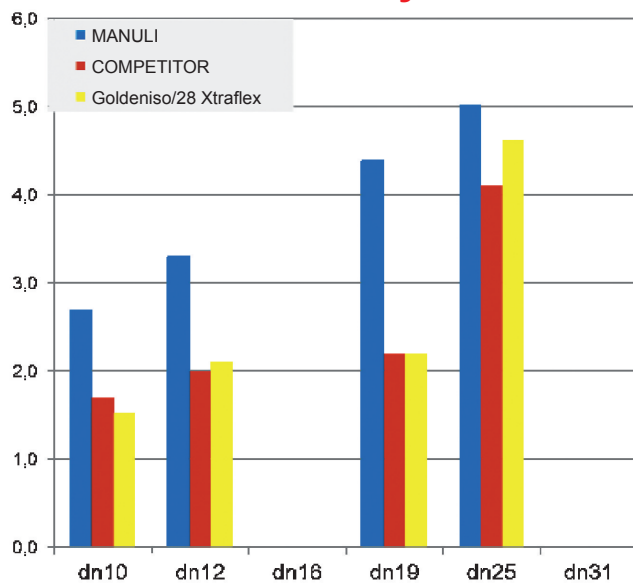
OEM designers, maintainers and users can achieve **increased durability** when using GoldenISO Long Life.

Any application will benefit by materials performance: the tube offers a **high compatibility with a wide range of modern hydraulic oils** and the cover is a **high abrasion, weather and flame resistance** for any kind of application: off road machinery, mining, off shore installation, etc.

Lightness



Flexibility



GOLDENISO

KEY BENEFITS

GOLDENISO ANTIWEAR

Compact wire braid reinforced hoses with excellent flexibility and low bending force. Recommended for applications with space constraints, the GoldenIso AntiWear hoses are quick and easy to install.

Key benefits

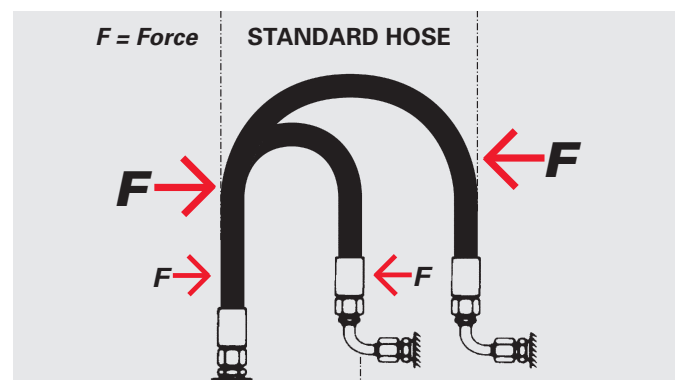
- Extreme abrasion resistance
- Approved at 200.000 impulse cycles, at T=100°C (ISO 18752 grade A)
- Very low bend radius to suit restricted space installations
- High robust and compact hose structure compared to rated pressure
- Vacuum resistance according to SAE 100R4 requirements

GOLDENISO XTRAFLEX

The new ISOBARIC hose range following the new ISO 18752 international specifications.

Key benefits

- Improved flexibility and bending force
- Reduced bend radius
- Compact & Light weight
- Skive and no-skive fittings
- High fatigue resistance
- Large oil compatibility (NBR tube material)
- High abrasion, ozone and aging resistant cover
- Suitability for mining, thanks to certified properties of compounds



GOLDENISO

KEY BENEFITS

GOLDENISO LONG LIFE

Premium class hose designed for heavy duty applications and high fatigue resistance.

The LongLife series is the innovative wire spiral hose line approved to 2 million impulse cycles, for special applications and market needs, particularly designed to meet high demanding requirements of OEMs and special applications.

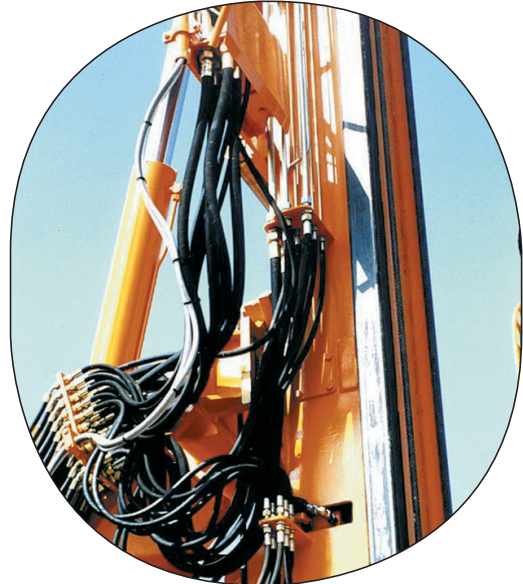
These hoses are dedicated to arduous environments such as mining and heavy industry, large equipment or machines working 24 hours a day.

Key benefits

- Above standard pressure rating
- Approved with two severe fatigue qualification programs:
 - 2 millions flexing impulse cycles (ISO 6802, T=100°C)
 - 1 million flexing impulse cycles (ISO 6802, T=120°C)
- High performance Nitrile tube compound for the best chemical compatibility with a wide range of hydraulic oils
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic properties of the cover
- Wide compatibility with hydraulic fluids, mineral and biodegradable oils
- Low bend radius and high flexibility
- New Interlock-Plus easy mounting system



General hydraulics
in mobile applications



Hydraulics pressure lines
with installation constraints



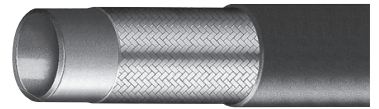
Forestry machines



Mining

GOLDENISO/21 ANTIWEAR

OUTSTANDING ABRASION RESISTANCE



KEY FEATURES



- Extreme abrasion resistance
- Very low bend radius to suit restricted space installations
- High robust and compact hose structure compared to rated pressure
- Approved at 200.000 impulse cycles, at T=100°C (ISO 18752 grade A)
- High environmental agents resistance
- Vacuum resistance accordingly to SAE 100R4 requirements

APPLICATIONS & FLUIDS



- Medium pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

TECHNICAL DATA

PART. REF.	HOSE SIZE		R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING		
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H01125005*	5	-03	3/16"	8,7	0,34	10,5	0,41	210	3040	840	12180	45	1,77	150	0,10	-	OPB-03
H01125006*	6	-04	1/4"	10,2	0,40	12,0	0,47	210	3040	840	12180	50	1,97	180	0,12	MF+M00830-04	OPB-04
H01125008*	8	-05	5/16"	11,5	0,45	13,6	0,54	210	3040	840	12180	55	2,17	210	0,14	MF+M00830-05	OPB-05
H01125010*	10	-06	3/8"	14,4	0,57	16,2	0,64	210	3040	840	12180	65	2,56	300	0,20	MF+M03400-06	OPB-06
H01125012*	12	-08	1/2"	17,9	0,70	19,7	0,78	210	3040	840	12180	90	3,54	415	0,28	MF+M03400-08	OPB-08
H01125016*	16	-10	5/8"	22,2	0,87	24,0	0,94	210	3040	840	12180	100	3,94	620	0,42	MF+M03400-10	OPB-10
H01125019*	19	-12	3/4"	25,6	1,01	27,7	1,09	210	3040	840	12180	120	4,72	780	0,52	MF+M03400-12	OPB-12
H01125025*	25	-16	1"	33,0	1,30	35,2	1,39	210	3040	840	12180	150	5,91	1120	0,75	MF+M03400-16	OPB-16

CONTINUOUS SERVICE TEMPERATURE RANGE
-40°F / +212°F -40°C / +100°C

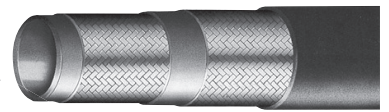
MAX OPERATING TEMPERATURE
+250°F +121°C

TUBE: Synthetic rubber
REINFORCEMENT: One wire braid (DN 5÷12).
Two wire braid (DN 16÷25)
COVER: High abrasion resistant synthetic rubber

APPLICABLE SPECS.: ISO 18752 grade A;
SAE J517 type 100 R17; ISO 11237-R17
TYPE APPROVALS: MSHA; GOST-R
STANDARD PACKAGING: Reel

GOLDENISO/28 ANTIWEAR

OUTSTANDING ABRASION RESISTANCE



KEY FEATURES



- Extreme abrasion resistance
- Very low bend radius to suit restricted space installations
- High robust and compact hose structure compared to rated pressure
- Approved at 200.000 impulse cycles, at T=100°C (ISO 18752 grade A)
- High environmental agents resistance
- Vacuum resistance accordingly to SAE 100R4 requirements

APPLICATIONS & FLUIDS



- Medium and high pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

TECHNICAL DATA

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H01126006*	6	-04	1/4"	11,6	0,46	13,2	0,52	280	4060	1120	16240	50	1,97	260	0,17	MF+M03400-04	OPB-04
H01126008*	8	-05	5/16"	12,9	0,51	14,5	0,57	280	4060	1120	16240	55	2,17	280	0,19	MF+M03400-05	OPB-05
H01126010*	10	-06	3/8"	15,4	0,61	17,0	0,67	280	4060	1120	16240	63	2,48	380	0,26	MF+M03400-06	OPB-06
H01126012*	12	-08	1/2"	18,5	0,73	20,3	0,80	280	4060	1120	16240	80	3,15	495	0,33	MF+M03400-08	OPB-08
H01126016*	16	-10	5/8"	22,7	0,89	24,7	0,97	280	4060	1120	16240	90	3,54	730	0,49	MF+M03400-10	OPNS-10
H01126019*	19	-12	3/4"	27,1	1,07	29,3	1,15	280	4060	1120	16240	120	4,72	1060	0,71	MF+M03400-12	OPNS-12

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +212°F -40°C / +100°C

MAX OPERATING TEMPERATURE

+250°F +121°C

TUBE: Synthetic rubber

REINFORCEMENT: Two wire braids

COVER: High abrasion resistant synthetic rubber

APPLICABLE SPECS.: ISO 18752 grade A;

SAE J517 type 100R19

TYPE APPROVALS: MSHA; GOST-R

STANDARD PACKAGING: Reel

GOLDENISO/21 XTRAFLEX

COMPACTNESS & FLEXIBILITY



KEY FEATURES



- Bend radius which exceed the standard requirements by -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving vs traditional R12 hose construction, despite the higher working pressure of the Goldeniso Xtraflex range
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS



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

TECHNICAL DATA

PART. REF.	HOSE SIZE		R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING		
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10093031*	31	-20	1.1/4"	41,7	1,64	44,5	1,75	210	3040	840	12180	210	8,27	2071	1,39	MF+M00920-20	OPK-20
H10093038*	38	-24	1.1/2"	48,9	1,93	52,1	2,05	210	3040	840	12180	260	10,24	2989	2,01	IP+M01500-24	SP+M05400-24
H10093051*	51	-32	2"	63,2	2,49	66,8	2,63	210	3040	840	12180	330	12,99	4310	2,90	IP+M01500-32	SP+M05400-32

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

+257°F +125°C

TUBE: Oil resistant synthetic rubber
REINFORCEMENT: 4 high tensile steel spirals

COVER: Synthetic rubber with high abrasion, ozone, weather and heat resistance

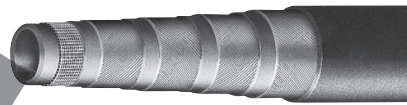
APPLICABLE SPECS.: ISO 18752-C/D; JIS K6349-3

TYPE APPROVALS: MSHA

STANDARD PACKAGING: Reel

GOLDENISO/28 XTRAFLEX

COMPACTNESS & FLEXIBILITY



KEY FEATURES



- Bend radius which exceed the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional R12 hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS



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

TECHNICAL DATA

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10095010*	10	-06	3/8"	16,7	0,66	18,9	0,74	280	4060	1120	16240	65	2,56	520	0,35	MF+M00910-06	OPK-06
H10095012*	12	-08	1/2"	19,6	0,77	21,8	0,86	280	4060	1120	16240	90	3,54	650	0,44	MF+M00910-08	OPK-08
H10095016*	16	-10	5/8"	23,5	0,93	25,7	1,01	280	4060	1120	16240	100	3,94	934	0,63	MF+M00910-10	OPK-10
H10095019*	19	-12	3/4"	26,9	1,06	29,3	1,15	280	4060	1120	16240	120	4,72	1040	0,70	MF+M00920-12	OPK-12
H10095025*	25	-16	1"	34,1	1,34	36,5	1,44	280	4060	1120	16240	150	5,91	1530	1,03	MF+M00920-16	OPK-16
H10095031*	31	-20	1.1/4"	41,7	1,64	44,5	1,75	280	4060	1120	16240	210	8,27	2160	1,45	MF+M00920-20	OPK-20
H10095038*	38	-24	1.1/2"	48,9	1,93	52,1	2,05	280	4060	1120	16240	280	11,02	2994	2,01	IP+M01500-24	SP+M05400-24

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

+257°F +125°C

TUBE: Oil resistant synthetic rubber

REINFORCEMENT: 4 high tensile steel spirals

COVER: Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS.: ISO 18752-C/D; JIS K6349-3

TYPE APPROVALS: MSHA

STANDARD PACKAGING: Reel

GOLDENISO/35 XTRAFLEX

COMPACTNESS & FLEXIBILITY



KEY FEATURES



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

APPLICATIONS & FLUIDS



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

TECHNICAL DATA

PART. REF.	HOSE SIZE		R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING		
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10096010*	10	-06	3/8"	16,7	0,66	18,9	0,74	350	5070	1400	20300	80	3,15	530	0,36	MF+M00910-06	OPK-06
H10096012*	12	-08	1/2"	19,6	0,77	21,8	0,86	350	5070	1400	20300	90	3,54	660	0,44	MF+M00910-08	OPK-08
H10096016*	16	-10	5/8"	23,5	0,93	25,7	1,01	350	5070	1400	20300	100	3,94	934	0,63	MF+M00910-10	OPK-10
H10096019*	19	-12	3/4"	27,5	1,08	30,1	1,19	350	5070	1400	20300	120	4,72	1220	0,82	MF+M00920-12	OPK-12
H10096025*	25	-16	1"	34,6	1,36	37,2	1,46	350	5070	1400	20300	150	5,91	1800	1,21	IP+M01500-16	SP+M05400-16
H10096031*	31	-20	1.1/4"	42,1	1,66	44,9	1,77	350	5070	1400	20300	230	9,06	2340	1,57	IP+M01500-20	SP+M05400-20
H10096038*	38	-24	1.1/2"	52,9	2,08	56,1	2,21	350	5070	1400	20300	300	11,81	4140	2,78	IP+M01600-24	SP+M05500-24

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

+257°F +125°C

TUBE: Oil resistant synthetic rubber

REINFORCEMENT: Four high tensile steel spirals (DN 6÷31) Six high tensile steel spirals (DN 38÷51)

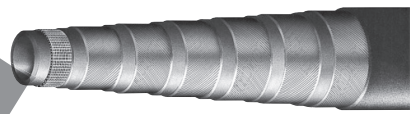
COVER: Synthetic rubber with high abrasion, ozone, weather and heat resistance

SPECIFICATIONS: ISO 18752-C/D, JIS K6349-3

TYPE APPROVALS: MSHA

GOLDENISO/42 XTRAFLEX

COMPACTNESS & FLEXIBILITY



KEY FEATURES



- Bend radius which exceed the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional R15 hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS



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

TECHNICAL DATA

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	STD 1	STD 2
H10097019*	19	-12	3/4"	27,7	1,09	30,2	1,19	420	6090	1680	24360	150	5,91	1285	0,86	IP+M01500-12	SP+M05400-12
H10097025*	25	-16	1"	34,8	1,37	37,3	1,47	420	6090	1680	24360	210	8,27	1915	1,29	IP+M01500-16	SP+M05400-16
H10097031*	31	-20	1.1/4"	46,3	1,82	49,5	1,95	420	6090	1680	24360	260	10,24	3663	2,46	IP+M01600-20	SP+M05500-20

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

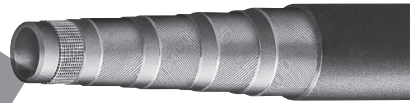
+257°F +125°C

TUBE: Oil resistant synthetic rubber
REINFORCEMENT: Four high tensile steel spirals (DN 6÷25) Six high tensile steel spirals (DN 31÷51)
COVER: Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS.: ISO 18752-C/D
TYPE APPROVALS: MSHA
STANDARD PACKAGING: Reel

GOLDENISO/38 LONGLIFE

HIGH FATIGUE RESISTANCE



KEY FEATURES



- Designed for original equipment
- Long-term mission profile in severe applications
- Over standard pressure rating
- High impulse resistance exceeding the ISO 18752 requirements (2 millions flexing impulse cycles ISO 6802)
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic properties of the cover
- Wide compatibility with hydraulic fluids, mineral and biodegradable oils
- Low bend radius, better than the standard requirements
- Interlock-Plus easy mounting system for a very high-level robustness
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS



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

TECHNICAL DATA

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10098019*	19	-12	3/4"	27,7	1,09	32,0	1,26	380	5510	1520	22040	170	6,69	1410	0,95	IP+M01500-12
H10098025*	25	-16	1"	34,8	1,37	38,1	1,50	380	5510	1520	22040	220	8,66	1990	1,34	IP+M01500-16
H10098031*	31	-20	1.1/4"	46,3	1,82	49,5	1,95	380	5510	1520	22040	267	10,51	3663	2,46	IP+M01600-20

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

+257°F +125°C

TUBE: Oil resistant synthetic rubber

REINFORCEMENT: Four high tensile steel wire spirals (DN 19+25). Six high tensile steel wire spirals (DN 31)

COVER: Synthetic rubber with high ozone, abrasion and weather resistance

APPLICABLE SPECS.: Manuli special design exceeds SAE J517 type100R13; ISO 3862 R13; ISO 18752-D extension

TYPE APPROVALS: MSHA

STANDARD PACKAGING: Reel

GOLDENISO/45 LONGLIFE

HIGH FATIGUE RESISTANCE



KEY FEATURES



- Designed for original equipment
- Long-term mission profile in severe applications
- Over standard pressure rating
- High impulse resistance exceeding the ISO 18752 requirements (2 millions flexing impulse cycles ISO 6802)
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic properties of the cover
- Wide compatibility with hydraulic fluids, mineral and biodegradable oils
- Low bend radius, better than the standard requirements
- Interlock-Plus easy mounting system for a very high-level robustness
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS



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

TECHNICAL DATA

PART. REF.	HOSE SIZE			R.O.D.		O.D.		MAX W.P.		BURST PRESSURE		MIN. BEND RADIUS		WEIGHT		FITTING
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	
H10089016*	16	-10	5/8"	25,5	1,00	28,5	1,12	460	6670	1840	26680	250	9,84	1290	0,87	IP+M01500-10
H10089019*	19	-12	3/4"	28,4	1,12	32,0	1,26	460	6670	1840	26680	280	11,02	1530	1,03	IP+M01500-12
H10089025*	25	-16	1"	35,4	1,39	38,1	1,50	460	6670	1840	26680	340	13,39	2150	1,44	IP+M01500-16
H10089031*	31	-20	1.1/4"	46,3	1,82	49,5	1,95	450	6520	1800	26100	420	16,54	3790	2,55	IP+M01800-20

CONTINUOUS SERVICE TEMPERATURE RANGE

-40°F / +250°F -40°C / +121°C

MAX OPERATING TEMPERATURE

+257°F +125°C

TUBE: Oil resistant synthetic rubber

REINFORCEMENT: Four high tensile steel wire spirals (DN 16+25). Six high tensile steel wire spirals (DN 31)

COVER: Synthetic rubber with high ozone, abrasion and weather resistance

APPLICABLE SPECS.: Manuli special design exceeds SAE J517 type100R15; ISO 3862 R15; ISO 18752-D extension

TYPE APPROVALS: MSHA; GOST-R

STANDARD PACKAGING: Reel

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