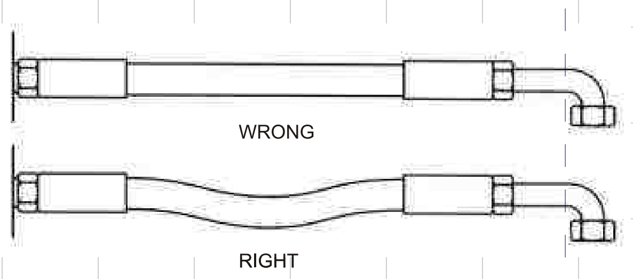
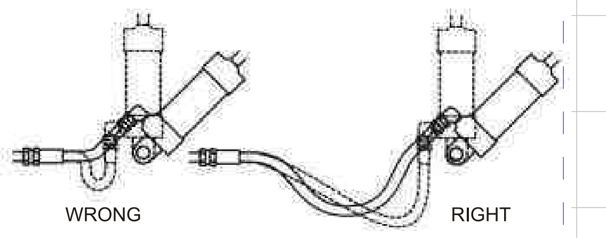
Hose Assembly Routing Tips

Proper hose installation is essential for satisfactory performance. If hose length is excessive, the appearance of the installation will be unsatisfactory and unnecessary cost of equipment will be involved. If hose assemblies are too short to permit adequate flexing and changes in length due to expansion or contraction, hose service life will be reduced.

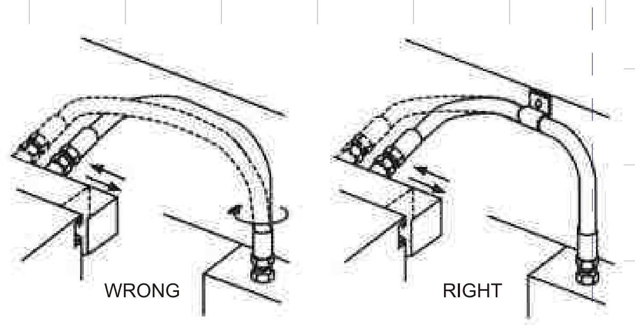
The following diagrams show proper hose installations which provide maximum performance and cost savings. Consider these examples in determining length of a specific assembly.



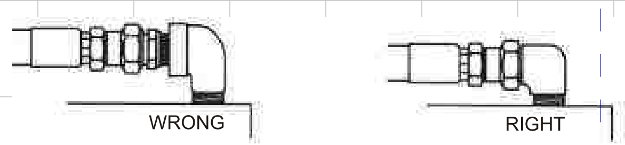
When hose installation is straight, allow enough slack in hose line to provide for length changes which will occur when pressure is applied.



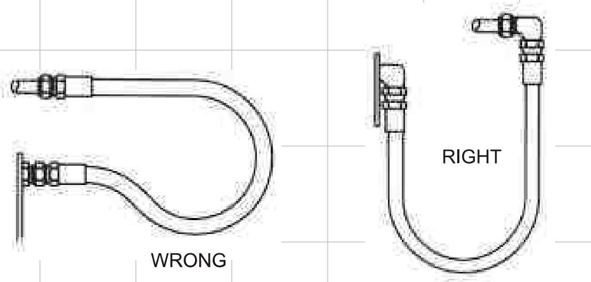
Adequate hose length is necessary to distribute movement on flexing applications and to avoid abrasion.



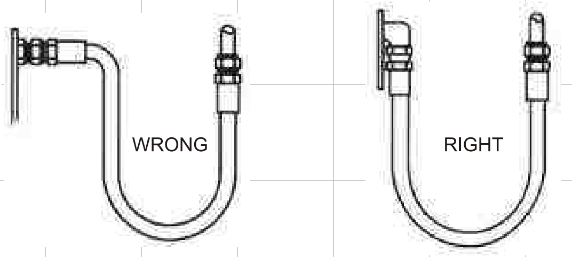
Avoid twisting of hose lines bent in two planes by clamping hose at change of plane.



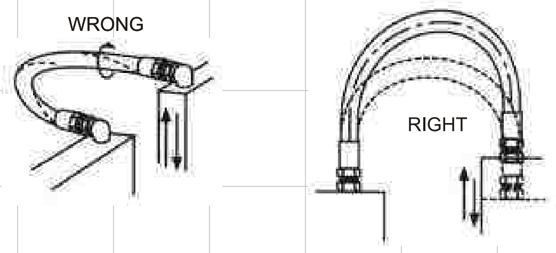
Reduce number of pipe thread joints by using hydraulic adapters instead of pipe fittings.



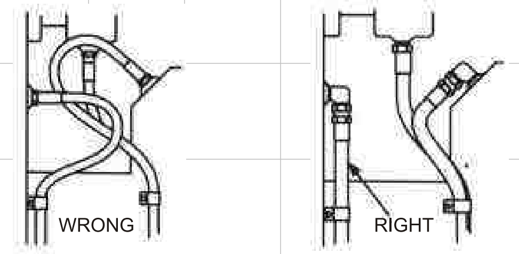
When radius is below the required minimum, use an angle adapter to avoid sharp bends.



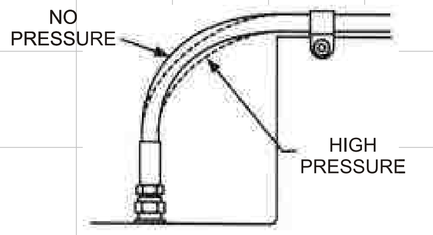
Use proper angle adapters to avoid tight or bend in hose.



Prevent twisting and distortion by bending hose in same plane as the motion of the port to which hose is connected.

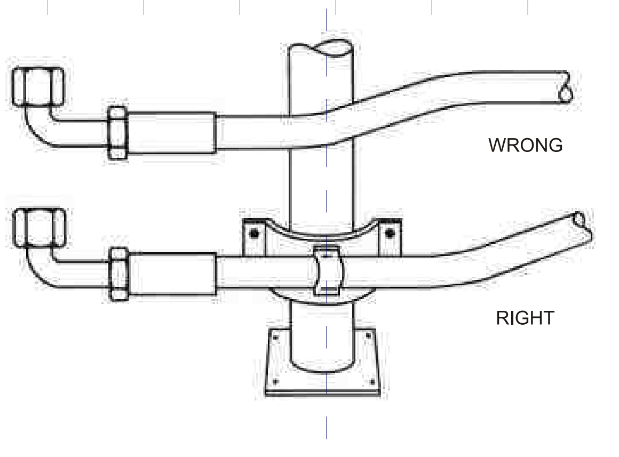


Route hose directly by using 45° and/or 90°adapters and fittings. Avoid excessive hose length to improve appearance.

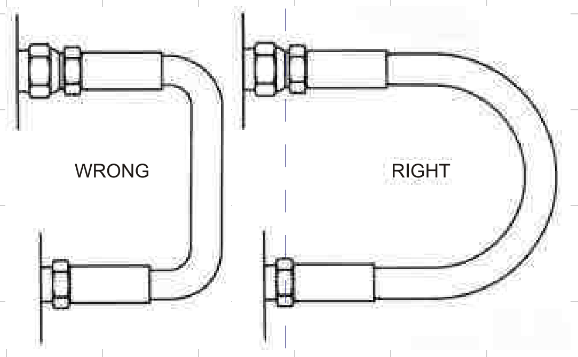


To allow for length changes when hose is pressurized, do not clamp at bends so that curves will absorb changes. Do not clamp high and low pressure lines together.

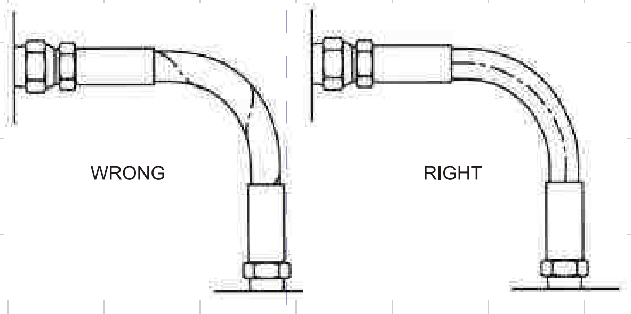
Hose Assembly Routing Tips



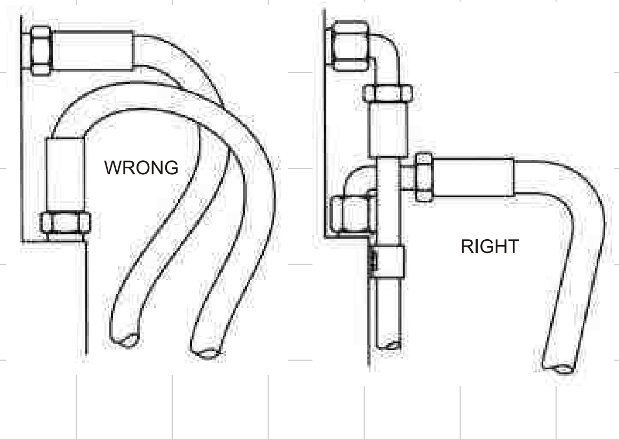
High ambient temperatures shorten hose life, so make sure hose is kept away from hot parts. If this is not possible, insulate hose.



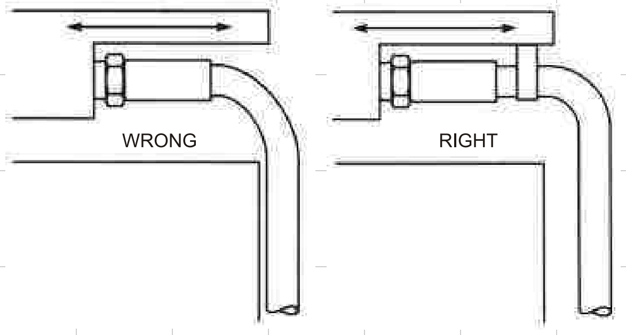
To avoid hose collapse and flow restriction, keep hose bend radii as large as possible. Refer to hose specifications tables for minimum bend radii.



When installing hose, make sure it is not twisted. Pressure applied to a twisted hose can result in hose failure or loosening of connections.



Elbows and adapters should be used to relieve strain on the assembly, and to provide neater installations which will be more accessible for inspection and maintenance.



Run hose in the installation so that it avoids rubbing and abrasion. Often, clamps are required to support long hose runs or to keep hose away from moving parts. Use clamps of the correct size. A clamp too large allows hose to move inside the clamp and causes abrasion.

ADDITIONAL TEMPERATURE LIMITS FOR GATES HYDRAULIC HOSES

Caution: Water, Water/oil emulsions and water/glycol solutions must be kept below the temperatures listed in the tables below, relative to line pressures.

Low pressure applications, i.e., In return lines, require lower maximum temperatures as shown.

Maximum Temperature Limits For Water, Water/Oil Emulsions and Water/Glycol Solutions

Hose	Pressure Lines	Return Lines
EFG6K, EFG5K, EFG4K, EFG3K , CPS, MINING C3, C6, G1, G2	+93°C	+82°C
G2H, G1H, MegaTech ACR, G3H, GTH	+107°C	+82°C

Do not expose hose to maximum temperature and maximum rated working pressure at the same time.

Caution: The fluid manufacturer's recommended maximum operting temperatures for any given fluid must not be exceeded. If diffrent than tha above listed hose temperatures, the lower limit must take precedence.

Actual service life at temperatures approaching the recommended limit will depend on the particular application and the fluid being used in the hose. Intermittent (up to 10 % of operating time) refers to momentary temperatures surges. Detrimental effects increase with increased exposure to elevated temperatures.

Dash Numbers

Dash No.	Hose I.D. (Inches)			
	All except C5 Series, C14 and Ac134a		C5 Series, C14 and Ac134a	
	Inches	Millimeters	Inches	Millimeters
-3	3/16	4.8	–	–
-4	1/4	6.4	3/16	4.8
-5	5/16	7.9	1/4	6.4
-6	3/8	9.5	5/16	7.9
-8	1/2	12.7	13/32	10.3
-10	5/8	15.9	1/2	12.7
-12	3/4	19.0	5/8	15.9
-14	7/8	22.2	–	–
-16	1	25.4	7/8	22.2
-20	1 1/4	31.8	1 1/8	28.6
-24	1 1/2	38.1	1 3/8	34.9
-32	2	50.8	1 13/16	46.0
-40	2 1/2	63.5	2 3/8	60.3
-48	3	76.2	–	–
-56	3 1/2	88.9	–	–
-64	4	101.6	–	–

AGENCY SPECIFICATIONS AND HOSE SELECTION GUIDE

INDUSTRY AGENCIES

ABS	American Bureau of Shipping
DIN	Deutch Industry Norm, Germany
DNV	Det Norske Veritas For North Sea
EN	European Norm/Standard
IJS	Industrial Jack Specifications
GL	Gearmanischer Lloyds
SAE	Society Of Automotive Engineers

GOVERNMENT AGENCIES

MSHA	U.S. Mine Safety & Health Administration
USCG	U.S. Coast Guard
DGMS	Directorate General Of Mines & Safety, India
DGQA	Directorate General Of Quality Assurance Ministry Of Defence, India.

Gates Meets These Agency Specifications

Hose Type	ABS	DIN	DNV	EN	German ischer Lloyds	IJS	DGMS	SAE	MSHA	USCG	
										FUEL	Power
EFG6K	X	20023	X	EN856				100R15	X		X
EFG5K	X	20023	X	EN856				100R13	X		X
EFG4K		20023		EN856				100R12	X		
EFG3K	X	20023		EN856				100R12	X		
4XH	X	20023		EN856					X		
4XP	X	20023		EN856					X		
CPS		20023					X	100R13			
G2	X	20022		EN853	X			100R2 TYPEAT	X		X
G2H			X	EN853				100R2 TYPEAT	X	X	X
J2AT						X			X		
MINING			X				X(BCS174)				
G1		20022	X	EN853	X			100R1 TYPEAT	X		X
G1H	X		X	EN853				100R1 TYPEAT	X	X	
GTH	X			EN854				100R6			
C6				EN854				100R6			
C3				EN854				100R3			
G3H				EN854				100R3			

Gates

The new Gates World Headquarters, in Denver, Colorado, USA.

Gates Corporation, headquartered in Denver, Colorado, USA, is known worldwide for its belts & hose. Gates is a wholly owned subsidiary of Tomkins plc, a world class global engineering and manufacturing group with market and technical leadership across three businesses : Industrial & Automotive, Air Systems Components and Engineered & Construction Products.

Established in 1911 by Charles Gates as The Gates Rubber Company, today Gates is the only non-tyre rubber company with sales and manufacturing operations in all of the world's major markets, including North & South America, Europe, Asia and Australia. In 1917, John Gates, brother of Charles, invented the V-Belt. The company has continued its engineering leadership ever since.

Gates is organized into three product groups -- Worldwide Power Transmission, Worldwide Automotive Hoses, and Worldwide Fluid Power. The worldwide product groups are responsible for product development, manufacturing, product globalization and manufacturing capacity and utilization.

Markets served by Gates include the industrial and automotive original equipment and replacement markets, agriculture, transportation, mining, forestry, construction, office equipment, computer, and the food processing and handling markets. The company sells its products directly to automotive and industrial original equipment manufacturers and through a network of 150,000 distributors, jobbers and dealers worldwide

Gates is India's most advanced and complete hose manufacturer. As the Indian subsidiary of Gates Corporation, USA, it has established itself firmly in the Indian hose market. Equipped with the latest technology, the manufacturing facility of Gates India is spread over an area of 35 acres at Lalru, near Chandigarh. Recently, Gates has embarked on an ambitious expansion project setting-up an ultra-modern facility for manufacturing Spiral Hoses at the Lalru facility. Gates Assembly operations at Faridabad are running at full capacity with major expansion plans on the anvil.

Today, we have to our credit a distinguished client list in the construction, mining & earthmoving industries. Our products are also reaching foreign shores through markets in the U.S., Europe, South Africa, Japan, China, Singapore, Australia, Brazil and other countries.

Over the years, Gates built its reputation by providing the highest-quality products and services. That dedication to quality continues today with the Gates Quality Commitment. At Gates, the definition of quality is simple and straightforward -- "To meet or exceed customer expectations with products, services and experiences that are superior to the competition." Gates' stringent quality practices ensure that each 'Made in India' Hose meets the industry's highest standards and qualifies as Gates Global Hydraulic Hose.

Around the world, Gates operations meet the highest quality standards. In addition, Gates has an internal quality process, the Gates Business Leadership Process, or GBLP. The GBLP ensures that all Gates associates work to meet the goals of the company and the needs of customers.

OUR CUSTOMERS

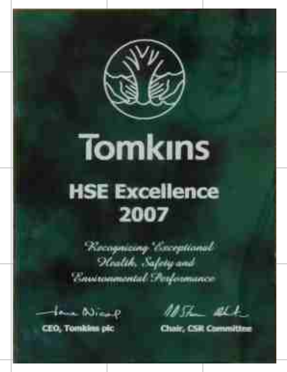
The high quality standards maintained by Gates India are reflected in its client list, which reads like a who's who of the industry. Our quality products are approved by Directorate General of Mines & Safety (DGMS) and Directorate General of Quality Assurance (DGAQA), Ministry of Defence. Our prominent Indian customers include:

- Construction & Heavy Equipment Manufacturers viz. Atlas Copco, Caterpillar India, Escorts Construction, Greaves, Gujarat Apollo, JCB-India, L&T-Case, L&T-Komatsu, Mahindra & Mahindra, Schwing Stetter, Telcon, Terex, TIL...
- Other OEMs such as Ashok Leyland, Aplab, Avery, Cummins India, ELGI, Eicher, Electrotherm, Engel India, Ferromatik-Milacron, Godrej, Hyva, Inductotherm-India, Kirloskar Oil Engines, L&T Pumps, Midco, Tata Motors, Tokheim Kaizen, Voltas, amongst others.
- Minerals & Mining Sector viz. BALCO, Eimco Elecon, HINDALCO, Hindustan Copper Ltd., Hindustan Zinc Ltd., NALCO, Simplex, various subsidiaries of Coal India Ltd. and Singareni Collieries Company Ltd.
- Oil Sector such as BPCL, HPCL, IBP, IOCL, ONGC...
- Steel Manufacturers viz. Essar Steel, SAIL Bhilai, SAIL Bokaro, TISCO, Vizag Steel Plant (RINL), Ispat, JSW...
- Cement Plants like ACC, Birla Cements, Century Cement, Grasim Cement, Gujarat Ambuja, India Cements, Jaypee Cement, Prism Cement, Ultratech Cement...
- Institutional Customers such as Indian Railways, amongst others.

GLOBAL CUSTOMERS

Case New Holland, Caterpillar, Chrysler, DitchWitch, Ford, GM, Hitachi, Inductotherm Corp., Ingersoll Rand, JCB, John Deere, JLG, Komatsu, Nissan, Toyota and Vermeer amongst others.

"Gates system complies to the highest standards of environment health and safety in all its manufacturing processes."



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GATES HYDRAULICS HOSES

Printed in India
Nov 11

GATES HYDRAULIC HOSES

HOSE TYPE	Description	Product No.	Hose ID		Hose OD	Working Pressure		Min Burst Pressure		Min. Bend Radius	Packaging Spec.	Service Temp Range	CONSTRUCTION	RECOMMENDED FOR		
			Inch	mm	mm	psi	bar	psi	bar	inch						
CONSTANT PRESSURE																
Megasys Sprial Wire Hose-EFG6K-SAE 100R15 Meets Flame Resistance Acceptance Designation “MSHA 2G” For Biodegradable Hydraulic Fluids 	6 EFG6K	4651-1396	3/8	9.5	20.2	6,000	414	24,000	1656	2.50	i	-40°C to +121°C #	**Tube**: Black, oil resistant, synthetic rubber (Nitrile – Type C). **Reinforcement**: Four (six for -20) alternating layers of spiraled, high tensile steel. **Cover**: Black, oil resistant, synthetic rubber (Neoprene – Type A). Blue stripe with gold print layline.	Extremely high-pressure, high-impulse applications such as hydrostatic transmissions. EFG6K is designed to meet all requirements of SAE 100R15 specifications and performance requirements of EN 856 4SP (-6, -8, -10 and -12) and EN 856 4SH (-12, -16, and -20). Compatible with biodegradable hydraulic fluids like polyolester, polyglycol and vegetable oil as well as standard petroleum based fluids. Superior impulse performance: tested to 1,000,000 impulse cycles		
	8 EFG6K	4651-1371	1/2	12.7	24.0	6,000	414	24,000	1656	3.50	i					
	10 EFG6K	4651-1672	5/8	15.9	27.6	6,000	414	24,000	1656	4.00	i					
	12 EFG6K	4651-4909	3/4	19.1	31.4	6,000	414	24,000	1656	4.75	e					
	16 EFG6K	4651-4910	1	25.4	38.7	6,000	414	24,000	1656	6.00	e					
	20 EFG6K	4651-1290	1-1/4	31.8	50.0	6,000	414	24,000	1656	8.25	i					
Megasys Sprial Wire Hose-EFG5K-SAE 100R13 Meets Flame Resistance Acceptance Designation “MSHA 2G” For Biodegradable Hydraulic Fluids 	6 EFG5K	**	3/8	9.5	20.2	5,000	345	20,000	1380	5.00	i	-40°C to +121°C #	**Tube**: Black, oil resistant synthetic rubber (Neoprene – Type A). **Reinforcement**: Four (six for -20) alternating layers of spiraled, high-tensile steel. **Cover**: Black, oil resistant synthetic rubber (Neoprene – Type A). Dual red stripe layline.	Extremely high-pressure hydraulic applications. EFG5K is designed to meet all requirements of SAE 100R13 specifications and performance requirements of EN 856 4SH (-24, and -32) and EN 856 R13. Compatible with biodegradable hydraulic fluids like polyolester, polyglycol and vegetable oil as well as standard petroleum based fluids. Superior impulse performance: tested to 1,000,000 impulse cycles		
	8 EFG5K	**	1/2	12.7	24.0	5,000	345	20,000	1380	3.50	i					
	10 EFG5K	**	5/8	15.9	27.6	5,000	345	20,000	1380	4.00	i					
	12 EFG5K	4651-4903	3/4	19.1	31.4	5,000	345	20,000	1380	4.75	f					
	16 EFG5K	4651-4904	1	25.4	38.7	5,000	345	20,000	1380	6.00	f					
	20 EFG5K	**	1-1/4	31.8	50.0	5,000	345	20,000	1380	8.25	i					
	24 EFG5K	**	1-1/2	38.1	57.3	5,000	345	20,000	1380	10.00	i					
	32 EFG5K	**	2	50.8	71.1	5,000	345	20,000	1380	25.00	i					
Megasys Sprial Wire Hose-EFG4K-SAE 100R12 Meets Flame Resistance Acceptance Designation “MSHA 2G” For Biodegradable Hydraulic Fluids 	6 EFG4K	4651-1338	3/8	9.5	20.3	4,000	276	16,000	1104	2.50	i	-40°C to +121°C #	**Tube**: Black, oil resistant synthetic rubber (Nitrile – Type C). **Reinforcement:** Four alternating layers of spiraled, high tensile steel wire. **Cover**: Black, oil resistant, synthetic rubber (Neoprene – Type A). Blue stripe with white print layline.	Extremely high-pressure, high-impulse applications. Exceeds all performance requirements for SAE 100R12, EN 856 R12 and EN 856 4SP (-16). Compatible with biodegradable hydraulic fluids like polyolester, polyglycol and vegetable oil as well as standard petroleum-based fluids. Superior impulse performance: tested to 1,000,000 impulse cycles		
	8 EFG4K	4651-1339	1/2	12.7	24.8	4,000	296	16,000	1104	3.50	i					
	10 EFG4K	4651-1367	5/8	15.9	27.6	4,000	276	16,000	1104	4.00	i					
	12 EFG4K	4651-4901	3/4	19.1	30.7	4,000	276	16,000	1104	4.75	f					
	16 EFG4K	4651-4902	1	25.4	38.0	4,000	276	16,000	1104	6.00	f					
	20 EFG4K	4651-1284	1-1/4	31.8	47.0	4,000	276	16,000	1104	8.27	i					
	20 EFG3K	**	1-1/4	31.8	47.0	3,000	207	12,000	828	8.30	i					
Megasys Wire Braid Hose- M3K[1] Exceeds SAE 100R17 and ISO 11237 R1 Flame resistant MSHA-2G-11C 	4M3K	4657-4778	1/4	6.3	12.2	3,250	225	13000	900	1.5	a	(-40°C to +100°C).	**Tube:** Black, oil resistant, synthetic rubber (Nitrile). **Reinforcement:** Braided, high-tensile steel wire; 3/16” thru 1/2” have one braid, 5/8” thru 1” have two braids. **Cover:** Black, synthetic rubber (Modified Nitrile Type C2), resists abrasion, oil, weather, ozone.	M3K is designed to meet all requirements of SAE100R1(-4,-6,-8) and SAE100R2(-12,-16).Compatible with biodegradable hydraulic fluids. Superior impulse tested to 6,00,000 cycles		
	6M3K	4657-4779	3/8	9.5	16.0	3,250	225	13000	900	2.0	a					
	8M3K	4657-4780	1/2	12.5	20.2	3,250	225	13000	900	2.8	b					
	10M3K	4657-4782	5/8	15.9	25.2	3,250	225	13000	900	3.0	b					
	12M3K	4657-4781	3/4	19.1	29.1	3,250	225	13000	900	3.8	b					
	16M3K	4657-5061	1	25.4	37.6	3,250	225	13000	900	4.5	b					
Megasys Wire Braid Hose- M4K[1] Exceeds SAE 100R19 and ISO 11237 R19 Flame resistant MSHA-2G-11C 	4M4K	4657-4776	1/4	6.3	12.2	4000	280	16000	1100	1.5	a	(-40°C to +100°C).	**Tube:** Black, oil resistant, synthetic rubber (Nitrile Type C). **Reinforcement:** Two braids of high-tensile steel wire. **Cover:** Black, synthetic rubber (Modified Nitrile Type C2), resists abrasion, oil, weather, ozone.	M4K is designed to meet all requirements of SAE100R1 (-4), SAE100R2 (-6,-8,10) and SAE100R12(-12) .Compatible with biodegradable hydraulic fluids. Superior impulse tested to 6,00,000 cycles		
	6M4K	4657-4777	3/8	9.5	16.0	4000	280	16000	1100	2.0	a					
	8M4K	4657-4793	1/2	12.5	20.2	4000	280	16000	1100	2.8	b					
	10M4K	4657-5056	5/8	15.9	25.2	4000	280	16000	1100	3.0	b					
	12M4K	4657-5060	3/4	19.1	29.1	4000	280	16000	1100	3.8	b					
M-XP Million Impulse Cycle Braid Hose Flame resistant US MSHA 2G-11C. 	4M-XP	4657-4216	1/4	6.3	13.7	4000	280	16000	1103	2	i	(-40°C to 100°C)	**Tube:** Nitrile **Reinforcement:** 2 wire braids **Cover:** Nitrile	Hydraulic systems, 4000 PSI W.P. High impulse applications		
	6M-XP	4657-4217	3/8	9.5	17.5	4000	280	16000	1103	2.5	i					
	8M-XP	4657-4218	1/2	12.5	18.7	4000	280	16000	1103	3.5	i					
	10M-XP	4657-4219	5/8	15.9	22.2	4000	280	16000	1103	4	i					
	12M-XP	4657-4220	3/4	19.0	29.4	4000	280	16000	1103	4.80	i					
EXTREMELY HIGH PRESSURE																
4XH Spiral Wire Hose—EN 856 4SH ISO 3862 Meets Flame Resistance Acceptance Designation “MSHA IC-4/17” 	12 4XH	4651-4907	3/4	19.1	31.5	6,100	420	26,100	1800	8.30	f	40°C To +100°C	**Tube**: Black, oil resistant synthetic rubber (Nitrile). **Reinforcement:** Four alternating layers of spiraled, high tensile steel wire. **Cover**: Black, oil resistant, synthetic rubber (Nitrile)	Extremely high-pressure, high-impulse applications. Most flexible EN 856 4SH hose in industry. Compatible with biodegradable hydraulic fluids like synthetic ester, polyglycol and vegetable oil as well as standard petroleum-based fluids. Superior impulse performance: tested to 1,000,000 impulse cycles		
	16 4XH	4651-4908	1	25.4	37.7	5,600	386	26,100	1800	8.70	f					
	20 4XH	**	1-1/4	31.8	45.2	5,050	350	20,300	1400	16.50	i					
4XP Spiral Wire Hose—EN 856 4SP ISO 3862 Meets Flame Resistance Acceptance Designation “MSHA IC-4/17” 	6 4XP	**	3/8	9.5	21.2	6,650	460	26600	1840	7.10	i	-40°C to +100°C	**Tube**: Black, oil resistant synthetic rubber (Nitrile). **Reinforcement:** Four alternating layers of spiraled, high tensile steel wire. **Cover**: Black, oil resistant, synthetic rubber (Nitrile)	Extremely high-pressure, high-impulse hydraulic applications. Most flexible EN 856 4SP hose in industry. Superior impulse performance: tested to 1,000,000 impulse cycles at bend radius lower than EN 856 standard. Compatible with biodegradable hydraulic fluids like synthetic ester, polyglycol and vegetable oil as well as standard petroleum-based fluids.		
	8 4XP	4651-10033	1/2	12.7	24.3	6,150	425	24600	1700	4.70	i					
	10 4XP	4651-10034	5/8	15.9	27.7	5,800	400	23200	1600	5.50	i					
	12 4XP	4651-4905	3/4	19.1	31.5	5,500	380	23925	1650	6.70	e					
	16 4XP	4651-4906	1	25.4	39.0	4,650	320	20300	1400	13.40	e					
	20 4XP	**	1-1/4	31.8	49.8	3,050	210	18120	1250	18.10	i					
CPS COAL POWER-4 AND 6 SPIRAL Hose Meets performance requirement of SAE 100 R13 Meets flame resistance acceptance designation “MSHA 2G” ¤ Revolutionary design tailored to markets served. Exceeds One Million impulse cycles under SAE 100 R 13 test conditons when tested at DRDO, R&D, Dighi, Ministry of Defence Test Lab 	12 CPS	4651-0400	3/4	19.1	31.4	WP Dynamic 5,000†	WP Dynamic 345	20,000	1380	4.75	i	-40°C to +121°C #	**Tube**: Black, oil resistant synthetic rubber (Neoprene). **Reinforcement:** Four alternating layers of spiraled, high tensile steel wire over a layer of fabric on 1¼, 1½ and 2” size. **Cover**: Black, oil resistant, abrasion resistant synthetic rubber (Neoprene). Yellow layline stripe.	High pressure lines in longwall mining equipment and roof support systems / petroleum based or water emulsion fluids. Compatable with biodegradable hydraulic fluids like polyglycol and vegetable oils as well.	WP Static (psi) 6,700β	WP Static (bar) 462
	16 CPS	4651-0401	1	25.4	38.7	5,000†	345	20,000	1380	6.00	i				6,000β	414
	20 CPS	4651-0402	1-1/4	31.8	50.0	5,000†	345	20,000	1380	8.25	i				6,000β	414
	24 CPS	4651-0415	1-1/2	38.1	57.3	5,000†	345	20,000	1380	10.00	i				6,000β	414
	32 CPS	4651-0416	2	50.8	71.1	5,000†	345	20,000	1380	25.00	i				6,000β	414
HIGH PRESSURE																
BHL X-TRA HOSE Meets flame resistance acceptance designation “MSHA 2G” 	4 BHL	4657-8743	1/4	6.4	15.1	5075	350	20,300	1400	2.00	g	-40°C to +120°C	**Tube**: Nitrile Black **Reinforcement:** 2 braid of high tensile steel wire **Cover**: Specially modified synthetic rubber	Hose for high impulse and tight bend radius application. Mainly used for backhoe loader, other construction and earth moving application.		
	6 BHL	4657-8744	3/8	9.5	17.7	4785	330	19,140	1320	2.20	g					
	8 BHL	4657-8745	½	12.7	20.6	3987	275	15,950	1100	3.50	h					
	10 BHL	4657-8746	5/8	15.9	24.6	3987	275	15,950	1100	4.00	h					
G2 2-WIRE BRAID HOSE—SAE 100R2 Meets Flame Resistance Acceptance Designation “MSHA 2G” 	3 G2	4657-8950	3/16	4.8	13.2	6,025	414	24,000	1655	3.50	a	- 40°C to +100°C	**Tube:** Black, oil-resistant synthetic rubber (Nitrile – Type C). **Reinforcement**: Two braids of high-tensile steel wire. **Cover:** Black, oil and abrasion resistant thin synthetic rubber (Modified Nitrile – Type C2).	High-pressure hydraulic oil lines. Meets or exceeds the requirements of SAE 100R2AT and SAE 100R2 Type Sand performance requirements of EN 853 2SN.		
	4 G2	4657-4852	1/4	6.4	14.7	5,800	400	23,200	1600	4.00	a					
	6 G2	4657-4830	3/8	9.5	18.5	4,800	331	19,200	1324	5.00	a					
	8 G2	4657-4831	1/2	12.7	21.8	4,000	276	16,000	1104	7.00	b					
	10 G2	4657-4832	5/8	15.9	24.9	3,625	250	14,500	1000	8.00	b					
	12 G2	4657-4833	3/4	19.1	28.7	3,100	214	12,400	856	9.50	b					
	16 G2	4657-4834	1	25.4	37.5	2,400	166	9,600	664	12.00	c					
	20 G2	4657-4900	1-1/4	31.8	47.5	1,825	126	7,300	504	16.50	c					
	24 G2	4657-4894	1-1/2	38.1	54.6	1,300	90	5,000	360	20.00	c					
	32 G2	4657-4895	2	50.8	65.0	1,175	81	4,500	324	25.00	c					
G2H HIGH-TEMP HIGH PRESSURE 2-Wire Braid Hose—SAE 100R2 	20 G2H	4657-4911	1-1/4	31.8	47.5	1,650	126	6,600	504	16.50	i	-40°C to +135°C #	**Tube**: Black, oil-resistant synthetic rubber (Nitrile – Type C). **Reinforcement**: Two braids of high-tensile steel wire. **Cover**: Black, oil-resistant synthetic rubber (Hypalon† – Type M).	High-pressure hydraulic oil lines. Meets or exceeds the requirements of SAE 100R2AT and performance requirements of EN 853.		
	24 G2H	4657-4842	1-1/2	38.1	54.6	1,300	90	5,000	362	20.00	i					
	32 G2H	4657-4843	2	50.8	67.3	1,175	81	4,500	324	25.00	i					
J2AT 2-WIRE BRAID JACK HOSE Meets Flame Resistance Acceptance Designation “MSHA 2G” Meets IJ 100 Jack Hose spec. 	4 J2AT	4657-8737	1/4	6.3	14.7	10,000	690	20,000	1380	4.00	a	-40°C to +100°C	**Tube**: Black, oil resistant, synthetic rubber (Nitrile – Type C). **Reinforcement**: Two braids of high tensile steel wire. **Cover**: Black, oil and abrasion resistant synthetic rubber (Modified Nitrile – Type C2).	Hydraulic jack applications. Meets Material Handling Institute specification IJ 100 for hydraulic hose and assemblies used with jacking systems.		
	6 J2AT	4657-8751	3/8	9.5	18.8	10,000	690	20,000	1380	5.00	a					
MINING HOSE Meets BCS 174 : 1992 performance Meets flame resistance acceptance designation “MSHA 2G” Revolutionary design tailored to markets served. Exceeds 2,00,000 impulse cycles under BCS174 : 1992 conditons when tested at DRDO, R&D, Dighi, Ministry of Defence Test Lab 	DN 6	4654-7961	1/4	6.3	17.0	WP Dynamic (psi) 6,525	WP Dynamic (bar) 450	26,100	1,800	4.00	a	-40°C to +100°C	**Tube**: Black, oil resistant synthetic rubber (Nitrile). **Reinforcement:** Two braid, high tensile steel wire. **Cover**: Black, oil resistant, abrasion resistant synthetic rubber (Modified Nitrile).	High pressure hydraulic lines in longwall mining equipment and roof support system; patrolium based or water emulsion fluids	WP Static (psi) 11,050Ψ¶	WP Static (bar) 761
	DN10	4654-7962	3/8	9.5	21.3	5,500	380	22,000	1,520	5.10	a				9,525Ψ¶	656
	DN12	4654-7963	½	12.7	26.5	5,250	362	21,000	1,448	6.00	b				6,400Ψ	441
	DN20	4654-7964	3/4	19.1	33.6	4,000	276	16,000	1,104	9.10	b				4,950Ψ	341
	DN25	4654-7965	1	25.4	40.7	3,125	215	12,500	861	12.00	c				3,775Ψ	260
	DN32	4654-7967	1-1/4	31.8	47.2	2,500	172	10,000	689	15.10	c				2,900Ψ	200
	DN40	4654-7966	1-1/2	38.0	54.0	2,118	146	8,472	584	18.00	c				2,541Ψ	175
MEDIUM PRESSURE																
MegaTech™ ACR Hot Oil / Air Return Line Hose 	4 ACR	**	1/4	6.4	13.2	1,000	69	4,000	276	2.00	i	-40°C To +149°C #	**Tube**: Black, specifically compounded for temperature and chemical resistance (CPE). **Reinforcement:** One braid, high tensile steel wire. **Cover**: Black, oil & abrasion resistant polyester braid. Flame resistant “US MSHA 2 G”	Pressurized hot oil return lines and rotary oil/air compressor lines		
	6 ACR	4657-2340	3/8	9.5	17.0	1,000	69	4,000	276	2.50	i					
	8 ACR	4657-2341	1/2	12.7	19.3	1,000	69	4,000	276	3.50	i					
	10 ACR	4657-2342	5/8	15.9	24.1	1,000	69	4,000	276	4.00	i					
	12 ACR	4657-2336	3/4	19.1	26.4	1,000	69	4,000	276	4.75	i					
	16 ACR	4657-2337	1	25.4	34.0	1,000	69	4,000	276	6.00	i					
	20 ACR	4657-2338	1-1/4	31.8	40.0	1,000	69	4,000	276	8.50	i					
	24 ACR	4657-0204	1-1/2	38.1	49.4	500	35	2,000	140	15.00	i					
	32 ACR	4657-0805	2	50.8	62.9	500	35	2,000	140	18.00	c					
	40 ACR	4657-4908	2-1/2	63.5	75.3	500	35	2,000	140	22.00	c					
	48 ACR	4657-4909	3	76.4	88.9	500	35	2,000	140	24.00	i					
G1 1-WIRE BRAID HOSE—SAE 100R1 TYPE At medium pressure 	3 G1	4657-8749	3/16	4.8	11.9	3,625	250	14,500	1000	3.50	i	-40°C to +100°C	**Tube**: Black, oil-resistant synthetic rubber (Nitrile – Type C). **Reinforcement**: One braid of high-tensile steel wire. **Cover**: Black, oil and abrasion-resistant synthetic rubber (Modified Nitrile – Type C2).	Medium pressure hydraulic lines. Meets or exceeds the requirements of SAE 100R1 Type AT and performance requirements of DIN 20022 1SN / EN 853 1SN. Provides tighter than standard minimum bend radius and greater flexibility for easier plumbing.		
	4 G1	4657-4846	1/4	6.4	13.5	3,275	226	13,100	904	4.00	a					
	5 G1	4657-4828	5/16	7.9	15.0	3,125	216	12,500	864	4.50	a					
	6 G1	4657-2980	3/8	9.5	17.5	2,600	180	10,400	720	2.50	a					
	8 G1	4657-4825	1/2	12.7	20.8	2,325	160	9,300	640	5.00	b					
	10 G1	4657-4826	5/8	15.9	23.9	1,900	131	7,600	524	7.00	b					
	12 G1	4657-4827	3/4	19.1	27.9	1,525	105	6,100	420	8.00	b					
	16 G1	4657-4829	1	25.4	35.8	1,275	88	5,100	352	12.00	c					
	20 G1	4657-4897	1-1/4	31.8	43.4	925	64	3,700	256	16.00	c					
	24 G1	4657-2498	1-1/2	38.1	49.8	725	50	2,900	200	20.00	c					
	32 G1	4657-4896	2	50.8	64.0	600	41	2,700	164	25.00	c					
G1H HIGH-TEMP 1-WIRE BRAID HOSE SAE 100R1 Type AT Meets Flame Resistance Acceptance Designation “MSHA 2G” 	4 G1H	4657-8702	1/4	6.4	13.5	2,750	190	11,000	760	2.00	i	-40°C to +135°C #	**Tube**: Black, oil resistant, synthetic rubber (Nitrile – Type C). **Reinforcement**: One braid of high tensile steel wire. **Cover**: Black, oil and abrasion resistant synthetic rubber (Hypalon† – Type M).	Medium pressure hydraulic oil lines. Meets or exceeds requirements of SAE 100R1 Type AT.		
	5 G1H	4657-8703	5/16	7.9	15.1	2,500	172	10,000	688	2.25	i					
	6 G1H	4657-8704	3/8	9.5	17.5	2,250	155	9,000	621	2.50	i					
	8 G1H	4657-8705	1/2	12.7	20.8	2,000	138	8,000	552	3.50	i					
	10 G1H	4657-2178	5/8	15.9	23.8	1,500	103	6,000	415	4.00	i					
	12 G1H	4657-8706	3/4	19.1	27.9	1,250	86	5,000	345	4.75	i					
	16 G1H	4657-8726	1	25.4	35.8	1,000	69	4,000	275	6.00	i					
	20 G1H	4657-4850	1-1/4	31.8	43.6	625	43	2,500	172	8.00	i					
	24 G1H	4657-4844	1-1/2	38.1	50.0	725	50	2,900	200	10.00	i					
	32 G1H	4657-4845	2	50.8	64.0	600	42	2,400	165	12.50	i					
LOW PRESSURE																
GTH HIGH-TEMP 1-FIBER BRAID HOSE SAE 100R6 	3 GTH	3319-8999	3/16	4.8	11.2	500	35	2,000	138	2.00	i	-40°C to +135°C #	**Tube**: Black, specially compounded, synthetic rubber (Nitrile – Type C). **Reinforcement**: One fiber braid. **Cover**: Black, oil and abrasion resistant, synthetic rubber (Neoprene – Type A).	Hydraulic oil lines, heavy-duty transmission oil cooler lines and glycol anti-freeze solutions. Meets or exceeds requirements of SAE 100R6 /EN 854. Specially resistant to diesel permeation.	Vacuum (in Hg) 28	
	4 GTH	3319-8972	1/4	6.4	12.7	400	28	1,600	110	2.50	a				28	
	5 GTH	3319-8971	5/16	7.9	14.2	400	28	1,600	110	3.00	a				28	
	6 GTH	3319-8978	3/8	9.5	16.0	400	28	1,600	110	3.00	a				28	
	8 GTH	3319-8979	1/2	12.7	19.8	400	28	1,600	110	4.00	b				18	
	10 GTH	3319-8980	5/8	15.9	23.1	350	24	1,400	97	5.00	b				15	
	12 GTH	3319-8987	3/4	19.1	27.0	300	21	1,200	83	5.50	b				15	
	*16 GTH	3319-3345	1	25.4	28.1	250	17	1,000	69	8.00	i				10	
C6 ONE Fiber Hose- SAE 100R6 Meets performance requirements of EN 854 	4 C6	3319-8917	1/4	6.4	12.7	400	28	1,600	112	2.60	a	-40°C to +100°C	**Tube:** Specially compounded, oil-resistant, synthetic rubber (Nitrile)-Black. **Reinforcement:** One braid of high tenacity yarn. **Cover**: Oil and abrasion resistant synthetic rubber, (Modified Nitrile)- Black.	Hydraulic oil lines, heavy-duty tranmission oil, anti-freeze solution. Meets or exceeds requirements of SAE 100R6 /EN 854.	Vacuum (in Hg) 28	
	5 C6	3319-8958	5/16	7.9	14.2	400	28	1,600	112	3.00	a				28	
	6 C6	3319-8959	3/8	9.5	16.0	400	28	1,600	112	3.00	a				28	
	8 C6	3319-8960	1/2	12.7	19.7	400	28	1,600	112	4.00	b				28	
	10 C6	3319-8961	5/8	15.9	23.0	350	24	1,400	97	5.00	b				24	
	12 C6	3319-8968	3/4	19.1	27.0	300	21	1,200	83	6.00	b				21	
	*16 C6	3319-8962	1	25.4	34.0	250	14	800	55	7.00	d				14	
C3 Two Fiber Braid Hose- SAE 100R3 Meets performance requirements of EN 854 	4 C3	3319-8950	1/4	6.4	14.5	1,250	86	5,000	345	3.00	a	-40°C to +100°C	**Tube:** Black, synthetic rubber (Nitrile). **Reinforcement**: Two braids of high tenacity synthetic textile yarn **Cover**: Modified Nitrile.	Hydraulic oil lines,anti-freeze solution or water. Meets of exceeds requirement of SAE 100R3/EN 854	Vacuum (in Hg) 28	
	5 C3	3319-8951	5/16	7.9	17.5	1,200	83	4,800	332	4.00	a				28	
	6 C3	3319-8952	3/8	9.5	19.1	1,125	78	4,500	312	4.00	a				28	
	8 C3	3319-8953	1/2	12.7	23.9	1,000	69	4,000	276	5.00	b				28	
	10 C3	3319-8975	5/8	15.9	27.0	875	61	3,500	244	5.50	b				28	
	12 C3	3319-8954	3/4	19.1	31.8	750	52	3,000	208	6.00	b				28	
	16 C3	3319-8955	1	25.4	38.1	565	39	2,250	156	8.00	d				20	
G3H HIGH-TEMP 2-FIBER BRAID HOSE —SAE 100R3 Medium Pressure Meets Flame Resistance Acceptance Designation “U.S. MSHA 2G” 	4 G3H	3319-0088	1/4	6.4	14.2	1250	86	5,000	345	3.00	i	-40°C to +135°C	**Tube**: Black, synthetic rubber (Nitrile – Type C). **Reinforcement**: Two fiber braids. **Cover**: Black, oil and abrasion resistant, synthetic rubber (Neoprene – Type A).	Hydraulic oil lines, heavy-duty transmission oil cooler lines and glycol anti-freeze solutions . Meets or exceeds requirements of SAE 100R3 /EN 854. Specially resistant to diesel permeation	Vacuum (in Hg) 28	
	5 G3H	3319-4287	5/16	7.9	16.8	1,200	83	4,750	327	3.50	i				28	
	6 G3H	3319-0087	3/8	9.5	19.1	1,125	78	4,500	312	4.00	i				28	
	8 G3H	3319-0090	1/2	12.7	23.9	1,000	69	4,000	276	5.00	i				28	
	10 G3H	3319-4288	5/8	15.9	27.9	875	61	3,500	244	5.50	i				28	
	12 G3H	3319-0091	3/4	19.1	31.8	750	52	3,000	208	6.00	i				28	
	16 G3H	3319-0092	1	25.4	38.1	565	39	2,250	156	8.00	i				20	
	20 G3H	3319-8997	1-1/4	31.8	44.5	375	26	1,500	103	10.00	i				15	
	*24 G3H	3319-4289	1-1/2	38.1	49.3	300	21	1,200	83	12.00	i				15	

SPECIAL APPLICATION HOSES

M4KH HOSE	:	For constant high pressure hydraulic applications exceeds SAE100R19
M3KH HOSE	:	For constant high pressure hydraulic lines, meets SAE 100 R17 and significantly tighter bend radius than other SAE 100R1 and 100R2 hose.
EMULSION HOSE	:	Flexible connections in high pressure water distribution and emulsion systems used in a variety of industries. The thick cover meets MSHA's self-extinguishing requirements, and is designed for the rough mining environment.
RIG HOSE	:	High temperature air/oil hose for water well drilling rigs.
R5R HOSE	:	Meets Railways specifications.
GOVERNOR HOSE	:	Hydraulic hose for speed governors in heavy vehicles.
HOT OILER HOSE	:	For static pressure, transfer of hot oil at 135 °C continuous and 149°C intermittent to clear paraffin.
RLA HOSE	:	Low pressure hydraulic oil return lines for conveying general purpose water, gasoline etc.

PACKAGING SPECS.

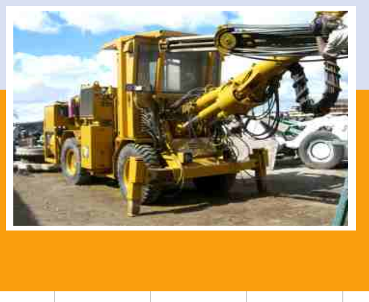
a : Max. Pieces = 4, Min. Roll Length = 55 metre, Min. Coil Length = 7.5 metre, Max. Roll Length = 250 metre
b : Max. Pieces = 4, Min. Roll Length = 55 metre, Min. Coil Length = 7.5 metre, Max. Roll Length = 200 metre
c : Max. Pieces = 1, Max. Roll Length = 40.8 metre, Min. Coil Length = 15 metre.
d : Max. Pieces = 1, Max. Roll Length = 40.8 metre, Min. Coil Length = 5 metre.
e : No. Of Pieces = 1, Max. Length = 20-60 metre, Min. Length = 10-20 metre.
f : No. Of Pieces = 1, Max. Length = 15-60 metre, Medium Length = 5-15 metre, Min. Length = 1-5 metre.
g : Max. Pieces = 5, Min. Roll Length = 55 metre, Min. Coil Length = 5 metre, Max. Roll Length = 250 metre
h : Max. Pieces = 5, Min. Roll Length = 55 metre, Min. Coil Length = 5 metre, Max. Roll Length = 200 metre
i : For packing specs please contact Gates Customer Care.

FOOTNOTES

Ⓜ	Available with unique abrasion resistant MegaTuff® cover. MegaTuff® hose lasts upto 300 times longer than the standard hose during hose-to-hose and hose-to-metal abrasion test per ISO 6945
1.	Also available in XtraTuff™ and MegaTuff® covers
#	For water emulsions etc see overleaf
*	Gates proprietary hose. Not covered under SAE standard
**	Product under release at the time of going into print. Please contact customer care.
	BCS 174 : 1992 qualification requires 1,00,000 impulse cycles at 133% of dynamic working pressure and 35 ± 5 cycle per minute.
¶	Meets BCS 174 : 1992 powered roof support leg yield circuit specification
Ψ	Where pressure surges are minimal, e.g. Power roof support application
¤	SAE 100 R 13 qualification requires 5,00,000 (half million) impulse cycle at 121° C fluid temperature.
†	Meets or exceeds the DIN (Deutsche Industries Norms) 20023/Jan 1985 dynamic working pressure.
β	Where pressure surges are minimal, e.g. Power roof support applications

This data is only representative of The Gates Hydraulic Hose Range and not a comprehensive list of all sizes of Hydraulic Hoses manufactured by Gates. For types and sizes not mentioned here please contact Gates Customer Care

Due to continual product improvements, Gates reserves the right to alter specifications and prices without prior notice. This India Edition Catalogue is the latest addition and supercedes all earlier Gates Hydraulic Catalogues



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