

If the airflow information is not available from the engine manufacturer, the calculations on page 7 may be helpful as you validate and specify mufflers and components.



For assistance in calculating engine flow, please contact Donaldson customer service.



The data on engines in this section is to be used as a reference only. If specifying a new muffler for an engine, Donaldson recommends that you acquire this information directly from the engine manufacturer. If you can not acquire the information from the engine manufacturer, we recommend that you calculate the flow based on our instructions on page 7.



**DO NOT** use this information for the selection of retrofit emissions devices.

For the most accurate engine flow specifications, Donaldson recommends using the flow rates specified by the engine manufacturer.

## Engine Manufacturers

- |                    |                      |
|--------------------|----------------------|
| Allis Chalmers     | Lombardini           |
| Case               | Mack                 |
| Caterpillar        | Mercedes-Benz        |
| Continental Motors | Mitsubishi           |
| Cummins            | MTU of North America |
| Detroit Diesel     | Navistar             |
| Deutz              | Nissan               |
| Ford               | Perkins              |
| Hatz Diesel        | Renault              |
| Hino               | Same                 |
| Isuzu              | Teledyne             |
| Iveco              | Volkswagon           |
| John Deere         | Volvo                |
| Kohler             | Waukesha             |
| Kubota             | White Eng            |
| Lister             | Yanmar               |



Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)
<b>ALLIS CHALMERS</b>				
10000	2200	145	265	
11000	2200	220	560	
16000	2100	250	420	
17000 MKII	2100	300	780	
2000	2100	59	97	
21000 MKII	2100	375	875	
213	3600	32	75	
2200	2100	55	97	
25000 MKII	2100	450	1050	
2800	2600	85	200	
2900	2600	135	340	
320	3600	53	114	
3400	2400	125	240	
3500	2400	175	380	
3700	2400	200	400	
426	3600	72	150	
433I	2400	100	247	
433T	2400	90	242	
6000	2200	104	218	
61000	2100	800	2300	
6138I	2100	450	1060	
6138LT	2100	325	790	
6138T	2100	375	875	
649I	2600	155	430	
649T	2600	135	390	
65000	2100	900	2400	
670I	2400	200	490	
670T	2400	175	460	
685I	2200	266	680	
685T	2200	220	555	
7000	2200	160	300	
D175	2200	52	85	
D262	2200	78	128	
D344	1800	88	143	

<b>CASE</b>					
301BD	2200	94	153	1000	414
336BD	2200	104	171	1000	462
336BDT	2200	126	267	850	648
451BD	2200	142	360	1000	973
451BDT	2200	181	380	900	957
504BD	2200	155	275	950	718
504BDT	2200	221	440	900	1108
504BDTI	2200	256	600	950	1567
A267D	2000	73	123	1000	333
A284	2000	136	1000	368	
A377	1800	139	1000	376	
A451D	2000	145	200	1000	541
G188	2000	49	82	1000	222
G188D	2250	62	138	1000	373

<b>CATERPILLAR</b>					
1160	2800	225	410	1050	1146
1673T	2200	250	600	950	1567
1674TA	2200	270	690	900	1738
1693TA	2100	1080	900	2720	
3116	2600	200	618	856	1511
	2600	250	713	867	1755
	2450	275	685	929	1773
	2600	300	745	984	2006

Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
3126B	2200	175	1239	660	2640
	2300	190	1355	716	3017
	2200	210	1327	741	3031
	2200	230	593	808	1471
	2200	250	635	821	1595
	2200	275	649	867	1683
	2200	300	660	916	1778
	2400	330	709	931	1937
3140	2800	410		1000	1109
3145	2800	410		1050	1146
3150	2800	410		1000	1109
3160	2800	410		1080	1169
3176	1800	275	692	676	1458
	1800	300	738	693	1579
	1800	350	802	760	1819
	1800	365	805	808	1900
3204NA	2400	66	193	980	515
3208ATAC	up to 300	950			
3208N	2200	165	325	1076	930
3208NA	2800	210	410	1000	1109
3208T	2800	250	646	900	1627
	2200	215	591	855	1443
3208T-DIATAAC	2600	275	752	854	1837
	2800	300	871	874	2162
3208T-DIT	2600	250	649	976	1740
3304B	up to 165	950			
3304NA	2200	102	206	1050	576
3304T	2200	165	264	900	665
3306	1900	300	745	1019	2059
3306B	1800	285	745	825	1781
	1800	300	777	843	1887
3306NA	2200	150	325	950	849
3306T	2200	250	600	900	1511
	up to 300	850			
3306TA	2200	270	624	950	1629
3406	1900	425	1109	880	2758
3406B	1800	300	930	655	1917
	1800	330	986	705	2125
	1800	350	1016	739	2255
	1800	400	1052	753	2364
	1800	425	1077	806	2532
	1900	460	1108	847	2694
3406E	1800	355	967	762	2301
	1800	375	1023	899	2717
	1800	435	1066	901	2872
	1800	455	1083	919	2925
	1800	475	1105	937	3017
	1800	500	1119	954	3098
	1800	575	1164	959	3236
	1800	600	1164	959	3236
3406T	2100	339	910	900	2292
3406TA	2100	375	1000	900	2519
3408T	2100	425	980	900	2468
3408TA	2100	475	1220	900	3073
3412T	2100	650	1719	870	4234
3412TA	2100	750	2426	900	6420
3508	1800	1000	2490	900	6271
3512	1800	1500	3695	900	9306
3516	1800	2000	4830	900	12164
3606	1000	2475	5850	850	14192
3608	1000	3330	7235	800	16882
3612	1000	4950	11700	800	27300
3616	1000	6655	14470	800	33763
5.4-6	2000	437	1041	950	2718
5.4-8	1900	614	1477	950	3857

Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
5.4V12	1900	896	1936	900	4876
5.75-6	1330	317	780	950	2037
6.25-6	1375	440	1111	950	2901
C-10	1800	305	755	821	1888
	1800	335	766	918	2078
	1800	350	752	892	1997
	1800	370	766	918	2078
C-12	1800	335	805	876	2110
	1800	355	815	859	2121
	1800	380	826	898	2202
	1800	395	833	924	2265
	1800	410	836	937	2287
	1800	425	815	922	2220
	1800	430	826	948	2276
	1800	455	819	953	2269
C-15	1800	355	963	762	2294
	1800	375	1023	899	2714
	1800	435	1066	902	2830
	1800	455	1083	919	2925
	1800	475	1105	937	3017
	1800	500	1119	954	3098
C-16	1800	575	1154	941	3165
	1800	600	1164	959	3236
D330NA	2200	100	227	1050	635
D330T	2200	165	418	950	1091
D333NA	2200	150	349	1000	944
D333T	2200	250	613	900	1544
D334TA	2200	280	689	950	1799
D336TA	2200	350	895	950	2337
D342NA	1300	200	418	1050	1169
D342T	1300	300	887	950	2316
D343T	2000	315	786	950	2052
D343TA	2000	425	996	900	2508
D346TA	2000	565	1350	900	3400
D348TA	2000	850	2048	900	5158
D349TA	2000	1130	2827	900	7120
D353TA	1300	490	1091	900	2748
D379TA	1300	650	1501	900	3780
D398TA	1300	975	2323	900	5851
D399T	1300	1300	3009	900	7578

<b>CONTINENTAL MOTORS</b>					
E201	2400	104		1100	300
F124	2400	65		1100	188
F135	2000	40	58	1100	168
F140	2400	84		1100	243
F162	2400	60	84	1100	243
F186	2400	101		1100	292
F209	2400	109		1100	315
F226	2400	115		1100	332
F227	2400	78	116	1100	335
F244	2400	126		1100	364
F245	2400	88	127	1100	367
G134	2000	58		1100	168
G157	2000	68		1100	196
H227	2000	96		1100	277
H243	2000	104		1100	300
H260	2000	112		1100	324
J382	2000	160		1100	462
L478	2400	162	265	1100	766
M271	2400	141		1100	407
M290	2400	151		1100	436
M330	2400	172		1100	497
M363	2400	122	201	1100	581
N56	2200	27		1100	78
N62	2400	31		1100	90

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)
<b>CONTINENTAL MOTORS CONTINUED</b>				
R513	2400	267	1100	771
R572	2400	298	1100	861
R602	2400	191	313	1100
S749	2200	358	1100	1034
S802	2200	392	1100	1132
S820	2400	250	455	1100
T&B371	2400	193	1100	558
T&B427	2400	133	241	1100
U501	2400	260	1100	751
V603	2800	313	1100	904
Y112	2400	37	58	1100
Y69	2400	37	1100	107
Y91	2400	27	91	1100

<b>CUMMINS</b>				
Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)
3B2.9	2500	56	115	1000
4B3.9	2500	76	150	1050
4BT	2500	105	289	890
4BT	2500	120	336	970
4BT3.9	2500	100	253	1000
4BT3.9-G1	1800	86	147	850
4BT3.9-G2	1800	102	157	850
4BTA3.9	2500	120	298	900
6B5.9	2500	116	226	1000
6BT	2500	190	590	780
	2500	230	535	1031
	2300	230	520	910
6BT5.9	2500	152	381	900
6BT5.9-G1	1800	135	224	900
6BT5.9-G2	1800	166	285	900
6BTA5.9	2500	180	449	900
6C8.3	2500	316	1000	854
6CT	2300	250	570	930
	2200	300	742	1000
	2000	275	590	985
6CT8.3	2500	555	900	1398
6CTA8.3	2500	250	632	900
C-160	2500	153	300	900
C-180	2500	173	350	900
C-190	2500	190	495	900
FLEET 270	1600	270	710	900
FLEET 300	1600	300	765	900
	1600	300	710	900
Formula 240	1800	240	630	900
	1800	240	618	900
Formula 270	1800	270	720	900
Formula 300	1800	300	761	900
	1800	300	745	900
	1800	300	744	900
Formula 315	1800	315	735	900
Formula 350	1800	350	821	900
	1800	350	800	900
	1800	350	857	900
Formula 400	1900	400	1060	900
	1900	400	930	950
	1900	400	986	900
Formula 450	1900	450	1110	950
Formula L10-240	1900	240	522	900
	1900	240	580	900
	1900	240	585	900

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)
Formula L10-270	1900	270	556	900
	1900	270	618	900
	1900	270	606	900
Formula L10-300	1900	300	609	900
GNH-220-IP	1800	177	250	900
GNH-250-IP	1800	204	265	900
GV-12-525-IP	1800	408	580	900
ISB	2500	185	578	698
	2600	190	526	801
	2500	205	508	831
	2600	210	526	857
	2500	225	510	892
	2500	240	610	812
	2500	245	610	812
	2600	260	622	886
	2500	275	620	956
ISC	2400	225	708	706
	2400	240	721	746
	2400	260	743	765
	2200	285	682	833
	2200	300	688	860
	2200	315	682	919
	2200	330	693	927
	2200	350	706	966
ISL	2100	310	689	891
	2100	330	708	933
ISM	2100	280	777	670
	1800	310	734	721
	1800	330	773	742
	2100	350	888	720
	2100	370	918	737
	2100	400	918	737
	2100	425	855	969
	2100	450	974	789
	2100	500	940	965
ISX	1800	400	1063	655
	1800	450	1129	696
	2000	475	1126	842
	2000	500	1125	905
	2000	600	1227	975
KT-1150-C	2100	450	1130	900
KT-2300-C	2100	900	2400	880
KT-450	2100	450	1130	850
KTA-1150-C	2100	600	1400	900
	2100	525	1410	880
KTA-2300-C	2100	1200	2900	900
	2100	1050	2700	900
KTA-3067-C	2100	1600	3760	900
	2100	1350	3455	900
KTA-525	2100	525	1425	850
KTA-525-FORM	1900	525	1200	850
KTA-600	2100	600	1400	850
KTTA-19-C		650		900
KTTA-38-C		1350		900
KTTA-50-C		2000		900
L10	1700	260	615	745
	1700	280	640	760
	1600	310	638	825
	2100	270	670	900
	2100	300	659	900

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)
M11	1600	280	615	817
	1600	310	670	813
	1600	350	760	822
	1600	370	770	828
	1600	400	840	832
N-855-C	2100	220	460	850
	2100	235	460	850
N-927	1950	240	465	880
	2100	260	495	880
	2100	240	495	880
N14	1800	330	1014	657
	1800	400	1126	723
	2100	350	1212	606
	2100	370	1283	651
	2100	460	1329	737
	2100	500	1380	802
	2100	525	1380	802
	2100	410	1164	670
	2100	435	1302	714
	2100	550	1380	802
	2100	525	1380	802
NH-220	2100	212	470	900
NH-230	2100	220	460	900
NH-230S	1800	186	460	900
NH-250-M	2100	240	460	950
	1800	190	395	1050
	1800	200	395	900
	2100	210	460	900
NHC-250	2100	240	460	900
	2300	240	710	900
NHC-250-D	2100	240	460	900
NHD-230	2100	220	495	900
NHF-240	2300	230	505	900
NHF-265	2300	255	505	900
NHH-250	2100	240	460	900
NHHTC-335	2100	335	850	850
NHTF-295	2300	295	710	900
NT-335-M	1800	235	625	950
	1800	265	650	900
	2100	285	775	950
	2100	335	800	950
NT-380-M	2300	380	950	950
	2000	253	700	1000
	2000	300	750	900
	2300	320	900	980
NT-855-C	2100	310	895	880
	2100	280	860	850
	2100	250	825	850
	2100	335	920	900
	2100	335	900	900
	2100	280	820	900
	2100	250	680	880
	2100	310	835	900
NTA-370	1950	335	810	850
	2100	370	950	850
NTA-400	2100	400	1000	850
NTA-420	2300	420	1080	900
NTA-855-C	2100	400	1000	880
	2100	360	960	880
	2100	360	980	900
	2100	400	1050	900
NTC-270-CT	2100	240	740	850
	2100	225	760	900
	2100	270	825	900

Engine Exhaust Flow & Air Consumption Guide



EXHAUST FLOW REFERENCE

Table with columns: Engine Model, RPM, HP, Intake CFM, -- Exhaust -- Temp (°F), -- Exhaust -- Flow (CFM). Includes sub-sections for CUMMINS CONTINUED and DETROIT DIESEL.

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Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
<b>DETROIT DIESEL CONTINUED</b>					
Series 50 (8.5 Ltr)					
	2100	250	760	625	1575
	2100	275	790	680	1720
	2100	300	820	715	1845
	2100	320	815	730	1861
	2100	350	815	850	2055
Series 60 (12.7 Ltr)					
	2100	330	1050	610	2157
	2100	350	1090	645	2310
	2100	370	1010	725	2300
	2100	400	1050	780	2500
	2100	430	1080	820	2652
	2100	470	1170	825	2877
	2100	500	1170	825	2877
Series 60 (14 Ltr)					
	2100	550	1231	986	3402
	2100	575	1271	867	3221

<b>DEUTZ</b>					
BF12L 714	2300	390	695	850	1686
BF6L 913	2800	175	396	850	961
F10L 413	2650	310	595	850	1443
F10L 714	2300	275	577	850	1400
F12L 413	2650	370	714	850	1732
F12L 714	2300	330	695	850	1686
F1L 208	3600	9	70	850	170
F1L 210	3000	16	96	850	233
F1L 411D	3000	16	98	850	238
F2L 411D	3000	32	133	850	323
F2L 411W	3000	30	133	850	323
F2L 912	2500	36	150	850	364
F2L 912W	2500	34	150	850	364
F3L 912	2800	60	176	850	427
F3L 912W	2500	50	158	850	383
F4L 912	2800	80	202	850	490
F4L 912W	2500	67	180	850	437
F5L 912	2800	100	210	850	509
F5L 912W	2500	84	187	850	454
F6L 413	2650	185	357	850	866
F6L 714	2300	165	347	850	842
F6L 912	2800	120	252	850	611
F6L 912W	2500	101	224	850	543
F8L 413	2650	250	476	850	1155
F8L 714	2300	220	463	850	1123

<b>FORD</b>					
00	2400	59	101	900	254
172DF	2400	59	101	900	254
175DF	2500	52	108	900	272
183D	2200	52	99	900	249
192DF	2400	65	113	900	285
201DF	2250	66	111	900	280
220	2400	69	130	900	327
233D	2100	68	120	900	302
242D	2230	76	133	900	335
242DF	2500	79	149	900	375
254DF	2500	80	157	900	395
256DF	2500	89	157	900	395
3320DF	2500	111	203	900	511
362DF	2500	121	223	900	562
363DFT	2400	150	214	900	539
380DF	2500	120	233	900	587
401DF	2500	132	246	900	620
401DFT	2500	167	246	900	620

Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
67GF	3600	32	60	900	151
98GF	3600	45	87	900	219
X	2250	60	122	900	307
Y	2250	96	183	900	461

<b>HATZ DIESEL</b>					
2L30	3000	30	68	1100	196
2L40	3000	37	82	1100	237
2M40	3000	40	85	1100	246
3L30	3000	45	101	1100	292
3L40	3000	55	123	1100	355
3M40	3000	60	130	1100	376
4L30	3000	60	135	1100	390
4L40	3000	74	164	1100	474
4M40	3000	80	170	1100	491
E573	3000	3	14	1100	40
E673	3000	5	16	1100	46
E75	3000	7	18	1100	52
E780	3000	10	25	1100	72
E786	3000	14	30	1100	87
E79	3000	8	20	1100	58
E88	2600	10	28	1100	81
E89	2600	12	30	1100	87
E950	3000	17	36	1100	104
Z788	3000	23	55	1100	159

<b>HINO</b>					
Z790	3000	30	61	1100	176
DK10	2000	132	325	900	819
DK10T	1800	160	425	900	1070
DM100	2400	62	165	900	416
EB300	2000	132	315	900	793
EC100	2600	76	208	900	524
EF550	2200	230	572	900	1441
EF750	2200	245	589	900	1483
EF750T	2200	272	850	900	2141
EH100	2600	93	244	900	615
EH500	2800	114	277	900	698
EH700	2800	118	290	900	730
EK100	2200	196	467	900	1176
EL100	2600	132	327	900	824
EL100T	2400	145	440	900	1108
EM100	2400	148	362	900	912
ER100	2200	160	407	900	1025
EV700	2200	298	700	900	1763

<b>ISUZU</b>					
QD100	3200	87	185	900	466
QD130	2800	115	230	900	579
QD145	3200	129	280	900	705
QD145T	2500	139	305	900	768
QD200	2200	194	410	900	1033
QD200T	2000	218	515	900	1297
QD27	2800	26	50	900	126
QD40	2800	40	80	900	201
QD60	3800	55	140	900	353
QD85	3000	68	162	900	408
QD90	2800	75	150	900	378
QT15	3600	14	55	900	139
QT23	3600	22	75	900	189
QT35	3000	32	96	900	242

Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
<b>IVECO</b>					
803 i 3L-NA	2500	51	120	1100	347
804 i 4L-NA	2500	68	155	1100	448
805 i 5L-NA	2500	84	74	1100	214
806 i 6L-NA	2500	102	235	1100	679
806 i tc 6L-TC					
	2500	131	340	900	856
8210 i 6L-NA					
	2000	205	440	1100	1271
8280 i V8-NA					
	2200	287	600	1100	1733
8281 SRi V8-TCA					
	2200	424	900	900	2267
8281 Si V8-TC					
	2000	331	790	900	1990
8361 Si 7L-TC					
	2400	157	450	900	1133
8361 i 6L-NA					
	2500	139	322	1100	930

<b>JOHN DEERE</b>					
3164D	2500	52	100	900	252
3179D	2500	58	100	900	252
3179T	2500	79	178	900	448
4219D	2500	70	135	900	340
4239A	2500	117	277	900	698
4239D	2500	80	148	900	373
4239T	2500	109	258	900	650
4276D	2500	82	160	900	403
4276T	2200	98	266	900	670
6076A	2200	240	568	900	1431
6076H	2200	250	647	900	1629
6076T	2200	190	505	900	1272
6329D	2500	104	200	900	504
6359A	2500	176	470	900	1184
6359D	2500	121	228	900	574
6359T	2500	163	370	900	932
6414D	2200	118	228	900	574
6414T	2200	146	360	900	907
6466A	2100	233	579	900	1458
6466D	2200	138	258	900	650
6466T	2200	185	484	900	1219
6619A	2100	301	680	900	1713
8955A	2100	456	1130	900	2846
8955T	2100	356	978	900	2463

<b>KOHLER</b>					
K161	3600	7	14	1150	42
K181	3600	8	16	1150	48
K241	3600	10	20	1150	60
K301	3600	12	24	1150	72
K321	3600	14	26	1150	78
K341	3600	16	30	1150	89
K582	3600	23	48	1150	143
K91	3600	4	7	1150	21
KT17	3600	17	35	1150	104
KT19	3600	19	39	1150	116

<b>KUBOTA</b>				
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# Engine Exhaust Flow & Air Consumption Guide

**EXHAUST FLOW REFERENCE**

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
D1402-B	2800	31	62	900	156
D3200-B	2400	66	123	900	310
D600-B	3600	16	35	900	88
D850-BW	3000	20	41	900	103
DH850-B	3600	23	49	900	123
S2800-B	2600	58	116	900	292
V1100-B	3000	26	55	900	139
V1702-B	2800	40	77	900	194
V1902-B	2800	42	83	900	209
V4300-B	2400	88	164	900	413
VH1100-B	3600	31	66	900	166
Z400-B	3600	11	23	900	58
Z600-BW	3200	14	29	900	73
ZB400-B	3200	10	21	900	53
ZB600C-1-B	3200	14	29	900	73
ZH600-B	3600	16	33	900	83

### LISTER

HL3	2500	125	900	315	
HL4	2500	167	900	421	
HL6	2500	250	900	630	
HLT6	2100	300	900	756	
HR2	2200	73	900	184	
HR3	2200	110	900	277	
HRW2	2200	31	74	900	186
HRW3	2200	47	110	900	277
HRW4	2200	62	146	900	368
HRW6	2200	93	220	900	554
HRWS6	2000	102	200	900	504
LT1	3600	8	24	900	60
LV1	3600	9	28	900	71
LV2	3600	18	55	900	139
ST1	3000	10	31	900	78
TL2	3000	27	74	900	186
TL3	3000	40	111	900	280
TS2	3000	22	61	900	154
TS3	3000	33	91	900	229

### LOMBARDINI

10LD 400-2	3000	16	34	1000	92
10LD 400-2/B1					
3600		18	41	1000	111
11LD 535-3	3000	33	74	1000	200
11LD 625-3	3000	38	84	1000	227
3LD 450	3000	10	20	1000	54
3LD 510	3000	11	22	1000	59
3LD 510/L	2200	8	17	1000	46
4LD 640	3000	14	28	1000	76
4LD 640/L	2200	10	22	1000	59
4LD 705	2600	15	27	1000	73
4LD 820	2600	18	32	1000	87
4LD 820/L	2200	14	27	1000	73
5LD 675-2	3000	29	58	1000	157
5LD 675-3	3000	44	87	1000	235
5LD 825-2	2600	34	63	1000	170
5LD 825-2/L	2200	27	53	1000	143
5LD 825-3	2600	52	94	1000	254
5LD 825-3/L	2200	40	80	1000	216
5LD 825-4	2600	67	125	1000	338
5LD 825-4/L	2200	54	106	1000	287
5LD 930-3	2600	54	105	1000	284
5LD 930-4	2600	72	140	1000	379
6LD 260	3600	5	15	1000	41
6LD 260/C	1800	5	14	1000	38
6LD 325	3600	7	17	1000	46

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
6LD 325/C	1800	7	17	1000	46
6LD 360	3600	8	19	1000	51
6LD 360 V	3600	8	19	1000	51
6LD 400	3600	8	21	1000	57
7LD 665	3000	15	29	1000	78
7LD 665/F	3000	15	29	1000	78
7LD 740/L	3000	16	32	1000	87
8LD 600-2	3000	26	52	1000	141
8LD 665-2	3000	29	58	1000	157
8LD 665-2/L	2200	22	44	1000	119
8LD 740-2	2600	29	52	1000	141
9LD 561-2	3000	26	48	1000	130
9LD 561-2/L	2200	18	37	1000	100

### MACK

E6	NA	350	NA	750	1950
E7	NA	300	NA	728	1561
	NA	350	NA	742	1679
	NA	400	NA	791	1934
	NA	427	NA	795	2136
	NA	460	NA	814	2315
	NA	310/330	NA	728	1550
	NA	330/355	NA	735	1653
	NA	355/380	NA	736	1767
E9	NA	500	NA	740	3050
EN291	2800	178	900	448	
EN331	2800	206	900	519	
EN402	2800	246	900	620	
EN438	2600	247	900	622	
EN540	2400	280	900	705	
EN707C	2100	306	900	771	
END465	2600	325	900	819	
END475	2400	280	900	705	
END5673C	2100	250	600	900	1511
END5864	2300	270	850	900	2141
END673E	2100	180	400	900	1007
END707	2100	200	410	900	1033
END864BC	2450	540	900	1360	
ENDT475	2400	460	900	1159	
ENDT673	2100	225	600	900	1511
ENDT675	2100	237	625	900	1574
ENDT676		800	900	2015	
ENDT864A	2300	860	900	2166	
ENDT865	2600	325	960	900	2418
ENDT866	2400	275	1050	900	2644
ENDTF673	2300	665	900	1675	
ENDTF673C	2200	625	900	1574	

### MERCEDES-BENZ

OM314	2800	85	170	900	428
OM346	2800	427	900	1075	
OM352	2800	130	260	900	655
OM352A	2800	168	336	900	846
OM355	2000	200	327	900	824
OM360	2500	190	308	900	776
OM401	2500	195	340	900	856
OM402	2500	260	340	900	856
OM403	2500	325	463	900	1166
OM404	2500	430	738	900	1859
OM407	2200	240	480	900	1209
OM407A	2200	280	560	900	1410
OM407h	2200	240	480	900	1209
OM407hA	2200	280	560	900	1410
OM421	2300	216	432	900	1088
OM422	2300	280	560	900	1410

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
OM422A	2300	330	660	900	1662
OM422LA	2300	375	750	900	1889
OM423	2300	355	710	900	1788
OM423LA	2100	470	940	900	2367
OM424	2300	420	840	900	2116
OM424A	2300	530	1060	900	2670
OM424LA	2300	615	1230	900	3098
OM616	3600	67	134	900	337
OM617	3600	82	164	900	413
OM636	3500	40	95	900	239

### MITSUBISHI

S12A-PT	1800	660	1620	900	4080
S12A-PTA	1800	850	2080	900	5239
S12A-PTK	1800	900	2190	900	5516
S12N-PT	1800	1000	2440	900	6145
S12N-PTA	1800	1130	2750	900	6926
S12N-PTK	1800	1230	3000	900	7556
S12U-PTA	1200	3100	7910	900	19921
S12U-PTK	1200	3300	8400	900	21156
S16N-PT	1800	1320	3210	900	8084
S16N-PTA	1800	1500	3670	900	9243
S16N-PTK	1800	1620	3960	900	9973
S6A-PT	1800	330	810	900	2040
S6A-PTA	1800	425	1020	900	2569
S6A-PTK	1800	450	1100	900	2770
S6B-PT	1800	260	640	900	1612
S6B-PTA	1800	320	780	900	1964
S6B-PTK	1800	360	880	900	2216
S6N-PT	1800	500	1240	900	3123
S6N-PTA	1800	565	1380	900	3476
S6N-PTK	1800	615	1480	900	3727
S6U-PTA	1200	1550	3960	900	9973
S6U-PTK	1200	1650	4200	900	10578
S8N-PT	1800	660	1620	900	4080
S8N-PTA	1800	750	1840	900	4634
S8N-PTK	1800	810	1980	900	4987

### MTU OF NORTH AMERICA

12V-396-TB-83					
1845	1560	3919			3338
12V-396-TB-93					
1845	1200	4534			3862
12V-396-TC-82					
1745	1300	2902			2472
8V-396-TB-83					
1845	1050	2436			2075
8V-396-TB-93					
1845	1800	2944			2508
8V-396-TC-82					
1745	870	1864			1588

### NAVISTAR

4-196	3800	86	162	1150	483
6.9 L	3000	170	330	1000	892
7.3 LT (T444)	2600	190	605	753	1359
7.3 L	3000	175	349	1000	944
9.0 L (DV550)	2800	185	410	1050	1146
C-200	2500	74	109	1150	325
C-221	2600	90	124	1150	370
C-263	2800	109	160	1150	477
C-301	2800	118	183	1150	546
C-345	3000	160	224	1150	668

### NAVISTAR CONTINUED

C-392	3000	180	255	1150	760
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Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
C-549	3200	232	381	1150	1136
C135B	2400	46	70	1150	209
C153	2400	53	80	1150	239
C175	2500	63	95	1150	283
D155	2500	48	95	900	239
D179	2400	59	99	900	249
D188	2400	62	104	900	262
D206	2500	56	119	900	300
D236	2400	65	131	900	330
D239	2500	80	138	900	348
D268	2500	85	165	900	416
D282	2400	95	156	900	393
D310	2300	101	165	900	416
D312	3000	117	216	900	544
D360	3000	136	250	900	630
D370	2200	105	188	900	473
D407	2600	127	245	900	617
D414	3000	157	287	900	723
D466	3000	165	323	900	813
D550B	3000	200	382	900	962
D554	2300	150	294	900	740
D691	1600	150	256	900	645
DT239	2500	110	225	900	567
DT358	2400	130	340	900	856
DT360	2700	190	588	850	1426
DT361	2600	146	341	900	859
DT402	2400	165	380	900	957
DT407	2500	160	368	900	927
DT414	3000	220	449	900	1131
DT420	2600	225	403	900	1015
DT466	2400	195	664	737	1520
DT466	2400	210	650	765	1530
DT466	2400	230	677	855	1710
DT466	2400	250	650	845	1640
DT466	2400	275	650	984	1820
DT573	2600	300	539	900	1357
DT573B	2600	260	525	900	1322
DT817	2100	385	975	900	2456
DT817B	2100	320	975	900	2456
DT817C	2200	420	975	900	2456
DVT800	2600	310	752	900	1894
MV-404	3600	188	315	1150	939
MV-446	3600	235	348	1150	1038
UC60	2500	17	33	1150	98
UR-450	2400	158	234	1150	698
UV-401	2800	165	243	1150	725
V-304	4400	180	298	1150	888
V-345	3800	172	284	1150	847
V-345	3800	168	284	1150	847
V-392	3600	236	306	1150	912
V-537	3200	208	372	1150	1109
VS-478	3400	224	352	1150	1049
VS-549	3200	243	381	1150	1136

**NISSAN**

A-12	4800	58	74	900	186
A-15	4800	78	95	900	239
ED-33	3200	83	168	900	423
FD-33T	3200	105	235	900	592
FD-6	2700	131	243	900	612
FD-6T	2700	148	340	900	856
H-20	3100	55	82	900	207
H-30	2600	66	102	900	257
J-15	2800	32	55	900	139
LD-20	2600	38	80	900	201
LD-28	2600	53	115	900	290

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
ND-6	2400	130	260	900	655
P-40	2300	80	120	900	302
PD-6	2200	173	360	900	907
PD-6T	2200	227	505	900	1272
PE-6	2200	200	408	900	1028
PE-6T	2200	250	570	900	1436
RD10	2400	330	682	900	1718
RD10T	2400	415	1000	900	2519
RD10TA	2300	485	1200	900	3022
RD8	2400	265	545	900	1373
RD8T	2400	320	763	900	1922
SD-16	3200	36	85	900	214
SD-22	3200	51	110	900	277
SD-25	3200	60	126	900	317
SD-33	3200	79	165	900	416
SD-33T	3200	92	230	900	579

**PERKINS**

3.1522	2500	44	95	900	239
4-107	4000	57	99	900	249
4-108	4000	60	100	900	252
4-154	3600	80	128	900	322
4-203	2600	63	122	900	307
4-236	2800	80	153	900	385
4-248	2500	85	144	900	363
4-270	2000	62	125	900	315
4-300	2200	90	152	900	383
4-302	2300	76	161	900	405
4-318	2000	75	147	900	370
4-99	4000	55	92	900	232
4.108	4000	49	102	900	257
4.165	3600	70	135	900	340
4.2032	2250	58	117	900	295
4.236	2800	82	157	900	395
4.248	2500	84	152	900	383
4.318	2000	140	140	900	353
6-305	2600	89	184	900	463
6-354	2800	120	230	900	579
6-372	2500	121	215	900	541
6.247	3600	101	205	900	516
6.3544	2800	238	238	900	599
6.3724	2500	227	227	900	572
D3-152	2500	52	88	900	222
D3.152	2500	49	3	900	8
D4.203	2500	3	3	900	8
T6-354	2400	150	307	900	773
T6-354-3	2500	140	320	900	806
T6.3544	2600	370	370	900	932
TV8.640	2600	685	685	900	1725
V8-510	2800	185	331	900	834
V8-540	2500	166	312	900	786
V8-605	2500	200	350	900	881
V8.540	2600	370	370	900	932
V8.640	2600	411	411	900	1035

**RENAULT**

18TS/GTS	5750	92	230	1150	686
20 TL/GTL	5500	98	200	1150	596
20 TX	5500	112	230	1150	686
20 TX	5000	112	230	1150	686
4 GTL	4000	33	70	1150	209
4L/TL	4250	20	40	1150	119
9 TD/GTD	4800	900		900	
FUEGO TURBO D	4250	85	211	900	531

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
TRAFIC	4750	46	90	1150	268
TRAFIC	5000	46	90	1150	268
TRAFIC PROP					
	4000	56	140	900	353

**SAME**

1052 LP	2500	39	83	900	71
1053 P	2500	64	124	900	106
1054 P	2500	85	165	900	141
1054 PT	2300	90	152	900	129
1055 P	2500	105	206	900	175
1056 P	2500	126	248	900	211
1056 PS	2300	148	228	900	194
1056 PT	2300	160	228	900	194
916.3A	3000	61	131	900	112
916.4A	3000	81	175	900	149

**TELEDYNE**

ACN	3600	6	13	900	11
AENL	3600	9	20	900	17
AGND	3200	12	26	900	22
BKN	3600	7	16	900	14
EY18-3W	3600	5	10	900	9
EY21W	3800	17	33	900	28
EY25W	3600	6	15	900	13
EY27W	3600	8	16	900	14
EY44W	3600	10	22	900	19
NH4D	2800	30	75	900	64
R08	5000	27	60	900	51
R11	4200	34	73	900	62
R14	4200	48	105	900	89
R17	5000	83	180	900	153
R22	5500	101	220	900	187
RD16	4800	54	135	900	115
RD21	4200	62	155	900	132
S-12D	3600	12	31	900	26
S-14D	3600	14	30	900	26
S-8D	3600	8	18	900	15
TJD	3600	18	48	900	41
TM13	3000	33	70	900	60
TM13	3000	22	45	900	38
TM20	3000	52	100	900	85
TM20	3000	44	90	900	77
TM27	3000	69	125	900	106
TM27	3000	59	120	900	102
TMD13	3000	29	72	900	61
TMD20	3000	44	110	900	94
TMD27	3000	121	300	900	256
TRA-12D	3600	12	25	900	21
V-465D	3000	66	133	900	113
V460D	3000	65	133	900	113
VE4	2400	48	48	900	41
VF4	2400	56	56	900	48
VG4D	2400	37	75	900	64
VH4	2800	61	61	900	52
VH4D	2800	30	65	900	55
VR4D	2200	37	122	900	104
W2-1230	3600	25	55	900	47
W2-1235	3600	30	68	900	58
W2-880	3600	20	44	900	37
W4-1770	3000	35	72	900	61
WD1-340	3000	7	18	900	15

**TELEDYNE CONTINUED**

WD1-350	3000	8	20	900	17
WD1-430	3000	10	24	900	20

# Engine Exhaust Flow & Air Consumption Guide

EXHAUST FLOW REFERENCE

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
WD1-450.....	3400	10	26		22
WD1-660.....	3000	15	38		32
WD1-670.....	3000	16	40		34
WD1-750.....	3000	17	43		37
WD2-1000.....	3000	21	52		44
WD2-860.....	3000	19	48		41
WI-145.....	4000	4	8		7
WI-145V.....	3600	4	8		7
WI-185.....	3600	5	10		9
WI-185V.....	3600	5	10		9
WI-340.....	3600	9	20		17
WI-390.....	3600	11	22		19
WI-588.....	3600	16	34		29

### VOLKSWAGON

026.2.....	2200	70	140	1150	417
068.5.....	4000	48	90	900	227
068.A.....	4000	60	120	900	302
075.1.....	4000	75	145	900	365
126A.....	2000	45	90	1150	268

### VOLVO

D45BPP.....	2300	75	195	900	491
TD100G.....	2000	223	460	900	1159
TD100GPP.....	2000	223	460	900	1159
TD120HP.....	2000	286	575	900	1448
TD121G.....	2000	284	575	900	1448
TD45B.....	2200	90	235	900	592
TD61A.....	2500	154	330	900	831
TD61AP.....	2500	165	350	900	881
TD61AW.....	2500	162	350	900	881
TD71A.....	2200	189	360	900	907
TD71AP.....	2200	192	360	900	907
TD71AW.....	2400	190	360	900	907
TID100KPP.....	2000	249	515	900	1297
TID121KP.....	2000	343	695	900	1750
TID121LP.....	1800	401	800	900	2015
TID71A.....	2200	216	380	900	957
TID71AP.....	2200	209	400	900	1007

### WAUKESHA

190DLC.....	2800	84	128		109
197DLC.....	2800	91	208		177

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
197DLCS.....	2800	131	320		273
D317D.....	2400	118	285		243
D317DS.....	2400	142	340		290
F1197D.....	1800	258	620		528
F1197DS.....	1800	400	960		818
F1197DSI.....	2400	462	1100		937
F1905DS.....	1200	397	860		733
F1905DSI.....	2200	514	1015		865
F2896D.....	1200	415	804		685
F2896DS.....	1200	695	1032		879
F2896DSI.....	1200	877	1305		1112
F475D.....	2400	182	440		375
F475DS.....	2400	216	520		443
F674D.....	2200	226	540		460
F674DS.....	2200	229	550		469
H1077D.....	2400	346	630		537
H1077DS.....	2400	522	1080		920
H1077DSI.....	2400	557	1190		1014
H866DS.....	2300	384	920		784
L1616D.....	2400	520	940		801
L1616DS.....	2400	785	1680		1431
L1616DSI.....	2400	836	1850		1576
L5100D.....	1200	830	1420		1210
L5100DS.....	1200	1232	2170		1849
L5100DSI.....	1200	1375	2560		2181
L5790D.....	1200	905	1710		1457
L5790DS.....	1200	1235	2600		2215
L5790DSI.....	1200	1754	3080		2624
LRDCS.....	1200	695	1032		879
NKDC.....	1200	297	566		482
NKDCS.....	1200	390	860		733
P2154D.....	2200	592	1420		1210
P2154DS.....	2200	1017	2450		2087
P2154DSI.....	2200	1077	2600		2215
VLRD.....	1200	905	1710		1457
VLRDS.....	1200	1235	2600		2215
VRD232.....	2200	68	160		136
VRD283.....	2200	76	180		153
VRD310.....	2400	106	255		217
WAKD.....	1800	258	530		451
WAKDS.....	1800	400	810		690

### WHITE ENG

D-2000.....	2600	70	120		102
D-2300.....	2400		137		117

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
D-2300T.....	2400		211		180
D-3000.....	2800	110	193		164
D-3000T.....	2600	130	280		239
D-3300T.....	1800		175		149
D-3400.....	2400		210		179
D-3400T.....	2400		333		284
D-4800.....	2400		260		221
D-4800T.....	2400		400		341
D-4800TA.....	2400		400		341
D-4800TAH.....	1800		431		367
G-1600.....	2400		102		87
G-2000.....	2800	84	120		102
G-2300.....	2400		130		111
G-3000.....	2800	130	181		154
G-3400.....	2400		210		179

### YANMAR

12LAAL-DT.....	1800	1060	2772	900	6981
3T95LE.....	2800	51	114	900	287
4HAL.....	1800	110	260	900	655
4T95LE.....	2800	68	150	900	378
4T95LTE.....	2800	85	208	900	524
6HAL.....	1800	165	390	900	982
6HAL-DT.....	1800	330	837	900	2108
6HAL-HT.....	1800	264	692	900	1743
6HAL-T.....	1800	209	512	900	1289
6LAAL-DT.....	1800	530	1370	900	3450
6T95LE.....	2800	102	233	900	587
6T95LTE.....	2800	128	314	900	791
8LAAL-DT.....	1800	705	1800	900	4533