



INDUSTRIAL ENGINE PRODUCTS

Gates.com



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For more information, please contact your Gates field representative or a Gates Product Application Engineer at +1-303-744-4140. You can also e-mail Fluid Power Product Application (hose products) at fpasupport@gates.com, or Power Transmission Product Application (belt products) at ptpasupport@gates.com.

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LIST BY KEYWORDS

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- Air Cleaner See Air Intake/Inlet.
- Air Compressor Compressed air or brake supply - see Air Brake.
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- Air Duct..... Page 83. [7768]
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- DEF Heater Hose See Heater.
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- Diesel Emission Fluid..... See SCR.
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- Government See Gates Government Hose Catalog
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- Heater Straight - page 37 to 40. [4230T, 3270, 4230BS, 3269S, 3230, 4230S, 3231]
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LIST BY KEYWORDS

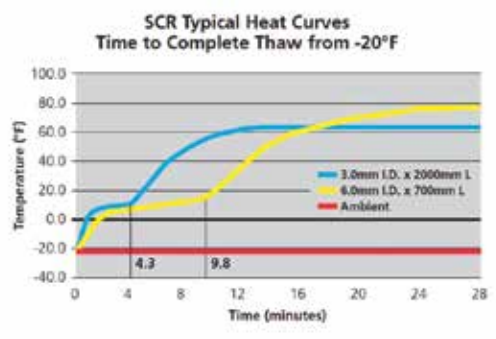
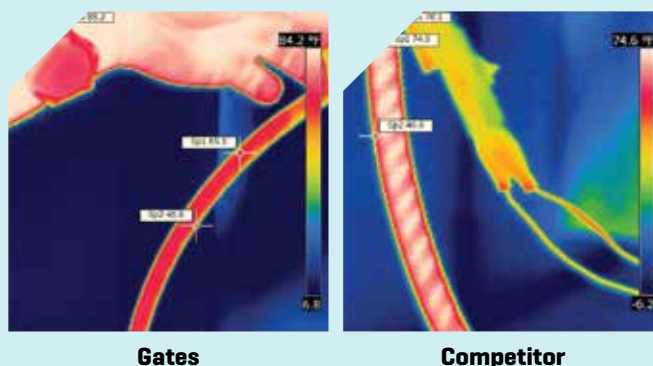
Nitrile.....	Very common type of rubber in most fuel, oil, and some coolant hoses.	SAE 30R7.....	Fuel/oil vent or fill - page 52, 74. [4219G, 4278CN]
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SAE 30R2.....	Higher pressure fuel/oil hose - page 55, 75. [3284A, 4278OB]	Turbo Oil Drain.....	Straight, high temperature - page 54, 66, 73. [4219D, 3319HT, 3283LF]. Formed, high temperature - page 76. [4278SS]. Also see Oil section.
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		Vacuum Tubing.....	Page 91, 92. [4040A, 4251D, 4040T]
		V-Belt.....	Page 126 to 133.
		Water Pump.....	Page 135.
		Wet Exhaust.....	Page 32, 74, 80, 81. [3137ME, 4686ME, 4684CF, 4278CN]
		Windshield Wiper Tubing.....	Page 91. [4040A, 4251D]
		Wire Reinforced.....	Coolant and water, embedded helix - page 31, 32, 33, 35, 81. [4685WG, 4684CF, 4684S, 4284, 4686ME] Inserted helix - page 34. [4254] Air - embedded helix - page 83 to 85. [7768, 4663A, 4663J] External braid - page 104. [7752] Ring reinforced - page 89, 90. [4177] Fuel / oil - embedded helix - page 59, 81. [4663K, 4686ME] Wire braid - page 61, 68. [3658F, 3658BC] Brake, air - page 102, 103. [3658C, 3658E]

Diesel Emission Fluid (DEF) Heated Hoses for Selective Catalytic Reduction (SCR) Systems



- > Made in almost any length, unlike some which are only available in certain increment lengths.
- > Uses Nylon 12 tubing standard, or more flexible rubber tubing.
- > Thaws DEF in half the time as competitive hose using the same current draw.
- > Insulates with a closed-cell EPDM cover. Convoluted nylon cover also available.
- > Encapsulated electrical connection in a weather-proof molding.
- > Heated quick-connect couplings.
- > Temperature resistant, from -40°C to $+135^{\circ}\text{C}$.
- > Working pressure of 14 Bar [200 psi].

Carbon fiber + fiberglass sleeve heats evenly and efficiently.



See 4202 Diesel Emission Fluid Heated Line on page 78.

Also see:

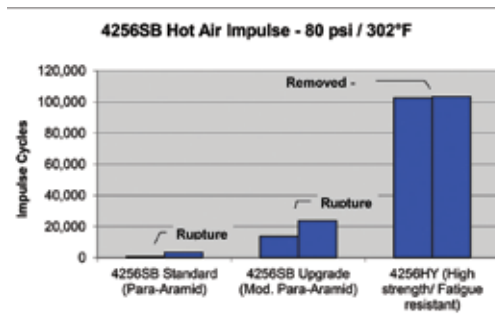
- > 4217IS Diesel Emission Fluid Hose for DEF transfer applications or remote tank fill on page 78.
- > 4256PC DEF Tank Fill and Vent on page 79.
- > DEF coolant lines - use Small ID Coolant Hose selection pages 37 to 40. or Formed Coolant Hose selection pages 41 to 50.



FEATURED PRODUCT

Turbo and Charge Air Cooler (CAC) Hoses and Assemblies

- Reduce air leaks by eliminating the pipe
Gates offers 1-piece formed hose solutions.
- Tube assemblies available, made to order.
- Gates Hybrid Reinforcement for high-fatigue applications.



Cold side (150°C) CAC hose



- EPDM rubber with aramid reinforcement [4256NP, page 97].
- EPDM rubber with Gates hybrid reinforcement [4256HY, page 97].
- CPE oil-resistant rubber with Gates hybrid reinforcement [4278AA, page 98].

Hot side (200+°C) CAC hose



- Silicone rubber connector with fiberglass reinforcement [4171H, page 87].
- Silicone hump and ring connectors, with or without oil resistant liner [4177, page 89, 90].
- Other made-to-order solutions available.





FEATURED PRODUCT

BARRICADE®

FUEL INJECTION AND CARBURETION HOSE
with GreenShield® Technology

Gates Barricade® 4219BG Fuel Line (page 55)



- > Multiple fuel compatibility: Gasoline, E10, E15, E85, Diesel, biodiesel [B0 to B100: SME, PME, RME].
- > Low permeation <15g/m²/day: Meets EPA and CARB requirements.
- > Working pressure: 50 psi max.
- > Working temperature: -40 to +125°C, or +100°C for biodiesel B-10 to B-100.

Gates Barricade® 4219BF Fuel Injection Hose (page 56)



- > Multiple fuel compatibility: Gasoline, E10, E15, E85, Diesel, biodiesel [B0 to B100: SME, PME, RME].
- > Low permeation <15g/m²/day: Meets EPA and CARB requirements.
- > Working pressure: 225 psi max.
- > Working temperature: -40 to +135°C continuous, or +150°C intermittent for gasoline and all diesel fuels including B-100.

MODERN FUELS REQUIRE MODERN FUEL HOSE.

Installing Barricade protects the system against the aggressive fuel mixtures of today's modern fuels, which can degrade basic rubber hose and result in customer comebacks.

- > **BEST-IN-CLASS** working psi of 225 (for fuel injection).
- > Lowest permeation rate on the market.
- > Exceeds California Air Resources Board (CARB) and EPA requirement.
- > Multi-fuel compatible: Approved for use with leaded and unleaded Gasoline, Diesel, Biodiesel†, E-85, 100% Methanol, **ETHANOL** and gasohol fuels.
- > Performs **5x** better for permeation than the nearest competitor.

Don't make a mistake: in CARB-regulated states, it is **ILLEGAL** to "alter the original design of the system." Replacement of OEM hose with general-purpose carburetion hose is considered an alteration.

† Biodiesel fuel must meet the ASTM D6751 specification for biodiesel fuel and be produced, marketed and distributed by BQ9000 accredited facilities.





FEATURED PRODUCT

PowerGrip® Polymeric Clamp and Coolant Hose Solutions

PowerGrip® Polymeric Clamps

- > Provides uniform clamp force around the circumference of the hose.
- > Conforms to dented or out-of-round hose fittings.
- > Thermally contracts with the rubber and eliminates cold leaks.
- > Clamp force improves during the system duty cycle.
- > Impossible to over-tighten, continuously self-adjusts.
- > Low profile.

PowerGrip® SB - heat activated, for 1/4" to 3" ID hoses - page 110.

PowerGrip® RT - activated at room temperature, for 3/8" to 3" ID hoses - page 111.

Coolant hose assembly solutions

Using PowerGrip® clamps
Quick connect ends
Bent tube assembly



Gates Coolant Hoses

- > 35 constructions, hundreds of customers, thousands of products.
- > Applications from cars and cranes to wind turbines and computers.
- > Very low setup cost for custom shape hoses.

Features:

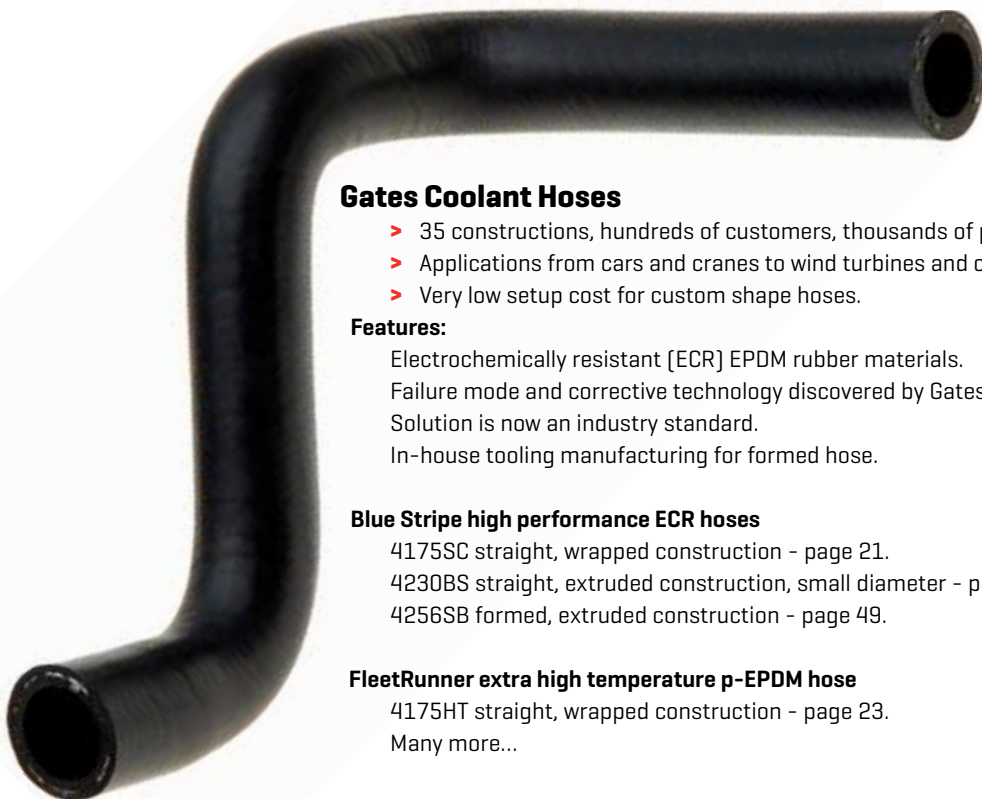
Electrochemically resistant (ECR) EPDM rubber materials.
Failure mode and corrective technology discovered by Gates.
Solution is now an industry standard.
In-house tooling manufacturing for formed hose.

Blue Stripe high performance ECR hoses

4175SC straight, wrapped construction - page 21.
4230BS straight, extruded construction, small diameter - page 38.
4256SB formed, extruded construction - page 49.

FleetRunner extra high temperature p-EPDM hose

4175HT straight, wrapped construction - page 23.
Many more...





GUIDE FOR GATES ENGINE HOSE TYPES

Application	Gates Spec	Where Sold	Page	Description	SAE [or Other] Spec	Relative Cost (1 to 5 Scale)
Coolant - Straight	4175EC (75W)	N.A. & Europe	21	Standard coolant hose	20R1 Class D2	●●●○
	4175SC (Blue Stripe)	North America	22	Premium EPDM, aramid	20R1 EC Class D2	●●●○
	4175HT (FleetRunner)	North America	23	Higher temperature	20R1 EC HT Class D3	●●●○
	4176HD (76W)	North America	24	Thick wall	20R1 Class D2, heavy wall	●●●○
	4272 (Flexcord Plus)	Europe	25	Light duty, metric	20R4 Class D2, DIN 73422 Class B1	●●●○
	4169A	North America	26	Oil resistant	20R1 Class B tube, Class C cover	●●●○
	4176Y	North America	27	Oil resistant, thicker wall	20R1 Cl. B tube / C cover, heavy wall	●●●○
	4179G (Green Stripe)	North America	28	Oil resistant, thickest wall	20R1 Cl. B tube / C cover, heavy wall	●●●○
	4169G	North America	29	Oil resistant cover only	20R1 Class D1 tube, Class C cover	●●●○
	4171	N.A. & Europe	30	Silicone	20R1 HT Class A	●●●○
	4685WG	N.A. & Europe	31	Embedded wire helix	20R2 Class D1	●●●○
	4684CF	North America	32	Oil resistant w/ wire helix	20R2 Class B tube / C cover	●●●○
	4684S	North America	33	Silicone w/ wire helix	20R2 Class A	●●●○
	4254/4274TR (Vulco-Flex)	N.A. & Europe	34	Convolutions, set lengths	Similar to 20R5 Class D2	●●●○
	4284 (Vulco-Flex Green Stripe)	N.A. & Europe	35	Convolutions, ECR tube	20R5 EC Class D2	●●●○
Coolant - Straight, Small ID	4177W	North America	36	Hump connector	SAE 20R1 Class B tube / C cover	●●●○
	4230T	N.A. & Europe	37	Standard heater hose	20R3 Class D2	●●●○
	3270 (Safety Stripe)	North America	37	Light duty	Similar to 20R3 Class D2	●●●○
	4230BS (Blue Stripe)	North America	38	Premium, with blue stripe	20R3 EC Class D1	●●●○
	4230RK	North America	38	Premium, with no stripe	20R3 EC Class D1	●●●○
	4230RS (Red Stripe)	North America	38	Premium, with red stripe	20R3 EC Class D1	●●●○
	3269S (Green Stripe)	Europe	38	Thick wall, aramid	20R1 EC Class D1 except wall	●●●○
	3230 (EPDM)	Europe	39	Metric sizes	DIN 73411 Class A except tolerance.	●●●○
	4230S	North America	39	Oil resistant	20R3 Class B tube / C cover	●●●○
	3230 / 3231 (Europe)	N.A. & Europe	40	Silicone	20R3 HT Class A	●●●○
Coolant - Formed	4280MH	N.A. & Europe	45	Standard curved hose	20R3/4 EC Class D1	●●●○
	4280GN	N.A. & Europe	46	Non-ECR EPDM	20R3/4 Class D2	●●●○
	4276KR	N.A. & Europe	47	Higher pressure, aramid	20R3/4 EC Class D1	●●●○
	4256HY	N.A. & Europe	48	High-fatigue resistance	20R4 EC Class D1	●●●○
	4256SB (Blue Stripe)	N.A. & Europe	49	Premium EPDM, aramid	20R3/4 EC Class D1	●●●○
	4256LS	N.A. & Europe	50	Higher temp. p-EPDM	20R3/4 EC Class D3	●●●○
	4256VT	N.A. & Europe	50	Higher temp. p-EPDM	20R3/4 EC Class D3	●●●○
	4219G / 4219XL	N.A. & Europe	52	Standard fuel/oil hose	30R6 or 30R7	●●●○
	3225ST	North America	53	Metric sizes	30R7, DIN 73379 ex. tolerance	●●●○
	4324	Europe	54	Metric w/ textile cover	DIN 73379	●●●○
Fuel - Straight	4219D	N.A. & Europe	54	Lower fuel permeation	30R9, 180 psi	●●●○
	3284A (RLA)	North America	55	Higher pressure	30R2 Type 1 except OD	●●●○
	4219BG (Barricade)	North America	55	Low permeation barrier	30R14 T1	●●●○
	4219BF (Barricade Fuel Injection)	North America	56	Barrier, fuel injection	30R14 T2 excl. kink resist., 1E4340A,B	●●●○
	4327DT	North America	56	Nylon tubing for diesel	J844, DOT FMVSS 106	●●●○
	4327FT	North America	57	Nylon tubing for fuel	J844, DOT FMVSS-106	●●●○
	4219	North America	57	Submersible (in-tank)	30R10	●●●○
	4659	North America	58	Stainless steel braid cover	None	●●●○
	4663K	N.A. & Europe	59	Fuel filler w/ wire helix	30R5 Class B tube / C cover	●●●○
	4219M	North America	60	Marine fuel and oil hose	J1527, USCG Type A1	●●●○
	4219N	North America	60	Marine outdoor fuel line	J1527, USCG Type B1	●●●○
	4219BM (Barricade Marine)	North America	61	Marine barrier fuel hose	J1527, USCG Type A1-15	●●●○
	3658F (CSM)	North America	61	Marine high pressure	J1527, USCG Type A1	●●●○
	4278BD	N.A. & Europe	62	Biodiesel fill and vent	30R6 with exceptions	●●●○
	3319HT (6TH)	North America	66	Fiber braid reinforced	100R6	●●●○
	3319CA (G3H)	North America	66	Two fiber braids	100R3	●●●○
Oil - Straight	3658D (C5D)	North America	67	High temperature w/ wire	J1402, DOT FMVSS-106	●●●○
	3658BC (C5C XH)	North America	68	High temp. and pressure	100R5, DOT FMVSS-106	●●●○
	4219HT	North America	68	Transmission oil cooler	1532 Type B	●●●○
	4319 (MegaTech LOC)	North America	69	High temp. true bore	J1405	●●●○
	4657AM (MegaTech 250)	North America	69	High temperature w/ wire	J1405	●●●○
	4657DT (MegaTech 500)	North America	70	High temp., wire, large ID	J1405	●●●○
	4657PS (MegaTech 3000)	North America	70	High temp. and pressure	J1405	●●●○
	4657JT (MegaTech II)	North America	71	High pressure large ID	100R2 and 100R2 Type S	●●●○
	4657TB (MegaTech G5TB)	North America	71	High pressure true bore	J1405	●●●○
	3317LE (PS188)	N.A. & Europe	72	Pressure line	J2050 Type 1	●●●○
Power Steering - straight	3283SA	North America	72	Return line	J189	●●●○
	3283LF	North America	73	High temp return	J189, J2076	●●●○
	4278CN	N.A. & Europe	74	Standard oil fill / suction	30R6 [or 30R7 excl. sour gas test]	●●●○
Oil - Formed	4278OB	N.A. & Europe	75	Higher pressure	30R2 Type 1 [except burst]	●●●○
	4278SS	North America	76	Higher temperature	J200 MSDE	●●●○
Emissions - DEF Hose	4217S	North America	78	DEF tank fill / vent		●●●○
	4202	N.A. & Europe	78	Heated DEF line		●●●○
Emission - Marine wet exhaust	4256PC	N.A. & Europe	79	DEF tank fill / vent	20R3/4 EC Class D3	●●●○
	3137ME	North America	80	Marine wet exhaust	J2006 R1	●●●○
Inlet air - straight	4686ME	North America	81	Wet exhaust w/ helix	J2006 R2	●●●○
	Connector	N.A. & Europe	-	(Use a coolant hose)		●●●○
	7768	N.A. & Europe	83	Duct w/ thin wall, helix	DOT FMVSS 302	●●●○
	4663A (63SB)	N.A. & Europe	84	Oil resistant w/ helix		●●●○
	4663J (163SB)	N.A. & Europe	85	Thicker wall w/ helix		●●●○
Turbo air - straight	4663G	N.A. & Europe	86	Thick wall w/ helix		●●●○
	4171H	North America	87	Silicone CAC connector		●●●○
	4177W (Green Stripe) / 4177C	North America	88	Hump hose connector	SAE 20R1 Class B tube, Class C cover	●●●○
	4177S	North America	89	Silicone hump connector		●●●○
Air - straight multi-purpose	4177	North America	89, 90	Hump & ring connector		●●●○
	4040A	N.A. & Europe	91	Wiper, overflow tube	J1037, 942B, J200 M4CA710	●●●○
	4251D	North America	91	Wiper, overflow hose	Similar to SAE 20R3 Class D2	●●●○
Inlet air - formed	4040T	North America	92	Silicone tubing		●●●○
	4289E	N.A. & Europe	94	Air cleaner hose	J200 M3CA 707	●●●○
Turbo air - formed	4289N	N.A. & Europe	96	Oil resistant	J200 M3BC 707	●●●○
	4256NP	N.A. & Europe	97	Cold side CAC	20R4 Class D1 except wall	●●●○
	4256PM/HY	N.A. & Europe	97	Fatigue resistant CAC	20R4 Class D1 except wall	●●●○
Air Conditioning	4278AA	N.A. & Europe	98	Oil resistant CAC	20R4 Class D1 except wall	●●●○
	3353 (PolarSeal)	N.A. & Europe	99	Air Conditioning hose	J2064 Type C Class II, J51	●●●○
Air brake - straight	3353 (PolarSeal II)	N.A. & Europe	99	Air Conditioning - thin wall	J2064 Type C Class II, J51	●●●○
	3245E	N.A. & Europe	101	Standard air brake	J1402, DOT FMVSS-106	●●●○
	3245G	N.A. & Europe	101	Heavy duty	J1402, DOT FMVSS-106	●●●○
	3245T	N.A. & Europe	102	Arctic air brake	J1403 Type H, DOT FMVSS-106	●●●○
	3658C (C5C)	N.A. & Europe	102	Higher pressure	J1402, DOT FMVSS 106, SAE 100R5	●●●○
	3658E (C5E)	N.A. & Europe	103	Higher pressure, temp.	J1402, DOT FMVSS 106, SAE J1405	●●●○
	4657DT (MegaTech 1000)	N.A. & Europe	103	Higher pressure, temp.	J1402/J1405, DOT FMVSS-106	●●●○
	7752 (C14)	N.A. & Europe	104	High temperature		●●●○
	3276	N.A. & Europe	104	Light duty	J1403 type L, DOT FMVSS 106VL	●●●○
	4327 (NABT)	N.A. & Europe	105	Nylon air brake tubing	J844, DOT FMVSS-106-74	●●●○





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Gates Spec	Tube/Reinforcement/Cover	Working Pressure Range		Burst Pressure Range		Bulk Lengths	
		MPa (depends on ID)	PSI (depends on ID)	MPa (depends on ID)	PSI (depends on ID)	Centimeters	Feet
4175EC (75W)	EPDM/fabric plies/EPDM	0.08 to 0.95	12 to 138	0.34 to 3.79	50 to 550	91.4 or 1520	3 or 50
4175SC (Blue Stripe)	EPDM/fabric plies/EPDM	0.34 to 0.69	50 to 100	1.38 to 2.76	200 to 400	91.4	3
4175HT (FleetRunner)	p-EPDM/fabric/green p-EPDM	0.86 to 1.03	125 to 150	3.45 to 4.14	500 to 600	91.4	3
4176HD (76W)	EPDM/fabric plies/EPDM	0.26 to 1.21	38 to 175	1.03 to 4.83	150 to 700	91.4 or 1520	3 or 50
4272 (Flexcord Plus)	EPDM/aramid yarn/EPDM	0.20 to 0.40	29 to 58	0.6 to 1.24	87 to 180	100	3.3
4169A	NBR/fabric plies/CR	0.07 to 1.03	10 to 150	0.34 to 4.14	50 to 600	91.4 or 305	3 or 10
4176Y	NBR/fabric plies/CR	0.17 to 0.95	25 to 138	0.69 to 3.79	100 to 550	305	10
4179G (Green Stripe)	NBR/fabric 4 plies/CR	0.28 to 0.69	40 to 100	1.10 to 2.76	160 to 400	305	10
4169G	EPDM/fabric plies/CR	0.13 to 0.95	19 to 138	0.52 to 3.79	75 to 550	91.4	3
4171	Red silicone/polyester/green silicone	0.14 to 0.76	20 to 110	0.55 to 2.93	80 to 425	91.4	3
4685WG	EPDM/fabric + wire/EPDM	0.10 to 0.69	15 to 100	0.52 to 2.76	75 to 400	152	5
4684CF	NBR/fabric + wire/CR	0.09 to 0.69	13 to 100	0.34 to 2.76	50 to 400	305	10
4684S	Silicone/fabric + wire/Silicone	0.23 to 0.59	33 to 85	0.90 to 2.41	130 to 350	305	10
4254/4274TR (Vulco-Flex)	EPDM/fabric + wire/EPDM	0.14 to 0.21	20 to 30	0.55 to 0.83	80 to 120	To Order	
4284 (Vulco-Flex Green Stripe)	EPDM/fabric + wire/EPDM/CR+fabric	0.14 to 0.22	21 to 30	0.55 to 0.84	81 to 120	To Order	
4177W	NBR/fabric plies/CR	0.17 to 0.47	25 to 69	0.69 to 1.90	100 to 275	To Order	
4230T	EPDM/spiral yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	Varies	
3270 (Safety Stripe)	EPDM/spiral yarn/EPDM	0.31 to 0.41	45 to 60	1.21 to 1.72	175 to 250	1520	50
4230BS (Blue Stripe)	EPDM/aramid yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	Varies	
4230RK	EPDM/aramid yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	Varies	
4230RS (Red Stripe)	EPDM/aramid yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	Varies	
3269S (Green Stripe)	EPDM/aramid yarn/EPDM	0.48 to 0.69	70 to 105	1.90 to 2.76	276 to 400	1520	50
3230 (EPDM)	EPDM/nylon yarn/EPDM	0.40 to 0.50	58 to 73	1.0 to 1.2	145 to 174	1500	49.2
4230S	NBR/yarn/CR	0.52	75	2.07	300	Varies	
3230 / 3231 (Europe)	silicone/yarn/silicone	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	Varies	
4280MH	EPDM/knit yarn/EPDM	0.07 to 0.43	10 to 63	0.27 to 1.72	40 to 250	To Order	
4280GN	EPDM/knit yarn/EPDM	0.17 to 0.43	25 to 63	0.69 to 1.72	100 to 250	To Order	
4276KR	EPDM/knit aramid yarn/EPDM	0.17 to 0.43	25 to 63	0.69 to 1.72	100 to 250	To Order	
4256HY	EPDM/knit hybrid yarn/EPDM	0.35 to 0.63	50 to 90	1.38 to 2.50	200 to 363	To Order	
4256SB (Blue Stripe)	EPDM/knit aramid yarn/EPDM	0.12 to 0.43	18 to 63	0.48 to 1.72	70 to 250	To Order	
4256LS	EPDM/knit aramid yarn/EPDM	0.17 to 0.26	25 to 38	0.69 to 1.03	100 to 150	To Order	
4256VT	EPDM/knit aramid yarn/EPDM	0.24	35	1.21	175	To Order	
4219G / 4219XL	NBR/spiral yarn/NBR-PVC	0.24 to 0.34	35 to 50	1.21 to 1.72	175 to 250	762 or 6350	25 or 250
3225ST	NBR/spiral polyester/NBR+PVC	0.76	110	3.03	440	1500	49.2
4324	ECO/HNBR or NBR+PVC, rayon	0.6	0.87	2.4	348	1500	49.2
4219D	FKM+CPE/polyester braid/CPE	1.24	180	6.2	900	Varies	
3284A (RLA)	NBR/braided yarn/NBR+PVC	1.10 to 1.72	160 to 250	4.41 to 6.89	640 to 1000	Varies	
4219BG (Barricade)	NBR+plastic/polyester/NBR+PVC	0.24 to 0.34	35 to 50	1.21 to 1.72	175 to 250	16760	550
4219BF (Barricade Fuel Injection)	HNBR+plastic/aramid/CPE	1.55	225	7.76	1125	16760	550
4327DT	Nylon/nylon fiber/nylon	1.03	150	3.45	500	Varies	
4327FT	Nylon/nylon fiber/nylon	1.03	150	4.14	600	Varies	
4219	FKM/aramid/FKM	0.69	100	2.8 to 3.4	400 to 500	30.5, 305, 1000	1, 10, 32.8
4659	CPE/stainless steel braid	3.45 to 6.89	500 to 1000	13.79 to 41.37	2000 to 6000		
4663K	NBR/fabric + wire/CR+fabric	0.14	20	0.62	90	91.4	3
4219M	NBR/high tensile fabric/CR	0.28	40	1.38	200	762 or 6350	25 or 250
4219N	NBR/high tensile fabric/CSM	0.28	40	1.38	200	6350	250
4219BM (Barricade Marine)	NBR+plastic/polyester/NBR+PVC	0.24	35	1	140	16760	550
3658F (CSM)	NBR/wire braid/NBR-PVC	3.45	500	13.79	2000	Varies	
4278BD	ECO/knit/ECO	0.11	16	0.55	80	To Order	
3319HT (GTH)	NBR/yarn/NBR-PVC	1.72 to 3.45	250 to 500	6.89 to 13.79	1000 to 2000	Varies	
3319CA (G3H)	NBR/yarn/NBR-PVC	2.07 to 8.62	300 to 1250	8.27 to 34.47	1200 to 5000	Varies	
3658D (CSD)	CPE/wire braid/CPE+green textile	2.76 to 10.34	400 to 1500	11.03 to 41.37	1600 to 6000	Varies	
3658BC (C5C XH)	CPE/wire braid/CPE	4.31 to 20.68	625 to 3000	17.24 to 82.74	2500 to 12000	Varies	
4219HT	NBR/yarn/CR	0.41	60	4.14	600	16760	550
4319 (MegaTech LOC)	CPE/yarn/CPE+textile	2.07	300	8.27	1200	Varies	
4657AM (MegaTech 250)	CPE/wire braid/rubber+PET braid	1.72	250	6.89	1000	Varies	
4657DT (MegaTech 500)	CPE/steel braid/rubber+PET braid	3.45	500	13.79	2000	Varies	
4657PS (MegaTech 3000)	CPE/wire braid/rubber+PET braid	20.68	3000	82.74	12000	Varies	
4657JT (MegaTech II)	CPE/2 wire braid/blue PET braid	8.96 to 15.51	1300 to 2250	35.85 to 62.05	5200 to 9000		
4657TB (MegaTech G5TB)	CPE/2 wire braid/rubber+PET braid	3.45 to 20.68	500 to 3000	13.79 to 82.74	2000 to 12000		
3317LE (PS188)	CSM/2 ply nylon/CSM	10.34	1500	41.37	6000	762 or 1520	25 or 50
3283SA	NBR/yarn/CR	1.38 to 1.72	200 to 250	5.52 to 6.89	800 to 1000	Varies	
3283LF	CPE/yarn/CPE	1.72	250	12.41	1800	762	25
4278CN	NBR/knit yarn/NBR-PVC	0.11 to 0.34	16 to 50	0.55 to 1.72	80 to 250	To Order	
4278DB	NBR/knit aramid yarn/NBR-PVC	0.28 to 0.34	40 to 100	1.38 to 1.72	200 to 500	To Order	
4278SS	p-CPE/knit yarn/p-CPE	0.15 to 0.24	22 to 35	0.76 to 1.20	110 to 174	To Order	
4217IS	p-EPDM/PET or aramid/EPDM	2.41	350	6.89	1000	Varies	
4202	Nylon tube, heat sleeve, J2044 ends	0.35	50	1.38	200	To Order	
4256PC	EPDM/knit aramid yarn/EPDM	0.17 to 0.26	25 to 38	0.69 to 1.03	100 to 150	To Order	
3137ME	EPDM/2 ply fabric/EPDM	0.69	100	2.76	400	381	12.5
4686ME	EPDM/2 ply fabric + 2 wire/EPDM	0.69	100	1.38	200	381	12.5
Connector							
7768	Propylene-ethylene/pp helix	0 to 0.07	0 to 10	no rating	no rating	183	6
4663A (63SB)	CR/fabric + 2 wire/CR + fabric	0.03 to 0.07	5 to 10	0.14 to 0.28	20 to 40	305	10
4663J (163SB)	CR/fabric + 2 wire/CR	0.06 to 0.14	8 to 20	0.22 to 0.55	32 to 80	305	10
4663G	CR/fabric + 2 wire/CR	0.07	10	0.28	40	305	10
4171H	silicone/high temp fabric/silicone	0.62 to 1.38	90 to 200	2.48 to 5.52	360 to 800	305	10
4177W (Green Stripe) / 4177C	NBR/fabric plies/CR	0.17 to 0.47	25 to 69	0.69 to 1.90	100 to 275	To Order	
4177S	plies of silicone and polyester	0.09 to 0.48	13 to 69	0.34 to 1.90	50 to 275	To Order	
4177	4 ply silicone and aramid	0.17	25	0.69	100	Varies	
4040A	Unreinforced EPDM	0.17	25	no rating	no rating	Varies	
4251D	EPDM/yarn/EPDM	0.34	50	1.72	250	Varies	
4040T	Unreinforced silicone	-0.085	-12.3	no rating	no rating	183	6
4289E	Unreinforced EPDM	no rating	no rating	no rating	no rating	To Order	
4289N	Unreinforced CR	no rating	no rating	no rating	no rating	To Order	
4256NP	EPDM/m-aramid knit yarn/EPDM	no rating	no rating	0.76	110	To Order	
4256PM/HY	EPDM/hybrid knit yarn/EPDM	no rating	no rating	0.93	135	To Order	
4278AA	CPE/hybrid knit yarn/CPE	no rating	no rating	0.83 to 1.38	121 to 200	To Order	
3353 (PolarSeal)	CPE/nylon barrier/spiral PET/EPDM	3.45	500	13.79	2000	762	25
3353 (PolarSeal II)		2.41	350	9.65	1400	1520	50
3245E	EPDM/spiral yarn/EPDM	1.55	225	6.21	900	1520 or 6350	50 or 250
3245G	CR/fabric/CR	1.55	225	6.21	900	Varies	
3245T	CR/fabric/CR	0.59	85	6.21	900	1520	50
3658C (C5C)	CR/ fabric+steel braid/CR	10.34 to 20.68	1500 to 3000	41.37 to 82.74	6000 to 12000	Varies	
3658E (C5E)	NBR/fabric+steel braid/CR	5.17 to 10.34	750 to 1500	20.68 to 41.37	3000 to 6000	Varies	
4657DT (MegaTech 1000)	CPE/steel braid/rubber+PET braid	6.89	1000	27.58	4000	Varies	
7752 (C14)	PTFE/stainless steel braid	6.89 to 10.34	1000 to 1500	27.58 to 41.37	4000 to 6000	Varies	
3276	EPDM/fabric plies/EPDM	-0.088 to 0.34	-12.8 to 50	2.41	350	1520	50
4327 (NABT)	Nylon/nylon fiber/nylon	1.03	150	4.41 to 7.72	640 to 1120	Varies	





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Application	Gates Spec	Temperature Range		Temperature Range °C (°F) on a Proportional Scale															
		°C	°F	-57 (-70)	-54 (-65)	-48 (-51)	-40 (-40)	"<-- Min Max--> Temperature"	93 (200)	100 (212)	121 (250)	128 (257)	138 (275)	150 (302)	175 (347)	204 (400)	232 (450)	260 (500)	
Coolant - Straight	4175EC (75W)	-40 to +125	-40 to +257																
	4175SC (Blue Stripe)	-40 to +125	-40 to +257																
	4175HT (FleetRunner)	-40 to +149	-40 to +300																
	4176HD (76W)	-40 to +125	-40 to +257																
	4272 (Flexcord Plus)	-40 to +135	-40 to +275																
	4169A	-40 to +100	-40 to +212																
	4176V	-40 to +100	-40 to +212																
	4179G (Green Stripe)	-40 to +100	-40 to +212																
	4169G	-40 to +125	-40 to +257																
	4171	-54 to +175	-65 to +347																
	4685WG	-40 to +125	-40 to +257																
	4684CF	-40 to +100	-40 to +212																
	4684S	-57 to +175	-70 to +347																
Coolant - Straight, Small ID	4254/4274TR (Vulco-Flex)	-40 to +125	-40 to +257																
	4284 (Vulco-Flex Green Stripe)	-40 to +100	-40 to +212																
	4177W	-40 to +100	-40 to +212																
	4230T	-40 to +125	-40 to +257																
	3270 (Safety Stripe)	-40 to +125	-40 to +257																
	4230BS (Blue Stripe)	-40 to +150	-40 to +302																
	4230RK	-40 to +150	-40 to +302																
	4230RS (Red Stripe)	-40 to +150	-40 to +302																
	3269S (Green Stripe)	-40 to +135	-40 to +275																
	3230 (EPDM)	-50 to +100	-58 to +212																
Coolant - Formed	4230S	-40 to +100	-40 to +212																
	3230 / 3231 (Europe)	-54 to +177	-65 to +350																
	4280MH	-40 to +125	-40 to +257																
	4280GN	-40 to +125	-40 to +257																
	4276KR	-40 to +125	-40 to +257																
	4256HY	-40 to +125	-40 to +257																
	4256SB (Blue Stripe)	-40 to +125	-40 to +257																
	4256LS	-40 to +150	-40 to +302																
Fuel - Straight	4256VT	-40 to +150	-40 to +302																
	4219G / 4219XL	-40 to +125	-40 to +257																
	3225ST	-35 to +125	-31 to +257																
	4324	-30 to +100	-22 to +212																
	4219D	-40 to +135	-40 to +275																
	3284A (RLA)	-40 to +100	-40 to +212																
	4219BG (Barricade)	-40 to +125	-40 to +257																
	4219BF (Barricade Fuel Injection)	-40 to +150	-40 to +302																
	4327DT	-40 to +93	-40 to +200																
	4327FT	-40 to +93	-40 to +200																
	4219	-40 to +150	-40 to +302																
	4659	-40 to +149	-40 to +300																
	4663K	-40 to +100	-40 to +212																
	4219M	-40 to +100	-40 to +212																
	4219N	-40 to +121	-40 to +250																
Fuel - Formed	4219BM (Barricade Marine)	-20 to +100	-4 to +212																
	3658F (C5M)	-40 to +100	-40 to +212																
Oil - Straight	4278BD	-40 to +100	-40 to +212																
	3319HT (GTH)	-40 to +135	-40 to +275																
	3319CA (G3H)	-40 to +135	-40 to +275																
	3658D (C5D)	-40 to +149	-40 to +300																
	3658BC (C5C XH)	-40 to +150	-40 to +302																
	4219HT	-40 to +135	-40 to +275																
	4319 (MegaTech LOC)	-40 to +149	-40 to +300																
	4657AM (MegaTech 250)	-40 to +149	-40 to +300																
	4657DT (MegaTech 500)	-40 to +149	-40 to +300																
	4657PS (MegaTech 3000)	-40 to +149	-40 to +300																
Power Steering - straight	4657JT (MegaTech II)	-40 to +149	-40 to +300																
	4657TB (MegaTech 65TB)	-40 to +149	-40 to +300																
Oil - Formed	3317LE (PS188)	-40 to +150	-40 to +302																
	3283SA	-40 to +135	-40 to +275																
Power Steering - formed	3283LF	-40 to +150	-40 to +302																
	4278CN	-40 to +125	-40 to +257																
Emissions - DEF Hose	4278DB	-40 to +125	-40 to +257																
	4278SS	-40 to +150	-40 to +302																
Emission - Marine wet exhaust	4217IS	-40 to +100	-40 to +212																
	4202	-40 to +125	-40 to +257																
Inlet air - straight	4256PC	-40 to +150	-40 to +302																
	3137ME	-40 to +125	-40 to +257																
	4686ME	-40 to +125	-40 to +257																
	Connector																		
Turbo air - straight	7768	-40 to +107	-40 to +225																
	4663A (63SB)	-40 to +121	-40 to +250																
	4663J (163SB)	-40 to +121	-40 to +250																
	4663G	-40 to +125	-40 to +257																
Air - straight multi-purpose	4171H	-40 to +288	-40 to +450																
	4177W (Green Stripe) / 4177C	-40 to +100	-40 to +212																
	4177S	-46 to +177	-51 to +350																
Air brake - straight	4177	-46 to +260	-51 to +500																
	4040A	-40 to +125	-40 to +257																
	4251D	-40 to +125	-40 to +257																
Air Conditioning	4040T	-40 to +204	-40 to +400																
	4289E	-40 to +135	-40 to +275																
	4289N	-40 to +100	-40 to +212																
Air brake - straight	4256NP	-40 to +125	-40 to +257																
	4256PM/HY	-40 to +125	-40 to +257																
	4278AA	-40 to +105	-40 to +221																
	3353 (PolarSeal)	-30 to +125	-22 to +257																
Air brake - straight	3353 (PolarSeal II)	-30 to +125	-22 to +257																
	3245E	-40 to +100	-40 to +212																
	3245G	-40 to +100	-40 to +212																
	3245T	-54 to +100	-65 to +212																
	3658C (C5C)	-40 to +100	-40 to +212																
	3658E (C5E)	-40 to +121	-40 to +250																
	4657DT (MegaTech 1000)	-40 to +149	-40 to +300																
	7752 (C14)	-54 to +232	-65 to +450																
3276	-40 to +121	-40 to +250																	
Air brake - straight	4327 (NABT)	-40 to +93	-40 to +200																

= available

= peak temperature for certain applications





GUIDE FOR GATES ENGINE HOSE TYPES

Gates Spec	ID Sizes															
	11" (2.8mm)	1.5" (4.1mm)	1.9" (4.8mm)	2.2" (5.6mm)	2.5" (6.4mm)	3.1" (7.9mm)	3.4" (8.6mm)	3.8" (9.5mm)	4.1" (10.3mm)	5.0" (12.7mm)	5.9" (15.0mm)	6.2" (15.8mm)	7.5" (19.1mm)	9.1" (23.1mm)	1.00" (25.4mm)	1.12" (28.6mm)
4175EC (75W)																
4175SC (Blue Stripe)																
4175HT (FleetRunner)																
4176HD (76W)																
4272 (Flexcord Plus)																
4169A																
4176Y																
4179G (Green Stripe)																
4169G																
4171																
4685WG																
4684CF																
4684S																
4254/4274TR (Vulco-Flex)																
4284 (Vulco-Flex Green Stripe)																
4177W																
4230T																
3270 (Safety Stripe)																
4230BS (Blue Stripe)																
4230RK																
4230RS (Red Stripe)																
3269S (Green Stripe)																
3230 (EPDM)																
4230S																
3230 / 3231 (Europe)																
4280MH																
4280GN																
4276KR																
4256HY																
4256SB (Blue Stripe)																
4256LS																
4256VT																
4219G / 4219XL																
3225ST																
4324																
4219D																
3284A (RLA)																
4219BG (Barricade)																
4219BF (Barricade Fuel Injection)																
4327DT																
4327FT																
4219																
4659																
4663K																
4219M																
4219N																
4219BM (Barricade Marine)																
3658F (CSM)																
4278BD																
3319HT (GTH)																
3319CA (G3H)																
3658D (C5D)																
3658BC (C5C XH)																
4219HT																
4319 (MegaTech LOC)																
4657AM (MegaTech 250)																
4657DT (MegaTech 500)																
4657PS (MegaTech 3000)																
4657JT (MegaTech II)																
4657TB (MegaTech 65TB)																
3317LE (PS188)																
3283SA																
3283LF																
4278CN																
4278DB																
4278SS																
4217IS																
4202																
4256PC																
3137ME																
4686ME																
Connector																
7768																
4663A (63SB)																
4663J (163SB)																
4663G																
4171H																
4177W (Green Stripe) / 4177C																
4177S																
4177																
4040A																
4251D																
4040T																
4289E																
4289N																
4256NP																
4256PM/HY																
4278AA																
3353 (PolarSeal)																
3353 (PolarSeal II)																
3245E																
3245G																
3245T																
3658C (C5C)																
3658E (C5E)																
4657DT (MegaTech 1000)																
7752 (C14)																
3276																
4327 (NABT)																

■ available

■ non-stocked size. Minimum order applies.



Powering Progress.

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11

INTRODUCTION

Gates Engine Hose Design Guide provides detailed information to help you select the right hoses for your engine applications.

Included in this section is a molded hose design guide that helps you determine those made-to-order products for applications where standard engine products cannot be used.

Use this manual to select the right engine hose for your application and economical in terms of design and availability. Contact your local Gates Account Manager for complete stocking and pricing information on any standard hose you select. He or she can also supply you with pricing and delivery schedules for special made-to-order products.

Common Hose Tube and Cover Compounds								
Chemical Name	Poly-Chloroprene	Acrylonitrile & Butadiene	Chlorosulfonated Polyethylene	Ethylene Propylene Diene	Chlorinated Polyethylene	Fluoroelastomer	Polyamide Resins	Silicone
Common Name or Trade Names	Neoprene*	Nitrile Buna-N	Hypalon*	EDPM	CPE	Viton* Fluorel †	Nylon	Silicone
ASTM	CR	NBR	CSM	EDPM	CM	FKM	PA	VMQ
Physical Strength	Good	Good	Good to Excellent	Good	Good	Fair	Good	Fair
RESISTANCE TO: Abrasion	Good to Excellent	Fair to Good	Good to Excellent	Good	Good	Good	Good	Fair
Weather & Ozone	Good to Excellent	Poor	Excellent	Excellent	Good	Excellent	Excellent	Excellent
Gaseous Permeation	Good	Good to Excellent	Good to Excellent	Fair to Good	Good	Good	Excellent	Fair
Petroleum Oils	Excellent	Excellent	Good to Excellent	Poor	Good	Excellent	Excellent	Poor
Commercial Gasolines	Fair to Good	Excellent	Fair	Poor	Fair	Excellent	Excellent	Poor
High Temperatures	Good to Excellent	Good to Excellent	Good to Excellent	Excellent	Excellent	Excellent	Good	Excellent
Low Temperatures	Fair to Good	Fair to Good	Fair	Fair to Good	Good	Good	Excellent	Excellent

*Registered Trademark of DuPont. † Registered trademark of 3M.

WHAT IS ELECTROCHEMICAL RESISTANCE (ECR)?

Electrochemical degradation was first identified by Gates in 1989 as a root cause of premature coolant hose failure. An electrochemical cell comprised of the metal stem, hose, and coolant together forms a kind of battery current which can degrade rubber. No external electric current is needed. Typically, cracks form in the tube area closest to stem, leading to failure. The industry has since adopted a standard test method, SAE J1684, developed by Gates to quantify the **electrochemical resistance** of a hose. The SAE J20 specification denotes electrochemically resistant hose with an "EC" before any class D1, D2 or D3 callout.



Tube cracking due to electrochemical degradation.

WATER PERMEATION

In coolant applications, water loss can be a problem, particularly in silicone hoses. Gates Blue Stripe hoses solve this problem, as seen in the YouTube video: <http://www.youtube.com/gatesfluidpower> at "Gates PowerGrip SB Clamps & Blue Stripe Coolant Hose". The video also shows how cold leaks result in coolant loss, and which clamps solve this problem.

GENERAL DESIGN STEPS FOR HOSE

Step 1: Determine the STAMP requirements

Prior to designing the part, you'll need to know the **Size, Temperature, Application, Material** construction, and **Pressure (STAMP)**. Do not assume that a previous design or similar part reflects the current requirements.

Step 2: Determine the design

Use the **STAMP** information to select the best hose solution. The desired hose **Material** construction [see the Material Construction table] is based on **Pressure** and bend radius requirements. Use a straight hose if possible, as they generally are the least expensive solution. Wire helix reinforced hoses and hump hoses are more flexible. Formed hoses are used to achieve the tightest bend radii [see the Minimum Bend Radius section]. Find the **Application** in the Keyword Index or turn to the appropriate application section. Choose the hose and confirm the **Temperature** range is appropriate using the quick guide tables on pages 8-11 or spec sheets. Find the **Size** needed and confirm the **Pressure** (burst or vacuum) is adequate. Keep in mind the burst pressure is a multiple of the working pressure, known as the design factor. The working pressure is only a guideline based on typical application severity.

Step 3: Draw or specify the hose

Stocked items do not require a drawing, but cut lengths of straight hose are usually drawn, and made-to-order formed hoses are always drawn. Drawings should be identified with a unique part number and should contain at least a material specification and dimensions to define the hose. For straight hose, the required dimensions are hose inside diameter and hose length. For formed hose, the layout dimensions are also required [see Formed Hose Layout section]. Other information on the drawing may include testing requirements which are in agreement with the hose specification, tolerances which are in agreement with standard tolerances [see Tolerance section], application data, or cleanliness [see Cleanliness section]. Drawing or specification requirements beyond the standard specification may be more costly or may not be able to be tested, or otherwise accepted.

Step 4: Determine the feasibility

Send the drawing or model to your Gates Account Manager or Gates Product Application contact for design review to confirm the material callout is the most appropriate and the design has no manufacturing concerns.

Step 5: Validate the design

Gates can provide PPAP information for cut lengths or formed hose. However, it is recommended to test the parts in the application well before the start of production. Endurance testing under severe conditions should give a good indication that the parts will perform without unexpected problems. Testing is particularly important if the failure of the parts could cause a safety issue or cause other damage. If there are any concerns, please contact your Gates Account Manager, or contact Gates Product Application at fppasupport@gates.com, or +1.303.744.5070.

MATERIAL CONSTRUCTION

Construction Type	Pressure	Bend Radius	Advantages	Disadvantages
Formed hose	Low [to 0.5 KPa or 75psi]	Very Small [~1 x Hose Diameter]	Tightest bend routing capability.	Limited lengths, setup cost.
Bent pipe with hose connectors	Low [to 0.5 KPa or 75psi]	Small [~2x Hose Diameter]	Long lengths require less support. Withstands higher vacuum. Can have welded brackets and ports.	Potential leak points. Limitations on bend capability. Cost, particularly for short lengths. Stress at connectors.
Hump hose connector	Low [to 0.5 KPa or 75psi]	N/A	Isolates vibration and movement, including axial compression.	Cost. Not used for small diameters.
Straight hose length	Low to Medium [to 2 KPa or 300psi]	Large [~10x Hose Diameter]	Low cost, easy installation.	Long lengths require support to avoid interference or excessive movement.
Wire helix embedded	Low to Medium [to 2 KPa or 300psi]	Small [~2x Hose Diameter]	For high vacuum and tighter bend radius	Cost
Wire braid reinforced	High [to 20 KPa or 3000psi]	Medium [~5x Hose Diameter]	Flexible with high pressure capability	Cost

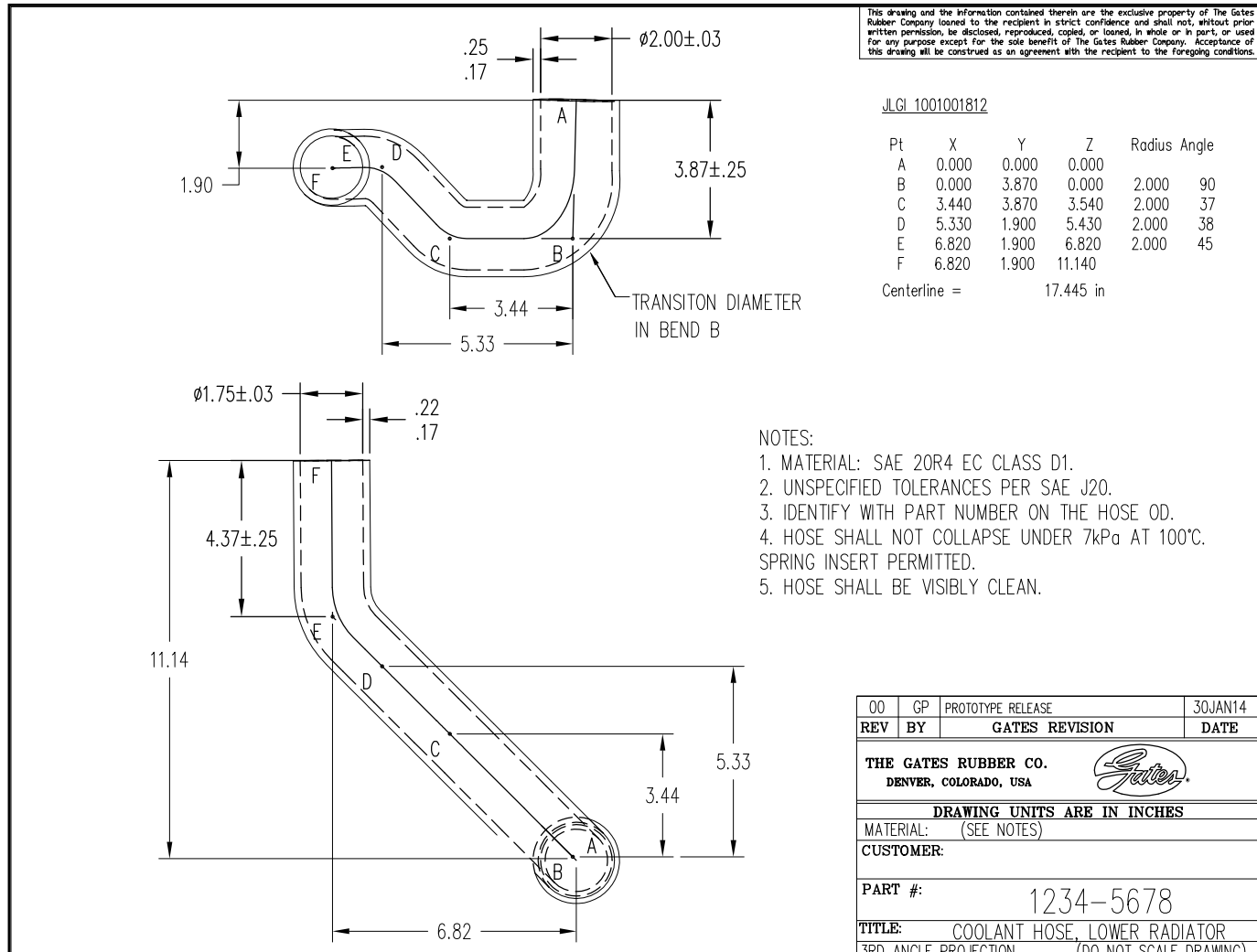
FORMED HOSE LAYOUT

The final drawing of a formed hose should show 1 to 3 complete views [e.g. front, right, and top views] depending on complexity.

The best way to dimension a hose is by using X, Y, and Z coordinates of each theoretical bend intersection point [not tangency points] as in the following example. An XYZ chart is also a very good way to specify the hose. The chart should follow the "right hand rule" [i.e. if X is positive to the right, and Y is positive up, then Z is positive toward you].

Another method of specifying a formed hose is by dimensions of arms [or straights], angles, and twists. This can be more difficult because each arm [or straight] length and each angle must be dimensioned in a true [flat] view.

Tolerancing layout dimensions is not advisable since dimensions that span more than one true arm length should be reference only [see Tolerances section].



TOLERANCES

Hose Length Tolerance

Length mm (inch)	Formed Hose Arm Length Tolerance mm (inch)	Straight Hose Length Tolerance mm (inch)
Up to 300 [12]	±6.4 [±0.25]	±3.0 [±0.12]
To 610 [24]	±7.2 [±0.28]	±4.8 [±0.19]
To 910 [36]	±9.7 [±0.38]	±6.4 [±0.25]
To 1220 [48]	±9.7 [±0.38]	±9.5 [±0.38]
To 1830 [72]	±15.9 [±0.63]	±12.7 [±0.50]
Over 1830 [72]	±2% of length	±1% of length

End Squareness Tolerance

Hose ID mm (inch)	Standard Tolerance mm (inch)	Precision Tolerance mm (inch)
Less than 25.4 [1.00]	3.75 [0.15]	2.54 [0.10]
25.4 [1.00] and over	15% of ID	10% of ID

Tighter tolerances can increase cost.

Formed hoses are flexible enough to distort during shipping and handling, so layout dimensions should not be measured directly. Instead, the hose is supported with the ends held in their designed position using a jig or template, and the actual hose OD contour should be within a range of 9.6mm [0.375"] of the theoretical contour. Length tolerances may be applied along each arm length only. They do not apply to dimensions covering more than one arm length. Overall dimensions only establish the theoretical contour and have no tolerance. See SAE J2370 for guidance in applying geometric tolerancing to formed hoses.

CLEANLINESS

Hoses are supplied as "visibly clean". Certain applications such as fuel, oil, or air can require increased cleanliness. In general, engine hose cleanliness is measured by sloshing solvent in the hose, filtering the solvent, and weighing the impurities, as well as observing the largest particle dimension. Wire braid reinforced hose cleanliness is typically inspected by suspending the impurities in fluid and measured by a laser particle counter. Typical cleanliness levels are shown below.

Construction	Standard Cleanliness	Increased Cleanliness
Wire Braid Hose	Visibly clean	ISO 4406 17/14 500µ max. particle size Max. 110mg/m² of inside surface area
Formed or Hump Hose	2500µ max. particle size (or 1200µ when excluding fibers and soft particles) Max. 110mg/m² of inside surface area	800µ max. particle size (or 500µ when excluding fibers and soft particles) Max. 70mg/m² of inside surface area



FORMED HOSE WALL THICKNESS AND VACUUM PERFORMANCE

Most formed hose types are only available in one wall thickness as per their specification. However, formed hose with no reinforcing layer are available in various thicknesses, as these hoses are typically used in various conditions of vacuum. The table below is a guide for estimating the vacuum performance of a formed hose based on wall thickness.

Hose ID mm (inch)	Wall Thickness mm (inch)									
	5.08	[0.20]	6.35	[0.25]	7.37	[0.29]	8.00	[0.32]	8.76	[0.35]
	Vacuum kPa (inches of water)									
31.8 [1.25]	29.9 [120]		37.3 [150]		43.5 [175]		49.8 [200]		56 [225]	
38.1 [1.5]	18.7 [75]		22.4 [90]		27.4 [110]		29.9 [120]		33.6 [135]	36.1 [145]
44.5 [1.75]	8.5 [34]		13.5 [54.4]		16.9 [68]		19.9 [80]		22.4 [90]	27.4 [110]
50.8 [2]	5.1 [20.4]		8.5 [34]		11.8 [47.6]		15.2 [61.2]		19.9 [80]	24.9 [100]
57.2 [2.25]	3.4 [13.6]		6.8 [27.2]		10.2 [40.8]		13.5 [54.4]		18.7 [75]	22.4 [90]
63.5 [2.5]	3.4 [13.6]		6.8 [27.2]		10.2 [40.8]		13.5 [54.4]		16.9 [68]	19.9 [80]
69.9 [2.75]	3.4 [13.6]		5.1 [20.4]		6.8 [27.2]		10.2 [40.8]		15.2 [61.2]	18.7 [75]
76.2 [3]	1.7 [6.8]		3.4 [13.6]		6.8 [27.2]		10.2 [40.8]		13.5 [54.4]	16.9 [68]
82.6 [3.25]	1.7 [6.8]		3.4 [13.6]		5.1 [20.4]		6.8 [27.2]		10.2 [40.8]	13.5 [54.4]
88.9 [3.5]	1.7 [6.8]		1.7 [6.8]		5.1 [20.4]		6.8 [27.2]		8.5 [34]	11.8 [47.6]
95.3 [3.75]			1.7 [6.8]		3.4 [13.6]		5.1 [20.4]		6.8 [27.2]	10.2 [40.8]
101.6 [4]			1.7 [6.8]		3.4 [13.6]		5.1 [20.4]		6.8 [27.2]	8.5 [34]

These values assume a straight length of hose at a temperature of 82C [180F] degrees. Complex shapes or long I.D. expansions may reduce the vacuum resistance by half, whereas short elbow hoses can double the vacuum. Material can also have a large effect on vacuum performance. If a vacuum requirement can not be met with a thicker wall, then add a note to the drawing that a spring insert is required.

For unreinforced hose, the default wall tolerance is ± 1.3 mm [± 0.05 in.]. Wall tolerance increases to ± 1.6 mm [± 0.06 in] for ends up to 50% or when there is only 25 to 50mm [1.0 to 2.0 in.] of straight length on either end of the hose. Wall tolerance increases to ± 2.0 mm [± 0.08 in] on enlarged diameter ends over 50% or when there is less than 25 mm [1.0 in] of straight length on either end of the hose. The thickness in the body of the hose can be expected to vary up to $\pm 66\%$ in and adjacent to severe bends.

When in doubt, the wall thickness should be confirmed with Gates Product Application Engineers.



MINIMUM BEND RADIUS GUIDELINES

Curved Hose

For radiator, and heater hoses:

$$R = [(B \div 180) + .5] \times D$$

For fuel and oil hoses:

$$R = [(B \div 180) + .5] \times D \times 1.25$$

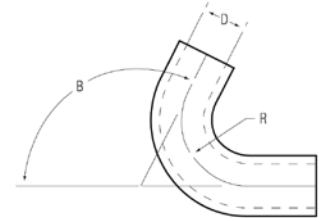
For air intake hoses:

$$R = [(B \div 360) + .5] \times D$$

For turbo air hoses:

$$R = [(B \div 180) + .5] \times D \times 2$$

B = Bend angle in degrees
R = Minimum centerline bend radius
D = Inside diameter of hose



Normal

Straight Hose

For radiator, and heater hoses:

$$R = 10 \times \text{Hose OD}$$

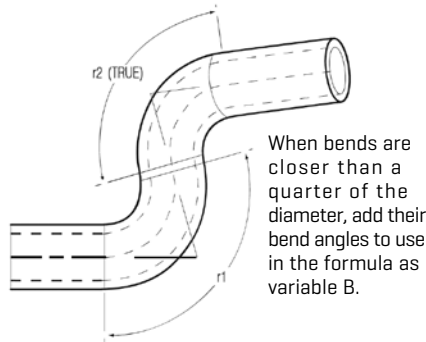
For fuel and oil hoses:

$$R = 7 \times \text{Hose OD}$$

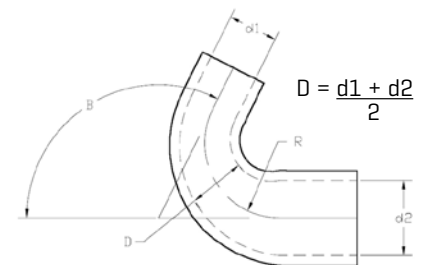
For wire reinforced hoses*:

$$R = 4 \times \text{Hose OD}$$

*Call Gates for hoses > 3" ID
or specific hose types



Back-to-back Bends



Blended ID Transition

COST REDUCTION CONSIDERATIONS

Curved hose

- > Minimize the number of bends.
- > Avoid very sharp bends.
[See minimum bend radius guidelines]
- > Use the largest bend radius practical.
- > Avoid long I.D. expansions.
- > Blend ID transitions into a nearby bend.
[See minimum bend radius guidelines].
- > Call out vacuum requirements.
Avoid spring insert requirements.
- > Avoid costly testing requirements beyond those covered by the hose material callouts.

Straight hose

- > Do not over-specify requirements.
- > Buy bulk or standard lengths.
- > Use plain ends on wire embedded hose instead of straight ends [no wire].
- > Specify additional printing or marking only when necessary.
- > Contact Gates Application Engineering for other hose options.

DEVIATION REDUCTION

- > Let Gates Application Engineering review the drawing before submitting for quote.
- > Specify standard specification tolerances.
- > Double-check material callouts for applicability.
- > Consult Gates Application Engineering before adding new notes and requirements.
- > Make sure curved hose routings are completely dimensioned.
- > For curved hose, any minimum straight length requirement for clamping area must be 1/4" [6.4mm] less than the nominal straight length.
- > Small ID curved hoses also typically specify OD instead of wall thickness for ease of inspection.



AMERICAN STANDARDS

ARPM – Association for Rubber Products Manufacturers

ASTM D2000 – Adopted from SAE J200 – [see below]

CARB – Fuel permeation certification for gasoline hose [California Air Resources Board]

DOT FMVSS 106-74 – Brake hose performance testing, labeling, and registration [U.S. Dept. of Transportation, Federal Motor Vehicle Safety Standard]

EPA – Fuel permeation certification for gasoline hose [U.S. Environmental Protection Agency]

NMMA – Marine approval listing [National Marine Manufacturers Association]

SAE J20 – Reinforced hose for engine coolant systems [Society of Automotive Engineers]

SAE 20R1 – Heavy-duty service, standard wall or heavy wall

SAE 20R2 – Heavy-duty service with embedded wire for kink and vacuum resistance

SAE 20R3 – Normal service heater hose [ID under 1 inch]

SAE 20R4 – Normal service radiator hose [larger IDs]

SAE 20R5 – Normal service with embedded wire for high flexibility and vacuum resistance

Class A – High-temperature resistant [e.g. silicone]

Class B – High oil resistant [e.g. nitrile]

Class C – Medium oil resistant [e.g. neoprene]

Class D-1 – Low oil resistant, improved service [e.g. EPDM]

Class D-2 – Low oil resistant, standard service

Class D-3 – Low oil resistant, high-temperature resistant [e.g. p-EPDM]

EC suffix – Electrochemically resistant rubber [see the ECR info box on page 12]

HT suffix – High temperature resistant rubber [>125°C]

SAE J20-1 and J20-2 are supplements to SAE J20 for hoses for government use, replacing part of MS51008 and ZZ-H-428.

SAE J30 – Reinforced hose for fuel and oil

SAE 30R2 – Higher pressure than 30R7 usually used for oil up to 100°C

SAE 30R5 – Wire helix embedded fuel fill hose

SAE 30R6 – Low pressure, to 100°C

SAE 30R7 – Low pressure, to 125°C

SAE 30R9 – Fuel injection pressures, to 135°C

SAE 30R10 – Only used for in-tank or submerged in fuel

SAE 30R13 – Biodiesel resistant

SAE 30R14 – Low permeation to fuel

SAE J189 – Reinforced hose for power steering return [low pressure]

SAE J200 – Classification of rubber materials [typically used for unreinforced hose]

M3BC 707 – Temperature resistant to 100°C with medium oil resistant [i.e. neoprene]

M3CA 707 – Temperature resistant to 125°C with no oil resistant requirement [i.e. EPDM]

M3CE 810 or M5DE – 150°C with good oil resistance [i.e. CPE]

M2GE 705 – 225°C with good oil resistance [i.e. silicone]

M2HK 710 – 250°C with high oil resistance [i.e. FKM]

· Suffix requirements further define properties and material testing

· Does not define tolerances or performance requirements for hoses

SAE J517 – Hydraulic hose 100R1 through 100R19

100R5 – Steel wire reinforced, textile cover

100R6 – Fiber reinforced, rubber cover

SAE J844 – Nylon brake tubing. Type A = non-reinforced. Type B = with reinforcement

SAE J944 and J1037 – Windshield washer fluid tubing

SAE J1402 – Air brake hose. Type A = fiber reinforced, rubber cover

SAE J1403 – Vacuum brake hose. VH = heavy wall. VL = light wall

SAE J1405 – Optional impulse and high temperature circulation test for hydraulic assemblies

SAE J1527 – Marine fuel hose. Type A = fire tested. Style R1 = yarn reinforced w/o wire or helix

SAE J1532 – Transmission oil cooler (TOC) hose. Type B = 4.1MPa burst pressure. Class 1 = 125°C

SAE J2050 – High temperature power steering pressure line hose

SAE J2076 – High temperature power steering return line hose

SAE J2260 – Plastic fuel tubing





EUROPEAN STANDARDS

BS EN 854 – Hydraulic hose, textile reinforced [British spec]

GB/T 18948 – Coolant hose for cars and light commercial vehicles [Chinese Spec]

DIN 73379 – Fuel hose [German spec]

DIN 73411 – Reinforced hose for engine coolant systems [German spec]

Class A – EPDM to 125°C

Class B – peroxide cured EPDM to 135°C

Class C – silicone to 175°C

ISO 4639 – Fuel hose [obsolete]

ISO 19013 – Fuel hose. -1 = diesel fuel, -2 = gasoline

COMPANY STANDARDS

AGCO CMS M1620 – SAE 20R3 and 20R4, and J200 BA 707 with added requirements

Bobcat MS77 – SAE 20R4, 30R6, 30R7, and J200 3CA 707 with added requirements

CNH FZG-5754 – SAE J200 M3CA 707 with added requirements

Caterpillar 1E0515 – SAE 20R3. 1E0515A = 20R3 D1, 1E0515B = 20R3 EC D1, 1E0515C = 20R3 Class B tube/Class C cover, 1E0515D = 20R3 D3, 1E0515E = 20R3 Class A

Caterpillar 1E0584 – SAE 20R4. 1E0584A = 20R4 D1, 1E0584B = 20R4 EC D1, 1E0584C = 20R4 Class B tube/Class C cover, 1E0584D = 20R4 D3, 1E0584E = 20R4 Class A

Caterpillar 1E1543D – SAE 30R2 through 30R9 as shown on the print

Caterpillar 1E2815A – Neoprene rubber similar to SAE J200 M3BC 707 with added requirements

Caterpillar 1E2815B – EPDM rubber similar to SAE J200 M3CA 707 with added requirements

Caterpillar 1E2815C – Silicone rubber similar to SAE J200 M5GE 606 E036 F19 G11

Caterpillar 1E2815D – Same as 1E2815C with tube liner similar to SAE J200 M2HK 707 B37 EF31

Caterpillar 1E4353 – SAE 20R1 standard wall. 1E4353A = 20R1 D1, 1E4353B = 20R1 EC D1, 1E4353C = 20R1 Class B tube/Class C cover, 1E4353D = 20R1 D3, 1E4353E = 20R1 Class A

Cummins 25001 – SAE 20R1 Class B tube/Class C cover with added requirements

Cummins 25003 – SAE 20R4 Class A with added requirements

Deere DTW1223 – SAE 20R3 and 20R4 with added requirements

Freightliner 48-25121 – SAE 20R1 EC D1

Freightliner 48-25122 – SAE 20R3 EC D1 with aramid reinforcement

Freightliner 48-25951 – Gates Blue Stripe material SAE 20R4 EC D1 with added requirements

Nacco HCE-59 – SAE 20R1 D1 or D2, heavy wall

Nacco HCE-103 – SAE 30R7

Nacco HCE-129 Class 5 – EPDM rubber SAE J200 M3CA 707 A25 B35 F17 with added requirements

Nacco HCE-129 Class 6 – Neoprene rubber SAE J200 M3BC 710 E014 E034 F17 with added requirements

Nacco HCE-137 Class 1 – SAE 20R3 or R4 Class D1

Nacco HCE-137 Class 2 – SAE 20R3 or R4 Class D2

Nacco HCE-137 Class 3 – SAE 20R3 or R4 Class D3

Navistar MPAPS D30 Grade 1B – SAE 20R4 EC Class D1 with added requirements

Navistar TMS-6034 Grade CB – SAE 20R4 with added requirements, for charge air applications

Volvo TR20994097 – peroxide cured EPDM hose specification for coolant applications

Please see the Keyword Index pages 2 - 3 for Gates hose types to meet these specifications.



COOLANT HOSES

> Larger Diameters, Used Primarily For Short Connectors, Wrapped Construction

4175EC [75W]	Standard EPDM hose	21
4175SC [Blue Stripe]	Premium performance with electrochemically resistant tube	22
4175HT [FleetRunner]	Higher temperature with electrochemically resistant tube	23
4176HD [76W]	Thicker wall	24
4169A	Oil resistant	26
4176Y	Oil resistant and thicker wall	27
4179G [Green Stripe]	Oil resistant and more reinforcing plies	28
4169G	Oil resistant cover, EPDM tube for higher temperature	29
4171	High temperature silicone	30

Also see:

4177W	Hump hose connectors	36
3137ME	Marine wet exhaust per SAE J2006 R1	80
Steel or aluminum tube assemblies in the Air Section		90

> Larger Diameters With Embedded Wire Helix For Flexibility Over Longer Lengths, And Vacuum Resistance

4685WG	Standard EPDM wire helix reinforcement	31
4684CF	Oil resistant with wire helix reinforcement	32
4684S	High temperature silicone with wire helix reinforcement	33

Also see:

4686ME	Marine wet exhaust per SAE J2006 R2	81
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> Smaller Diameter Hoses In Long Lengths, Extruded Construction

4230T / 3269	Standard EPDM heater hose	37
3270 [Safety Stripe]	Lighter duty, includes 6.4mm [1/4"] size for radiator overflow	37
4230BS [Blue Stripe] / RS / RK	Premium performance, with blue stripe, red stripe, or no stripe	38
3269S [Green Stripe]	Thicker wall, with green stripe	38
3230 [EPDM]	European market per DIN standard 73411	39
4272 [FlexCord Plus]	European market per DIN standard 73422, available up to 50mm [2"] diameter	25
4230S	Oil resistant	39
3230 / 3231 [Europe]	High temperature silicone	40

Also see:

4171	High temperature silicone, wrapped construction	30
4251D	Very small diameters for coolant overflow and drain	91
4040A	Very small diameters for no-pressure coolant overflow and drain	91
4040T	Very small diameters for no-pressure coolant overflow and drain, high temperature silicone	92
Adapta Flex	Multi-purpose hose, including very small diameters. See Gates Industrial Hose Catalog	
4219M, 4219N	Coolant overflow and drain, marine fire rating	60
Steel or aluminum tube assemblies in the AIR Section		90

> Formed Hoses, Extruded Construction

4280MH	Standard EPDM formed hose	45
4280GN	Lighter duty, not electrochemically resistant	46
4276KR	Higher pressure, aramid reinforcement	47
4256HY	High fatigue resistance	48
4256SB	Premium performance	49
4256LS / 4256VT	Higher temperature, p-EPDM	50

High temperature silicone available

Also see:

4254, 4284 Vulco-Flex	Convolute hose with internal wire helix and straight cuffs	34, 35
Steel or aluminum tube assemblies in the AIR Section		90

> Formed Hoses, Standard Shapes

4261 / 4275 [Europe]	Standard EPDM formed hose	41
4278 [Europe]	Standard EPDM formed hose, European market	42
4281 [Europe]	High temperature silicone elbows	43
4177	High temperature silicone	44

> High Pressure Hydraulic Hose Compatible With Coolant

3319HT [GTH]	High pressure hose per SAE 100R6, commonly used with couplings	66
3319CA [G3H]	High pressure hose per SAE 100R3, commonly used with couplings	66
4657AM [MegaTech 250]	Steel braid, hard wall, used with couplings	69

4175EC (75W)

STANDARD COOLANT HOSE

Relative Cost ●●●○○○

Applications Engine coolant hose such as radiator and heater hoses or connectors. Also suitable for air or water. Not for conveying fuel or oil.

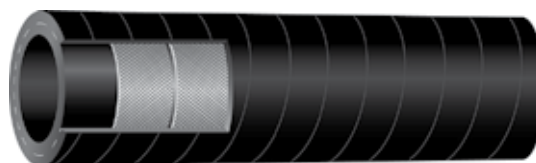
Temperature -40°C to +125°C [-40°F to +257°F] continuous for coolant, and 100°C [212°F] maximum for conveying air.

Standards SAE 20R1 Class D2, standard wall. Wall thickness is 4.95±0.65mm [0.195±0.025 inch] excluding lap area.

Construction EPDM tube, synthetic fabric reinforcement plies, EPDM cover with wrapped appearance.

Packaging Bulk lengths are 3 foot sticks in a box, or 50 foot coil in a box. Custom lengths or enlarged ends available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length	50 ft. Length
12.7 ±0.8	1/2 ±0.03	22.6	0.89	0.72	105	2.93	425	33.8	10	127	5	0.39	0.26	***	***
15.9	5/8	25.8	1.02	0.66	95	2.59	375	27.0	8	203	8	0.45	0.3	***	***
19.1	3/4	29.0	1.14	0.55	80	2.24	325	27.0	8	152	6	0.51	0.34	4175-0005	4175-0855
22.2	7/8	32.1	1.26	0.52	75	2.07	300	23.6	7	178	7	0.58	0.39	4175-0006	4175-0856
25.4	1	35.3	1.39	0.95	138	3.79	550	23.6	7	203	8	0.62	0.42	4175-0007	4175-0857
28.6	1 1/8	38.5	1.52	0.86	125	3.45	500	20.3	6	203	8	0.70	0.47	4175-0009	4175-0859
31.8	1 1/4	41.7	1.64	0.69	100	2.76	400	16.9	5	305	12	0.76	0.51	4175-0011	4175-0861
34.9	1 3/8	44.8	1.76	0.69	100	2.76	400	13.5	4	305	12	0.83	0.56	4175-0013	4175-0863***
38.1	1 1/2	48.0	1.89	0.69	100	2.76	400	10.1	3	305	12	0.89	0.6	4175-0015	4175-0865
41.3	1 5/8	51.2	2.02	0.61	88	2.41	350	6.8	2	381	15	0.94	0.63	4175-0017	4175-0867
44.5	1 3/4	54.4	2.14	0.52	75	2.07	300	3.4	1	381	15	1.00	0.67	4175-0019	4175-0869
47.6	1 7/8	57.5	2.26	0.52	75	2.07	300	*	*	**	**	1.07	0.72	4175-0021	4175-0871
50.8 ±1.6	2 ±0.06	60.7	2.39	0.43	62	1.72	250	*	*	**	**	1.13	0.76	4175-0022	4175-0872
54.0	2 1/8	63.9	2.52	0.43	62	1.72	250	*	*	**	**	1.18	0.79	4175-0023	4175-0873***
57.2	2 1/4	67.1	2.64	0.43	62	1.72	250	*	*	**	**	1.25	0.84	4175-0024	4175-0874
60.3	2 3/8	70.2	2.76	0.43	62	1.72	250	*	*	**	**	1.31	0.88	4175-0025	4175-0875
63.5	2 1/2	73.4	2.89	0.43	62	1.72	250	*	*	**	**	1.37	0.92	4175-0026	4175-0876
66.7	2 5/8	76.6	3.02	0.43	62	1.72	250	*	*	**	**	1.43	0.96	4175-0027	4175-0877***
69.9	2 3/4	79.8	3.14	0.43	62	1.72	250	*	*	**	**	1.50	1.01	4175-0028	4175-0878
73.0	2 7/8	82.9	3.26	0.39	56	1.55	225	*	*	**	**	1.56	1.05	4175-0029	4175-0879***
76.2	3	86.1	3.39	0.34	50	1.38	200	*	*	**	**	1.62	1.09	4175-0030	4175-0880
82.6	3 1/4	92.5	3.64	0.26	38	1.03	150	*	*	**	**	1.76	1.18	4175-0032	***
88.9	3 1/2	98.8	3.89	0.12	18	0.52	75	*	*	**	**	1.87	1.26	4175-0033	4175-0883
95.3	3 3/4	105.2	4.14	0.11	16	0.46	66	*	*	**	**	1.99	1.34	4175-0035	***
101.6	4	111.5	4.39	0.08	12	0.34	50	*	*	**	**	2.13	1.43	4175-0036	4175-0886
114.3	4 1/2	124.2	4.89	0.08	12	0.34	50	*	*	**	**	2.38	1.6	4175-0039	4175-0889
127.0	5	136.9	5.39	0.08	12	0.34	50	*	*	**	**	2.66	1.79	***	4175-0839***
139.7	5 1/2	149.6	5.89	0.08	12	0.34	50	*	*	**	**	2.90	1.95	***	***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4175SC (BLUE STRIPE)

PREMIUM COOLANT HOSE



- Relative Cost** ●●●●○
- Applications** Premium engine coolant hose such as radiator hoses or connectors. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F] continuous and +150°C [+302°F] peak.
- Standards** SAE 20R1 EC Class D1, standard wall [except with higher burst]. Wall thickness is 4.95±0.65mm [0.195±0.025 inch] excluding lap area.
- Construction** EPDM tube, synthetic fabric reinforcement plies, EPDM cover with wrapped appearance.
- Packaging** Bulk lengths are 3 foot sticks packed 10 per box. Custom lengths or enlarged ends available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
31.8 ±0.08	1 1/4 ±0.03	41.7	1.64	0.69	100	2.76	400	16.9	5	**	**	0.80	0.54	4175-3701
38.1	1 1/2	48.0	1.89	0.69	100	2.76	400	10.1	3	**	**	0.95	0.64	4175-3702
41.3	1 5/8	51.2	2.02	0.61	88	2.41	350	6.8	2	**	**	1.04	0.7	4175-3703
44.5	1 3/4	54.4	2.14	0.52	75	2.07	300	3.4	1	**	**	1.09	0.73	4175-3704
50.8 ±1.6	2 ±0.06	60.7	2.39	0.43	62	1.72	250	*	*	**	**	1.24	0.83	4175-3705
57.2	2 1/4	67.1	2.64	0.43	62	1.72	250	*	*	**	**	1.37	0.92	4175-3706
63.5	2 1/2	73.4	2.89	0.43	62	1.72	250	*	*	**	**	1.52	1.02	4175-3707
69.9	2 3/4	79.8	3.14	0.43	62	1.72	250	*	*	**	**	1.67	1.12	4175-3708
76.2	3	86.1	3.39	0.34	50	1.38	200	*	*	**	**	1.82	1.22	4175-3709

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

4175HT (FLEETRANNER)

HIGHER TEMPERATURE COOLANT HOSE



- Relative Cost** ●●●○○○
- Applications** Engine coolant hose such as radiator hoses or connectors. Not for conveying fuel or oil.
- Temperature** -40°C to +149°C [-40°F to +300°F] continuous.
- Standards** SAE 20R1 EC Class D3, standard wall [except with higher burst]. Wall thickness is 4.95±0.65mm [0.195±0.025 inch] excluding lap area.
- Construction** EPDM tube, synthetic fabric reinforcement plies, green EPDM cover with wrapped appearance.
- Packaging** Bulk lengths are 3 foot sticks packed in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

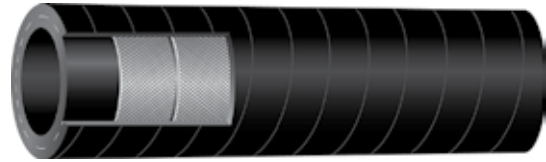
ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
25.4 ±0.08	1 ±0.03	35.3	1.39	1.03	150	4.14	600	3.4	1	**	**	0.61	0.41	4175-0583
31.8	1 1/4	41.7	1.64	1.03	150	4.14	600	3.4	1	**	**	0.85	0.57	4175-0584
38.1	1 1/2	48.0	1.89	1.03	150	4.14	600	3.4	1	**	**	0.85	0.57	4175-0585
44.5	1 3/4	54.4	2.14	1.03	150	4.14	600	3.4	1	**	**	0.97	0.65	4175-0586
50.8 ±1.6	2 ±0.06	60.7	2.39	1.03	150	4.14	600	3.4	1	**	**	1.10	0.74	4175-0587
57.2	2 1/4	67.1	2.64	0.86	125	3.45	500	3.4	1	**	**	1.22	0.82	4175-0588
63.5	2 1/2	73.4	2.89	0.86	125	3.45	500	3.4	1	**	**	1.34	0.9	4175-0589
69.9	2 3/4	79.8	3.14	0.86	125	3.45	500	3.4	1	**	**	1.47	0.99	4175-0590
76.2	3	86.1	3.39	0.86	125	3.45	500	3.4	1	**	**	1.58	1.06	4175-0591

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

4176HD (76W)

THICK WALL COOLANT HOSE



Relative Cost



Applications

Engine coolant hose such as radiator and heater hoses or connectors. Also suitable for air or water. Not for conveying fuel or oil.



Temperature

-40°C to +125°C [-40°F to +257°F] continuous for coolant, and 100°C [212°F] maximum for conveying air.



Standards

SAE 20R1 Class D2, heavy wall. Wall thickness is 6.45±0.65mm [0.255±0.025 inch] excluding lap area.



Construction

EPDM tube, synthetic fabric reinforcement plies, EPDM cover with wrapped appearance.



Packaging

Bulk lengths are 3 foot sticks in a box, or 50 foot coil in a box. Custom lengths or enlarged ends available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length	50 ft. Length
19.1 ±0.8	3/4 ±0.03	32.0	1.26	0.86	125	3.45	500	50.7	15	152	6	0.77	0.52	4176-0005	
22.2	7/8	35.1	1.38	1.21	175	4.83	700	23.6	15	178	7	0.86	0.58	4176-0006	4176-0856
25.4	1	38.3	1.51	1.21	175	4.83	700	23.6	10	203	8	0.88	0.59	4176-0007	4176-0857
28.6	1 1/8	41.5	1.63	1.21	175	4.83	700	33.8	10	203	8	0.95	0.64	4176-0009	4176-0859
31.8	1 1/4	44.7	1.76	0.86	125	3.45	500	33.8	10	305	12	1.04	0.7	4176-0011	4176-0861
34.9	1 3/8	47.8	1.88	0.76	110	3.03	440	33.8	10	305	12	1.12	0.75	4176-0013	4176-0863
38.1	1 1/2	51	2.01	0.77	112	3.10	450	33.8	10	305	12	1.22	0.82	4176-0015	4176-0865
41.3	1 5/8	54.2	2.13	0.73	106	2.93	425	23.7	7	356	14	1.29	0.87	4176-0017	4176-0867
44.5	1 3/4	57.4	2.26	0.69	100	2.76	400	16.9	5	381	15	1.35	0.91	4176-0019	4176-0869
47.6	1 7/8	60.5	2.38	0.65	94	2.59	375	13.5	4	**	**	1.46	0.98	4176-0021	4176-0871***
50.8 ±1.6	2 ±0.06	63.7	2.51	0.61	88	2.41	350	10.1	3	**	**	1.53	1.03	4176-0022	4176-0872
54.0	2 1/8	66.9	2.63	0.61	88	2.41	350	6.8	2	**	**	1.64	1.1	4176-0023	4176-0873
57.2	2 1/4	70.1	2.76	0.61	88	2.41	350	3.4	1	**	**	1.71	1.15	4176-0024	4176-0874
60.3	2 3/8	73.2	2.88	0.56	81	2.24	325	*	*	**	**	1.80	1.21	4176-0025	4176-0875***
63.5	2 1/2	76.4	3.01	0.52	75	2.07	300	*	*	**	**	1.87	1.26	4176-0026	4176-0876
66.7	2 5/8	79.6	3.13	0.48	69	1.90	275	*	*	**	**	1.98	1.33	4176-0027	4176-0877***
69.9	2 3/4	82.8	3.26	0.43	63	1.72	250	*	*	**	**	2.05	1.38	4176-0028	4176-0878
73.0	2 7/8	85.9	3.38	0.43	63	1.72	250	*	*	**	**	2.14	1.44	4176-0029	4176-0879***
76.2	3	89.1	3.51	0.43	63	1.72	250	*	*	**	**	2.22	1.49	4176-0030	4176-0880
82.6	3 1/4	95.5	3.76	0.39	56	1.55	225	*	*	**	**	2.57	1.73	4176-0032	
88.9	3 1/2	101.8	4.01	0.34	50	1.38	200	*	*	**	**	2.54	1.71	4176-0033	4176-0883
95.3	3 3/4	108.2	4.26	0.30	44	1.21	175	*	*	**	**	2.95	1.98	4176-0035	
101.6	4	114.5	4.51	0.26	38	1.03	150	*	*	**	**	2.90	1.95	4176-0036	4176-0886

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4272 (FLEXCORD PLUS)

LIGHT DUTY METRIC COOLANT HOSE (EUROPEAN MARKET ONLY)



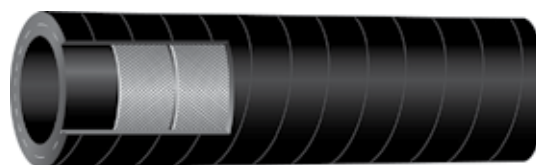
- Relative Cost** ●●○○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -40°C to +135°C [-40°F to +275°F].
- Standards** SAE 20R4 Class D2 and DIN 73411 Class B1.
- Construction** EPDM tube, aramid knit reinforcement, EPDM cover.
- Packaging** Bulk lengths are 1 meter sticks in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	kg/m	lbs/ft	1m Length
8	5/16	18	0.70	0.40	58	1.24	180	*	*	0.12	0.078	4272-10080
10	3/8	20	0.78	0.40	58	1.24	180	*	*	0.13	0.0863	4272-10100
12	1/2	22	0.86	0.40	58	1.20	174	*	*	0.14	0.0925	4272-10120
15	5/8	25	0.98	0.40	58	1.20	174	*	*	0.17	0.1125	4272-10150
18	11/16	28	1.10	0.40	58	1.20	174	*	*	0.20	0.1354	4272-10180
20	13/16	30	1.18	0.30	44	1.00	145	*	*	0.24	0.162	4272-10200
22	7/8	32	1.26	0.30	44	1.00	145	*	*	0.28	0.1897	4272-10220
25	1	35	1.37	0.30	44	1.00	145	*	*	0.33	0.22	4272-10250
28	1 1/8	38	1.49	0.30	44	1.00	145	*	*	0.35	0.2374	4272-10280
30	1 3/16	40	1.57	0.30	44	1.00	145	*	*	0.38	0.26	4272-10300
32	1 1/4	42	1.65	0.30	44	1.00	145	*	*	0.42	0.28	4272-10320
35	1 3/8	45	1.77	0.30	44	1.00	145	*	*	0.44	0.29	4272-10350
38	1 1/2	48	1.89	0.30	44	1.00	145	*	*	0.46	0.31	4272-10380
40	1 9/16	50	1.96	0.20	29	0.69	100	*	*	0.50	0.33	4272-10400
42	1 5/8	52	2.04	0.20	29	0.62	90	*	*	0.55	0.37	4272-10420
45	1 3/4	55	2.16	0.20	29	0.62	90	*	*	0.53	0.36	4272-10450
48	1 7/8	58	2.28	0.20	29	0.60	87	*	*	0.58	0.39	4272-10480
50	2	60	2.36	0.20	29	0.60	87	*	*	0.60	0.40	4272-10500

* No specification requirement

4169A

OIL-RESISTANT COOLANT HOSE



Relative Cost



Applications

Engine coolant hose such as radiator and heater hoses or connectors, particularly for oily conditions.



Temperature

-40°C to +100°C [-40°F to +212°F] continuous.



Standards

SAE 20R1 Class B tube and Class C cover, standard wall. Wall thickness is 4.95±0.65mm [0.195±0.025 inch] excluding lap area.



Construction

NBR [nitrile] tube, synthetic fabric reinforcement plies, CR [neoprene] cover with wrapped appearance.



Packaging

Bulk lengths are 3 foot sticks in a box, or 10 foot coil in a box. Custom lengths or enlarged ends available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length	10 ft. Length
19.1 ±0.8	3/4 ±0.03	29.0	1.14	1.03	150	4.14	600	27.0	8	254	10	0.52	0.35	4169-0210	4169-0158***
22.2	7/8	32.1	1.26	1.03	150	4.14	600	23.6	7	279	11	0.60	0.4	4169-0220	4169-0156
25.4	1	35.3	1.39	0.93	135	3.79	550	23.6	7	305	12	0.65	0.44	4169-0224	4169-0157
28.6	1 1/8	38.5	1.52	0.93	135	3.45	500	20.3	6	330	13	0.71	0.48	4169-0240	4169-0159
31.8	1 1/4	41.7	1.64	0.93	135	2.76	400	16.9	5	356	14	0.79	0.53	4169-0246	4169-0161
34.9	1 3/8	44.8	1.76	0.69	100	2.76	400	13.5	4	635	25	0.85	0.57	4169-0260	4169-0163
38.1	1 1/2	48.0	1.89	0.69	100	2.76	400	10.1	3	762	30	0.89	0.6	4169-0270	4169-0165
41.3	1 5/8	51.2	2.02	0.59	85	2.41	350	6.8	2	**	**	0.97	0.65	4169-0280	4169-0167
44.5	1 3/4	54.4	2.14	0.52	75	2.07	300	3.4	1	**	**	1.03	0.69	4169-0288	4169-0169
47.6	1 7/8	57.5	2.26	0.52	75	2.07	300	*	*	**	**	1.09	0.73	4169-0300	4169-0171
50.8 ±1.6	2 ±0.06	60.7	2.39	0.41	60	1.72	250	*	*	**	**	1.15	0.77	4169-0484	4169-0172
54.0	2 1/8	63.9	2.52	0.41	60	1.72	250	*	*	**	**	1.21	0.81	4169-0320	
57.2	2 1/4	67.1	2.64	0.41	60	1.72	250	*	*	**	**	1.26	0.85	4169-0491	416-0174
60.3	2 3/8	70.2	2.76	0.41	60	1.72	250	*	*	**	**	1.32	0.89	4169-0340	4169-0175
63.5	2 1/2	73.4	2.89	0.41	60	1.72	250	*	*	**	**	1.38	0.93	4169-0345	4169-0176
66.7	2 5/8	76.6	3.02	0.41	60	1.72	250	*	*	**	**	1.46	0.98	4169-0360***	
69.9	2 3/4	79.8	3.14	0.41	60	1.72	250	*	*	**	**	1.52	1.02	4169-0362	4169-0178
73.0	2 7/8	82.9	3.26	0.38	55	1.55	225	*	*	**	**	1.59	1.07	4169-0376***	
76.2	3	86.1	3.39	0.34	50	1.38	200	*	*	**	**	1.65	1.11	4169-0383	4169-0180
82.6	3 1/4	92.5	3.64	0.24	35	1.03	150	*	*	**	**	1.77	1.19	4169-0402***	
88.9	3 1/2	98.8	3.89	0.07	10	0.34	50	*	*	**	**	1.90	1.28	4169-0420	4169-0183
101.6	4	111.5	4.39	0.07	10	0.34	50	*	*	**	**	2.16	1.45	4169-0425	4169-0186
114.3	4 1/2	124.2	4.89	0.07	10	0.34	50	*	*	**	**	2.43	1.63	4169-0433***	4169-0189***
127.0	5	136.9	5.39	0.07	10	0.34	50	*	*	**	**	2.68	1.8		4169-0192***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4176Y

OIL-RESISTANT THICK-WALL COOLANT HOSE

Relative Cost ●●●○○

Applications Engine coolant hose such as radiator and heater hoses or connectors, particularly for oily conditions.

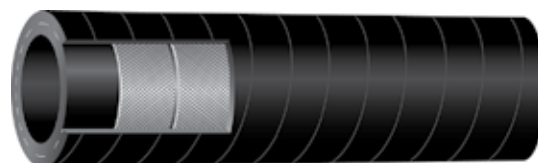
Temperature -40°C to +100°C [-40°F to +212°F] continuous.

Standards SAE 20R1 Class B tube and Class C cover, heavy wall. Wall thickness is 6.45±0.65mm [0.255±0.025 inch] excluding lap area.

Construction NBR [nitrile] tube, synthetic fabric reinforcement plies, CR [neoprene] cover with wrapped appearance.

Packaging Bulk lengths are 3 foot sticks in a box, or 10 foot coil in a box. Custom lengths or enlarged ends available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length	10 ft. Length
25.4 ±0.08	1 ±0.03	38.3	1.51	0.95	138	3.79	550	23.6	12	254	10	0.86	0.58		4176-1803
28.6	1 1/8	41.5	1.63	0.95	138	3.79	550	33.8	10	279	11	0.92	0.62		4176-1806***
31.8	1 1/4	44.7	1.76	0.86	125	3.45	500	33.8	10	305	12	1.01	0.68		4176-1807
38.1	1 1/2	51.0	2.01	0.78	113	3.10	450	33.8	10	381	15	1.18	0.79		4176-1810
44.5	1 3/4	57.4	2.26	0.69	100	2.76	400	16.9	5	457	18	1.34	0.90	4176-0103***	4176-1789
50.8 ±1.6	2 ±0.06	62.7	2.47	0.60	88	2.41	350	10.1	3	**	**	1.49	1.00		4176-1812
57.2	2 1/4	70.1	2.76	0.56	81	2.24	325	3.4	1	**	**	1.67	1.12	4176-1879***	4176-1793
60.3	2 3/8	73.2	2.88	0.56	81	2.24	325	*	*	**	**	1.74	1.17		4176-1813***
63.5	2 1/2	76.4	3.01	0.52	75	2.07	300	*	*	**	**	1.82	1.22		4176-1814
66.7	2 5/8	79.6	3.13	0.47	69	1.90	275	*	*	**	**	1.90	1.28	4176-0132***	
69.9	2 3/4	82.8	3.26	0.43	63	1.72	250	*	*	**	**	1.95	1.31	4176-1823***	4176-1701***
76.2	3	89.1	3.51	0.43	63	1.72	250	*	*	**	**	2.14	1.44		4176-1816
88.9	3 1/2	101.8	4.01	0.34	50	1.38	200	*	*	**	**	2.48	1.67		4176-1826
101.6	4	114.5	4.51	0.26	38	1.03	150	*	*	**	**	2.83	1.90		4176-1830
114.3	4 1/2	127.2	5.01	0.21	30	0.83	120	*	*	**	**	3.17	2.13	4176-1917***	4176-1834***
127.0	5	139.9	5.51	0.17	25	0.69	100	*	*	**	**	3.50	2.35		4176-0150***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4179G (GREEN STRIPE)

OIL-RESISTANT THICK-WALL, HIGHER PRESSURE COOLANT HOSE



Relative Cost



Applications

Engine coolant hose such as radiator and heater hoses or connectors, particularly for oily conditions.



Temperature

-40°C to +100°C [-40°F to +212°F] continuous.



Standards

SAE 20R1 Class B tube and Class C cover, heavy wall. Wall thickness is 6.45±0.65mm [0.255±0.025 inch] excluding lap area.



Construction

NBR [nitrile] tube, synthetic fabric reinforcement 4 plies, CR [neoprene] cover with wrapped appearance.



Packaging

Bulk lengths are 3 foot sticks in a box. Custom lengths available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

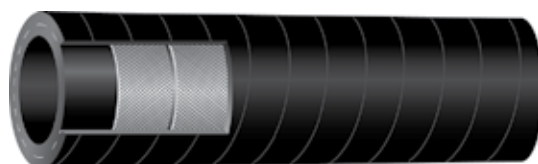
ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
44.5 ±0.8	1 3/4 ±0.03	58.7	2.31	0.69	100	2.76	400	16.9	50	381	15	1.32	0.89	4179-1660
47.6	1 7/8	61.7	2.43	0.69	100	2.76	400	10.1	30	**	**	1.46	0.98	4179-1661
50.8 ±1.6	2 ±0.06	65.0	2.56	0.62	90	2.48	360	10.1	30	**	**	1.49	1	4179-1662
54.0	2 1/8	68.1	2.68	0.62	90	2.48	360	3.4	10	**	**	1.58	1.06	4179-1663
57.2	2 1/4	71.4	2.81	0.62	90	2.48	360	3.4	10	**	**	1.67	1.12	4179-1664
60.3	2 3/8	75.4	2.97	0.62	90	2.48	360	*	*	**	**	1.76	1.18	4179-1665
63.5	2 1/2	77.7	3.06	0.52	75	2.07	300	*	*	**	**	1.83	1.23	4179-1666
66.7	2 5/8	80.8	3.18	0.52	75	2.07	300	*	*	**	**	1.92	1.29	4179-1667
69.9	2 3/4	84.1	3.31	0.41	60	1.65	240	*	*	**	**	1.96	1.32	4179-1668
73.0	2 7/8	87.1	3.43	0.41	60	1.65	240	*	*	**	**	2.10	1.41	4179-1669
76.2	3	90.4	3.56	0.41	60	1.65	240	*	*	**	**	2.13	1.43	4179-1670
79.4	3 1/8	93.5	3.68	0.41	60	1.65	240	*	*	**	**	2.35	1.58	4179-1671
82.6	3 1/4	96.8	3.81	0.34	50	1.38	200	*	*	**	**	2.43	1.63	4179-1672
88.9	3 1/2	103.1	4.06	0.34	50	1.38	200	*	*	**	**	2.47	1.66	4179-1673
92.1	3 5/8	106.2	4.18	0.34	50	1.38	200	*	*	**	**	2.68	1.8	4179-1674
95.3	3 3/4	109.5	4.31	0.34	50	1.38	200	*	*	**	**	2.77	1.86	4179-1675
101.6	4	115.8	4.56	0.28	40	1.10	160	*	*	**	**	2.81	1.89	4179-1676
127.0	5	141.2	5.56	0.28	40	1.10	160	*	*	**	**	3.42	2.3	4179-1680

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

4169G

OIL-RESISTANT, HIGHER TEMPERATURE COOLANT HOSE



- Relative Cost** ●●●○○○
- Applications** Engine coolant hose such as radiator and heater hoses or connectors, particularly for oily conditions. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F] continuous for coolant, and 100°C [212°F] maximum for conveying air or water.
- Standards** SAE 20R1 Class D1 tube and Class C cover, standard wall. Wall thickness is 4.95±0.65mm [0.195±0.025 inch] excluding lap area.
- Construction** EPDM tube, synthetic fabric reinforcement plies, CR [neoprene] cover with wrapped appearance.
- Packaging** Bulk lengths are 3 foot sticks in a box. Custom lengths or enlarged ends available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
25.4 ±0.08	1 ±0.03	35.3	1.39	0.95	138	3.79	550	23.6	7	305	12	0.64	0.43	4169-2550
28.6	1 1/8	38.5	1.52	0.69	100	2.76	400	20.3	6	356	14	0.71	0.48	4169-2562***
31.8	1 1/4	41.7	1.64	0.69	100	2.76	400	16.9	5	381	15	0.80	0.54	4169-2551
38.1	1 1/2	48.0	1.89	0.69	100	2.76	400	10.1	3	610	24	0.86	0.58	4169-2552
41.3	1 5/8	51.2	2.02	0.60	88	2.41	350	6.8	2	**	**	0.94	0.63	4169-2736***
44.5	1 3/4	54.4	2.14	0.52	75	2.07	300	3.4	1	**	**	1.06	0.71	4169-2553
47.6	1 7/8	57.5	2.26	0.52	75	2.07	300	*	*	**	**	1.12	0.75	4169-2737***
50.8 ±1.6	2 ±0.06	60.7	2.39	0.43	63	1.72	250	*	*	**	**	1.19	0.80	4169-2554
54.0	2 1/8	63.9	2.52	0.43	63	1.72	250	*	*	**	**	1.25	0.84	4169-2563***
57.2	2 1/4	67.1	2.64	0.43	63	1.72	250	*	*	**	**	1.31	0.88	4169-2555
60.3	2 3/8	70.2	2.76	0.43	63	1.72	250	*	*	**	**	1.38	0.93	4169-2556***
63.5	2 1/2	73.4	2.89	0.43	63	1.72	250	*	*	**	**	1.44	0.97	4169-2557***
66.7	2 5/8	76.6	3.02	0.43	63	1.72	250	*	*	**	**	1.50	1.01	4169-2760
69.9	2 3/4	79.8	3.14	0.43	63	1.72	250	*	*	**	**	1.58	1.06	4169-2558
73.0	2 7/8	82.9	3.26	0.39	56	1.55	225	*	*	**	**	1.64	1.10	4169-2761***
76.2	3	86.1	3.39	0.34	50	1.38	200	*	*	**	**	1.71	1.15	4169-2559
88.9	3 1/2	98.8	3.89	0.13	19	0.52	75	*	*	**	**	1.96	1.32	4169-2560***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4171

HIGH TEMPERATURE SILICONE COOLANT HOSE



Relative Cost



Applications

Engine coolant hose to withstand temperature extremes. Also suitable for air or water. Not for conveying fuel or oil.



Temperature

-54°C to +175°C [-65°F to +347°F] continuous.



Standards

SAE 20R1 Class A, standard wall. Wall thickness is 4.95±0.65mm [0.195±0.025 inch] excluding lap area.



Construction

Orange silicone tube, synthetic fabric reinforcement plies, green silicone cover with wrapped appearance.



Packaging

Bulk lengths are 10 foot sticks in a box. Custom lengths available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	10 ft. Length
9.5 ±0.8	3/8 ±0.03	19.4	0.76	0.76	110	2.93	425	40.6	12	203	8	0.31	0.21	4171-0195
12.7	1/2	22.6	0.89	0.76	110	2.93	425	40.6	12	203	8	0.42	0.28	4171-0197
15.9	5/8	25.8	1.02	0.76	110	2.93	425	40.6	12	203	8	0.48	0.32	4171-0204
19.1	3/4	29.0	1.14	0.76	110	2.93	425	33.8	10	254	10	0.55	0.37	4171-0206
22.2	7/8	32.1	1.26	0.76	110	2.93	425	23.6	7	279	11	0.61	0.41	4171-0210
25.4	1	35.3	1.39	0.62	90	2.59	375	23.6	7	305	12	0.68	0.46	4171-0213
28.6	1 1/8	38.5	1.52	0.62	90	2.59	375	20.3	6	330	13	0.73	0.49	4171-0217
31.8	1 1/4	41.7	1.64	0.59	85	2.41	350	16.9	5	356	14	0.82	0.55	4171-0265
34.9	1 3/8	44.8	1.76	0.59	85	2.41	350	13.5	4	660	26	0.88	0.59	4171-0260
38.1	1 1/2	48.0	1.89	0.59	85	2.41	350	10.1	3	762	30	0.92	0.62	4171-0270
41.3	1 5/8	51.2	2.02	0.55	80	2.24	325	6.8	2	**	**	1.01	0.68	4171-0275
44.5	1 3/4	54.4	2.14	0.55	80	2.24	325	3.4	1	**	**	1.07	0.72	4171-0280
47.6	1 7/8	57.5	2.26	0.55	80	2.24	325	*	*	**	**	1.15	0.77	***
50.8 ±1.6	2 ±0.06	60.7	2.39	0.52	75	2.07	300	*	*	**	**	1.21	0.81	4171-0285
54.0	2 1/8	63.9	2.52	0.52	75	2.07	300	*	*	**	**	1.28	0.86	4171-0224
57.2	2 1/4	67.1	2.64	0.52	75	2.07	300	*	*	**	**	1.34	0.9	4171-0223
60.3	2 3/8	70.2	2.76	0.45	65	1.72	250	*	*	**	**	1.41	0.95	4171-0229
63.5	2 1/2	73.4	2.89	0.45	65	1.72	250	*	*	**	**	1.49	1	4171-0234
69.9	2 3/4	79.8	3.14	0.34	50	1.38	200	*	*	**	**	1.64	1.1	4171-0238
76.2	3	86.1	3.39	0.34	50	1.38	200	*	*	**	**	1.77	1.19	4171-0246
82.6	3 1/4	92.5	3.64	0.28	40	1.21	175	*	*	**	**	1.90	1.28	4171-0249
88.9	3 1/2	98.8	3.89	0.24	35	1.03	150	*	*	**	**	2.05	1.38	4171-0241
95.3	3 3/4	105.2	4.14	0.24	35	1.03	150	*	*	**	**	2.19	1.47	4171-0835***
101.6	4	111.5	4.39	0.24	35	1.03	150	*	*	**	**	2.37	1.59	4171-0290
114.3	4 1/2	124.2	4.89	0.17	25	0.69	100	*	*	**	**	2.60	1.75	4171-0295
127.0	5	136.9	5.39	0.14	20	0.55	80	*	*	**	**	2.81	1.89	4171-0841***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4685WG

WIRE REINFORCED COOLANT HOSE

Relative Cost ●●●○○

Applications Engine coolant or water hose where tight bends or vacuum is required. Also suitable for air. Not for conveying fuel or oil.

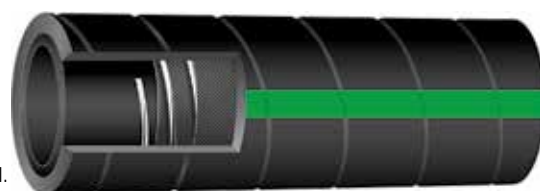
Temperature -40°C to +125°C [-40°F to +257°F] continuous for coolant, and 100°C [212°F] maximum for conveying air.

Standards SAE 20R2 Class D1 except vacuum. Wall thickness per SAE 20R2 is 5.35±1.05mm [0.21±0.04 inch] excluding embedded wire area.

Construction EPDM tube, synthetic fabric reinforcement plies with two embedded helical wires, EPDM cover with wrapped appearance.

Packaging Bulk lengths are 5 foot sticks in a box. Custom lengths or enlarged ends available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	5 ft. Length
25.4 ±0.08	1 ±0.03	37.1	1.46	0.69	100	2.76	400	84.5	25	51	2	0.74	0.5	4685-2016
28.6	1 1/8	40.1	1.58	0.69	100	2.76	400	84.5	25	64	2.5	0.82	0.55	4685-2018
31.8	1 1/4	43.4	1.71	0.69	100	2.76	400	84.5	25	64	2.5	0.89	0.6	4685-2020
34.9	1 3/8	46.5	1.83	0.59	85	2.41	350	84.5	25	76	3	0.97	0.65	4685-2022
38.1	1 1/2	49.8	1.96	0.59	85	2.41	350	67.6	20	89	3.5	1.04	0.7	4685-2024
41.3	1 5/8	52.8	2.08	0.52	75	2.07	300	67.6	20	89	3.5	1.12	0.75	4685-2026
44.5	1 3/4	56.1	2.21	0.52	75	2.07	300	67.6	20	102	4	1.19	0.8	4685-2028
47.6	1 7/8	59.2	2.33	0.41	60	1.72	250	67.6	20	114	4.5	1.25	0.84	4685-2030
50.8 ±1.6	2 ±0.06	62.5	2.46	0.41	60	1.72	250	67.6	20	114	4.5	1.41	0.95	4685-2032
54.0	2 1/8	65.5	2.58	0.38	55	1.55	225	67.6	20	140	5.5	1.49	1	4685-2034
57.2	2 1/4	68.8	2.71	0.38	55	1.55	225	67.6	20	140	5.5	1.58	1.06	4685-2036
60.3	2 3/8	71.9	2.83	0.34	50	1.38	200	67.6	20	165	6.5	1.65	1.11	4685-2038
63.5	2 1/2	75.2	2.96	0.34	50	1.38	200	67.6	20	165	6.5	1.73	1.16	4685-2040
66.7	2 5/8	78.2	3.08	0.28	40	1.21	175	50.7	15	191	7.5	1.80	1.21	4685-2042
69.9	2 3/4	81.5	3.21	0.28	40	1.21	175	50.7	15	191	7.5	1.87	1.26	4685-2044
73.0	2 7/8	84.6	3.33	0.28	40	1.21	175	50.7	15	229	9	1.96	1.32	4685-2046
76.2	3	87.1	3.43	0.28	40	1.21	175	50.7	15	229	9	2.04	1.37	4685-2048
88.9	3 1/2	99.8	3.93	0.24	35	1.03	150	50.7	15	305	12	2.35	1.58	4685-2056
101.6	4	112.5	4.43	0.21	30	0.86	125	33.8	10	508	20	2.66	1.79	4685-2064
127.0	5	137.9	5.43	0.10	15	0.52	75	16.9	5	610	24	4.00	2.69	4685-2080
152.4	6	163.3	6.43	0.10	15	0.52	75	16.9	5	-	-	4.76	3.2	4685-2096

4684CF

WIRE REINFORCED, OIL RESISTANT COOLANT HOSE



Relative Cost ●●●○○



Applications

Engine coolant lower radiator hose where fuel and oil resistance and tight bends or vacuum is required. Also suitable for marine wet exhaust.



Temperature

-40°C to +100°C [-40°F to +212°F] continuous.



Standards

SAE 20R2 Class B tube, Class C cover except vacuum. Wall thickness per SAE 20R2 is 5.35±1.05mm [0.21±0.04 inch] excluding embedded wire area.



Construction

Nitrile tube, synthetic fabric reinforcement plies with two embedded helical wires, neoprene cover with wrapped appearance.



Packaging

Bulk lengths are 10 foot sticks in a box. Custom lengths, enlarged ends, or ends with no wire are available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length	200 ft. Length
25.4 ±0.08	1 ±0.03	36.6	1.46	0.69	100	2.76	400	84.5	25	76	3	0.65	0.44	4684-1540	
28.6	1 1/8	39.6	1.56	0.69	100	2.76	400	84.5	25	102	4	0.79	0.53	4684-1545	
31.8	1 1/4	42.9	1.69	0.69	100	2.76	400	84.5	25	102	4	0.85	0.57	4684-1551	
34.9	1 3/8	46.0	1.82	0.60	88	2.41	350	84.5	25	102	4	0.92	0.62	4684-1556	
38.1	1 1/2	49.3	1.94	0.60	88	2.41	350	67.6	20	102	4	1.00	0.67	4684-1561	
41.3	1 5/8	52.3	2.07	0.52	75	2.07	300	67.6	20	127	5	1.06	0.71	4684-1601	
44.5	1 3/4	55.6	2.20	0.52	75	2.07	300	67.6	20	127	5	1.13	0.76	4684-1611	
47.6	1 7/8	58.7	2.33	0.43	63	1.72	250	67.6	20	127	5	1.21	0.81	4684-1651	
50.8 ±1.6	2 ±0.06	62.0	2.45	0.43	63	1.72	250	67.6	20	127	5	1.28	0.86	4684-1660	
54.0	2 1/8	65.0	2.58	0.39	56	1.55	225	67.6	20	152	6	1.34	0.90	4684-1670	
57.2	2 1/4	68.3	2.71	0.39	56	1.55	225	67.6	20	152	6	1.41	0.95	4684-1680	
60.3	2 3/8	71.4	2.83	0.34	50	1.38	200	67.6	20	178	7	1.49	1.00	4684-1690	
63.5	2 1/2	74.7	2.96	0.34	50	1.38	200	67.6	20	178	7	1.55	1.04	4684-1700	
66.7	2 5/8	77.7	3.08	0.30	44	1.21	175	50.7	15	229	9	1.61	1.08	4684-1711	
69.9	2 3/4	81.0	3.21	0.30	44	1.21	175	50.7	15	254	10	1.68	1.13	4684-1720	
73.0	2 7/8	84.1	3.33	0.30	44	1.21	175	50.7	15	279	11	1.76	1.18	4684-1730	
76.2	3	87.4	3.45	0.30	44	1.21	175	50.7	15	305	12	1.83	1.23	4684-1740	4684-1706***
88.9	3 1/2	103.1	3.95	0.26	38	1.03	150	50.7	15	432	17	2.10	1.41	4684-1750	4684-1707***
101.6	4	112.8	4.46	0.22	31	0.86	125	33.8	10	610	24	2.40	1.61	4684-1760	
114.3	4 1/2	125.5	4.96	0.17	25	0.69	100	16.9	5	686	27	2.62	1.76	4684-1764***	4684-1708***
127.0	5	138.2	5.46	0.13	19	0.52	75	16.9	5	762	30	3.27	2.20	4684-1766***	4684-1709***
152.4	6	164.1	6.46	0.09	13	0.34	50	16.9	5	914	36	3.90	2.62	4684-1722***	

*** Not stocked. Minimum order quantity applies.

4684S

WIRE REINFORCED, HIGH TEMPERATURE COOLANT HOSE



- Relative Cost** ●●●●●
- Applications** Engine coolant hose for extreme temperatures where tight bends or vacuum is required. Also suitable for air. Not for conveying fuel or oil.
- Temperature** -57°C to +175°C [-70°F to +347°F] continuous.
- Standards** SAE 20R2 Class A, or MIL STD ZZ-H-428 Type V Grade A Class 2. Wall thickness per SAE 20R2 is 4.95±0.65mm [0.195±0.025 inch] excluding embedded wire area.
- Construction** Orange silicone tube, synthetic fabric reinforcement plies with two embedded helical wires, green silicone cover with wrapped appearance.
- Packaging** Bulk lengths are 10 foot sticks in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length
25.4 ±0.08	1 ±0.03	37.1	1.46	0.59	85	2.41	350	84.5	25	76	3	0.74	0.5	4684-2917***
31.8	1 1/4	44.2	1.74	0.59	85	2.41	350	84.5	25	102	4	0.98	0.66	4684-0879***
38.1	1 1/2	50.5	1.99	0.52	75	2.07	300	67.6	20	102	4	1.13	0.76	4684-0880***
50.8 ±1.6	2 ±0.06	63.2	2.49	0.34	50	1.38	200	67.6	20	127	5	1.44	0.97	4684-0890***
57.2	2 1/4	69.6	2.74	0.30	44	1.21	175	67.6	20	152	6	1.59	1.07	4684-0882***
63.5	2 1/2	75.9	2.99	0.26	38	1.03	150	67.6	20	178	7	1.92	1.29	4684-1624***
76.2	3	88.6	3.49	0.23	33	0.90	130	50.7	15	305	12	2.07	1.39	4684-1620***

*** Not stocked. Minimum order quantity applies.

4254 (VULCO-FLEX®)

MOLDED CONVOLUTED COOLANT HOSE WITH WIRE INSERT



Relative Cost ●●●○○○

Applications Engine coolant or water hose where tight bends or vacuum is required. Also suitable for air. Not for conveying fuel or oil.

Temperature -40°C to +125°C [-40°F to +257°F] continuous.

Standards Similar to SAE 20R5 Class D2. Wall thickness is 4.35±1.17mm [0.17±0.045 inch].

Construction EPDM tube, synthetic fabric reinforcement plies, EPDM cover with convoluted appearance except for 41.3±3mm [1.62±0.12inch] cuff length on each end. Spring inserted in hose ID.

Packaging Hoses are boxed.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Length*		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Gates Item No.	Inter-change No.
mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	P/N	
31.8 x +8/-2.3	1 1/4 +.03/- .09"	40.5	1.59	191	7.5	0.21	30	0.83	120	67.6	20	127	4	4254-0002	26402
31.8	1 1/4	40.5	1.59	241	9.5	0.21	30	0.83	120	67.6	20	127	4	4254-0036	26403
31.8	1 1/4	40.5	1.59	279	11	0.21	30	0.83	120	67.6	20	127	4	4254-0006	26404
31.8	1 1/4	40.5	1.59	381	15	0.21	30	0.83	120	67.6	20	127	4	4254-0009	26405
31.8	1 1/4	40.5	1.59	432	17	0.21	30	0.83	120	67.6	20	127	4	4254-0014	26406
31.8	1 1/4	40.5	1.59	508	20	0.21	30	0.83	120	67.6	20	127	4	4254-0019	26407
31.8	1 1/4	40.5	1.59	584	23	0.21	30	0.83	120	67.6	20	127	4	4254-0020	26408
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	495	19.5	0.21	30	0.83	120	67.6	20	127	4	4254-0033	26409
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	394	15.5	0.21	30	0.83	120	67.6	20	127	4	4254-0044	26400
38.1	1 1/2	46.8	1.84	152	6	0.21	30	0.83	120	67.6	20	127	3	4254-0023	26410
38.1	1 1/2	46.8	1.84	203	8	0.21	30	0.83	120	67.6	20	127	3	4254-0003	26411
38.1	1 1/2	46.8	1.84	267	10.5	0.21	30	0.83	120	67.6	20	127	3	4254-0007	26412
38.1	1 1/2	46.8	1.84	305	12	0.21	30	0.83	120	67.6	20	127	3	4254-0025	26413
38.1	1 1/2	46.8	1.84	356	14	0.21	30	0.83	120	67.6	20	127	3	4254-0010	26414
38.1	1 1/2	46.8	1.84	394	15.5	0.21	30	0.83	120	67.6	20	127	3	4254-0034	26415
38.1	1 1/2	46.8	1.84	432	17	0.21	30	0.83	120	67.6	20	127	3	4254-0013	26416
38.1	1 1/2	46.8	1.84	508	20	0.21	30	0.83	120	67.6	20	127	3	4254-0016	26417
38.1	1 1/2	46.8	1.84	559	22	0.21	30	0.83	120	67.6	20	127	3	4254-0041	26418
38.1	1 1/2	46.8	1.84	635	25	0.21	30	0.83	120	67.6	20	127	3	4254-0040	26419
38.1	1 1/2	46.8	1.84	762	30	0.21	30	0.83	120	67.6	20	127	3	4254-0038	26420
38.1** [90°]	1 1/2	46.8	1.84	425	16.75	0.21	30	0.83	120	67.6	20	127	3	4254-0097	26440
38.1** [90°]	1 1/2	46.8	1.84	508	20	0.21	30	0.83	120	67.6	20	127	3	4254-0098	26442
38.1** [90°]	1 1/2	46.8	1.84	572	22.5	0.21	30	0.83	120	67.6	20	127	3	4254-0099	26443
38.1 x 44.5	1 1/2 x 1 3/4	46.8 x 53.2	1.84 x 2.09	337	13.25	0.21	30	0.83	120	67.6	20	127	3	4254-0037	26421
38.1 x 44.5	1 1/2 x 1 3/4	46.8 x 53.2	1.84 x 2.09	381	15	0.21	30	0.83	120	67.6	20	127	3	4254-0030	26422
38.1 x 44.5	1 1/2 x 1 3/4	46.8 x 53.2	1.84 x 2.09	419	16.5	0.21	30	0.83	120	67.6	20	127	3	4254-0035	26423
38.1 x 44.5	1 1/2 x 1 3/4	46.8 x 53.2	1.84 x 2.09	508	20	0.21	30	0.83	120	67.6	20	127	3	4254-0029	26424
38.1 x 44.5	1 1/2 x 1 3/4	46.8 x 53.2	1.84 x 2.09	559	22	0.21	30	0.83	120	67.6	20	127	3	4254-0042	26425
44.5	1 3/4	53.2	2.09	152	6	0.17	25	0.69	100	67.6	20	127	5	4254-0001	26426
44.5	1 3/4	53.2	2.09	216	8.5	0.17	25	0.69	100	67.6	20	127	5	4254-0005	26427
44.5	1 3/4	53.2	2.09	279	11	0.17	25	0.69	100	67.6	20	127	5	4254-0032	26428
44.5	1 3/4	53.2	2.09	343	13.5	0.17	25	0.69	100	67.6	20	127	5	4254-0008	26429
44.5	1 3/4	53.2	2.09	419	16.5	0.17	25	0.69	100	67.6	20	127	5	4254-0028	26430
44.5	1 3/4	53.2	2.09	483	19	0.17	25	0.69	100	67.6	20	127	5	4254-0015	26431
44.5	1 3/4	53.2	2.09	597	23.5	0.17	25	0.69	100	67.6	20	127	5	4254-0017	26432
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	368	14.5	0.17	25	0.69	100	67.6	20	127	5	4254-0027	26433
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	419	16.5	0.17	25	0.69	100	67.6	20	127	5	4254-0031	26434
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	483	19	0.17	25	0.69	100	67.6	20	127	5	4254-0039	26435
50.8	2	59.5	2.34	191	7.5	0.14	20	0.55	80	50.7	15	127	6	4254-0004	26436
50.8	2	59.5	2.34	311	12.25	0.14	20	0.55	80	50.7	15	127	6	4254-0026	26437
50.8	2	59.5	2.34	368	14.5	0.14	20	0.55	80	50.7	15	127	6	4254-0011	26438
50.8	2	59.5	2.34	432	17	0.14	20	0.55	80	50.7	15	127	6	4254-0018	26439

* Length tolerance up to 507mm [19.9 inch] = +6.4/-9.5 [+0.25/-0.38].
Length tolerance 508mm [20 inch] to 634 [24.9] = +12.7/-9.5 [+0.50/-0.38].
Length tolerance 635mm [25 inch] and more = ±12.7 [±0.50]

** One end has a 90° bend with a 102mm [4 inch] arm length.

4284 (VULCO-FLEX® GREEN STRIPE)

MOLDED CONVOLUTED COOLANT HOSE WITH EMBEDDED WIRE

Relative Cost ●●●○○

Applications Engine coolant or water hose where tight bends, vacuum, or exterior oil resistance is required. Also suitable for air. Not for conveying fuel or oil.

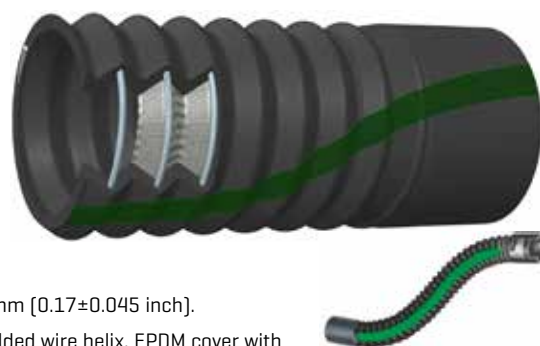
Temperature -40°C to +125°C [-40°F to +257°F] continuous.

Standards Similar to SAE 20R5 Class D2. Wall thickness is 4.35±1.7mm [0.17±0.045 inch].

Construction EPDM tube, synthetic fabric reinforcement plies with embedded wire helix, EPDM cover with neoprene coated fabric. Convoluted appearance except for 41.3±3mm [1.62±0.12inch] cuff length on each end.

Packaging Hoses are boxed.

Couplings Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD Reference		Length*		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Gates Item No.	Inter-change No.
mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	P/N	
44.5 +8/-2.3	1 3/4 +.03/-0.09	53.2	2.09	343	13.5	0.21	30	0.83	120	67.6	20	127	6	4284-0122	26501
44.5	1 3/4	53.2	2.09	419	16.5	0.21	30	0.83	120	67.6	20	127	6	4284-0123	26502
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	254	10	0.21	30	0.83	120	67.6	20	127	6	4284-0134	26503
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	411	16.2	0.21	30	0.83	120	67.6	20	127	6	4284-0124	26504
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	483	19	0.21	30	0.83	120	67.6	20	127	6	4284-0120	26505
44.5 x 50.8	1 3/4 x 2	53.2 x 59.5	2.09 x 2.34	597	23.5	0.21	30	0.83	120	67.6	20	127	6	4284-0135	26506
50.8	2	59.5	2.34	241	9.5	0.17	25	0.69	100	50.7	15	127	6	4284-0121	26507
50.8	2	59.5	2.34	311	12.25	0.17	25	0.69	100	50.7	15	127	6	4284-0115	26508
50.8	2	59.5	2.34	368	14.5	0.17	25	0.69	100	50.7	15	127	6	4284-0113	26509
50.8	2	59.5	2.34	432	17	0.17	25	0.69	100	50.7	15	127	6	4284-0114	26510
50.8	2	59.5	2.34	508	20	0.17	25	0.69	100	50.7	15	127	6	4284-0107	26511
50.8	2	59.5	2.34	610	24	0.17	25	0.69	100	50.7	15	127	6	4284-0101	26512
50.8	2	59.5	2.34	838	33	0.17	25	0.69	100	50.7	15	127	6	4284-0137	26513
50.8 x 57.1	2 x 2 1/4	59.5 x 65.8	2.34 x 2.59	216	8.5	0.17	25	0.69	100	50.7	15	127	6	4284-0118	26514
50.8 x 57.1	2 x 2 1/4	59.5 x 65.8	2.34 x 2.59	381	15	0.17	25	0.69	100	50.7	15	127	6	4284-0131	26515
50.8 x 57.1	2 x 2 1/4	59.5 x 65.8	2.34 x 2.59	445	17.5	0.17	25	0.69	100	50.7	15	127	6	4284-0125	26516
50.8 x 57.1	2 x 2 1/4	59.5 x 65.8	2.34 x 2.59	635	25	0.17	25	0.69	100	50.7	15	127	6	4284-0133	26517
50.8 x 63.5	2 x 2 1/2	59.5 x 72.2	2.34 x 2.84	508	20	0.17	25	0.69	100	50.7	15	127	6	4284-0108	26518
57.1	2 1/4	65.8	2.59	229	9	0.17	25	0.69	100	40.6	12	127	8	4284-0102	26519
57.1	2 1/4	65.8	2.59	279	11	0.17	25	0.69	100	40.6	12	127	8	4284-0103	26520
57.1	2 1/4	65.8	2.59	356	14	0.17	25	0.69	100	40.6	12	127	8	4284-0104	26521
57.1	2 1/4	65.8	2.59	432	17	0.17	25	0.69	100	40.6	12	127	8	4284-0105	26522
57.1	2 1/4	65.8	2.59	483	19	0.17	25	0.69	100	40.6	12	127	8	4284-0106	26523
57.1	2 1/4	65.8	2.59	610	24	0.17	25	0.69	100	40.6	12	127	8	4284-0140	26524
57.1	2 1/4	65.8	2.59	686	27	0.17	25	0.69	100	40.6	12	127	8	4284-0126	26525
57.1 x 63.5	2 1/4 x 2 1/2	65.8 x 72.2	2.59 x 2.84	457	18	0.17	25	0.69	100	40.6	12	127	8	4284-0109	26526
57.1 x 63.5	2 1/4 x 2 1/2	65.8 x 72.2	2.59 x 2.84	533	21	0.17	25	0.69	100	40.6	12	127	8	4284-0110	26527
57.1 x 63.5	2 1/4 x 2 1/2	65.8 x 72.2	2.59 x 2.84	635	25	0.17	25	0.69	100	40.6	12	127	8	4284-0132	26528
63.5	2 1/2	72.2	2.84	279	11	0.14	20	0.55	80	33.8	10	127	8	4284-0128	26529
63.5	2 1/2	72.2	2.84	356	14	0.14	20	0.55	80	33.8	10	127	8	4284-0136	26530
63.5	2 1/2	72.2	2.84	406	16	0.14	20	0.55	80	33.8	10	127	8	4284-0112	26531
63.5	2 1/2	72.2	2.84	610	24	0.14	20	0.55	80	33.8	10	127	8	4284-0111	26532
63.5	2 1/2	72.2	2.84	711	28	0.14	20	0.55	80	33.8	10	127	8	4284-0138	26533
69.9	2 3/4	78.6	3.09	178	7	0.14	20	0.55	80	33.8	10	127	10	4284-0139	26534
69.9	2 3/4	78.6	3.09	356	14	0.14	20	0.55	80	33.8	10	127	10	4284-0141	26535
69.9	2 3/4	78.6	3.09	457	18	0.14	20	0.55	80	33.8	10	127	10	4284-0130	26536
69.9	2 3/4	78.6	3.09	813	32	0.14	20	0.55	80	33.8	10	127	10	4284-0117	26537
76.2	3	84.9	3.34	940	37	0.14	20	0.55	80	27.0	8	127	10	4284-0116	26538

* Length tolerance to 507mm [19.9 inch] = +6.4/-9.5 [+0.25/-0.38].
Length tolerance 508mm [20 inch] to 634 [24.9] = +12.7/-9.5 [+0.50/-0.38].
Length tolerance 635mm [25 inch] and more = ±12.7 [±0.50]

4177W

OIL RESISTANT HUMP COOLANT HOSE

- Relative Cost** ●●●●●
- Applications** Vibration dampening connector between the engine and radiator. Also suitable for air inlet. There is no vacuum rating. Not for conveying fuel or oil.
- Temperature** -40°C to +100°C [-40°F to +212°F].
- Standards** SAE 20R1 Class B tube, Class C cover.
- Construction** NBR [nitrile] tube, synthetic fabric reinforcement plies, CR [neoprene] cover with wrapped appearance.
- Packaging** Individually bagged and shipped in a box.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Nominal		OD Hump		Length*		Work. Press. Max.		Burst Minimum		Gates Item No.	Inter-change No.
mm	in.	mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	P/N	
31.8	1 1/4	41.7	1.64	56.4	2.22	101.6	4	0.47	69	1.90	275	3177-0027	23505
34.9	1 3/8	44.8	1.76	61.2	2.41	127.0	5	0.43	63	1.72	250	3177-0034	23511
38.1	1 1/2	48.0	1.89	63.5	2.50	127.0	5	0.43	63	1.72	250	3177-0023	23515
44.5	1 3/4	54.4	2.14	71.4	2.81	127.0	5	0.39	56	1.55	225	3177-0022	23520
50.8	2	60.7	2.39	81.8	3.22	88.9	3 1/2	0.34	50	1.38	200	3177-0032	23531
50.8	2	60.7	2.39	81.8	3.22	127.0	5	0.34	50	1.38	200	3177-0024	23533
57.2	2 1/4	67.1	2.64	88.9	3.50	114.3	4 1/2	0.30	44	1.21	175	3177-0026	23547
60.3	2 3/8	70.2	2.76	94.5	3.72	127.0	5	0.26	38	1.03	150	3177-0025	23557
60.3	2 3/8	70.2	2.76	94.5	3.72	158.8	6 1/4	0.26	38	1.03	150	3177-0015	23559
63.5	2 1/2	73.4	2.89	96.8	3.81	114.3	4 1/2	0.26	38	1.03	150	3177-0030	23562
63.5	2 1/2	73.4	2.89	96.8	3.81	152.4	6	0.26	38	1.03	150	3177-0028	23550
69.9	2 3/4	79.8	3.14	103.9	4.09	82.6	3 1/4	0.22	31	0.86	125	3177-0040	23566
69.9	2 3/4	79.8	3.14	103.9	4.09	114.3	4 1/2	0.22	31	0.86	125	3177-0033	23567
69.9	2 3/4	79.8	3.14	103.9	4.09	136.5	5 3/8	0.22	31	0.86	125	3177-0039	23568
76.2	3	86.1	3.39	112.0	4.41	101.6	4	0.17	25	0.69	100	3177-0004	23572
76.2	3	86.1	3.39	112.0	4.41	177.8	7	0.17	25	0.69	100	3177-0038	23575
88.9	3 1/2	98.8	3.89	127.0	5	139.7	5 1/2	0.17	25	0.41	60	3177-0043	23585

4230T

STANDARD SMALL ID COOLANT HOSE

Relative Cost ●○○○○

Applications Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.

Temperature -40°C to +125°C [-40°F to +257°F].

Standards SAE 20R3 Class D2.

Construction EPDM tube, synthetic fiber reinforcement, EPDM cover.

Packaging Bulk lengths up to 15.9mm (5/8") size shipped on a reel, and larger sizes coiled in a box, except 9.5mm (3/8") also boxed. Custom lengths available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
7.9 ±0.8	5/16 ±0.03	15.4 ±0.8	0.61 ±0.03	0.43	63	1.72	250	33.8	10	51	2	0.19	0.13	213	700	4230-0193
9.5	3/8	17.5	0.69	0.43	63	1.72	250	33.8	10	64	2.5	0.24	0.16	152	500	4230-0129
12.7	1/2	20.7	0.81	0.43	63	1.72	250	33.8	10	76	3	0.28	0.19	198	650	4230-0060
15.9	5/8	23.9	0.94	0.43	63	1.72	250	27.0	8	102	4	0.34	0.23	91	300	4230-0135
19.1	3/4	27.1	1.06	0.34	50	1.38	200	23.6	7	127	5	0.39	0.26	61	200	4230-0134
25.4	1	34.0 ±1.2	1.34 ±0.05	0.30	44	1.21	175	20.3	6	178	7	0.55	0.37	183	600	4230-0150

For smaller sizes, see page 92 (42510)

3270 (SAFETY STRIPE)

LIGHT DUTY SMALL ID COOLANT HOSE

Relative Cost ●○○○○

Applications Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.

Temperature -40°C to +125°C [-40°F to +257°F].

Standards SAE 20R3 Class D2 except hardness (80 duro), compression set, and thickness.

Construction EPDM tube, synthetic fiber reinforcement, EPDM cover.

Packaging Coiled in a box, except 250 foot lengths are shipped on a reel. Custom lengths available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	50 ft. Length	250 ft. Length
6.35 ±0.8	1/4 ±0.03	12.7 ±0.8	0.50 ±0.03	0.41	60	1.72	250	33.8	10	89	3.50	0.13	0.09	3270-4371	
7.9	5/16	15.7	0.62	0.41	60	1.72	250	33.8	10	111	4.38	0.21	0.14	3270-4372	
9.5	3/8	17.5	0.69	0.41	60	1.72	250	33.8	10	124	4.88	0.22	0.15	3270-4374	
12.7	1/2	19.6	0.77	0.41	60	1.72	250	33.8	10	137	5.38	0.24	0.16	3270-4375	
15.9	5/8	22.6	0.89	0.41	60	1.72	250	27.0	8	159	6.25	0.28	0.19	3270-4376	3270-4382
19.1	3/4	25.9	1.02	0.34	50	1.38	200	23.6	7	178	7.00	0.33	0.22	3270-4377	3270-4383
25.4 ±1.5	1 ±0.06	34.0 ±1.5	1.34 ±0.06	0.31	45	1.21	175	20.3	6	238	9.38	0.55	0.37	3270-4378	

4230BS (BLUE STRIPE), 4230RS (RED STRIPE), 4230RK

PREMIUM PERFORMANCE SMALL ID COOLANT HOSE

- Relative Cost** ●●○○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil. Also available with a red stripe [4230RS], or no stripe [4230RK] for color coding supply/return connections with minimum order quantity.
- Temperature** -40°C to +135°C [-40°F to +275°F] and ambient air to 150°C [302°F] when used in a coolant hose application.
- Standards** SAE 20R3 EC Class D1 or D2.
- Construction** EPDM tube, aramid fiber reinforcement, EPDM cover.
- Packaging** Bulk lengths coiled in a box, except 4230-4229 and 4230-0083 on a reel. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	4230BS	4230RS
9.5 ±0.8	3/8 ±0.03	17.5 ±0.8	0.68 ±0.03	0.43	63	1.72	250	33.8	10	127	5	0.21	0.14	152	500	4230-4114	4230-0084***
12.7	1/2	20.7	0.81	0.52	75	2.07	300	33.8	10	152	6	0.27	0.18	76	250	4230-4229	
15.9	5/8	23.9	0.94	0.43	63	1.72	250	27.0	8	178	7	0.31	0.21	76	250	4230-4112	4230-0083***
19.1	3/4	27.1	1.06	0.34	50	1.38	200	23.6	7	191	7.5	0.39	0.26	61	200	4230-4109	
25.4	1	34.0 ±1.2	1.34 ±.05	0.30	44	1.21	175	20.3	6	229	9	0.55	0.37	46	150	4230-4107	

*** Not stocked. Minimum order quantity applies.

3269S (GREEN STRIPE)

THICK WALL, SMALL ID COOLANT HOSE

- Relative Cost** ●●○○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -40°C to +135°C [-40°F to +275°F].
- Standards** SAE 20R1 EC Class D1. Wall thickness is 4.95±0.65mm [0.195±0.025 inch].
- Construction** EPDM tube, aramid fiber reinforcement, EPDM cover.
- Packaging** All 50 foot lengths are coiled in a box, and 300 foot lengths are on a reel. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	50 ft. Length	300 ft. Length
9.5 ±0.8	3/8 ±0.03	19.4	0.76	0.69	100	2.76	400	33.8	10	140	5.5	0.27	0.18		
12.7	1/2	22.6	0.89	0.72	105	2.93	425	33.8	10	152	6	0.33	0.22	3269-4414	
15.9	5/8	25.8	1.02	0.66	95	2.59	375	27.0	8	178	7	0.40	0.27	3269-4416	3269-1015
19.1	3/4	29.0	1.14	0.55	80	2.24	325	27.0	8	203	8	0.46	0.31	3269-4417	3269-1016
22.2	7/8	32.1	1.26	0.55	80	2.24	325	23.7	7	229	9	0.52	0.35	3269-4419	
25.4	1	35.3	1.39	0.52	75	2.07	300	23.7	7	254	10	0.58	0.39	3269-4418	3269-1017
31.8	1 1/4	41.7	1.64	0.48	70	1.90	276	16.9	5	292	11.5	0.70	0.47	3269-4411	

3230 (EPDM)
**METRIC SMALL ID COOLANT HOSE
(EUROPEAN MARKET ONLY)**

- Relative Cost** ●○○○○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -50°C to +100°C [-58°F to +212°F] continuous, to 110°C (230°F) intermittent.
- Standards** DIN 73411 Class A except tolerances.
- Construction** EPDM tube, rayon reinforcement, EPDM cover.
- Packaging** Bulk lengths are 15 meters coiled in a box with knock-out lid.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	15m Length
8 ±0.8	5/16 ±0.03	16 ±0.8	0.63 ±0.03	0.50	73	1.20	174	*	*	65	2.6	0.18	0.12	3230-12081
10	3/8	18	0.71	0.50	73	1.20	174	*	*	75	3.0	0.22	0.14	3230-12101
12	1/2	20	0.79	0.50	73	1.20	174	*	*	85	3.3	0.24	0.16	3230-12121
15	5/8	23	0.91	0.50	73	1.20	174	*	*	110	4.3	0.30	0.20	3230-12151
17	11/16	25	0.98	0.50	73	1.20	174	*	*	120	4.7	0.33	0.22	3230-12171
19	3/4	27	1.06	0.50	73	1.20	174	*	*	135	5.3	0.35	0.24	3230-12191
22	7/8	31 ±1.0	1.22 ±0.04	0.50	73	1.00	145	*	*	170	6.7	0.46	0.31	3230-12221

* No specification requirement

4230S
OIL RESISTANT SMALL ID COOLANT HOSE

- Relative Cost** ●●○○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for crank case vent, water, fuel, or oil.
- Temperature** -40°C to +100°C [-40°F to +212°F].
- Standards** SAE 20R3 Class B tube, Class C cover.
- Construction** Nitrile tube, synthetic fiber reinforcement, neoprene cover.
- Packaging** Bulk lengths coiled in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
9.5 ±0.8	3/8 ±0.03	17.5 ±0.8	0.68 ±0.03	0.52	75	2.07	300	33.8	10	64	2.5	0.24	0.16	107	350	4230-0148
12.7	1/2	20.7	0.81	0.52	75	2.07	300	33.8	10	76	3	0.28	0.19	84	275	4230-0149
15.9	5/8	23.9	0.94	0.52	75	2.07	300	27.0	8	102	4	0.36	0.24	76	250	4230-0145
19.1	3/4	27.1	1.06	0.52	75	2.07	300	23.6	7	127	5	0.49	0.33	61	200	4230-0146
25.4	1	34.0 ±1.2	1.34 ±.05	0.52	75	2.07	300	20.3	6	178	7	0.64	0.43	213	700	4230-0147

3230 (3231 EUROPE)

HIGH TEMPERATURE SILICONE SMALL ID COOLANT HOSE

Relative Cost



Applications

Engine coolant hose for extreme temperature exposure. Also suitable for air or water. Not for conveying fuel or oil.



Temperature

-54°C to +177°C [-65°F to +350°F].



Standards

SAE 20R3 HT Class A.



Construction

Orange silicone rubber tube, synthetic fiber reinforcement, blue silicone rubber cover.



Packaging

Bulk lengths coiled in a box. Custom lengths available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number (EU and US)	Gates Item Number (US only)
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	25 ft. Length	50 ft. Length
9.5 ±0.8	3/8 ±0.03	17.5 ±0.8	0.68 ±0.03	0.43	63	1.72	250	33.8	10	64	2.5	0.25	0.17	3230-0039	3230-0298
12.7	1/2	20.7	0.81	0.43	63	1.72	250	33.8	10	76	3	0.31	0.21	3230-0040	
15.9	5/8	23.9	0.94	0.43	63	1.72	250	27.0	8	102	4	0.39	0.26	3230-0041	3230-0285
19.1	3/4	27.1	1.06	0.34	50	1.38	200	23.6	7	127	5	0.43	0.29	3230-0042	3230-0289
25.4	1	34.0 ±1.2	1.34 ±.05	0.30	44	1.21	175	20.3	6	178	7	0.61	0.41	3230-0044	3230-0293

Coolant

Fuel



Oil



Exhaust/DEF



Air



Brake



Hose Accessories



Belts



4261 (4275 EUROPE)

FORMED COOLANT HOSE - STANDARD SHAPES

- Relative Cost** ●●○○○
- Applications** Engine coolant hose with 90° bend. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -40°C to +135°C [-40°F to +275°F].
- Standards** SAE 20R3 EC Class D1 (under 25mm ID), SAE 20R4 EC Class D1 (over 25mm ID)
- Construction** EPDM tube, synthetic fiber reinforcement, EPDM cover.
- Packaging** Boxed.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Arm Lengths		Expanded End Length		Bend Radius		Gates Item Number
mm	in.	mm	in.	mm	inch	mm	inch	mm	in.	
6.35 ±0.8	1/4 ±0.03	12.7 ±0.8	0.50 ±0.03	102 x 152	4 x 6			25.4	1	4257-0083
6.4	1/4	12.7	0.50	102 x 305	4 x 12			25.4	1	4257-0001
7.9	5/16	14.9	0.59	102 x 152	4 x 6			25.4	1	4257-0002
7.9	5/16	14.9	0.59	102 x 305	4 x 12			25.4	1	4257-0003
9.5	3/8	16.5	0.65	102 x 152	4 x 6			25.4	1	4257-0004
9.5	3/8	16.5	0.65	102 x 305	4 x 12			25.4	1	4257-0005
12.7	1/2	20.7	0.81	102 x 152	4 x 6			25.4	1	4261-1676
12.7	1/2	20.7	0.81	102 x 305	4 x 12			25.4	1	4261-1677
12.7	1/2	20.7	0.81	102 x 457	4 x 18			25.4	1	4261-1678
12.7	1/2	20.7	0.81	203 x 457	8 x 18			25.4	1	4261-1679
12.7	1/2	20.7	0.81	102 x 610	4 x 24			25.4	1	4261-1680
12.7	1/2	20.7	0.81	102 x 914	4 x 36			25.4	1	4261-1681
15.9	5/8	23.9	0.94	102 x 152	4 x 6			25.4	1	4261-1682
15.9	5/8	23.9	0.94	102 x 305	4 x 12			25.4	1	4261-1683
15.9	5/8	23.9	0.94	102 x 457	4 x 18			25.4	1	4261-1684
15.9	5/8	23.9	0.94	203 x 457	8 x 18			25.4	1	4261-1685
15.9	5/8	23.9	0.94	102 x 610	4 x 24			25.4	1	4261-1686
15.9	5/8	23.9	0.94	102 x 914	4 x 36			25.4	1	4261-1687
15.9	5/8	23.9	0.94	102 x 1219	4 x 48			25.4	1	4261-1688
15.9	5/8	23.9	0.94	102 x 1524	4 x 60			25.4	1	4261-1689
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 152	4 x 6	76.2*	3*	25.4	1	4257-0209
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 457	4 x 18	88.9*	3.5*	25.4	1	4257-0210
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 838	4 x 33	101.6*	4*	25.4	1	4257-0211
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 152	4 x 6	76.2	3	25.4	1	4257-0009
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 305	4 x 12	76.2	3	25.4	1	4257-0010
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	203 x 457	8 x 18	177.8	7	25.4	1	4257-0011
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 610	4 x 24	76.2	3	25.4	1	4257-0012
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	203 x 864	8 x 34	101.6	4	25.4	1	4257-0212
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 914	4 x 36	76.2	3	25.4	1	4257-0013
15.9 x 19.0	5/8 x 3/4	23.9 x 27.0	0.94 x 1.06	102 x 1524	4 x 60	76.2	3	25.4	1	4257-0014
19.0	3/4	27.0	1.06	102 x 152	4 x 6			25.4	1	4261-1690
19.0	3/4	27.0	1.06	102 x 305	4 x 12			25.4	1	4261-1691
19.0	3/4	27.0	1.06	102 x 457	4 x 18			25.4	1	4261-1692
19.0	3/4	27.0	1.06	102 x 610	4 x 24			25.4	1	4261-1693
19.0	3/4	27.0	1.06	203 x 610	8 x 24			25.4	1	4261-1694
19.0	3/4	27.0	1.06	102 x 914	4 x 36			25.4	1	4261-1695
19.0	3/4	27.0	1.06	102 x 1219	4 x 48			25.4	1	4261-1696
19.0	3/4	27.0	1.06	102 x 1524	4 x 60			25.4	1	4261-1697
38.1	1 1/2	4.95±0.65 wall	.195±.025 wall	203 x 305	8 x 12			38.1	1.5	4276-8500
44.5	1 3/4	4.95±0.65 wall	.195±.025 wall	254 x 305	10 x 12			44.5	1.75	4276-8501
50.8	2	5.35±1.05 wall	0.21±0.04 wall	254 x 356	10 x 14			76.2	3	4276-8502
57.2	2 1/4	5.35±1.05 wall	0.21±0.04 wall	254 x 356	10 x 14			57.2	2.25	4276-8503

* Expanded end is on the long arm of the hose.

4278 (EUROPE)

FORMED COOLANT HOSE - STANDARD SHAPES (EUROPEAN MARKET ONLY)



Relative Cost



Applications

Engine coolant hose with 90° bend. Also suitable for air or water. Not for conveying fuel or oil.



Temperature

-40°C to +135°C [-40°F to +275°F].



Standards

SAE 20R4 EC Class D2, DIN 73411 Class A.



Construction

Nitrile tube, synthetic knit reinforcement, nitrile/PVC cover.



Packaging

Boxed.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD		Work. Press. Max.		Arm Lengths		Gates Item Number
mm	inch	mm	inch	MPa	psi	mm	inch	
10 ± 0.8	3/8	19.9 ± 0.8	0.78	0.57	83	150	5.91	4278-17023
12	1/2	21.9	0.86	0.57	83	150	5.91	4278-17024
15	5/8	24.9	0.98	0.57	83	150	5.91	4278-17025
18	11/16	27.9	1.10	0.46	67	150	5.91	4278-17026
22	7/8	31.9	1.26	0.40	58	150	5.91	4278-17027
25	1	34.9	1.37	0.40	58	150	5.91	4278-17028
28	1 1/8	37.9	1.49	0.30	44	200	7.87	4278-17029
30	1 3/16	39.9	1.57	0.30	44	200	7.87	4278-17030
32	1 1/4	41.9	1.65	0.30	44	200	7.87	4278-17031
35	1 3/8	44.9	1.77	0.28	41	300	11.81	4278-17032
38	1 1/2	47.9	1.89	0.28	41	300	11.81	4278-17033
40	1 9/16	49.9	1.96	0.25	36	300	11.81	4278-17034
45	1 3/4	54.9	2.16	0.25	36	300	11.81	4278-17035
50	2	60.7	2.39	0.23	33	300	11.81	4278-17036
55	2 1/8	65.7	2.59	0.21	30	300	11.81	4278-17037
60	2 3/8	70.7	2.78	0.18	26	300	11.81	4278-17038
65	2 9/16	75.7	2.98	0.18	26	300	11.81	4278-17041
70 ± 1.6	2 3/4	80.7	3.18	0.16	23	300	11.81	4278-17042
75	3	85.7	3.37	0.14	20	300	11.81	4278-17043
80	3 1/8	90.7	3.57	0.12	17	300	11.81	4278-17044

4281 (ELBOWS)

HIGH TEMPERATURE SILICONE FORMED COOLANT HOSE (EUROPEAN MARKET ONLY)

Relative Cost ●●●●●

Applications Engine coolant hose with 90° bend for external exposure to extreme temperatures. Also suitable for air or water. Not for conveying fuel or oil.

Temperature -50°C to +180°C [-58°F to +356°F].

Standards SAE 20R1 HT Class A except burst.

Construction Green silicone rubber tube, polyester fiber reinforcement, green silicone rubber cover with wrapped appearance.

Packaging Boxed.

Couplings Hose bead fitting fastened with hose clamps. (pages 107 - 111)



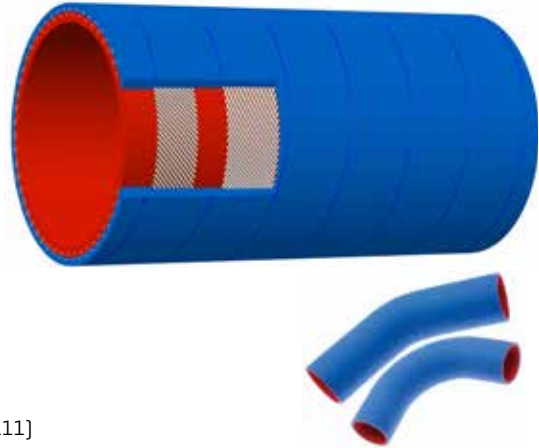
ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Arm Lengths		90° Elbow Centerline Bend Radius		
mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	in	mm	in	Item Number
10 ±0.5	3/8	20 +1/-0.75	0.79	0.57	83	2.20	319	33.9	10.0	150	5.9	15	0.6	4281-17123
12	1/2	22	0.87	0.57	83	1.90	276	33.9	10.0	150	5.9	18	0.7	4281-17124
15	5/8	25	0.98	0.57	83	1.60	232	27.1	8.0	150	5.9	23	0.9	4281-17125
18+0.5/-0.75	11/16	28 ± 1	1.10	0.46	67	1.20	174	27.1	8.0	150	5.9	27	1.1	4281-17126
22	7/8	32	1.26	0.40	58	1.00	145	23.7	7.0	150	5.9	33	1.3	4281-17127
25	1	35	1.38	0.40	58	1.00	145	23.7	7.0	150	5.9	38	1.5	4281-17128
28	1 1/8	38	1.50	0.30	44	0.90	131	20.3	6.0	200	7.9	42	1.7	4281-17129
30	1 3/16	40	1.57	0.30	44	0.90	131	16.9	5.0	200	7.9	45	1.8	4281-17130
32	1 1/4	42	1.65	0.30	44	0.90	131	13.5	4.0	200	7.9	48	1.9	4281-17131
35	1 3/8	45	1.77	0.28	41	0.80	116	10.2	3.0	300	11.8	53	2.1	4281-17132
38	1 1/2	48	1.89	0.28	41	0.80	116	7.1	2.1	300	11.8	57	2.2	4281-17133
40	1 9/16	50	1.97	0.25	36	0.70	102	6.8	2.0	300	11.8	60	2.4	4281-17134
45	1 3/4	55	2.17	0.25	36	0.70	102	5.4	1.6	300	11.8	68	2.7	4281-17135
50+0.5/-1	2	60 +1/-1.25	2.36	0.23	33	0.65	94	4.1	1.2	300	11.8	75	3.0	4281-17136
55	2 1/8	65	2.56	0.21	30	0.60	87	3.4	1.0	300	11.8	83	3.2	4281-17137
60	2 3/8	70	2.76	0.18	26	0.55	80	3.4	1.0	300	11.8	90	3.5	4281-17138
65	2 9/16	75	2.95	0.18	26	0.52	75	2.7	0.8	300	11.8	98	3.8	4281-17141
70	2 3/4	80	3.15	0.16	23	0.50	73	2.7	0.8	300	11.8	105	4.1	4281-17142
75	3	85	3.35	0.14	20	0.45	65	2.7	0.8	300	11.8	113	4.4	4281-17143

* No specification requirement.

4177 (ELBOWS)

HIGH TEMPERATURE SILICONE FORMED COOLANT HOSE - STANDARD SHAPES

- Relative Cost** ●●●●●
- Applications** Engine coolant hose with 45° or 90° bend for external exposure to extreme temperatures. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -54°C to +177°C [-65°F to +350°F].
- Standards** SAE 20R1 HT Class A.
- Construction** Orange silicone rubber tube, polyester fiber reinforcement, blue silicone rubber cover with wrapped appearance.
- Packaging** Individually bagged and boxed.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Work. Press. Max.		Burst Minimum		Arm Lengths		90° Elbow Centerline Bend Radius			45° Elbow Centerline Bend Radius		
mm	in.	mm	in.	MPa	psi	MPa	psi	mm	inch	mm	inch	Item Number	mm	inch	Item Number
44.5	1 3/4	53.9	2.12	0.39	56	1.54	224	152	6	44.5	1.75	4177-7013	44.5	1.75	4177-7012
50.8	2	60.3	2.37	0.34	50	1.37	199	152	6	101.6	4	4177-7005	101.6	4	
57.2	2 1/4	66.6	2.62	0.30	44	1.21	175	152	6	57.2	2.25	4177-7006	57.2	2.25	
63.5	2 1/2	73.0	2.87	0.26	37	1.03	149	152	6	63.5	2.5	4177-7007	63.5	2.5	4177-7000
69.9	2 3/4	79.3	3.12	0.21	31	0.85	124	152	6	88.9	3.5	4177-7008	88.9	3.5	4177-7001
76.2	3	85.7	3.37	0.17	25	0.69	100	152	6	76.2	3	4177-7009	76.2	3	4177-7002
88.9	3 1/2	98.4	3.87	0.17	25	0.69	100	152	6	88.9	3.5	4177-7010	88.9	3.5	4177-7003
101.6	4	111.1	4.37	0.17	25	0.69	100	152	6	101.6	4	4177-7011	101.6	4	4177-7004

* No specification requirement.

4280MH

STANDARD FORMED COOLANT HOSE

- Relative Cost** ●●○○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F].
- Standards** SAE 20R3 EC Class D1 or SAE 20R4 EC Class D1 depending on size.
- Construction** EPDM tube, synthetic knit reinforcement, EPDM cover.
- Packaging** Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 EC Class D1											
6.35 ±0.8	1/4 ±0.03	12.7 ±0.8	0.50 ±0.03	1.72	250	33.8	10	12.7	0.50	0.12	0.08
7.0	0.27	14.0	0.55	1.72	250	33.8	10	12.7	0.50	0.13	0.09
7.9	5/16	14.9	0.59	1.72	250	33.8	10	15.0	0.59	0.14	0.09
9.5	3/8	16.5	0.65	1.72	250	33.8	10	14.5	0.57	0.17	0.11
11.1	7/16	19.1	0.75	1.72	250	33.8	10	16.0	0.63	0.20	0.14
12.7	1/2	20.7	0.81	1.72	250	33.8	10	19.1	0.75	0.24	0.16
15.9	5/8	23.9	0.94	1.72	250	27.0	8	26.9	1.06	0.28	0.19
19.0	3/4	27.0	1.06	1.38	200	23.6	7	27.9	1.10	0.33	0.22
20.3	.80	28.3	1.11	1.38	200	20.3	6	29.7	1.17	0.35	0.24
22.2	7/8	30.2	1.19	1.38	200	20.3	6	30.7	1.21	0.38	0.25

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R4 EC Class D1											
18.8 ±0.8	0.74 ±0.03	4.95 ±0.65	0.195 ±0.025	1.03	150	**	**	27.9	1.10	0.38	0.26
20.8	.82	4.95	0.195	1.03	150	**	**	30.2	1.19	0.42	0.28
22.1	.87	4.95	0.195	1.03	150	**	**	30.7	1.21	0.44	0.29
23.1	.91	4.95	0.195	0.97	140	**	**	38.1	1.50	0.46	0.31
25.4	1	4.95	0.195	0.97	140	**	**	39.6	1.56	0.50	0.33
27.0	1.06	4.95	0.195	0.97	140	**	**	41.4	1.63	0.55	0.37
28.6	1 1/8	4.95	0.195	0.97	140	**	**	41.4	1.63	0.53	0.36
30.2	1.19	4.95	0.195	0.90	130	**	**	43.2	1.70	0.58	0.39
31.8	1 1/4	4.95	0.195	0.90	130	**	**	44.5	1.75	0.60	0.40
33.3	1.31	4.95	0.195	0.90	130	**	**	52.3	2.06	0.63	0.42
34.9	1 3/8	4.95	0.195	0.90	130	**	**	54.1	2.13	0.71	0.48
36.6	1.44	4.95	0.195	0.83	120	**	**	54.9	2.16	0.74	0.50
38.1	1 1/2	4.95	0.195	0.83	120	**	**	55.9	2.20	0.76	0.51
39.6	1.56	4.95	0.195	0.76	110	**	**	57.2	2.25	0.79	0.53
41.3	1 5/8	4.95	0.195	0.76	110	**	**	58.7	2.31	0.82	0.55
44.5	1 3/4	4.95	0.195	0.76	110	**	**	60.5	2.38	0.87	0.58
47.6	1 7/8	4.95	0.195	0.69	100	**	**	63.5	2.50	0.89	0.60
49.0	1.93	4.95	0.195	0.69	100	**	**	63.5	2.50	0.93	0.62
50.8	2	5.35 ±1.05	0.21 ±0.04	0.69	100	**	**	63.5	2.50	0.93	0.63
53.8	2.12	5.35	0.21	0.62	90	**	**	66.8	2.63	1.02	0.68
57.2	2 1/4	5.35	0.21	0.62	90	**	**	69.9	2.75	1.04	0.70
60.5	2.38	5.35	0.21	0.55	80	**	**	74.9	2.95	1.11	0.75
63.5	2 1/2	5.35	0.21	0.55	80	**	**	76.2	3.00	1.16	0.78
66.5	2.62	5.35	0.21	0.48	70	**	**	79.5	3.13	1.21	0.81
69.9 ±1.6	2 3/4 ±0.06	5.35	0.21	0.48	70	**	**	82.6	3.25	1.27	0.85
76.2	3	5.35	0.21	0.41	60	**	**	92.2	3.63	1.42	0.95
88.9	3 1/2	5.35	0.21	0.34	50	**	**	103.1	4.06	1.64	1.10
101.6	4	5.35	0.21	0.27	40	**	**	114.3	4.50	1.89	1.27

* For cuff length on one end only. This guideline is subject to change based on hose design.
 ** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4280GN

LIGHT DUTY / NON-ECR FORMED COOLANT HOSE



Relative Cost



Applications

Engine coolant hose connected to plastic fittings, or not requiring electrochemical resistance. Also suitable for air or water. Not for conveying fuel or oil.



Temperature

-40°C to +125°C [-40°F to +257°F].



Standards

SAE 20R3 Class D2 or SAE 20R4 Class D2 depending on size.



Construction

EPDM tube, synthetic knit reinforcement, EPDM cover.



Packaging

Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 Class D2											
15.9 ±0.8	5/8 ±0.03	23.9 ±0.8	0.94 ±0.03	1.72	250	27.0	8	24.1	0.95	0.28	0.19
19.0	3/4	27.0	1.06	1.38	200	23.6	7	25.4	1.00	0.33	0.22

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 Class D2											
25.4 ±0.8	1 ±0.03	4.95 ±0.65	0.195 ±0.025	0.97	140	**	**	38.1	1.50	0.50	0.33
28.6	1 1/8	4.95	0.195	0.97	140	**	**	40.6	1.60	0.53	0.36
30.2	1.19	4.95	0.195	0.90	130	**	**	41.1	1.62	0.58	0.39
31.8	1 1/4	4.95	0.195	0.90	130	**	**	41.7	1.64	0.60	0.40
33.3	1.31	4.95	0.195	0.90	130	**	**	48.3	1.90	0.63	0.42
34.9	1 3/8	4.95	0.195	0.90	130	**	**	48.8	1.92	0.71	0.48
36.6	1.44	4.95	0.195	0.83	120	**	**	50.8	2.00	0.74	0.50
38.1	1 1/2	4.95	0.195	0.83	120	**	**	52.3	2.06	0.76	0.51
39.6	1.56	4.95	0.195	0.76	110	**	**	53.3	2.10	0.79	0.53
44.5	1 3/4	4.95	0.195	0.76	110	**	**	55.9	2.20	0.87	0.58
47.6	1 7/8	4.95	0.195	0.69	100	**	**	58.4	2.30	0.89	0.60
50.8	2	5.35 ±1.05	0.21 ±0.04	0.69	100	**	**	67.1	2.64	0.93	0.63

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4276KR

HIGHER PRESSURE FORMED COOLANT HOSE

Relative Cost ●●●○○

Applications Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.

Temperature -40°C to +125°C [-40°F to +257°F], with ambient temperature to +150°C [302°F] when used in a coolant application.

Standards SAE 20R3 EC Class D1 or SAE 20R4 EC Class D1 depending on size, includes improved burst strength.

Construction EPDM tube, aramid fabric knit reinforcement, EPDM cover.

Packaging Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.

Couplings Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 EC Class D1											
9.5 ±0.8	3/8 ±0.03	17.5 ±0.8	0.68 ±0.03	1.72	250	33.8	10	15.2	0.60	0.19	0.13
12.7	1/2	20.7	0.81	1.72	250	33.8	10	20.8	0.82	0.25	0.17
15.1	19/32	23.1	0.91	1.72	250	33.8	10	29.2	1.15	0.27	0.18
18.3	23/32	26.3	1.03	1.38	200	23.6	7	30.2	1.19	0.33	0.22
20.3	.80	28.3	1.11	1.38	200	20.3	6	31.8	1.25	0.37	0.25
22.2	7/8	30.2	1.19	1.38	200	20.3	6	33.3	1.31	0.37	0.25

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R4 EC Class D1											
23.1 ±0.8	0.91 ±0.03	4.95 ±0.65	0.195 ±0.025	1.38	200	**	**	43.7	1.72	0.45	0.30
24.4	0.96	4.95	0.195	1.38	200	**	**	44.5	1.75	0.48	0.32
25.4	1	4.95	0.195	1.38	200	**	**	46.0	1.81	0.49	0.33
28.6	1 1/8	4.95	0.195	1.38	200	**	**	48.0	1.89	0.55	0.37
30.2	1.19	4.95	0.195	1.38	200	**	**	45.7	1.80	0.58	0.39
31.8	1 1/4	4.95	0.195	1.38	200	**	**	47.0	1.85	0.61	0.41
33.0	1.30	4.95	0.195	1.24	180	**	**	47.8	1.88	0.63	0.42
35.0	1.37	4.95	0.195	0.90	130	**	**	76.2	3.00	0.71	0.48
34.9	1 3/8	4.95	0.195	1.24	180	**	**	50.0	1.97	0.65	0.44
36.6	1.44	4.95	0.195	1.24	180	**	**	50.8	2.00	0.68	0.46
38.1	1 1/2	4.95	0.195	1.24	180	**	**	50.8	2.00	0.71	0.48
41.3	1 5/8	4.95	0.195	1.10	160	**	**	53.8	2.12	0.76	0.51
44.5	1 3/4	4.95	0.195	1.10	160	**	**	55.9	2.20	0.82	0.55
47.6	1 7/8	4.95	0.195	1.10	160	**	**	58.7	2.31	0.88	0.59
49.5	1.95	4.95	0.195	1.10	160	**	**	68.1	2.68	0.91	0.61
50.8	2	5.35 ±1.05	0.21 ±0.04	1.10	160	**	**	68.6	2.70	0.92	0.62
53.8	2.12	5.35	0.21	1.10	160	**	**	69.9	2.75	0.98	0.66
57.2	2 1/4	5.35	0.21	1.10	160	**	**	79.5	3.13	1.03	0.69
60.5	2.38	5.35	0.21	0.83	120	**	**	82.6	3.25	1.10	0.74
63.5	2 1/2	5.35	0.21	0.83	120	**	**	84.1	3.31	1.15	0.77
69.9 ±1.6	2 3/4 ±0.06	5.35	0.21	0.83	120	**	**	84.1	3.31	1.34	0.90
76.2	3	5.35	0.21	0.69	100	**	**	95.3	3.75	1.44	0.97

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4256HY

FATIGUE RESISTANT FORMED COOLANT HOSE



Relative Cost ●●●●○

Applications Engine coolant hose under pressure impulsing or flexing. Also suitable for air or water. Not for conveying fuel or oil.

Temperature -40°C to +125°C [-40°F to +257°F], with ambient temperature to +150°C [302°F] when used in a coolant application.

Standards SAE 20R4 EC Class D1.

Construction EPDM tube, aramid fabric knit reinforcement, EPDM cover.

Packaging Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
15.2 ±0.8	0.60 ±0.03	4.95 ±0.8	0.195 ±0.03	2.50	363	**	**	27.9	1.10	0.36	0.24
19.1	3/4	4.95	0.195	2.50	363	**	**	31.8	1.25	0.39	0.26
25.4	1	4.95	0.195	2.25	326	**	**	33.3	1.31	0.52	0.35
38.1	1 1/2	4.95	0.195	2.07	300	**	**	50.8	2.00	0.74	0.50
44.5	1 3/4	4.95	0.195	1.55	225	**	**	60.5	2.38	0.89	0.60
50.8 ±0.8	2 ±0.03	5.35 ±1.05	0.21 ±0.04	1.55	225	**	**	67.3	2.65	0.92	0.62
57.2	2 1/4	5.35	0.21	1.38	200	**	**	69.9	2.75	1.09	0.73
63.5	2 1/2	5.35	0.21	1.38	200	**	**	76.2	3.00	1.16	0.78
76.2 ±1.6	3 ±0.06	5.35	0.21	1.38	200	**	**	88.9	3.50	1.46	0.98
88.9	3 1/2	5.35	0.21	1.38	200	**	**	101.6	4.00	1.68	1.13

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4256SB (Blue Stripe®)

PREMIUM PERFORMANCE FORMED COOLANT HOSE

- Relative Cost** ●●●○○
- Applications** Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F], with ambient temperature to +150°C [302°F] when used in a coolant application.
- Standards** SAE 20R3 EC Class D1 or SAE 20R4 EC Class D1 depending on size.
- Construction** EPDM tube, aramid knit reinforcement, EPDM cover.
- Packaging** Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 EC Class D1											
15.9 ±0.8	5/8 ±0.03	23.9 ±0.8	0.94 ±0.03	1.72	250	27.0	8	28.7	1.13	0.28	0.19
19.0	3/4	27.0	1.06	1.72	250	23.6	7	30.2	1.19	0.33	0.22
20.3	.80	28.3	1.11	1.72	250	20.3	6	31.8	1.25	0.35	0.24
22.2	7/8	30.2	1.19	1.72	250	20.3	6	31.8	1.25	0.38	0.25

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R4 EC Class D1											
23.1 ±0.8	0.91 ±0.03	4.95 ±0.65	0.195 ±0.025	0.97	140	**	**	41.4	1.63	0.46	0.31
25.4	1	4.95	0.195	0.97	140	**	**	44.5	1.75	0.50	0.33
28.6	1 1/8	4.95	0.195	0.97	140	**	**	44.5	1.75	0.53	0.36
30.2	1.19	4.95	0.195	0.97	140	**	**	44.5	1.75	0.58	0.39
31.8	1 1/4	4.95	0.195	0.90	130	**	**	44.5	1.75	0.60	0.40
33.3	1.31	4.95	0.195	0.90	130	**	**	54.1	2.13	0.63	0.42
34.9	1 3/8	4.95	0.195	0.90	130	**	**	54.1	2.13	0.71	0.48
36.6	1.44	4.95	0.195	0.90	130	**	**	54.1	2.13	0.74	0.50
38.1	1 1/2	4.95	0.195	0.83	120	**	**	54.1	2.13	0.76	0.51
39.6	1.56	4.95	0.195	0.83	120	**	**	54.1	2.13	0.79	0.53
41.3	1 5/8	4.95	0.195	0.83	120	**	**	57.2	2.25	0.82	0.55
44.5	1 3/4	4.95	0.195	0.76	110	**	**	57.2	2.25	0.87	0.58
47.6	1 7/8	4.95	0.195	0.76	110	**	**	60.5	2.38	0.89	0.60
49.0	1.93	4.95	0.195	0.69	100	**	**	60.5	2.38	0.93	0.62
50.8	2	5.35 ±1.05	0.21 ±0.04	0.69	100	**	**	63.5	2.50	0.93	0.63
57.2	2 1/4	5.35	0.21	0.62	90	**	**	69.9	2.75	1.04	0.70
60.5	2.38	5.35	0.21	0.62	90	**	**	73.2	2.88	1.11	0.75
63.5	2 1/2	5.35	0.21	0.55	80	**	**	76.2	3.00	1.16	0.78
66.5	2.62	5.35	0.21	0.55	80	**	**	79.2	3.12	1.21	0.81
69.9 ±1.6	2 3/4 ±0.06	5.35	0.21	0.48	70	**	**	79.2	3.12	1.27	0.85

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4256LS / 4256VT

HIGHER TEMPERATURE FORMED COOLANT HOSE



Relative Cost ●●●●○

Applications Engine coolant hose such as cab heater or oil cooler. Also suitable for air or water. Not for conveying fuel or oil.

Temperature -40°C to +150°C [-40°F to +302°F], and ambient temperature to 165°C [329°F] if used in a coolant application.

Standards SAE 20R3 EC HT Class D3 or SAE 20R4 EC HT Class D3 depending on size.

Construction p-EPDM tube, aramid knit reinforcement, p-EPDM cover.

Packaging Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 EC Class D3											
15.0 ±0.8	19/32 ±0.03	23.0 ±0.8	0.91 ±0.03	1.21	175	27.0	8	27.4	1.08	0.30	0.20
19.0	3/4	27.0	1.06	1.30	188	23.6	7	29.0	1.14	0.42	0.28
21.0	0.82	29.0	1.14	1.21	175	20.3	6	36.8	1.45	0.37	0.25
25.4	1	33.4	1.31	1.30	188	20.3	6	42.9	1.69	0.54	0.36

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft
SAE 20R4 EC Class D3											
27.0 ±0.8	1.06 ±0.03	4.95 ±0.65	0.195 ±0.025	1.21	175	**	**	45.0	1.77	0.49	0.33
31.8	1 1/4	4.95	0.195	0.90	130	**	**	55.4	2.18	0.64	0.43
44.5	1 3/4	4.95	0.195	1.21	175	**	**	66.0	2.60	0.94	0.63
50.8	2	5.35 ±1.05	0.21 ±0.04	1.30	188	**	**	69.9	2.75	1.06	0.71
57.0	2 1/4	5.35	0.21	1.21	175	**	**	70.9	2.79	1.21	0.81
62.5	2 1/2	5.35	0.21	1.21	175	**	**	78.0	3.07	1.31	0.88

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

FUEL

> Low Pressure, Rubber Fuel Line

4219G	Standard fuel and oil hose	52
3225ST	Standard fuel and oil hose, metric sizes, European market	53
4324	Textile cover, European market	54
4219D	Higher temperature, pressure, and lower permeation	54
4219BG [Barricade]	Standard low permeation, with plastic barrier layer	55
4219	Submersible, special construction for in-tank use	57
4219M	Standard marine fuel and oil hose	60
4219N	Marine fuel line, open [ventillated] environment	60
4219BM [Barricade Marine]	Marine fuel line, low permeation, with plastic barrier layer	61

Also see:

4202	Heated line	78
Steel or aluminum tube assemblies in the AIR Section		90

> Low Pressure, Plastic Fuel Tubing

4327DT	Standard diesel fuel, nylon tubing	56
4327FT	Standard gasoline [petrol] and diesel fuel, nylon tubing	57

> High Pressure

3284A [RLA]	Standard fuel and oil hose with higher pressure	55
4219BF [Barricade Fuel Injection]	Low permeation, fuel injection, with plastic barrier layer	56
4659	Stainless steel braided cover racing hose	58
3658E [C5E]	Fuel filter line, high pressure with wire braid, hard wall, used with couplings	103
3658F [C5M]	Marine fuel line, high pressure with wire braid, hard wall, used with couplings	61
3658BC [C5C XH]	Higher temperature diesel line, high pressure with wire braid, hard wall, used with couplings	68
3658D [C5D]	Higher temperature diesel line, high pressure with wire braid, hard wall, used with couplings	67

> Gaseous Fuels

LP350, LP350X, LPG Vapor..... See Gates Industrial Hose Products catalog

> Fuel Fill Hose

4663K	Standard flexible fill hose with embedded wire helix	59
See also:	Formed hose section below	

> Formed Hose

4278	Standard diesel fill, transfer, and vent	62
4278BD	Biodiesel fill, transfer, and vent	62

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



4219G / 4219XL

STANDARD FUEL AND OIL HOSE



Relative Cost



Applications

Fuel line from tank to engine. Also suitable for low pressure hydraulic oil, engine oil, tank vent, crank case vent, or coolant bottle. Not for in-tank, gaseous fuels, or biodiesel above B20.



Temperature

-40°C to +125°C [-40°F to +257°F]. Up to B5 biodiesel, 80°C [176°F] continuous or 100°C [212°F] intermittent. Up to B20, 51°C [124°F] maximum.



Standards

SAE 30R6 or SAE 30R7.



Construction

Nitrile tube, synthetic fiber reinforcement, nitrile/PVC cover.



Packaging

Bulk lengths shipped on a reel. Maximum 5 pieces. Custom lengths available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111] Also can use GC couplings.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
3.2 ±0.4	1/8 ±0.16	8.3 ±0.58	0.33 ±0.02	0.34	50	1.72	250	81	24	51	2	0.06	0.04	76	250	3225-4038
4.0	5/32	9.2	0.36	0.34	50	1.72	250	81	24	51	2	0.06	0.04	168	550	4219-0104
4.8	3/16	10.4	0.41	0.34	50	1.72	250	81	24	76	3	0.09	0.06	168	550	4219-0093
6.4	1/4	12.7	0.50	0.34	50	1.72	250	81	24	76	3	0.13	0.09	168	550	4219-0103
7.9	5/16	14.3	0.56	0.34	50	1.72	250	81	24	76	3	0.15	0.1	168	550	4219-0107
9.5	3/8	15.9	0.62	0.34	50	1.72	250	81	24	102	4	0.16	0.11	168	550	4219-0109
11.1 ±0.58	7/16 ±0.02	18.3 ±0.79	0.72 ±0.03	0.24	35	1.21	175	34	10	127	5	0.22	0.15	76	250	3225-4810
12.7	1/2	19.8	0.78	0.24	35	1.21	175	34	10	127	5	0.24	0.16	168	550	4219-0102
15.9 ±0.79	5/8 ±0.03	23.8 ±1.59	0.94 ±0.06	0.24	35	1.21	175	34	10	152	6	0.33	0.22	168	550	4219-0097
19.1	3/4	28.6	1.13	0.24	35	1.21	175	34	10	178	7	0.48	0.32	61	200	4219-0116

3225ST

METRIC FUEL AND OIL HOSE (EUROPEAN MARKET ONLY)



- Relative Cost** ●○○○○○
- Applications** Fuel line from tank to engine. Also suitable for low pressure hydraulic oil, engine oil, tank vent, or crank case vent. Not for in-tank, gaseous fuels, or biodiesel applications.
- Temperature** -40°C to +125°C [-40°F to +257°F]. Up to B5 biodiesel, 80°C [176°F] continuous or 100°C [212°F] intermittent. Up to B20, 51°C [124°F] maximum.
- Standards** SAE 30R7, DIN 73379, tolerances excepted.
- Construction** Nitrile tube, synthetic fiber reinforcement, nitrile/PVC cover.
- Packaging** Bulk lengths shipped on a reel except 3225-10014 and 3225-10015 shipped in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	15m Length
3.2 ±0.40	1/8	7.7 ±0.58	0.30	0.76	110	3.03	440	81	24	71	2.8	0.05	0.034	3225-00050
4	5/32	9.2	0.36	0.76	110	3.03	440	81	24	76	3	0.07	0.05	3225-00051
5	13/64	10.6	0.42	0.76	110	3.03	440	81	24	76	3	0.09	0.06	3225-00055
6 ±0.50	1/4	12.0 ±0.63	0.47	0.76	110	3.03	440	81	24	79	3.1	0.12	0.08	3225-00052
7	9/32	13.1	0.52	0.76	110	3.03	440	81	24	89	3.5	0.13	0.09	3225-00056
8	5/16	14.0	0.55	0.76	110	3.03	440	81	24	91	3.6	0.13	0.09	3225-00053
10 ±0.63	3/8	17.0 ±0.63	0.67	0.76	110	3.03	440	81	24	114	4.5	0.19	0.13	3225-10014 3225-00054=10m
12.0	15/32	19.05 ±0.79	0.75	0.76	110	3.03	440	34	10	127	5	0.24	0.16	3225-10015

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



4324

METRIC TEXTILE COVER FUEL AND OIL HOSE (EUROPEAN MARKET ONLY)



- Relative Cost** ●●●●●
- Applications** Fuel line from tank to engine. Also suitable for low pressure hydraulic oil, engine oil, tank vent, crank case vent, or coolant bottle. Not for in-tank, gaseous fuels, or biodiesel applications.
- Temperature** -30°C to +100°C [-22°F to +212°F].
- Standards** DIN 73379:1982.
- Construction** Nitrile+PVC/braided rayon.
- Packaging** Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	15m Length
2.7 ±0.25	7/64 ±0.10	7.0	0.28	1.00	145	3.00	435	*	*	*	*	0.040	0.03	4324-10047 ** 4324-10048 ***
3.2	1/8	7.0	0.28	0.60	87	2.30	334	*	*	*	*	0.044	0.03	4324-10050
4 ±0.30	5/32 ±0.012	9.0	0.35	0.60	87	2.30	334	*	*	*	*	0.068	0.05	4324-10051
5	3/16	10.0	0.39	0.60	87	2.30	334	*	*	*	*	0.080	0.05	4324-10055
6	1/4	11.0	0.43	0.60	87	2.30	334	*	*	*	*	0.090	0.06	4324-10052
7 ±0.40	9/32 ±0.016	12.0	0.47	0.60	87	2.30	334	*	*	*	*	0.100	0.07	4324-10056
8	5/16	13.0	0.51	0.60	87	2.30	334	*	*	*	*	0.110	0.07	4324-10053
10 ±0.50	3/8 ±0.020	15.0	0.59	0.60	87	2.30	334	*	*	*	*	0.133	0.09	4324-10054 [10m length]

* No specification requirement.

** ECO rubber tube/braided rayon reinforcement, to meet German automotive standards. -40° to +110°C [-40° to +230°F]

*** HNBR rubber tube/braided rayon reinforcement, to meet German automotive standards. -40° to +110°C [-40° to +230°F]

4219D

HIGHER TEMPERATURE FUEL AND OIL HOSE



- Relative Cost** ●●●●●
- Applications** Fuel line from tank to engine. Also suitable for low pressure hydraulic oil, engine oil, or crank case vent. Not for in-tank, gaseous fuels, or fuel injection.
- Temperature** -40°C to +135°C [-40°F to +275°F] with peaks up to 150°C [302°F]. Biodiesel B100 up to 135°C [275°F].
- Standards** SAE 30R9, CARB CU-06-002, EPA Non-Road Fuel Lines [<15g/m²/day].
- Construction** FKM/CPE tube, synthetic fiber braid reinforcement, CPE cover.
- Packaging** Bulk lengths shipped on a reel or in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111] Also can use GC couplings.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number	Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length	25 ft. Length	550 ft. Reel	Pallet Box Length
6.4 ±0.4	1/4 ±0.016	12.7 ±0.58	0.50 ±0.02	1.24	180	6.2	900	81	24	76	3	0.13	0.09	4219-3670	4219-3681	4219-4102	4219-5147 =5000ft
7.9	5/16	14.3	0.56	1.24	180	6.2	900	81	24	76	3	0.15	0.1	4219-3675	4219-3682	4219-3656	4219-5145 =4000ft
9.5	3/8	15.9	0.62	1.24	180	6.2	900	81	24	102	4	0.16	0.11	4219-3680	4219-3683	4219-3072	4219-5146 =3700ft

3284A (RLA)
HIGHER PRESSURE FUEL AND OIL HOSE

Relative Cost

Applications

Fuel line from tank to engine. Also suitable for low pressure hydraulic oil, engine oil, or air. Not for in-tank, gaseous fuels, or biodiesel applications.


Temperature

-40°C to +100°C [-40°F to +212°F]


Standards

SAE 30R2 Type 1 or Type 2 except OD and tolerance. Burst, vacuum, and bend radius exceed SAE 30R2. Also JDS-G253 (non-conductive).


Construction

Nitrile tube, synthetic fiber reinforcement, nitrile/PVC cover.


Packaging

Bulk lengths shipped on a reel. Custom lengths available with minimum order quantity.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111] Also GLP, Megacrimp, or Powercrimp couplings.



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
4.8 ±0.79	3/16 ±0.030	10.5 ±0.79	0.41 ±0.03	1.72	250	6.89	1000	95	28	76	3	0.10	0.07	168	550	3284-0110
6.4	1/4	12.7	0.50	1.72	250	6.89	1000	95	28	76	3	0.15	0.1	168	550	3284-0120
7.9	5/16	14.2	0.56	1.72	250	6.89	1000	95	28	102	4	0.16	0.11	168	550	3284-0130
9.5	3/8	16.8	0.66	1.72	250	6.89	1000	95	28	102	4	0.22	0.15	168	550	3284-0140
12.7	0.510	20.6	0.81	1.38	200	5.52	800	68	20	127	5	0.34	0.23	168	550	3284-0150
15.9	5/8	23.9	0.94	1.38	200	5.52	800	51	15	152	6	0.39	0.26	168	550	3284-0160
19.1	3/4	27.8	1.09	1.38	200	5.52	800	34	10	152	6	0.48	0.32	198	650	3284-0170
25.4 ±1.50	1 ±0.06	34.0 ±1.50	1.34 ±0.06	1.10	160	4.41	640	34	10	203	8	0.61	0.41	122	400	3284-0180

4219BG (BARRICADE)
LOW PERMEATION FUEL HOSE

Relative Cost

Applications

Low-permeation fuel line including gasoline, ethanol blends, 100% methanol [no blends], diesel, biodiesel [including all blends of SME, RME or PME]. Not for in-tank or gaseous fuels.


Temperature

-40°C to +125°C [-40°F to +257°F] and -40°C to +100°C [-40°F to +212°F] for biodiesel up to B100.


Standards

SAE 30R14 Type 1, CARB, EPA Non-Road Fuel Lines [<15g/m²/day].


Construction

Eco or nitrile tube with thermoplastic barrier, synthetic fiber reinforcement, nitrile/PVC cover. Also JDS-G253 (non-conductive).


Packaging

Bulk lengths 168 meters [550 feet] shipped on a reel. Maximum 4 pieces. Custom lengths available with minimum order quantity.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111] Also can use GC couplings.



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		550 ft. Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft			
4.8 ±0.4	3/16 ±0.016	10.4 ±0.58	0.41 ±0.02	0.34	50	1.72	250	81	24	55	2.17	0.07	0.05			4219-5520
6.4	1/4	12.7	0.50	0.34	50	1.72	250	81	24	65	2.56	0.13	0.09			4219-5521
7.9	5/16	14.3	0.56	0.34	50	1.72	250	81	24	75	2.95	0.15	0.1			4219-5522
9.5	3/8	15.9	0.62	0.34	50	1.72	250	81	24	85	3.35	0.18	0.12			4219-5523
12.7 ±0.58	1/2 ±0.02	19.8 ±0.79	0.78 ±0.03	0.24	35	1.21	175	34	10	120	4.72	0.24	0.16			4219-5524

4219BF BARRICADE FUEL INJECTION
**LOW PERMEATION,
HIGHER PRESSURE FUEL HOSE**


- Relative Cost** ●●●○○○
- Applications** Low-permeation fuel injection line including gasoline, ethanol blends, 100% methanol (no blends), diesel, biodiesel (including all blends of SME, RME or PME). Not for in-tank or gaseous fuels.
- Temperature** -40°C to +135°C [-40°F to +275°F] with peaks up to 150°C [302°F]. Biodiesel B100 up to 135°C [275°F].
- Standards** SAE 30R14 Type 2, CARB, EPA Non-Road Fuel Lines [<15g/m²/day].
- Construction** HNBR tube with thermoplastic barrier, aramid fiber reinforcement, CPE cover.
- Packaging** Bulk lengths 168 meters [550 feet] shipped on a reel. Maximum 4 pieces. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111] Also can use GC couplings.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	550 ft. Length
4.8 ±0.4	3/16 ±.016	10.4 ±0.58	0.41 ±0.02	1.55	225	7.76	1125	81	24	55	2.17	0.07	0.05	***
6.4	1/4	12.7	0.50	1.55	225	7.76	1125	81	24	65	2.56	0.13	0.09	4219-5651
7.9	5/16	14.3	0.56	1.55	225	7.76	1125	81	24	75	2.95	0.15	0.1	4219-5652
9.5	3/8	15.9	0.62	1.55	225	7.76	1125	81	24	85	3.35	0.18	0.12	4219-5653
12.7 ±0.58	1/2 ±0.02	19.8 ±0.79	0.78 ±0.03	1.55	225	7.76	1125	34	10	140	5.5	0.24	0.16	4219-5654

*** Not stocked. Minimum order quantity applies.

4327DT
NYLON TUBING FOR DIESEL FUEL


- Relative Cost** ●○○○○○
- Applications** Fuel line from tank to engine. Also suitable for DEF vent line. Not for in-tank, gaseous fuels, or biodiesel applications.
- Temperature** -40°C to +93°C [-40°F to +200°F].
- Standards** DOT FMVSS 106 and SAE J844.
- Construction** Heat and light stabilized seamless extruded nylon 12 tube and cover. The 1/4" size is Type A, which is non-reinforced and not recognized by DOT. Other sizes are Type B, reinforced with one open ply of fibrous nylon.
- Packaging** Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
- Couplings** Gates DOT SureLok™ or Gates Compression Couplings [see Gates Automotive Hydraulic and Fleet Hose catalog under "Air Brake"]

OD		Wall Nominal		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
6.35	1/4	1.01	0.40	0.07	10	0.34	50	81	24	32	1.25	0.02	0.01	30	100	4327-3901
9.53	3/8	1.58	0.62	1.03	150	3.45	500	81	24	38	1.5	0.04	0.03	30	100	4327-3902
12.70	1/2	1.58	0.62	1.03	150	3.45	500	81	24	64	2.5	0.06	0.04	30	100	4327-3903
15.90	5/8	2.35	0.92	1.03	150	3.45	500	81	24	76	3	0.12	0.08	15	50	4327-3904
19.05	3/4	2.35	0.92	1.03	150	4.14	600	81	24	127	5	0.13	0.09	15	50	4327-3905

4327FT
PTFE/NYLON TUBING FOR FUEL OR DEF


	Relative Cost	●●●●○
	Applications	Fuel line from tank to engine. Also suitable for DEF vent line. Not for in-tank, gaseous fuels, or biodiesel applications. Sold as assemblies only due to assembly force.
	Temperature	-40°C to +93°C [-40°F to +200°F].
	Standards	SAE J2260 Category 1 fuel permeation, EPA 1060.102, EPA 1048.105.
	Construction	PTFE inner liner with heat and light stabilized seamless extruded nylon 12 jacket. The 3.2mm/5.2mm size is non-conductive, and is suitable for DEF fluid only (not for liquid fuel). All other sizes are conductive, for use with liquid fuels.
	Packaging	Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
	Couplings	SAE J2044 couplings specifically designed for liquid fuel or couplings designed for fuel vapor/DEF use.

OD		ID		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
5.2	0.20	3.20	0.126	0.07	10	0.34	50	81	24	32	1.25	0.02	0.01	30	100	4327-2008 *
6.3	0.25	4.30	0.169	0.69	100	3.45	500	81	24	38	1.5	0.03	0.02	30	100	4327-2009
8.0	0.31	6.00	0.236	0.69	100	3.45	500	81	24	64	2.5	0.03	0.02	30	100	4327-2010
10.0	0.39	8.00	0.315	0.69	100	3.45	500	81	24	76	3	0.04	0.03	15	50	4327-2011

* Non-conductive. Not for liquid fuel.

4219
SUBMERSIBLE FUEL HOSE


	Relative Cost	●●●●●
	Applications	Fuel line or vent inside the fuel tank. Not recommended for other applications.
	Temperature	-40°C to +150°C [-40°F to +302°F].
	Standards	SAE 30R10.
	Construction	FKM tube, synthetic fiber braid reinforcement, FKM cover.
	Packaging	Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
	Couplings	Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length	10 m Length
6.4 ±0.4	1/4 ±0.16	12.7 ±0.58	0.50 ±0.02	0.69	100	3.4	500	*	*	*	*	0.15	0.10	4219-0009	4219-0008
7.9	5/16	14.3	0.56	0.69	100	3.4	500	*	*	*	*	0.22	0.15	4219-2500	4219-0005
9.5	3/8	15.9	0.62	0.69	100	2.8	400	*	*	*	*	0.27	0.18	4219-2501	4219-0006

* No specification requirement.

4659

STAINLESS STEEL COVER RACING HOSE



Relative Cost



Applications

Fuel, oil, alcohol, or coolant line for motor sports applications.
Not for fuel use in aircraft or for fuel inside any vehicle cockpit.



Temperature

-40°C to +149°C [-40°F to +300°F].



Standards

None.



Construction

CPE rubber tube, braided stainless steel reinforcement /cover.



Packaging

Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.



Couplings

Re-usable aluminum fittings (not available through Gates).

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	Dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
5.56 +.66/-0	7/32 +.026/-0	-4	9.2 ±0.51	0.42 ±0.02	6.89	1000	41.37	6000	51	2	0.18	0.12	290	950	4659-0099
8.7	11/32	-6	13.7	0.54	6.89	1000	41.37	6000	64	2.5	0.21	0.14	213	700	4659-0100
11.1	7/16	-8	16.5	0.65	6.89	1000	34.47	5000	89	3.5	0.25	0.17	145	475	4659-0101
14.27 +1.27/-0	9/16 +.05/-0	-10	20.2	0.80	6.89	1000	34.47	5000	102	4	0.33	0.22	122	400	4659-0102
17.5	11/16	-12	23.9	0.94	6.89	1000	27.58	4000	114	4.5	0.40	0.27	91	300	4659-0103
22.2	7/8	-16	29.2 ±0.8	1.15 ±0.03	5.17	750	17.24	2500	140	5.5	0.61	0.41	53	175	4659-0104
28.7	1 1/8	-20	35.9	1.42	3.45	500	13.79	2000	203	8	0.74	0.5	76	250	4659-0105

Coolant

Fuel

Oil

Exhaust/
DEF

Air

Brake

Hose
Accessories

Belts

4663K

WIRE REINFORCED FUEL AND OIL HOSE



Relative Cost



Applications

Fuel or oil fill or cross-over hose where tight bends or vacuum is required. Also suitable with biodiesel to B20 for intermittent contact.



Temperature

-40°C to +100°C [-40°F to +212°F].



Standards

SAE 30R5. Wall thickness is 4.47±1.42mm [0.176±0.056 inch] excluding embedded wire area.



Construction

Nitrile tube, synthetic fabric reinforcement plies with two embedded helical wires, neoprene coated fabric cover.



Packaging

Bulk lengths are 3 foot sticks in a box. Custom lengths or ends with no wire are available with minimum order quantity.



Couplings

Hose bead fitting fastened with super-hex hose clamps.



ID		OD Reference		Work. Press.* Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
25.4 +.8/-1.5	1 +.03/-06	36.0	1.42	0.14	20	0.62	90	101	30	127	5	0.43	0.29	***
31.8 +.8/-2.3	1 1/4 +.03/-09	42.3	1.67	0.14	20	0.62	90	101	30	127	5	0.52	0.35	***
34.9	1 3/8	45.8	1.80	0.14	20	0.62	90	101	30	127	5	0.57	0.38	***
38.1	1 1/2	49.0	1.93	0.14	20	0.62	90	101	30	127	5	0.61	0.41	4663-3601
41.3	1 5/8	52.2	2.06	0.14	20	0.62	90	101	30	127	5	0.65	0.44	***
44.5	1 3/4	55.4	2.18	0.14	20	0.62	90	101	30	152	6	0.70	0.47	***
47.6	1 7/8	58.5	2.30	0.14	20	0.62	90	101	30	152	6	0.74	0.5	4663-3603
50.8	2	61.7	2.43	0.14	20	0.62	90	101	30	178	7	0.79	0.53	4663-3604
57.2	2 1/4	68.1	2.68	0.14	20	0.62	90	101	30	203	8	0.88	0.59	4663-3605
63.5	2 1/2	74.4	2.93	0.14	20	0.62	90	101	30	305	12	0.97	0.65	4663-3606
69.9	2 3/4	80.8	3.18	0.14	20	0.62	90	101	30	305	12	1.06	0.71	***
76.2	3	87.1	3.43	0.14	20	0.62	90	101	30	**	**	1.25	0.84	***
82.6	3 1/4	93.5	3.68	0.14	20	0.62	90	101	30	**	**	1.34	0.9	***
88.9	3 1/2	99.8	3.93	0.14	20	0.62	90	101	30	**	**	1.44	0.97	***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



4219M
STANDARD MARINE FUEL AND OIL HOSE


- Relative Cost** ●●●●○
- Applications** Fuel line with marine fire rating suitable for diesel and gasohol blends of ethanol, methanol, and ethers up to 10%. Also suitable for, tank vent, crank case vent, or coolant bottle. Not for in-tank, gaseous fuels, or biodiesel applications.
- Temperature** -40°C to +100°C [-40°F to +212°F].
- Standards** SAE J1527, USCG Type A Class 1 Style R1. Tube: ARPM [Class A high oil resistance]. Hose is NMMA type accepted.
- Construction** Nitrile tube, synthetic fiber reinforcement, neoprene cover.
- Packaging** The 25 and 50 foot lengths are boxed, and 250 foot lengths shipped on a reel with maximum of 3 pieces. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number	Gates Item Number
mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	25 ft. Length	50 ft. Length	250 ft. Length
6.4 ±0.4	1/4 ±0.16	16.3 ±0.79	0.64 ±0.03	0.24	35	1.21	175	68	20	64	2.5	0.25	0.17	4219-4145	4219-4146	4219-4140
7.9	5/16 ±0.023	17.8	0.70	0.24	35	1.21	175	68	20	76	3	0.28	0.19	4219-4565	4219-4566	4219-4560
9.5	3/8	19.6	0.77	0.24	35	1.21	175	68	20	76	3	0.33	0.22	4219-4385	4219-4567	4219-4380
12.7 ±0.58	1/2 ±0.023	22.6	0.89	0.24	35	1.21	175	68	20	127	5	0.39	0.26	4219-4125	***	4219-4120
15.9 ±0.79	5/8 ±0.031	25.7 ±1.59	1.01 ±0.06	0.24	35	1.21	175	68	20	152	6	0.48	0.32	4219-4585	***	4219-4580

*** Not stocked. Minimum order quantity applies.

4219N
STANDARD MARINE, OPEN ENVIRONMENT FUEL AND OIL HOSE


- Relative Cost** ●●●○○
- Applications** Fuel line for use where the hose is in an open environment. Hose has marine fire rating and is suitable for diesel and gasohol blends of ethanol, methanol, and ethers up to 10%. Also suitable for, tank vent, crank case vent, or coolant bottle. Not for in-tank, gaseous fuels, or biodiesel applications. Not approved for use on commercial or for-hire craft.
- Temperature** -40°C to +121°C [-40°F to +250°F].
- Standards** SAE J1527, USCG Type B Class 1 Style R1. Tube: ARPM [Class A high oil resistance]. Hose is NMMA type accepted.
- Construction** Nitrile tube, synthetic fiber reinforcement, hypalon cover.
- Packaging** The 50 foot lengths are boxed, and 250 foot lengths shipped on a reel with maximum of 2 pieces. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	50 ft. Length	250 ft. Length
6.4 ±0.4	1/4 ±0.16	12.7 ±0.5	0.50 ±0.02	0.28	40	1.38	200	95	28	64	2.5	0.13	0.09	4219-4046***	4219-4040
7.9	5/16	14.7	0.58	0.28	40	1.38	200	95	28	76	3	0.16	0.11	4219-4066***	4219-4060

*** Not stocked. Minimum order quantity applies.

4219BM (BARRICADE MARINE)
LOW PERMEATION FUEL HOSE WITH MARINE FIRE RATING


	Relative Cost	●●●○○○
	Applications	USCG fire rated low permeation fuel line that is compatible with virtually all fuels in use today for marine applications with working pressures up to 35 PSI.
	Temperature	-20°C to +100°C [-4°F to 212°F].
	Standards	SAE J1527, CARB, USCG Type A1-15 Style R1, EPA Non-Road Fuel Lines [<15g/m ² /day].
	Construction	NBR tube with thermoplastic barrier, fiber reinforcement, NBR+PVC cover.
	Packaging	Bulk lengths 7.6 meters [25 feet] shipped on a reel. Custom lengths available with minimum order quantity.
	Couplings	Crimped couplings.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	25 feet
6.4 ±0.4	1/4 ±0.016	16.6	0.65	0.24	35	1.2	175	81	24	133	5.25	0.13	0.09	4219-6340
7.9	5/16	18.1	0.71	0.24	35	1.2	175	81	24	146	5.75	0.15	0.10	4219-6341
9.5	3/8	18.9	0.74	0.24	35	1.2	175	81	24	152	6	0.18	0.12	4219-6342
12.7 ±0.58	1/2 ±0.023	22.6	0.89	0.24	35	1.2	175	34	10	184	7.25	0.24	0.16	***

*** Not stocked. Minimum order quantity applies.

3658F (C5M)
HIGH PRESSURE MARINE FUEL AND OIL HOSE


	Relative Cost	●●●●○○
	Applications	High-pressure fuel or oil hose with marine fire rating suitable for diesel, gasoline, and oil.
	Temperature	-40°C to +100°C [-40°F to +212°F], biodiesel B100 to +52°C [125°F].
	Standards	SAE J1527, USCG Type A Class 1 Style R3, SAE J1942, exceeds SAE 30R2 for non-marine applications.
	Construction	Nitrile tube, wire braid reinforcement, nitrile/PVC cover.
	Packaging	Bulk lengths are shipped on a reel. Custom lengths available with minimum order quantity.
	Couplings	C5 field-attachable coupling [see Gates Hydraulic Catalog].

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	14.7	0.58	3.45	500	13.79	2000	81	24	33	1.3	0.31	0.21	117	385	3658-1965
7.9	5/16	17.0	0.67	3.45	500	13.79	2000	81	24	33	1.3	0.40	0.27	117	385	3658-1969
10.3	13/32	19.6	0.77	3.45	500	13.79	2000	81	24	46	1.8	0.43	0.29	101	330	3658-1973
12.7	1/2	23.4	0.92	3.45	500	13.79	2000	34	10	58	2.3	0.60	0.4	84	275	3658-1977
15.9	5/8	27.4	1.08	3.45	500	13.79	2000	34	10	71	2.8	0.76	0.51	67	220	3658-1981
22.2	7/8	31.2	1.23	3.45	500	13.79	2000	34	10	89	3.5	0.92	0.62	50	165	3658-1985

4278BD

BIODIESEL FORMED FUEL HOSE


Relative Cost

Temperature

Applications Fuel filler, crossover, supply, or vent. Compatible with biodiesel SME, RME, and PME to B100. Not for gasoline or fuel injection.

-40°C to +100°C [-40°F to +212°F] continuous, and 125°C [257°F] intermittent.


Standards

SAE 30R6 except oxygenated fuel and extractables tests.


Construction

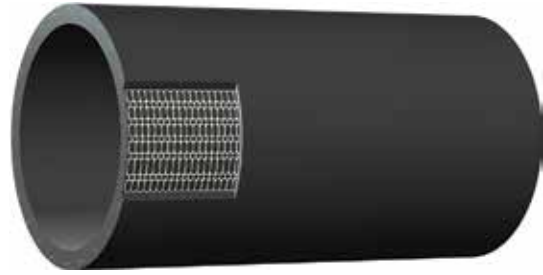
ECO tube, synthetic knit reinforcement, ECO cover.


Packaging

Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
25.4 ±0.79	1 ±0.03	4.77	0.195	1.20	174	**	**	38.1	1.50	0.70	0.47
38.1 ±0.99	1 1/2 ±0.04	4.95 ±0.65	0.195 ±0.025	0.55	80	**	**	50.0	1.97	0.76	0.67
50.8	2	4.95	0.195	0.55	80	**	**	67.1	2.64	0.93	0.96
57.2	2 1/4	4.95	0.195	0.55	80	**	**	73.2	2.88	1.55	1.04
63.5	2 1/2	5.35 ±1.05	0.21 ±0.04	0.55	80	**	**	79.0	3.11	1.16	1.10
76.2	3	6.35	0.25	0.55	80	**	**	92.2	3.63	1.42	1.31

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4278

FORMED FUEL AND OIL HOSE - STANDARD SHAPES


Relative Cost

Temperature

Applications Engine oil, fuel filler, and hydraulic suction. Also suitable for tank vent and crank case vent. Not for fuel injection or air intake.

-40°C to +125°C [-40°F to +257°F].


Standards

SAE 30R7 except the oxidized gasoline test, or SAE 30R6.


Construction

Nitrile tube, synthetic knit reinforcement, nitrile/PVC cover.


Packaging

Boxed.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		Wall Nominal		Burst Minimum		90° Bend*		45° Bend*		Straight Length**		Weight Nominal	
mm	inch	mm	inch	MPa	psi	Gates Item No.	Inter-change No.	Gates Item No.	Inter-change No.	Gates Item No.	Inter-change No.	kg/m	lbs/ft
34.9 ±0.99	1 3/8 ±0.039	4.95 ±0.65	0.195 ±0.025	0.55	80					4271-0025	24702	0.74	0.50
38.1	1 1/2	4.95	0.195	0.55	80	4278-6998	24715	4278-6988	24710	4271-0030	23964	0.80	0.54
44.5	1 3/4	4.95	0.195	0.55	80	4278-6999	24716	4278-6989	24711	4271-0035	23968	0.94	0.63
50.8	2	4.95	0.195	0.55	80	4278-7000	24717	4278-6990	24712	4271-0045	23972	1.04	0.70
57.2	2 1/4	5.35 ±1.05	0.21 ±0.04	0.55	80	4278-7001	24718	4278-6991	24713	4271-0055	23976	1.15	0.77
63.5	2 1/2	5.35	0.21	0.55	80	4278-7002	24719	4278-6992	24714	4271-0065	23980	1.22	0.82

* Both leg lengths 203±6.4mm [8.00±0.25 inch].

** Length 914±11.2mm [36.00±0.44 inch].

OIL (Engine lube, hydraulic, transmission, power steering)

> Lower Pressure, Textile Reinforcement

3319HT [GTH].....	Per SAE 100R6	66
3319CA [G3H].....	Per SAE 100R3	66
4219HT.....	Higher temperature nitrile rubber	68
4319 [MegaTech LOC].....	Higher temperature CPE rubber, clamps not needed (tightens with pressure)	69

Also see:

3284A [RLA].....	Oil hose per SAE 30R2 performance.....	55
3319CT [RLC]	Larger diameters than RLA. See Gates Hydraulic Catalog	
Steel or aluminum tube assemblies in the AIR Section		90

> Higher Pressure And Temperature, Steel Wire Reinforcement, Hard Wall, Used With Hydraulic Couplings

3658D [C5D].....	Use field-attachable couplings.....	67
3658BC [C5C XH].....	Higher pressure per SAE 100R5	68
4657AM [MegaTech 250].....	Standard	69
4657DT [MegaTech 500]	Larger sizes.....	70
4657PS [MegaTech 3000].....	High pressure, small sizes.....	70
4657JT [MegaTech II].....	High pressure, larger sizes, per SAE 100R2.....	71
4657TB [MegaTech G5TB].....	High pressure, true bore (not undersized like other hard wall hoses)	71

Also see:

Gates Hydraulic Catalog..... Lower temperature nitrile hoses, ranging to very high pressures.
Hydraulic tube assemblies also available

> Power Steering

3317LE	Pressure line	72
3283SA.....	Return line	72
3283LF	Higher temperature return line.....	73
3319 [S/R-XH].....	Higher temperature suction or return line. See Gates Automotive Hydraulic Catalog	
3658C [C5C]	Lower temperature, multi-purpose	102
3658D [C5D].....	Use field-attachable couplings.....	67
Hydraulic tube assemblies also available		

> Formed Hose

4278CN	Standard low pressure oil fill, transfer, and vent	74
4278OB	Higher pressure per SAE 30R2 Type 1.....	75
4278SS.....	Higher temperature CPE rubber	76
Steel or aluminum tube assemblies in the AIR Section		90

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts





HOSE/TUBE ASSEMBLY COMBINATIONS

Hose lines can be designed using a combination of flexible hose and metal tubing.

The advantages of this type of assembly are:

- > Utilize standard threaded port connections/adapters instead of hose barb connections with clamps.
- > Rigid metal line prevents sagging between support points for long lengths.
- > Metal line can save cost over hose for long lengths.
- > Crimp hose connections instead of clamp for greater sealing force.

Hose/Tube Combo can be used for:

- > Oil cooler lines for engine, transmission, or other coolers.
- > Power steering lines
- > Fuel lines
- > Air conditioning refrigerant lines
- > Hydraulic supply and return
- > Turbo oil drain (for large diameter charge air tube/boot combinations, please see page 90).
- > Air, coolant, and more.

Steel lines per SAE J525 are available in standard sizes from 4.8 to 32mm OD or more (3/16" to 1-1/4" OD), and in standard wall thicknesses from 0.89 to 3.05mm. Also available are SAE J356, J524, J2467, and similar to SAE J2614, among others. Aluminum lines for refrigerant and coolant are also available.

For more tube design guidelines, tolerances, and specifications, please contact Gates Product Application at 303-744-5070 or fppasupport@gates.com.



Tube Plating

Gates has a long history of providing best-in-class corrosion protection for hose couplings, adapters, and tubing.



Gates Tuffcoat® enhanced trivalent chrome plating has been a leader in the industry by providing red rust protection to 500 hours of salt spray as tested per ASTM B117. That's well beyond the required 72 hour test specified by SAE for non-deformed surfaces.



Gates Tuffcoat Extreme® zinc-nickel plating uses proprietary plating technology to provide red rust protection to 500 hours of salt spray on deformed surfaces, and 840 hours on non-deformed surfaces. Tuffcoat Extreme® also meets multiple OE specifications for resistance to agricultural chemicals.

Nickel plating, typically used for couplings in contact with biodiesel, avoids the use of zinc which can adhere to the inside passage of the coupling and cause precipitates to form, which can clog injectors, filters, or entire lines.

Powder coating, plastic coating, and painting are also available, depending on the type of tubing and desired corrosion resistance.

Tube End Terminations

Terminations	-4	-6	-8	-10	-12	-16	Nut Size	-4	-6	-8	-10	-12	-16
JIC, 37°	Yes	Yes	Yes	Yes	Yes	Yes	JIC, 37°	14mm	19mm	24mm	27mm	32mm	41mm
ORS	Yes	Yes	Yes	Yes	Yes	Yes	ORS	17mm	22mm	24mm	30mm	36mm	41mm
Quick Lok™ H	Yes	Yes	Yes	Yes	Yes	No	Quick-Lok H	19mm	22mm	24mm	30mm	36mm	41mm
Quick Lok D	Yes	Yes	Yes	No	No	No	Quick-Lok D	NA	NA	NA	NA	NA	NA
Flange	NA	NA	Yes	Yes	Yes	Yes							

NOTE: Jumps should be made in the adapter or in the hose assembly.

NOTE: Flange Terminations include Code 61, Code 62. Please check with Product Application for additional flange termination types.

NOTE: For other terminations, please check with Product Application.

Clamping and Brackets

Various clamp types are available to hold a tube line in place. Two of the most common are the P-Clamp and the Shell Clamp. The P-Clamp is typically low-cost, whereas the Shell Clamp provides better holding ability, particularly for dual lines. [insert pictures of p-clamp and shell-clamp].



P-Clamp



Shell Clamp

Safety First!

Care must be taken to avoid potential injuries resulting from poor designs. For more information, refer to SAE J1273 and to the Gates manual Safe Hydraulics – A Guide to Preventative Maintenance & Safety for Hydraulic Hoses & Couplings.



3319HT (GTH)
HIGHER PRESSURE TRANSMISSION OIL COOLER HOSE


	Relative Cost	●●●●●
	Applications	Lube oil, hydraulic oil, and transmission oil cooler. Also suitable for coolant, or water.
	Temperature	-40°C to +135°C [-40°F to +275°F] continuous, and 149°C [300°F] intermittent. Do not let coolant or water boil.
	Standards	SAE 100R6.
	Construction	Nitrile tube, fiber braid reinforcement, neoprene cover.
	Packaging	Bulk lengths shipped in a box. May not be continuous lengths. Custom lengths available with minimum order quantity.
	Couplings	MegaCrimp® Couplings except -3 size uses PowerCrimp. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	dash	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
4.8	3/16	-3	11.2	0.44	3.45	500	13.79	2000	95	28	51	2	0.12	0.08	218	715	3319-3301
6.4	1/4	-4	12.7	0.50	2.76	400	11.03	1600	95	28	75	2.5	0.13	0.09	236	775	3319-3305
7.9	5/16	-5	14.2	0.56	2.76	400	11.03	1600	95	28	76	3	0.16	0.11	198	650	3319-3310
12.7	1/2	-8	19.8	0.78	2.76	400	11.03	1600	61	18	125	4	0.27	0.18	122	400	3319-3320
15.9	5/8	-10	23.1	0.91	2.41	350	9.65	1400	51	15	140	5	0.31	0.21	76	250	3319-3325
22.2	3/4	-12	26.9	1.06	2.07	300	8.27	1200	51	15	150	5.5	0.43	0.29	69	225	3319-3335
25.4	1	-16	28.7	1.13	1.72	250	6.89	1000	34	10	205	8	0.60	0.4	50	165	3319-3345

3319CA (G3H)
HIGH PRESSURE TRANSMISSION OIL COOLER HOSE


	Relative Cost	●●●●●
	Applications	Lube oil, hydraulic oil, and transmission oil cooler. Also suitable for coolant, or water.
	Temperature	-40°C to +135°C [-40°F to +275°F] continuous, and 149°C [300°F] intermittent. Do not let coolant or water boil.
	Standards	SAE 100R3.
	Construction	Nitrile tube, two fiber braid reinforcement, neoprene cover.
	Packaging	Bulk lengths shipped in a box. May not be continuous lengths. Custom lengths available with minimum order quantity.
	Couplings	MegaCrimp® Couplings to -10 and GLX -8 and above. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	-4	14.2	0.56	8.62	1250	34.47	5000	95	28	75	3	0.19	0.13	139	455	3319-0088
7.9	5/16	-5	16.8	0.66	8.27	1200	33.10	4800	95	28	89	3.5	0.27	0.18	101	330	3319-4287
9.5	3/8	-6	19.1	0.75	7.76	1125	31.03	4500	95	28	100	4	0.33	0.22	107	350	3319-0087
12.7	1/2	-8	23.9	0.94	6.89	1000	27.58	4000	95	28	125	5	0.48	0.32	69	225	3319-0090
15.9	5/8	-10	27.9	1.10	6.21	900	24.82	3600	95	28	140	5.5	0.57	0.38	61	200	3319-4288
22.2	3/4	-12	31.8	1.25	5.17	750	20.68	3000	95	28	150	6	0.71	0.48	49	160	3319-0091
25.4	1	-16	38.1	1.50	3.90	565	15.58	2260	68	20	205	8	0.92	0.62	37	120	3319-0092
31.8	1 1/4	-20	44.5	1.75	2.59	375	10.34	1500	51	15	250	10	1.10	0.74	37	120	3319-0071
38.1	1 1/2	-24	49.3	1.94	2.07	300	8.27	1200	34	10	300	12	1.31	0.88	37	120	3319-4289

3658D (C5D)

HIGH TEMPERATURE OIL HOSE

Relative Cost ●●●○○



Applications

Multi-fluid hose for turbo charger oil, hot lube lines, power steering (heavy duty vehicles only), diesel fuel lines, and hydraulic fluids except concentrated phosphate ester. Not for biodiesel blends greater than 5% (above B5) or gasoline.



Temperature

-40°C to +150°C [-40°F to +302°F].



Standards

DOT FMVSS-106-74 type AII and SAE J1402 type AII for air brake [-4 to -12 sizes].



Construction

CPE tube, textile and wire braid reinforcement, CPE with green braided textile cover.



Packaging

Bulk lengths are shipped on a reel. Custom lengths available with minimum order quantity.



Couplings

C5 field-attachable couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.



ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
4.8	0.19	-4	13.1	0.52	10.34	1500	41.37	6000	85	25	25	1	0.21	0.14	134	440	3658-0020
6.8	0.27	-5	14.8	0.58	10.34	1500	41.37	6000	85	25	38	1.5	0.22	0.15	117	385	3658-0027
8.2	0.32	-6	17.2	0.68	10.34	1500	41.37	6000	85	25	46	1.8	0.27	0.18	117	385	3658-0021
10.7	0.42	-8	19.5	0.77	8.62	1250	34.47	5000	85	25	51	2	0.34	0.23	101	330	3658-0022
13.2	0.52	-10	23.4	0.92	8.62	1250	34.47	5000	85	25	51	2	0.40	0.27	84	275	3658-0028
16.4	0.65	-12	27.4	1.08	5.17	750	20.68	3000	85	25	58	2.3	0.60	0.4	67	220	3658-0029
22.8	0.90	-16	31.3	1.23	2.76	400	11.03	1600	85	25	89	3.5	0.68	0.46	50	165	3658-0030

Coolant



Fuel



Oil



Exhaust/DEF



Air



Brake



Hose Accessories



Belts



3658BC (C5C XH)
**HIGH PRESSURE,
HIGH TEMPERATURE OIL HOSE**

Relative Cost ●●●●○

Applications

Multi-fluid hose for turbo charger oil, hot lube lines, rotary air compressor, diesel fuel and filtration lines, and hydraulic fluids except concentrated phosphate ester. Not for biodiesel blends greater than 5% (above B5) or gasoline.


Temperature

-40°C to +150°C [-40°F to +302°F].


Standards

SAE 100R5, SAE 1405 for hot oil circulation, DOT FMVSS-106-74 type AII and SAE J1402 type AII for air brake [-4 to -12 sizes].


Construction

CPE tube, wire braid reinforcement, CPE with blue braided textile cover.


Packaging

Bulk lengths are shipped on a reel except 3658-0157 is in a box. Custom lengths available with minimum order quantity.


Couplings

C5 field-attachable coupling on all sizes, or MegaCrimp® on all sizes except -10 and -12 should use GS couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	dash	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
6.8	0.27	-5	14.8	0.58	20.68	3000	82.74	12000	85	25	86	3.4	0.28	0.19	117	385	3658-0151
8.2	0.32	-6	17.2	0.68	15.51	2250	62.05	9000	85	25	102	4	0.33	0.22	117	385	3658-0152
10.7	0.42	-8	19.5	0.77	13.79	2000	55.16	8000	85	25	117	4.6	0.37	0.25	101	330	3658-0153
13.2	0.52	-10	23.4	0.92	12.07	1750	48.26	7000	85	25	140	5.5	0.51	0.34	84	275	3658-0154
16.4	0.65	-12	27.4	1.08	10.34	1500	41.37	6000	85	25	165	6.5	0.67	0.45	67	220	3658-0155
22.8	0.90	-16	31.3	1.23	5.52	800	22.06	3200	85	25	188	7.4	0.70	0.47	50	165	3658-0156
29.2	1.15	-20	38.0	1.49	4.31	625	17.24	2500	85	25	229	9	0.77	0.52	37	120	3658-0157

4219HT
STANDARD TRANSMISSION OIL COOLER HOSE

Relative Cost ●●●○○

Applications

Low pressure transmission oil cooler.


Temperature

-40°C to +135°C [-40°F to +275°F].


Standards

SAE 1532 Type B.


Construction

Nitrile tube, synthetic fiber reinforcement, neoprene cover.


Packaging

Bulk lengths 168 meters [550 feet] shipped on a reel. Maximum 4 pieces. Custom lengths available with minimum order quantity.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	550 ft. Length
7.9 ±0.50	5/16 ±0.02	14.2 ±0.80	0.56 ±0.03	0.41	60	4.14	600	68	20	76	3	0.13	0.09	4219-3087***
8.7	11/32	17.0	0.67	0.41	60	4.14	600	68	20	76	3	0.19	0.13	4219-5300
9.5	3/8	17.5	0.69	0.41	60	4.14	600	68	20	76	3	0.21	0.14	4219-3088
12.7 ±0.59	1/2 ±0.23	20.6	0.81	0.41	60	4.14	600	68	20	127	5	0.27	0.18	4219-3058
15.9	5/8	24.6	0.97	0.41	60	4.14	600	68	20	152	6	0.36	0.24	4219-3824***

*** Not stocked. Minimum order quantity applies.

4319 (MEGATECH® LOC)

HIGH TEMPERATURE LOCK-ON TRANSMISSION OIL COOLER HOSE



- Relative Cost** ●●●○○○
- Applications** Transmission oil cooler, turbo charger and lube oil, and diesel fuel. Not for biodiesel blends greater than 5% (above B5) or gasoline.
- Temperature** -40°C to +150°C [-40°F to +302°F].
- Standards** Meets SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils.
- Construction** True-bore GTS (Gates Technical Spec.) CPE tube, textile braid reinforcement, CPE with black braided textile cover.
- Packaging** Bulk lengths are shipped on a reel. Custom lengths available with minimum order quantity.
- Couplings** Field-attachable LOC couplings, GLP couplings [-4to -12] or MegaCrimp® couplings [-16]. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	0.25	-4	13.1	0.50	2.07	300	8.27	1200	76	3	0.15	0.1	175	575	4319-0106
9.5	0.38	-6	17.2	0.64	2.07	300	8.27	1200	76	3	0.18	0.12	183	600	4319-0107
12.7	0.50	-8	19.5	0.78	2.07	300	8.27	1200	127	5	0.24	0.16	102	335	4319-0108
15.9	0.63	-10	23.4	0.91	2.07	300	8.27	1200	152	6	0.31	0.21	79	260	4319-0109
19.1	0.75	-12	27.4	1.08	2.07	300	8.27	1200	178	7	0.37	0.25	67	220	4319-0110
25.4	1.00	-16	31.3	1.33	2.07	300	8.27	1200	178	7	0.51	0.34	61	200	4319-0111

4657AM (MEGATECH® 250)

HIGH TEMPERATURE TRANSMISSION OIL COOLER HOSE



- Relative Cost** ●●●○○○
- Applications** Transmission oil, turbo oil, power steering suction and return, and lubricating oil lines. Also suitable for hydraulic oil, coolant, or water. Not for biodiesel blends greater than 5% (above B5) or gasoline.
- Temperature** -40°C to +150°C [-40°F to +302°F]. Phosphate esters fluids as recommended by the fluid manufacturer, but to 100°C [212°F] max.
- Standards** Meets SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils.
- Construction** CPE tube, steel wire reinforcement, CPE with black braided textile cover.
- Packaging** Bulk lengths shipped in a box. May not be continuous lengths. Custom lengths available with minimum order quantity.
- Couplings** MegaCrimp® Couplings -4 to -12. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

 ID			 OD		 Work. Press. Max.		 Burst Minimum		 Vacuum Minimum		 Bend Rad. Min.		 Weight Ref.		 Bulk Length		 Gates Item Number
mm	in.	dash	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	-4	13.2	0.52	1.72	250	6.89	1000	85	25	75	1	0.13	0.09	76	250	4657-2339
9.5	3/8	-6	16.3	0.64	1.72	250	6.89	1000	85	25	100	1.8	0.19	0.13	107	350	4657-2340
12.7	1/2	-8	19.8	0.78	1.72	250	6.89	1000	85	25	125	2.5	0.25	0.17	107	350	4657-2341
15.9	5/8	-10	23.6	0.93	1.72	250	6.89	1000	85	25	140	3	0.36	0.24	91	300	4657-2342
22.2	3/4	-12	26.9	1.06	1.72	250	6.89	1000	85	25	150	3.5	0.42	0.28	61	200	4657-2343
25.4	1	-16	34.5	1.36	1.72	250	6.89	1000	85	25	205	4	0.65	0.44	46	150	4657-2344
31.8	1 1/4	-20	41.9	1.65	1.72	250	6.89	1000	85	25	250	4.5	0.83	0.56	37	120	4657-2345

4657DT (MegaTech® 500)
HIGH TEMPERATURE TRANSMISSION OIL COOLER HOSE

Relative Cost ●●●○○○

Applications

Air brake, pressurized hot oil return lines and rotary oil/air compressor lines. Meets the requirements of SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils. Not for biodiesel blends greater than 5% (above B5) or gasoline.


Temperature

-40°C to +150°C [-40°F to +302°F]. Phosphate esters fluids as recommended by the fluid manufacturer, but to 100°C [212°F] max.


Standards

Meets SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils.


Construction

CPE tube, steel wire reinforcement, CPE with black braided textile cover.


Packaging

Bulk lengths shipped on a reel. May not be continuous lengths. Custom lengths available with minimum order quantity.


Couplings

GL Couplings, GSP Couplings for -24 and -32. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
38.1	1 1/2	-24	49.5	1.95	3.45	500	13.79	2000	381	15	1.49	1.00	30	100	4657-0204
50.8	2	-32	63.0	2.48	3.45	500	13.79	2000	457	18	2.05	1.38	30	100	4657-0205
63.5	2 1/2	-40	75.4	2.97	3.45	500	13.79	2000	559	22	2.19	1.47	30	100	4657-0206
76.2	3	-48	88.9	3.50	3.45	500	13.79	2000	610	24	2.74	1.84	30	100	4657-0207

4657PS (MEGATECH® 3000)
HIGH TEMPERATURE AND PRESSURE OIL/AIR HOSE

Relative Cost ●●●○○○

Applications

Power steering and rotary air compressor, petroleum based transmission and lubricating oils, and hydraulic oil except concentrated phosphate ester. Not for biodiesel blends greater than 5% (above B5) or gasoline.


Temperature

-40°C to +150°C [-40°F to +302°F]. Phosphate esters fluids as recommended by the fluid manufacturer, but to 100°C [212°F] max.


Standards

Meets SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils.


Construction

True-bore GTS [Gates Technical Spec.] CPE tube, two steel wire braid reinforcement, CPE with black braided textile cover.


Packaging

Bulk lengths shipped on a reel. May not be continuous lengths. Custom lengths available with minimum order quantity.


Couplings

MegaCrimp® Couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	-4	15.0	0.59	20.68	3000	82.74	12000	51	2	0.37	0.25	122	400	4657-2373
9.5	3/8	-6	18.8	0.74	20.68	3000	82.74	12000	64	2.5	0.52	0.35	107	350	4657-2374
12.7	1/2	-8	21.8	0.86	20.68	3000	82.74	12000	89	3.5	0.55	0.37	107	350	4657-2319

4657JT (MEGATECH® II)

HIGH TEMPERATURE AND PRESSURE LARGE DIAMETER OIL/AIR HOSE



	Relative Cost	●●●●○
	Applications	Large diameter lines for rotary air compressor, petroleum based transmission and lubricating oils, and hydraulic oil except concentrated phosphate ester. Not for biodiesel blends greater than 5% (above B5) or gasoline.
	Temperature	-40°C to +150°C [-40°F to +302°F].
	Standards	SAE 100R2 and 100R2 Type S. Meets SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils.
	Construction	CPE tube, two steel wire braid reinforcement, CPE with blue braided textile cover.
	Packaging	Bulk lengths shipped in a carton. May not be continuous lengths. Custom lengths available with minimum order quantity.
	Couplings	MegaCrimp® Couplings [-20], GSP Couplings [-24 and -32]. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
31.8	1 1/4	-20	48.0	1.89	15.51	2250	62.05	9000	381	15	2.35	1.58	30	100	4657-8018
38.1	1 1/2	-24	54.1	2.13	10.34	1500	41.37	6000	508	20	2.59	1.74	30	100	4657-2484
50.8	2	-32	66.3	2.61	8.96	1300	35.85	5200	635	25	3.24	2.18	30	100	4657-2485

4657TB (MEGATECH® G5TB)

HIGH TEMPERATURE OIL/AIR HOSE



	Relative Cost	●●●○○
	Applications	Turbo hot oil return and rotary air compressor. Not for biodiesel blends greater than 5% (above B5) or gasoline, and -24 and -32 not for diesel fuel or gasoline.
	Temperature	-40°C to +150°C [-40°F to +302°F]. Phosphate esters fluids as recommended by the fluid manufacturer, but to 100°C [212°F] max.
	Standards	Meets SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils.
	Construction	True-bore GTS [Gates Technical Spec.] CPE tube, steel wire braid reinforcement, CPE with blue braided textile cover.
	Packaging	Bulk lengths shipped on a reel. May not be continuous lengths. Custom lengths available with minimum order quantity.
	Couplings	MegaCrimp® Couplings, GL couplings [-24 and -32]. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	-4	15.0	0.59	20.68	3000	82.74	12000	51	2	0.36	0.24	122	400	4657-2183
9.5	3/8	-6	18.8	0.74	20.68	3000	82.74	12000	64	2.5	0.52	0.35	107	350	4657-2184
12.7	1/2	-8	21.8	0.86	20.68	3000	82.74	12000	89	3.5	0.55	0.37	107	350	4657-2185
15.9	5/8	-10	24.1	0.95	13.79	2000	55.16	8000	102	4	0.58	0.39	91	300	4657-2186
19.1	3/4	-12	27.9	1.10	13.79	2000	55.16	8000	119	4.7	0.88	0.59	61	200	4657-2187
25.4	1	-16	34.8	1.37	6.89	1000	27.58	4000	152	6	1.12	0.75	46	150	4657-2188
31.8	1 1/4	-20	42.4	1.67	6.89	1000	27.58	4000	216	8.5	1.41	0.95	30	100	4657-2189
38.1	1 1/2	-24	49.5	1.95	3.45	500	13.79	2000	241	9.5	1.65	1.11	30	100	4657-2190
50.8	2	-32	64.3	2.53	3.45	500	13.79	2000	267	10.5	2.40	1.61	30	100	4657-2191

3317LE (PS188)

POWER STEERING PRESSURE LINE



	Relative Cost	●●●○○
	Applications	Power steering pressure line.
	Temperature	-40°C to +150°C [-40°F to +302°F].
	Standards	SAE J2050 Class B (light weight).
	Construction	CSM tube, synthetic fabric reinforcement, CSM cover.
	Packaging	Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
	Couplings	PowerCrimp® Couplings, See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	25 ft. Length	50 ft. Length
9.5 +0.8/-0.1	3/8 +.03/-0.05	17.9 ±0.63	0.705 ±0.025	10.34	1500	41.37	6000	95	28	127	5	0.30	0.2	3317-0107	3317-0108

3283SA

POWER STEERING RETURN LINE



	Relative Cost	●●●○○
	Applications	Power steering return line.
	Temperature	-40°C to +135°C [-40°F to +275°F].
	Standards	SAE J189.
	Construction	Nitrile tube, synthetic fiber reinforcement, neoprene cover.
	Packaging	Bulk lengths shipped in a box. May not be continuous lengths. Custom lengths available with minimum order quantity.
	Couplings	MegaCrimp® Couplings -4 to -12. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
9.5	3/8	16.6	0.66	1.72	250	6.89	1000	95	28	100	4	0.22	0.15	7.6	25	3283-4490
12.7	1/2	19.1	0.75	2.07 *	300 *	8.27 *	1200 *	95	28	125	5	0.27	0.18	3.0	10	3283-0922
15.9	5/8	24.6	0.97	1.38 *	200 *	5.52 *	800 *	95	28	140	5.5	0.41	0.27	3.0	10	3283-0923
19.1	3/4	26.2	1.03	1.72 *	250 *	6.89 *	1000 *	95	28	150	7	0.36	0.24	3.0	10	3283-0924

* No specification requirement.

3283LF

HIGH TEMPERATURE POWER STEERING RETURN LINE

	Relative Cost	●●●○○○
	Applications	Power steering return line.
	Temperature	-40°C to +150°C [-40°F to +300°F].
	Standards	SAE J189 and SAE J2076.
	Construction	CPE tube, synthetic fiber reinforcement, CPE cover.
	Packaging	Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
	Couplings	Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
8.7	11/32	17.3	0.68	1.72	250	12.41	1800	95	28	125	5	0.24	0.16	7.6	25	3283-0921
9.5	3/8	16.6	0.66	1.72	250	12.41	1800	95	28	100	4	0.24	0.16	7.6	25	3283-4485

4278

FORMED FUEL AND OIL HOSE - STANDARD SHAPES

	Relative Cost	●●●●○○
	Applications	Engine oil, fuel filler, and hydraulic suction. Also suitable for tank vent and crank case vent. Not for fuel injection or air intake.
	Temperature	-40°C to +125°C [-40°F to +257°F].
	Standards	SAE 30R7 except the oxidized gasoline test, or SAE 30R6.
	Construction	Nitrile tube, synthetic knit reinforcement, nitrile/PVC cover.
	Packaging	Boxed.
	Couplings	Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		Wall Nominal		Burst Minimum		90° Bend*		45° Bend*		Straight Length**		Weight Ref.	
mm	inch	mm	inch	MPa	psi	Gates Item No.	Inter-change No.	Gates Item No.	Inter-change No.	Gates Item No.	Inter-change No.	kg/m	lbs/ft
34.9 ±0.99	1 3/8 ±0.039	4.95 ±0.65	0.195 ±0.025	0.55	80					4271-0025	24702	0.74	0.50
38.1	1 1/2	4.95	0.195	0.55	80	4278-6998	24715	4278-6988	24710	4271-0030	23964	0.80	0.54
44.5	1 3/4	4.95	0.195	0.55	80	4278-6999	24716	4278-6989	24711	4271-0035	23968	0.94	0.63
50.8	2	4.95	0.195	0.55	80	4278-7000	24717	4278-6990	24712	4271-0045	23972	1.04	0.70
57.2	2 1/4	5.35 ±1.05	0.21 ±0.04	0.55	80	4278-7001	24718	4278-6991	24713	4271-0055	23976	1.15	0.77
63.5	2 1/2	5.35	0.21	0.55	80	4278-7002	24719	4278-6992	24714	4271-0065	23980	1.22	0.82

* Both leg lengths 203±6.4mm [8.00±0.25 inch].

** Length 914±11.2mm [36.00±0.44 inch].

4278CN

STANDARD FORMED FUEL AND OIL HOSE


Relative Cost

Applications

Engine oil, fuel filler, and hydraulic suction. Also suitable for tank vent and crank case vent. Not for fuel injection or air.


Temperature

-40°C to +125°C [-40°F to +257°F].


Standards

SAE 30R7 except the oxidized gasoline test, or SAE 30R6. Sizes 66.7 [2 5/8] and 82.6 [3 1/4] meet SAE J2006 for marine wet exhaust.


Construction

Nitrile tube, synthetic knit reinforcement, nitrile/PVC cover.


Packaging

Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
4.8 ±0.40	3/16 ±0.016	11.2 ±0.58	0.44 ±0.023	1.72	250	81	24	13.2	0.52	0.10	0.07
6.4	1/4	12.7	0.50	1.72	250	81	24	12.7	0.50	0.12	0.08
7.9	5/16	14.3	0.56	1.72	250	81	24	12.7	0.50	0.13	0.09
8.0	0.32	14.3	0.56	4.14	600	81	24	15.7	0.62	0.15	0.10
8.7	11/32	15.1	0.59	1.72	250	81	24	12.7	0.50	0.15	0.10
9.5	3/8	15.9	0.62	1.72	250	81	24	17.5	0.69	0.15	0.10
11.1 ±0.58	7/16 ±0.023	18.3 ±0.79	0.72 ±0.031	1.21	175	34	10	19.1	0.75	0.20	0.14
12.7	1/2	19.8	0.78	1.21	175	34	10	19.1	0.75	0.22	0.15
14.0 ±0.79	0.55 ±0.031	20.8	0.82	1.21	175	34	10	19.1	0.75	0.25	0.17
15.9	5/8	23.8	0.94	1.21	175	34	10	20.8	0.82	0.30	0.20
16.8	0.66	24.65 ±1.59	0.97 ±0.063	1.21	175	34	10	21.6	0.85	0.34	0.23
18.3	23/32	27.8	1.09	1.21	175	34	10	26.9	1.06	0.42	0.28
19.1	3/4	28.6	1.13	1.21	175	34	10	28.7	1.13	0.43	0.29
22.2	7/8	31.8	1.25	1.21	175	34	10	30.2	1.19	0.48	0.32
23.1	0.91	32.7	1.29	1.21	175	34	10	36.6	1.44	0.60	0.40
25.4	1	34.9	1.38	1.21	175	34	10	38.1	1.50	0.57	0.38

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
26.4 ±0.99	1.04 ±0.039	4.95 ±0.65	0.195 ±0.025	0.55	80	**	**	42.9	1.69	0.60	0.40
28.6	1 1/8	4.95	0.195	0.55	80	**	**	44.5	1.75	0.60	0.40
31.8	1 1/4	4.95	0.195	0.55	80	**	**	46.2	1.82	0.68	0.46
33.0	1.30	4.95	0.195	0.55	80	**	**	47.8	1.88	0.71	0.48
34.9	1 3/8	4.95	0.195	0.55	80	**	**	48.5	1.91	0.74	0.50
38.1	1 1/2	4.95	0.195	0.55	80	**	**	50.8	2.00	0.80	0.54
41.3	1 5/8	4.95	0.195	0.55	80	**	**	52.3	2.06	0.86	0.58
44.5	1 3/4	4.95	0.195	0.55	80	**	**	60.5	2.38	0.94	0.63
47.6	1 7/8	4.95	0.195	0.55	80	**	**	63.5	2.50	1.00	0.67
50.8	2	4.95	0.195	0.55	80	**	**	73.2	2.88	1.04	0.70
57.2	2 1/4	5.35 ±1.05	0.21 ±0.04	0.55	80	**	**	73.2	2.88	1.15	0.77
60.3	2 3/8	5.35	0.21	0.55	80	**	**	76.2	3.00	1.18	0.79
63.5	2 1/2	5.35	0.21	0.55	80	**	**	77.7	3.06	1.22	0.82
66.7	2 5/8	5.35	0.21	0.55	80	**	**	81.0	3.19	1.38	0.93
69.9	2 3/4	5.35	0.21	0.55	80	**	**	81.0	3.19	1.43	0.96
76.2	3	5.70 ±1.40	0.225 ±0.055	0.55	80	**	**	88.9	3.50	1.58	1.06
82.6	3 1/4	5.70	0.225	0.55	80	**	**	101.6	4.00	2.05	1.38
88.9	3 1/2	5.70	0.225	0.55	80	**	**	101.6	4.00	1.83	1.23
92.1	3 5/8	5.70	0.225	0.55	80	**	**	101.6	4.00	1.93	1.30

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

42780B

HIGHER PRESSURE FORMED FUEL AND OIL HOSE



Relative Cost



Applications

Engine oil and hydraulic suction applications.
Not for fuel injection or air.



Temperature

-40°C to +125°C [-40°F to +257°F].



Standards

SAE 30R2 Type 1 except burst on the 12.7 [1/2 inch] and 25.4 [1 inch] sizes, and thickness.



Construction

Nitrile tube, aramid knit reinforcement, nitrile/PVC cover.



Packaging

Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
12.7 ±0.58	1/2 ±0.023	20.7 ±0.79	0.81 ±0.031	3.45	500	34	10	25.4	1.00	0.24	0.16
15.9	5/8	23.9	0.94	3.45	500	**	**	25.4	1.00	0.28	0.19
19.1	3/4	27.7	1.09	3.45	500	**	**	25.4	1.00	0.33	0.22

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
25.4 ±0.99	1 ±0.039	4.95 ±0.65	0.195 ±0.025	2.07	300	**	**	35.1	1.38	0.60	0.40
28.6	1 1/8	4.95	0.195	2.07	300	**	**	38.1	1.50	0.60	0.40
31.8	1 1/4	4.95	0.195	1.72	250	**	**	38.1	1.50	0.68	0.46
33.3	1.31	4.95	0.195	1.72	250	**	**	42.7	1.68	0.71	0.48
34.9	1 3/8	4.95	0.195	1.72	250	**	**	42.9	1.69	0.74	0.50
38.1	1 1/2	4.95	0.195	1.38	200	**	**	44.5	1.75	0.80	0.54

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



4278SS
HIGHER TEMPERATURE FORMED OIL HOSE


- Relative Cost** ●●●○○
- Applications** Power steering remote reservoir, crank case vent, turbo oil drain, and turbo air. Not for fuel line.
- Temperature** -40°C to +150°C [-40°F to +302°F] for power steering or engine oil, and 135°C [275°F] for crank case vent.
- Standards** Material to SAE J200 M5DE 710 B15 E036 except heat aging test.
- Construction** CPE tube, polyester knit reinforcement, CPE cover.
- Packaging** Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
9.5 ±0.76	3/8 ±0.03	16.8 ±0.51	0.66 ±0.02	1.20	174	**	**	14.7	0.58	0.24	0.13
12.7	1/2	20.3	0.80	1.20	174	**	**	17.5	0.69	0.24	0.17
15.1	19/32	23.1 ±0.76	0.91 ±0.03	1.20	174	**	**	18.8	0.74	0.28	0.19
15.9	5/8	23.9	0.94	1.20	174	**	**	19.6	0.77	0.28	0.20
19.1	3/4	28.6	1.12	1.03	150	**	**	25.1	0.99	0.33	0.30

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
25.4 ±1.59	1 ±0.06	4.95 ±0.65	0.195 ±0.025	0.86	125	**	**	35.1	1.38	0.55	0.41
31.8	1 1/4	4.95	0.195	0.76	110	**	**	41.3	1.63	0.60	0.50
38.1	1 1/2	4.95	0.195	0.76	110	**	**	44.5	1.75	0.76	0.59
44.5	1 3/4	4.95	0.195	0.76	110	**	**	50.8	2.00	1.09	0.73

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

EXHAUST / DEF

> Diesel emissions fluid (DEF) for SCR systems

4202.....	Heated line for DEF injection / return.....	78
4217IS.....	Bulk length transfer and tank filler / vent.....	78
4256PC.....	Formed tank filler / vent [not co-axial vent]	79
Also see:		
4327FT.....	Nylon tubing for unheated DEF injection / return, or tank vent.....	57
4327.....	Colored nylon tubing for unheated DEF injection / return, or tank vent	105
4697G [Renegade].....	Bulk length transfer, chemical hose with wire helix. See Gates Industrial Hose catalog.	
Coolant hose section	SCR system heater / coolant hoses.....	20 - 50

> Marine Wet Exhaust

3137ME.....	Standard, tested per SAE J2006 R1	80
4686ME.....	Helical wire for flexibility, tested per SAE J2006 R2	81
4278CN	Formed hose [certain sizes] tested per SAE J2006	74

> Differential Pressure Sensor Tubing

4040T	Silicone tubing, unreinforced	92
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> Egr Hose

4177 [with oil resistant liner].....	Silicone with FKM liner. Custom shapes available.....	90
Coolant hose section	EGR system heater / coolant hoses.....	20 - 50

> Crank Case Vent Hose

4319 [MegaTech LOC].....	Straight.....	69
4278SS.....	Formed.....	76

Coolant



Fuel



Oil

Exhaust/
DEF

Air



Brake

Hose
Accessories

Belts



4217IS

STANDARD DIESEL EMISSION FLUID HOSE



- Relative Cost** ●●●○○○
- Applications** Transfer of urea solutions such as AdBlue® used in exhaust treatment of diesel engines equipped with selective catalytic reduction [SCR] technology.
- Temperature** -40°C to +100°C [-40°F to +212°F] continuous.
- Standards** None.
- Construction** Zinc-free peroxide cured EPDM tube, synthetic fiber reinforcement, EPDM cover, wrapped appearance.
- Packaging** Bulk lengths shipped in a box. May not be continuous lengths. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps or 75 Gates GLX® couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimping data.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	12.7	0.50	3.45	500	13.79	2000	95	28	76	3	0.15	0.10	152	500	4217-0007
9.5	3/8	28.5	1.12	2.41	350	6.89	1000	95	28	76	3	0.22	0.15	229	750	4217-0302
12.7	1/2	23.9	0.94	2.41	350	6.89	1000	95	28	76	3	0.42	0.28	305	1000	4217-0303
19.1	3/4	28.5	1.12	2.41	350	6.89	1000	51	15	102	4	0.48	0.32	168	550	4217-0310
25.4	1	34.5	1.36	2.41	350	6.89	1000	34	10	152	6	0.61	0.41	122	400	4217-0311

Also see 4327FT nylon tubing (page 60) or 4697G Renegade™ hose in the Gates Industrial Hose catalog.

4202

DIESEL EMISSION FLUID HEATED LINE



- Relative Cost** ●●●●●●
- Applications** DEF fluid tank to dosing pump, to DEF injector, and return to tank. Electric connections per customer specification, 12V or 24V. Also suitable for diesel fuel or oil heated line when using Viton O-rings.
- Temperature** -40°C to +125°C [-40°F to +257°F].
- Standards** Resistance to DEF per ISO 22241, connectors per SAE J2044, coupling integrity per J2045.
- Construction** Nylon or rubber tube, carbon fiber heating sleeve, EPDM closed-cell foam or nylon convolute, thermoplastic over-molded quick-connect ends (straight or 90° angle). Minimum length = 300mm [12"] for 12V system, or 600mm [24"] for 24V system.
- Packaging** All parts made and packaged to order. Minimum order quantity applies.
- Couplings** SAE J2044 quick connect.

ID		OD		Work. Press. Max.		Typical Power Range at 24V	Bend Rad. Min.		Weight Nominal	
mm	in.	mm	in.	MPa	psi	Watts/meter	mm	in.	kg/m	lbs/ft
Nylon tube										
3.2	0.126	5.2	0.20	1.38	200	17.5	12.5	0.49	0.13	0.09
6.0	0.236	8.0	0.31	1.38	200	25.0	38	1.5	0.15	0.10
Rubber tube										
4.0	0.157	9.4	0.37	1.20	170	20.0	25	1.00	0.19	0.13

4256PC

DEF TANK FILL AND VENT

Relative Cost ●●●○○

Applications Fill or vent lines for DEF fluid reservoir. Also used for engine coolant. Not for conveying fuel or oil.

Temperature -40°C to +150°C [-40°F to +302°F].

Standards Similar to SAE 20R3 EC Class D3.

Construction p-EPDM tube, aramid knit reinforcement, EPDM cover.

Packaging Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R3 EC HT Class D3											
9.5 ±0.8	3/8 ±0.03	16.2 ±0.8	0.64 ±0.03	1.72	250	**	**	17.3	0.68	0.14	0.09
19.0	3/4	27.0	1.03	1.72	250	**	**	25.4	1.00	0.30	0.20

ID		Wall Nominal		Burst Minimum		Vacuum Minimum		Expanded End ID*		Weight Nominal	
mm	in.	mm	inch	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
SAE 20R4 EC HT Class D3											
25.4	1	5.00 ±0.7	0.197 ±0.028	1.72	250	**	**	35.1	1.38	0.54	0.36
31.8	1 1/4	5.00	0.197	1.72	250	**	**	39.4	1.55	0.62	0.41
50.8	2	5.35 ±1.05	0.21 ±0.04	1.30	188	**	**	69.9	2.75	1.06	0.71

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement.

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



3137ME

MARINE WET EXHAUST HOSE

Relative Cost ●●●○○



Applications

Wet exhaust, engine coolant, and water circulation or discharge hose. Also suitable for air. Not for conveying fuel or oil.



Temperature

-40°C to +125°C [-40°F to +257°F] continuous for coolant, and 100°C [212°F] maximum for conveying air.



Standards

SAE J2006 R1.



Construction

EPDM tube, synthetic fabric reinforcement plies, EPDM cover with blue spiral and wrapped appearance.



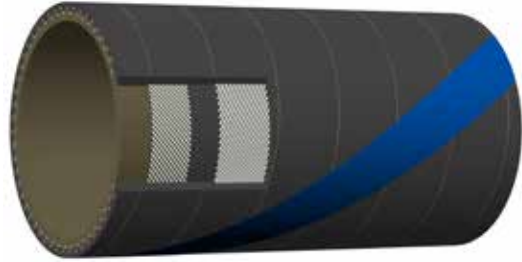
Packaging

Bulk lengths are 12.5 foot sticks polyfilm wrapped. Custom lengths available with minimum order quantity.



Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	12.5 ft. Length
28.6 ±1.6	1 1/8 ±0.06	35.6 ±1.6	1.40 ±0.06	0.69	100	2.76	400	**	**	*	*	0.67	0.45	3137-1207
31.8	1 1/4	38.9	1.53	0.69	100	2.76	400	**	**	*	*	0.72	0.49	3137-1209
34.9	1 3/8	42.9	1.69	0.69	100	2.76	400	**	**	*	*	0.78	0.53	3137-1213
38.1	1 1/2	45.2	1.78	0.69	100	2.76	400	**	**	*	*	0.85	0.57	3137-1215
41.3	1 5/8	48.5	1.91	0.69	100	2.76	400	**	**	*	*	0.91	0.61	3137-1217
44.5	1 3/4	51.6	2.03	0.69	100	2.76	400	**	**	*	*	0.97	0.65	3137-1219
47.6	1 7/8	55.6	2.19	0.69	100	2.76	400	**	**	*	*	1.03	0.69	3137-1221
50.8	2	58.9	2.32	0.69	100	2.76	400	**	**	*	*	1.09	0.73	3137-1223
54.0	2 1/8	62.2	2.45	0.69	100	2.76	400	**	**	*	*	1.15	0.78	3137-1225
57.2	2 1/4	65.3	2.57	0.69	100	2.76	400	**	**	*	*	1.19	0.80	3137-1227
60.3	2 3/8	68.3	2.69	0.69	100	2.76	400	**	**	*	*	1.27	0.86	3137-1229
63.5	2 1/2	71.6	2.82	0.69	100	2.76	400	**	**	*	*	1.34	0.90	3137-1231
66.7	2 5/8	74.9	2.95	0.69	100	2.76	400	**	**	*	*	1.40	0.94	3137-1233
69.9	2 3/4	78.5	3.09	0.69	100	2.76	400	**	**	*	*	1.46	0.98	3137-1235
73.0	2 7/8	82.0	3.23	0.69	100	2.76	400	**	**	*	*	1.52	1.02	3137-1237
76.2	3	85.3	3.36	0.69	100	2.76	400	**	**	*	*	1.72	1.16	3137-1239
88.9	3 1/2	98.0	3.86	0.69	100	2.76	400	**	**	*	*	1.98	1.33	3137-1245
101.6	4	110.7	4.36	0.69	100	2.76	400	**	**	*	*	2.21	1.49	3137-1249
114.3	4 1/2	123.4	4.86	0.69	100	2.76	400	**	**	*	*	2.50	1.68	3137-1252
127.0	5	136.4	5.37	0.69	100	2.76	400	**	**	*	*	2.78	1.87	3137-1253
152.4	6	162.1	6.38	0.69	100	2.76	400	**	**	*	*	3.23	2.17	3137-1254

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

4686ME

WIRE REINFORCED MARINE WET EXHAUST HOSE

Relative Cost ●●●○○

Applications Wet exhaust, engine coolant, and water circulation or discharge hose where tight bends or vacuum is required. Also suitable for air. Not for conveying fuel or oil.

Temperature -40°C to +125°C [-40°F to +257°F] continuous for coolant, and 100°C (212°F) maximum for conveying air.

Standards SAE J2006 R2.

Construction EPDM tube, synthetic fabric reinforcement plies and two helical steel wires, EPDM cover with wrapped appearance.

Packaging Bulk lengths are 12.5 foot sticks polyfilm wrapped. Custom lengths available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	12.5 ft. Length	200 ft. Length
28.6 ±1.6	1 1/8 ±0.06	38.1 ±1.6	1.50 ±0.06	0.69	100	1.38	200	101	30	64	2.5	0.87	0.58	4686-0602	
31.8	1 1/4	41.1	1.62	0.69	100	1.38	200	101	30	64	2.5	0.94	0.63	4686-0604	
34.9	1 3/8	44.5	1.75	0.69	100	1.38	200	101	30	76	3.0	1.02	0.68	4686-0606	
38.1	1 1/2	47.8	1.88	0.69	100	1.38	200	101	30	89	3.5	1.09	0.74	4686-0608	
41.3	1 5/8	50.8	2.00	0.69	100	1.38	200	101	30	89	3.5	1.15	0.78	4686-0610	
44.5	1 3/4	53.9	2.12	0.69	100	1.38	200	101	30	102	4.0	1.25	0.84	4686-0612	
47.6	1 7/8	56.9	2.24	0.69	100	1.38	200	101	30	114	4.5	1.32	0.89	4686-0614	
50.8	2	59.9	2.36	0.69	100	1.38	200	101	30	127	5.0	1.42	0.95	4686-0616	
54.0	2 1/8	63.3	2.49	0.69	100	1.38	200	101	30	140	5.5	1.49	1.00	4686-0618	
57.2	2 1/4	66.8	2.63	0.69	100	1.38	200	101	30	152	6.0	1.55	1.04	4686-0620	
60.3	2 3/8	69.9	2.75	0.69	100	1.38	200	101	30	165	6.5	1.64	1.10	4686-0622	
63.5	2 1/2	73.7	2.90	0.69	100	1.38	200	101	30	165	6.5	1.73	1.16	4686-0624	
66.7	2 5/8	76.7	3.02	0.69	100	1.38	200	101	30	178	7.0	1.80	1.21	4686-0626	
69.9	2 3/4	81.8	3.22	0.69	100	1.38	200	101	30	191	7.5	1.87	1.26	4686-0628	
73.0	2 7/8	86.9	3.42	0.69	100	1.38	200	101	30	203	8.0	1.96	1.32	4686-0630	
76.2	3	89.9	3.54	0.69	100	1.38	200	101	30	229	9.0	2.30	1.55	4686-0632	4686-0656 ***
88.9	3 1/2	102.6	4.04	0.69	100	1.38	200	101	30	229	9.0	2.65	1.78	4686-0638	4686-0657 ***
101.6	4	115.3	4.54	0.69	100	1.38	200	101	30	305	12.0	3.28	2.20	4686-0640	
114.3	4 1/2	128.0	5.04	0.69	100	1.38	200	101	30	305	12.0	3.67	2.46	4686-0642	
127.0	5	140.7	5.54	0.69	100	1.38	200	101	30	508	20.0	4.04	2.71	4686-0643	
139.7	5 1/2	153.4	6.04	0.69	100	1.38	200	101	30	559	22.0	4.66	3.13	4686-0645	
152.4	6	169.7	6.68	0.69	100	1.38	200	101	30	610	24.0	4.79	3.22	4686-0646	

*** Not stocked. Minimum order quantity applies.

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



AIR

> Defroster, Air Duct, Pre-Cleaner

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Also see:

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Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



7768

DEFROSTER / AIR INTAKE HOSE

Relative Cost ○○○○○

Applications Defrosters, air ducts, air intakes, under-hood applications, and other low pressure/ low suction applications. Also approved for marine applications.

Temperature -40°C to +107°C [-40°F to +225°F].

Standards Meets DOT FMVSS 302.

Construction Propylene-ethylene reinforced with one polypropylene helix. Wall thickness 0.3mm [0.013 inch] between the coils.

Packaging Individually boxed in 1.83m [6 foot] lengths compressed to 0.53m [21 inches].

Couplings Fasten with hose clamps.



ID		Work. Press. Max.		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Interchange Number
mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft		
32 +3/-0	1 1/4 +.12/-0	0.07	10	*	*	38	1.5	0.09	0.06	7768-4070	23820
38	1 1/2	0.07	10	*	*	51	2	0.12	0.08	7768-4071	23824
45	1 3/4	0.07	10	*	*	64	2.5	0.13	0.09	7768-4072	23828
50	2	0.07	10	*	*	76	3	0.15	0.1	7768-4073	23832
57	2 1/4	0.06	9	*	*	89	3.5	0.16	0.11	7768-4074	23836
63	2 1/2	0.06	9	*	*	95	3.75	0.19	0.13	7768-4075	23840
70	2 3/4	0.06	8	*	*	102	4	0.21	0.14	7768-4076	23844
76	3	0.06	8	*	*	108	4.25	0.21	0.14	7768-4077	23848
83	3 1/4	0.03	5	*	*	102	4	0.22	0.15	7768-4085	23850
89	3 1/2	0.02	3	*	*	108	4.25	0.27	0.18	7768-4078	23856
102	4	0.02	3	*	*	114	4.5	0.33	0.22	7768-4080	23864
114	4 1/2	0.05	7	9.5	2.8	64	2.5	0.00		7768-4081	23872
127	5	0.04	6	6.8	2.0	76	3	0.00		7768-4082	23880
152	6	0.03	5	11.9	3.5	102	4	0.67	0.45	7768-4084	23896

* Not recommended.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



4663A (63SB)
**WIRE REINFORCED, OIL RESISTANT,
THIN WALL AIR HOSE**

Relative Cost

Applications

Air cleaner or defroster duct where tight bends are required.
Not for conveying liquids.


Temperature

-34°C to +121°C [-30°F to +250°F] continuous.


Standards

None.


Construction

Neoprene tube, synthetic fabric reinforcement with two helical wires, neoprene impregnated fabric cover.


Packaging

Bulk lengths are 10 foot coil in a box. Custom lengths, enlarged ends, or ends with no wire are available with minimum order quantity.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length
15.9	5/8	20.7	0.81	0.07	10	0.28	40	16.9	5	25	1	0.15	0.10	4663-4000
19.1	3/4	23.9	0.94	0.07	10	0.28	40	16.9	5	25	1	0.16	0.11	4663-4001
22.2	7/8	27.0	1.06	0.07	10	0.28	40	16.9	5	25	1	0.24	0.16	4663-4002
25.4	1	30.2	1.19	0.07	10	0.28	40	16.9	5	25	1	0.28	0.19	4663-4003
31.8	1 1/4	36.6	1.44	0.07	10	0.28	40	16.9	5	25	1	0.30	0.20	4663-4004
34.9	1 3/8	39.7	1.56	0.07	10	0.28	40	16.9	5	38	1.5	0.33	0.22	4663-4005
38.1	1 1/2	42.9	1.69	0.07	10	0.28	40	16.9	5	38	1.5	0.34	0.23	4663-4006
41.3	1 5/8	46.1	1.81	0.07	10	0.28	40	16.9	5	51	2	0.37	0.25	4663-4007
44.5	1 3/4	49.3	1.94	0.07	10	0.28	40	16.9	5	51	2	0.40	0.27	4663-4008
47.6	1 7/8	52.4	2.06	0.07	10	0.28	40	16.9	5	51	2	0.42	0.28	4663-4009
50.8	2	55.6	2.19	0.03	5	0.14	20	10.1	3	51	2	0.45	0.30	4663-4010
54.0	2 1/8	58.8	2.31	0.03	5	0.14	20	10.1	3	64	2.5	0.48	0.32	4663-4011
57.2	2 1/4	62.0	2.44	0.03	5	0.14	20	10.1	3	64	2.5	0.51	0.34	4663-4012
60.3	2 3/8	65.1	2.56	0.03	5	0.14	20	10.1	3	64	2.5	0.52	0.35	4663-4013
63.5	2 1/2	68.3	2.69	0.03	5	0.14	20	10.1	3	64	2.5	0.55	0.37	4663-4014
66.7	2 5/8	71.5	2.81	0.03	5	0.14	20	10.1	3	71	2.8	0.58	0.39	4663-4015
69.9	2 3/4	74.7	2.94	0.03	5	0.14	20	10.1	3	71	2.8	0.60	0.40	4663-4016
76.2	3	81.0	3.19	0.03	5	0.14	20	10.1	3	76	3	0.65	0.44	4663-4017
88.9	3 1/2	93.7	3.69	0.03	5	0.14	20	10.1	3	89	3.5	0.76	0.51	4663-4018
92.1	3 5/8	96.8	3.81	0.03	5	0.14	20	10.1	3	102	4	0.79	0.53	4663-4019
101.6	4	106.4	4.19	0.03	5	0.14	20	10.1	3	102	4	1.12	0.75	4663-4020
114.3	4 1/2	119.1	4.69	0.03	5	0.14	20	10.1	3	127	5	1.25	0.84	4663-4021
127.0	5	131.8	5.19	0.03	5	0.14	20	10.1	3	152	6	1.38	0.93	4663-4022
139.7	5 1/2	144.5	5.69	0.03	5	0.14	20	10.1	3	152	6	1.52	1.02	4663-4023
152.4	6	157.2	6.19	0.03	5	0.14	20	10.1	3	**	**	1.64	1.1	4663-1491 ***
177.8	7	182.6	7.19	0.03	5	0.14	20	10.1	3	**	**	1.90	1.28	4663-3992 ***

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4663J (163SB)
WIRE REINFORCED, OIL RESISTANT, AIR HOSE

- Relative Cost** ●●●○○
- Applications** Heavy-duty air cleaner or defroster duct where tight bends are required. Not for conveying liquids.
- Temperature** -34°C to +121°C [-30°F to +250°F] continuous.
- Standards** None.
- Construction** Neoprene tube, synthetic fabric reinforcement with two helical wires, neoprene cover.
- Packaging** Bulk lengths are 10 foot coil in a box. Custom lengths, enlarged ends, or ends with no wire are available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length
19.1	3/4	25.5	1.00	0.14	20	0.55	80	50.7	15	25	1	0.30	0.2	4663-1516***
25.4	1	31.8	1.25	0.14	20	0.55	80	50.7	15	25	1	0.39	0.26	4663-1518***
31.8	1 1/4	38.2	1.50	0.14	20	0.55	80	50.7	15	25	1	0.51	0.34	4663-1530***
34.9	1 3/8	41.3	1.62	0.10	15	0.41	60	50.7	15	38	1.5	0.65	0.44	4663-3321***
38.1	1 1/2	44.5	1.75	0.10	15	0.41	60	50.7	15	38	1.5	0.71	0.48	4663-1540***
41.3	1 5/8	47.7	1.88	0.10	15	0.41	60	50.7	15	46	1.8	0.76	0.51	4663-1543***
44.5	1 3/4	50.9	2.00	0.10	15	0.41	60	50.7	15	46	1.8	0.80	0.54	4663-3954***
47.6	1 7/8	54.0	2.12	0.10	15	0.41	60	50.7	15	46	1.8	0.86	0.58	4663-1548***
50.8	2	57.2	2.25	0.10	15	0.41	60	50.7	15	51	2	0.89	0.6	4663-1550***
54.0	2 1/8	60.4	2.38	0.07	10	0.28	40	50.7	15	64	2.5	0.94	0.63	4663-3461***
57.2	2 1/4	63.6	2.50	0.07	10	0.28	40	50.7	15	64	2.5	1.00	0.67	4663-1556***
60.3	2 3/8	66.7	2.62	0.07	10	0.28	40	50.7	15	64	2.5	1.06	0.71	4663-1560***
63.5	2 1/2	69.9	2.75	0.07	10	0.28	40	50.7	15	64	2.5	1.10	0.74	4663-1565***
66.7	2 5/8	73.1	2.88	0.07	10	0.28	40	50.7	15	76	3	1.16	0.78	4663-1615***
69.9	2 3/4	76.3	3.00	0.07	10	0.28	40	50.7	15	178	7	1.21	0.81	4663-3456***
76.2	3	82.6	3.25	0.07	10	0.28	40	23.7	7	254	10	1.31	0.88	4663-1570***
79.4	3 1/8	85.7	3.38	0.07	10	0.28	40	23.7	7	254	10	1.37	0.92	4663-1569***
88.9	3 1/2	95.3	3.75	0.07	10	0.28	40	23.7	7	254	10	1.50	1.01	4663-1575***
101.6	4	108.0	4.25	0.07	10	0.28	40	23.7	7	305	12	1.71	1.15	4663-1580***
114.3	4 1/2	120.7	4.75	0.07	10	0.28	40	23.7	7	305	12	1.86	1.25	4663-1589***
127.0	5	133.4	5.25	0.07	10	0.28	40	20.3	6	305	12	2.08	1.4	4663-1595***
139.7	5 1/2	146.1	5.75	0.07	10	0.28	40	20.3	6	305	12	2.26	1.52	4663-3454***
152.4	6	158.8	6.25	0.06	8	0.22	32	20.3	6	381	15	2.53	1.7	4663-1599***

*** Not stocked. Minimum order quantity applies.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



4663G

WIRE REINFORCED, OIL RESISTANT, HEAVY WALL AIR HOSE


Relative Cost ●●●○○

Applications Heavy-duty air cleaner for abrasive environments where tight bends are required. Not for conveying liquids.

Temperature -40°C to +125°C [-40°F to +257°F] continuous.

Standards None.

Construction Neoprene tube, synthetic fabric reinforcement with two helical wires, neoprene cover.

Packaging Bulk lengths are 10 foot coil in a box. Custom lengths, enlarged ends, or ends with no wire are available with minimum order quantity.

Couplings Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	10 ft. Length
101.6	4	111.3	4.38	0.07	10	0.28	40	23.7	7	305	12	1.50	1.01	4663-4046
114.3	4 1/2	124.0	4.88	0.07	10	0.28	40	23.7	7	305	12	1.67	1.12	4663-4047
127.0	5	136.7	5.38	0.07	10	0.28	40	20.3	6	305	12	1.85	1.24	4663-4048
139.7	5 1/2	149.4	5.88	0.07	10	0.28	40	20.3	6	305	12	2.01	1.35	4663-4049

Coolant

Fuel

Oil

Exhaust/
DEF

Air

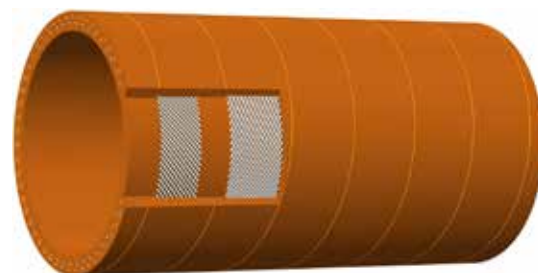
Brake

Hose
Accessories

Belts

4171H
HIGH TEMPERATURE SILICONE AIR HOSE

- Relative Cost** ●●●●○
- Applications** Turbo hose or connector.
- Temperature** -40°C to +288°C [-40°F to +550°F] continuous.
- Standards** None.
- Construction** Orange silicone tube, high temperature fabric reinforcement plies, orange silicone cover with wrapped appearance.
- Packaging** Bulk lengths are 10 foot coil in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length
22.2 ±0.8	7/8 ±0.031	27.8 ±1.6	1.09 ±0.063	1.38	200	5.52	800	*	*	**	**	0.30	0.2	***
25.4	1	31.0	1.22	1.38	200	5.52	800	*	*	**	**	0.33	0.22	4171-0652***
31.8	1 1/4	37.4	1.47	1.38	200	5.52	800	*	*	**	**	0.40	0.27	4171-0672***
34.9	1 3/8	40.5	1.59	1.38	200	5.52	800	*	*	**	**	0.43	0.29	***
38.1	1 1/2	43.7	1.72	1.38	200	5.52	800	*	*	**	**	0.46	0.31	4171-0695***
44.5	1 3/4	50.1	1.97	1.24	180	4.96	720	*	*	**	**	0.54	0.36	4171-0655***
50.8	2	56.4	2.22	1.10	160	4.41	640	*	*	**	**	0.61	0.41	4171-0656
57.2 ±1.2	2 1/4 ±0.047	62.8	2.47	1.10	160	4.41	640	*	*	**	**	0.67	0.45	4171-0657***
60.3	2 3/8	65.9	2.59	0.97	140	3.86	560	*	*	**	**	0.70	0.47	***
63.5	2 1/2	69.1	2.72	0.92	134	3.68	534	*	*	**	**	0.74	0.5	4171-0659
69.9	2 3/4	75.5	2.97	0.83	120	3.31	480	*	*	**	**	0.88	0.59	4171-0660***
76.2	3	81.8	3.22	0.78	113	3.12	452	*	*	**	**	0.95	0.64	4171-0661
82.6	3 1/4	88.2	3.47	0.72	105	2.88	418	*	*	**	**	0.98	0.66	4171-0662
85.7	3 3/8	91.3	3.60	0.69	100	2.76	400	*	*	**	**	1.26	0.85	***
88.9 ±1.6	3 1/2 ±0.063	95.8	3.77	0.83	120	3.31	480	*	*	**	**	1.35	0.91	4171-0663***
95.3	3 3/4	102.1	4.02	0.83	120	3.31	480	*	*	**	**	1.44	0.97	***
101.6	4	108.5	4.27	0.78	113	3.12	452	*	*	**	**	1.52	1.02	4171-0664
114.3	4 1/2	121.2 ±3.2	4.77 ±0.125	0.69	100	2.76	400	*	*	**	**	1.61	1.08	4171-0654***
127.0	5	133.9	5.27	0.62	90	2.48	360	*	*	**	**	1.77	1.19	4171-0665***

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



4177W (GREEN STRIPE) / 4177C
OIL RESISTANT HUMPH HOSE
Relative Cost ●●●●●

Applications

Vibration dampening connector on the air filter. Also suitable for coolant or cold-side charge air connections. There is no vacuum rating specification. Not for conveying fuel or oil.


Temperature

-40°C to +100°C [-40°F to +212°F].


Standards

SAE 20R1 Class B tube, Class C cover.


Construction

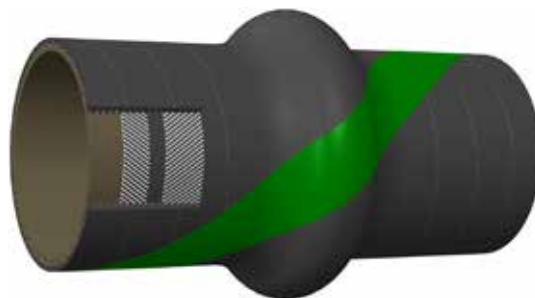
NBR (nitrile) tube, synthetic fabric reinforcement plies, CR (neoprene) cover with wrapped appearance.


Packaging

Individually bagged and shipped in a box.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Nominal		OD Hump		Length*		Work. Press. Max.		Burst Minimum		Gates Item No.	Inter-change No.
mm	in.	mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	P/N	
31.8	1 1/4	41.7	1.64	56.4	2.22	101.6	4	0.47	69	1.90	275	3177-0027	23505
34.9	1 3/8	44.8	1.76	61.2	2.41	127.0	5	0.43	63	1.72	250	3177-0034	23511
38.1	1 1/2	48.0	1.89	63.5	2.50	127.0	5	0.43	63	1.72	250	3177-0023	23515
44.5	1 3/4	54.4	2.14	71.4	2.81	127.0	5	0.39	56	1.55	225	3177-0022	23520
50.8	2	60.7	2.39	81.8	3.22	88.9	3 1/2	0.34	50	1.38	200	3177-0032	23531
50.8	2	60.7	2.39	81.8	3.22	127.0	5	0.34	50	1.38	200	3177-0024	23533
57.2	2 1/4	67.1	2.64	88.9	3.50	114.3	4 1/2	0.30	44	1.21	175	3177-0026	23547
60.3	2 3/8	70.2	2.76	94.5	3.72	127.0	5	0.26	38	1.03	150	3177-0025	23557
60.3	2 3/8	70.2	2.76	94.5	3.72	158.8	6 1/4	0.26	38	1.03	150	3177-0015	23559
63.5	2 1/2	73.4	2.89	96.8	3.81	114.3	4 1/2	0.26	38	1.03	150	3177-0030	23562
63.5	2 1/2	73.4	2.89	96.8	3.81	152.4	6	0.26	38	1.03	150	3177-0028	23550
69.9	2 3/4	79.8	3.14	103.9	4.09	82.6	3 1/4	0.22	31	0.86	125	3177-0040	23566
69.9	2 3/4	79.8	3.14	103.9	4.09	114.3	4 1/2	0.22	31	0.86	125	3177-0033	23567
69.9	2 3/4	79.8	3.14	103.9	4.09	136.5	5 3/8	0.22	31	0.86	125	3177-0039	23568
76.2	3	86.1	3.39	112.0	4.41	101.6	4	0.17	25	0.69	100	3177-0004	23572
76.2	3	86.1	3.39	112.0	4.41	177.8	7	0.17	25	0.69	100	3177-0038	23575
88.9	3 1/2	98.8	3.89	127.0	5	139.7	5 1/2	0.10	15	0.41	60	3177-0043	23585
101.6	4	111.5	4.39	139.7	5.5	127.0	5	*	*	*	*	3177-1005	23002
127.0	5	136.9	5.39	175.5	6.91	152.4	6	*	*	*	*	3177-1007	23004
139.7	5 1/2	149.6	5.89	188.2	7.41	152.4	6	*	*	*	*	3177-1006	23005
152.4	6	162.3	6.39	200.9	7.91	127.0	5	*	*	*	*	3177-1008	23006

* Not rated for pressurized applications.

4177S

HIGH TEMPERATURE SILICONE HUMP HOSE

- Relative Cost** ●●●●●
- Applications** Vibration dampening connector for turbocharger or charge air cooler. Also suitable for coolant.
- Temperature** -51°C to +177°C [-60°F to +350°F].
- Standards** SAE 20R1 Class A.
- Construction** Multiple plies of silicone and polyester.
- Packaging** All parts made and packaged to order. Minimum order quantity applies.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]

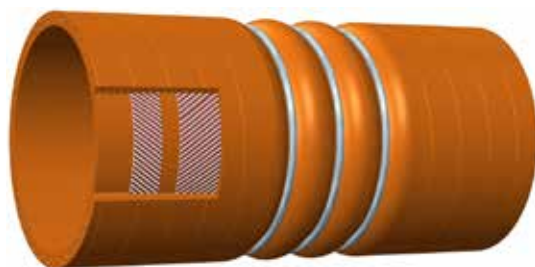


ID		OD Nominal		OD Hump		Vacuum Minimum		Length		Work. Press. Max.		Burst Minimum	
mm	in.	mm	in.	mm	in.	kPa	in. Hg	mm	in.	MPa	psi	MPa	psi
31.8	1 1/4	41.7	1.64	56.4	2.22	17	5	101.6	4	0.45	65	1.90	275
44.5	1 3/4	54.4	2.14	71.4	2.81	17	5	86 to 127	3 3/8 to 5	0.38	55	1.55	225
50.8	2	60.7	2.39	81.8	3.22	17	5	70 to 230	2 3/4 to 9	0.34	50	1.38	200
57.2	2 1/4	67.1	2.64	88.9	3.50	17	5	76 to 230	3 to 9	0.28	40	1.21	175
63.5	2 1/2	73.4	2.89	96.8	3.81	17	5	76 to 203	3 to 8	0.24	35	1.03	150
69.9	2 3/4	79.8	3.14	103.9	4.09	17	5	70 to 178	2 3/4 to 7	0.21	30	0.86	125
76.2	3	86.1	3.39	112.0	4.41	17	5	76 to 178	3 to 7	0.17	25	0.69	100
88.9	3 1/2	98.8	3.89	127.0	5	17	5	89 to 178	3 1/2 to 7	0.12	17	0.52	75
101.6	4	111.5	4.39	139.7	5.5	17	5	102 to 165	4 to 6 1/2	0.08	12	0.34	50

4177

HIGH TEMPERATURE SILICONE HUMP AND RING HOSE

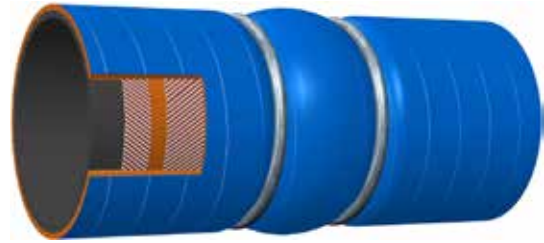
- Relative Cost** ●●●●●
- Applications** Vibration dampening connector for turbocharger or charge air cooler. Also suitable for coolant. Not for oil or fuel exposure.
- Temperature** -54°C to +260°C [-65°F to +500°F].
- Standards** Material per SAE J20 Class A.
- Construction** Multiple plies of silicone and synthetic fabric reinforcement with three or four stainless steel rings.
- Packaging** Parts are bagged and shipped in a box. Custom diameters or designs may be available with minimum order quantity and setup.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



ID		OD Nominal		Length*		Work. Press. Max.		Burst Minimum		Number of Rings	Weight Ref.		Gates Item Number
mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi		kg/each	lbs/ea.	10 ft. Length
76.2 ±1.6	3.0 ±0.06	81.8	3.22	152	6	0.17	25	0.69	100	3	0.48	0.32	4177-4000
88.9	3 1/2	94.5	3.72	152	6	0.17	25	0.69	100	3	0.61	0.41	4177-4001
101.6	4	109.0	4.29	152	6	0.17	25	0.80	116	3	0.94	0.63	4177-4003
101.6	4	109.0	4.29	203	8	0.17	25	0.80	116	4	1.35	0.91	4177-4004

4177

HIGH TEMPERATURE SILICONE HUMP AND RING HOSE WITH OIL RESISTANT LINER



Relative Cost ●●●●●



Applications

Hot or cold side charge air connector (including clamps) for use with internal recirculated crank case fumes or oil mist. Not for conveying fuel.



Temperature

-51°C to +225°C [-60°F to +437°F].



Standards

FKM tube per SAE J200 M2HK 710 A19 E036 F17, silicone cover per SAE J200 M5GE 606 A19 E016.



Construction

FKM/silicone tube, meta-aramid fabric reinforcement, silicone cover with stainless steel rings.



Packaging

Individually bagged with T-bolt clamps included.



Couplings

Hose bead fitting fastened with T-bolt clamps or spring-loaded T-bolt clamps.

ID		OD Nominal		Length		Work. Press. Max.		Burst Minimum		Number of Rings	Weight Ref. w/ Clamps		Gates Item Number
mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi		kg/each	lbs/ea.	10 ft. Length
75.0 ±1.6	2.95 ±.06	81.0	3.19	90	3.54	0.20	29.008	1.00	145.04	1	0.83	0.56	4177-1400
75.0	2.95	81.0	3.19	102	4.02	0.20	29.008	1.00	145.04	2	0.92	0.62	4177-1600
76.0	2.99	82.0	3.23	130	5.12	0.20	29.008	1.00	145.04	1	0.74	0.5	4177-1213
76.2x81.0	3.00x3.19	82.2x87	3.24x3.43	102	4.02	0.20	29.008	1.00	145.04	2	1.06	0.71	4177-1500
89.0	3.50	95.0	3.74	102	4.02	0.20	29.008	1.00	145.04	1	1.26	0.85	4177-1217

STEEL / ALUMINUM TUBE ASSEMBLIES



Relative Cost ●○○○○



Applications

Hot or cold side charge air, coolant, low pressure hydraulic, or oil applications.



Temperature

Depends on hose connectors.



Standards

ASTM A787 aluminized steel, A513 stainless steel, 6061-P4 aluminum, many more...



Construction

Steel, aluminized steel, stainless steel, or aluminum tube, 1/4" to 6" OD, available with brushed, painted, or coated surface. Connector hoses are straight, curved, or hump hoses assembled with clamps or crimped rings.



Packaging

Boxed. Optional plugs, bulk bags, or individual bags.



Couplings

Hose bead fitting fastened with hose clamps or T-bolt clamps.

4040A
STANDARD WINDSHIELD WIPER/ VACUUM HOSE

- Relative Cost** ●○○○○○
- Applications** Windshield washer lines and engine vacuum lines. Also suitable for coolant overflow or vent, or pressure sensor tubing. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F].
- Standards** SAE J1037, SAE 942, SAE J200 M4CA710 A25 B35 C32 EA14 F19.
- Construction** EPDM tube with no reinforcement.
- Packaging** Bulk lengths shipped on a reel. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting with or without hose clamps. [pages 107 - 111]



ID		Size Fitting		OD		Work. Press. Max.		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number	Gates Item Number
mm	in.	mm	in.	mm	in.	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length	50 ft. Length
2.8 +0.64/-0.51	7/64 +0.025/-0.020	3.2	1/8	5.6 ±0.8	0.22 ±0.03	0.17	25	81	24	38	1.5	0.010	0.007	305	1000	4040-0260	4040-4101
3.9 ±0.38	5/32 ±0.015	4.8	3/16	7.9	0.31	0.17	25	81	24	38	1.5	0.019	0.013	305	1000	4040-0387	4040-4104
5.6	7/32	6.4	1/4	10.7	0.42	0.17	25	81	24	51	2	0.036	0.024	457	1500	4040-0269	4040-4107
6.4 ±0.51	1/4 ±0.02	7.9	5/16	11.4	0.45	0.17	25	81	24	51	2	0.039	0.026	305	1000	4040-0580	4040-4110
7.3	9/32	9.5	3/8	11.1	0.44	0.17	25	81	24	64	2.5	0.046	0.031	305	1000	4040-0136	
7.9	5/16	9.5	3/8	12.7	0.50	0.17	25	81	24	64	2.5	0.043	0.029	244	800	4040-0370	
9.5	3/8	11.1	7/16	15.9	0.63	0.17	25	81	24	76	3	0.068	0.046	91	300	4040-4361	4040-4359

4251D
REINFORCED WINDSHIELD WIPER/ VACUUM HOSE

- Relative Cost** ●○○○○○
- Applications** Windshield washer lines, engine vacuum lines, and coolant hose. Also suitable for coolant overflow or vent. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F].
- Standards** Similar to SAE 20R3 Class D2.
- Construction** EPDM tube, synthetic fiber reinforcement, EPDM cover.
- Packaging** Bulk lengths shipped on a reel except 4251-0122 and 4251-0125 shipped in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting with or without hose clamps. [pages 107 - 111]



ID		Size Fitting		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number	Gates Item Number
mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	m	ft.	Bulk Length	50 ft. Length
4.1 ±0.5	5/32 ±0.02	4.8	3/16	9.7 ±0.8	0.38 ±0.03	0.34	50	1.72	250	88	26	**	**	0.09	0.06	152	500	4251-0119	4251-4115
5.6	7/32	6.4	1/4	10.9	0.43	0.34	50	1.72	250	88	26	**	**	0.10	0.07	244	800	4251-0122***	4251-4118
6.4	1/4	7.9	5/16	12.4	0.49	0.34	50	1.72	250	88	26	**	**	0.13	0.09	244	800	4251-0125	4251-4121

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

4040T

HIGH TEMPERATURE SILICONE VACUUM HOSE



Relative Cost



Applications

Differential pressure sensor tubing and vacuum lines for extreme temperatures. Also suitable for coolant overflow or vent. Not for conveying fuel or oil.



Temperature

-55°C to +177°C [-67°F to +350°F].



Standards

SAE J200 M2GE 705 Z1(60-70 Shore A).



Construction

Orange silicone tube without reinforcement.



Packaging

Coiled in a plastic clamshell container. Custom lengths available with minimum order quantity.



Couplings

Hose bead fitting with or without hose clamps. (pages 107 - 111)

ID		Size Fitting		OD		Work. Press. Max.		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	mm	in.	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	6 ft. Length
2.77 +0/- .8	0.109 +0/- .03	3.2	1/8	5.8	0.229	*	*	85	25	25	1	0.021	0.014	4040-4140
3.96	.156	4.8	3/16	7.0	0.276	*	*	85	25	38	1.5	0.039	0.026	4040-4141
5.54	.218	6.4	1/4	8.6	0.338	*	*	85	25	38	1.5	0.050	0.033	4040-4142
6.35	.250	7.9	5/16	9.4	0.370	*	*	85	25	38	1.5	0.057	0.038	4040-4143

* No specification requirement.

** If minimum bend radius is required, use 8 times the O.D. as a guide.

*** Not stocked. Minimum order quantity applies.

Coolant

Fuel

Oil

Exhaust/
DEF

Air

Brake

Hose
Accessories

Belts

7736
VACUUM HOSE - STANDARD SHAPES

- Relative Cost** ●●○○○
- Applications** Connection to the air filter or other air ducting. Also suitable for water suction. Not for conveying fuel or oil.
- Temperature** -40°C to +107°C [-40°F to +225°F]
- Standards** SAE J200 M3BC 714 A14 E034 F17. ID tolerance is +0/-1.6 mm [+0/-0.062 inch] unless otherwise specified.
- Construction** Neoprene rubber with or without reinforcement.
- Packaging** Boxed.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 107 - 111)



ID		Arm Length		Bend Angle	Gates Item Number
mm	in.	mm	in.	Degrees	
Hump Hose					
101.6	4	127.00	5.00	-	3177-1005
127.0	5	152.40	6.00	-	3177-1007
139.7	5 1/2	152.40	6.00	-	3177-1006
152.4	6	127.00	5.00	-	3177-1008
Reducer Hump Hose					
76.2 x 88.9	3 x 3 1/2	133.35	5.25	-	7736-1041
76.2 x 101.6	3 x 4	133.35	5.25	-	7736-1042
139.7 x 152.4	5 1/2 x 6	152.40	6.00	-	7736-1027
152.4 x 177.8	6 x 7	127.00	5.00	-	7736-1030
Elbow Hose					
76.2	3	133.35	5.25	90	7736-1050*
88.9	3 1/2	133.35	5.25	45	7736-1051
88.9	3 1/2	139.70	5.50	90	7736-1052*
127.0	5	133.35	5.25	45	7736-1026
127.0	5	152.40	6.00	90	7736-1025
139.7 x 152.4	5 1/2 x 6	177.80	7	90	7736-1063
152.4	6	165.10	6.50	45	7736-1028*
152.4	6	190.50	7.50	45	7736-1058*
152.4	6	177.80	7.00	90	7736-1029*
177.8	7	190.50	7.50	90	7736-1033

* Ribbed exterior surface for added vacuum resistance.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



4289E

STANDARD FORMED AIR INTAKE/ VACUUM HOSE


Relative Cost

Applications

Engine air intake or air ducting. Also suitable for water suction. Not for conveying fuel or oil.


Temperature

-40°C to +135°C [-40°F to +275°F] continuous with peaks of 150°C [302°F].


Standards

SAE J200 M3CA 707 A25 B35 C32 F17 Z1 [Duro 60-75], or SAE J200 M3CA 710 A25 B35 C32 EA14 F17 G21 Z1 [EPDM] Z2 [Duro 60-75].


Construction

EPDM tube with no reinforcement.


Packaging

Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		Extruded ID		Wall Nominal			Vacuum Min.**		Expanded End ID*		Weight Nominal	
mm	in.	mm	inch	mm	inch	rtg.	kPa	inch Hg	mm	inch	kg/m	lbs/ft
5.6 ±0.8	7/32 ±0.03	4.8	0.19	2.92 ±0.51	0.115 ±0.02	1			11.1	0.4375	0.09	0.06
6.4	1/4	6.4	0.25	2.92	0.115	1			12.7	0.5	0.10	0.07
8.7	11/32	8.1	0.32	2.41	0.095	1			17.5	0.6875	0.10	0.07
8.7	11/32	8.1	0.32	4.95	0.195	2			17.5	0.6875	0.24	0.16
8.7	11/32	8.1	0.32	7.62	0.300	6	95	28.0	17.5	0.6875	0.44	0.30
9.5	3/8	9.1	0.36	1.40	0.055	1			19.1	0.75	0.06	0.04
11.9	15/32	11.4	0.45	4.57 ±0.76	0.180 ±0.030	1			23.8	0.9375	0.27	0.18
12.7	1/2	11.4	0.45	3.05	0.120	1			25.4	1	0.17	0.11
15.9	5/8	14.2	0.56	3.81	0.150	1			31.8	1.25	0.26	0.17
18.5	.73	17.5	0.69	4.06	0.160	1			37.1	1.46	0.31	0.21
19.1	3/4	18.0	0.71	0.51	0.020	2			38.1	1.5	0.43	0.29
19.1	3/4	18.0	0.71	6.48	0.255	4	95	28.0	38.1	1.5	0.57	0.38
22.2	7/8	21.1	0.83	3.81	0.150	1			44.5	1.75	0.36	0.24
25.4	1	24.1	0.95	5.59 ±1.02	0.220 ±0.040	2	37	11.0	50.8	2	0.61	0.41
28.6	1 1/8	27.2	1.07	4.70	0.185	2	22	6.6	57.2	2.25	0.55	0.37
31.8	1 1/4	30.2	1.19	6.35 ±1.27	0.250 ±0.050	4	37	11.0	63.5	2.5	0.85	0.57
33.3	1.31	31.5	1.24	6.35	0.250	4	30	8.8	66.5	2.62	0.43	0.29
34.9	1 3/8	33.3	1.31	6.35	0.250	4	27	8.1	69.9	2.75	0.92	0.62
36.6	1.44	34.8	1.37	6.35	0.250	4	22	6.6	73.2	2.88	0.95	0.64
36.6	1.44	34.8	1.37	9.91	0.390	9	37	11.0	73.2	2.88	1.58	1.06
38.1	1 1/2	36.1	1.42	4.83	0.190	3	19	5.5	76.2	3	0.70	0.47
38.1	1 1/2	36.1	1.42	6.35	0.250	4	22	6.6	76.2	3	0.98	0.66
38.1	1 1/2	36.1	1.42	6.73	0.265	5	22	6.6	76.2	3	1.06	0.71
41.3	1 5/8	29.3	1.15	6.35	0.250	4	22	6.6	82.6	3.25	1.06	0.71
44.5	1 3/4	42.2	1.66	4.95	0.195	2	8	2.5	88.9	3.5	0.86	0.58
44.5	1 3/4	42.2	1.66	5.97	0.235	3	10	3.0	88.9	3.5	1.06	0.71
44.5	1 3/4	42.2	1.66	6.35	0.250	4	14	4.0	88.9	3.5	1.13	0.76
44.5	1 3/4	42.2	1.66	6.60	0.260	5	14	4.0	88.9	3.5	1.18	0.79
44.5	1 3/4	42.2	1.66	7.75	0.305	7	17	5.0	88.9	3.5	1.41	0.95
47.6	1 7/8	45.5	1.79	5.08	0.200	2	7	2.0	95.3	3.75	0.94	0.63
47.6	1 7/8	45.5	1.79	6.35	0.250	4	10	3.0	95.3	3.75	1.21	0.81
47.6	1 7/8	45.5	1.79	6.86	0.270	5	14	4.0	95.3	3.75	1.31	0.88
50.8	2	48.3	1.90	5.08	0.200	2	5	1.5	101.6	4	1.00	0.67
50.8	2	48.3	1.90	6.35	0.250	4	8	2.5	101.6	4	1.26	0.85
50.8	2	48.3	1.90	7.87	0.310	5	15	4.5	101.6	4	1.61	1.08
50.8	2	48.3	1.90	8.89	0.350	8	20	5.9	101.6	4	1.85	1.24

4289E
STANDARD FORMED AIR INTAKE/VACUUM HOSE (CON'T)

ID		Extruded ID		Wall Nominal			Vacuum Min.**		Expanded End ID*		Weight Nominal	
mm	in.	mm	inch	mm	inch	rtg.	kPa	inch Hg	mm	inch	kg/m	lbs/ft
53.8	2.12	51.3	2.02	2.92	0.115	1	2	0.5	107.7	4.24	0.60	0.40
53.8	2.12	51.3	2.02	7.87	0.310	6	14	4.3	107.7	4.24	1.70	1.14
53.8	2.12	48.5	1.91	9.65	0.380	9	24	7.0	107.7	4.24	2.04	1.37
55.6	2.19	52.8	2.08	6.35	0.250	4	8	2.3	111.3	4.38	1.37	0.92
57.2	2 1/4	54.4	2.14	4.95	0.195	2	3	1.0	114.3	4.5	1.06	0.71
57.2	2 1/4	54.4	2.14	6.35	0.250	4	7	2.0	114.3	4.5	1.41	0.95
57.2	2 1/4	54.4	2.14	7.62	0.300	5	12	3.5	114.3	4.5	1.73	1.16
57.2	2 1/4	54.4	2.14	8.76	0.345	7	19	5.5	114.3	4.5	2.01	1.35
57.9	2.28	55.1	2.17	3.99	0.157	1	2	0.5	115.8	4.56	0.85	0.57
59.9	2.36	56.9	2.24	6.35	0.250	4	7	2.0	119.9	4.72	1.47	0.99
59.9	2.36	56.9	2.24	7.87	0.310	8	14	4.0	119.9	4.72	1.86	1.25
63.5	2 1/2	60.2	2.37	4.83	0.190	1	3	1.0	127.0	5	1.13	0.76
63.5	2 1/2	60.2	2.37	5.59	0.220	2	5	1.5	127.0	5	1.35	0.91
63.5	2 1/2	60.2	2.37	6.35	0.250	4	7	2.0	127.0	5	1.55	1.04
63.5	2 1/2	60.2	2.37	7.37	0.290	6	10	3.0	127.0	5	1.82	1.22
63.5	2 1/2	60.2	2.37	8.13	0.320	8	14	4.0	127.0	5	2.02	1.36
63.5	2 1/2	60.2	2.37	9.14	0.360	9	17	5.0	127.0	5	2.31	1.55
65.0	2.56	61.7	2.43	6.35	0.250	4	7	2.0	130.0	5.12	1.58	1.06
69.9 ±1.5	2 3/4 ±0.06	66.3	2.61	6.35	0.250	4	5	1.5	139.7	5.5	1.68	1.13
69.9	2 3/4	66.3	2.61	6.73	0.265	5	5	1.5	139.7	5.5	1.79	1.20
69.9	2 3/4	66.3	2.61	7.37	0.290	6	7	2.0	139.7	5.5	1.98	1.33
69.9	2 3/4	66.3	2.61	8.13	0.320	8	10	3.0	139.7	5.5	2.20	1.48
69.9	2 3/4	66.3	2.61	9.53	0.375	9	19	5.5	139.7	5.5	2.62	1.76
76.2	3	72.4	2.85	6.35	0.250	4	3	1.0	152.4	6	1.83	1.23
76.2	3	72.4	2.85	6.86	0.270	5	5	1.5	152.4	6	1.98	1.33
76.2	3	72.4	2.85	7.37	0.290	6	7	2.0	152.4	6	2.14	1.44
76.2	3	72.4	2.85	8.13	0.320	7	10	3.0	152.4	6	2.38	1.60
76.2	3	72.4	2.85	8.76	0.345	8	14	4.0	152.4	6	2.59	1.74
76.2	3	72.4	2.85	9.40	0.370	9	17	5.0	152.4	6	2.80	1.88
79.4	3 1/8	75.4	2.97	6.35	0.250	4	3	1.0	158.8	6.25	1.90	1.28
82.6	3 1/4	78.5	3.09	6.35	0.250	4	3	1.0	165.1	6.5	1.96	1.32
82.6	3 1/4	78.5	3.09	8.13	0.320	7	7	2.0	165.1	6.5	2.56	1.72
88.9	3 1/2	84.3	3.32	6.35	0.250	4	2	0.5	177.8	7	2.10	1.41
88.9	3 1/2	84.3	3.32	8.13	0.320	6	7	2.0	177.8	7	2.74	1.84
88.9	3 1/2	84.3	3.32	8.76	0.345	7	8	2.5	177.8	7	2.96	1.99
88.9	3 1/2	84.3	3.32	9.53	0.375	8	12	3.5	177.8	7	3.24	2.18
95.3	3.75	90.4	3.56	6.35	0.250	4	2	0.5	177.8	7	2.25	1.51
95.3	3.75	90.4	3.56	8.13	0.320	8	5	1.5	177.8	7	2.92	1.96
101.6	4	96.5	3.80	6.35	0.250	4	2	0.5	177.8	7	2.38	1.60
101.6	4	96.5	3.80	7.87	0.310	6	5	1.5	177.8	7	2.99	2.01
101.6	4	96.5	3.80	8.89	0.350	8	7	2.0	177.8	7	3.41	2.29
101.6	4	96.5	3.80	9.53	0.375	9	8	2.5	177.8	7	3.66	2.46
101.6	4	96.5	3.80	10.03	0.395	7	10	3.0	177.8	7	3.93	2.64
106.9	4.21	101.6	4.00	9.53	0.375	9	8	2.5	177.8	7	3.84	2.58

* For cuff length on one end only. This guideline is subject to change based on the complexity of the hose design.

** Not a specification requirement. See the hose design section. Can be increased with a wire coil inserted in the hose ID.

4289N

OIL RESISTANT FORMED AIR INTAKE/VACUUM HOSE


Relative Cost

Applications

Engine air intake with internal oil mist, exhaust fumes, or crank case fumes, or external oily environment. Also suitable for water suction. Not for conveying fuel.


Temperature

-40°C to +100°C [-40°F to +212°F] continuous.


Standards

SAE J200 M3BC 707 E014 E034 F17 Z1[8.28MPa Tb], or SAE J200 M3BC 707 A14 C12 E014 E034 F17.


Construction

Neoprene tube with no reinforcement.


Packaging

Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.


Couplings

Hose bead fitting fastened with hose clamps. [pages 107 - 111]

ID		Extruded ID		Wall Nominal			Vacuum Min.**		Expanded End ID*		Weight Nominal	
mm	in.	mm	inch	mm	inch	rtg.	kPa	inch Hg	mm	inch	kg/m	lbs/ft
15.9 ±0.8	5/8 ±0.03	15.0	0.59	6.35 ±0.51	0.250 ±0.02	4	95	28.0	11.1	0.4375	0.61	0.41
19.1	3/4	18.0	0.71	0.51	0.020	2	95	28.0	38.1	1.5	0.54	0.36
19.1	3/4	18.0	0.71	6.35	0.250	4	95	28.0	38.1	1.5	0.70	0.47
25.4	1	24.1	0.95	6.35	0.250	4	44	13.0	50.8	2	0.88	0.59
28.6	1 1/8	26.9	1.06	5.08	0.200	2	30	8.8	57.2	2.25	0.74	0.50
31.8	1 1/4	30.2	1.19	6.35	0.250	4	37	11.0	63.5	2.5	1.06	0.71
38.1	1 1/2	36.3	1.43	6.35	0.250	4	22	6.6	76.2	3	1.22	0.82
39.9	1.57	37.8	1.49	1.52	0.060	1	2	0.5	79.8	3.14	0.28	0.19
41.4	1.63	39.4	1.55	3.43	0.135	1	7	2.0	82.8	3.26	0.67	0.45
41.4	1.63	39.4	1.55	4.19	0.165	2	17	5.0	82.8	3.26	1.00	0.67
44.5	1 3/4	42.2	1.66	6.35	0.250	4	14	4.0	88.9	3.5	1.40	0.94
44.5	1 3/4	42.2	1.66	7.75	0.305	5	19	5.5	88.9	3.5	1.74	1.17
50.8	2	48.3	1.90	6.35	0.250	4	8	2.5	101.6	4	1.56	1.05
50.8	2	48.3	1.90	7.49	0.295	5	12	3.5	101.6	4	1.89	1.27
57.2	2 1/4	54.4	2.14	6.35	0.250	5	7	2.0	114.3	4.5	1.74	1.17
63.5	2 1/2	60.5	2.38	6.35	0.250	4	7	2.0	127.0	5	1.92	1.29
63.5	2 1/2	60.5	2.38	7.62	0.300	5	12	3.5	127.0	5	2.34	1.57
68.8	2.71	65.3	2.57	9.53	0.375	6	19	5.5	137.7	5.42	3.20	2.15
69.9 ±1.5	2 3/4 ±0.06	66.3	2.61	6.99	0.275	5	6	1.8	139.7	5.5	2.31	1.55
76.2	3	72.4	2.85	6.35	0.250	4	3	1.0	152.4	6	2.26	1.52
76.2	3	72.4	2.85	8.13	0.320	5	10	3.0	152.4	6	2.95	1.98
88.9	3 1/2	0.0		6.35	0.250	4	2	0.5	177.8	7	2.60	1.75
101.6	4	96.5	3.80	6.35	0.250	4	2	0.5	177.8	7	2.95	1.98
101.6	4	96.5	3.80	8.00	0.315	6	5	1.5	177.8	7	3.76	2.53
127.0	5	106.7	4.20	6.35	0.250	4	2	0.5	177.8	7	3.24	2.18

* For cuff length on one end only. This guideline is subject to change based on the complexity of the hose design.

** Not a specification requirement. See the hose design section. Can be increased with a wire coil inserted in the hose ID.

4256NP
COLD SIDE CHARGE AIR HOSE

- Relative Cost** ●●●○○
- Applications** Cold side charge air hose. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F] continuous with peaks to 150°C [302°F].
- Standards** SAE 20R4 Class D1 except wall 5.7 ± 1.4 mm [0.225 ± 0.055 inch].
- Construction** EPDM tube, meta-aramid fabric knit reinforcement, EPDM cover.
- Packaging** Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.
- Couplings** Hose bead fitting fastened with T-bolt clamps.



ID		OD Nominal		Burst Minimum		Vacuum Min.**		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft
57.2 ±0.8	2 1/4 ±0.03	66.04	2.60	0.76	110	**	**	73.2	2.88	0.98	0.66
63.5	2 1/2	72.64	2.86	0.76	110	**	**	82.6	3.25	1.08	0.72
66.7	2 5/8	76.45	3.01	0.76	110	**	**	87.6	3.45	1.28	0.86
76.2 ±1.6	3 ±0.06	86.11	3.39	0.76	110	**	**	99.1	3.90	1.43	0.96
88.9	3 1/2	98.81	3.89	0.76	110	**	**	101.6	4.00	1.70	1.14
101.6	4	111.51	4.39	0.76	110	**	**	114.3	4.50	1.92	1.29

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4256HY / 4256PM
FATIGUE RESISTANT COLD SIDE CHARGE AIR HOSE

- Relative Cost** ●●●○○
- Applications** Cold side charge air hose resistant to pressure impulsing or flexing. Not for conveying fuel or oil.
- Temperature** -40°C to +125°C [-40°F to +257°F] continuous with peaks to 150°C [302°F].
- Standards** SAE 20R4 Class D1 except wall 5.7 ± 1.4 mm [0.225 ± 0.055 inch].
- Construction** EPDM tube, patented hybrid fabric knit reinforcement, EPDM cover.
- Packaging** Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 107 - 111]



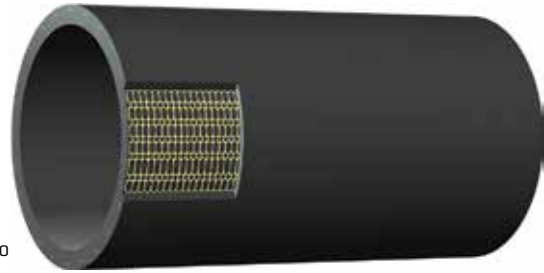
ID		OD Nominal		Burst Minimum		Vacuum Minimum**		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
88.9 ±1.6	3 1/2 ±0.06	5.7 ±1.4	0.225 ±0.055	0.93	135	**	**	101.6	4.00	1.68	1.13
100.8	3.97	5.7	0.225	0.93	135	**	**	114.3	4.50	1.87	1.26
101.6	4	6.5 ±1.5	0.255 ±0.060	0.93	135	**	**	114.3	4.50	2.49	1.67

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

4278AA

OIL AND FATIGUE RESISTANT COLD SIDE CHARGE AIR HOSE


Relative Cost

Applications


Cold side charge air hose for use with internal recirculated crank case fumes or oil mist. Not for conveying fuel.

Temperature


-40°C to +105°C [-40°F to +221°F] continuous with peaks to 125°C [257°F].

Standards


Rubber per SAE J200 M3CE 810 B15 C32 F17 Z1[200% Eb]

Construction


CPE tube, patented hybrid fabric knit reinforcement, CPE cover.

Packaging


Various size boxes. Setup charge and minimum order quantity may apply. Available with end caps, individually bagged, or bulk bagged in the box.

Couplings


Hose bead fitting fastened with T-bolt clamps.

ID		Wall Nominal		Burst Minimum		Vacuum Minimum**		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft
63.5 ±0.8	2 1/2 ±0.03	5.35 ±1.05	0.21 ±0.04	0.83	121	**	**	76.2	3.00	1.43	0.96
76.2 ±1.6	3 ±0.06	5.7 ±1.4	0.22 ±0.06	1.38	200	**	**	92.2	3.63	1.90	1.28
101.6	4	6.5 ±1.5	0.255 ±0.060	0.83	121	**	**	114.3	4.50	2.69	1.81

* For cuff length on one end only. This guideline is subject to change based on hose design.

** No specification requirement. Can be increased with a wire coil inserted in the hose ID.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



3353 PolarSeal®

AIR CONDITIONING HOSE



	Relative Cost	●●●○○
	Applications	Liquid and gaseous R134a and R12 refrigerants in air conditioning and refrigeration units.
	Temperature	-30°C to +125°C [-22°F to +257°F].
	Standards	SAE J2064 Type C Class II, SAE J51 Type A2 dimensions Type D performance.
	Construction	CPE, nylon barrier, spiral polyester, EPDM.
	Packaging	Bulk lengths are on a reel, 25 foot lengths are boxed. Custom lengths available with minimum order quantity.
	Couplings	PolarSeal® couplings [see Gates Hydraulic Catalogs].

Size			ID		OD Nominal		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Nominal		Gates Item Number
Dash	mm	inch	mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	25ft. length
-6	8	5/16	7.8/8.6	.307/.337	18.3/19.8	.719/.781	3.45	500	13.79	2000	81	24	51	2	0.30	0.20	3353-0901
-8	10	13/32	10.2/11.1	.401/.436	22.2/23.8	.875/.937	3.45	500	13.79	2000	81	24	76	3	0.42	0.28	3353-0906
-10	13	1/2	12.4/13.6	.490/.535	24.6/26.2	.969/1.031	3.45	500	13.79	2000	81	24	102	4	0.48	0.32	3353-0911
-12	16	5/8	15.6/16.8	.615/.660	27.8/29.4	1.094/1.156	3.45	500	13.79	2000	81	24	127	5	0.57	0.38	3353-0916

3353 PolarSeal®II

THIN WALL AIR CONDITIONING HOSE



	Relative Cost	●●●○○
	Applications	Liquid and gaseous R134a and R12 refrigerants in air conditioning and refrigeration units with reduced bend radius and weight.
	Temperature	-30°C to +125°C [-22°F to +257°F].
	Standards	SAE J2064 Type C Class II, SAE J51 Type A2 dimensions Type D performance.
	Construction	Neoprene, nylon barrier, NBR, braided polyester, butyl rubber cover.
	Packaging	Bulk lengths are on a reel, 50 foot lengths are boxed. Custom lengths available with minimum order quantity.
	Couplings	PolarSeal®II couplings [see Gates Hydraulic Catalogs].

Size			ID		OD Nominal		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Nominal		Gates Item Number
Dash	mm	inch	mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	50ft. length
-6	8	5/16	7.8/8.6	.307/.337	18.3/19.8	0.62	2.41	350	9.65	1400	81	24	38	1.5	0.17	0.12	3353-5007
-8	10	13/32	10.2/11.1	.401/.436	22.2/23.8	0.74	2.41	350	9.65	1400	81	24	51	2	0.22	0.146	3353-5009
-10	13	1/2	12.4/13.6	.490/.535	24.6/26.2	0.83	2.41	350	9.65	1400	81	24	64	2.5	0.25	0.1676	3353-5011
-12	16	5/8	15.6/16.8	.615/.660	27.8/29.4	0.96	2.41	350	9.65	1400	81	24	76	3	0.39	0.264	3353-5013
-14	22	7/8	15.6/16.8	.615/.660	27.8/29.4	1.23	2.41	350	9.65	1400	81	24	102	4	0.59	0.394	3353-5017



BRAKE

> Air Brake, Air Compressor

3245E	Standard	101
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> Vacuum Brake

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Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



3245E

STANDARD AIR BRAKE HOSE



Relative Cost ●○○○○



Applications Air brake hose.



Temperature -40°C to +100°C [-40°F to +212°F].



Standards SAE J1402 Type A. Complies with DOT FMVSS 106.



Construction EPDM tube, 4 spiral polyester reinforcement, EPDM cover.



Packaging Bulk lengths 76.2 meters (250 feet) shipped on a reel or 15.24 meters (50 feet) in a box. Custom lengths available with minimum order quantity.

Couplings All styles of air brake coupling including conventional brass and plastic couplings.

Note: Federal law requires registration with the Department of Transportation for anyone producing air brake hose assemblies with swaged or crimped fittings.



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	50 ft. Length	250 ft. Length
9.6 ±0.5	3/8 ±0.02	19.1 ±0.8	0.75 ±0.03	1.55	225	6.21	900	81	24	90	3.5	0.30	0.2	3245-0601	3245-0602
12.7 ±0.8	1/2 ±0.03	22.4 ±0.9	.88 ±.035	1.55	225	6.21	900	81	24	100	4	0.37	0.25	3245-0603	3245-0604

3245G

HEAVY DUTY AIR BRAKE HOSE



Relative Cost ●●●○○



Applications Air brake hose. Can be used as a flexible connector between frame and axle.



Temperature -40°C to +100°C [-40°F to +212°F].



Standards SAE J1402. Complies with DOT FMVSS 106.



Construction Neoprene tube, braided rayon reinforcement, neoprene cover.



Packaging All lengths shipped in a box. Custom lengths available with minimum order quantity.



Couplings All styles of air brake coupling including conventional brass and plastic couplings.

Note: Federal law requires registration with the Department of Transportation for anyone producing air brake hose assemblies with swaged or crimped fittings.



ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length	50 ft. Length
9.6 ±0.6	3/8 ±0.025	19.1 ±0.8	0.75 ±0.03	1.55	225	6.21	900	81	24	89	3.5	0.34	0.23	76	250	3245-4470	3245-4468
12.7 ±0.8	1/2 ±0.03	22.4 ±0.9	.88 ±.035	1.55	225	6.21	900	81	24	102	4	0.45	0.3	91	300	3245-0139	3245-4467

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



3245T

LOW TEMPERATURE AIR BRAKE AND VACUUM BRAKE HOSE



Relative Cost



Applications

Heavy duty air brake or vacuum brake hose for cold conditions.

Temperature

-54°C to +100°C [-65°F to +212°F].

Standards

SAE J1403 Type H. Complies with DOT FMVSS 106.

Construction

Neoprene tube, braided rayon reinforcement, neoprene cover.

Packaging

Bulk lengths are 50 feet shipped in a box except 3245-4470 is 250 feet on a reel. Custom lengths available with minimum order quantity.

Couplings

All styles of air brake coupling including conventional brass and plastic couplings.

Note: Federal law requires registration with the Department of Transportation for anyone producing air brake hose assemblies with swaged or crimped fittings.

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	Bulk Length
9.53 ±0.76	3/8 ±0.03	19.1 ±0.76	0.75 ±0.03	0.59	85	6.21	900	101	30	76	3	0.31	0.21	3245-4470
12.70 ±0.76	1/2 ±0.03	22.2 ±0.76	0.88 ±0.03	0.59	85	6.21	900	101	30	127	5	0.42	0.28	3245-4467
15.88 ±0.76	5/8 ±0.03	27.6 ±0.76	1.09 ±0.03	0.59	85	6.21	900	101	30	152	6	0.64	0.43	3245-4476
19.05 ±0.76	3/4 ±0.03	30.23 ±0.76	1.19 ±0.03	0.59	85	6.21	900	101	30	152	6	0.57	0.38	3145-4477

3658C (C5C)

HIGHER PRESSURE BRAKE HOSE



Relative Cost



Applications

Higher pressure air brake hose with internal wire braid. Also suitable for lube oil and petroleum-based hydraulic oil, and transmission oil. Not for fuel.

Temperature

-40°C to +100°C [-40°F to +212°F].

Standards

SAE J1402 Type AII and DOT FMVSS 106, and SAE 100R5.

Construction

Nitrile or neoprene tube, synthetic fiber and steel braid reinforcement layers, neoprene cover.

Packaging

Bulk lengths shipped on a reel. Custom lengths available with minimum order quantity.

Couplings

C5 Field Attachable Couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	dash	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
4.8	3/16	-4	13.2	0.52	20.68	3000	82.74	12000	85	25	75	3	0.24	0.16	134	440	3658-1775
6.4	1/4	-5	14.7	0.58	20.68	3000	82.74	12000	85	25	86	3.4	0.28	0.19	117	385	3658-1776
7.9	5/16	-6	17.0	0.67	15.51	2250	62.05	9000	85	25	100	4	0.36	0.24	117	385	3658-1777
10.3	13/32	-8	19.6	0.77	13.79	2000	55.16	8000	85	25	125	4.6	0.42	0.28	101	330	3658-1778
12.7	1/2	-10	23.4	0.92	12.07	1750	48.26	7000	85	25	140	5.5	0.57	0.38	84	275	3658-1779
15.9	5/8	-12	27.4	1.08	10.34	1500	41.37	6000	85	25	150	6.5	0.70	0.47	67	220	3658-1780

3658E (C5E)

HIGHER PRESSURE AND HIGHER TEMPERATURE BRAKE HOSE

Relative Cost ●●●●○

Applications Higher pressure and temperature air brake hose with internal wire braid. Also suitable for lube oil and fuel filter lines.

Temperature -40°C to +121°C [-40°F to +250°F].

Standards SAE J1405, SAE J1402 Type A1 and DOT FMVSS 106.

Construction Nitrile tube, synthetic fiber and steel braid reinforcement layers, neoprene cover with green stripe.

Packaging Bulk lengths shipped on a reel. Custom lengths available with minimum order quantity.

Couplings C5E Field Attachable Couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.



ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	dash	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
4.8	3/16	-4	12.4	0.49	10.34	1500	41.37	6000	85	25	75	0.8	0.18	0.12	134	440	3658-0210
6.4	1/4	-5	14.0	0.55	10.34	1500	41.37	6000	85	25	25	1	0.21	0.14	117	385	3658-0211
7.9	5/16	-6	15.5	0.61	10.34	1500	41.37	6000	85	25	100	1.3	0.25	0.17	117	385	3658-0212
10.3	13/32	-8	18.5	0.73	8.62	1250	34.47	5000	85	25	125	1.8	0.33	0.22	101	330	3658-0213
12.7	1/2	-10	21.1	0.83	8.62	1250	34.47	5000	85	25	140	2.3	0.37	0.25	84	275	3658-0214
15.9	5/8	-12	24.1	0.95	5.17	750	20.68	3000	85	25	150	3	0.46	0.31	67	220	3658-0215

4657DT (MegaTech® 1000)

HIGH TEMPERATURE OIL/AIR HOSE

Relative Cost ●●●●○

Applications Air brake, pressurized hot oil return lines and rotary oil/air compressor lines. Meets the requirements of SAE J1405 performance specifications for high-temperature transmission and lubricating oil systems using petroleum base oils. Not for biodiesel blends.

Temperature -40°C to +149°C [-40°F to +300°F]. Phosphate esters fluids as recommended by the fluid manufacturer, but to 100°C [212°F] max.

Standards DOT FMVSS 106-74, SAE J1402 for air brake [-4, -6, -8, -10], and SAE J1405.

Construction CPE tube, steel wire braid reinforcement, rubber coated textile braid cover.

Packaging Bulk lengths shipped on a reel. May not be continuous lengths. Custom lengths available with minimum order quantity.

Couplings MegaCrimp® Couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

Note: Federal law requires registration with the Department of Transportation for anyone producing air brake hose assemblies with swaged or crimped fittings.



ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	-4	13.2	0.52	6.89	1000	27.58	4000	51	2	0.16	0.11	107	350	4657-2332
9.5	3/8	-6	16.8	0.66	6.89	1000	27.58	4000	64	2.5	0.30	0.20	107	350	4657-2297
12.7	1/2	-8	20.3	0.80	6.89	1000	27.58	4000	89	3.5	0.36	0.24	107	350	4657-2334
15.9	5/8	-10	23.6	0.93	6.89	1000	27.58	4000	102	4	0.49	0.33	91	300	4657-2335
22.2	3/4	-12	29.2	1.15	6.89	1000	27.58	4000	119	4.7	0.60	0.40	61	200	4657-2336
25.4	1	-16	34.8	1.37	6.89	1000	27.58	4000	152	6	0.77	0.52	46	150	4657-2337
31.8	1 1/4	-20	41.7	1.64	6.89	1000	27.58	4000	216	8.5	1.24	0.83	30	100	4657-2338

7752 (C14)

HIGH TEMPERATURE AIR COMPRESSOR HOSE WITH STAINLESS STEEL COVER



Relative Cost ●●●●●

Applications

High temperature air compressor discharge hose with external stainless steel wire braid. Also suitable for hot lube oil and greasy environments.

Temperature

-54°C to +232°C [-65°F to +450°F].

Standards

None.

Construction

Non-conductive* or conductive PTFE tube, 300 series stainless steel reinforcement/cover.

Packaging

Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.

Couplings

C14 Couplings. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data.

ID			OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number [C14]	Gates Item Number [C14CT]
mm	inch	dash	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	meters	feet	Non-Conductive*	Conductive
4.8	3/16	-4	7.9	0.31	10.34	1500	41.37	6000	95	28	100	2	0.12	0.08	122	400	7752-0400	
6.4	1/4	-5	9.7	0.38	10.34	1500	41.37	6000	95	28	125	3	0.15	0.1	107	350	7752-0500	
7.9	5/16	-6	11.4	0.45	10.34	1500	41.37	6000	95	28	100	4	0.16	0.11	91	300	7752-0600	7752-3600
10.3	13/32	-8	14.0	0.55	6.89	1000	27.58	4000	95	28	125	5.3	0.18	0.12	76	250	7752-0800	7752-3800
12.7	1/2	-10	16.5	0.65	5.52	800	22.06	3200	95	28	100	6.5	0.22	0.15	61	200	7752-1000	
15.9	5/8	-12	20.1	0.79	5.52	800	22.06	3200	95	28	125	7.8	0.25	0.17	46	150	7752-1200	
22.2	7/8	-16	26.2	1.03	5.52	800	22.06	3200	95	28	100	9	0.40	0.27	30	100	7752-1600	

* Do not use non-conductive hoses with gasoline or steam or any fluid that can cause a buildup of static electricity. Please see the Electrostatic Discharge page in the Gates Hydraulic Catalog under the Hose/Coupling Selection section.

3276

LIGHT DUTY VACUUM BRAKE HOSE



Relative Cost ●●●●●

Applications

Vacuum brake for passenger cars and light trucks.

Temperature

-40°C to +121°C [-40°F to +250°F].

Standards

SAE J1403 Type L and FMVSS-106VL.

Construction

EPDM tube, synthetic fiber reinforcement, EPDM cover.

Packaging

Bulk lengths shipped on a reel. Custom lengths available with minimum order quantity.

Couplings

Hose bead fitting with hose clamps. (pages 107 - 111)

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
8.73 ±0.76	11/32 ±0.03	17.53 ±0.76	0.69 ±0.03	0.59	85	2.41	350	88	26	76	3	0.21	0.14	15	50	3276-4481
11.91	15/32	20.57	0.81	0.59	85	2.41	350	88	26	127	5	0.25	0.17	15	50	3276-4482

4327 (NABT)

STANDARD NYLON AIR BRAKE TUBING

Relative Cost ●○○○○○

Applications Air brake for truck, tractor trailer, and other moving equipment. Also suitable for DEF vent line, air accessories and instrumentation, alcohol, and solvents. Not for use where heat or battery acid is present.

Temperature -40°C to +93°C (-40°F to +200°F).

Standards DOT FMVSS 106 and SAE J844.

Construction Heat and light stabilized seamless extruded nylon 12 tube, nylon 11 cover. Type A is non-reinforced and not recognized by DOT for air brake systems (use for service lines only). Type B is reinforced with one open ply of fibrous nylon.

Packaging Lengths of 76m (250 feet) or longer shipped on a reel. Shorter lengths available in most sizes, wrapped in poly film. Custom lengths available with minimum order quantity.

Couplings Gates DOT SureLok™ or Gates Compression Couplings [see Gates Automotive Hydraulic and Fleet Hose Catalog]

Note: Federal law requires registration with the Department of Transportation for anyone producing air brake hose assemblies with swaged or crimped fittings.



OD		Wall Nominal		Type	Color	Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	inch			MPa	psi	MPa	psi	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
3.2	1/8	0.53	0.021	A	Black	1.03	150	5.52	800	9	0.37	0.01	0.005	305	1000	4327-0117
4.0	5/32	0.56	0.022	A	Black	1.03	150	5.52	800	13	0.5	0.01	0.01	30	100	4327-0050
6.4	1/4	0.99	0.039	A	Black	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0101
7.9	5/16	0.97	0.038	B	Black	1.03	150	5.52	800	32	1.25	0.03	0.02	152	500	4327-0120
9.5	3/8	1.60	0.063	B	Black	1.03	150	7.72	1120	38	1.5	0.04	0.03	305	1000	4327-0201
9.5	3/8	1.60	0.063	B	Black	1.03	150	7.72	1120	38	1.5	0.04	0.03	152	500	4327-0126
12.7	1/2	1.63	0.064	B	Black	1.03	150	5.24	760	51	2	0.06	0.04	152	500	4327-0112
15.9	5/8	2.36	0.093	B	Black	1.03	150	4.96	720	64	2.5	0.10	0.07	76	250	4327-0115
19.1	3/4	2.31	0.091	B	Black	1.03	150	4.41	640	76	3	0.13	0.09	76	250	4327-0116
6.4	1/4	0.99	0.039	A	Green	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0104
9.5	3/8	1.60	0.063	B	Green	1.03	150	7.72	1120	32	1.25	0.04	0.03	305	1000	4327-1003
9.5	3/8	1.63	0.064	B	Green	1.03	150	7.72	1120	32	1.25	0.04	0.03	152	500	4327-0129
12.7	1/2	2.36	0.093	B	Green	1.03	150	5.24	760	51	2	0.06	0.04	152	500	4327-0132
15.9	5/8	2.31	0.091	B	Green	1.03	150	4.96	720	64	2.5	0.10	0.07	76	250	4327-1006
19.1	3/4	2.31	0.091	B	Green	1.03	150	4.41	640	76	3	0.13	0.09	15	50	4327-0062
6.4	1/4	0.99	0.039	A	Red	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0105
9.5	3/8	1.60	0.063	B	Red	1.03	150	7.72	1120	32	1.25	0.04	0.03	305	1000	4327-1005
9.5	3/8	1.60	0.063	B	Red	1.03	150	7.72	1120	32	1.25	0.04	0.03	152	500	4327-0127
12.7	1/2	1.63	0.064	B	Red	1.03	150	5.24	760	51	2	0.06	0.04	152	500	4327-0131
15.9	5/8	2.36	0.093	B	Red	1.03	150	4.96	720	64	2.5	0.10	0.07	76	250	4327-1007
19.1	3/4	2.31	0.091	B	Red	1.03	150	4.41	640	76	3	0.13	0.09	15	50	4327-0067
6.4	1/4	0.99	0.039	A	Blue	1.03	150	6.62	960	25	1	0.01	0.01	1524	5000	4327-1001
6.4	1/4	0.99	0.039	B	Blue	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0102
9.5	3/8	1.60	0.063	B	Blue	1.03	150	7.72	1120	32	1.25	0.04	0.03	305	1000	4327-1002
9.5	3/8	1.60	0.063	B	Blue	1.03	150	7.72	1120	32	1.25	0.04	0.03	152	500	4327-0128
12.7	1/2	1.63	0.064	B	Blue	1.03	150	5.24	760	51	2	0.06	0.04	152	500	4327-0133
15.9	5/8	2.36	0.093	B	Blue	1.03	150	4.96	720	64	2.5	0.10	0.07	15	50	4327-0071
19.1	3/4	2.31	0.091	B	Blue	1.03	150	4.41	640	76	3	0.13	0.09	15	50	4327-0072
6.4	1/4	0.99	0.039	A	Yellow	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0107

4327 (NABT)

STANDARD NYLON AIR BRAKE TUBING (CON'T)

OD		Wall Nominal		Type	Color	Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	inch			MPa	psi	MPa	psi	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
9.5	3/8	1.60	0.063	B	Yellow	1.03	150	7.72	1120	32	1.25	0.04	0.03	305	1000	4327-0111
12.7	1/2	1.63	0.064	B	Yellow	1.03	150	5.24	760	51	2	0.06	0.04	30	100	4327-0075
15.9	5/8	2.36	0.093	B	Yellow	1.03	150	4.96	720	64	2.5	0.12	0.08	15	50	4327-0076
19.1	3/4	2.31	0.091	B	Yellow	1.03	150	4.41	640	76	3	0.13	0.09	15	50	4327-0077
9.5	3/8	1.60	0.063	B	Orange	1.03	150	7.72	1120	32	1.25	0.04	0.03	305	1000	4327-1004
12.7	1/2	1.63	0.064	B	Orange	1.03	150	5.24	760	51	2	0.06	0.04	30	100	4327-0080
15.9	5/8	2.36	0.093	B	Orange	1.03	150	4.96	720	64	2.5	0.12	0.08	15	50	4327-0081
19.1	3/4	2.31	0.091	B	Orange	1.03	150	4.41	640	76	3	0.13	0.09	15	50	4327-0082
6.4	1/4	0.99	0.039	A	Purple	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0125
6.4	1/4	0.99	0.039	A	Brown	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0103
9.5	3/8	1.60	0.063	B	Brown	1.03	150	7.72	1120	32	1.25	0.04	0.03	305	1000	4327-0109
6.4	1/4	0.99	0.039	A	Silver	1.03	150	6.62	960	25	1	0.01	0.01	305	1000	4327-0106
12.7	1/2	1.63	0.064	B	Silver	1.03	150	5.24	760	51	2	0.06	0.04	152	500	4327-0114
9.5	3/8	1.60	0.063	B	White	1.03	150	7.72	1120	38	1.5	0.04	0.03	305	1000	4327-0110

Coolant

Fuel

Oil

Exhaust/
DEF

Air

Brake

Hose
Accessories

Belts

7400/7408

HOSE CLAMP - WORM DRIVE



Relative Cost



Applications

Use on coolant, air intake, or low-pressure fuel and oil hoses. For silicone or soft hoses, use Silicone Hose Clamps. For marine or corrosive environments, use Marine Clamps. For CAC or more clamping power, see Constant Tension or T-Bolt Clamps section.



Standards

SAE J1508.



Construction

Super Hex - 12.7mm [1/2"] wide stainless steel band and one-piece screw housing. Cadmium plated hex head screw with slot.

Green Stripe - 14.3mm [9/16"] wide stainless steel band and 400 series stainless steel hex head screw with slot.

Green Stripe Marine - 14.3mm [9/16"] wide marine grade stainless steel band and 300 series stainless steel hex head screw with slot.



Packaging

Ten per box.



Couplings

Clamps hose to beaded, barbed, or straight fittings.



Fits Hose ID		SAE J1508 Size	Clamping Range		Super Hex Item Number	Green Stripe Item Number	Green Stripe Marine Item Number
mm	inch		mm	inch			
4.0 to 12.7	5/32 to 1/2	4	6.4 to 15.9	1/4 to 5/8	32001*	32201	
6.4 to 9.5	1/4 to 3/8	6	9.5 to 22.2	3/8 to 7/8	32006		
5.6 to 17.5	7/32 to 11/16	7	7.9 to 22.2	5/16 to 7/8	32007*	32207	
7.9 to 12.7	5/16 to 1/2	8	11.1 to 25.4	7/16 to 1	32008	32208	32508
9.5 to 15.9	3/8 to 5/8	10	12.7 to 28.6	1/2 to 1 1/8	32010	32210	32510
15.9 to 19.1	5/8 to 3/4	12	12.7 to 31.8	1/2 to 1 1/4	32012	32212	32512
19.1 to 25.4	3/4 to 1	16	19.1 to 38.1	3/4 to 1 1/2	32016	32216	32516
25.4 to 31.8	1 to 1 1/4	20	19.1 to 44.5	3/4 to 1 3/4	32020	32220	32520
31.8 to 38.1	1 1/4 to 1 1/2	24	25.4 to 50.8	1 to 2	32024	32224	32524
31.8 to 44.5	1 1/4 to 1 3/4	28	33.3 to 57.1	1 5/16 to 2 1/4	32028	32228	32528
38.1 to 50.8	1 1/2 to 2	32	39.7 to 63.5	1 9/16 to 2 1/2	32032	32232	32532
44.5 to 57.1	1 3/4 to 2 1/4	36	22.2 to 69.9	7/8 to 2 3/4	32036	32236	32536
50.8 to 63.5	2 to 2 1/2	40	28.6 to 76.2	1 1/8 to 3	32040		
57.1 to 69.9	2 1/4 to 2 3/4	44	33.3 to 82.6	1 5/16 to 3 1/4	32044		
63.5 to 76.2	2 1/2 to 3	48	41.3 to 88.9	1 5/8 to 3 1/2	32048	32248	32548
76.2 to 82.6	3 to 3 1/4	52	47.6 to 95.3	1 7/8 to 3 3/4	32052	32252	32552
50.8 to 88.9	2 to 3 1/2	56	54.0 to 101.6	2 1/8 to 4	32056	32256	32556
57.2 to 95.3	2 1/4 to 3 3/4	60	58.7 to 108.0	2 5/16 to 4 1/4		32260	32560
57.1 to 101.6	2 1/4 to 4	64	66.7 to 114.3	2 5/8 to 4 1/2	32064	32264	32564
76.2 to 114.3	3 to 4 1/2	72	79.4 to 127	3 1/8 to 5	32072	32272	32572
101.6 to 165	4 to 6 1/2	104	101.6 to 178	4 to 7	32104	32304	32604

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts





7400/7408

HOSE CLAMP - WORM DRIVE

**Relative Cost****Applications**

Use on coolant, air intake, or low-pressure fuel and oil hoses. For silicone or soft hoses, use Silicone Hose Clamps.

**Standards**

SAE J1508.

**Construction**

Silicone Clamp - 14.3mm [9/16"] wide 300 series stainless steel band, housing, and hex head screw with slot.

**Packaging**

Ten per box.

**Couplings**

Clamps hose to beaded, barbed, or straight fittings.

Fits Hose ID		SAE J1508 Size	Clamping Range		Silicone Clamp Item Number
mm	inch		mm	inch	
7.9 to 12.7	5/16 to 1/2	8	11.1 to 25.4	7/16 to 1	32308
9.5 to 15.9	3/8 to 5/8	10	19.1 to 28.6	3/4 to 1 1/8	32310
15.9 to 19.1	5/8 to 3/4	12	22.2 to 31.8	7/8 to 1 1/4	32312
19.1 to 25.4	3/4 to 1	16	25.4 to 38.1	1 to 1 1/2	32316
25.4 to 31.8	1 to 1 1/4	20	28.6 to 44.5	1 1/8 to 1 3/4	32320
31.8 to 38.1	1 1/4 to 1 1/2	24	31.8 to 50.8	1 1/4 to 2	32324
31.8 to 44.5	1 1/4 to 1 3/4	28	33.3 to 57.1	1 5/16 to 2 1/4	32328
38.1 to 50.8	1 1/2 to 2	32	39.7 to 63.5	1 9/16 to 2 1/2	32332
44.5 to 57.1	1 3/4 to 2 1/4	36	46.0 to 69.9	1 13/16 to 2 3/4	32336
50.8 to 63.5	2 to 2 1/2	40	52.4 to 76.2	2 1/16 to 3	32340
57.1 to 69.9	2 1/4 to 2 3/4	44	58.7 to 82.6	2 5/16 to 3 1/4	32344
63.5 to 76.2	2 1/2 to 3	48	65.1 to 88.9	2 9/16 to 3 1/2	32348
76.2 to 82.6	3 to 3 1/4	52	71.4 to 95.3	2 13/16 to 3 3/4	32352
82.6 to 88.9	3 1/4 to 3 1/2	56	77.8 to 101.6	3 1/16 to 4	32356
95.3 to 101.6	3 3/4 to 4	64	90.5 to 114.3	3 9/16 to 4 1/2	32364
101.6 to 114.3	4 to 4 1/2	72	103.2 to 127	4 1/16 to 5	32372

Coolant



Fuel



Oil

Exhaust/
DEF

Air



Brake

Hose
Accessories

Belts



7422

HOSE CLAMP - T-BOLT, SPRING LOADED T-BOLT



Relative Cost ●●●●●



Applications Use on coolant, air intake, or CAC hoses on heavy duty applications.



Construction 19.0mm [3/4 inch] wide stainless steel band and 7/16" hex plated locknut with nylon insert.



Packaging Ten per box.



Couplings Clamps hose to beaded, barbed, or straight fittings using 8.5 Nm [75 in. lbs.] torque.



SAE J1508 Size	Clamping Range		Green Stripe T-Bolt Item Number	Green Stripe Spring Loaded T-Bolt Item Number
	mm	inch		
-	35.1 to 38.6	1 3/8 to 1 9/16	32749	
-	38.1 to 41.7	1 1/2 to 1 5/8	32750	
-	41.4 to 46.0	1 5/8 to 1 7/8	32751	
28	44.5 to 50.8	1 3/4 to 2	32752	
32	47.8 to 55.6	1 7/8 to 2 3/16	32753	
36	50.8 to 58.7	2 to 2 5/16	32754	
40	54.1 to 62.0	2 1/8 to 2 7/16	32755	
44	57.2 to 65.0	2 1/4 to 2 9/16	32756	
48	60.5 to 68.3	2 3/8 to 2 11/16	32757	
52	63.5 to 71.4	2 1/2 to 2 13/16	32758	
56	66.8 to 74.7	2 5/8 to 2 15/16	32759	
60	69.9 to 77.7	2 3/4 to 3 1/16	32760	
64	73.2 to 81.0	2 7/8 to 3 3/16	32761	
68	76.2 to 84.1	3 to 3 5/16	32762	
70	77.8 to 85.7	3 1/16 to 3 3/8		32861
72	79.5 to 87.4	3 1/8 to 3 7/16	32763	
76	82.6 to 90.4	3 1/4 to 3 9/16	32764	
80	85.9 to 93.7	3 3/8 to 3 11/16	32765	
84	88.9 to 96.8	3 1/2 to 3 13/16	32766	
86	90.5 to 98.4	3 9/16 to 3 7/8		32862
88	92.2 to 100.1	3 5/8 to 3 15/16	32767	
92	95.3 to 103.1	3 3/4 to 4 1/16	32768	
100	101.6 to 109.5	4 to 4 5/16	32769	
102	103.2 to 111.1	4 1/16 to 4 3/8		32863
108	108.0 to 115.8	4 1/4 to 4 9/16	32770	
116	114.3 to 122.2	4 1/2 to 4 13/16	32771	
118	115.9 to 123.8	4 9/16 to 4 7/8		32864
124	120.7 to 128.5	4 3/4 to 5 1/16	32772	
132	127.0 to 134.9	5 to 5 5/16	32773	
140	133.4 to 141.2	5 1/4 to 5 9/16	32774	
148	139.7 to 147.6	5 1/2 to 5 13/16	32775	
156	146.1 to 153.9	5 3/4 to 6 1/16	32776	
164	152.4 to 160.3	6 to 6 5/16	32777	
172	158.8 to 166.6	6 1/4 to 6 9/16	32778	
180	165.1 to 173.0	6 1/2 to 6 13/16	32779	
188	171.5 to 179.3	6 3/4 to 7 1/16	32780	
196	177.8 to 185.7	7 to 7 5/16	32781	
204	184.2 to 192.0	7 1/4 to 7 9/16	32782	
212	190.5 to 198.4	7 1/2 to 7 13/16	32783	
220	196.9 to 204.7	7 3/4 to 8 1/16	32784	
228	203.2 to 211.1	8 to 8 5/16	32785	
236	209.6 to 217.4	8 1/4 to 8 9/16	32786	
244	215.9 to 223.8	8 1/2 to 8 13/16	32787	

Coolant



Fuel



Oil



Exhaust/DEF



Air



Brake



Hose Accessories



Belts



7405 (POWERGRIP SB)

POLYMERIC HEAT-SHRINK CLAMP



Relative Cost



Applications

Coolant hoses that require maintenance-free, low-profile clamps. Compensates for temperature extremes or imperfections in fittings or hose, and adjusts automatically. Also suitable for abrasion protection, wire bundling, or sleeve end encapsulation. Use a heat gun to shrink the clamp in place permanently.



Temperature

-40°C to +150°C [-40°F to +302°F].



Construction

Proprietary heat-shrink polymer.



Packaging

10 per box.



Couplings

Clamps hose onto beaded, barbed, or straight fittings.

Fits Hose I.D.		Fits Hose O.D.		Length		Gates Item Number	Interchange Number
mm	inch	mm	inch	mm	inch		
6.4	1/4	12.7 to 17.5	1/2 to 11/16	19.1	0.75	7405-4001	SB15
9.5	3/8	17.5 to 20.6	11/16 to 13/16	19.1	0.75	7405-4002	SB19
12.7	1/2	20.6 to 23.8	13/16 to 15/16	19.1	0.75	7405-4003	SB22
15.9	5/8	23.8 to 27.0	15/16 to 1 1/16	25.4	1	7405-4004	SB25
19.1	3/4	27.0 to 30.2	1 1/16 to 1 3/16	25.4	1	7405-4005	SB29
22.2	7/8	30.2 to 33.3	1 3/16 to 1 5/16	25.4	1	7405-4017	SB32
25.4	1	33.3 to 38.1	1 5/16 to 1 1/2	25.4	1	7405-4006	SB34
31.8	1 1/4	38.1 to 44.5	1 1/2 to 1 3/4	31.8	1.25	7405-4007	SB41
38.1	1 1/2	44.5 to 50.8	1 3/4 to 2	31.8	1.25	7405-4008	SB48
44.5	1 3/4	50.8 to 57.2	2 to 2 1/4	31.8	1.25	7405-4009	SB54
50.8	2	57.2 to 63.5	2 1/4 to 2 1/2	31.8	1.25	7405-4010	SB60
57.2	2 1/4	63.5 to 69.9	2 1/2 to 2 3/4	38.1	1.5	7405-4011	SB67
63.5	2 1/2	69.9 to 76.2	2 3/4 to 3	38.1	1.5	7405-4012	SB73
69.9	2 3/4	76.2 to 82.6	3 to 3 1/4	38.1	1.5	7405-4013	SB79
76.2	3	82.6 to 88.9	3 1/4 to 3 1/2	38.1	1.5	7405-4014	SB86
79.4	3 1/8	88.9 to 92.1	3 1/2 to 3 5/8	38.1	1.5	7405-4015	SB90

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



7407 (POWERGRIP RT)

POLYMERIC ROOM-TEMPERATURE SHRINK CLAMP

- Relative Cost** ●●●●●
- Applications** Coolant hoses that require maintenance-free, low-profile clamps. Compensates for temperature extremes or imperfections in fittings or hose, and adjusts automatically. Also suitable for abrasion protection, wire bundling, or sleeve end encapsulation. Room-temperature shrink capability preferred on assembly lines to eliminate the need for heat guns.
- Temperature** -40°C to +150°C [-40°F to +302°F].
- Construction** Proprietary heat-shrink polymer.
- Packaging** Boxed. Minimum order quantity applies to all sizes.
- Couplings** Clamps hose onto beaded, barbed, or straight fittings.



Fits Hose I.D.		Fits Hose O.D.		Length		Quantity Per Box	Gates Item Number
mm	inch	mm	inch	mm	inch		
9.5	3/8	17.5 to 20.6	.66 to .78	14.1	0.56	300	7407-3202
15.9	5/8	23.8 to 27.0	.91 to 1.03	17.8	0.70	250	7407-3204
19.1	3/4	27.0 to 30.2	1.03 to 1.22	17.8	0.70	200	7407-3205
25.4	1	33.3 to 38.1	1.29 to 1.39	17.8	0.70	125	7407-3207
31.8	1 1/4	38.1 to 44.5	1.56 to 1.72	24.1	0.95	450	7407-3209
38.1	1 1/2	44.5 to 50.8	1.81 to 1.97	24.1	0.95	500	7407-3211*
50.8	2	57.2 to 63.5	2.28 to 2.54	24.1	0.95	225	7407-3215
57.2	2 1/4	63.5 to 69.9	2.53 to 2.79	24.1	0.95	150	7407-3217
63.5	2 1/2	69.9 to 76.2	2.78 to 3.04	24.1	0.95	125	7407-3225
69.9	2 3/4	76.2 to 82.6	3.03 to 3.32	24.1	0.95	110	7407-3221*
76.2	3	82.6 to 88.9	3.28 to 3.57	24.1	0.95	100	7407-3223*

* Not stocked. Minimum order quantity applies.

7736

HOSE ID REDUCERS

- Relative Cost** ●●○○○
- Applications** Coolant hose for light duty or temporary use. Also suitable for low-pressure air applications. Place inside a hose end to adapt it to a smaller diameter hose bead fitting.
- Temperature** -40°C to +250°C [-40°F to +480°F].
- Standards** Material per SAE J200/ASTM D2000 M2AA 707 A13 B13 F17.
- Construction** EPDM rubber with no parting line on sealing surfaces.
- Packaging** Boxed 5 per package.
- Couplings** Inserted in hose ID, then assembled over hose bead fitting fastened with hose clamps.



I.D.		Length		Gates Item Number
mm	inch	mm	inch	
38.1 to 31.8	1 1/2 to 1 1/4	50.8	2.00	26390
44.5 to 38.1	1 3/4 to 1 1/2	50.8	2.00	26391
50.8 to 44.5	2 to 1 3/4	50.8	2.00	26392
57.2 to 50.8	2 1/4 to 2	50.8	2.00	26393
63.5 to 57.2	2 1/2 to 2 1/4	50.8	2.00	26394
76.2 to 63.5	3 to 2 1/2	50.8	2.00	26395

7315 (CONNECTORS)

GLASS-FILLED NYLON HOSE CONNECTORS



Relative Cost



Applications

Coolant, diesel, or gasoline (petrol).
Also suitable for water, air, or oil.



Temperature

-40°C to +250°C [-40°F to +480°F].



Construction

Injection molded glass-filled nylon with no parting lines on the extra long sealing surface of the barbs, and with anti-rotation ridges on connectors up to 1".



Packaging

Boxed 5 per package except 1" connectors are 2 per package.

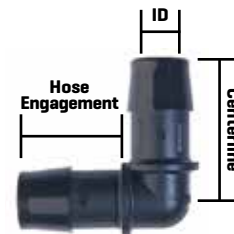
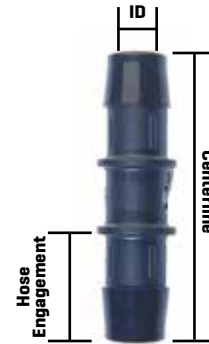


Couplings

Hose clamps.

Fits Hose I.D.		Connector I.D.		Length on Centerline		Hose Engagement Length		Gates Item Number
mm	inch	mm	inch	mm	inch	mm	inch	
Straight Connectors								
2.4	3/32	1.8	0.07	18.7	0.74	6.8	0.27	28561*
3.2	1/8	2.3	0.09	25.1	0.99	9.6	0.38	28562*
4.0	5/32	2.4	0.09	32.1	1.27	12.7	0.50	28563
4.8	3/16	2.9	0.12	35.6	1.40	14.0	0.55	28564
6.4	1/4	3.6	0.14	49.8	1.96	20.3	0.80	28601
7.9	5/16	5.0	0.20	54.1	2.13	21.6	0.85	28600
9.5	3/8	6.4	0.25	58.4	2.30	22.9	0.90	28602
12.7	1/2	9.1	0.36	67.1	2.64	25.4	1.00	28603
15.9	5/8	11.9	0.47	75.7	2.98	27.9	1.10	28604
19.1	3/4	14.7	0.58	84.3	3.32	30.5	1.20	28605
25.4	1	20.3	0.80	101.6	4.00	35.6	1.40	28606
Straight Reducer Connectors								
3.2 x 2.4	1/8 x 3/32	2.4 x 1.8	0.09 x 0.07	22.8	0.90	9.6 x 6.8	0.38 x 0.27	28591*
4 x 3.2	5/32 x 1/8	2.6 x 1.9	0.10 x 0.07	31.0	1.22	12.7 x 11.4	0.50 x 0.45	28592
6.4 x 4.8	1/4 x 3/16	3.4 x 3.1	0.13 x 0.12	43.4	1.71	20.3 x 14.0	0.80 x 0.55	28593
9.5 x 7.9	3/8 x 5/16	5.9 x 5.1	0.23 x 0.20	57.2	2.25	22.9 x 21.6	0.90 x 0.85	28594
12.7 x 9.5	1/2 x 3/8	8.9 x 6.5	0.35 x 0.26	64.5	2.54	25.4 x 22.9	1.00 x 0.90	28609
15.9 x 12.7	5/8 x 1/2	11.7 x 9.3	0.46 x 0.37	73.2	2.88	27.9 x 25.4	1.10 x 1.00	28610
19.1 x 15.9	3/4 x 5/8	14.4 x 12.2	0.57 x 0.48	81.8	3.22	30.5 x 27.9	1.20 x 1.10	28611
25.4 x 19.1	1 x 3/4	19.9 x 15.1	0.78 x 0.59	96.0	3.78	35.6 x 30.5	1.40 x 1.20	28612
Elbow Connectors								
2.4	3/32	1.8	0.07	10.2 x 9.4	0.40 x 0.37	7.1	0.28	28571*
3.2	1/8	2.4	0.09	13.5 x 12.4	0.53 x 0.49	9.4	0.37	28572*
4.0	5/32	2.4	0.10	16.0 x 16.0	0.63 x 0.63	12.7	0.50	28573
4.8	3/16	2.9	0.12	16.5 x 16.5	0.65 x 0.65	14.0	0.55	28574
6.4	1/4	3.6	0.14	25.4 x 24.9	1.00 x 0.98	20.3	0.80	28621
7.9	5/16	5.0	0.20	27.4 x 26.9	1.08 x 1.06	21.6	0.85	28620
9.5	3/8	6.4	0.25	29.7 x 29.2	1.17 x 1.15	22.9	0.90	28622
12.7	1/2	9.1	0.36	34.0 x 33.5	1.34 x 1.32	25.4	1.00	28623
15.9	5/8	11.9	0.47	42.2 x 41.7	1.66 x 1.64	27.9	1.10	28624
19.1	3/4	14.8	0.58	42.7 x 42.2	1.68 x 1.66	30.5	1.20	28625
25.4	1	20.3	0.80	50.8 x 50.8	2.00 x 2.00	35.6	1.40	28626

*Nylon material [not glass-filled]

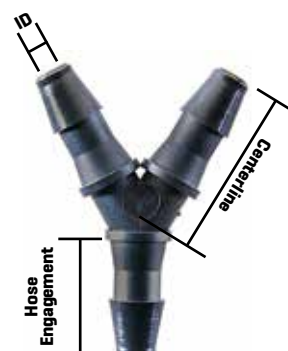


7315 (CONNECTORS)

GLASS-FILLED NYLON HOSE CONNECTORS

Fits Hose I.D.		Connector I.D.		Length on Centerline		Hose Engagement Length		Gates Item Number
mm	inch	mm	inch	mm	inch	mm	inch	
Tee Connectors								
2.4	3/32	1.8	0.07	18.8 x 9.9	0.74 x 0.39	7.1	0.28	28581*
3.2	1/8	2.3	0.09	25.1 x 15.2	0.99 x 0.52	9.4	0.37	28582*
4.0	5/32	2.5	0.10	32.5 x 16.0	1.28 x 0.63	12.7	0.50	28583
4.8	3/16	3.0	0.12	35.6 x 17.8	1.40 x 0.70	14.0	0.55	28584
6.4	1/4	3.6	0.14	49.8 x 25.4	1.96 x 1.00	20.3	0.80	28631
7.9	5/16	5.1	0.20	54.1 x 27.7	2.13 x 1.09	21.6	0.85	28630
9.5	3/8	6.4	0.25	58.4 x 30.0	2.30 x 1.18	22.9	0.90	28632
12.7	1/2	9.3	0.37	67.1 x 34.5	2.64 x 1.36	25.4	1.00	28633
15.9	5/8	12.1	0.48	75.7 x 41.9	2.98 x 1.65	27.9	1.10	28634
19.1	3/4	14.9	0.59	84.3 x 42.7	3.32 x 1.68	30.5	1.20	28635
25.4	1	20.6	0.81	101.6 x 50.8	4.00 x 2.00	35.6	1.40	28638
Reducer Tee Connectors								
15.9 x 9.5	5/8 x 3/8	12.2 x 6.6	0.48 x 0.26	75.7 x 30.7	2.98 x 1.21	27.9 x 22.9	1.10 x 0.90	28636
19.1 x 9.5	3/4 x 3/8	14.7 x 6.9	0.58 x 0.27	84.3 x 30.2	3.32 x 1.19	30.5 x 21.3	1.20 x 0.84	28637
25.4 x 15.9	1 x 5/8	20.2 x 11.8	0.80 x 0.46	101.6 x 50.8	4.00 x 2.00	35.6 x 38.1	1.40 x 1.50	0052-5334
31.8 x 19.1	1 1/4 x 3/4	31.8 x 19.1	1.25 x 0.75	89.2 x 42.8	3.51 x 1.69	25.4 x 25.4	1.00 x 1.00	0052-5224
38.1 x 19.1	1 1/2 x 3/4	38.1 x 19.1	1.50 x 0.75	90.7 x 46.0	3.57 x 1.81	25.4 x 25.4	1.00 x 1.00	0052-5214
44.5 x 12.7	1 3/4 x 1/2	44.5 x 12.7	1.75 x 0.50	86.1 x 56.0	3.39 x 2.21	22.2 x 26.9	0.88 x 1.06	0052-5546
44.5 x 19.1	1 3/4 x 3/4	44.5 x 15.5	1.75 x 0.61	86.1 x 60.8	3.39 x 2.40	22.2 x 31.8	0.88 x 1.25	0052-5394
44.5 x 22.2	1 3/4 x 7/8	44.5 x 21.8	1.75 x 0.86	86.1 x 56.0	3.39 x 2.21	22.2 x 26.9	0.88 x 1.06	0052-5206
44.5 x 25.4	1 3/4 x 1	44.5 x 25.4	1.75 x 1.00	86.1 x 49.2	3.39 x 1.94	22.2 x 25.4	0.88 x 1.00	0052-5073
"Y" Connectors (60°, 150°, 150°)								
2.4	3/32	1.8	0.07	7.9 x 12.4	0.31 x 0.49	6.9	0.27	28551
3.2	1/8	1.9	0.08	9.7 x 15.0	0.38 x 0.59	8.4	0.33	28552
6.4	1/4	3.6	0.14	21.8 x 29.7	0.86 x 1.17	19.8	0.78	28554
Reducer "Y" Connectors (45° branch)								
25.4 x 15.9	1 x 5/8	22.1 x 15.9	0.87 x 0.63	105.9 x 73.3	4.17 x 2.89	25.4 x 25.4	1.00 x 1.00	0052-5547
31.8 x 19.1	1 1/4 x 3/4	31.8 x 19.1	1.25 x 0.75	93.0 x 73.3	3.66 x 2.89	25.4 x 25.4	1.00 x 1.00	0052-5205
34.9 x 9.5	1 3/8 x 3/8	31.8 x 9.5	1.25 x 0.38	93.0 x 73.3	3.66 x 2.89	25.4 x 25.4	1.00 x 1.00	0052-5380

*Nylon material [not glass-filled]



Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



7277

NYLON SLEEVE



Relative Cost



Applications

Hose abrasion and environmental protection. Oversize by at least 3mm [1/8"] to the hose OD for installation. Affix with banded clamp or wire tie if needed. Cut with a hot knife, or heat the ends after cutting to keep from fraying.



Temperature

121°C [250°F] maximum.



Standards

MSHA flame-resistance approval.



Construction

Nylon woven fabric, designed to "friz" into a self-renewing shield that is extremely resistant to severe abrasion.



Packaging

Boxed.

ID "B"		Flat Width "A"		Length		Part Number	Item Number	Description
mm	Inch	mm	Inch	meters	feet			
17.3	0.68	27.18	1.07	91.4	300	G81800-0010	HG-10	7277-1067
22.9	0.9	36.07	1.42	91.4	300	G81800-0014	HG-14	7277-1010
22.9	0.9	36.07	1.42	7.6	25	G81801-0014	HG-14x25FT	7277-1278
26.9	1.06	42.42	1.67	91.4	300	G81800-0016	HG-16	7277-1011
26.9	1.06	42.42	1.67	7.6	25	G81801-0016	HG-16x25FT	7277-1279
31.0	1.22	48.77	1.92	91.4	300	G81800-0020	HG-20	7277-1012
31.0	1.22	48.77	1.92	7.6	25	G81801-0020	HG-20x25FT	7277-1280
36.1	1.42	56.90	2.24	91.4	300	G81800-0024	HG-24	7277-1013
36.1	1.42	56.90	2.24	7.6	25	G81801-0024	HG-24x25FT	7277-1281
40.4	1.59	63.50	2.5	91.4	300	G81800-0026	HG-26	7277-1377
40.4	1.59	63.50	2.5	7.6	25	G81801-0026	HG-26x25FT	7277-1378
46.0	1.81	72.39	2.85	91.4	300	G81800-0028	HG-28	7277-1014
46.0	1.81	72.39	2.85	7.6	25	G81801-0028	HG-28x25FT	7277-1282
55.6	2.19	87.38	3.44	91.4	300	G81800-0032	HG-32	7277-1015
60.5	2.38	95.00	3.74	91.4	300	G81800-0038	HG-38	7277-1016
66.5	2.62	104.65	4.12	91.4	300	G81800-0042	HG-42	7277-1018
73.2	2.88	115.06	4.53	91.4	300	G81800-0046	HG-46	7277-1024
111.8	4.4	175.51	6.91	30.5	100	G81800-0064	HG-64	7277-1276

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



7277 (POLYSLEEVE™)

HIGH DENSITY POLYETHYLENE HOSE WRAP

	Relative Cost	●○○○○○
	Applications	Hose abrasion and environmental protection, hose bundle harness.
	Temperature	-40°C to +130°C [-40°F to +280°F].
	Construction	Anti-static HDPE plastic coil with rounded edges.
	Packaging	Boxed.



Coil ID		Fits Max. Hose OD		Wall Thickness		Width		Length		Part Number	Item Number	Part Number	Item Number
mm	Inch	mm	Inch	mm	Inch	mm	Inch	meters	Feet	Black Color	Black Color	Yellow Color	Yellow Color
9.7	0.38	13.2	0.52	1.5	0.06	9.5	3/8	50.3	165	G80901-0006	7277-1174	G80902-0006	7277-1185
12.7	0.50	16.3	0.64	1.8	0.07	14.3	9/16	20.1	66	G80901-0008	7277-1175	G80902-0008	7277-1186
16.0	0.63	21.6	0.85	2.0	0.08	15.9	5/8	20.1	66	G80901-0012	7277-1176	G80902-0012	7277-1187
21.3	0.84	27.4	1.08	2.0	0.08	22.2	7/8	20.1	66	G80901-0016	7277-1177	G80902-0016	7277-1188
26.9	1.06	34.3	1.35	2.5	0.1	23.8	15/16	20.1	66	G80901-0020	7277-1178	G80902-0020	7277-1189
34.0	1.34	44.2	1.74	3.0	0.12	30.2	1 3/16	20.1	66	G80901-0024	7277-1179	G80902-0024	7277-1190
43.9	1.73	55.4	2.18	3.0	0.12	36.5	1 7/16	20.1	66	G80901-0028	7277-1180	G80902-0028	7277-1191
55.1	2.17	66.3	2.61	4.1	0.16	38.1	1 1/2	20.1	66	G80901-0036	7277-1181	G80902-0036	7277-1192
66.0	2.60	79.0	3.11	4.6	0.18	42.9	1 11/16	20.1	66	G80901-0044	7277-1182	G80902-0044	7277-1193
78.7	3.10	100.3	3.95	5.6	0.22	47.6	1 7/8	20.1	66	G80901-0048	7277-1183	G80902-0048	7277-1194
99.1	3.90	108.0	4.25	5.6	0.22	57.2	2 1/4	12.2	40	G80901-0056	7277-1184	G80902-0056	7277-1195

7277

GLOSSY PLASTIC PROTECTIVE COIL SLEEVES

	Relative Cost	●●●○○○
	Applications	Hose abrasion and environmental protection, hose bundle harness, for more flexibility or tighter bends.
	Temperature	-40°C to +121°C [-40°F to +250°F].
	Construction	Butyrate coil with rounded surface.
	Packaging	Boxed.



Coil ID		Wall Thickness		Width		Length		Part Number	Item Number
mm	Inch	mm	Inch	mm	Inch	meters	Feet	Black Color	Black Color
6.4	1/4	1.6	0.06	6.4	1/4	30.5	100	G81900-0004	7277-1151
9.5	3/8	1.6	0.06	6.4	1/4	30.5	100	G81900-0006	7277-1152
12.7	1/2	1.7	0.07	9.5	3/8	30.5	100	G81900-0008	7277-1153
15.9	5/8	1.7	0.07	9.5	3/8	15.2	50	G81900-0010	7277-1154
19.1	3/4	1.7	0.07	9.5	3/8	15.2	50	G81900-0012	7277-1155
25.4	1	2.9	0.115	15.9	5/8	15.2	50	G81900-0016	7277-1156
34.9	1 3/8	2.9	0.115	15.9	5/8	7.6	25	G81900-0022	7277-1157
47.6	1 7/8	2.9	0.115	15.9	5/8	7.6	25	G81900-0030	7277-1158

7277

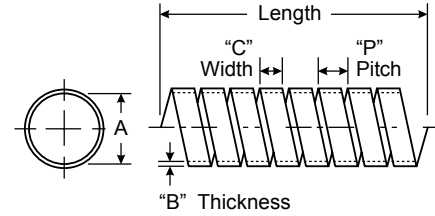
HOSE ABRASION GUARDS

PLATED FLAT ARMOR SPRING GUARDS



Application

Zinc plated flat steel coil for resistance to high abrasion against flat surfaces. Typically used on high-pressure hydraulic or other steel reinforced hoses. Allow 0.8mm [1/32 inch] between the hose OD and guard ID for installation.



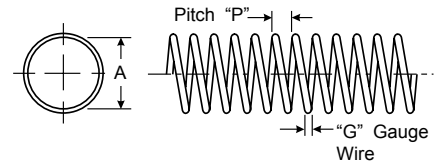
Coil ID "A"		Wall Thickness "B"		Coil Width "C"		Pitch "P"		Bulk Length		Part Number	Item Number
mm	Inch	mm	Inch	mm	Inch	mm	Inch	meters	Feet		
16.7	21/32	0.5	0.019	9.5	3/8	12.7	1/2	7.6	25	G82801-0009	7277-0501
15.5	39/64	0.8	0.032	6.4	1/4	9.5	3/8	7.6	25	G82801-0010	7277-0533
17.5	11/16	0.5	0.019	9.5	3/8	12.7	1/2	7.6	25	G82801-0011	7277-0502
20.6	13/16	0.7	0.028	6.4	1/4	9.5	3/8	7.6	25	G82801-0012	7277-0503
20.2	51/64	0.8	0.032	9.5	3/8	12.7	1/2	7.6	25	G82801-0013	7277-0534
22.2	7/8	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0014	7277-0504
24.2	61/64	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0015	7277-0505
25.4	1	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0016	7277-0506
27.8	1 3/32	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0017	7277-0530
31.0	1 7/32	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0019	7277-0507
32.5	1 9/32	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0020	7277-0508
34.9	1 3/8	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0022	7277-0532
39.7	1 9/16	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0025	7277-0520
41.3	1 5/8	0.7	0.028	12.7	1/2	15.9	5/8	7.6	25	G82801-0026	7277-0509
42.9	1 11/16	0.7	0.028	12.7	1/2	15.9	5/8	1.5	5	G82801-0027	7277-0529
45.6	1 51/64	0.7	0.028	12.7	1/2	15.9	5/8	4.6	15	G82801-0028	7277-0525
46.8	1 27/32	0.7	0.028	12.7	1/2	15.9	5/8	4.6	15	G82801-0029	7277-0531
53.2	2 3/32	0.7	0.028	12.7	1/2	15.9	5/8	3.0	10	G82801-0033	7277-0527
59.5	2 11/32	0.7	0.028	12.7	1/2	15.9	5/8	1.5	5	G82801-0037	7277-0528
73.0	2 7/8	0.7	0.028	12.7	1/2	15.9	5/8	1.5	5	G82801-0046	7277-0526

PLATED WIRE SPRING GUARDS



Application

Zinc plated round wire coil for resistance to high abrasion against flat surfaces. Typically used on high-pressure hydraulic or other steel reinforced hoses. Allow 0.8mm [1/32 inch] between the hose OD and guard ID for installation.



Coil ID "A"		Wire Thickness "G"			Pitch "P"		Bulk Length		Part Number	Item Number
mm	Inch	mm	Inch	Gauge	mm	Inch	meters	Feet		
14.0	0.55	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0009	7277-0521
17.2	0.676	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0010	7277-0510
17.3	0.682	1.65	0.07	16	5.6	7/32	7.6	25	G83801-0011	7277-0535
18.7	0.738	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0012	7277-0511
21.6	0.852	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0014	7277-0512
23.2	0.915	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0015	7277-0513
24.8	0.977	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0016	7277-0514
26.4	1.04	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0017	7277-0515
28.5	1.122	2.03	0.08	14	5.6	7/32	7.6	25	G83801-0018	7277-0522
32.5	1.278	3.05	0.12	11	8.7	11/32	7.6	25	G83801-0020	7277-0516
34.0	1.34	3.05	0.12	11	8.7	11/32	7.6	25	G83801-0021	7277-0517
40.1	1.578	3.05	0.12	11	8.7	11/32	7.6	25	G83801-0025	7277-0518
41.3	1.625	3.05	0.12	11	8.7	11/32	7.6	25	G83801-0026	7277-0519
46.9	1.847	2.03	0.08	14	10.3	13/32	3.0	10	G83801-0029	7277-0524
53.8	2.12	3.05	0.12	11	8.7	11/32	2.1	7	G83801-0034	7277-0548
53.6	2.112	2.03	0.08	14	10.3	13/32	2.1	7	G83801-0040	7277-0523

7277 (HEATGUARD®)

SILICONE FIBERGLASS SLEEVES



Application

Non-asbestos, heat-resistant, protective sleeving. Special silicone coating can withstand a broad range of solvents and fuels. Affix in place with hose clamps or wire ties.



Temperature

-54°C to +260°C [-65°F to +500°F] for continuous exposure.



Construction

Knitted, coated fiberglass.



ID		Length		Part Number	Item Number	Description
mm	Inch	meters	feet			
6.35	0.25	15.24	50	7277-1571	G81100-0004	HTG-4
7.87	0.31	15.24	50	7277-1572	G81100-0005	HTG-5
9.65	0.38	15.24	50	7277-1573	G81100-0006	HTG-6
11.18	0.44	15.24	50	7277-1574	G81100-0007	HTG-7
12.70	0.5	15.24	50	7277-1575	G81100-0008	HTG-8
14.22	0.56	15.24	50	7277-1576	G81100-0009	HTG-9
15.75	0.62	15.24	50	7277-1577	G81100-0010	HTG-10
17.53	0.69	15.24	50	7277-1578	G81100-0011	HTG-11
19.05	0.75	15.24	50	7277-1579	G81100-0012	HTG-12
20.57	0.81	15.24	50	7277-1580	G81100-0013	HTG-13
22.35	0.88	15.24	50	7277-1581	G81100-0014	HTG-14
23.88	0.94	15.24	50	7277-1582	G81100-0015	HTG-15
25.40	1	15.24	50	7277-1196	G81100-0016	HTG-16
28.45	1.12	15.24	50	7277-1197	G81100-0018	HTG-18
31.75	1.25	15.24	50	7277-1583	G81100-0020	HTG-20
35.05	1.38	15.24	50	7277-1584	G81100-0022	HTG-22
38.10	1.5	15.24	50	7277-1585	G81100-0024	HTG-24
41.15	1.62	15.24	50	7277-1586	G81100-0026	HTG-26
44.45	1.75	15.24	50	7277-1587	G81100-0028	HTG-28
47.75	1.88	15.24	50	7277-1588	G81100-0030	HTG-30
50.80	2	15.24	50	7277-1589	G81100-0032	HTG-32
53.85	2.12	15.24	50	7277-1590	G81100-0034	HTG-34
57.15	2.25	15.24	50	7277-1591	G81100-0036	HTG-36
60.45	2.38	15.24	50	7277-1592	G81100-0038	HTG-38
63.50	2.5	15.24	50	7277-1593	G81100-0040	HTG-40
69.85	2.75	15.24	50	7277-1595	G81100-0044	HTG-44
76.20	3	15.24	50	7277-1600	G81100-0056	HTG-56
101.60	4	15.24	50	7277-1602	G81100-0064	HTG-64



Standards

SAE AS1072A.



Temperature

-54°C to +260°C [-65°F to +500°F] for continuous exposure, to 1090°C [2000°F] for 15-20 minutes, or 1650°C [3000°F] for 15-30 seconds.

ID		Length		Part Number	Item Number	Description
mm	Inch	meters	feet			
38.10	1.5	15.24	50	7277-1611	G81101-0024	24-HTGH
44.45	1.75	15.24	50	7277-1612	G81101-0028	28-HTGH
53.85	2.12	15.24	50	7277-1613	G81101-0034	34-HTGH
82.55	3.25	15.24	50	7277-1616	G81101-0052	52-HTGH

7412

THERMOSTATS

THERMOSTATS

Quality controlled factory calibration assures accuracy of opening and closing, regardless of pressure changes.



- Positive piston heat motor provides accurate temperature control.
- Sturdy metal construction throughout.

SUPERSTAT™* THERMOSTATS

The SuperStat™ thermostat incorporates an all stainless steel construction, larger heat motor and larger spring to provide superior performance. These new features provide:



- Precision temperature control.
- More efficient engine operation.
- Faster engine warm up.
- Fewer emissions.
- Better fuel economy.

OFFSET THERMOSTATS



- Offset design thermostat is specified by many Japanese manufacturers.
- Stem, spring and heat motor is offset from the center of the thermostat flange.
- A "jiggle pin" located in the offset flange of the thermostat allows release of trapped air behind the thermostat.

WEIR-STAT™* THERMOSTATS

The most effective cooling system control ever developed. Provides faster engine warm-up, stable temperature control, longer thermostat and seal life, improved fuel economy and driver comfort. Vehicles can operate without radiator shutters, reducing front axle weight, cost and noise. Fleets can operate at higher temperatures without the unnecessary activation of shut-down devices or fan clutches.



- Machined bead edge seats positively down on a resilient 3-piece flange resulting in greater no-leak, precision control than the original Weir-Stat™.
- Flange retains its elasticity, resists abrasion and corrosion and remains stable during extreme temperature and pressure changes.

* SuperStat™ and Weir-Stat™ is a registered trademark of STANT USA Corporation.

7412

THERMOSTATS

GREEN STRIPE® HEAVY-DUTY THERMOSTATS

Quality controlled factory calibration assures accurate heat control under extreme variations in temperature, load and engine vibrations. Approved for marine applications.



- Heavy-gauge brass and stainless steel with positive piston heat motor.
- Available in Choke type, Top By-Pass, Bottom By-Pass, Side By-Pass, Normally Open and other types to meet heavy-duty cooling system designs.
- Packaging: Individually boxed.

GREEN STRIPE® HEAVY-DUTY THERMOSTAT SEALS

Fits securely around thermostat valve to prevent leakage. Approved for marine applications.



- Corrosion-resistant steel construction.
- Specially constructed to assure accurate fit.
- Packaging: Individually boxed, 10 boxes to over-pack.

SEAL-EZE THERMOSTAT GASKETS

Cuts installation time in half. Adhesive-backed gasket material helps prevent breaking of water outlet. Gasket cement is not needed. Approved for marine applications.



- Self-adhesive backing holds thermostat in place while water outlet is being installed.
- Rubber thermostat seals also available.
- Packaging: 10 per box.

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



7410

CAPS - RADIATOR CAPS

All Gates radiator pressure caps are constructed of corrosion-resistant, heavy-gauge metal. This assures long service life and accurate control of pressure.

STANDARD CAPS



- Covers a wide range of pressures.

SPINLOK CAPS

Can be used for applications with or without coolant recovery systems. Inventory requirements are dramatically reduced.



- Unique eight-sided, scalloped crown allows for a firm grip for easy installation and removal.
- Neoprene upper and lower seal.
- Body rotates independently of crown – operator merely pushes down and twists.
- Safe and reliable.

SAFTI-VENT PRESSURE RELEASE CAPS

Can be used for applications with or without coolant recovery systems. Inventory requirements are dramatically reduced.



- Safety release lever.
- Protects against accidental burns by releasing steam through overflow tube.

COOL CONTROL CAPS

Diverts pressurized coolant to a reservoir rather than to an overflow valve.



- Constant pressure-type cap for use on closed cooling systems.
- Increases cooling system efficiency by eliminating air from the cooling system.

7410

CAPS - RADIATOR CAPS

HEAVY-DUTY RADIATOR CAPS

For use on heavy-duty trucks, buses and tractors.



- Fits applications with 3/4" deep filler necks.
- Packaging: Individually boxed.

Part No.	Pressure	Fits Filler Neck I. D.
	PSI	Inch
31307	4	2 11/16
31308	7	2 11/16
31309	10	2 11/16

HEAVY-DUTY COOL CONTROL CAPS

Diverts pressurized coolant to reservoir instead of an overflow tube.



- Corrosion-resistant, heavy-gauge metal construction assures long life and accurate control of pressure.
- Atmospheric type valve allows cooling system to pressurize as needed, resulting in less strain on system components.
- Packaging: Individually boxed.

Part No.	Pressure
	PSI
31348	7
31349	10
31350	15

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



7410

CAPS - FUEL CAPS

HEAVY-DUTY FLEET AND OFF-ROAD EQUIPMENT HEAVY-DUTY SADDLE TANK CAPS

Heavy metal construction throughout. Meets I.C.C. requirements.

- Available for side or saddle tanks.
- Locking caps come with two keys. Keyed-alike caps available on special order.



Part No.	Description	Type
31801	Solid Brass - 2 11/16" Non-Vented [2 1/8" x 12 UN Male Thread]	Non-Locking
31803	Solid Brass - 2 49/64" Vented [2" x 11 1/2 NPSM Female Thread]	Non-Locking
31804	Zinc Plated Steel or Aluminum - 4 7/16" Vented [Bayonet - Fits 3 Cam-Ordnance Type Filler Neck]	
31805	Solid Brass - 5 3/32" Non-Vented [4 1/4" x 12 NS Male Thread]	Non-Locking
31806	Solid Brass - 4 31/32" Non-Vented [4 1/4" x 8 NS Male Thread]	Non-Locking
31807	Aluminum - 4 5/32" Non-Vented [4" x 8 NPSM Female Thread]	Non-Locking
31821	Solid Brass - 2 1/2" Vented [2 1/8" x 12 UN Male Thread]	Locking
31823	Solid Brass - 2 1/2" Vented [2" x 11 1/2 NPSM Female Thread]	Locking
31826	Solid Brass - 4 63/64" Non-Vented [4 1/4" x 8 NS Male Thread]	Locking
31827	Solid Brass - 4 25/32" Non-Vented [4" x 8 NPSM Female Thread]	Locking

EVAPORATIVE EMISSION CONTROL FUEL CAPS

Meets Federal and State Emission Requirements. Two-way action pressure relief/vacuum relief valve allows fuel tank to "breathe" while preventing the escape of fuel fumes. Seals are compounded from fuel-resistant rubber. Available in three configurations.

Fenderwell



- Zinc-plated and dichromate dipped for superior corrosion resistance.
- Some models are made from rugged plastic.

Exterior



- Caps have chrome-plated finish.

Locking



- Comes with two keys. Keyed-alike caps available on special order.

7410

CAPS - FUEL CAPS

FUEL CAPS

Rugged, heavy-duty construction. Caps fit both shallow and deep cam filler necks – vented, non-vented and vented anti-surge. Three configurations available for most popular applications.

Fenderwell



- Sturdy metal construction throughout.

Locking



- Comes with two keys. Keyed-alike caps available on special order.

Exterior



- Attractive chrome-plated finish.

VaporVent



- Handy push button allows owner to release pressure from fuel system prior to removing cap from the filler neck.
- Reduces the risk of fuel spray and vapor surge.

7410

CAPS - OIL FILLER CAPS

OIL FILLER CAPS

Durable construction assures long service life.



- Special finish resists rust and provides excellent protection against under-hood heat.

PCV OIL FILLER CAPS

Meets requirements of emission control systems on late model cars and light trucks. Universal design offers maximum coverage with minimum inventory.



- Sealed construction prevents engine crankcase gases from escaping into the atmosphere.
- Heavy-gauge steel construction resists under-hood heat and corrosion.

1170

SPLASH GUARDS

Minimizes splashing of rain and settled water from wheels on medium and heavy-duty trucks.



- Tough rubber and fabric-filled construction for maximum service life.
- Special half-round reinforced ridge resists tearing and cracking.
- Body is 1/4" thick and edge is 3/8" thick for extra strength.
- Packaging: Order in pairs [unpackaged].

Length	Width	Part No.
Inch	Inch	
26	24	90335
30	24	90333
36	24	90334
40	24	90332

2960

STATIC STRAPS

Discharges potentially dangerous static electricity from equipment when properly grounded.



- Specially compounded rubber conducts static electricity.
- Resists weathering, abrasion and tearing.
- Meets, military specifications MILR3065C.
- Packaging: 25 per carton.

Length	Width	Depth	Part No.
Inch	Inch	Inch	
25	1 1/16	3/16	90330
30	1 1/16	3/16	90331

7469

HOSE CUTTERS

SMALL NYLON TUBING CUTTER + REPLACEMENT BLADES

Tubing cutter gives straight, clean, square cuts on J844 tubing.



- Lightweight and compact size – 3/4" by 3".
- Designed to ensure user safety.
- Blade guard offers more protection against accidental blade contact.
- Handle has ribs for improved grip.

HOSE CUTTERS (HAND-HELD) AND REPLACEMENT BLADES

Makes clean cuts with no ragged edges. Cuts most non-metal reinforced rubber hoses up to 3" I.D.



- Lightweight with nylon handles.
- Blade closes into handle for safety.
- Use small cutter for hoses up to 1 1/2" I.D.
- Packaging: Cutter and blades individually packaged on shrink-wrapped cards.

Hose Cutter	Description	Replacement Blade	Cuts to Hose I.D.
91143	Large I.D. Hose Cutter	91144	3"
91153	Small I.D. Hose Cutter	91154	1 1/2"

7469

HOSE CUTTERS

GATES HOSE CUTTER MODEL 2-24

For two-wire braid hose through 1-1/2" I.D. Clean Easy Cuts – Safe Operation.



- Cuts up to 1-1/2" I.D. two-wire braid hose and 1" four wire spiral hose.
- Designed to operate on standard 20 amp service.
- Reversible 8" scalloped-edge, high-speed steel blade with 5/8" bore can be sharpened.
- Radius hose feed into blade for safety and reduced friction.
- Inner blade guard for safe operation.

Power Source: 1-1/2 HP [2.6 HP Peak], 115V, 60 Hz., 15 Amp motor with power cord and plug.

Dimensions: 13" wide by 24" length by 17" high.

Weight: 65 lbs.

GATES POWER CUTTER 208

Safely cuts two and four-wire hose through 2", six-wire hose through 1-1/4". Effortless Straight Cuts Every Time.



- Clear face shield for added safety.
- Powerful high torque, 4.5 horsepower peak motor.
- Includes scalloped, 12" blade to dissipate heat, reducing friction for clean, faster cuts up to 1-1/4" I.D.
- Optional abrasive blade for continuous use with 1-1/4" I.D. and larger spiral-wire reinforced hose.
- Reversible blade can be sharpened; removal and installation is easy.
- Easy to use, front face plate with movable pins holds hose securely for a clean straight cut.
- Sturdy blade guard shields blade for safety.
- Permanent mounting brackets [included] to attach saw to table.

Shaft/Arbor Hole Diameter: 1"

Power Source: 4.5 HP Peak, 115/50/60 Hz, 20 Amps.

No Load Speed: 3,500 rpm.

Dimensions: 22-1/2" wide by 18-1/4" length by 23-1/2" high.

Weight: 65 lbs.

Caution: Keep blade sharp. Heat generated by a dull blade can damage steel and flare the hose.

4-16 PORTABLE HOSE SAW



- Cuts up to 1", four-wire braid.
- Abrasive cut-off wheel.

Voltage: 120 Volts.

Cycle: 60 Hz / 1 phase.

Power: 6.5 Amp.

No-load speed: 7,400 rpm.

Wheel size: 6"

Arbor Hole: 7/8"

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



V-BELTS

XL® V-Belts (North America)

STANDARD V-BELT

For the most demanding engine drives. Due to thermal forces, this variable notched belt tightens on the drive as it gets hot. This results in improved belt performance by reducing tension decay and noise.

- Fiber-loaded rubber stock puts more flexibility along the length of the belt, yet gives the belt greater lateral stability in the pulley.
- Thermally active tensile cords for maintenance-free performance when properly installed and tensioned.
- Form ground to ensure precise top width and sidewall dimensional control for proper fit in pulley as well as a smoother, quieter running belt.
- Meets or exceeds SAE J636c specifications.

Extra Service EXL V-Belt (Europe)

STANDARD V-BELT

Designed for heavy-duty applications with improved belt performance and increased stability.

- Special, double layer of reinforcement not only protects the belt top, but also increases belt flexibility, thus ensuring long and trouble-free performance.
- Thermally active tensile cords for maintenance-free performance when the belt is properly installed and tensioned.
- Fibre-loaded rubber stock puts more flexibility along the belt length, yet gives the belt greater lateral stability and improved load-carrying capacity.
- Belt cogs are aramid fibre reinforced. Aramid fibre is self-lubricating, allows the belt to run smoothly and quietly in the pulleys and keeps it from turning over or coming off the drive. Fibre-reinforced rubber also improves wear resistance and therefore reduces maintenance.
- V-form is ground for precise top width, exact sidewall dimensions and proper belt fit.

FleetRunner / Extra Service XF (North America)

HEAVY DUTY V-BELT

Patented EPDM construction built specifically for more durability and longer life on heavy duty drives.

- Special compound provides unmatched flexibility, stability, load carrying capacity and belt life.
- Patented material provides peak performance at extreme prolonged operating temperatures.
- Heavy-duty construction resists cracking and wear.
- Oil and heat resistant.
- Unique under-cord notch pattern offers increased flexibility for smaller diameter pulleys.
- Available in over 70 sizes.

Coolant

Fuel

Oil

Exhaust/
DEF

Air

Brake

Hose
Accessories

Belts



V-BELTS

Extra Service Bandless Laminated V Belt (Europe)

HEAVY DUTY TRUCK AND BUS V-BELT

Specially suited for long centre distance drives. Flexibility, stability and quality materials ensure long belt life.

- Extra strong, heat resistant polyester tensile cords.
- Cross-cord layers to support the load-carrying belt section and to increase lateral stability.
- Special fibre-reinforced rubber compound. Oil, heat and wear resistant.
- Flex-Weave® layers in under-cord for more flexibility along the length, increased lateral rigidity and crack resistance.



Green Stripe® Truck and Bus Series V-Belts (North America)

HEAVY DUTY TRUCK AND BUS V-BELT

Specifically designed for heavy-duty truck, bus and off-road equipment applications. Absorbs normal shock loads without damage to belt.

- Special tensile cords give high stretch resistance.
- Special notch design resists cracking while providing tensile member support during operation.
- Oil and heat-resistant construction throughout.
- Meets SAE J636b and SAE J637 specifications.



Green Stripe® XL® V-Belts (North America)

HEAVY DUTY PREMIUM V-BELT

Premium quality belts for heavy-duty engines.

- Fiber loaded rubber stock puts added flexibility along belt's length, yet affords greater lateral stability.
- Variable notch pattern causes belt to run cooler, quieter and with less bending stress.
- Precision V-forming process assures exact size and angle control.
- Meets or exceeds SAE 636 specifications.
- Meets or exceeds ARPM standards for static conductivity.



Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



V-BELTS

Super HC® and Super HC® Molded Notch V-Belts (North America)

NARROW V-BELT

Recommended for use on special drives where space and weight limitations are critical. These “narrow” cross-sections can transmit up to three times the horsepower of the classical cross-sections [A, B, C and D] in the same amount of drive space. Suitable for all industrial applications, particularly where space, weight and horsepower capacity are critical.



- Gates curves provide proper cord support and full contact with the sheave-groove for uniform loading, uniform wear and increased belt life.
- Flex-bonded cords are strongly bonded to the body of the belt resulting in equal load distribution and the absorption of bending stress without cord deterioration.
- The Flex-Weave® cover is a patented construction for longer cover life, providing extended protection to the core of the belt from oil, dirt, and heat.
- Meets or exceeds ARPM standards for static conductivity and heat and oil resistance.

Hi-Power® II Belts (North America)

INDUSTRIAL V-BELT

Featuring a composite, multi-purpose construction, these belts resist oil and heat, ozone, sunlight, weather and aging. Suitable for all industrial applications, including v-flat drives.



- Gates Curves provide proper cord support and full contact with the sheave-groove for uniform loading, uniform wear and increased belt life.
- Flex-bonded cords are strongly bonded to the body of the belt resulting in equal load distribution and the absorption of bending stress without cord deterioration.
- The Flex-Weave® Cover is a patented fabric construction for longer cover life, providing extended protection to the belt core from oil, dirt and heat.
- Meet or exceed ARPM standards for static conductivity and oil and heat resistance.

Tri-Power® Belts (North America)

SMALL DIAMETER SHEAVE V-BELT

Constructed with Gates proprietary construction, this belt has a superior combination of flex and load carrying capacity, as well as less stretch resulting in less maintenance. This provides superior performance on the toughest heavy-duty A, B and C Section industrial drives. Suitable for all industrial applications, particularly where small or sub-minimal sheave diameters are required.



- Notches molded into the belt during manufacturing make this belt well suited for drives with smaller diameter sheaves.
- Belt edge is machined for even sheave groove contact resulting in less slip and wear.
- Flex-bonded cords are strongly bonded to the body of the belt resulting in equal load distribution and the absorption of bending stress without cord deterioration.
- Meets ARPM oil and heat resistant standards.
- Meets ARPM static conductivity requirements.

Note: Tri-Power® belts are available in AX, BX, and CX sizes.

Tri-Power® belts longer than 210 inches are a banded, cut notch construction.

Industrial V-Belts (Europe)

HEAVY DUTY FOR EUROPEAN INDUSTRIAL APPLICATIONS

Premium belts such as the raw edge, narrow section Quad-Power II and Super HC® MN V-belts and the classical section Hi-Power® MN V-belts ensure excellent performance on the heaviest drives. They feature high modulus thermally active polyester cords that exhibit extremely low stretch. A leading-edge technology delivering the advantages every user is looking for: less maintenance and greater cost savings.

More information on sizes and applications of Gates belts can be found in Gates' catalogues E/70107 and E/70385.

V-BELT SETS

Extra Service Banded V-Belt (Europe)

HEAVY DUTY V-BELT SET

Wrapped V-belt providing maximum protection in severe working conditions.

- Concave sidewalls straighten out to assure optimum contact with the pulley and uniform belt load.
- Strong flex-bonded tensile cords work as one solid and inseparable unit.
- Flexible Flex-Weave® cover protects against dirt, grit and oil. With static conductivity.
- Rubber compound withstands oil, heat and wear.

Recommended for: older generations of heavily loaded V-belt drives (classical section - 8527); drives subjected to heavy vibration (high-capacity section - 8569) where bandless laminated belts show stability problems.

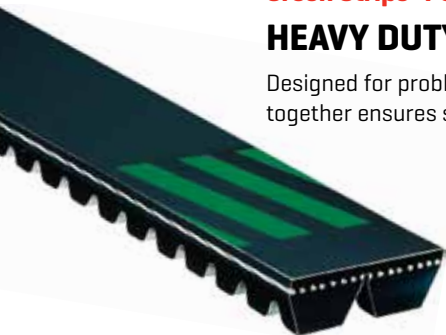


Green Stripe® PowerBand® Belts (North America)

HEAVY DUTY V-BELT SET

Designed for problem, heavy-duty, heavily vibrating applications requiring belt sets. Tie-band feature joining belts together ensures stability lacking in ordinary belt sets.

- Even load distribution between strands provides better shock load absorption.
- Belt cannot turn over or slip off drive.
- Unique tensile cord design gives belt extra strength, added flexibility and shock-load resistance.
- Molded notches reduce bending stress, especially on small diameter pulleys, while dissipating heat.
- Meets or exceeds SAE J1459 specifications.



Super HC® and Super HC® Molded Notch PowerBand® V-Belts (North America)

NARROW V-BELT SET

The PowerBand® construction allows multiple belts to function as a single unit, with even load distribution and each strand fitting securely in the sheave groove. Recommended for multiple V-belt drives exposed to pulsating or heavy shock loads which can make belts whip, turn over or jump off the drive.

- The tie band assures high lateral rigidity, guiding the belt in a straight line and preventing it from coming off the drive.
- Concave sidewalls provide proper cord support and full contact with the sheave-groove for equal loading and uniform wear.
- Flex-bonded cords are strongly bonded to the body of the belt resulting in equal load distribution and the absorption of bending stress without cord deterioration.
- Meets or exceeds ARPM standards for static conductivity and heat and oil resistance.

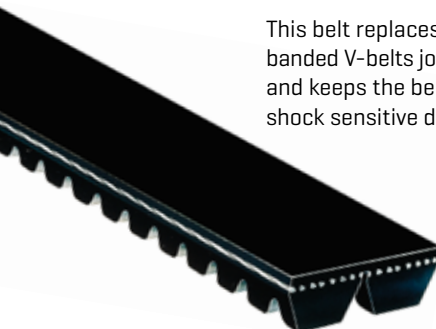


Extra Service PowerBand Multiple V-Belt (Europe)

HEAVY DUTY V-BELT SET

This belt replaces original equipment joined belts on heavy-duty problem or high-load drives. It consists of two or more banded V-belts joined together by a permanent reinforced rubber tie band. This strong band controls belt-to-belt distance and keeps the belts from bending sideways. Thanks to its construction PowerBand® is specially suited for vibration and shock sensitive drives where single belts turn over or jump off the pulleys.

- Wrapped with Flex-Weave® fabric for maximum protection in severe working conditions.
- Concave sidewalls for optimum contact with the pulley and uniform belt load.
- Strong flex-bonded tensile cords.
- Polychloroprene compound withstands oil, heat and wear.



V-BELT SETS

Extra Service PowerBand Molded Cog Multiple V-Belt (Europe)

HEAVY DUTY V-BELT SET

Consists of two or more molded cog belts joined together by a high-strength tie band, thus being tougher than belts taken separately. Ensures excellent stability lacking in ordinary belt sets. The clogged PowerBand® cannot turn over or slip off the drive.

- Evenly distributed strand-to-strand distance provides better shock load absorption.
 - Molded cogs reduce bending stress, especially on small diameter pulleys, and help dissipate heat.
 - Unique tensile cord design gives extra strength, added flexibility and shock load resistance.
- Recommended for: heavy-duty automotive drives, subject to severe and problematic vibrations.



RECREATIONAL V-BELTS

G-FORCE® CVT BELTS

Gates G-Force® belts are the first of a new generation of Continuously Variable Transmission [CVT] belts. Designed using Finite Element Analysis [FEA] techniques, the latest construction, materials and measuring technology G-Force® drive belts are designed for superior fit, performance and durability for today's recreational and utility all-terrain equipment. Identical to OEM, G-Force® belts are constructed with double or single cog designs to match the OEM belt. Extreme testing, in controlled environments as well as on race vehicles, has proven the G-Force® belt to be high performing and durable, with no clutching adjustments necessary at installation.

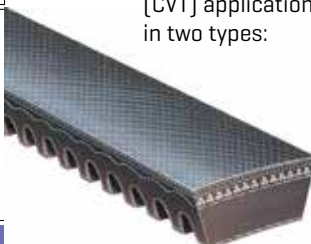
- OEM constructed drop-in belt with no clutching adjustments.
- Tested under extreme conditions in controlled environments as well as on race vehicles.
- Viability testing completed to match shift curves.
- Dynamometer testing proves G-Force® belts outlast other high-performance belts by as much as five times.
- Advanced aramid tensile cords and reinforced fiber loaded under-cord are used in construction for durability and dependability.
- Proprietary measuring technology assures exact fit.



POWERLINK® BELTS

Gates PowerLink® drive belts are specially designed for a variety of motorized Continuous Variable Transmission [CVT] applications including street legal step-through scooters and Go-Karts. PowerLink® belts are available in two types:

- Conventional belt offers OE-equivalent performance and durability.
- Premium belt provides longer durability for high performance applications.



Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



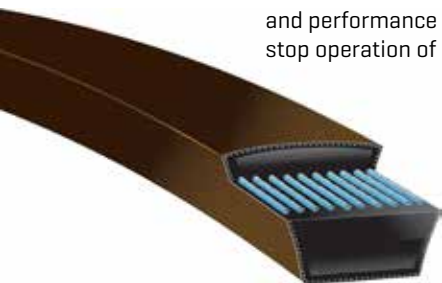
Belts



RECREATIONAL V-BELTS

BLADERUNNER® BELTS

An aftermarket belt designed and appicated to specific unique applications providing exact OEM fit, construction and performance of leading lawn and garden equipment manufacturers. Built to withstand the rigorous start and stop operation of outdoor power equipment.



- Meets or exceeds the performance of each specific application.
- Utilizes aramid cord construction in most cases.
- Smooth operation during frequent and severe shock loads.
- Reduces costly downtime and labor associated with replacing a belt.
- Superior performance over fractional horsepower belts on recommended applications.

POWERATED® V-BELTS

These green belts are an alternative to conventional light-duty belts, with high performance construction delivering more horsepower, less stretch and providing longer service life. PoweRated® belts are suitable for outdoor power equipment, appliances and industrial applications where Fractional Horsepower [FHP] belts are typically used.



- Bareback construction for smooth clutching on shock loaded, backside-idler driven equipment.
- Aramid tensile cords combine limited stretch with extraordinary strength and durability.
- Meets ARPM oil and heat resistant standards.

Note: PoweRated® V-Belts can be substituted for equivalent sizes of Truflex® V-Belts.

Note: PoweRated® belts do not meet ARPM requirements for static conductivity.

TRUFLEX® V-BELTS

Truflex® belts feature superior length stability for minimal take-up requirements. Suitable for all industrial light duty applications, usually using fractional horsepower [FHP] motors.



- Gates curves provide proper cord support and full contact with the sheave-groove for uniform loading, uniform wear and increased belt life.
- Flex-bonded cords are strongly bonded to the body of the belt resulting in equal load distribution and the absorption of bending stress without cord deterioration.
- The Flex-Weave® cover is a patented construction for longer cover life, providing extended protection to the core of the belt from oil, dirt and heat.
- Meets or exceeds ARPM standards for static conductivity and heat and oil resistance.

Note: Truflex® belts are offered in cross sections 2L [0], 3L [1], 4L [2], 5L [3].



SERPENTINE BELTS

Micro-V® Stretch Fit® Belts (North America)

STANDARD, SELF-TENSIONING SERPENTINE BELT

New Stretch Fit Drive Systems Demand New Solutions. Gates Micro-V® Stretch Fit® Belts, with exclusive self-tensioning technology, are the first and only Aftermarket belts engineered to fit like a glove and perform properly on these unique stretch fit drive systems.

- Patented highly engineered EPDM belt ribs are extremely resistant to oil leaks, wear and pilling.
- New TwistLock® technology provides the strength and flexibility of advanced polyamide tensile cord.
- Specially formulated adhesive locks onto the cord allowing it to elongate and stretch, but never lose tension.

Prior to installation, Stretch Fit® belts are shorter than the actual working length, but once installed they automatically tension – maintaining the proper tension over the life of the belt and ensuring optimum load-carrying capacity.

Micro-V Belt (North America)

STANDARD SERPENTINE BELT

Replacement belt for Accessory Belt Drive Systems (ABDS) and other serpentine belt applications. Designed using advanced manufacturing technology and premium EPDM construction to provide customers with superior ABDS and new vehicle type performance.

- Belt of choice by professional technicians, lasting 50%-60% longer than retail belts.
- Precision dimension control of rib profile transmits load efficiently throughout the ABDS allowing components to operate at optimum levels.
- Able to operate and accept misalignment in the ABDS system better than other serpentine belts.
- Flexible construction allows the belt to withstand billions of topside and backside bends resulting in long belt life.
- Meets or exceeds SAE J1459.

Extra Service Mirco V Belt (Europe)

STANDARD SERPENTINE BELT

Replacement belt for Accessory Belt Drive Systems (ABDS) and other serpentine belt applications. Designed using special aramid fibre reinforced rubber compound for improved abrasion resistance.

- Belt of choice by professional technicians, lasting 50%-60% longer than retail belts.
- Precision dimension control of rib profile transmits load efficiently throughout the ABDS allowing components to operate at optimum levels.
- Able to operate and accept misalignment in the ABDS system better than other serpentine belts.
- Flexible construction allows the belt to withstand billions of topside and backside bends resulting in long belt life.
- Meets or exceeds SAE J1459.

Coolant

Fuel

Oil

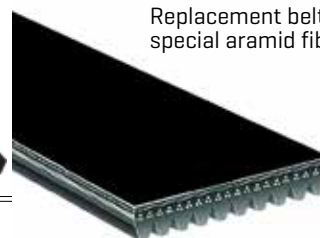
Exhaust/
DEF

Air

Brake

Hose
Accessories

Belts



SERPENTINE BELTS

Green Stripe® Micro-V AT® Belts (North America)

HEAVY DUTY SERPENTINE BELT

Long wearing fiber-loaded stocks with greater load-carrying capacity designed for demanding, heavy-service drives. Designed for replacing original belts on serpentine drives and other heavy-duty V-ribbed belt applications.

- Special belt constructions eliminate belt noise, reduce tension loss and solve problem drive applications.
- Extra heavy-duty construction resists cracking and wear.
- Precision ground to assure optimum belt-to-pulley fit.
- Special formation process for precise dimensional control.
- Reinforced with stretch-resistant, thermally active polyester tensile members.
- Meets or exceeds SAE J1459 specifications.

Extra Service Micro-V® XF Belts (Europe)

HEAVY DUTY SERPENTINE BELT

Engineered specifically for fleets and heavy-duty applications in trucks, buses and tractors. They are also recommended for high-speed, small-diameter applications requiring increased power transmission.

- Green back fabric provides extremely high resistance to wear.
- Polyester tensile cords guarantee low stretch and optimum load-carrying capacity at even the highest tensions.
- Aramid fibre-reinforced EPDM compound guarantees optimum resistance to high/low temperature, wear, pilling, oil drops and ozone and improved coefficient of friction.
- Low belt profile increases flex life, thus ensuring higher mileage and trouble-free performance.
- Re-engineered heavy-duty construction resists cracking and wear to provide longer service life.

FleetRunner® Micro-V® Belts (North America)

HEAVY DUTY SERPENTINE BELT

Designed for the toughest applications, FleetRunner® construction provides superior flexibility, stability, load capacity and unsurpassed belt life. Patented materials deliver peak performance at extreme prolonged operating temperatures making this belt the ultimate problem solver. An advanced blend of EPDM rubber technology withstands the modern threats of deterioration from increased exposure to ozone and water-based coolants. FleetRunner® does this all while providing the lowest cost per mile for fleets, including ¾ & 1 ton pickups.

- Belt of choice by fleets, including ¾ & 1 ton pickups.
- Lowest cost per mile.
- Consistently outperforms all competitors.
- Outstanding crack resistance at extreme temperatures.
- Problem-solver designed for the toughest applications.

Industrial Micro-V® Belts (J, L and M Series) (North America)

INDUSTRIAL SHORT PROFILE SERPENTINE BELT

Exclusive truncated [shortened] profile gives Micro-V® belts increased flexibility, reduced heat buildup and allows performance at higher speeds on smaller diameter sheaves. Well suited for applications such as appliances, outdoor power equipment, roller conveyors, machine tools, medical equipment and exercise equipment.

- Fiber reinforced ribs for excellent wear resistance.
- High modulus, low stretch tensile member for added strength and dependability.
- Smooth running for minimal vibration at high speeds.
- Meets or exceeds ARPM standards for static conductivity and heat and oil resistance.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts



DRIVEALIGN® AUTOMATIC BELT TENSIONERS

Gates is a global leader in Original Equipment (OE) System Design, with a full line of over 500 tensioners globally. Gates ensures that every tensioner they manufacture is built to rigid tolerances and specifications that guarantee fit, form and function.



- Patented vibration damping system improves tensioners, belts and accessory life.
- Torsional round spring design provides consistent tension and does not allow contamination.

DRIVEALIGN® HEAVY-DUTY AUTOMATIC BELT TENSIONERS

The longest lasting belt tensioners in the industry. Engineered to exceed demanding OEM requirements.



- Labyrinth Seal – prevents contamination of internal parts for maximum durability and service life.
- Machined Steel Pulley – reduces surface wear while shielding internal bearing from outside contaminants.
- Double Row Bearings – twin rows of bearings carry more load and last up to three times longer than two individual bearings.
- Round Spring Wire – includes chrome-silicone torsion spring for less flex-fatigue than flat-wire designs.
- Patented Damping Mechanism – provides maximum stability, reducing vibration and increasing the life of belt, tensioner and other accessory drive components.

HYDRAULIC TENSIONERS

For applications with high loads and/or angular vibrations, where a mechanical automatic tensioner cannot provide sufficient damping or tensioner movement.



- Use Gates tensioner pin set tool (PN#91010) for securing piston.

Coolant



Fuel



Oil



Exhaust/
DEF



Air



Brake



Hose
Accessories



Belts



DRIVEALIGN® IDLER PULLEYS

Designed for use on automobiles and light trucks as a locked center tensioning pulley, an automatic belt tensioner pulley or an idler pulley.



- Steel or thermoplastic construction provides high durability for long life.
- Bearing is designed for application specific speed and load requirements.
- Reliable operation under severe conditions.

DRIVEALIGN® HEAVY-DUTY IDLER PULLEYS

Long-lasting pulleys built to endure the rigors of today's heavy-duty, fleet and off-road equipment.



- Superior bearings out perform OE Idler Pulleys.
- Robust and high quality pulley materials to withstand contaminants.
- New hardware included on some popular applications.
- Built with precise dimensional tolerance to ensure proper fit and long lasting performance.
- Built with corrosive-resistant coating to prevent rust and increase durability.

EUROGRIP® OE DRIVE COUPLERS

Flexible coupler dampens shock and tolerates misalignment.



- Designed to connect a decoupler pulley on an alternator or air conditioning compressor.
- Lubricated jacket minimizes coupling and end piece wear and retains tooth integrity during operation.
- Glass fiber cord provides excellent dimensional stability at high rotational speeds.
- Fiber-loaded construction maximizes torque capability, controls damping and provides excellent age resistance.
- Coupling's flexibility tolerates misalignment in components.
- Predictable shear properties allow for component protection.

WATER PUMPS FOR HEAVY DUTY APPLICATIONS

Gates carries an extensive line of water pumps for heavy duty applications



- Designed to handle rugged Fleet standards.
- New pumps manufactured to ISO/TS 16949 standards.
- 100% fully tested unitized bearings/seals.
- Gates heavy duty water pumps, represented as a part number with an HD suffix, carry a warranty of 18 months or 150,000 miles / 5,400 hours, whichever comes first.
- Computerized machined surfaces for proper fit/sealing.

Coolant



Fuel



Oil


Exhaust/
DEF


Air



Brake


Hose
Accessories


Belts





NOTES

