

# INDUSTRIAL ENGINE

HOSES, BELTS AND ACCESSORIES



2017 PRODUCTS CATALOG





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# GUIDE FOR GATES ENGINE HOSE TYPES

	Description	Gates Spec	Where Sold	SAE (or Other) Spec	Cost [1 to 5 Scale]	Page
Coolant	<b>Straight</b>					
	Standard coolant hose	4175EC (75W)	N America	20R1 EC Class D2	●●●○○○	17
	Premium EPDM	4178	N America	20R1 EC Class D1	●●●○○○	18
	Premium EPDM, aramid	4175SC (Blue Stripe)	N.A. & Europe	20R1 EC Class D1	●●●○○○	19
	Higher temperature	4175HT (FleetRunner)	N.A. & Europe	20R1 EC HT Class D3	●●●○○○	20
	Thick wall	4176HD (76W)	N.A. & Europe	20R1 Class D2, heavy wall	●●●○○○	21
	Light duty, metric	4272 [Flexcord Plus]	Europe	20R4 Class D2, DIN 73422 Class B1	●●●○○○	22
	Oil resistant	4169A	N America	20R1 Class B tube, Class C cover	●●●○○○	23
	Oil resistant, thicker wall	4176Y	N America	20R1 Cl. B tube / C cover, heavy wall	●●●○○○	24
	Oil resistant, thickest wall	4179G (Green Stripe)	N America	20R1 Cl. B tube / C cover, heavy wall	●●●○○○	25
	Oil resistant cover only	4169G	N America	20R1 EC Class D1 tube, Class C cover	●●●○○○	26
	Silicone	4171 [Durion]	N America	20R1 HT Class A	●●●○○○	27
	Silicone	4171 [Durion Aramid]	N America	20R1 HT Class A	●●●○○○	27
	Silicone	4171	N America	20R1 HT Class A	●●●○○○	28
	Embedded wire helix	4685WG	N.A. & Europe	20R2 EC Class D1	●●●○○○	29
	Oil resistant w/ wire helix	4684CF	N America	20R2 Class B tube / C cover	●●●○○○	30
	Silicone w/ wire helix	4684S	N America	20R2 Class A	●●●○○○	31
	Convolutions, set lengths	4254 [Vulco-Flex II]	N America	Similar to 20R5 Class D2	●●●○○○	32
	Convolutions, ECR tube	4284 [Vulco-Flex Green Stripe]	N.A. & Europe	20R5 EC Class D2	●●●○○○	33
	Hump connector	4177W	N.A. & Europe	SAE 20R1 Class B tube / C cover	●●●○○○	34
	<b>Straight - Small ID</b>					
	Standard heater hose	4230T	N.A. & Europe	20R3 Class D2 except hardness	●○○○○○	35
	Light duty	3270 [Safety Stripe]	N America	Similar to 20R3 Class D2	●○○○○○	35
	Premium, with blue stripe	4230SB [Blue Stripe]	N.A. & Europe	20R3 EC Class D1	●○○○○○	36
	Premium, with no stripe	4230RK	N America	20R3 EC Class D1	●○○○○○	36
	Premium, with red stripe	4230RS [Red Stripe]	N America	20R3 EC Class D1	●○○○○○	36
	Thick wall, aramid	3269S [Green Stripe]	N America	20R1 EC Class D1 except wall	●○○○○○	37
	Metric sizes	3230 [EPDM]	Europe	DIN 73411 Class A except tolerance.	●○○○○○	38
	Oil resistant	4230S / 4230SS	N.A. & Europe	20R3 Class B tube / C cover	●○○○○○	38
	Silicone	3230 / 3231 [Europe]	N.A. & Europe	20R3 HT Class A	●○○○○○	39
	<b>Formed</b>					
	Standard curved hose	4280MH	N.A. & Europe	20R3/4 EC Class D1	●○○○○○	45
	Non-ECR EPDM	4280GN	N.A. & Europe	20R3/4 Class D2	●○○○○○	46
	Higher pressure, aramid	4276KR	N.A. & Europe	20R3/4 EC Class D1	●○○○○○	47
High-fatigue resistance	4256HY	N.A. & Europe	20R4 EC Class D1	●○○○○○	48	
Premium EPDM, aramid	4256SB [Blue Stripe]	N.A. & Europe	20R3/4 EC Class D1	●○○○○○	49	
Higher temp. p-EPDM	4256LS	N.A. & Europe	20R3/4 EC Class D3	●○○○○○	50	
SCR	<b>SCR</b>					
	DEF tank fill / vent	4217IS	N.A. & Europe	Similar to 20R3/4 EC Class D3	●○○○○○	82
	Heated DEF line	4202 [Nylon]	N.A. & Europe	None	●●●●●●	83
Heated DEF line	4202 [EPDM]	N.A. & Europe	None	●●●●●●	83	
DEF tank fill / vent	4256PC	N.A. & Europe	Similar to 20R3/4 EC Class D3	●○○○○○	82	
Exhaust	<b>Exhaust</b>					
	Marine wet exhaust	3137ME	N America	J2006 R1	●○○○○○	86
Wet exhaust w/ helix	4686ME	N America	J2006 R2	●○○○○○	87	
Air	<b>Inlet Air - Straight</b>					
	[Use a coolant hose]	Connector	N.A. & Europe			-
	Duct w/ thin wall, helix	7768	N.A. & Europe	DOT FMVSS 302	●○○○○○	89
	Oil resistant w/ helix	4663A [63SB]	N.A. & Europe		●○○○○○	90
	Thicker wall w/ helix	4663J [163SB]	N America		●○○○○○	91
	Thick wall w/ helix	4663G	N America		●○○○○○	92
	<b>Inlet Air - Formed</b>					
	Air cleaner hose	4289E	N.A. & Europe	J200 M3CA 707	●○○○○○	100
	Oil resistant	4289N	N.A. & Europe	J200 M3BC 707	●○○○○○	102
	<b>Turbo Air - Straight</b>					
	Silicone CAC connector	4171H	N.A. & Europe		●●●●●●	93
	Hump hose connector	4177W [Green Stripe] / 4177C	N.A. & Europe	SAE 20R1 Class B tube, Class C cover	●●●●●●	94
	Silicone hump connector	4177S	N America		●●●●●●	95
	Hump & ring connector	4177	N America		●●●●●●	96
	<b>Turbo Air - Formed</b>					
	Cold side CAC	4256NP	N.A. & Europe	20R4 Class D1 except wall	●○○○○○	104
	Fatigue resistant CAC	4256PM	N.A. & Europe	20R4 Class D1 except wall	●○○○○○	104
	Oil resistant CAC	4278AA	N.A. & Europe	20R4 Class D1 except wall	●○○○○○	105
	<b>Multi-Purpose - Straight</b>					
Wiper, overflow tube	4040A	N.A. & Europe	J1037, 942B, J200 M4CA710	●○○○○○	97	
Wiper, overflow hose	4251D	N America	Similar to SAE 20R3 Class D2	●○○○○○	98	
Silicone tubing	4040T	N America		●○○○○○	99	





# GUIDE FOR GATES ENGINE HOSE TYPES

Gates Spec	Construction/Tube/ Reinforcement/Cover	Working Pressure Range		Burst Pressure Range		Page
		MPa (depends on ID)	PSI (depends on ID)	MPa (depends on ID)	PSI (depends on ID)	
<b>Straight</b>						
4175EC (75W)	EPDM/fabric plies/EPDM	0.08 to 0.95	12 to 138	0.34 to 3.79	50 to 550	17
4178	EPDM/fabric plies/EPDM	0.08 to 0.76	12 to 110	0.34 to 2.93	50 to 425	18
4175SC (Blue Stripe)	EPDM/fabric plies/EPDM	0.34 to 0.69	50 to 100	1.38 to 2.76	200 to 400	19
4175HT (FleetRunner)	p-EPDM/fabric/green p-EPDM	0.86 to 1.03	125 to 150	3.45 to 4.14	500 to 600	20
4176HD (76W)	EPDM/fabric plies/EPDM	0.26 to 1.21	38 to 175	1.03 to 4.83	150 to 700	21
4272 (Flexcord Plus)	EPDM/aramid yarn/EPDM	0.20 to 0.40	29 to 58	0.6 to 1.24	87 to 180	22
4169A	NBR/fabric plies/CR	0.07 to 1.03	10 to 150	0.34 to 4.14	50 to 600	23
4176Y	NBR/fabric plies/CR	0.17 to 0.95	25 to 138	0.69 to 3.79	100 to 550	24
4179G (Green Stripe)	NBR/fabric 4 plies/CR	0.28 to 0.69	40 to 100	1.10 to 2.76	160 to 400	25
4169G	EPDM/fabric plies/CR	0.13 to 0.95	19 to 138	0.52 to 3.79	75 to 550	26
4171 (Durion)	Red silicone/polyester	0.17 to 0.76	25 to 110	0.69 to 2.93	100 to 425	27
4171 (Durion Aramid)	Aramid/Blue silicone	0.17 to 0.52	25 to 75	0.69 to 2.07	100 to 300	27
4171	Red silicone/polyester/green silicone	0.14 to 0.76	20 to 110	0.55 to 2.93	80 to 425	28
4685WG	EPDM/fabric + wire/EPDM	0.10 to 0.69	15 to 100	0.52 to 2.76	75 to 400	29
4684CF	NBR/fabric + wire/CR	0.09 to 0.69	13 to 100	0.34 to 2.76	50 to 400	30
4684S	Silicone/fabric + wire/Silicone	0.23 to 0.59	33 to 85	0.90 to 2.41	130 to 350	31
4254 (Vulco-Flex II)	EPDM/fabric + wire/EPDM	0.14 to 0.21	20 to 30	0.55 to 0.83	80 to 120	32
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	33
4177W	NBR/fabric plies/CR	0.17 to 0.47	25 to 69	0.69 to 1.90	100 to 275	34
<b>Straight - Small ID</b>						
4230T	EPDM/spiral yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	35
3270 (Safety Stripe)	EPDM/spiral yarn/EPDM	0.31 to 0.41	45 to 60	1.21 to 1.72	175 to 250	35
4230SB (Blue Stripe)	EPDM/aramid yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	36
4230RK	EPDM/aramid yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	36
4230RS (Red Stripe)	EPDM/aramid yarn/EPDM	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	36
3269S (Green Stripe)	EPDM/aramid yarn/EPDM	0.48 to 0.69	70 to 105	1.90 to 2.76	276 to 400	37
3230 (EPDM)	EPDM/ rayon yarn/EPDM	0.40 to 0.50	58 to 73	1.0 to 1.2	145 to 174	38
4230S / 4230SS	NBR/yarn/CR	0.52	75	2.07	300	38
3230 / 3231 (Europe)	silicone/yarn/silicone	0.30 to 0.43	44 to 63	1.21 to 1.72	175 to 250	39
<b>Formed</b>						
4280MH	EPDM/knit yarn/EPDM	0.07 to 0.43	10 to 63	0.27 to 1.72	40 to 250	45
4280GN	EPDM/knit yarn/EPDM	0.17 to 0.43	25 to 63	0.69 to 1.72	100 to 250	46
4276KR	EPDM/knit aramid yarn/EPDM	0.17 to 0.43	25 to 63	0.69 to 1.72	100 to 250	47
4256HY	EPDM/knit hybrid yarn/EPDM	0.35 to 0.63	50 to 90	1.38 to 2.50	200 to 363	48
4256SB (Blue Stripe)	EPDM/knit aramid yarn/EPDM	0.12 to 0.43	18 to 63	0.48 to 1.72	70 to 250	49
4256LS	EPDM/knit aramid yarn/EPDM	0.17 to 0.26	25 to 38	0.69 to 1.03	100 to 150	50
<b>SCR</b>						
4217IS	p-EPDM/PET or aramid/EPDM	2.41	350	6.89	1000	82
4202 (Nylon)	Nylon tube, heat sleeve, J2044 ends	0.35	50	1.38	200	83
4202 (EPDM)	p-EPDM tube, heat sleeve, J2044 ends	0.35	50	1.38	200	83
4256PC	EPDM/knit aramid yarn/EPDM	0.17 to 0.26	25 to 38	0.69 to 1.03	100 to 150	82
<b>Exhaust</b>						
3137ME	EPDM/2 ply fabric/EPDM	0.69	100	2.07	300	86
4686ME	EPDM/2 ply fabric + 2 wire/EPDM	0.69	100	2.07	300	87
<b>Inlet Air - Straight</b>						
Connector						-
7768	Propylene-ethylene/pp helix	0 to 0.07	0 to 10	no rating	no rating	89
4663A (63SB)	CR/fabric + 2 wire/CR + fabric	0.03 to 0.07	5 to 10	0.14 to 0.28	20 to 40	90
4663J (163SB)	CR/fabric + 2 wire/CR	0.06 to 0.14	8 to 20	0.22 to 0.55	32 to 80	91
4663G	CR/fabric + 2 wire/CR	0.07	10	0.28	40	92
<b>Inlet Air - Formed</b>						
4289E	Unreinforced EPDM	no rating	no rating	no rating	no rating	100
4289N	Unreinforced CR	no rating	no rating	no rating	no rating	102
<b>Turbo Air - Straight</b>						
4171H	silicone/high temp fabric/silicone	0.62 to 1.38	90 to 200	2.48 to 5.52	360 to 800	93
4177W (Green Stripe) / 4177C	NBR/fabric plies/CR	0.17 to 0.47	25 to 69	0.69 to 1.90	100 to 275	94
4177S	plies of silicone and polyester	0.09 to 0.48	13 to 69	0.34 to 1.90	50 to 275	95
4177	4 ply silicone and aramid	0.17	25	0.69	100	96
<b>Turbo Air - Formed</b>						
4256NP	EPDM/m-aramid knit yarn/EPDM	no rating	no rating	0.76	110	104
4256PM	EPDM/hybrid knit yarn/EPDM	no rating	no rating	0.93	135	104
4278AA	CPE/hybrid knit yarn/CPE	no rating	no rating	0.83 to 1.38	121 to 200	105
<b>Multi-Purpose - Straight</b>						
4040A	Unreinforced EPDM	0.17	25	no rating	no rating	97
4251D	EPDM/yarn/EPDM	0.34	50	1.72	250	98
4040T	Unreinforced silicone	-0.085	-12.3	no rating	no rating	99







# GUIDE FOR GATES ENGINE HOSE TYPES

	Description	Gates Spec	Where Sold	SAE (or Other) Spec	Cost [1 to 5 Scale]	Page
Fuel	<b>Straight</b>					
	Standard fuel/oil hose	4219G / 4219XL	N.A. & Europe	30R6 or 30R7	●●○○○○	52
	Metric sizes	3225ST	N.A. & Europe	30R7, DIN 73379 ex. tolerance	●●○○○○	53
	Metric w/ textile cover	4324	Europe	DIN 73379	●●○○○○	54
	Lower fuel permeation	4219D	N America	30R9, 180 psi	●●●●○○	54
	Higher pressure	3284AC / 3284SS [RLA R2]	N.A. & Europe	30R2 Type 1 except OD	●●●●○○	55
	Low permeation barrier	4219BG [Barricade]	N.A. & Europe	30R14 T1	●●●●○○	55
	Barrier, fuel injection	4219BF [Barricade Fuel Injection]	N.A. & Europe	30R14 T2 excl. kink resist., 1E4340A,B	●●●●○○	57
	Diesel/biodiesel fuel injection	4219BD	N.A. & Europe	Cat 1E4340B	●●●●○○	57
	Nylon tubing for diesel	4327DT	North America	J844, DOT FMVSS 106	●○○○○○	58
	Nylon tubing for fuel	4327FT	North America	J844, DOT FMVSS-106	●●●●○○	59
	Submersible (in-tank)	4219	N.A. & Europe	30R10	●●●●○○	59
	Stainless steel braid cover	4659 [G200]	North America	None	●●●●○○	60
	Textile braid cover	4659 [G210]	North America	None	●●●●○○	60
	Fuel filler w/ wire helix	4663K	N.A. & Europe	30R5 Class B tube / C cover	●●●●○○	61
	Fuel transfer	4688CN [Fuel Master 150D]	North America	ARPM Class A tube	●●●●○○	61
	Biodiesel transfer w/wire helix	4688AF/4688AC [Fuel Master Xtreme 150SD]	North America	MSHA 30 CFR 18.65	●●●●○○	62
	Marine fuel and oil hose	4219M	North America	J1527, USCG Type A1	●●●●○○	63
	Marine outdoor fuel line	4219N	North America	J1527, USCG Type B1	●●○○○○	63
	Marine barrier fuel hose	4219BM [Barricade Marine]	North America	J1527, USCG Type A1-15		64
	Marine high pressure	3658F [C5M]	North America	J1527, USCG Type A1	●●●●○○	64
<b>Formed</b>						
Biodiesel fill and vent	4278BD	N.A. & Europe	30R6 with exceptions	●●●●○○	65	
Oil	<b>Straight</b>					
	Fiber braid reinforced	3319HT [GTH]	N.A. & Europe	100R6	●●○○○○	69
	Two fiber braids	3319CA [G3H]	N.A. & Europe	100R3	●●○○○○	69
	High temperature w/ wire	3658D [C5D]	North America	J1402, DOT FMVSS-106	●●●●○○	70
	High temp. and pressure	3658BC [C5C XH]	N.A. & Europe	100R5, DOT FMVSS-106	●●●●○○	71
	Transmission oil cooler	4219HT	North America	1532 Type B	●●○○○○	71
	High temp. true bore	4319 [MegaTech LOC]	North America	None	●●○○○○	72
	High temperature w/ wire	4657AM [MegaTech 250]	North America	J1405	●●●●○○	72
	High temp., wire, large ID	4657DT [MegaTech 500]	N.A. & Europe	J1405	●●●●○○	73
	High temp. and pressure	4657PS [MegaTech 3000]	North America	J1405	●●●●○○	73
	High pressure large ID	4657JT [MegaTech II]	North America	100R2 and 100R2 Type S	●●●●○○	74
	High pressure true bore	4657TB [MegaTech G5TB]	North America	None	●●●●○○	74
	<b>Power Steering - Straight</b>					
	Pressure line	3317LC/3317LE [PS188]	N.A. & Europe	J2050 Type 1	●●●●○○	75
	Power steering pressure line	3317AB [Mega Tech HVE]	North America	None	●●●●○○	75
	Return line	3283SA	North America	J189	●●●●○○	76
	High temp return	3283LF	North America	J189, J2076	●●●●○○	77
	<b>Formed</b>					
	Standard oil fill / suction	4278CN	N.A. & Europe	30R6 [or 30R7 excl. sour gas test]	●●●●○○	78
	Higher pressure	4278OB	N.A. & Europe	30R2 Type 1 [except burst]	●●●●○○	79
	<b>Power Steering - Formed</b>					
Higher temperature	4278SS	N.A. & Europe	J200 M5DE 710 B15 E036	●●●●○○	80	
A/C	<b>Refrigerant</b>					
	Air Conditioning hose	3353 [PolarSeal]	N.A. & Europe	J2064 Type C Class II, J51	●●●●○○	107
Air Conditioning - thin wall	3353 [PolarSeal II]	N.A. & Europe	J2064 Type C Class II, J51	●●●●○○	107	
Brake	<b>Straight</b>					
	Standard air brake	3245E	N America	J1402, DOT FMVSS-106	●●○○○○	109
	Arctic air brake	3245T	N America	J1403 Type H, DOT FMVSS-106	●●●●○○	109
	Higher pressure	3658C [C5C]	N. America	J1402, DOT FMVSS 106, SAE 100R5	●●●●○○	110
	Higher temperature	7657AB [TR500]	N.A. & Europe	J1402, DOT FMVSS 106	●●●●○○	110
	Higher pressure, temp.	3658E [C5E]	N America	J1402, DOT FMVSS 106	●●●●○○	111
	Higher pressure, temp.	4657DT [MegaTech 1000]	N.A. & Europe	J1402/J1405, DOT FMVSS-106	●●●●○○	111
	High temperature	7752 [C14]	N America		●●●●○○	112
Light duty	3276	N America	J1403 type L, DOT FMVSS 106VL	●●○○○○	112	
Nylon air brake tubing	4327 [NABT]	N America	J844, DOT FMVSS-106-74	●○○○○○	113	





# GUIDE FOR GATES ENGINE HOSE TYPES

Gates Spec	Tube/Reinforcement/Cover	Working Pressure Range		Burst Pressure Range		Page
		MPa (depends on ID)	PSI (depends on ID)	MPa (depends on ID)	PSI (depends on ID)	
<b>Straight</b>						
4219G / 4219XL	NBR/spiral yarn/NBR-PVC	0.24 to 0.34	35 to 50	1.21 to 1.72	175 to 250	52
3225ST	NBR/spiral polyester/NBR+PVC	0.76	110	3.03	440	53
4324	ECO/HNBR or NBR+PVC, rayon	0.6	0.87	2.4	348	54
4219D	FKM+CPE/polyester braid/CPE	1.24	180	6.2	900	54
3284AC/3284SS [RLA] [R2]	NBR/braided yarn/NBR+PVC	1.10 to 1.72	160 to 250	4.41 to 6.89	640 to 1000	55
4219BG [Barricade]	NBR+plastic/polyester/NBR+PVC	0.24 to 0.34	35 to 50	1.21 to 1.72	175 to 250	55
4219BF [Barricade Fuel Injection]	HNBR+plastic/aramid/CPE	1.55	225	7.76	1125	57
4219BD	HNBR/aramid/CPE	1.21	175	7.2	1050	57
4327DT	Nylon/nylon fiber/nylon	1.03	150	3.45	500	58
4327FT	Nylon/nylon fiber/nylon	1.03	150	4.14	600	59
4219	FKM/aramid/FKM	0.69	100	2.8 to 3.4	400 to 500	59
4659	CPE/stainless steel braid	3.45 to 6.89	500 to 1000	13.79 to 41.37	2000 to 6000	60
4659 [G210]	CPE/stainless steel braid, textile braid	2.43 to 3.45	350 to 500	9.65 to 13.79	1400 to 2000	60
4663K	NBR/fabric + wire/CR+fabric	0.14	20	0.62	90	61
4688CN [Fuel Master 1500]	NBR / fabric / CR	1.03	150	4.14	600	61
4688AF / 4688AC [Fuel Master Xtreme 150 SD]	NBR / fabric + wire / NBR	1.03	150	4.14	600	62
4219M	NBR/high tensile fabric/CR	0.28	40	1.38	200	63
4219N	NBR/high tensile fabric/NBR+PVC	0.28	40	1.38	200	63
4219BM [Barricade Marine]	NBR+plastic/poly/NBR+PVC or CSM	0.24	35	1	140	64
3658F [C5M]	NBR/wire braid/NBR-PVC	3.45	500	13.79	2000	64
<b>Formed</b>						
4278BD	ECO/knit/ECO	0.11	16	0.55	80	65
<b>Straight</b>						
3319HT [GTH]	NBR/yarn/NBR-PVC	1.72 to 3.45	250 to 500	6.89 to 13.79	1000 to 2000	69
3319CA [G3H]	NBR/yarn/NBR-PVC	2.07 to 8.62	300 to 1250	8.27 to 34.47	1200 to 5000	69
3658D [C5D]	CPE/wire braid/CPE+green textile	2.76 to 10.34	400 to 1500	11.03 to 41.37	1600 to 6000	70
3658BC [C5C XH]	CPE/wire braid/CPE	4.31 to 20.68	625 to 3000	17.24 to 82.74	2500 to 12000	71
4219HT	NBR/yarn/CR	0.41	60	4.14	600	71
4319 [MegaTech LOC]	CPE/yarn/CPE+textile	2.07	300	8.27	1200	72
4657AM [MegaTech 250]	CPE/wire braid/rubber+PET braid	1.72	250	6.89	1000	72
4657DT [MegaTech 500]	CPE/steel braid/rubber+PET braid	3.45	500	13.79	2000	73
4657PS [MegaTech 3000]	CPE/wire braid/rubber+PET braid	20.68	3000	82.74	12000	73
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	74
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	74
<b>Power Steering - Straight</b>						
3317LC/3317LE [PS188]	CSM or CPE/2 ply nylon/CSM or CPE	10.34	1500	41.37	6000	75
3317AB [MegaTech HVE]	CPE/yarn/CPE + textile	15.5	22.50	62	9000	75
3283SA	NBR/yarn/CR	1.38 to 1.72	200 to 250	5.52 to 6.89	800 to 1000	76
3283LF	CPE/yarn/CPE	1.72	250	12.41	1800	77
<b>Formed</b>						
4278CN	NBR/knit yarn/NBR-PVC	0.11 to 0.34	16 to 50	0.55 to 1.72	80 to 250	78
4278OB	NBR/knit aramid yarn/NBR-PVC	0.28 to 0.34	40 to 100	1.38 to 1.72	200 to 500	79
<b>Power Steering - Formed</b>						
4278SS	p-CPE/knit yarn/p-CPE	0.15 to 0.24	22 to 35	0.76 to 1.20	110 to 174	80
<b>Refrigerant</b>						
3353 [PolarSeal]	CPE/nylon barrier/spiral PET/EPDM	3.45	500	13.79	2000	107
3353 [PolarSeal II]		2.41	350	9.65	1400	107
<b>Straight</b>						
3245E	EPDM/spiral yarn/EPDM	1.55	225	6.21	900	109
3245T	CR/fabric/CR	0.59	85	6.21	900	109
3658C [C5C]	CR/ fabric+steel braid/CR	10.34 to 20.68	1500 to 3000	41.37 to 82.74	6000 to 12000	110
7657AB [TR500]	NBR/steel braid/rubber+PET braid	3.45	500	13.79	2000	110
3658E [C5E]	NBR/fabric+steel braid/CR	5.17 to 10.34	750 to 1500	20.68 to 41.37	3000 to 6000	111
4657DT [MegaTech 1000]	CPE/steel braid/rubber+PET braid	6.89	1000	27.58	4000	111
7752 [C14]	PTFE/stainless steel braid	6.89 to 10.34	1000 to 1500	27.58 to 41.37	4000 to 6000	112
3276	EPDM/fabric plies/EPDM	-0.088 to 0.34	-12.8 to 50	2.41	350	112
4327 [NABT]	Nylon/nylon fiber/nylon	1.03	150	4.41 to 7.72	640 to 1120	113





# GUIDE FOR GATES ENGINE HOSE TYPES

		Temperature Range		Fahrenheit Temperature Range - Proportional Scale												Page			
Description	Gates Spec	°C	°F	-70	-65	-51	-40	<-- Min Max-->	200	212	250	257	275	302	347		400	450	500
Coolant	<b>Coolant - Straight</b>																		
	Standard coolant hose	4175EC (75W)	-40 to +125	-40 to +257															17
	Premium EPDM	4178	-40 to +125	-40 to +257															18
	Premium EPDM, aramid	4175SC (Blue Stripe)	-40 to +125	-40 to +257															19
	Higher temperature	4175HT (FleetRunner)	-40 to +149	-40 to +300															20
	Thick wall	4176HD (76W)	-40 to +125	-40 to +257															21
	Light duty, metric	4272 (Flexcord Plus)	-40 to +135	-40 to +275															22
	Oil resistant	4169A	-40 to +100	-40 to +212															23
	Oil resistant, thicker wall	4176Y	-40 to +100	-40 to +212															24
	Oil resistant, thickest wall	4179G (Green Stripe)	-40 to +100	-40 to +212															25
	Oil resistant cover only	4169G	-40 to +125	-40 to +257															26
	Silicone	4171 (Durion)	-54 to +175	-65 to +347															27
	Silicone	4171 (Durion aramid)	-54 to +260	-65 to +500															27
	Silicone	4171	-54 to +175	-65 to +347															28
	Embedded wire helix	4685WG	-40 to +125	-40 to +257															29
	Oil resistant w/ wire helix	4684CF	-40 to +125	-40 to +212															30
	Silicone w/ wire helix	4684S	-57 to +175	-70 to +347															31
	Convolutions, set lengths	4254/4274TR (Vulco-Flex)	-40 to +125	-40 to +257															32
	Convolutions, ECR tube	4284 (Vulco-Flex Green Stripe)	-40 to +100	-40 to +212															33
	Hump connector	4177W	-40 to +100	-40 to +212															34
	<b>Coolant-Straight; Small ID</b>																		
	Standard heater hose	4230T	-40 to +125	-40 to +257															35
	Light duty	3270 (Safety Stripe)	-40 to +125	-40 to +257															35
	Premium, with blue stripe	4230SB (Blue Stripe)	-40 to +150	-40 to +302															36
	Premium, with no stripe	4230RK	-40 to +150	-40 to +302															36
	Premium, with red stripe	4230RS (Red Stripe)	-40 to +150	-40 to +302															36
	Thick wall, aramid	3269S (Green Stripe)	-40 to +135	-40 to +275															37
	Metric sizes	3230 (EPDM)	-46 to +100	-51 to +212															38
	Oil resistant	4230S	-40 to +100	-40 to +212															38
	Silicone	3230 / 3231 (Europe)	-54 to +177	-65 to +350															39
	<b>Coolant - Formed</b>																		
	Standard curved hose	4280MH	-40 to +125	-40 to +257															45
	Non-ECR EPDM	4280GN	-40 to +125	-40 to +257															46
	Higher pressure, aramid	4276KR	-40 to +125	-40 to +257															47
High-fatigue resistance	4256HY	-40 to +125	-40 to +257															48	
Premium EPDM, aramid	4256SB (Blue Stripe)	-40 to +125	-40 to +257															49	
Higher temp. p-EPDM	4256LS	-40 to +150	-40 to +302															50	
SCR	<b>SCR Hose</b>																		
	DEF tank fill / vent	4217IS	-40 to +125	-40 to +257															82
	Heated DEF line	4202	-40 to +125	-40 to +257															83
	Heated DEF line	4202 (EPDM)	-40 to +150	-40 to +302															83
DEF tank fill / vent	4256PC	-40 to +150	-40 to +302															82	
Exhaust	<b>Exhaust</b>																		
	Marine wet exhaust	3137ME	-40 to +125	-40 to +257															86
Wet exhaust w/ helix	4686ME	-40 to +125	-40 to +257															87	
Air	<b>Inlet Air - Straight</b>																		
	(Use a coolant hose)	Connector	-57 to +260	-70 to +500															-
	Duct w/ thin wall, helix	7768	-40 to +107	-40 to +225															89
	Oil resistant w/ helix	4663A (63SB)	-40 to +121	-40 to +250															90
	Thicker wall w/ helix	4663J (163SB)	-40 to +121	-40 to +250															91
	Thick wall w/ helix	4663G	-40 to +125	-40 to +257															92
	<b>Inlet Air - Formed</b>																		
	Air cleaner hose	4289E	-40 to +135	-40 to +275															100
	Oil resistant	4289N	-40 to +100	-40 to +212															102
	<b>Turbo Air - Straight</b>																		
	Silicone CAC connector	4171H	-40 to +288	-40 to +450															93
	Hump hose connector	4177W (Green Stripe) / 4177C	-40 to +100	-40 to +212															94
	Silicone hump connector	4177S	-46 to +177	-51 to +350															95
	Hump & ring connector	4177	-46 to +260	-51 to +500															96
	<b>Turbo Air - Formed</b>																		
	Cold side CAC	4256NP	-40 to +125	-40 to +257															104
	Fatigue resistant CAC	4256PM/HY	-40 to +125	-40 to +257															104
	Oil resistant CAC	4278AA	-40 to +105	-40 to +221															105
	<b>Air - Straight; Multi-Purpose</b>																		
	Wiper, overflow tube	4040A	-40 to +125	-40 to +257															97
Wiper, overflow hose	4251D	-40 to +125	-40 to +257															98	
Silicone tubing	4040T	-40 to +204	-40 to +400															99	

Celsius Temperature Range - Proportional Scale														
-57	-54	-46	-40	<-- Min Max-->	93	100	121	125	135	150	175	204	232	260

= available  
 = peak temperature for certain applications







# GUIDE FOR GATES ENGINE HOSE TYPES

Description	Gates Spec	Temperature Range		Fahrenheit Temperature Range - Proportional Range												Page		
		°C	°F	-70	-65	-51	-40	<-- Min Max-->	200	212	250	257	275	302	347		400	450
<b>Fuel - Straight</b>																		
Standard fuel/oil hose	4219G / 4219XL	-40 to +125	-40 to +257															
Metric sizes	3225ST	-35 to +125	-31 to +257															
Metric w/ textile cover	4324	-40 to +100	-40 to +212															
Lower fuel permeation	4219D	-40 to +135	-40 to +275															
Higher pressure	3284AC / 3284A [RLA R2]	-40 to +100	-40 to +212															
Low permeation barrier	4219BG [Barricade]	-40 to +125	-40 to +257															
Barrier, fuel injection	4219BF [Barricade Fuel Injection]	-40 to +150	-40 to +302															
Diesel / biodiesel fuel injection	4219BD	-40 to +150	-40 to +302															
Nylon tubing for diesel	4327DT	-40 to +93	-40 to +200															
Nylon tubing for fuel	4327FT	-40 to +93	-40 to +200															
Submersible [in-tank]	4219	-40 to +150	-40 to +302															
Stainless steel braid cover	4659 [G200]	-40 to +149	-40 to +300															
Textile braid cover	4659 [G210]	-40 to +149	-40 to +300															
Fuel filler w/ wire helix	4663K	-40 to +100	-40 to +212															
Fuel transfer	4688CN [Fuel Master 150 D]	-40 to +49	-40 to +120															
Biodiesel transfer w/wire helix	4688AF / 4688AC [Fuel Master Xtreme 150 D]	-34 to +82	-30 to +180															
Marine fuel and oil hose	4219M	-40 to +100	-40 to +212															
Marine outdoor fuel line	4219N	-40 to +121	-40 to +250															
Marine barrier fuel hose	4219BM [Barricade Marine]	-20 to +100	-4 to +212															
Marine high pressure	3658F [C5M]	-20 to +100	-4 to +212															
<b>Fuel - Formed</b>																		
Biodiesel fill and vent	4278BD	-40 to +100	-40 to +212															
<b>Oil - Straight</b>																		
Fiber braid reinforced	3319HT [GTH]	-40 to +135	-40 to +275															
Two fiber braids	3319CA [G3H]	-40 to +135	-40 to +275															
High temperature w/ wire	3658D [C5D]	-40 to +150	-40 to +302															
High temp. and pressure	3658BC [C5C XH]	-40 to +150	-40 to +302															
Transmission oil cooler	4219HT	-40 to +135	-40 to +275															
High temp. true bore	4319 [MegaTech LOC]	-40 to +150	-40 to +302															
High temperature w/ wire	4657AM [MegaTech 250]	-40 to +150	-40 to +302															
High temp., wire, large ID	4657DT [MegaTech 500]	-40 to +150	-40 to +302															
High temp. and pressure	4657PS [MegaTech 3000]	-40 to +150	-40 to +302															
High pressure large ID	4657JT [MegaTech II]	-40 to +150	-40 to +302															
High pressure true bore	4657TB [MegaTech G5TB]	-40 to +150	-40 to +302															
<b>Power Steering - Straight</b>																		
Pressure line	3317LC/3317LE [PS188]	-40 to +150	-40 to +302															
Power steering pressure	3317AB [MegaTech HVE]	-40 to +150	-40 to +302															
Return line	3283SA	-40 to +135	-40 to +275															
High temp return	3283LF	-40 to +150	-40 to +302															
<b>Oil - Formed</b>																		
Standard oil fill / suction	4278CN	-40 to +125	-40 to +257															
Higher pressure	4278OB	-40 to +125	-40 to +257															
<b>Power Steering - Formed</b>																		
Higher temperature	4278SS	-40 to +150	-40 to +302															
<b>A/C Refrigerant</b>																		
Air Conditioning hose	3353 [PolarSeal]	-30 to +125	-22 to +257															
Air Conditioning - thin wall	3353 [PolarSeal II]	-30 to +125	-22 to +257															
<b>Air Brake - Straight</b>																		
Standard air brake	3245E	-40 to +100	-40 to +212															
Arctic air brake	3245T	-54 to +100	-65 to +212															
Higher pressure	3658C [C5C]	-40 to +100	-40 to +212															
Higher temperature	7657AB [TR500]	-40 to +121	-40 to +250															
Higher pressure, temp.	3658E [C5E]	-40 to +121	-40 to +250															
Higher pressure, temp.	4657DT [MegaTech 1000]	-40 to +150	-40 to +302															
High temperature	7752 [C14]	-54 to +232	-65 to +450															
Light duty	3276	-40 to +121	-40 to +250															
Nylon air brake tubing	4327 [NABT]	-40 to +93	-40 to +200															

Celsius Temperature Rate - Proportional Scale											
-57	-54	-46	-40	<-- Min Max-->	93	100	121	125	135	150	175

= available  
 = peak temperature for certain applications







## 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.

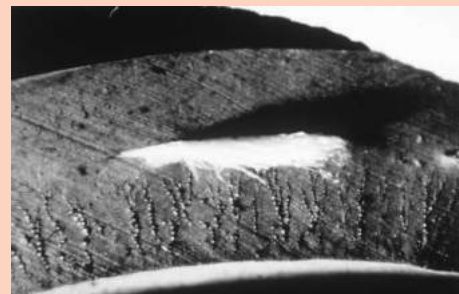
Use this manual to select the right engine hose for your application and economical in terms of design and availability. Contact your local Gates Account Manager for complete stocking and pricing information on any standard hose you select. He or she can also supply you with pricing and delivery schedules 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
<b>Common Name or Trade Names</b>	Neoprene*	Nitrile Buna-N	Hypalon*	EDPM	CPE	Viton* Fluorel †	Nylon	Silicone
<b>ASTM</b>	CR	NBR	CSM	EDPM	CM	FKM	PA	VMQ
<b>Physical Strength</b>	Good	Good	Good to Excellent	Good	Good	Fair	Good	Fair
<b>RESISTANCE TO: Abrasion</b>	Good to Excellent	Fair to Good	Good to Excellent	Good	Good	Good	Good	Fair
<b>Weather &amp; Ozone</b>	Good to Excellent	Poor	Excellent	Excellent	Good	Excellent	Excellent	Excellent
<b>Gaseous Permeation</b>	Good	Good to Excellent	Good to Excellent	Fair to Good	Good	Good	Excellent	Fair
<b>Petroleum Oils</b>	Excellent	Excellent	Good to Excellent	Poor	Good	Excellent	Excellent	Poor
<b>Commercial Gasolines</b>	Fair to Good	Excellent	Fair	Poor	Fair	Excellent	Excellent	Poor
<b>High Temperatures</b>	Good to Excellent	Good to Excellent	Good to Excellent	Excellent	Excellent	Excellent	Good	Excellent
<b>Low Temperatures</b>	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)**.

### 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. 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 2-9 or spec sheets. Find the **Size** needed and confirm the **Pressure** (burst or vacuum) is adequate. Keep in mind 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 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 accepted.

### Step 4: Determine the feasibility

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

### Step 5: Validate the design

It is recommended to test the parts in the application well before the start of production. 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](mailto:fppasupport@gates.com), or +1.303.744.5070.

## MATERIAL CONSTRUCTION

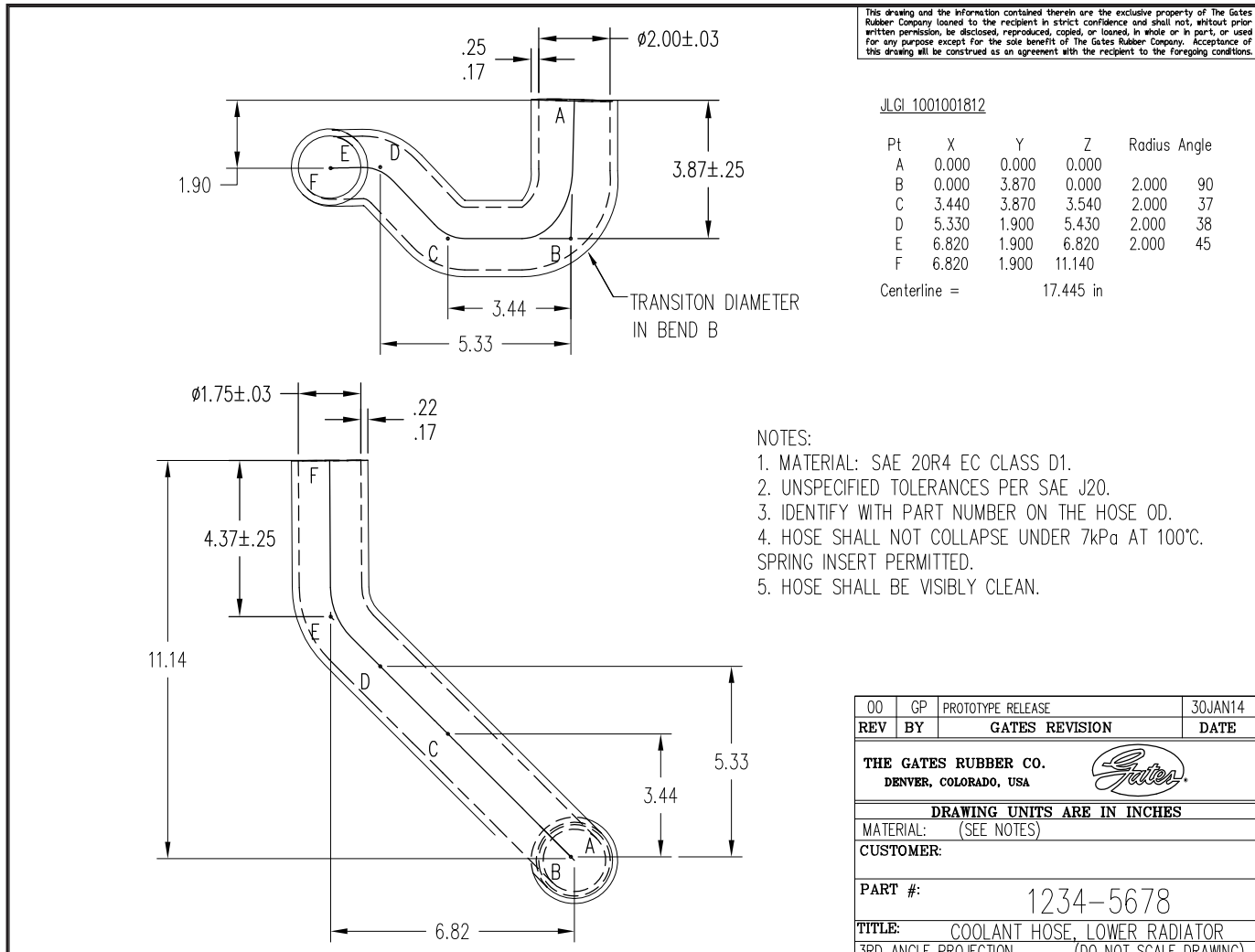
Construction Type	Pressure	Bend Radius	Advantages	Disadvantages
<b>Formed hose</b>	Low (to 0.5 KPa or 75psi)	Very Small [ ~1 x Hose Diameter]	Tightest bend routing capability.	Limited lengths, setup cost.
<b>Bent pipe with hose connectors</b>	Low (to 0.5 KPa or 75psi)	Small [~2x Hose Diameter]	Long lengths require less support. Withstands higher vacuum. Can have brackets and ports.	Potential leak points. Limitations on bend capability. Stress at connectors.
<b>Straight hose length</b>	Low to Medium (to 2 KPa or 300psi)	Large [~10x Hose Diameter]	Low cost, easy installation.	May require support to avoid interference or excessive movement.
<b>Wire helix embedded</b>	Low to Medium (to 2 KPa or 300psi)	Small [~2x Hose Diameter]	For high vacuum and tighter bend radius	Higher Cost
<b>Wire braid reinforced</b>	High (to 20 KPa or 3000psi)	Medium [~5x Hose Diameter]	Flexible with high pressure capability	Higher Cost

## FORMED HOSE LAYOUT

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 follows 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 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

Formed hoses may distort during shipping and handling, so layout dimensions are not 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 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. Layout 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 may 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 measuring the largest particle dimension. Wire braid reinforced hose cleanliness is 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/m <sup>2</sup> of inside surface area
Formed or Hump Hose	2500µ max. particle size (or 1200µ when excluding fibers and soft particles) Max. 110mg/m <sup>2</sup> of inside surface area	800µ max. particle size (or 500µ when excluding fibers and soft particles) Max. 70mg/m <sup>2</sup> 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. 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]	9.53	[0.38]	
	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. 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  $\pm 1.3$  mm [ $\pm 0.05$  in.]. Wall tolerance increases to  $\pm 1.6$  mm [ $\pm 0.06$  in.] for enlarged diameter 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  $\pm 2.0$  mm [ $\pm 0.08$  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:**

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

### Straight Hose

**For radiator, and heater hoses:**

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

**For fuel and oil hoses:**

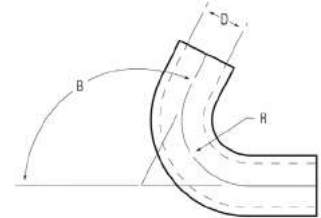
$$R = 7 \times \text{Hose OD}$$

**For wire reinforced hoses\*:**

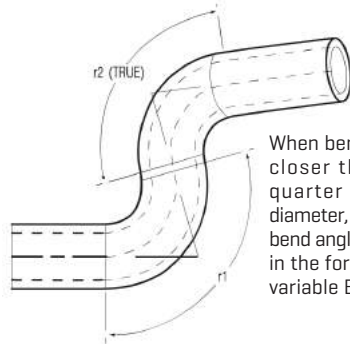
$$R = 4 \times \text{Hose OD}$$

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

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

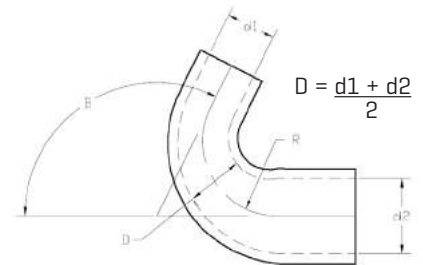


**Normal**



**Back-to-back Bends**

When bends are closer than a quarter of the diameter, add their bend angles to use in the formula as variable B.



**Blended ID Transition**

## COST REDUCTION CONSIDERATIONS

### Curved hose

- > Minimize the number of bends.
- > Avoid very sharp bends. [Stay above minimum bend radius guidelines]
- > Avoid long I.D. expansions.
- > Blend ID transitions into a nearby bend. [See minimum bend radius guidelines].
- > 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 finalizing drawing.
- > 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 at least 1/4" [6.4mm] less than the nominal straight length.
- > Small ID hoses typically specify OD instead of wall thickness for ease of inspection.



## COOLANT HOSES

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

4175EC [75W].....	Standard EPDM hose.....	17
4178 [Green Stripe].....	Premium performance with electrochemically resistant tube.....	18
4175SC [Blue Stripe].....	Premium performance with electrochemically resistant tube and higher pressure.....	19
4175HT [FleetRunner].....	Higher temperature with electrochemically resistant tube.....	20
4176HD [76W].....	Thicker wall.....	21
4169A.....	Oil resistant.....	23
4176Y.....	Oil resistant and thicker wall.....	24
4179G [Green Stripe].....	Oil resistant and more reinforcing plies.....	25
4169G.....	Oil resistant cover, EPDM tube for higher temperature.....	26
4171 and 4171 [Durion].....	High temperature silicone.....	27, 28

**Also see:**

4177W.....	Hump hose connectors.....	34
3137ME.....	Marine wet exhaust per SAE J2006 R1.....	86
Steel or aluminum tube assemblies in the Air Section.....		95

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

4685WG.....	Standard EPDM wire helix reinforcement.....	29
4684CF.....	Oil resistant with wire helix reinforcement.....	30
4684S.....	High temperature silicone with wire helix reinforcement.....	31

**Also see:**

4686ME.....	Marine wet exhaust per SAE J2006 R2.....	87
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### Smaller Diameter Hoses In Long Lengths, Extruded Construction

4230T / 3269.....	Standard EPDM heater hose.....	35
3270 [Safety Stripe].....	Lighter duty, includes 6.4mm [1/4"] size for radiator overflow.....	35
4230SB [Blue Stripe] / RS / RK.....	Premium performance, with blue stripe, red stripe, or no stripe.....	36
3269S [Green Stripe].....	Thicker wall, with green stripe.....	37
3230 [EPDM].....	European market per DIN standard 73411.....	38
4272 [FlexCord Plus].....	European market per DIN standard 73422, available up to 50mm [2"] diameter.....	22
4230S / 4230SS.....	Oil resistant.....	38
3230 / 3231 [Europe].....	High temperature silicone.....	39

**Also see:**

4171.....	High temperature silicone, wrapped construction.....	27, 28
4251D.....	Very small diameters for coolant overflow and drain.....	97
4040A.....	Very small diameters for no-pressure coolant overflow and drain.....	97
4040T.....	Very small diameters for no-pressure coolant overflow and drain, high temperature silicone.....	98
Adapta Flex.....	Multi-purpose hose, including very small diameters. See Gates Industrial Hose Catalog.....	
4219M, 4219N.....	Coolant overflow and drain, marine fire rating.....	59
Steel or aluminum tube assemblies in the AIR Section.....		95

### 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.....	Higher temperature, p-EPDM.....	50

High temperature silicone available

**Also see:**

4254, 4284 Vulco-Flex.....	Convuluted hose with internal wire helix and straight cuffs.....	32, 33
Steel or aluminum tube assemblies in the AIR Section.....		95

### Formed Hoses, Standard Shapes

4261 / 4275 [Europe].....	Standard EPDM formed hose.....	40
4278 [Europe].....	Standard EPDM formed hose, European market.....	41
4281 [Europe].....	High temperature silicone elbows.....	42
4177.....	High temperature silicone elbows.....	43

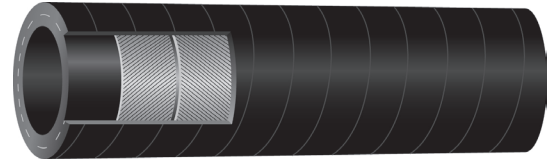
### High Pressure Hydraulic Hose Compatible With Coolant

3319HT [GTH].....	High pressure hose per SAE 100R6, commonly used with couplings.....	69
3319CA [G3H].....	High pressure hose per SAE 100R3, commonly used with couplings.....	69
4657AM [MegaTech 250].....	Steel braid, hard wall, used with couplings.....	72



## 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 EC 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 115 - 119]

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	0.27	***	***
15.9	5/8	25.9	1.02	0.66	95	2.59	375	27.0	8	203	8	0.45	0.30	***	***
19.1	3/4	29.7	1.17	0.55	80	2.24	325	27.0	8	152	6	0.51	0.34	4175-0005	4175-0855
22.2	7/8	33.0	1.30	0.52	75	2.07	300	23.6	7	178	7	0.59	0.40	4175-0006	4175-0856
25.4	1	36.1	1.42	0.95	138	3.79	550	23.6	7	203	8	0.66	0.44	4175-0007	4175-0857
28.6	1 1/8	39.4	1.55	0.86	125	3.45	500	20.3	6	203	8	0.74	0.50	4175-0009	4175-0859
31.8	1 1/4	42.4	1.67	0.69	100	2.76	400	16.9	5	305	12	0.78	0.53	4175-0011	4175-0861
34.9	1 3/8	45.7	1.80	0.69	100	2.76	400	13.5	4	305	12	0.86	0.58	4175-0013	4175-0863***
38.1	1 1/2	48.8	1.92	0.69	100	2.76	400	10.1	3	305	12	0.93	0.62	4175-0015	4175-0865
41.3	1 5/8	52.1	2.05	0.61	88	2.41	350	6.8	2	381	15	0.95	0.64	4175-0017	4175-0867
44.5	1 3/4	55.1	2.17	0.52	75	2.07	300	3.4	1	381	15	0.99	0.67	4175-0019	4175-0869
47.6	1 7/8	58.4	2.30	0.52	75	2.07	300	*	*	**	**	1.03	0.70	4175-0021	4175-0871
50.8 ±1.6	2 ±0.06	61.5	2.42	0.43	62	1.72	250	*	*	**	**	1.13	0.76	4175-0022	4175-0872
54.0	2 1/8	64.8	2.55	0.43	62	1.72	250	*	*	**	**	1.18	0.79	4175-0023	4175-0873***
57.2	2 1/4	67.8	2.67	0.43	62	1.72	250	*	*	**	**	1.31	0.88	4175-0024	4175-0874
60.3	2 3/8	71.1	2.80	0.43	62	1.72	250	*	*	**	**	1.36	0.92	4175-0025	4175-0875
63.5	2 1/2	74.2	2.92	0.43	62	1.72	250	*	*	**	**	1.47	0.99	4175-0026	4175-0876
66.7	2 5/8	77.5	3.05	0.43	62	1.72	250	*	*	**	**	1.51	1.02	4175-0027	4175-0877***
69.9	2 3/4	80.5	3.17	0.43	62	1.72	250	*	*	**	**	1.60	1.08	4175-0028	4175-0878
73.0	2 7/8	83.8	3.30	0.39	56	1.55	225	*	*	**	**	1.64	1.10	4175-0029	4175-0879***
76.2	3	86.9	3.42	0.34	50	1.38	200	*	*	**	**	1.76	1.18	4175-0030	4175-0880
82.6	3 1/4	92.5	3.64	0.26	38	1.03	150	*	*	**	**	1.77	1.19	4175-0032	***
88.9	3 1/2	99.6	3.92	0.12	18	0.52	75	*	*	**	**	1.96	1.32	4175-0033	4175-0883
95.3	3 3/4	105.2	4.14	0.11	16	0.46	66	*	*	**	**	2.02	1.36	4175-0035	***
101.6	4	112.3	4.42	0.08	12	0.34	50	*	*	**	**	2.24	1.51	4175-0036	4175-0886
114.3	4 1/2	125.0	4.92	0.08	12	0.34	50	*	*	**	**	2.52	1.70	4175-0039	4175-0889
127.0	5	137.7	5.42	0.08	12	0.34	50	*	*	**	**	2.79	1.88	***	4175-0839***
139.7	5 1/2	150.4	5.92	0.08	12	0.34	50	*	*	**	**	2.90	1.95	***	***
152.4	6	163.1	6.42	0.08	12	0.34	50	*	*	**	**	3.29	2.21	4175-9027	4175-0902***

\* 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



SCR



Exhaust



Air



Refrigerant



Brake



Accessories

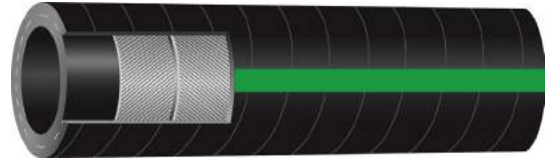


Belts



## 4178 (GREEN 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, except wall is 5.35±0.76mm [0.21±0.03 inch]. Sizes 1/2", 3-1/8", 3-1/4", and 3-3/4" have the SAE 20R1 standard wall of 4.95±0.65mm [0.195±0.026 inch]. Wall thickness excludes lap area.

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

**Packaging** Bulk lengths are straight pieces in a box. Custom lengths or enlarged ends available with a minimum order quantity.

**Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Inter-change Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length		1 m. Length
12.7 ±0.08	1/2 ±0.03	22.6	0.89	0.72	105	2.93	425	33.8	10	**	**	0.40	0.27	***		
19.1	3/4	29.8	1.17	0.55	80	2.24	325	27.0	8	**	**	0.52	0.35	4168-1712	24212	4168-8019
22.2	7/8	32.9	1.30	0.52	75	2.06	300	23.7	7	**	**	0.60	0.4	4168-1714	24214	4168-8022
25.4	1	36.1	1.42	0.52	75	2.07	300	23.7	7	**	**	0.65	0.44	4168-1716	24216	4168-8025
28.6	1 1/8	39.3	1.55	0.52	75	2.07	300	20.3	6	**	**	0.74	0.5	4168-1718	24218	4168-8029
31.8	1 1/4	42.5	1.67	0.47	68	1.90	275	16.9	5	**	**	0.79	0.53	4168-1720	24220	4168-8032
34.9	1 3/8	45.6	1.80	0.47	68	1.90	275	13.5	4	**	**	0.86	0.58	4168-1722	24222	4168-8035
38.1	1 1/2	48.8	1.92	0.43	62	1.72	250	10.1	3	**	**	0.92	0.62	4168-1724	24224	4168-8038
41.3	1 5/8	52.0	2.05	0.43	62	1.72	250	6.8	2	**	**	0.95	0.64	4168-1726	24226	4168-8041
44.5	1 3/4	55.2	2.17	0.39	56	1.55	225	3.4	1	**	**	1.00	0.67	4168-1728	24228	4168-8044
47.6	1 7/8	58.3	2.30	0.37	53	1.46	212	*	*	**	**	1.04	0.7	4168-1730	24230	4168-8048
50.8 ±1.6	2 ±0.06	61.5	2.42	0.34	50	1.38	200	*	*	**	**	1.19	0.8	4168-1732	24232	4168-8051
54.0	2 1/8	64.7	2.55	0.32	47	1.29	187	*	*	**	**	1.24	0.83	4168-1734	24234	4168-8054
57.2	2 1/4	67.9	2.67	0.30	44	1.21	175	*	*	**	**	1.32	0.89	4168-1736	24236	4168-8057
60.3	2 3/8	71.0	2.80	0.30	44	1.21	175	*	*	**	**	1.37	0.92	4168-1738	24238	4168-8060
63.5	2 1/2	74.2	2.92	0.26	38	1.03	150	*	*	**	**	1.47	0.99	4168-1740	24240	4168-8064
66.7	2 5/8	77.4	3.05	0.23	34	0.94	137	*	*	**	**	1.52	1.02	4168-1742	24242	4168-8067
69.9	2 3/4	80.6	3.17	0.21	31	0.86	125	*	*	**	**	1.58	1.06	4168-1744	24244	4168-8070
73.0	2 7/8	83.7	3.30	0.19	28	0.77	112	*	*	**	**	1.64	1.1	4168-1746	24246	4168-8073
76.2	3	86.9	3.42	0.17	25	0.69	100	*	*	**	**	1.76	1.18	4168-1748	24248	4168-8076
79.4	3 1/8	89.3	3.52	0.17	24	0.63	92	*	*	**	**	1.71	1.15	4168-1750	24250	4168-8079
82.6	3 1/4	92.5	3.64	0.15	22	0.60	87	*	*	**	**	1.77	1.19	4168-1752	24252	4168-8083
88.9	3 1/2	99.6	3.92	0.12	18	0.52	75	*	*	**	**	1.96	1.32	4168-1756	24256	4168-8089
95.3	3 3/4	105.2	4.14	0.10	15	0.43	62	*	*	**	**	2.02	1.36	4168-1760	24260	4168-8095
101.6	4	112.3	4.42	0.08	12	0.34	50	*	*	**	**	2.25	1.51	4168-1764	24264	4168-8102
114.3	4 1/2	125.0	4.92	0.08	12	0.34	50	*	*	**	**	2.53	1.7	4168-1772	24272	4168-8114

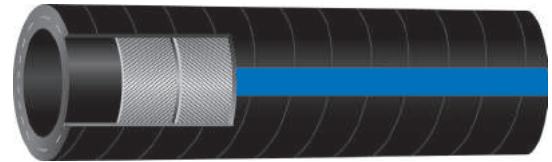
\* No specification requirement.

\*\* 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, HIGHER PRESSURE



- 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 115 - 119]

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
22.2 ±0.08	7/8 ±0.03	33.0	1.30	0.52	75	2.06	300	23.6	7	**	**	0.60	0.40	***
25.4	1	36.0	1.42	0.95	138	3.79	550	23.6	7	**	**	0.65	0.44	***
28.6	1 1/8	39.4	1.55	0.86	125	3.45	500	20.3	6	**	**	0.74	0.50	***
31.8	1 1/4	42.4	1.67	0.69	100	2.76	400	16.9	5	**	**	0.78	0.53	4175-3701
38.1	1 1/2	49.6	1.95	0.69	100	2.76	400	10.1	3	**	**	0.93	0.62	4175-3702
41.3	1 5/8	52.1	2.05	0.61	88	2.41	350	6.8	2	**	**	0.95	0.64	4175-3703
44.5	1 3/4	55.1	2.17	0.52	75	2.07	300	3.4	1	**	**	0.99	0.67	4175-3704
50.8 ±1.6	2 ±0.06	61.5	2.42	0.43	62	1.72	250	*	*	**	**	1.19	0.80	4175-3705
57.2	2 1/4	67.8	2.67	0.43	62	1.72	250	*	*	**	**	1.33	0.89	4175-3706
60.3	2 3/8	71.1	2.80	0.43	62	1.72	250	*	*	**	**	1.36	0.92	***
63.5	2 1/2	74.2	2.92	0.43	62	1.72	250	*	*	**	**	1.49	1.00	4175-3707
69.9	2 3/4	80.5	3.17	0.43	62	1.72	250	*	*	**	**	1.59	1.07	4175-3708
76.2	3	86.9	3.42	0.34	50	1.38	200	*	*	**	**	1.76	1.18	4175-3709
88.9	3 1/2	99.6	3.92	0.13	18.8	0.52	75	*	*	**	**	1.96	1.32	***
101.6	4	112.3	4.42	0.08	12	0.34	50	*	*	**	**	2.24	1.51	***

\* 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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



## 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 +150°C (-40°F to +302°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 115 - 119]

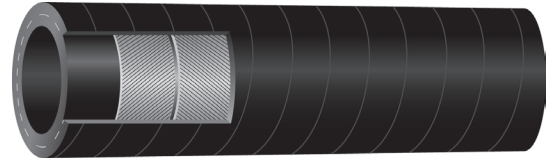
ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
22.2 ±0.08	7/8 ±0.03	33.0	1.30	1.03	150	4.14	600	23.6	7	**	**	0.58	0.39	4175-3190
25.4	1	36.1	1.42	1.03	150	4.14	600	23.6	7	**	**	0.61	0.41	4175-0583
28.6	1 1/8	39.4	1.55	1.03	150	4.14	600	20.3	6	**	**	0.68	0.46	4175-3191
31.8	1 1/4	42.4	1.67	1.03	150	4.14	600	16.9	5	**	**	0.71	0.48	4175-0584
34.9	1 3/8	45.7	1.80	1.03	150	4.14	600	13.5	4	**	**	0.79	0.53	4175-3192
38.1	1 1/2	48.8	1.92	1.03	150	4.14	600	10.1	3	**	**	0.85	0.57	4175-0585
41.3	1 5/8	52.1	2.05	1.03	150	4.14	600	6.8	2	**	**	0.92	0.62	4175-3193
44.5	1 3/4	54.6	2.15	1.03	150	4.14	600	3.4	1	**	**	0.98	0.66	4175-0586
47.6	1 7/8	58.4	2.30	1.03	150	4.14	600	*	*	**	**	1.00	0.67	4175-3194
50.8 ±1.6	2 ±0.06	61.5	2.42	1.03	150	4.14	600	*	*	**	**	1.09	0.73	4175-0587
57.2	2 1/4	66.8	2.63	0.86	125	3.45	500	*	*	**	**	1.22	0.82	4175-0588
60.3	2 3/8	70.1	2.76	0.86	125	3.45	500	*	*	**	**	1.25	0.84	4175-3195
63.5	2 1/2	73.7	2.90	0.86	125	3.45	500	*	*	**	**	1.35	0.91	4175-0589
69.9	2 3/4	79.5	3.13	0.86	125	3.45	500	*	*	**	**	1.47	0.99	4175-0590
76.2	3	86.9	3.42	0.86	125	3.45	500	*	*	**	**	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 115 - 119)

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	32.3	1.27	0.86	125	3.45	500	50.7	15	152	6	0.72	0.49	4176-0005	
22.2	7/8	35.6	1.40	1.21	175	4.83	700	50.7	15	178	7	0.72	0.49	4176-0006	4176-0856
25.4	1	38.6	1.52	1.21	175	4.83	700	33.8	10	203	8	0.82	0.55	4176-0007	4176-0857
28.6	1 1/8	41.9	1.65	1.21	175	4.83	700	33.8	10	203	8	0.89	0.60	4176-0009	4176-0859
31.8	1 1/4	45.0	1.77	0.86	125	3.45	500	33.8	10	305	12	0.98	0.66	4176-0011	4176-0861
34.9	1 3/8	48.3	1.90	0.77	112	3.10	450	33.8	10	305	12	1.05	0.71	4176-0013	4176-0863
38.1	1 1/2	51.3	2.02	0.77	112	3.10	450	33.8	10	305	12	1.13	0.76	4176-0015	4176-0865
41.3	1 5/8	54.6	2.15	0.73	106	2.93	425	23.7	7	356	14	1.20	0.81	4176-0017	4176-0867
44.5	1 3/4	57.7	2.27	0.69	100	2.76	400	16.9	5	381	15	1.27	0.85	4176-0019	4176-0869
47.6	1 7/8	61.0	2.40	0.65	94	2.59	375	13.5	4	**	**	1.36	0.92	4176-0021	4176-0871***
50.8 ±1.6	2 ±0.06	64.0	2.52	0.61	88	2.41	350	10.1	3	**	**	1.44	0.97	4176-0022	4176-0872
54.0	2 1/8	67.3	2.65	0.61	88	2.41	350	6.8	2	**	**	1.52	1.02	4176-0023	4176-0873
57.2	2 1/4	70.4	2.77	0.61	88	2.41	350	3.4	1	**	**	1.59	1.07	4176-0024	4176-0874
60.3	2 3/8	73.7	2.90	0.56	81	2.24	325	*	*	**	**	1.69	1.13	4176-0025	4176-0875***
63.5	2 1/2	76.7	3.02	0.52	75	2.07	300	*	*	**	**	1.76	1.18	4176-0026	4176-0876
66.7	2 5/8	80.0	3.15	0.48	69	1.90	275	*	*	**	**	1.84	1.24	4176-0027	4176-0877***
69.9	2 3/4	83.1	3.27	0.43	63	1.72	250	*	*	**	**	1.92	1.29	4176-0028	4176-0878
73.0	2 7/8	86.4	3.40	0.43	63	1.72	250	*	*	**	**	2.01	1.35	4176-0029	4176-0879***
76.2	3	89.4	3.52	0.43	63	1.72	250	*	*	**	**	2.07	1.39	4176-0030	4176-0880
82.6	3 1/4	95.8	3.77	0.39	56	1.55	225	*	*	**	**	2.39	1.61	4176-0032	
88.9	3 1/2	102.1	4.02	0.34	50	1.38	200	*	*	**	**	2.40	1.62	4176-0033	4176-0883
95.3	3 3/4	108.5	4.27	0.30	44	1.21	175	*	*	**	**	2.74	1.84	4176-0035	
101.6	4	114.8	4.52	0.26	38	1.03	150	*	*	**	**	2.72	1.83	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.

Coolant



Fuel



Oil



SCR



Exhaust



Air



Refrigerant



Brake



Accessories



Belts



**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 115 - 119]

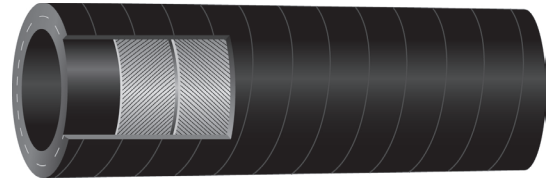
ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	kg/m	lbs/ft	1m Length
8	5/16	18	0.70	0.40	58	1.24	180	*	*	0.12	0.08	4272-10080
10	3/8	20	0.78	0.40	58	1.24	180	*	*	0.13	0.09	4272-10100
12	1/2	22	0.86	0.40	58	1.20	174	*	*	0.14	0.09	4272-10120
15	5/8	25	0.98	0.40	58	1.20	174	*	*	0.17	0.11	4272-10150
18	11/16	28	1.10	0.40	58	1.20	174	*	*	0.20	0.14	4272-10180
20	13/16	30	1.18	0.30	44	1.00	145	*	*	0.24	0.16	4272-10200
22	7/8	32	1.26	0.30	44	1.00	145	*	*	0.28	0.19	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	0.24	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	0.76	110	*	*	0.50	0.33	4272-10400
42	1 5/8	52	2.04	0.20	29	0.76	110	*	*	0.55	0.37	4272-10420
45	1 3/4	55	2.16	0.20	29	0.69	100	*	*	0.53	0.36	4272-10450
48	1 7/8	58	2.28	0.20	29	0.69	100	*	*	0.58	0.39	4272-10480
50	2	60	2.36	0.20	29	0.69	100	*	*	0.60	0.40	4272-10500

\* No specification requirement

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 4169A

### OIL-RESISTANT COOLANT HOSE



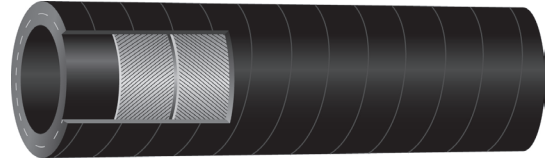
- Relative Cost** ●●●○○
- Applications** Engine coolant hose such as radiator and heater hoses or connectors, particularly for oily conditions.
- Temperature** -40°C to +100°C [-40°F to +212°F] continuous.
- Standards** SAE 20R1 Class B tube and Class C cover, standard wall. Wall thickness is 4.95±0.65mm [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 115 - 119]

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	29.7	1.17	1.03	150	4.14	600	27.0	8	254	10	0.46	0.31	4169-0210	4169-0158***
22.2	7/8	33.0	1.30	1.03	150	4.14	600	23.6	7	279	11	0.61	0.41	4169-0220	4169-0156
25.4	1	36.1	1.42	0.93	135	3.79	550	23.6	7	305	12	0.68	0.46	4169-0224	4169-0157
28.6	1 1/8	39.4	1.55	0.93	135	3.45	500	20.3	6	330	13	0.77	0.52	4169-0240	4169-0159
31.8	1 1/4	42.4	1.67	0.93	135	2.76	400	16.9	5	356	14	0.81	0.55	4169-0246	4169-0161
34.9	1 3/8	45.7	1.80	0.69	100	2.76	400	13.5	4	635	25	0.88	0.59	4169-0260	4169-0163
38.1	1 1/2	48.8	1.92	0.69	100	2.76	400	10.1	3	762	30	0.96	0.65	4169-0270	4169-0165
41.3	1 5/8	52.1	2.05	0.59	85	2.41	350	6.8	2	**	**	1.01	0.68	4169-0280	4169-0167
44.5	1 3/4	55.1	2.17	0.52	75	2.07	300	3.4	1	**	**	1.09	0.73	4169-0288	4169-0169
47.6	1 7/8	58.4	2.30	0.52	75	2.07	300	*	*	**	**	1.16	0.78	4169-0300	4169-0171
50.8 ±1.6	2 ±0.06	61.5	2.42	0.41	60	1.72	250	*	*	**	**	1.19	0.80	4169-0484	4169-0172
54.0	2 1/8	64.8	2.55	0.41	60	1.72	250	*	*	**	**	1.30	0.87	4169-0320	
57.2	2 1/4	67.8	2.67	0.41	60	1.72	250	*	*	**	**	1.34	0.90	4169-0491	416-0174
60.3	2 3/8	71.1	2.80	0.41	60	1.72	250	*	*	**	**	1.41	0.95	4169-0340	4169-0175
63.5	2 1/2	74.2	2.92	0.41	60	1.72	250	*	*	**	**	1.48	1.00	4169-0345	4169-0176
66.7	2 5/8	77.5	3.05	0.41	60	1.72	250	*	*	**	**	1.56	1.05	4169-0360***	
69.9	2 3/4	80.5	3.17	0.41	60	1.72	250	*	*	**	**	1.63	1.10	4169-0362	4169-0178
73.0	2 7/8	83.8	3.30	0.38	55	1.55	225	*	*	**	**	1.70	1.14	4169-0376***	
76.2	3	86.9	3.42	0.34	50	1.38	200	*	*	**	**	1.74	1.17	4169-0383	4169-0180
82.6	3 1/4	93.2	3.67	0.24	35	1.03	150	*	*	**	**	1.89	1.27	4169-0402***	
88.9	3 1/2	99.6	3.92	0.13	19	0.52	75	*	*	**	**	2.02	1.36	4169-0420	4169-0183
101.6	4	112.3	4.42	0.07	10	0.34	50	*	*	**	**	2.31	1.55	4169-0425	4169-0186
114.3	4 1/2	125.0	4.92	0.07	10	0.34	50	*	*	**	**	2.57	1.73	4169-0433***	4169-0189***
127.0	5	137.7	5.42	0.07	10	0.34	50	*	*	**	**	2.84	1.91		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 115 - 119]

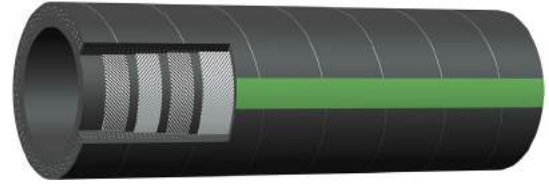
ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length	10 ft. Length
25.4 ±0.08	1 ±0.03	39.4	1.55	0.95	138	3.79	550	40.6	12	254	10	0.93	0.63		4176-1803
28.6	1 1/8	42.7	1.68	0.95	138	3.79	550	33.8	10	279	11	1.03	0.69		4176-1806***
31.8	1 1/4	45.7	1.80	0.86	125	3.45	500	33.8	10	305	12	1.11	0.75		4176-1807
34.9	1 3/8	49.0	1.93	0.82	119	3.28	475	33.8	10	356	14	1.20	0.81		***
38.1	1 1/2	52.1	2.05	0.78	113	3.10	450	33.8	10	381	15	1.28	0.86		4176-1810
44.5	1 3/4	58.4	2.30	0.69	100	2.76	400	16.9	5	457	18	1.46	0.98	4176-0103***	4176-1789
50.8 ±1.6	2 ±0.06	64.8	2.55	0.60	88	2.41	350	10.1	3	**	**	1.64	1.10		4176-1812
57.2	2 1/4	71.1	2.80	0.60	88	2.41	350	3.4	1	**	**	1.82	1.22	4176-1879***	4176-1793
60.3	2 3/8	74.4	2.93	0.56	81	2.24	325	*	*	**	**	1.90	1.28		4176-1813***
63.5	2 1/2	77.5	3.05	0.52	75	2.07	300	*	*	**	**	2.00	1.34		4176-1814
66.7	2 5/8	80.8	3.18	0.47	69	1.90	275	*	*	**	**	2.08	1.40	4176-0132***	
69.9	2 3/4	83.8	3.30	0.43	63	1.72	250	*	*	**	**	2.17	1.46	4176-1823***	4176-1701***
76.2	3	90.2	3.55	0.43	63	1.72	250	*	*	**	**	2.35	1.58		4176-1816
88.9	3 1/2	102.9	4.05	0.34	50	1.38	200	*	*	**	**	2.70	1.82		4176-1826
101.6	4	115.6	4.55	0.26	38	1.03	150	*	*	**	**	3.05	2.05		4176-1830
114.3	4 1/2	128.3	5.05	0.21	30	0.83	120	*	*	**	**	3.31	2.23	4176-1917***	4176-1834***
127.0	5	141.0	5.55	0.19	28	0.76	110	*	*	**	**	3.76	2.53		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 115 - 119)

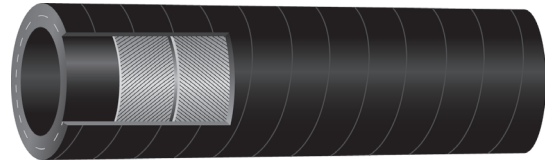
ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	3 ft. Length
44.5 ±0.8	1 3/4 ±0.03	58.7	2.31	0.69	100	2.76	400	16.9	50	381	15	1.47	0.99	4179-1660
47.6	1 7/8	61.7	2.43	0.69	100	2.76	400	10.1	30	**	**	1.63	1.09	4179-1661
50.8 ±1.6	2 ±0.06	65.0	2.56	0.61	88	2.41	350	10.1	30	**	**	1.67	1.12	4179-1662
54.0	2 1/8	68.1	2.68	0.61	88	2.41	350	3.4	10	**	**	1.77	1.19	4179-1663
57.2	2 1/4	71.4	2.81	0.61	88	2.41	350	3.4	10	**	**	1.85	1.25	4179-1664
60.3	2 3/8	75.4	2.97	0.61	88	2.41	350	*	*	**	**	1.97	1.32	4179-1665
63.5	2 1/2	77.7	3.06	0.52	75	2.07	300	*	*	**	**	2.05	1.38	4179-1666
66.7	2 5/8	80.8	3.18	0.52	75	2.07	300	*	*	**	**	2.15	1.44	4179-1667
69.9	2 3/4	84.1	3.31	0.43	62	1.72	250	*	*	**	**	2.17	1.46	4179-1668
73.0	2 7/8	87.1	3.43	0.43	62	1.72	250	*	*	**	**	2.33	1.57	4179-1669
76.2	3	90.4	3.56	0.43	62	1.72	250	*	*	**	**	2.37	1.59	4179-1670
79.4	3 1/8	93.5	3.68	0.43	62	1.72	250	*	*	**	**	2.35	1.58	4179-1671
82.6	3 1/4	96.8	3.81	0.43	62	1.72	250	*	*	**	**	2.41	1.62	4179-1672
88.9	3 1/2	103.1	4.06	0.34	50	1.38	200	*	*	**	**	2.74	1.84	4179-1673
92.1	3 5/8	106.2	4.18	0.34	50	1.38	200	*	*	**	**	2.66	1.79	4179-1674
95.3	3 3/4	109.5	4.31	0.34	50	1.38	200	*	*	**	**	2.76	1.85	4179-1675
101.6	4	115.8	4.56	0.26	38	1.03	150	*	*	**	**	3.16	2.12	4179-1676
127.0	5	141.2	5.56	0.26	38	1.03	150	*	*	**	**	3.81	2.56	4179-1680

\* No specification requirement.  
 \*\* If minimum bend radius is required, use 8 times the O.D. as a guide.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

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 EC 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 115 - 119)

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	36.1	1.42	0.95	138	3.45	500	23.6	7	305	12	0.72	0.48	4169-2550
28.6	1 1/8	39.4	1.55	0.69	100	2.76	400	20.3	6	356	14	0.81	0.55	4169-2562***
31.8	1 1/4	42.4	1.67	0.69	100	2.76	400	16.9	5	381	15	0.85	0.57	4169-2551
38.1	1 1/2	48.8	1.92	0.69	100	2.76	400	10.1	3	610	24	1.01	0.68	4169-2552
41.3	1 5/8	52.1	2.05	0.60	88	2.41	350	6.8	2	**	**	1.03	0.69	4169-2736***
44.5	1 3/4	55.1	2.17	0.52	75	2.07	300	3.4	1	**	**	1.09	0.73	4169-2553
47.6	1 7/8	58.4	2.30	0.52	75	2.07	300	*	*	**	**	1.13	0.76	4169-2737***
50.8 ±1.6	2 ±0.06	61.5	2.42	0.43	63	1.72	250	*	*	**	**	1.29	0.87	4169-2554
54.0	2 1/8	64.8	2.55	0.43	63	1.72	250	*	*	**	**	1.34	0.90	4169-2563***
57.2	2 1/4	67.8	2.67	0.43	63	1.72	250	*	*	**	**	1.44	0.97	4169-2555
60.3	2 3/8	71.1	2.80	0.43	63	1.72	250	*	*	**	**	1.49	1.00	4169-2556***
63.5	2 1/2	74.2	2.92	0.43	63	1.72	250	*	*	**	**	1.60	1.07	4169-2557***
66.7	2 5/8	77.5	3.05	0.43	63	1.72	250	*	*	**	**	1.64	1.10	4169-2760
69.9	2 3/4	80.5	3.17	0.43	63	1.72	250	*	*	**	**	1.60	1.08	4169-2558
73.0	2 7/8	83.8	3.30	0.39	56	1.55	225	*	*	**	**	1.78	1.20	4169-2761***
76.2	3	86.9	3.42	0.34	50	1.38	200	*	*	**	**	1.87	1.26	4169-2559
88.9	3 1/2	99.6	3.92	0.13	19	0.52	75	*	*	**	**	2.13	1.43	4169-2560***

\* No specification requirement.

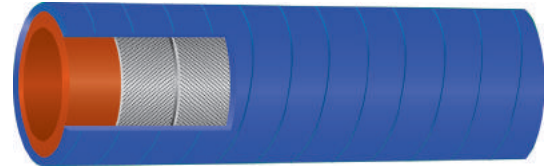
\*\* If minimum bend radius is required, use 8 times the O.D. as a guide.

\*\*\* Not stocked. Minimum order quantity applies.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 4171 (DURION)

### 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** -55°C to +175°C [-65°F to +347°F] continuous to +260°C [500°F] for aramid reinforcement.
- 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, 4 plies of polyester or aramid fabric reinforcement, blue silicone cover with glossy appearance.
- Packaging** Lengths are 3 foot sticks in a box.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

ID		OD Reference		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Polyester Reinforced	Gates Item Aramid Reinforced
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	10 ft. Length	10 ft. Length
12.7 ±0.8	1/2 ±0.03	22.1	0.87	0.73	106	2.93	425	40.6	12	**	**	0.42	0.28	4171-1900	
15.9	5/8	25.1	0.99	0.65	94	2.59	375	40.6	12	**	**	0.48	0.32	4171-1901	
19.1	3/4	28.4	1.12	0.56	81	2.24	325	33.8	10	**	**	0.55	0.37	4171-1902	
22.2	7/8	31.8	1.25	0.52	75	2.07	300	23.6	7	**	**	0.61	0.41	4171-1903	
25.4	1	34.8	1.37	0.52	75	2.07	300	23.6	7	**	**	0.68	0.46	4171-1904	4171-1000
28.6	1 1/8	38.1	1.50	0.52	75	2.07	300	20.3	6	**	**	0.73	0.49	4171-1905	
31.8	1 1/4	41.1	1.62	0.47	69	1.90	275	16.9	5	**	**	0.82	0.55	4171-1906	4171-1016
34.9	1 3/8	44.5	1.75	0.47	69	1.90	275	13.5	4	**	**	0.88	0.59	4171-1907	
38.1	1 1/2	47.5	1.87	0.43	63	1.72	250	10.1	3	**	**	0.92	0.62	4171-1908	4171-1017
41.3	1 5/8	50.5	1.99	0.43	63	1.72	250	6.8	2	**	**	1.01	0.68	4171-1909	
44.5	1 3/4	53.8	2.12	0.39	56	1.55	225	3.4	1	**	**	1.07	0.72	4171-1910	4171-1018
50.8 ±1.6	2 ±0.06	60.2	2.37	0.34	50	1.38	200	*	*	**	**	1.21	0.81	4171-1911	4171-1019
57.2	2 1/4	66.5	2.62	0.30	44	1.21	175	*	*	**	**	1.34	0.90	4171-1912	4171-1024
60.3	2 3/8	69.9	2.75	0.30	44	1.21	175	*	*	**	**	1.41	0.95	4171-1913	
63.5	2 1/2	72.9	2.87	0.26	38	1.03	150	*	*	**	**	1.49	1.00	4171-1914	4171-1025
69.9	2 3/4	79.2	3.12	0.22	31	0.86	125	*	*	**	**	1.64	1.10	4171-1915	4171-1026
76.2	3	85.6	3.37	0.17	25	0.69	100	*	*	**	**	1.77	1.19	4171-1916	4171-1027
79.4	3 1/8	88.9	3.50	0.17	25	0.69	100	*	*	**	**	1.85	1.24	4171-1917	
82.6	3 1/4	91.9	3.62	0.17	25	0.69	100	*	*	**	**	1.90	1.28	4171-1918	
88.9	3 1/2	98.3	3.87	0.17	25	0.69	100	*	*	**	**	2.05	1.38	4171-1919	
95.3	3 3/4	104.6	4.12	0.17	25	0.69	100	*	*	**	**	2.19	1.47	4171-1920	
101.6	4	111.0	4.37	0.17	25	0.69	100	*	*	**	**	2.37	1.59	4171-1921	
114.3	4 1/2	123.7	4.87	0.17	25	0.69	100	*	*	**	**	2.60	1.75	4171-1922	

\* No specification requirement.  
 \*\* If minimum bend radius is required, use 8 times the O.D. as a guide.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

4171

## HIGHER TEMPERATURE AND PRESSURE SILICONE COOLANT HOSE



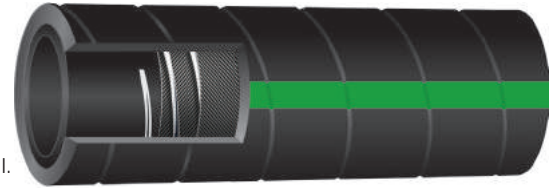
- Relative Cost** ●●●●○
- Applications** Engine coolant hose to withstand temperature extremes. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -55°C to +175°C [-65°F to +347°F] continuous.
- Standards** SAE 20R1 Class A, standard wall. Wall thickness is 4.95±0.65mm [0.195±0.025 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 115 - 119]

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	18.8	0.74	0.76	110	2.93	425	40.6	12	203	8	0.31	0.21	4171-0195
12.7	1/2	22.1	0.87	0.76	110	2.93	425	40.6	12	203	8	0.42	0.28	4171-0197
15.9	5/8	25.1	0.99	0.76	110	2.93	425	40.6	12	203	8	0.48	0.32	4171-0204
19.1	3/4	28.4	1.12	0.76	110	2.93	425	33.8	10	254	10	0.55	0.37	4171-0206
22.2	7/8	31.5	1.24	0.76	110	2.93	425	23.6	7	279	11	0.61	0.41	4171-0210
25.4	1	34.8	1.37	0.62	90	2.59	375	23.6	7	305	12	0.68	0.46	4171-0213
28.6	1 1/8	38.1	1.50	0.62	90	2.59	375	20.3	6	330	13	0.73	0.49	4171-0217
31.8	1 1/4	41.4	1.63	0.59	85	2.41	350	16.9	5	356	14	0.82	0.55	4171-0265
34.9	1 3/8	44.5	1.75	0.59	85	2.41	350	13.5	4	660	26	0.88	0.59	4171-0260
38.1	1 1/2	47.8	1.88	0.59	85	2.41	350	10.1	3	762	30	0.92	0.62	4171-0270
41.3	1 5/8	50.8	2.00	0.55	80	2.24	325	6.8	2	**	**	1.01	0.68	4171-0275
44.5	1 3/4	54.1	2.13	0.55	80	2.24	325	3.4	1	**	**	1.07	0.72	4171-0280
47.6	1 7/8	57.2	2.25	0.55	80	2.24	325	*	*	**	**	1.15	0.77	***
50.8 ±1.6	2 ±0.06	60.5	2.38	0.52	75	2.07	300	*	*	**	**	1.21	0.81	4171-0285
54.0	2 1/8	63.8	2.51	0.52	75	2.07	300	*	*	**	**	1.28	0.86	4171-0224
57.2	2 1/4	66.8	2.63	0.52	75	2.07	300	*	*	**	**	1.34	0.9	4171-0223
60.3	2 3/8	69.9	2.75	0.45	65	1.72	250	*	*	**	**	1.41	0.95	4171-0229
63.5	2 1/2	73.2	2.88	0.45	65	1.72	250	*	*	**	**	1.49	1	4171-0234
69.9	2 3/4	79.5	3.13	0.34	50	1.38	200	*	*	**	**	1.64	1.1	4171-0238
76.2	3	85.9	3.38	0.34	50	1.38	200	*	*	**	**	1.77	1.19	4171-0246
82.6	3 1/4	92.2	3.63	0.28	40	1.21	175	*	*	**	**	1.90	1.28	4171-0249
88.9	3 1/2	98.6	3.88	0.24	35	1.03	150	*	*	**	**	2.05	1.38	4171-0241
95.3	3 3/4	104.9	4.13	0.24	35	1.03	150	*	*	**	**	2.19	1.47	4171-0835***
101.6	4	111.3	4.38	0.24	35	1.03	150	*	*	**	**	2.37	1.59	4171-0290
114.3	4 1/2	124.0	4.88	0.17	25	0.69	100	*	*	**	**	2.60	1.75	4171-0295
127.0	5	136.7	5.38	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 EC 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 115 - 119]

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	0.72	0.48	4685-2016
28.6	1 1/8	40.1	1.58	0.69	100	2.76	400	84.5	25	64	2.5	0.79	0.53	4685-2018
31.8	1 1/4	43.4	1.71	0.69	100	2.76	400	84.5	25	64	2.5	0.87	0.58	4685-2020
34.9	1 3/8	46.5	1.83	0.59	85	2.41	350	84.5	25	76	3	0.93	0.63	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	0.70	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	0.80	4685-2028
47.6	1 7/8	59.2	2.33	0.41	60	1.72	250	67.6	20	114	4.5	1.26	0.85	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	1.39	0.93	4685-2032
54.0	2 1/8	65.5	2.58	0.38	55	1.55	225	67.6	20	140	5.5	1.47	0.99	4685-2034
57.2	2 1/4	68.8	2.71	0.38	55	1.55	225	67.6	20	140	5.5	1.54	1.04	4685-2036
60.3	2 3/8	71.9	2.83	0.34	50	1.38	200	67.6	20	165	6.5	1.62	1.09	4685-2038
63.5	2 1/2	75.2	2.96	0.34	50	1.38	200	67.6	20	165	6.5	1.70	1.14	4685-2040
66.7	2 5/8	78.2	3.08	0.28	40	1.21	175	50.7	15	191	7.5	1.77	1.19	4685-2042
69.9	2 3/4	81.5	3.21	0.28	40	1.21	175	50.7	15	191	7.5	1.85	1.24	4685-2044
73.0	2 7/8	84.6	3.33	0.28	40	1.21	175	50.7	15	229	9	1.92	1.29	4685-2046
76.2	3	87.1	3.43	0.28	40	1.21	175	50.7	15	229	9	2.00	1.34	4685-2048
88.9	3 1/2	99.8	3.93	0.24	35	1.03	150	50.7	15	305	12	2.30	1.55	4685-2056
101.6	4	112.5	4.43	0.21	30	0.86	125	33.8	10	508	20	2.62	1.76	4685-2064
127.0	5	137.9	5.43	0.10	15	0.52	75	16.9	5	610	24	3.95	2.65	4685-2080
152.4	6	163.3	6.43	0.10	15	0.52	75	16.9	5	-	-	4.69	3.15	4685-2096

Coolant

Fuel

Oil

SCR

DEF

Exhaust

Air

Refrigerant

Brake

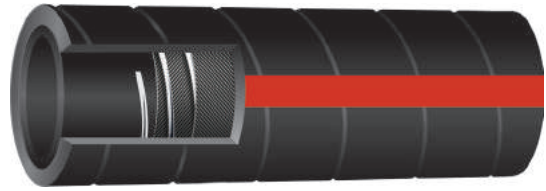
Accessories

Belts



## 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.

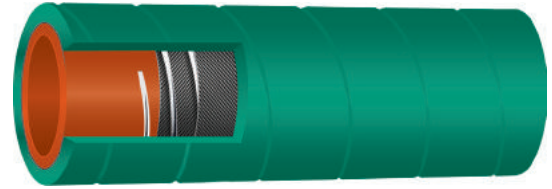
**Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

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	37.3	1.47	0.69	100	2.76	400	84.5	25	76	3	0.73	0.49	4684-1540	
28.6	1 1/8	40.6	1.60	0.69	100	2.76	400	84.5	25	102	4	0.80	0.54	4684-1545	
31.8	1 1/4	43.7	1.72	0.69	100	2.76	400	84.5	25	102	4	0.88	0.59	4684-1551	
34.9	1 3/8	47.0	1.85	0.60	88	2.41	350	84.5	25	102	4	0.95	0.64	4684-1556	
38.1	1 1/2	50.0	1.97	0.60	88	2.41	350	67.6	20	102	4	1.01	0.68	4684-1561	
41.3	1 5/8	53.3	2.10	0.52	75	2.07	300	67.6	20	127	5	1.08	0.72	4684-1601	
44.5	1 3/4	56.4	2.22	0.52	75	2.07	300	67.6	20	127	5	1.15	0.77	4684-1611	
47.6	1 7/8	59.4	2.34	0.43	63	1.72	250	67.6	20	127	5	1.20	0.81	4684-1651	
50.8 ±1.6	2 ±0.06	62.7	2.47	0.43	63	1.72	250	67.6	20	127	5	1.27	0.86	4684-1660	
54.0	2 1/8	66.0	2.60	0.39	56	1.55	225	67.6	20	152	6	1.35	0.91	4684-1670	
57.2	2 1/4	69.1	2.72	0.39	56	1.55	225	67.6	20	152	6	1.42	0.95	4684-1680	
60.3	2 3/8	72.4	2.85	0.34	50	1.38	200	67.6	20	178	7	1.49	1.00	4684-1690	
63.5	2 1/2	75.4	2.97	0.34	50	1.38	200	67.6	20	178	7	1.55	1.04	4684-1700	
66.7	2 5/8	78.7	3.10	0.30	44	1.21	175	50.7	15	229	9	1.61	1.08	4684-1711	
69.9	2 3/4	81.8	3.22	0.30	44	1.21	175	50.7	15	254	10	1.69	1.13	4684-1720	
73.0	2 7/8	85.1	3.35	0.30	44	1.21	175	50.7	15	279	11	1.75	1.18	4684-1730	
76.2	3	88.1	3.47	0.30	44	1.21	175	50.7	15	305	12	1.82	1.22	4684-1740	4684-1706***
88.9	3 1/2	100.8	3.97	0.26	38	1.03	150	50.7	15	432	17	2.10	1.41	4684-1750	4684-1707***
101.6	4	113.5	4.47	0.22	31	0.86	125	33.8	10	610	24	2.38	1.60	4684-1760	
114.3	4 1/2	126.2	4.97	0.17	25	0.69	100	16.9	5	686	27	2.66	1.79	4684-1764***	4684-1708***
127.0	5	138.9	5.47	0.13	19	0.52	75	16.9	5	762	30	2.94	1.98	4684-1766***	4684-1709***
152.4	6	164.3	6.47	0.13	19	0.52	75	16.9	5	914	36	3.50	2.35	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 5.35±1.05mm [0.21±0.04 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 115 - 119]

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 4254 (VULCO-FLEX® II)

### 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, 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 115 - 119]

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	
28.6 + .8/-2.3	1 1/8 + .03/-0.9	37.3	1.47	305	12	0.21	30	0.83	120	67.6	20	102	4	4254-0095	25150
28.6	1 1/8	37.3	1.47	381	15	0.21	30	0.83	120	67.6	20	102	4	4254-0053	25152
28.6	1 1/8	37.3	1.47	457	18	0.21	30	0.83	120	67.6	20	102	4	4254-0051	25154
28.6	1 1/8	37.3	1.47	584	23	0.21	30	0.83	120	67.6	20	102	4	4254-0050	25157
28.6 x 31.8	1 1/8 x 1 1/4	37.3 x 40.5	1.47 x 1.59	483	19	0.21	30	0.83	120	67.6	20	102	4	4254-0052	25180
31.8	1 1/4	40.5	1.59	191	7.5	0.21	30	0.83	120	67.6	20	102	4	4254-0100	25249
31.8	1 1/4	40.5	1.59	241	9.5	0.21	30	0.83	120	67.6	20	102	4	4254-0101	25250
31.8	1 1/4	40.5	1.59	330	13	0.21	30	0.83	120	67.6	20	102	4	4254-0055	25251
31.8	1 1/4	40.5	1.59	381	15	0.21	30	0.83	120	67.6	20	102	4	4254-0074	25252
31.8	1 1/4	40.5	1.59	432	17	0.21	30	0.83	120	67.6	20	102	4	4254-0075	25253
31.8	1 1/4	40.5	1.59	470	18.5	0.21	30	0.83	120	67.6	20	102	4	4254-0056	25254
31.8	1 1/4	40.5	1.59	508	20	0.21	30	0.83	120	67.6	20	102	4	4254-0076	25255
31.8	1 1/4	40.5	1.59	584	23	0.21	30	0.83	120	67.6	20	102	4	4254-0077	25257
31.8	1 1/4	40.5	1.59	673	26.5	0.21	30	0.83	120	67.6	20	102	4	4254-0057	25260
31.8	1 1/4	40.5	1.59	762	30	0.21	30	0.83	120	67.6	20	102	4	4254-0058	25262
31.8	1 1/4	40.5	1.59	889	35	0.21	30	0.83	120	67.6	20	102	4	4254-0059	25265
31.8	1 1/4	40.5	1.59	1041	41	0.21	30	0.83	120	67.6	20	102	4	4254-0060	25269
31.8 x 34.9	1 1/4 x 1 3/8	40.5 x 43.6	1.59 x 1.72	660	26	0.21	30	0.83	120	67.6	20	102	4	4254-0066	25284
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	305	12	0.21	30	0.83	120	67.6	20	102	4	4254-0104	25300
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	102	4	4254-0078	25302
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	102	4	4254-0079	25305
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	584	23	0.21	30	0.83	120	67.6	20	102	4	4254-0061	25307
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	660	26	0.21	30	0.83	120	67.6	20	102	4	4254-0062	25309
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	737	29	0.21	30	0.83	120	67.6	20	102	4	4254-0063	25311
31.8 x 38.1	1 1/4 x 1 1/2	40.5 x 46.8	1.59 x 1.84	1118	44	0.21	30	0.83	120	67.6	20	102	4	4254-0065	25321
34.9	1 3/8	43.6	1.72	635	25	0.21	30	0.83	120	67.6	20	102	4	4254-0067	25384
34.9 x 38.1	1 3/8 x 1 1/2	43.6 x 46.8	1.72 x 1.84	660	26	0.21	30	0.83	120	67.6	20	102	4	4254-0068	25409
34.9 x 41.3	1 3/8 x 1 5/8	43.6 x 50.0	1.72 x 1.97	432	17	0.21	30	0.83	120	67.6	20	102	4	4254-0069	25428
38.1	1 1/2	46.8	1.84	203	8	0.21	30	0.83	120	67.6	20	76	3	4254-0102	25472
38.1	1 1/2	46.8	1.84	267	10.5	0.21	30	0.83	120	67.6	20	76	3	4254-0103	25473
38.1	1 1/2	46.8	1.84	305	12	0.21	30	0.83	120	67.6	20	76	3	4254-0105	25474
38.1	1 1/2	46.8	1.84	356	14	0.21	30	0.83	120	67.6	20	76	3	4254-0080	25476
38.1	1 1/2	46.8	1.84	394	15.5	0.21	30	0.83	120	67.6	20	76	3	4254-0081	25477
38.1	1 1/2	46.8	1.84	432	17	0.21	30	0.83	120	67.6	20	76	3	4254-0082	25478
38.1	1 1/2	46.8	1.84	508	20	0.21	30	0.83	120	67.6	20	76	3	4254-0084	25480
38.1	1 1/2	46.8	1.84	559	22	0.21	30	0.83	120	67.6	20	76	3	4254-0085	25482
38.1	1 1/2	46.8	1.84	635	25	0.21	30	0.83	120	67.6	20	76	3	4254-0087	25484
38.1	1 1/2	46.8	1.84	762	30	0.21	30	0.83	120	67.6	20	76	3	4254-0089	25487
38.1	1 1/2	46.8	1.84	889	35	0.21	30	0.83	120	67.6	20	76	3	4254-0070	25490
38.1	1 1/2	46.8	1.84	1219	48	0.21	30	0.83	120	67.6	20	76	3	4254-0071	25499
38.1** [90°]	1 1/2	46.8	1.84	425	16.75	0.21	30	0.83	120	67.6	20	76	3	4254-0083	25804
38.1** [90°]	1 1/2	46.8	1.84	508	20	0.21	30	0.83	120	67.6	20	76	3	4254-0086	25806
38.1** [90°]	1 1/2	46.8	1.84	572	22.5	0.21	30	0.83	120	67.6	20	76	3	4254-0088	25808
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	76	3	4254-0090	25526
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	76	3	4254-0091	25527
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	76	3	4254-0092	25528
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	76	3	4254-0093	25530
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	76	3	4254-0094	25532
38.1 x 44.5	1 1/2 x 1 3/4	46.8 x 53.2	1.84 x 2.09	686	27	0.21	30	0.83	120	67.6	20	76	3	4254-0072	25535
38.1 x 50.8	1 1/2 x 2	46.8 x 59.5	1.84 x 2.34	559	22	0.21	30	0.83	120	67.6	20	76	3	4254-0073	25582

\* 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±1.17mm [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 115 - 119]

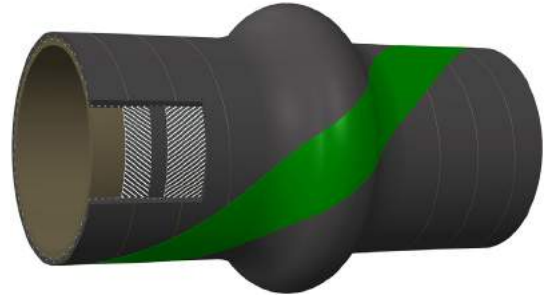
ID		OD Reference		Length*		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Gates Item No.	Inter-change No.
mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in.Hg	mm	in.	P/N	
44.5 +.8/-2.3	1 3/4 +.03/-0.9	53.2	2.09	152	6	0.21	30	0.83	120	67.6	20	152	6	4284-0001	26601
44.5	1 3/4	53.2	2.09	216	8.5	0.21	30	0.83	120	67.6	20	152	6	4284-0005	26602
44.5	1 3/4	53.2	2.09	279	11	0.21	30	0.83	120	67.6	20	152	6	4284-0032	26603
44.5	1 3/4	53.2	2.09	343	13.5	0.21	30	0.83	120	67.6	20	152	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	152	6	4284-0123	26502
44.5	1 3/4	53.2	2.09	483	19	0.21	30	0.83	120	67.6	20	152	6	4284-0015	26611
44.5	1 3/4	53.2	2.09	597	23.5	0.21	30	0.83	120	67.6	20	152	6	4284-0017	26612
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	152	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	152	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	152	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	152	6	4284-0135	26506
50.8	2	59.5	2.34	241	9.5	0.17	25	0.69	100	50.7	15	152	6	4284-0121	26507
50.8	2	59.5	2.34	311	12.25	0.17	25	0.69	100	50.7	15	152	6	4284-0115	26508
50.8	2	59.5	2.34	368	14.5	0.17	25	0.69	100	50.7	15	152	6	4284-0113	26509
50.8	2	59.5	2.34	432	17	0.17	25	0.69	100	50.7	15	152	6	4284-0114	26510
50.8	2	59.5	2.34	508	20	0.17	25	0.69	100	50.7	15	152	6	4284-0107	26511
50.8	2	59.5	2.34	610	24	0.17	25	0.69	100	50.7	15	152	6	4284-0101	26512
50.8	2	59.5	2.34	838	33	0.17	25	0.69	100	50.7	15	152	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	152	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	152	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	152	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	152	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	152	6	4284-0108	26518
57.1	2 1/4	65.8	2.59	229	9	0.17	25	0.69	100	40.6	12	203	8	4284-0102	26519
57.1	2 1/4	65.8	2.59	279	11	0.17	25	0.69	100	40.6	12	203	8	4284-0103	26520
57.1	2 1/4	65.8	2.59	356	14	0.17	25	0.69	100	40.6	12	203	8	4284-0104	26521
57.1	2 1/4	65.8	2.59	432	17	0.17	25	0.69	100	40.6	12	203	8	4284-0105	26522
57.1	2 1/4	65.8	2.59	483	19	0.17	25	0.69	100	40.6	12	203	8	4284-0106	26523
57.1	2 1/4	65.8	2.59	610	24	0.17	25	0.69	100	40.6	12	203	8	4284-0140	26524
57.1	2 1/4	65.8	2.59	686	27	0.17	25	0.69	100	40.6	12	203	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	203	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	203	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	203	8	4284-0132	26528
63.5	2 1/2	72.2	2.84	279	11	0.14	20	0.55	80	33.8	10	203	8	4284-0128	26529
63.5	2 1/2	72.2	2.84	356	14	0.14	20	0.55	80	33.8	10	203	8	4284-0136	26530
63.5	2 1/2	72.2	2.84	406	16	0.14	20	0.55	80	33.8	10	203	8	4284-0112	26531
63.5	2 1/2	72.2	2.84	610	24	0.14	20	0.55	80	33.8	10	203	8	4284-0111	26532
63.5	2 1/2	72.2	2.84	711	28	0.14	20	0.55	80	33.8	10	203	8	4284-0138	26533
69.9	2 3/4	78.6	3.09	178	7	0.14	20	0.55	80	33.8	10	254	10	4284-0139	26534
69.9	2 3/4	78.6	3.09	356	14	0.14	20	0.55	80	33.8	10	254	10	4284-0141	26535
69.9	2 3/4	78.6	3.09	457	18	0.14	20	0.55	80	33.8	10	254	10	4284-0130	26536
69.9	2 3/4	78.6	3.09	813	32	0.14	20	0.55	80	33.8	10	254	10	4284-0117	26537
76.2	3	84.9	3.34	940	37	0.14	20	0.55	80	27.0	8	254	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]

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

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 115 - 119]

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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



## 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 except hardness [70-85 Shore A durometer].
- 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 115 - 119]

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	15.7* ±0.8	0.62* ±0.03	0.43	63	1.72	250	33.8	10	64	2.5	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	76	3	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	102	4	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	159	6.25	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	191	7.5	0.39	0.26	61	200	4230-0134
25.4	1	34.0 ±1.2	1.34 ±.05	0.30	44	1.21	175	20.3	6	254	10	0.55	0.37	183	600	4230-0150

\* Not per SAE  
For smaller sizes, see page 97 [4251D]

## 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 on some sizes.
- Construction** EPDM tube, synthetic fiber reinforcement, EPDM cover.
- Packaging** Coiled in a box, except bulk lengths are shipped on a reel. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

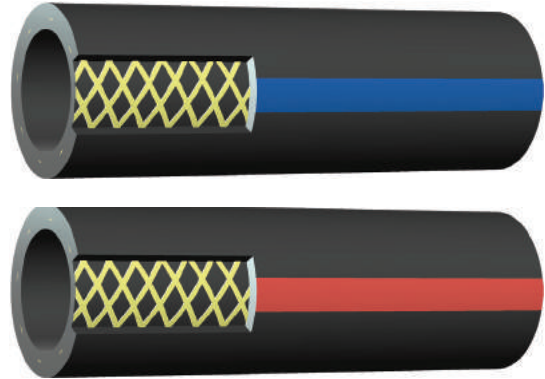
ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	meters	Feet	Bulk Length
6.35 ±0.8	1/4 ±0.03	12.7 ±0.8	0.50 ±0.03	0.41	60	1.72	250	33.8	10	89	3.50	0.13	0.09	168	550	3270-0029
7.9	5/16	15.7	0.62	0.41	60	1.72	250	33.8	10	111	4.38	0.21	0.14			
9.5	3/8	17.5	0.69	0.41	60	1.72	250	33.8	10	124	4.88	0.22	0.15			
12.7	1/2	19.6 *	0.77*	0.41	60	1.72	250	33.8	10	137	5.38	0.24	0.16			
15.9	5/8	22.6 *	0.89*	0.41	60	1.72	250	27.0	8	159	6.25	0.28	0.19	76	250	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	76	250	3270-4383
25.4 ±1.5	1 ±0.06	34.0 ±1.20	1.34 ±0.05	0.31	45	1.21	175	20.3	6	238	9.38	0.55	0.37			

\* Thinner than SAE

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 4230SB (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 as noted. Custom lengths available with minimum order quantity.

**Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		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	meters	feet	4230SB	4230RS	4230RK
6.4 ±0.8	1/4 ±0.03	14.5 * ±0.8	0.57 * ±0.03	0.43	63	1.72	250	33.8	10			0.15	0.10					***
7.9	5/16	15.7 *	0.62 *	0.43	63	1.72	250	33.8	10			0.18	0.12	152	500			4230-4720 [reel]
9.5	3/8	17.5	0.68	0.43	63	1.72	250	33.8	10	127	5	0.21	0.14	152	500	4230-4114	4230-0084	4230-3301 [650 ft reel]
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 reel	***	***
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 reel	4230-6448 reel ***
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	***	4230-0198 reel ***
25.4	1	34.0 ±1.2	1.34 ±.05	0.30	44	1.21	175	20.3	6	229	9	0.49	0.33	46	150	4230-4107	***	***

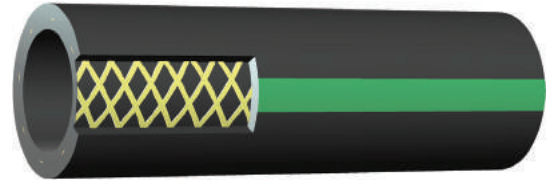
\* Not per SAE

\*\*\* Not stocked. Minimum order quantity applies.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 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 115 - 119]

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	3269-0004
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	

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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 115 - 119]

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

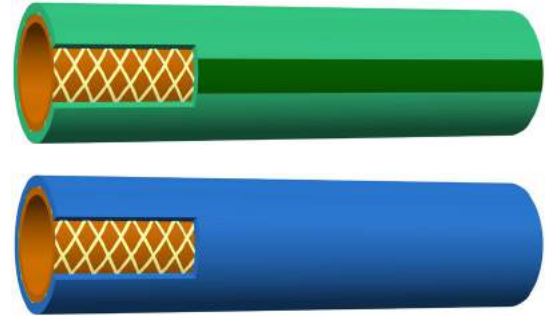
**4230S, 4230SS**
**OIL RESISTANT SMALL ID COOLANT HOSE**


- 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 115 - 119]

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	76	3	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	102	4	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	159	6.25	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	191	7.5	0.49	0.33	244	800	4230-0146
25.4	1	34.0 ±1.2	1.34 ±.05	0.52	75	2.07	300	20.3	6	254	10	0.64	0.43	213	700	4230-0147

## 3230 (3231 EUROPE)

### HIGH TEMPERATURE SILICONE SMALL ID COOLANT HOSE



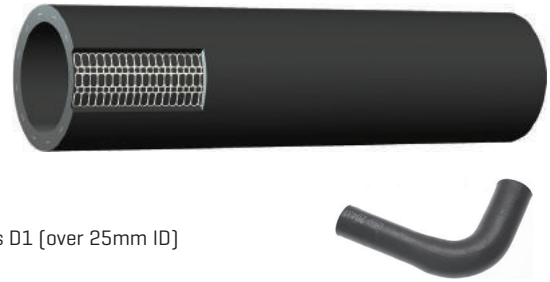
- Relative Cost** ●●●○○○
- Applications** Engine coolant hose for extreme temperature exposure. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -54°C to +177°C [-65°F to +350°F].
- Standards** SAE 20R3 HT Class A.
- Construction** Orange silicone rubber tube, synthetic fiber reinforcement, silicone rubber cover, blue [US] or green [Europe].
- Packaging** Bulk lengths coiled in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 115 - 119)

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number (EU and US)	
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	76	3	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	102	4	0.31	0.21	3230-0040	
15.9	5/8	23.9	0.94	0.43	63	1.72	250	27.0	8	159	6.25	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	191	7.5	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	254	10	0.61	0.41	3230-0044	3230-0293, 3230-0002 [200 ft reel]

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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 115 - 119]

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** EPDM tube, aramid fiber reinforcement, EPDM cover.
- Packaging** Boxed.
- Couplings** Hose bead fitting fastened with hose clamps. (pages 115 - 119)

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

Coolant



Fuel



Oil



SCR



DEF

Exhaust



Air



Refrigerant



Brake



Accessories



Belts



## 4281 (ELBOWS)

### HIGH TEMPERATURE SILICONE FORMED COOLANT HOSE (EUROPEAN MARKET ONLY)

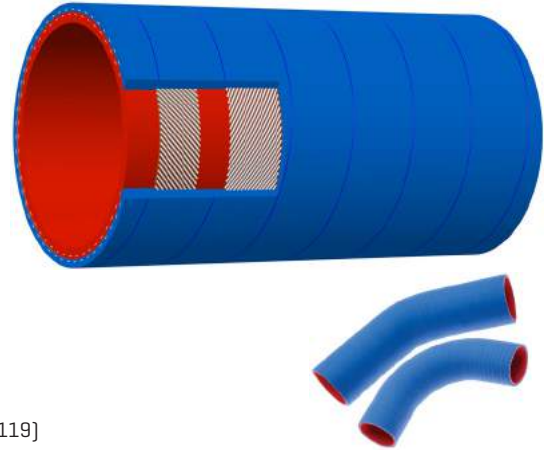


- Relative Cost** ●●●●●
- Applications** Engine coolant hose with 90° bend for external exposure to extreme temperatures. Also suitable for air or water. Not for conveying fuel or oil.
- Temperature** -50°C to +180°C [-58°F to +356°F].
- Standards** SAE 20R1 HT Class A except burst.
- Construction** 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 115 - 119]

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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 115 - 119]

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



## FEATURED PRODUCT

# PowerGrip® Polymeric Clamp and Coolant Hose Solutions

### PowerGrip® Polymeric Clamps

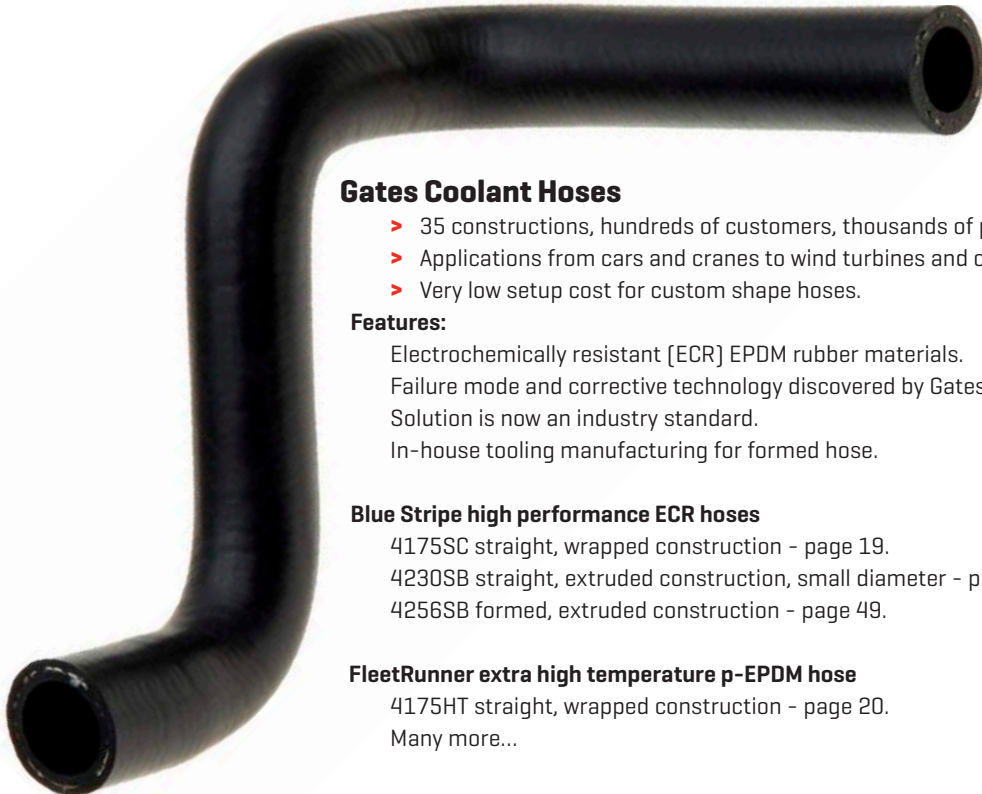
- > Provides uniform clamp force around the circumference of the hose.
- > Conforms to dented or out-of-round hose fittings.
- > Thermally contracts with the rubber and eliminates cold leaks.
- > Clamp force improves during the system duty cycle.
- > Impossible to over-tighten, continuously self-adjusts.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

**PowerGrip® SB** - heat activated, for 1/4" to 3" ID hoses - page 118.

**PowerGrip® RT** - activated at room temperature, for 3/8" to 3" ID hoses - page 119.

### 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 19.
- 4230SB straight, extruded construction, small diameter - page 36.
- 4256SB formed, extruded construction - page 49.

#### FleetRunner extra high temperature p-EPDM hose

- 4175HT straight, wrapped construction - page 20.
- Many more...



## 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 115 - 119]

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  
 \*\*\* Contact Gates for availability.



## 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 115 - 119)

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 115 - 119]

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***	0.80	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.  
 \*\*\* Contact Gates for availability.



## 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 115 - 119)

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 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 115 - 119]

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***	0.80	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	0.196	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.  
 \*\*\* Contact Gates for availability.



## 4256LS

### 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 115 - 119]

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
<b>SAE 20R3 EC Class D3</b>											
8.0 ±0.8***	5/16 ±0.03	15.0 ±0.8	0.59 ±0.03	1.72	250	33.8	10			0.13	0.09
9.5	3/8	17.5	0.69	1.72	250	33.8	10	14.2	0.56	0.18	0.12
12.7	1/2	20.7	0.81	1.72	250	33.8	10	18.3	0.72	0.27	0.18
14.5	0.57	22.5	0.89	1.38	200	27.0	8	19.1	0.75	0.30	0.20

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
<b>SAE 20R4 EC Class D3</b>											
19.0 ±0.8	3/4 ±0.03	4.95 ±0.65	0.195 ±0.025	1.03	150	**	**	29.0	1.14	0.42	0.28
25.4	1	4.95	0.195	0.97	140	**	**	43.2	1.70	0.54	0.36
28.6***	1.12	4.95	0.195	0.90	130	**	**	44.5	1.75	0.60	0.40
31.8	1 1/4	4.95	0.195	0.90	130	**	**	50.8	2.00	0.64	0.43
38.1	1 1/2	4.95	0.195	0.83	120	**	**	50.8	2.00	0.76	0.51
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	0.76	110	**	**	66.8	2.63	1.06	0.71
57.0	2 1/4	5.35	0.21	0.62	90	**	**	69.9	2.75	1.21	0.81
62.5	2 1/2	5.35	0.21	0.62	90	**	**	76.2	3.00	1.31	0.88
66.7***	2 5/8	5.35	0.21	0.55	80	**	**	82.6	3.25	1.37	0.92
88.9***	3 1/2	5.35	0.21	0.34	50	**	**	101.6	4.00	1.90	1.28

\* 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.  
 \*\*\* Contact Gates for availability.

# FUEL

## Low Pressure, Rubber Fuel Line

4219G / 4219XL.....	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.....	59
4219M.....	Standard marine fuel and oil hose .....	63
4219N.....	Marine fuel line, open [ventillated] environment.....	63
4219BM [Barricade® Marine].....	Marine fuel line, low permeation, with plastic barrier layer.....	64
<b>Also see:</b>		
4202.....	Heated line .....	83
Steel or aluminum tube assemblies in the AIR Section .....		95

## Low Pressure, Plastic Fuel Tubing

4327DT.....	Standard diesel fuel, nylon tubing.....	58
4327FT.....	Standard gasoline [petrol] and diesel fuel, nylon tubing .....	59

## High Pressure

3284AC [RLA R2].....	Standard fuel and oil hose with higher pressure.....	55
4219BF [Barricade® Fuel Injection] .....	Low permeation, fuel injection, with plastic barrier layer.....	57
4219BD.....	High temperature diesel and biodiesel fuel and fuel injection.....	57
4659.....	Stainless steel braided cover racing hose.....	60
3658E [C5E].....	Fuel filter line, high pressure with wire braid, hard wall, used with couplings.....	111
3658F [C5M].....	Marine fuel line, high pressure with wire braid, hard wall, used with couplings .....	64
3658BC [C5C XH].....	Higher temperature diesel line, high pressure with wire braid, hard wall, used with couplings .....	71
3658D [C5D].....	Higher temperature diesel line, high pressure with wire braid, hard wall, used with couplings .....	70

## Gaseous Fuels

LP350, LP350X, LPG Vapor.....See Gates Industrial Hose Products catalog on [www.gates.com](http://www.gates.com)

## Fuel Fill Hose

4663K.....	Standard flexible fill hose with embedded wire helix .....	61
4688CN [Fuel Master™ Xtreme™ 150D]		
	Fuel Transfer, crossover, remote fill.....	61
4688AF / 4688AC [Fuel Master™ Xtreme™ 150SD]		
	Fuel transfer, crossover or remote fill with embedded wire helix.....	62
See also: Formed hose section below		

## Formed Hose

4278.....	Standard diesel fill, transfer, and vent .....	65
4278BD.....	Biodiesel fill, transfer, and vent.....	65

 Coolant  

 Fuel  

 Oil  

 SCR  

 Exhaust  

 Air  

 Refrigerant  

 Brake  

 Access-  
ories  

 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 20% [B20] at 51°C [124°F].

**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. Also can use GC stem with crimp ring.

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	81	24	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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



**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 115 - 119]

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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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 115 - 119]

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 AND PRESSURE FUEL AND OIL HOSE**


- Relative Cost** ●●●●○
- Applications** Fuel line and fuel injection for high heat and flexibility. Also suitable for low pressure hydraulic oil, engine oil, or crank case vent. 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 30R9, CARB, EPA Non-Road Fuel Lines [<15g/m<sup>2</sup>/day] for spark ignition engines.
- 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 115 - 119] Also can use GC stem with crimp ring.

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 ±0.16	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

**3284AC / 3284SS (RLA R2)**
**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. 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 115 - 119] 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 ±0.40	3/16 ±.016	10.52 ±0.6	0.41 ±0.03	1.72	250	6.89	1000	95	28	76	3	0.10	0.07	168	550	3284-5306
6.35	1/4	12.1	0.48	1.72	250	6.89	1000	95	28	76	3	0.15	0.1	168	550	3284-5307
7.9	5/16	13.7	0.54	1.72	250	6.89	1000	95	28	102	4	0.16	0.11	168	550	3284-5282
9.5	3/8	15.3	0.60	1.72	250	6.89	1000	95	28	102	4	0.22	0.15	168	550	3284-5315
12.7±0.58	1/2 ±0.023	19.0±0.79	0.75 ±0.03	1.38	200	5.52	800	68	20	127	5	0.34	0.23	168	550	3284-5308
15.9	5/8	22.2	0.88	1.38	200	5.52	800	51	15	152	6	0.39	0.26	168	550	3284-5309
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 ±0.79	1 ±0.03	33.7 ±1.20	1.33 ±0.05	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 T1, CARB, EPA Non-Road Fuel Lines [<15g/m²/day] for spark ignition engines. Also JDS G-253 (non-conductive).
- Construction** Nitrile tube with thermoplastic barrier, synthetic fiber reinforcement, nitrile/PVC 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 115 - 119] Also can use GC stems with crimp rings.

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 ±0.40	3/16 ±.016	10.40 ±0.58	0.410 ±0.023	0.34	50	1.72	250	81	24	55	2.17	0.07	0.05	4219-5520
6.4	1/4	12.69	0.500	0.34	50	1.72	250	81	24	65	2.56	0.13	0.09	4219-5521
7.9	5/16	14.28	0.562	0.34	50	1.72	250	81	24	75	2.95	0.15	0.1	4219-5522
9.5	3/8	15.87	0.625	0.34	50	1.72	250	81	24	85	3.35	0.18	0.12	4219-5523
12.7 ±0.58	1/2 ±0.023	19.84 ±0.79	0.780 ±0.031	0.24	35	1.21	175	34	10	120	4.72	0.24	0.16	4219-5524

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



## FEATURED PRODUCT

# BARRICADE<sup>®</sup>

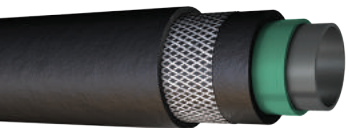
FUEL INJECTION AND CARBURETION HOSE  
with GreenShield<sup>®</sup> Technology

### Gates Barricade<sup>®</sup> 4219BG Fuel Line [page 55]



- Multiple fuel compatibility: Gasoline, E10, E15, E85, Diesel, biodiesel [B0 to B100: SME, PME, RME].
- Low permeation <15g/m<sup>2</sup>/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<sup>®</sup> 4219BF Fuel Injection Hose [page 57]



- Multiple fuel compatibility: Gasoline, E10, E15, E85, Diesel, biodiesel [B0 to B100: SME, PME, RME].
- Low permeation <15g/m<sup>2</sup>/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<sup>†</sup>, 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.

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



**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 T2 except no kink test and higher burst, CARB, EPA Non-Road Fuel Lines [<15g/m<sup>2</sup>/day] CAT 1E4340B.
- 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 115 - 119] Also can use GC stems with crimp rings.

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 ±0.40	3/16 ±.016	10.4 ±0.58	0.406 ±0.023	1.55	225	8.0	1160	81	24	55	2.17	0.07	0.05	***
6.4	1/4	12.69	0.500	1.55	225	8.0	1160	81	24	65	2.56	0.13	0.09	4219-5651
7.9	5/16	14.28	0.562	1.55	225	8.0	1160	81	24	75	2.95	0.15	0.1	4219-5652
9.5	3/8	15.87	0.625	1.55	225	8.0	1160	81	24	85	3.35	0.18	0.12	4219-5653
12.7 ±0.58	1/2 ±0.023	19.84 ±0.79	0.780 ±0.031	1.55	225	8.0	1160	34	10	140	5.5	0.24	0.16	4219-5654

\*\*\* Not stocked. Minimum order quantity applies.

**4219BD DIESEL FUEL INJECTION**
**HIGHER PRESSURE DIESEL AND BIODIESEL  
FUEL HOSE**


- Relative Cost** ●●●○○○
- Applications** Fuel injection hose for diesel and biodiesel [including all blends of SME, RME or PME]. Also for gasoline, ethanol blends, 100% methanol [no blends], or engine oil. Not for in-tank or gaseous fuels.
- Temperature** -40°C to +150°C [-40°F to +302°F] and -40°C to +135°C [-40°F to +275°F] for biodiesel up to B100.
- Standards** CAT 1E4340B.
- Construction** HNBR tube, 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 115 - 119] Also can use GC stems with crimp rings.

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
15.9 ±0.79	5/8 ±0.031	23.4 ±1.2	0.922 ±0.047	1.21	175	7.2	1050	81	24	140	5.5	0.36	0.24	4219-6772

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4327DT**
**NYLON TUBING FOR DIESEL FUEL**

**Relative Cost** ●○○○○○

**Applications** Non-conductive fuel line from tank to engine. Also suitable for DEF vent line. Not for in-tank or gaseous fuels.

**Temperature** -40°C to +93°C [-40°F to +200°F].

**Standards** 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"]. Biodiesel applications should not use brass or zinc plated couplings.

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	0.040	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	0.062	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	0.062	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	0.092	1.03	150	3.45	500	81	24	76	3	0.12	0.08	15	50	4327-3904
19.05	3/4	2.35	0.092	1.03	150	4.14	600	81	24	127	5	0.13	0.09	15	50	4327-3905

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



**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 (3 to 10 g/m<sup>2</sup>/day at 60°C with CE10 fuel), 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 or fuel vapor (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.

ID		OD		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
3.20	0.126	5.2	0.20	0.07	10	0.34	50	81	24	32	1.25	0.02	0.01	30	100	4327-2008 *
4.30	0.169	6.3	0.25	0.69	100	3.45	500	81	24	38	1.5	0.03	0.02	30	100	4327-2009
6.00	0.236	8.0	0.31	0.69	100	3.45	500	81	24	64	2.5	0.03	0.02	30	100	4327-2010
8.00	0.315	10.0	0.39	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 due to cost.
- 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 115 - 119]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		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	250 ft Length	10 m Length
6.4 ±0.4	1/4 ±.016	12.7 ±0.58	0.50 ±0.02	0.69	100	3.4	500	*	*	*	*	0.15	0.10	4219-0010		4219-0008
7.9	5/16	14.3	0.56	0.69	100	3.4	500	*	*	*	*	0.22	0.15	4219-0012	4219-0024	4219-0005
9.5	3/8	15.9	0.62	0.69	100	2.8	400	*	*	*	*	0.27	0.18	4219-0013	4219-0030	4219-0006

\* No specification requirement.

**4659 (G200)**
**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, two braids of stainless steel reinforcement, braided stainless steel cover
- Packaging** Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
- Couplings** Re-useable aluminum fittings [AN fittings, which are 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

**4659 (G210)**
**TEXTILE COVER RACING HOSE**


- Relative Cost** ●●●●○
- Applications** Fuel, oil, alcohol, or coolant line for motor sport 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, braided textile cover.
- Packaging** Bulk lengths shipped in a box. Custom lengths available with minimum order quantity.
- Couplings** Re-useable aluminum fittings [AN fittings, which are not available through Gates]

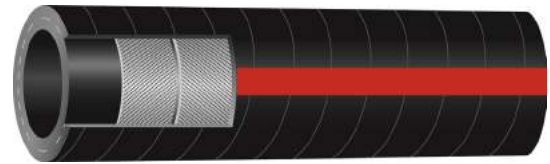
ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	inch	Dash	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	meters	feet	Bulk Length
5.56 +.66/-0	7/32 +.026/-0	-4	9.2 ±0.51	0.44 ±0.02	3.45	500	13.79	2000	51	2	0.13	0.09	290	950	4659-1260
8.7	11/32	-6	14.2	0.56	3.45	500	13.79	2000	64	2.5	0.16	0.11	213	700	4659-1261
11.1	7/16	-8	17.0	0.67	3.45	500	13.79	2000	89	3.5	0.21	0.14	145	475	4659-1262
14.27 +1.27/-0	9/16 +.05/-0	-10	20.8	0.82	3.45	500	13.79	2000	102	4	0.28	0.19	122	400	4659-0063
17.5	11/16	-12	24.4	0.96	2.41	350	9.65	1400	114	4.5	0.36	0.24	91	300	4659-1264
22.2	7/8	-16	29.2 ±0.8	1.15 ±0.03	2.41	350	9.65	1400	140	5.5	0.45	0.30	53	175	4659-1265

**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. [page 115]

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
34.9 +0.76 / -2.88"	3/8 +0.03 / -0.09	41.7	1.64	0.14	20	0.62	90	101	30	127	5	0.62	0.42	***	4663-2828
38.1	1 1/2	45.0	1.77	0.14	20	0.62	90	101	30	127	5	0.65	0.44	4663-3601	4663-2830
41.3	1 5/8	48.3	1.90	0.14	20	0.62	90	101	30	140	5.5	0.71	0.48	***	4663-3624 ***
44.5	1 3/4	51.3	2.02	0.14	20	0.62	90	101	30	152	6	0.76	0.51	***	4663-3976
47.6	1 7/8	54.4	2.14	0.14	20	0.62	90	101	30	152	6	0.79	0.53	4663-3603	4663-2933 ***
50.8	2	57.7	2.27	0.14	20	0.62	90	101	30	178	7	0.85	0.57	4663-3604	4663-2930
57.2	2 1/4	64.0	2.52	0.14	20	0.62	90	101	30	203	8	0.95	0.64	4663-3605	4663-2932
63.5	2 1/2	70.4	2.77	0.14	20	0.62	90	101	30	305	12	1.03	0.69	4663-3606	4663-2929 ***
76.2	3	83.1	3.27	0.14	20	0.62	90	101	30	**	**	1.34	0.90	***	4663-3625 ***

\* No specification requirement.  
 \*\* If minimum bend radius is required, use 8 times the O.D. as a guide.  
 \*\*\* Not stocked. Minimum order quantity applies.

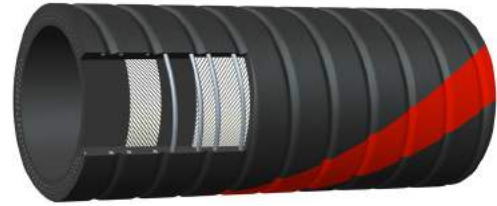
**4688CN FUEL MASTER™ 150D FUEL TRANSFER HOSE**


- Relative Cost** ●●●○○
- Applications** Refined fuel transfer, crossover, or remote fill of diesel, gasoline or other petroleum products.
- Temperature** -40°C to +49°C [-40°F to +120°F].
- Standards** ARPM Class A tube and cover [high oil resistance]
- Construction** Nitrile tube, synthetic fabric reinforcement plies with static conductor, neoprene cover.
- Packaging** Bulk lengths are coiled on a pallet, wrapped in stretch film.
- Couplings** Crimped couplings [for ambient temperatures only] see the Hose Coupling Section in the Gates Industrial Hose Catalog coupling numbers 7, 26, 49, and 78. Can use GL couplings - see Gates Hydraulic Catalog and see Gates Crimp Data Manual 35019 or E-Crimp. Also can use hose clamps over a beaded hose fitting. [page 115 - 119]

ID		OD		Work. Press. Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
mm	inch	mm	inch	MPa	psi	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft	100 ft. Length	200 ft. Length
50.8	2	62.0	2.44	1.03	150	4.14	600	*	*	**	**	0.62	0.42	4688-1320	4688-1491 ***
76.2	3	87.6	3.45	1.03	150	4.14	600	*	*	**	**	0.92	0.62	4688-1321	4688-1530 ***
101.6	4	114.6	4.51	1.03	150	4.14	600	*	*	**	**	1.37	0.92	4688-1322	4688-1531 ***

\* No specification requirement.  
 \*\* If minimum bend radius is required, use 8 times the O.D. as a guide.  
 \*\*\* Not stocked. Minimum order quantity 400 feet.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4688AF / 4688AC FUEL MASTER™ XTREME™ 150SD**
**WIRE REINFORCED FUEL TRANSFER HOSE**


- Relative Cost** ●●●○○
- Applications** Constant contact use for fuel transfer, crossover or remote fill of diesel, biodiesel, gasoline, ethanol or other petroleum products.
- Temperature** -34°C to +82°C [-30°F to +180°F].
- Standards** ARPM Class A tube and cover [high oil resistance], MSHA 30 CFR 18.65 flame resistant.
- Construction** Nitrile tube, synthetic fabric reinforcement plies with embedded helical wire, modified nitrile cover.
- Packaging** Bulk lengths are coiled on a pallet wrapped in stretch film.
- Couplings** Crimped couplings [for ambient temperatures only] see the Hose Coupling Section in the Gates Industrial Hose Catalog coupling numbers 7, 26, 49 and 78. Can use GL couplings - see Gates Hydraulic Catalog and Gates Crimp Data Manual 35019 or E-Crimp. Also can use hose clamps over a beaded hose fitting. [page 115 - 119]

ID		OD Reference		Work. Press.* Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
Smooth Cover 4688AF															
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	100 ft. Length	200 ft. Length
25.4	1	36.0	1.50	1.03	150	4.14	600	101	30	76	3	0.88	0.59	4688-1700	4688-1701 ***
31.8	1 1/4	42.3	1.75	1.03	150	4.14	600	101	30	102	4	1.04	0.70	4688-1702	1688-1703 ***
38.1	1 1/2	51.3	2.02	1.03	150	4.14	600	101	30	102	4	1.29	0.87	4688-1704	4688-1705 ***
50.8	2	64.0	2.52	1.03	150	4.14	600	101	30	152	6	1.64	1.10	4688-1706	4688-1707 ***
63.5	2 1/2	77.5	3.05	1.03	150	4.14	600	101	30	203	8	2.19	1.47	4688-1708	4688-1709 ***
76.2	3	89.7	3.53	1.03	150	4.14	600	101	30	229	9	2.77	1.86	4688-1710	4688-1711 ***
101.6	4	116.1	4.57	1.03	150	4.14	600	101	30	305	12	3.85	2.59	4688-1712	4688-1713 ***

\*\*\* Not stocked. Minimum order quantity 400 feet.

ID		OD Reference		Work. Press.* Max.		Burst Minimum		Vacuum Minimum		Bend Rad. Min.		Weight Ref.		Gates Item Number	Gates Item Number
Corrugated Cover 4688AC															
mm	in.	mm	in.	MPa	psi	MPa	psi	kPa	in. Hg	mm	in.	kg/m	lbs/ft	100 ft. Length	200 ft. Length
25.4	1	36.0	1.50	1.03	150	4.14	600	101	30	76	3	0.88	0.59	4688-1718	4688-1719 ***
31.8	1 1/4	42.3	1.75	1.03	150	4.14	600	101	30	102	4	1.04	0.70	4688-1720	1688-1721 ***
38.1	1 1/2	51.3	2.02	1.03	150	4.14	600	101	30	102	4	1.29	0.87	4688-1722	4688-1723 ***
50.8	2	64.0	2.52	1.03	150	4.14	600	101	30	152	6	1.64	1.10	4688-1724	4688-1725 ***
63.5	2 1/2	77.5	3.05	1.03	150	4.14	600	101	30	203	8	2.19	1.47	4688-1726	4688-1727 ***
76.2	3	89.7	3.53	1.03	150	4.14	600	101	30	229	9	2.77	1.86	4688-1728	4688-1729 ***
101.6	4	116.1	4.57	1.03	150	4.14	600	101	30	305	12	3.85	2.59	4688-1730	4688-1731 ***

\*\*\* Not stocked. Minimum order quantity 400 feet.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4219M MARINE MASTER™ FUEL LINE 40**
**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 115 - 119]

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 ±0.016	16.3 ±0.79	0.64 ±0.03	0.28	40	2.76	400	95	28	64	2.5	0.25	0.17	4219-4145	4219-4146	4219-4140
7.9	5/16	17.8	0.70	0.28	40	2.76	400	95	28	76	3	0.28	0.19	4219-4565	4219-4566	4219-4560
9.5	3/8	19.6	0.77	0.28	40	2.76	400	95	28	76	3	0.33	0.22	4219-4385	4219-4567	4219-4380
12.7 ±0.58	1/2 ±0.023	22.6	0.89	0.28	40	2.76	400	95	28	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	0.28	40	276	400	95	28	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 when 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 115 - 119]

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 ±0.40	1/4 ±0.016	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.

Coolant



Fuel



Oil



SCR



DEF



Exhaust



Air



Refrigerant



Brake



Accessories



Belts



**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<sup>2</sup>/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** Hose bead fitting fastened with hose clamps. [page 115 to 119] Also can use GC stems with crimp rings.

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** -20°C to +100°C [-4°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 except dimensions.
- Construction** Nitrile tube, wire braid reinforcement, CSM cover except sizes -10 through -16 is 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]. Biodiesel applications should not use brass or zinc plated couplings.

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	-5	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	-6	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	-8	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	-10	23.4	0.92	3.45	500	13.79	2000	68	20	58	2.3	0.60	0.4	84	275	3658-1977
15.9	5/8	-12	27.4	1.08	3.45	500	13.79	2000	68	20	71	2.8	0.76	0.51	67	220	3658-1981
22.2	7/8	-16	31.2	1.23	3.45	500	13.79	2000	68	20	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. Also suitable for cold side CAC. Compatible with biodiesel SME, RME, and PME to B100. Not for gasoline or fuel injection.

**Temperature** -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**

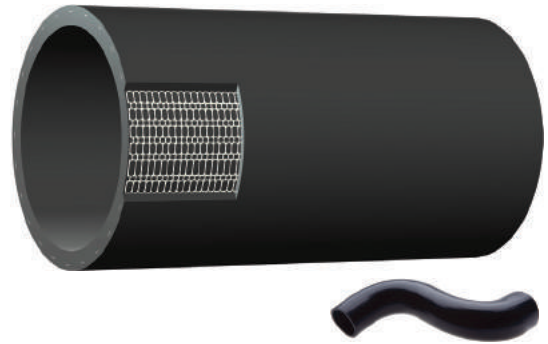
ECO tube, synthetic knit reinforcement, ECO cover.


**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 115 - 119]



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
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.

**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 115 - 119]



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
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].



## 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 95).
- > 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](mailto: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	<b>NOTE:</b> For other terminations, please check with Product Application.						

**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.

## 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.



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

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Coolant  
Fuel  
Oil  
SCR  
DEF  
Exhaust  
Air  
Refrigerant  
Brake  
Accessories  
Belts

**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 crimping 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
19.1	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	33.5	1.32	1.72	250	6.89	1000	34	10	205	8	0.60	0.40	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 crimping 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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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 All and SAE J1402 type All 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]

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	0.40	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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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 All and SAE J1402 type All 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 crimp 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. [page 115]

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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** None
- 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 [-4 to -12] or MegaCrimp® couplings [-16]. See Gates Hydraulic Catalog for couplings and the eCrimp™ tool on Gates.com for crimper data. Also can use hose clamps over a beaded hose fitting only. {page 115}

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	25	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	46	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	64	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	76	3	0.36	0.24	91	300	4657-2342
19.1	3/4	-12	26.9	1.06	1.72	250	6.89	1000	85	25	89	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	102	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	114	4.5	0.83	0.56	37	120	4657-2345



**4657DT (MEGATECH® 500)**
**HIGH TEMPERATURE LARGE DIAMETER 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 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** 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

- Coolant
- Fuel
- OIL
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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.
- 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** None.
- 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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**3317LC/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, 2-ply nylon reinforcement, CSM cover. [CPE tube and cover for 3317-0108.]
- 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/-0.005	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

**3317AB (MEGATECH® HVE)**
**NOISE DAMPENING POWER STEERING PRESSURE LINE**


- Relative Cost** ●●●○○
- Applications** Power steering pressure line with high volumetric expansion for noise and impulse dampening.
- Temperature** -40°C to +150°C [-40°F to +302°F].
- Standards** None.
- Construction** CPE tube, synthetic fiber braid reinforcement, CPE with black braided textile cover.
- Packaging** Shipped on a reel. May not be continuous lengths. Custom lengths available with minimum order quantity.
- Couplings** Global spiral stem with 8GB1F-PS ferrule.

ID			OD		Work. Press. Max.		Burst Minimum		Bend Rad. Min.		Weight Ref.		Bulk Length		Gates Item Number
mm	in.	dash	mm	in.	MPa	psi	MPa	psi	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
13.1	.515	-8	23.4	0.92	15.51	2250	62.05	9000	178	7	0.31	0.21	104	340	3317-5005

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**3283LF**
**HIGH TEMPERATURE POWER STEERING RETURN LINE**


- Relative Cost** ●●●○○
- Applications** Power steering return line.
- Temperature** -40°C to +150°C [-40°F to +302°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. [page 115]

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**

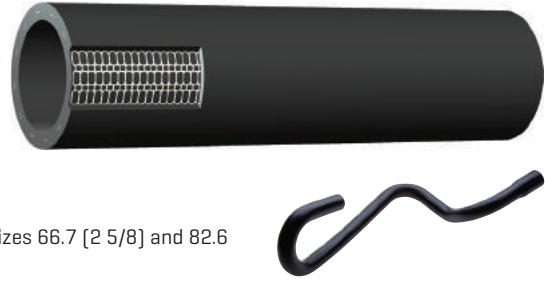

- Relative Cost** ●●●●○
- Applications** Engine oil, fuel filler, and hydraulic suction. Also suitable for tank vent and crank case vent. Not for fuel injection or air intake.
- Temperature** -40°C to +125°C [-40°F to +257°F].
- Standards** SAE 30R7 except the oxidized gasoline test, or SAE 30R6.
- Construction** Nitrile tube, synthetic knit reinforcement, nitrile/PVC cover.
- Packaging** Boxed.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

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].

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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 115 - 119)

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.

\*\*\* Contact Gates for availability.

**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 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 115 - 119]

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	1.72	250	34	10	25.4	1.00	0.24	0.16
15.9	5/8	23.9	0.94	1.72	250	**	**	25.4	1.00	0.28	0.19
19.1	3/4	27.7	1.09	1.72	250	**	**	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	0.73	0.49
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.  
 \*\*\* Contact Gates for availability.

Coolant



Fuel



Oil



SCR



DEF

Exhaust



Air



Refrigerant



Brake



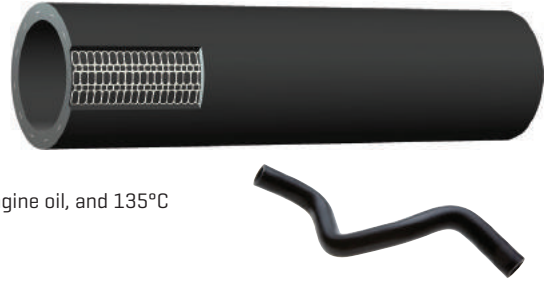
Accessories



Belts





**4278SS**
**HIGHER TEMPERATURE FORMED OIL HOSE**


- Relative Cost** ●●●○○
- Applications** Power steering remote reservoir, crank case vent, transmission oil, 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.
- Construction** Peroxide cured CPE tube, polyester knit reinforcement, peroxide cured 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 115 - 119)

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

# SCR (SELECTIVE CATALYTIC REDUCTION)

## Diesel emissions fluid (DEF) for SCR systems

4202.....	Heated line for DEF injection / return.....	83
4217IS.....	Bulk length transfer and tank filler / vent.....	82
4256PC.....	Formed tank filler / vent (not co-axial filler/vent) .....	82
Also see:		
4327FT.....	Nylon tubing for unheated DEF injection / return, or tank vent.....	59
4327.....	Colored nylon tubing for unheated DEF injection / return, or tank vent.....	113, 114
4697G (Renegade or Chem Master™ Plus UHMWPE SD)		
	Bulk length transfer, chemical hose with wire helix. See Gates Industrial Hose catalog.	
Coolant hose section .....	SCR system heater / coolant hoses.....	16 - 50

Coolant	
Fuel	
Oil	
SCR	
DEF	
Exhaust	
Air	
Refrigerant	
Brake	
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 +125°C [-40°F to +257°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 crimp 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	16.8	0.66	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.

**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 HT Class D3 or 20R4 EC HT 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 115 - 119)

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
<b>SAE 20R3 EC HT Class D3</b>											
9.5 ±0.8	3/8 ±0.03	16.2 ±0.8	0.64 ±0.03	1.72	250	**	**	14.2	0.56	0.14	0.09
19.0	3/4	27.0	1.03	1.72	250	**	**	29.0	1.14	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
<b>SAE 20R4 EC HT Class D3</b>											
25.4	1	5.00 ±0.7	0.197 ±0.028	1.72	250	**	**	43.2	1.70	0.54	0.36
31.8***	1 1/4	5.00	0.197	1.72	250	**	**	50.8	2.00	0.62	0.41

\* For cuff length on one end only. This guideline is subject to change based on hose design.  
 \*\* No specification requirement.  
 \*\*\* Contact Gates for availability.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4202 (NYLON)**
**DIESEL EMISSION FLUID HEATED LINE**
**Relative Cost** ●●●●●

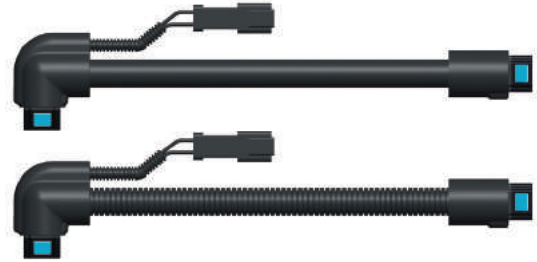
**Applications** DEF fluid tank to dosing pump, to DEF injector, and return to tank. Electric connections per customer specification, 12V or 24V. Also suitable for diesel fuel or oil heated line when using FKM O-rings.

**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 tube, carbon fiber heating sleeve, EPDM closed-cell foam or nylon convolute, thermoplastic over-molded quick-connect ends (straight or 90° angle). Minimum length = 200mm [12"] for 12V system, or 400mm [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.		Sleeve OD		Bend Rad. Min.		Weight Nominal	
mm	in.	mm	in.	MPa	psi	mm	in.	mm	in.	kg/m	lbs/ft
3.2	0.13	5.2	0.20	1.4	200	12.7	0.5	12.5	0.49	0.13	0.09
6.0	0.24	8.0	0.31	1.4	200	16	0.6	38	1.50	0.15	0.10

**4202 (EPDM)**
**DIESEL EMISSION FLUID HEATED LINE**
**Relative Cost** ●●●●●

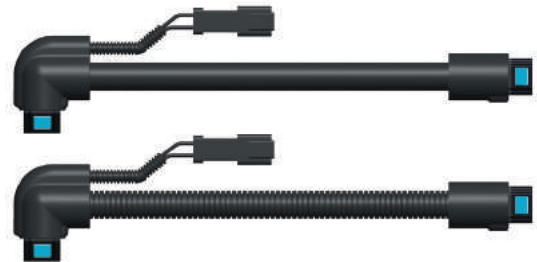
**Applications** DEF fluid tank to dosing pump, to DEF injector, and return to tank. Electric connections per customer specification, 12V or 24V. Also suitable for diesel fuel or oil heated line when using FKM O-rings.

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

**Standards** Resistance to DEF per ISO 22241, connectors per SAE J2044 and coupling integrity per J2045.

**Construction** Zinc-free peroxide-cured EPDM 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 = 200mm [12"] for 12V system, or 400mm [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.		Sleeve OD		Bend Rad. Min.		Weight Nominal	
mm	in.	mm	in.	MPa	psi	mm	in.	mm	in.	kg/m	lbs/ft
4.0	0.157	9.4	0.37	1.4	200	18	0.72	51	2.00	0.22	0.15
5.5	0.217	11.4	0.45	1.4	200	21	0.83	70	2.75	0.24	0.16

Coolant



Fuel



Oil



SCR



Exhaust



Air



Refrigerant



Brake



Accessories



Belts



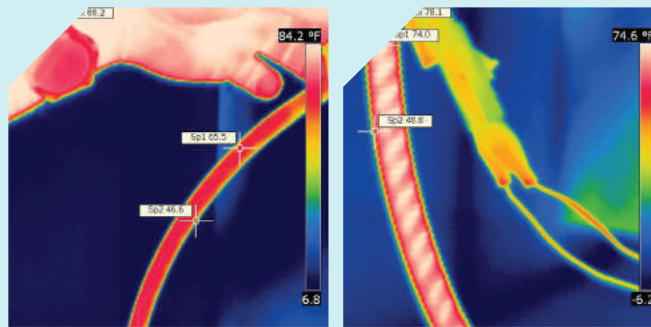


## FEATURED PRODUCT

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

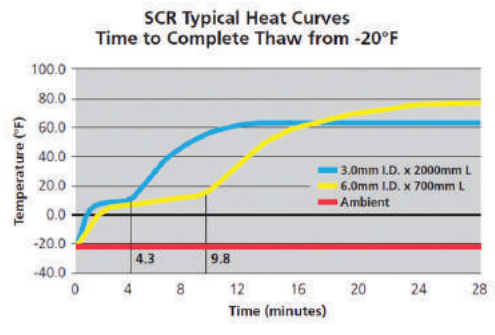
- Made in almost any length, unlike some which are only available in certain increment lengths.
- Uses Nylon 12 tubing standard, or more flexible rubber tubing.
- Thaws DEF in half the time as competitive hose using the same current draw.
- Insulates with a closed-cell EPDM cover. Convuluted nylon cover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

### Carbon fiber + fiberglass sleeve heats evenly and efficiently.



Gates

Competitor



See 4202 Diesel Emission Fluid Heated Line on page 83.

#### Also see:

- 4217IS Diesel Emission Fluid Hose for DEF transfer applications or remote tank fill on page 82.
- 4256PC DEF Tank Fill and Vent on page 82.
- DEF coolant lines - use Small ID Coolant Hose selection pages 35 to 39. or Formed Coolant Hose selection pages 40 to 50.



# EXHAUST

## Marine Wet Exhaust

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4686ME .....	Helical wire for flexibility, tested per SAE J2006 R2 .....	87
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**Coolant**

**Fuel**

**Oil**

**SCR**

**Exhaust**

**Air**

**Refrigerant**

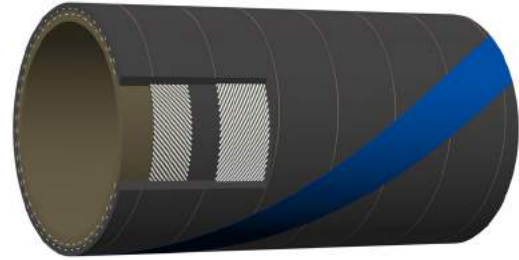
**Brake**

**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 115 - 119]

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	2.07	300	**	**	*	*	0.67	0.45	3137-1207
31.8	1 1/4	38.9	1.53	0.69	100	2.07	300	**	**	*	*	0.72	0.49	3137-1209
34.9	1 3/8	42.9	1.69	0.69	100	2.07	300	**	**	*	*	0.78	0.53	3137-1213
38.1	1 1/2	45.2	1.78	0.69	100	2.07	300	**	**	*	*	0.85	0.57	3137-1215
41.3	1 5/8	48.5	1.91	0.69	100	2.07	300	**	**	*	*	0.91	0.61	3137-1217
44.5	1 3/4	51.6	2.03	0.69	100	2.07	300	**	**	*	*	0.97	0.65	3137-1219
47.6	1 7/8	55.6	2.19	0.69	100	2.07	300	**	**	*	*	1.03	0.69	3137-1221
50.8	2	58.9	2.32	0.69	100	2.07	300	**	**	*	*	1.09	0.73	3137-1223
54.0	2 1/8	62.2	2.45	0.69	100	2.07	300	**	**	*	*	1.15	0.78	3137-1225
57.2	2 1/4	65.3	2.57	0.69	100	2.07	300	**	**	*	*	1.19	0.80	3137-1227
60.3	2 3/8	68.3	2.69	0.69	100	2.07	300	**	**	*	*	1.27	0.86	3137-1229
63.5	2 1/2	71.6	2.82	0.69	100	2.07	300	**	**	*	*	1.34	0.90	3137-1231
66.7	2 5/8	74.9	2.95	0.69	100	2.07	300	**	**	*	*	1.40	0.94	3137-1233
69.9	2 3/4	78.5	3.09	0.69	100	2.07	300	**	**	*	*	1.46	0.98	3137-1235
73.0	2 7/8	82.0	3.23	0.69	100	2.07	300	**	**	*	*	1.52	1.02	3137-1237
76.2	3	85.3	3.36	0.69	100	2.07	300	**	**	*	*	1.72	1.16	3137-1239
88.9	3 1/2	98.0	3.86	0.69	100	2.07	300	**	**	*	*	1.98	1.33	3137-1245
101.6	4	110.7	4.36	0.69	100	2.07	300	**	**	*	*	2.21	1.49	3137-1249
114.3	4 1/2	123.4	4.86	0.69	100	2.07	300	**	**	*	*	2.50	1.68	3137-1252
127.0	5	136.4	5.37	0.69	100	2.07	300	**	**	*	*	2.78	1.87	3137-1253
152.4	6	162.1	6.38	0.69	100	2.07	300	**	**	*	*	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 115 - 119]

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	2.07	300	101	30	64	2.5	0.87	0.58	4686-0602	
31.8	1 1/4	41.1	1.62	0.69	100	2.07	300	101	30	64	2.5	0.94	0.63	4686-0604	
34.9	1 3/8	44.5	1.75	0.69	100	2.07	300	101	30	76	3.0	1.02	0.68	4686-0606	
38.1	1 1/2	47.8	1.88	0.69	100	2.07	300	101	30	89	3.5	1.09	0.74	4686-0608	
41.3	1 5/8	50.8	2.00	0.69	100	2.07	300	101	30	89	3.5	1.15	0.78	4686-0610	
44.5	1 3/4	53.9	2.12	0.69	100	2.07	300	101	30	102	4.0	1.25	0.84	4686-0612	
47.6	1 7/8	56.9	2.24	0.69	100	2.07	300	101	30	114	4.5	1.32	0.89	4686-0614	
50.8	2	59.9	2.36	0.69	100	2.07	300	101	30	127	5.0	1.42	0.95	4686-0616	
54.0	2 1/8	63.3	2.49	0.69	100	2.07	300	101	30	140	5.5	1.49	1.00	4686-0618	
57.2	2 1/4	66.8	2.63	0.69	100	2.07	300	101	30	152	6.0	1.55	1.04	4686-0620	
60.3	2 3/8	69.9	2.75	0.69	100	2.07	300	101	30	165	6.5	1.64	1.10	4686-0622	
63.5	2 1/2	73.7	2.90	0.69	100	2.07	300	101	30	165	6.5	1.73	1.16	4686-0624	
66.7	2 5/8	76.7	3.02	0.69	100	2.07	300	101	30	178	7.0	1.80	1.21	4686-0626	
69.9	2 3/4	81.8	3.22	0.69	100	2.07	300	101	30	191	7.5	1.87	1.26	4686-0628	
73.0	2 7/8	86.9	3.42	0.69	100	2.07	300	101	30	203	8.0	1.96	1.32	4686-0630	
76.2	3	89.9	3.54	0.69	100	2.07	300	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	2.07	300	101	30	229	9.0	2.65	1.78	4686-0638	4686-0657 ***
101.6	4	115.3	4.54	0.69	100	2.07	300	101	30	305	12.0	3.28	2.20	4686-0640	
114.3	4 1/2	128.0	5.04	0.69	100	2.07	300	101	30	305	12.0	3.67	2.46	4686-0642	
127.0	5	140.7	5.54	0.69	100	2.07	300	101	30	508	20.0	4.04	2.71	4686-0643	
139.7	5 1/2	153.4	6.04	0.69	100	2.07	300	101	30	559	22.0	4.66	3.13	4686-0645	
152.4	6	165.9	6.53	0.69	100	2.07	300	101	30	610	24.0	4.79	3.22	4686-0646	

\*\*\* Not stocked. Minimum order quantity applies.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

# AIR

## Defroster, Air Duct, Pre-Cleaner

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## Air Cleaner

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### Also see:

Coolant hose section	
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## Air Brake Compressor

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Coolant	
Fuel	
Oil	
SCR	
DEF	
Exhaust	
Air	
Refrigerant	
Brake	
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. [pages 115 - 119].

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



SCR



Exhaust



Air



Refrigerant



Brake


 Access-  
ories


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 or ends with no wire are available with minimum order quantity.

**Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

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	0.16	0.11	4663-4000
19.1	3/4	23.9	0.94	0.07	10	0.28	40	16.9	5	25	1	0.19	0.13	4663-4001
22.2	7/8	27.0	1.06	0.07	10	0.28	40	16.9	5	25	1	0.22	0.15	4663-4002
25.4	1	30.2	1.19	0.07	10	0.28	40	16.9	5	25	1	0.27	0.18	4663-4003
31.8	1 1/4	36.6	1.44	0.07	10	0.28	40	16.9	5	25	1	0.33	0.22	4663-4004
34.9	1 3/8	39.7	1.56	0.07	10	0.28	40	16.9	5	38	1.5	0.34	0.23	4663-4005
38.1	1 1/2	42.9	1.69	0.07	10	0.28	40	16.9	5	38	1.5	0.37	0.25	4663-4006
41.3	1 5/8	46.1	1.81	0.07	10	0.28	40	16.9	5	51	2	0.40	0.27	4663-4007
44.5	1 3/4	49.3	1.94	0.07	10	0.28	40	16.9	5	51	2	0.43	0.29	4663-4008
47.6	1 7/8	52.4	2.06	0.07	10	0.28	40	16.9	5	51	2	0.46	0.31	4663-4009
50.8	2	55.6	2.19	0.03	5	0.14	20	10.1	3	51	2	0.49	0.33	4663-4010
54.0	2 1/8	58.8	2.31	0.03	5	0.14	20	10.1	3	64	2.5	0.52	0.35	4663-4011
57.2	2 1/4	62.0	2.44	0.03	5	0.14	20	10.1	3	64	2.5	0.55	0.37	4663-4012
60.3	2 3/8	65.1	2.56	0.03	5	0.14	20	10.1	3	64	2.5	0.57	0.38	4663-4013
63.5	2 1/2	68.3	2.69	0.03	5	0.14	20	10.1	3	64	2.5	0.60	0.40	4663-4014
66.7	2 5/8	71.5	2.81	0.03	5	0.14	20	10.1	3	71	2.8	0.62	0.42	4663-4015
69.9	2 3/4	74.7	2.94	0.03	5	0.14	20	10.1	3	71	2.8	0.65	0.44	4663-4016
76.2	3	81.0	3.19	0.03	5	0.14	20	10.1	3	76	3	0.71	0.48	4663-4017
88.9	3 1/2	93.7	3.69	0.03	5	0.14	20	10.1	3	89	3.5	0.83	0.56	4663-4018
92.1	3 5/8	96.8	3.81	0.03	5	0.14	20	10.1	3	102	4	0.86	0.58	4663-4019
101.6	4	106.4	4.19	0.03	5	0.14	20	10.1	3	102	4	1.09	0.73	4663-4020
114.3	4 1/2	119.1	4.69	0.03	5	0.14	20	10.1	3	127	5	1.21	0.81	4663-4021
127.0	5	131.8	5.19	0.03	5	0.14	20	10.1	3	152	6	1.34	0.90	4663-4022
139.7	5 1/2	144.5	5.69	0.03	5	0.14	20	10.1	3	152	6	1.47	0.99	4663-4023
152.4	6	157.2	6.19	0.03	5	0.14	20	10.1	3	**	**	1.59	1.07	4663-1491 ***
177.8	7	182.6	7.19	0.03	5	0.14	20	10.1	3	**	**	1.86	1.25	4663-3992 ***

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

\*\*\* Not stocked. Minimum order quantity applies.

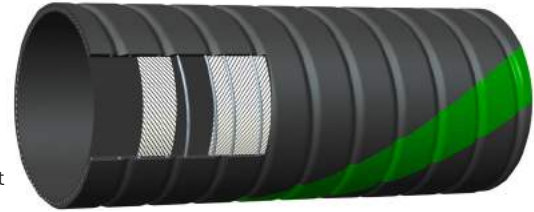
**4663J (163SB)**
**WIRE REINFORCED, OIL RESISTANT, AIR HOSE**


- 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 115 - 119]

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	24.6	0.97	0.14	20	0.55	80	50.7	15	25	1	0.25	0.17	4663-1516***
25.4	1	31.0	1.22	0.14	20	0.55	80	50.7	15	25	1	0.33	0.22	4663-1518***
31.8	1 1/4	37.3	1.47	0.14	20	0.55	80	50.7	15	25	1	0.43	0.29	4663-1530***
34.9	1 3/8	40.6	1.60	0.10	15	0.41	60	50.7	15	38	1.5	0.49	0.33	4663-3321***
38.1	1 1/2	45.5	1.79	0.10	15	0.41	60	50.7	15	38	1.5	0.52	0.35	4663-1540***
41.3	1 5/8	47.2	1.86	0.10	15	0.41	60	50.7	15	46	1.8	0.55	0.37	4663-1543***
44.5	1 3/4	50.3	1.98	0.10	15	0.41	60	50.7	15	46	1.8	0.60	0.40	4663-3954***
47.6	1 7/8	53.6	2.11	0.10	15	0.41	60	50.7	15	46	1.8	0.64	0.43	4663-1548***
50.8	2	56.6	2.23	0.10	15	0.41	60	50.7	15	51	2	0.65	0.44	4663-1550***
54.0	2 1/8	61.0	2.40	0.07	10	0.28	40	50.7	15	64	2.5	0.70	0.47	4663-3461***
57.2	2 1/4	63.0	2.48	0.07	10	0.28	40	50.7	15	64	2.5	0.73	0.49	4663-1556***
60.3	2 3/8	66.3	2.61	0.07	10	0.28	40	50.7	15	64	2.5	0.77	0.52	4663-1560***
63.5	2 1/2	69.3	2.73	0.07	10	0.28	40	50.7	15	64	2.5	0.82	0.55	4663-1565***
66.7	2 5/8	72.6	2.86	0.07	10	0.28	40	50.7	15	76	3	0.85	0.57	4663-1615***
69.9	2 3/4	75.7	2.98	0.07	10	0.28	40	50.7	15	178	7	0.94	0.63	4663-3456***
76.2	3	82.0	3.23	0.07	10	0.28	40	23.7	7	254	10	0.97	0.65	4663-1570***
79.4	3 1/8	85.1	3.35	0.07	10	0.28	40	23.7	7	254	10	1.01	0.68	4663-1569***
88.9	3 1/2	94.7	3.73	0.07	10	0.28	40	23.7	7	254	10	1.12	0.75	4663-1575***
101.6	4	107.4	4.23	0.07	10	0.28	40	23.7	7	305	12	1.26	0.85	4663-1580***
114.3	4 1/2	120.1	4.73	0.07	10	0.28	40	23.7	7	305	12	1.56	1.05	4663-1589***
127.0	5	132.8	5.23	0.07	10	0.28	40	20.3	6	305	12	1.73	1.16	4663-1595***
139.7	5 1/2	145.5	5.73	0.07	10	0.28	40	20.3	6	305	12	1.89	1.27	4663-3454***
152.4	6	158.2	6.23	0.06	8	0.22	32	20.3	6	381	15	2.07	1.39	4663-1599***

\*\*\* Not stocked. Minimum order quantity applies.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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.

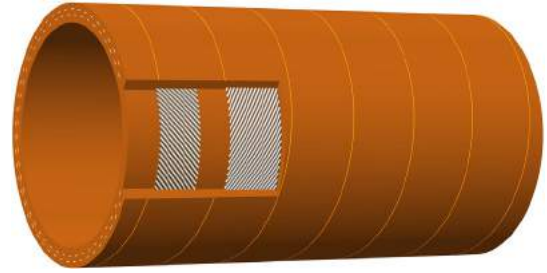
 **Construction** Neoprene tube, synthetic fabric reinforcement with two helical wires, neoprene cover.

 **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 115 - 119)

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	107.4	4.23	0.07	10	0.28	40	23.7	7	305	12	1.32	0.89	4663-4046
114.3	4 1/2	120.1	4.73	0.07	10	0.28	40	23.7	7	305	12	1.49	1.00	4663-4047
127.0	5	132.8	5.23	0.07	10	0.28	40	20.3	6	305	12	1.64	1.10	4663-4048
139.7	5 1/2	145.5	5.73	0.07	10	0.28	40	20.3	6	305	12	1.80	1.21	4663-4049

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4171H**
**HIGH TEMPERATURE SILICONE AIR HOSE**


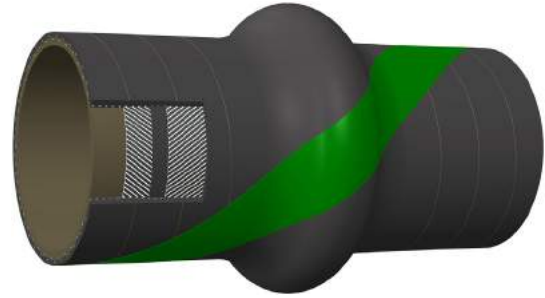
- Relative Cost** ●●●●○
- Applications** Turbo hose or connector.
- Temperature** -40°C to +288°C [-40°F to +550°F] continuous.
- Standards** None.
- Construction** Orange silicone tube, high temperature fabric reinforcement plies, orange silicone cover with wrapped appearance.
- Packaging** Bulk lengths are 10 foot coil in a box. Custom lengths available with minimum order quantity.
- Couplings** Hose bead fitting fastened with hose clamps. [pages 115 - 119]

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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts



**4177W (GREEN STRIPE) / 4177C**
**OIL RESISTANT HUMP 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 115 - 119]

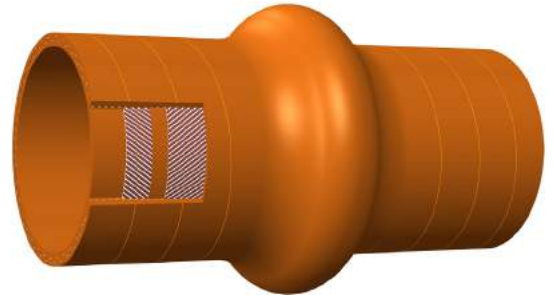
ID		OD Nominal		OD Hump		Length		Work. Press. Max.		Burst Minimum		Gates Item No.	Inter-change No.
mm	in.	mm	in.	mm	in.	mm	in.	MPa	psi	MPa	psi	P/N	
31.8	1 1/4	41.7	1.64	56.4	2.22	101.6	4	0.47	69	1.90	275	3177-0027	23505
34.9	1 3/8	44.8	1.76	61.2	2.41	127.0	5	0.43	63	1.72	250	3177-0034	23511
38.1	1 1/2	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

\* Unreinforced hose - not rated for pressurized applications.

Coolant  
Fuel  
Oil  
SCR  
DEF  
Exhaust  
Air  
Refrigerant  
Brake  
Accessories  
Belts

**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 115 - 119)

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

## STEEL / ALUMINUM TUBE ASSEMBLIES

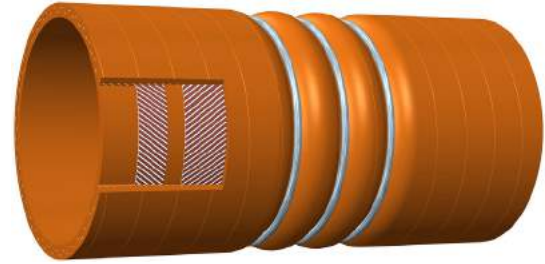


- Relative Cost** ●●●●○
- Applications** Hot or cold side charge air, coolant, low pressure hydraulic, or oil applications.
- Temperature** Depends on hose connectors.
- Standards** ASTM A787 aluminized steel, A513 stainless steel, 6061-P4 aluminum, many more...
- Construction** Steel, aluminized steel, 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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4177**

## HIGH TEMPERATURE SILICONE HUMP AND RING HOSE

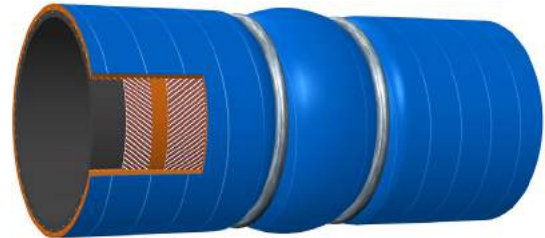


- Relative Cost** ●●●●●
- Applications** Vibration dampening connector for turbocharger or charge air cooler. Also suitable for coolant. Not for oil or fuel exposure.
- Temperature** -54°C to +260°C [-65°F to +500°F].
- Standards** Material per SAE J20 Class A.
- Construction** Multiple plies of silicone 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 t-bolt clamps or spring-loaded t-bolt clamps. [pages 117]

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.	
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

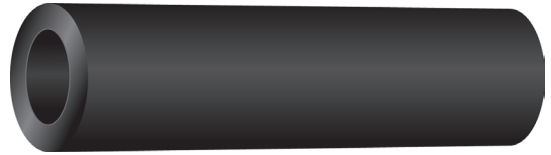
**4177**

## 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. [page 117]

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.	
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

**4040A**
**STANDARD WINDSHIELD WIPER/ VACUUM TUBING**


- 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. [page 115]

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 +.64/- .51	7/64 +.025/- .020	3.2	1/8	5.6 ±0.8	0.22 ±0.03	0.17	25	81	24	38	1.5	0.021	0.014	305	1000	4040-0260	4040-4101
3.9 ±0.40	5/32 ±0.016	4.8	3/16	7.9	0.31	0.17	25	81	24	38	1.5	0.043	0.029	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	0.078	0.053	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	0.086	0.058	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	0.094	0.063	244	800	4040-0370	
9.5	3/8	11.1	7/16	15.9	0.63	0.17	25	81	24	76	3	0.150	0.101	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 115 - 119]

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**4040T**
**HIGH TEMPERATURE SILICONE VACUUM TUBING**

**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. [page 115]

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.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

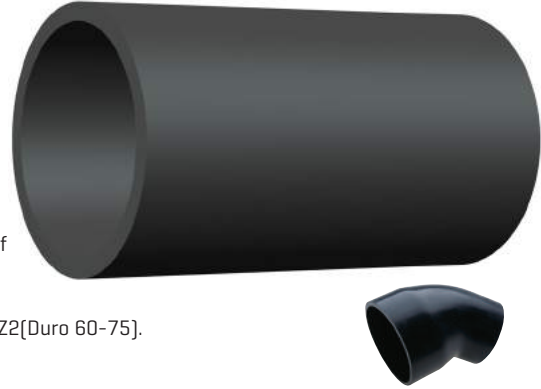
**7736**
**AIR INTAKE HOSE - STANDARD SHAPES**


- 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 115 - 119]

ID		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	133.4 x 133.4	5.25 x 5.25	90	7736-1050
88.9	3 1/2	133.4 x 133.4	5.25 x 5.25	45	7736-1051
88.9	3 1/2	139.7 x 139.7	5.50 x 5.50	90	7736-1052*
127.0	5	133.4 x 133.4	5.25 x 5.25	45	7736-1026
127.0	5	152.4 x 152.4	6.00 x 6.00	90	7736-1025
139.7 x 152.4	5 1/2 x 6	177.8 x 177.8	7.00 x 7.00	90	7736-1063
152.4	6	165.1 x 165.1	6.50 x 6.50	45	7736-1028*
152.4	6	190.5 x 190.5	7.50 x 7.50	45	7736-1058*
152.4	6	177.8 x 177.8	7.00 x 7.00	90	7736-1029*
177.8	7	190.5 x 190.5	7.50 x 7.50	90	7736-1033

\* Ribbed exterior surface for added vacuum resistance.

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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 M4CA 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 115 - 119]

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 115 - 119]

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 ±0.76	0.250 ±0.03	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 ±1.27	0.200 ±0.05	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.

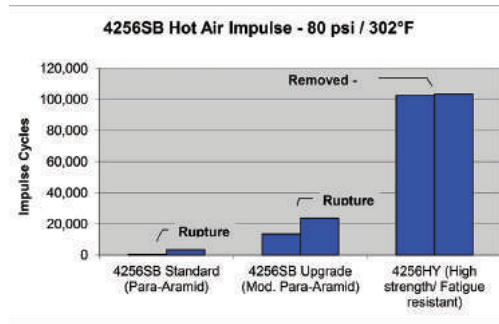
\*\* Not a specification requirement. See the hose design section. Can be increased with a wire coil inserted in the hose ID.



## 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



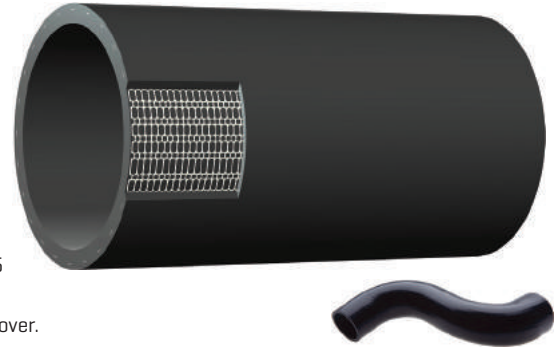
- > EPDM rubber with Gates hybrid reinforcement [4256NP, page 104].
- > CPE oil-resistant rubber with Gates hybrid reinforcement [4278AA, page 105].

#### Hot side (200+°C) CAC hose



- > Silicone rubber connector with fiberglass reinforcement [4171H, page 93].
- > Silicone hump and ring connectors, with or without oil resistant liner [4177, page 96].
- > Other made-to-order solutions available.



**4256NP / 4256PM**
**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. [page 117]

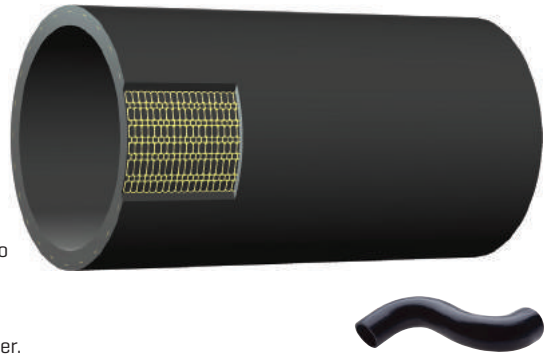
ID		Wall Nominal		Burst Minimum		Vacuum Min.**		Expanded End ID*		Weight Nominal	
mm	in.	mm	in.	MPa	psi	kPa	inch Hg	mm	inch	kg/m	lbs/ft
57.2 ± 0.8	2 1/4 ± 0.03	5.7 ± 1.4	0.225 ± 0.055	0.76	110	**	**	73.2	2.88	0.98	0.66
63.5	2 1/2	5.70	0.225	0.76	110	**	**	82.6	3.25	1.08	0.72
66.7	2 5/8	5.70	0.225	0.76	110	**	**	87.6	3.45	1.28	0.86
76.2 ± 1.6	3 ± 0.06	5.70	0.225	0.76	110	**	**	99.1	3.90	1.43	0.96
88.9	3 1/2	5.70	0.225	0.76	110	**	**	101.6	4.00	1.70	1.14
101.6	4	5.70	0.225	0.76	110	**	**	114.3	4.50	1.92	1.29
101.6***	4	6.5 ± 1.5	0.255 ± 0.060	0.93	135	**	**	114.3	4.50	2.48	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.

\*\*\*4256PM specification

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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. [page 117]

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	5.7 ±1.4	0.22 ±0.06	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.

\*\*\* Contact Gates for availability

Coolant



Fuel



Oil



SCR



Exhaust



Air



Refrigerant



Brake



Accessories



Belts



# REFRIGERANT

## Air Conditioning (Refrigerant)

3253 [Polarseal II].....Thin wall refrigerant hose.....	107
3253 [Polarseal].....Standard refrigerant hose.....	107
Tube assemblies available.....	66, 95

## Air Conditioning Duct

7768.....Low cost, thin propylene - ethylene with PP helix.....	89
---	----

## Air Conditioning Condensate Drain

4040A.....Unreinforced EPDM.....	97
7744 FoodMaster® PVC clear.....See Gates Industrial Hose Catalog	

Also see: Coolant hose section

Coolant
Fuel
Oil
SCR
DEF
Exhaust
Air
<b>Refrigerant</b>
Brake
Accessories
Belts

## 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		Bend Rad. Min.		Weight Nominal		Gates Item Number	Bulk Length		Gates Item Number
Dash	mm	inch	mm	inch	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	50ft. length	mm	ft	Bulk Length
-6	8	5/16	7.8/8.6	.31/.34	18.3/19.8	0.62	2.41	350	9.65	1400	38	1.5	0.17	0.12	3353-5007	152.4	500	3353-5006
-8	10	13/32	10.2/11.1	.40/.44	22.2/23.8	0.74	2.41	350	9.65	1400	51	2	0.22	0.146	3353-5009	152.4	500	3353-5008
-10	13	1/2	12.4/13.6	.49/.54	24.6/26.2	0.83	2.41	350	9.65	1400	64	2.5	0.25	0.168	3353-5011	91.4	300	3353-5010
-12	16	5/8	15.6/16.8	.62/.66	27.8/29.4	0.96	2.41	350	9.65	1400	76	3	0.39	0.264	3353-5013	76.2	250	3353-5012
-16	22	7/8	15.6/16.8	.62/.66	27.8/29.4	1.23	2.41	350	9.65	1400	102	4	0.59	0.394	3353-5017	30.5	100	3353-5016

## 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** CR, 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		Bend Rad. Min.		Weight Nominal		Gates Item Number	Bulk Length		Gates Item Number
Dash	mm	inch	mm	inch	mm	inch	MPa	psi	MPa	psi	mm	inch	kg/m	lbs/ft	25ft. length	mm	ft	Bulk Length
-6	8	5/16	7.8/8.6	.31/.34	18.3/19.8	.72/.78	3.45	500	13.8	2000	51	2	0.30	0.20	3353-0901	103.6	340	3353-0903
-8	10	13/32	10.2/11.1	.40/.44	22.2/23.8	.88/.94	3.45	500	13.8	2000	76	3	0.42	0.28	3353-0906	71.6	235	3353-0908
-10	13	1/2	12.4/13.6	.49/.54	24.6/26.2	.97/1.03	3.45	500	13.8	2000	102	4	0.48	0.32	3353-0911	64.0	210	3353-0913
-12	16	5/8	15.6/16.8	.62/.66	27.8/29.4	1.09/1.16	3.45	500	13.8	2000	127	5	0.57	0.38	3353-0916	53.3	175	3353-0918



# BRAKE

## Air Brake, Air Compressor

3245E .....	Standard .....	109
3245T .....	Low temperature .....	109
3658C [C5C] .....	Higher pressure, wire braid reinforced, use field-attachable couplings .....	110
3658E [C5E] .....	Higher pressure and temperature, wire braid, use field-attachable couplings .....	111
4657DT [MegaTech 1000] .....	High pressure and temperature .....	111
7752 [C14] .....	Very high temperature PTFE tube, stainless steel braid cover .....	112
4657AB [TR500] .....	Higher temperature, wire braid, crimped couplings, DOT registration required .....	110

## Vacuum Brake

3276 .....	Standard automotive vacuum brake .....	112
4327 [NABT] .....	Nylon air brake tubing, color coded .....	113 - 114

## Tube Assemblies

.....66, 67, 95

Coolant

Fuel

Oil

SCR

DEF

Exhaust

Air

Refrigerant

**Brake**

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, 2-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	
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

**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. 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	3245-4468
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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 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.

**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
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

## 4657AB (TR500)

### HIGH TEMPERATURE OIL/AIR HOSE



**Relative Cost** ●●●○○

**Applications** Air brake, pressurized hot oil return lines and rotary oil/air compressor lines. Not for biodiesel, gasoline, or diesel fuel.

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

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

**Construction** Nitrile 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** GLP and 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	in.	dash	mm	in.	MPa	psi	MPa	psi	mm	in.	kg/m	lbs/ft	meters	feet	Bulk Length
6.4	1/4	-4	12.8	0.51	3.45	500	13.79	2000	25	1	0.18	0.12	76	250	4657-2228
9.5	3/8	-6	17.3	0.68	3.45	500	13.79	2000	46	1.8	0.28	0.19	107	350	4657-2520
12.7	1/2	-8	20.3	0.80	3.45	500	13.79	2000	58	2.3	0.34	0.23	107	350	4657-2521
15.9	5/8	-10	23.6	0.93	3.45	500	13.79	2000	71	2.8	0.43	0.29	91	300	4657-2229
22.2	3/4	-12	26.4	1.04	3.45	500	13.79	2000	89	3.5	0.51	0.34	61	200	4657-2230
25.4	1	-16	33.0	1.30	3.45	500	13.79	2000	114	4.5	0.67	0.45	46	150	4657-2231

**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 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.

**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
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 +150°C [-40°F to +302°F]. Phosphate esters fluids as recommended by the fluid mfr. 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 length. 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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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 such as turbo oil supply and drain.
- 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.

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. [page 115]

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 [except burst].



**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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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



SCR



DEF



Exhaust



Air



Refrigerant



Brake



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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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	Component Number	Part Ref.	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	0056-0043	SB15	32915
9.5	3/8	17.5 to 20.6	11/16 to 13/16	19.1	0.75	7405-4002	0056-0063	SB19	32919
12.7	1/2	20.6 to 23.8	13/16 to 15/16	19.1	0.75	7405-4003	0056-0083	SB22	32922
15.9	5/8	23.8 to 27.0	15/16 to 1 1/16	25.4	1	7405-4004	0056-0105	SB25	32925
19.1	3/4	27.0 to 30.2	1 1/16 to 1 3/16	25.4	1	7405-4005	0056-0125	SB29	32929
22.2	7/8	30.2 to 33.3	1 3/16 to 1 5/16	25.4	1	7405-4017	0056-0145	SB32	32932
25.4	1	33.3 to 38.1	1 5/16 to 1 1/2	25.4	1	7405-4006	0056-0165	SB34	32934
31.8	1 1/4	38.1 to 44.5	1 1/2 to 1 3/4	31.8	1.25	7405-4007	0056-0205	SB41	32941
38.1	1 1/2	44.5 to 50.8	1 3/4 to 2	31.8	1.25	7405-4008	0056-0245	SB48	32948
44.5	1 3/4	50.8 to 57.2	2 to 2 1/4	31.8	1.25	7405-4009	0056-0285	SB54	32954
50.8	2	57.2 to 63.5	2 1/4 to 2 1/2	31.8	1.25	7405-4010	0056-0325	SB60	32960
57.2	2 1/4	63.5 to 69.9	2 1/2 to 2 3/4	38.1	1.5	7405-4011	0056-0365	SB67	32967
63.5	2 1/2	69.9 to 76.2	2 3/4 to 3	38.1	1.5	7405-4012	0056-0405	SB73	32973
69.9	2 3/4	76.2 to 82.6	3 to 3 1/4	38.1	1.5	7405-4013	0056-0445	SB79	32979
76.2	3	82.6 to 88.9	3 1/4 to 3 1/2	38.1	1.5	7405-4014	0056-0485	SB86	32986
79.4	3 1/8	88.9 to 92.1	3 1/2 to 3 5/8	38.1	1.5	7405-4015	0056-0505	SB90	32990

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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.



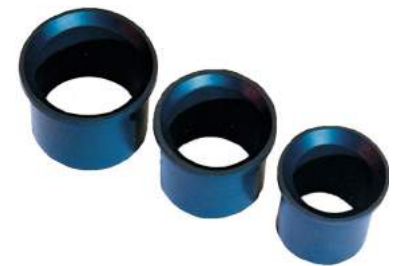
**Couplings** Clamps hose onto beaded, barbed, or straight fittings.

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.

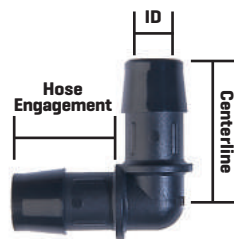
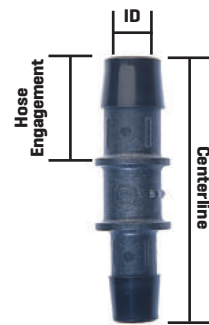
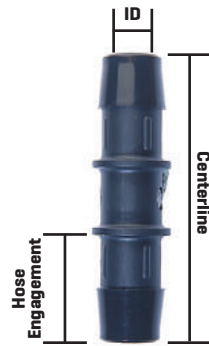
**Temperature** -40°C to +250°C [-40°F to +480°F].

**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. [pages 115 - 119]

Fits Hose I.D.		Connector I.D.		Length on Centerline		Hose Engagement Length		Gates Item Number
mm	inch	mm	inch	mm	inch	mm	inch	
<b>Straight Connectors</b>								
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
15.9	5/8	10.9	0.43	62.5	2.46	30.0	1.18	0052-5207**
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
44.5	1 3/4	44.5	1.75	76.2	3.00	36.8	1.45	0052-5545**
<b>Straight Reducer Connectors</b>								
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
<b>Elbow Connectors</b>								
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

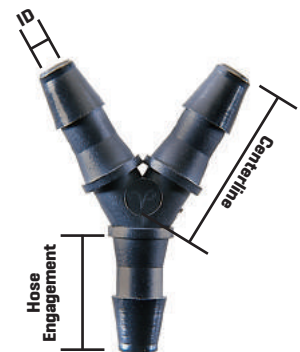
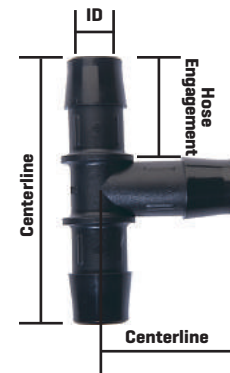


\*Nylon material [not glass-filled]

## 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	
<b>Tee Connectors</b>								
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	32919
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
<b>Reducer Tee Connectors</b>								
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
22.2 x 15.9	7/8 x 5/8	22.1 x 15.9	7/8 x 5/8	82.6 x 39.62	3.25 x 1.56	25.4 x 26.9	1.00 x 1.06	0052-5584 **
25.4 x 6.4	1 x 1/4	20.2 x 6.4	0.87 x 0.25	76.2 x 31.8	3.00 x 1.25	37.8 x 20.3	1.32 x 0.80	0052-5592 **
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 12.7	1 1/4 x 1/2	31.8 x 12.7	1.25 x 0.50	86.1 x 49.7	3.39 x 1.95	30.4 x 26.9	1.20 x 1.06	0052-5594 **
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 **
<b>"Y" Connectors [60°, 150°, 150°]</b>								
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
15.9	5/8	14.0	0.55	30.0 x 47.5	1.18 x 1.87	27.9	1.10	28555
<b>Reducer "Y" Connectors [Straight Run With 45° branch]</b>								
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)

\*\* Not stocked. Minimum order quantity applies

Coolant



Fuel



Oil



SCR



DEF



Exhaust



Air



Refrigerant



Brake



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
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- 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

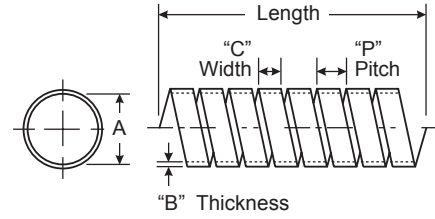


7277

## HOSE ABRASION GUARDS

### PLATED FLAT ARMOR SPRING GUARDS

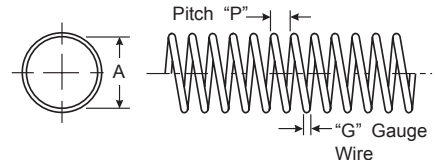
**Application** Zinc plated flat steel coil for resistance to high abrasion against flat surfaces. Typically used on high-pressure hydraulic or other steel reinforced hoses. Allow 0.8mm [1/32 inch] between the hose OD and guard ID for installation.



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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

## 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.



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

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

- Coolant
- Fuel
- Oil
- SCR
- DEF
- Exhaust
- Air
- Refrigerant
- Brake
- Accessories
- Belts

**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



SCR



Exhaust



Air



Refrigerant



Brake


 Access-  
ories


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.

Coolant



Fuel



Oil



SCR



Exhaust



Air



Refrigerant



Brake


 Acces-  
sories


Belts



**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



SCR



Exhaust



Air



Refrigerant



Brake


 Access-  
ories


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-Ordinance 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.

Coolant

Fuel

Oil

SCR

DEF

Exhaust

Air

Refrigerant

Brake

Accessories

Belts

**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.

Coolant



Fuel



Oil



SCR



Exhaust



Air



Refrigerant



Brake


 Access-  
ories


Belts



**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.
- P/N 7208-40205

**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 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.

**P/N:** 7480-6609.

**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"

**P/N:** 7480-6605.

Coolant



Fuel



Oil



SCR



Exhaust



Air



Refrigerant



Brake



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 and 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



SCR



Exhaust



Air



Refrigerant



Brake



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, head 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.

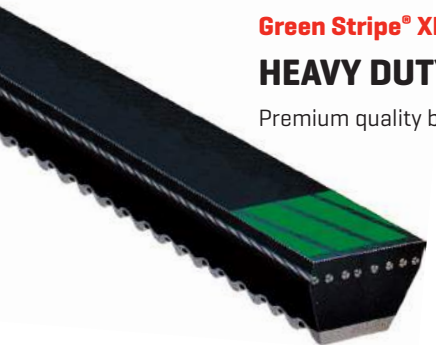


### Green Stripe® XL® V-Belts (North America)

#### 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.



## 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.

Coolant

Fuel

Oil

SCR

DEF

Exhaust

Air

Refrigerant

Brake

Accessories

Belts



## 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.

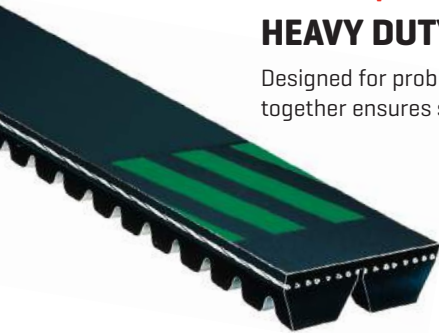


### Green Stripe® PowerBand® Belts (North America)

#### 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.

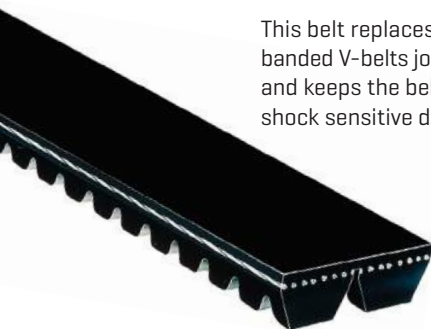


### Extra Service PowerBand Multiple V-Belt (Europe)

#### 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.

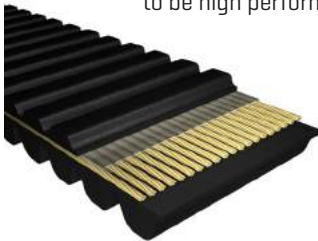


- Evenly distributed strand-to-strand distance provides better shock load absorption.
  - Molded cogs reduce bending stress, especially on small diameter pulleys, and help dissipate heat.
  - Unique tensile cord design gives extra strength, added flexibility and shock load resistance.
- Recommended for: heavy-duty automotive drives, subject to severe and problematic vibrations.

## RECREATIONAL V-BELTS

### G-FORCE® CVT BELTS

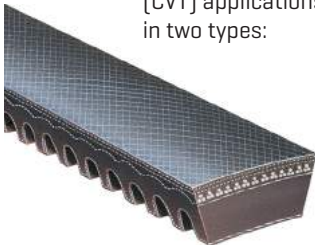
Gates G-Force® belts are the first of a new generation of Continuously Variable Transmission (CVT) belts. Designed using Finite Element Analysis (FEA) techniques, the latest construction, materials and measuring technology G-Force® drive belts are designed for superior fit, performance and durability 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



SCR



Exhaust



Air



Refrigerant



Brake



Accessories



Belts



## LAWN AND GARDEN V-BELTS

### BLADERUNNER® BELTS

Designed 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

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.

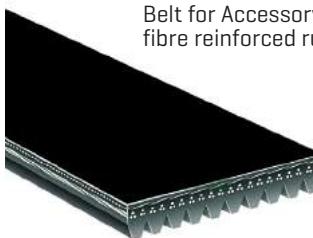


- Precision dimension control of rib profile transmits load efficiently throughout the ABDS allowing components to operate at optimum levels.
- Able to operate and accept misalignment in the ABDS system better than other serpentine belts.
- Flexible construction allows the belt to withstand billions of topside and backside bends resulting in long belt life.
- Meets or exceeds SAE J1459.

### Extra Service Mirco V Belt (Europe)

#### STANDARD SERPENTINE BELT

Belt for Accessory Belt Drive Systems (ABDS) and other serpentine belt applications. Designed using special aramid fibre reinforced rubber compound for improved abrasion resistance.



- 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.

### Century™ Series Micro-V® Dual-Sided Belt (North America)

#### HEAVY DUTY DUAL-SIDED SERPENTINE BELT

For equipment belts on serpentine drives that require a higher degree of efficiency when transmitting power. Designed for small diameter pulleys and for use with or without automatic tensioners.



- V-ribbed on both sides of the belt.
- Specially designed to resist wear and cracking due to overall reduced thickness in construction.
- Broad coverage on unique applications.
- Custom setup for Gates specialized solution kits for Serpentine drives that cause problems from the OEM.

Coolant

Fuel

Oil

SCR

DEF

Exhaust

Air

Refrigerant

Brake

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.

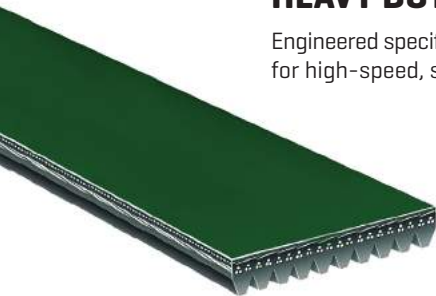


- Special belt constructions eliminate belt noise, reduce tension loss and solve problem drive applications.
- Extra heavy-duty construction resists cracking and wear.
- Precision ground to assure optimum belt-to-pulley fit.
- Special formation process for precise dimensional control.
- Reinforced with 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.

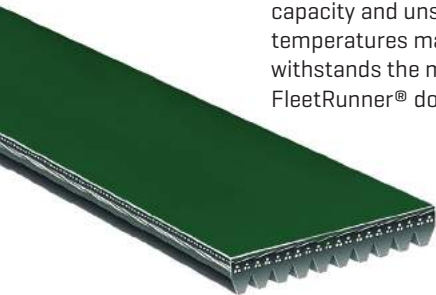


- Green back fabric provides extremely high resistance to wear.
- Polyester tensile cords guarantee low stretch and optimum load-carrying capacity at even the highest tensions.
- Aramid fibre-reinforced EPDM compound guarantees optimum resistance to high/low temperature, wear, pilling, oil drops and 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.

## 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



SCR



Exhaust



Air



Refrigerant



Brake



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.





**LIST BY KEYWORDS**

AdBlue	See SCR.	Diesel	See Fuel Fill, Fuel Line, or Fuel Tank.
Air Brake	Page 109 to 112, [3245E, 3245T, 3276, 3658C, 7657AB, 3658E, 4327, 4657DT, 7752] Also see Vacuum Brake.	DIN 73379	Page 53, 54. [3225ST, 4324]
Air Cleaner	See Air Intake/Inlet.	DIN 73411	Page 22, 39. [4272, 3230]
Air Compressor	Compressed air or brake supply - see Air Brake. Compressor supply from charge air - see Coolant, Small Diameter.	DPF Sensor	Page 98. [4040T]
Air Conditioning	Page 107. [3353]	EGR	See Exhaust Gas Recirculation.
Air Duct	Page 89. [7768] Also see Air Intake, Coolant Hose, or Scavenge Hose.	Elbow	Coolant or air hose - page 40 to 43. [4261, 4278, 4281, 4177 [Elbows]]
Air Intake/Inlet	Straight - page 89 to 93. [7768, 4663A, 4663J, 4663G, 4171H] Hump - page 94 to 96. [4177W, 4177S, 4177] Formed - page 99 to 102. [7736, 4289E, 4289N] Also see Coolant section page 17 to 50.	Engine Oil	See Oil section.
ATAAC	See Charge Air Cooler.	EPDM	Straight - page 17 to 22, 29, 32, 33, 86, 87, 100, 104. [4175EC, 4178, 4175SC, 4175HT, 4176HD, 4272, 4685WG, 4254, 4284, 3137ME, 4686ME, 4289E, 4256NP, 4256PM]
Belt	V-Belt - page 134 to 139. PowerBand - 137 to 138. Recreational V-Belt - page 138, 139. Micro-V Serpentine - page 140, 141. Belt Accessories - page 142, 143.	Exhaust Gas Recirculation	Small Diameter - page 35 to 38, 97, 98, 109, 112. [4230T, 4230SB, 4230RS, 4230RK, 3269S, 3230, 4040A, 4251D, 3245E, 3276]
Biodiesel	Straight - page 52, 54 to 59, 61, 64. [4219G, 4219D, 4219BG, 4219BF, 4219BD, 4219, 4663K, 3658F] Formed - page 65. [4278BD]	Flexible	Hump - page 32, 33. [4254, 4284]
Brake	Also see Fuel Line - page 52 to 65 See Air Brake or Vacuum Brake. Brake fluid reservoir - page 35, 97. [4040A, 4251D, 4230T]. Hydraulic brake pressure line not supplied by Gates	Fuel Fill	Formed - page 45 to 50. [4280MH, 4280GN, 4276KR, 4256HY, 4256SB, 4256LS]
Caps	Radiator, fuel, oil - page 128 to 131.	Fuel Line	Peroxide cured - page 50, 82. [4256LS, 4217IS]
CAC [Charge Air Cooler]	Straight - page 93. [4171H] Also see Coolant section for cold side CAC only. Hump - page 94 to 96. [4177W, 4177S, 4177] Formed - page 48, 104, 105. [4256NP, 4256PM, 4278AA, 4256HY]	Gasoline	Coolant supply/return - see Coolant section. Exhaust air connection - page 96. [4177]
Clamp	Pages 115 to 119.	Government	See Wire Reinforced for highest flexibility in large diameters.
CNG [Compressed Natl Gas]	See Gates Industrial Hose Catalog 39496-000 for LP350, LP350x, and LPG Vapor.	Guard	Page 61, 62, 65, 78. [4663K, 4688CN, 4688AF, 4688AC, 4278BD, 4278, 4278CN]
Cold Side CAC	See Charge Air Cooler.	Heater	Straight - pages 52 to 60, 63, 64, 70, 71, 111. [4219G, 3225ST, 4324, 4219D, 3284AC, 4219BG, 4219BF, 4219BD, 4327DT, 4327FT, 4659, 4219M, 4219N, 4219BM, 3658F, 3658D, 3658BC, 3658E]
Coolant Bottle	Page 97. [4040A, 4251D]. Also see Coolant section.	Hot Side CAC	Formed - page 61, 62, 65, 78. [4278CN, 42780B, 4278BD, 4278SS]
Coolant	Straight - page 17 to 33, 86, 87. [4175EC, 4178, 4175SC, 4175HT, 4176HD, 4272, 4169A, 4176Y, 4179G, 4169G, 4171, 3137ME, 4685WG, 4684CF, 4686ME, 4684S, 4254, 4284] Small Diameter [Heater Hose] - page 35 to 39, 69, 72. [4230T, 3270, 4230SB, 3269S, 3230, 4230S, 3231, 3319HT, 3319CA, 4657AM] Hump - page 34. [4177W] Formed - page 40 to 50. [4280MH, 4280GN, 4276KR, 4256HY, 4256SB, 4256LS, 4256VT, 4261, 4278, 4177]	LP [Liquid Propane]	See Gates Industrial Hose Catalog.
Crank Case Vent	Straight - page 52 to 57, 63, 77. [4219G, 3225ST, 4324, 4219D, 4219BD, 4219M, 4219N, 3283LF] Formed - page 77 to 80. [4278, 4278CN, 4278SS]	Marine	Submersible in-tank - page 59. [4219]
DEF [Diesel Emission Fluid]	See SCR.	Micro-V Belt	See Fuel Fill, Fuel Line, or Fuel Tank.
DEF Heater Hose	See Heater.	Military	See Gates Government Hose Catalog
		Motor Oil	See Oil section.
		Mud Flap	See Splash Guard.
		Nitrile	Very common type of rubber in most fuel, oil, and some coolant hoses.

## LIST BY KEYWORDS

Nylon	See Tubing (Plastic).	SAE 30R13	Biodiesel fuel line - page 57. [4219BF, 4219BD]
Oil	Straight - pages 52 to 55, 57, 60 to 65, 69 to 77. [4219G, 3225ST, 4324, 4219D, 3284AC, 3284SS, 4219BD, 4219M, 4219N, 4659, 3658F, 4278, 3319HT, 3319CA, 3658BD, 3658BC, 4219HT, 4319, 3317LC, 3317LE, 3317AB, 3283SA, 3283LF]	SAE 30R14	Low permeation fuel hose with barrier layer - page 55, 57. [4219BF, 4219BG]
	Straight Large Diameter - page 23, 24, 30, 61, 62. [4663K, 3317AB, 4169A, 4176Y, 4684CF]	SAE J189	Power steering return line - page 76, 77. [3283SA, 3283LF]
	Formed - page 65, 78, 79, 80. [4278CN, 4278, 42780B, 4278BD, 4278SS]	SAE J200	Specification for classifying rubber types by their heat and oil resistance.
	High Pressure - page 69 to 74. [3658D, 3658BC, 4657AM, 4657DT, 4657PS, 4657JT, 4657TB]	SAE J844	Air Brake Tubing - page 113. [NABT]
	Very High Pressure - See Gates Hydraulic Catalog. Page 131.	SAE J1402, J1043, J1405	Fuel Tubing - Page 58, 59 [4327DT, 4327FT]
Oil Cap		SAE J1527	Air brake hose, page 70, 109 to 112. [3658D, 3245E, 3245T, 3658C, 7657AB, 3658E, 4657DT, 3276]
Oil Cooler	Coolant Lines - See Coolant section.	SAE J2006	Marine Fuel Hose - page 63, 64. [4219M, 4219N, 4219BM, 3658F]
	Oil Lines - See Oil section.	Scavenge Hose	See Marine, Wet Exhaust.
Oil Drain	Servicing engine, hydraulic, or other oil systems - see Engine Oil section.		See Coolant section or see Gates Industrial Hose Catalog Material Handling section or Master-Flex® Vapor Recovery.
	Turbo oil return, see Turbo Oil Drain.	SCR	Heated line with couplings - page 83. [4202]
PCV	See Crank Case Vent.		Tank fill/vent - page 59, 82, 113. [4217IS, 4256PC, 4327FT, 4327]
Plastic	Tubing for air brake - page 113. [4327 NABT]	Serpentine Belt	See Micro-V Belt.
	Tubing for fuel - page 58, 59. [4327DT, 4327FT]	Silicone	Page 27, 28, 31, 39, 42, 43, 93, 95, 96, 98. [4171, 4684S, 3230, 3231, 4281, 4177 (Elbows), 4171H, 4040T, 4177S, 4177 Hump & Ring]
PowerBand Belt	Page 137.	Silicone Tubing	Page 98. [4040T]
PowerGrip Clamp	Page 118, 119.	Sleeve	Page 122 to 125.
Power Steering	Return/Reservoir - page 76, 77. [3283SA, 3283LF]	Splash Guard	Page 132.
	Supply - page 75. [3317LC, 3317LE, 3317AB]	Static Strap	Page 132.
Propane	See Gates Industrial Hose Catalog for LP350, LP350X and LPG Vapor.	Suction (Hydraulic)	See Hydraulic Oil.
		Transmission Oil Cooler	Page 69, 71. [4219HT, 3319HT, 3319CA] Also see Oil section.
Racing Hose	Straight - page 60 [4659]	Tubing	Plastic - Page 113. [4327 (NABT)]
Radiator	See Coolant.	Turbo	Rubber - Page 97, 98. [4040A, 4040T]
Radiator Cap	Page 128, 129.		For turbo air inlet, see Air Intake/Inlet.
Reducer	Page 99, 119. [4261, 7736] Also see Formed hose for the specific application.	Turbo Oil Drain	For turbo air outlet, see Charge Air Cooler
			Turbo vacuum tubing - page 98. [4040T]
Return (Hydraulic)	Straight - pages 52, 54, 69, 71. [4219G, 4324, 3658BC, 4219HT, 3319HT]		Straight, high temperature - page 54, 77, 112. [4219D, 3283LF, 7752].
	Straight Large Diameter - page 23, 24, 30, 61, 62. [4663K, 4688CN, 4688AF, 4688AC, 4169A, 4176Y, 4684CF]		Formed, high temperature - page 76. [4278SS].
	Formed - page 77 to 80. [4278CN, 4278, 42780B, 4278SS]		Also see Oil section.
	High Pressure - See Gates Hydraulic Catalog.	USCG	See Marine section.
SAE 20R1	Coolant hose - page 17 to 21, 23 to 28. [4175EC, 4178, 4175SC, 4175HT, 4176HD, 4169A, 4176Y, 4179G, 4169G, 4171]	Vacuum Brake	Page 112. [3276]
		Vacuum Tubing	Page 97, 98. [4040A, 4251D, 4040T]
SAE 20R2	Coolant hose with embedded wire - page 29 to 31. [4685WG, 4684CF, 4684S]	V-Belt	Page 134 to 139.
		Water Pump	Page 143.
SAE 20R3	Small ID coolant hose.	Wet Exhaust	Page 30, 78, 86, 87. [3137ME, 4686ME, 4684CF, 4278CN]
	Straight - page 35 to 39. [4230T, 3270, 4230SB, 4230RS, 4230RK, 3269S, 3230, 4230S, 3231]	Windshield Wiper Tubing	Page 97. [4040A, 4251D]
	Formed - page 45, 46, 47, 49, 50. [4280MH, 4280GN, 4276KR, 4256SB, 4256LS]	Wire Reinforced	Coolant and water, embedded helix - page 29, 30, 31, 33, 87. [4685WG, 4684CF, 4684S, 4284, 4686ME]
SAE 20R4	Coolant hose.		Inserted helix - page 32. [4254]
	Straight - page 22. [4272]		Air - embedded helix - page 90 to 92. [7768, 4663A, 4663J, 4663G]
	Formed - page 45 to 50. [4280MH, 4280GN, 4276KR, 4256HY, 4256SB, 4256LS]		External braid - page 112. [7752]
SAE 20R5	Coolant hose with wire reinforcement - page 32, 33. [4254, 4284]		Ring reinforced - page 96. [4177]
			Fuel / oil - embedded helix - page 61, 87. [4663K, 4686ME]
SAE 30R2	Higher pressure fuel/oil hose - page 55, 79. [3284AC, 3284SS, 42780B]		Wire braid - page 64, 70 to 74. [3658F, 3658F, 3658D, 3658BC, 4657AM, 4657DT, 4657PS, 4657JT, 4657TB]
			Brake, air - page 110, 111. [3658C, 4657AB, 3658E, 4657DT]
SAE 30R5	Wire Reinforced Fuel / Oil Fill hose - page 61. [4663K]		
SAE 30R6	Fuel/oil vent or fill - page 52, 78. [4219G, 4278CN]		
SAE 30R7	Fuel/oil vent or fill - page 52, 53, 78. [4219G, 4219XL, 3225ST 4278CN]		
SAE 30R9	Lower permeation fuel hose - page 54. [4219D]		
SAE 30R10	In-Tank / Submersible Fuel - page 59. [4219]		



## 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 11]

HT suffix – High temperature resistant rubber [ $>125^{\circ}\text{C}$ ]

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  $100^{\circ}\text{C}$

SAE 30R5 – Wire helix embedded fuel fill hose

SAE 30R6 – Low pressure, to  $100^{\circ}\text{C}$

SAE 30R7 – Low pressure, to  $125^{\circ}\text{C}$

SAE 30R9 – Fuel injection pressures, to  $135^{\circ}\text{C}$

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]

Suffix requirements further define properties and material testing

Does not define tolerances or performance requirements for hoses

M3BC 707 – Temperature resistant to  $100^{\circ}\text{C}$  with medium oil resistant [i.e. neoprene]

M3CA 707 – Temperature resistant to  $125^{\circ}\text{C}$  with no oil resistant requirement [i.e. EPDM]

M3CE 810 or M5DE –  $150^{\circ}\text{C}$  with good oil resistance [i.e. CPE]

M2GE 705 –  $225^{\circ}\text{C}$  with good oil resistance [i.e. silicone]

M2HK 710 –  $250^{\circ}\text{C}$  with high oil resistance [i.e. FKM]

**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 =  $125^{\circ}\text{C}$

**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

**Deere JDS G253** – Biodiesel compatibility of hose and fittings

**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 144 - 145 for Gates hose types to meet these specifications.**





## NOTES





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