

# Motors and Generators

1998

Issued March 2000

MA335H(98)-1

Current  
Industrial  
Reports

*(Formerly Series No. MA36H)*

Information about the scope of the survey, methodology, explanation of terms and historical notes for this survey may be found in the introduction of the 1997 Manufacturing Profiles, issued August 1999.

Current data are released electronically on Internet for all individual surveys as they become available. Use: <http://www.census.gov/econ/www/manumenu.html>. Individual reports can be accessed by choosing "Current Industrial Reports (CIR's)," clicking on "Report Number Index;" from the "Industrial Products by Numeric Index," choose the survey of interest. Follow the menu to view the PDF file or to download the worksheet file (WK format) to your personal computer.

These data are also available through the U.S. Department of Commerce and STAT-USA Electronic Bulletin Board by subscription. To access, dial 202-482-3870 and follow the prompts to register. Also, you may call 202-482-1986 or 1-800-STAT-USA, for further information. The Internet address is: [www.stat-usa.gov/](http://www.stat-usa.gov/).

Note. Data are now published on the new North

American Industry Classification System (NAICS) basis and therefore are not always comparable to the old Standard Industrial Classification (SIC) code. For further information on NAICS, see [www.census.gov/epcd/www/naics.html](http://www.census.gov/epcd/www/naics.html).

Summary of findings. During 1998, the total value of shipments of motors and generators, including interplant transfers, totaled \$10.9 billion, up 3.2 percent from the 1997 value of \$10.5 billion. The 1998 data for individual categories of motors and generators exhibited the following changes: The value of shipments of fractional horsepower motors decreased 5.3 percent, from the revised value of \$4.7 billion in 1997, to \$4.5 billion in 1998. The integral horsepower motors and generators remained constant at \$2.2 billion. The value of land transportation motors and generators was combined with parts for motors and generators to avoid disclosing data for individual companies. The value of shipments of prime mover generator sets increased 18 percent from the 1997 value of \$1.7 billion, to \$2.0 billion in 1998. Electric motor generator sets decreased 3.1 percent from \$955 million in 1997, to \$925 million in 1998.

Address inquiries concerning these data to Investment Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call Tempie Whittington, 301-457-4800.

For mail or fax copies of this publication, please contact the Information Services Center, MCD, Washington, DC 20233-6900, or call 301-457-4673.

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U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. Census Bureau



Table 1. Value of Shipments of Motors and Generators by Product Class: 1993 to 1998  
 [Millions of dollars]

Product code	Product description	1998	1997	1996	1995	1994	1993
335312-3353121	Motors and generators.....	10,885.2	10,545.8	10,269.2	10,395.5	9,596.2	9,011.2
3353123	Fractional horsepower motors, excluding hermetics.....	4,466.7 r/	4,715.6	4,358.3	4,766.2	4,469.7	4,242.8
3353125	Integral horsepower motors and generators, other than for land transportation equipment.....	2,233.8	2,246.0	2,337.5	2,134.7	1,951.4	1,695.0
3353125	Land transportation motors, generators, and control equipment 1/.....	(D)	(D)	(D)	(D)	(D)	(D)
3353129, 12A	Prime mover generator sets (except steam or hydraulic turbine).....	2,047.2	1,734.8	1,505.1	1,480.6	1,395.6	1,245.9
335312C	Electric motor-driven generator sets.....	925.0	954.7	1,029.6	944.2	811.4	740.1
335312C	Parts for motors and generators 1/.....	1,212.5	894.8	1,038.6	1,069.8	968.1	1,087.4

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data.

1/Product code 3353125 is combined with product code 335312C to avoid disclosing data for individual companies.

Table 2. Quantity and Value of Shipments of Motors and Generators: 1998 and 1997  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1998		1997		
			Quantity	Value	Quantity	Value	
335312	Motors and generators.....	(NA)	(X)	10,885,206		(X)	10,545,797
3353121	Fractional horsepower, excluding hermetics and other rotating equipment.....	(NA)	278,943,318	4,466,725	r/	329,801,231	r/ 4,715,550
	Used in automobile accessories (such as heaters, convertible tops, and automatic windows; excluding starter motors and generators), including ac and dc .....	15	108,575,379	1,515,523	r/	131,089,367	r/ 1,686,414
	Used in aircraft and spacecraft, excluding generators:						
3353121004	Ac .....	15	118,556	41,591		82,388	30,934
3353121007	Dc .....	17	(D)	(D)		262,782	54,743
3353121011	Used in toys (all sizes) and clock type synch and subsynch timing, ac and dc.....	5	(D)	(D)		7,346,837	50,966
	All other uses:						
	Ac (noncommutated): .....	(NA)	113,515,822	1,670,332		129,912,912	1,684,688
	Single phase or polyphase:						
	Less than 746 watts, under 1 hp (three-digit FS) 1/.....	(NA)	65,229	9,826		72,953	11,465
	Single phase:						
3353121013	Skeleton type shaded pole.....	(NA)	19,891,947	96,142		38,594,974	132,266
3353121016	Less than 2.75-inch diameter at widest point 2/.....	9	(D)	(D)		(D)	(D)
	2.75-inch diameter and over 2/.....	5	19,891,947	96,142		38,594,974	132,266
3353121019	Conventional type shaded pole .....	(NA)	53,398,425	475,405		51,767,636	448,821
	Less than 2.5-inch diameter.....	6	(D)	(D)		(D)	(D)
	2.5- to less than 3.75-inch diameter:						
3353121022	2 pole.....	8	6,548,677	125,275		5,319,527	90,770
3353121025	4 pole .....	6	16,164,551	140,703		15,091,092	137,618
3353121028	6 pole and over.....	2	(D)	(D)		(D)	(D)
3353121031	3.75- to less than 4.375-inch diameter.....	4	(D)	(D)		(D)	(D)
	4.375- to less than 5.375-inch diameter:						
3353121034	2 and 4 pole.....	7	2,580,448	34,733		3,062,982	40,777
3353121037	6 pole and over .....	4	(D)	(D)		(D)	(D)
3353121041	5.375-inch diameter and over.....	3	(D)	(D)		(D)	(D)
	Permanent split capacitor.....	(NA)	24,791,074	502,935	r/	24,369,582	517,115
3353121043	Less than 2.5-inch diameter 3/.....	4	(D)	(D)		(D)	(D)
	2.5- to less than 3.75-inch diameter:						
3353121046	2 pole 3/.....	8	1,985,928	49,892	r/	2,058,870	r/ 55,172
3353121049	4 pole and over.....	10	1,248,221	18,449		2,033,167	33,149
	3.75- to less than 4.375-inch diameter:						
3353121052	2 pole 4/.....	4	(D)	(D)		(D)	(D)
3353121055	4 pole 4/.....	7	(D)	(D)		(D)	(D)
3353121058	6 pole and over 4/.....	3	10,842,191	134,358	r/	9,838,887	r/ 119,683
	4.375- to less than 5.375-inch diameter:						
3353121061	2 pole 5/.....	5	(D)	(D)		(D)	(D)
3353121064	4 pole 5/.....	13	3,509,913	62,638		2,783,946	55,515
3353121067	6 pole and over.....	7	494,768	13,247		471,273	14,811
	5.375- to less than 6-inch diameter:						
3353121071	Less than 746 watts, under 1 hp (two-digit FS).....	19	6,496,716	205,004		6,965,307	221,311
3353123004	746 watts and over, 1 hp and over (two-digit FS) 6/.....	4	(D)	(D)		(D)	(D)
	6-inch diameter and over:						
3353123073	Less than 746 watts, under 1 hp (two-digit FS).....	9	213,337	19,347		218,132	17,474
3353123007	746 watts and over, 1 hp and over (two-digit FS) 6/.....	6	(D)	(D)		(D)	(D)
	Capacitor start.....	(NA)	2,966,581	141,072		3,136,716	147,401
3353121076	Less than 3.75-inch diameter 7/.....	4	(D)	(D)		(D)	(D)
3353121079	3.75 to less than 4.375-inch diameter 7/..	1	1,082,284	13,670		1,072,796	14,099
3353121082	4.375- to less than 5.375-inch diameter...	6	135,415	7,370		138,163	7,280
	5.375- to less than 6-inch diameter:						
3353121085	Less than 746 watts, under 1 hp (two-digit FS).....	13	989,604	47,957		1,178,221	55,840
3353123011	746 watts and over, 1 hp and over (two-digit FS) 6/.....	5	(D)	(D)		(D)	(D)
	6-inch diameter and over:						
3353121088	Less than 746 watts, under 1 hp (two-digit FS).....	10	759,278	72,075		747,536	70,182

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Product code	Product description	No. of cos.	1998		1997	
			Quantity	Value	Quantity	Value
3353123016	746 watts and over, 1 hp and over (two-digit FS) 6/.....	8	(D)	(D)	(D)	(D)
	Split phase.....	(NA)	2,667,591	85,117	3,276,390	106,286
3353121091	Less than 3.75-inch diameter.....	2	(D)	(D)	(D)	(D)
3353121094	3.75- to less than 5.375-inch diameter.....	6	(D)	(D)	(D)	(D)
3353121097	5.375- to less than 6-inch diameter: Less than 746 watts, under 1 hp (two-digit FS).....	13	2,667,591	85,117	3,276,390	106,286
3353123019	746 watts and over, 1 hp and over (two-digit FS) 6/.....	5	(D)	(D)	(D)	(D)
33531210A1	6-inch diameter and over: Less than 746 watts, under 1 hp (two-digit FS).....	8	(D)	(D)	(D)	(D)
3353123022	746 watts and over, 1 hp and over (two-digit FS) 6/.....	4	(D)	(D)	(D)	(D)
33531210A4	All other single phase.....	11	7,628,354	184,867 r/	6,892,341 r/	169,883
	Less than 6-inch diameter.....	11	7,628,354	184,867 r/	6,892,341 r/	169,883
33531210A7	6-inch diameter and over: Less than 746 watts, under 1 hp (two-digit FS).....	4	(D)	(D)	(D)	(D)
3353123025	746 watts and over, 1 hp and over (two-digit FS) 6/.....	5	(D)	(D)	(D)	(D)
33531210B1	Polyphase (servo and nonservo) .....	(NA)	2,106,621	174,968	1,802,320	151,451
	Synchronous stepper motors.....	8	323,080	10,740	367,818	10,839
33531210B4	All other polyphase: Servo (induction rotor) 8/.....	4	(D)	(D)	(D)	(D)
33531210B7	Nonservo: Less than 5.375-inch diameter 8/ .....	12	484,518	34,603 r/	256,260	26,510
33531210C1	5.375- to less than 6-inch diameter: Less than 746 watts, under 1 hp (two-digit FS).....	13	644,759	63,708	600,270	57,106
3353123028	746 watts and over, 1 hp and over (two-digit FS) 9/.....	6	(D)	(D)	(D)	(D)
33531210C4	6-inch diameter and over: Less than 746 watts, under 1 hp (two-digit FS).....	14	654,264	65,917	577,972	56,996
3353123031	746 watts and over, 1 hp and over (two-digit FS) 9/.....	8	(D)	(D)	(D)	(D)
	Ac (commutated).....	(NA)	37,200,443	510,194	49,328,544	576,200
	Mechanically commutated (brushes, for example): Cased or sleeved:					
33531210C7	Less than 2.875-inch diameter.....	16	7,708,548	95,528	7,440,021	100,822
33531210E1	2.875- to less than 3.188-inch diameter.....	12	7,907,620	92,864	10,035,116	112,885
33531210E4	3.188- to less than 3.563-inch diameter.....	13	296,496	17,202	245,232	16,051
33531210E7	3.563- inch diameter and over: Less than 746 watts, under 1 hp (two-digit FS).....	10	269,130	31,104	349,185	43,078
3353123034	746 watts and over, 1 hp and over (two-digit FS) 10/.....	8	(D)	(D)	(D)	(D)
	Uncased:					
33531210F1	Less than 2.875-inch diameter 11/.....	9	(D)	(D)	(D)	(D)
33531210F4	2.875- to less than 3.188-inch diameter 11/.....	6	20,722,519	273,496	31,258,990	303,364
33531210F7	3.188- to less than 3.563-inch diameter.....	1	(D)	(D)	(D)	(D)
33531210G1	3.563- to less than 4.375-inch diameter.....	3	(D)	(D)	(D)	(D)
33531210G4	4.375-inch diameter and over: Less than 746 watts, under 1 hp (two-digit FS).....	2	(D)	(D)	(D)	(D)
3353123037	746 watts and over, 1 hp and over (two-digit FS) 10/.....	2	(D)	(D)	(D)	(D)
	Dc or universal motors by case size .....	(NA)	11,879,371	639,261	11,778,401	631,605
	By case diameter:					
33531210M1	Less than 4-inch diameter.....	(S)	(S)	(S)	(S)	(S)
33531210M5	4-inch diameter and over.....	(S)	(S)	(S)	(S)	(S)
	Permanent magnet (brushless): Servo:					

Continued

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Product code	Product description	No. of cos.	1998		1997	
			Quantity	Value	Quantity	Value
33531210G7	Less than 4-inch diameter.....	20	1,434,195	120,412	1,386,972	129,332
33531210H1	4-inch diameter and over.....	18	126,440	55,294	129,935	54,989
	Nonservo:					
33531210H4	Less than 4-inch diameter.....	22	7,468,349	186,604	7,426,841	177,148
33531210H7	4-inch diameter and over.....	17	527,935	81,882 r/	491,001 r/	71,618
33531210J1	Wound field .....	10	119,456	13,965	131,256	15,517
33531210J4	Electronically commutated.....	9	1,967,523	131,058	1,958,600	131,004
	All other:					
33531210J7	Servo.....	13	198,612	41,040	193,887	39,636
33531210K1	Nonservo.....	6	36,861	9,006	59,909	12,361
3353123	Integral horsepower, excluding hermetics and other rotating equipment.....	(NA)	9,014,495	2,233,824	8,733,132	2,245,951
3353123001	Used in aircraft and spacecraft, excluding generators.....	4	(D)	(D)	(D)	(D)
	All other uses:					
	Ac (noncommutated) .....	(NA)	5,166,541	1,608,225	5,047,393	1,627,229
	Motors (single, polyphase induction, and synchronous):					
	Single phase: .....	(NA)	1,972,747	197,112	1,919,810	186,226
33531210K4	Less than 746 watts, under 1 hp (three-digit FS) 1/.....	4	(D)	(D)	(D)	(D)
3353123041	746 watts and over, 1 hp and over (three-digit FS).....	15	281,315	60,800	289,684	61,664
33531230X4	746 watts and over, 1 hp and over (two-digit FS) 6/.....	(NA)	1,691,432	136,312	1,630,126	124,562
	Polyphase induction, excluding synchronous .....	(NA)	3,189,339	1,382,467	3,121,505	1,409,354
	All motors, including Energy Efficient (EE):					
33531210K7	Less than 0.746 watts, less than 1hp (three-digit FS) 1/.....	7	(D)	(D)	(D)	(D)
33531230X5	746 watts and over, 1 hp and over (two-digit FS) 9/.....	(NA)	1,099,796	121,346	1,069,731	120,591
3353123043	0.746 to 3.371 kW, 1 through 5 hp.....	28	1,215,080	205,448	1,233,811	198,097
3353123046	3.731 to less than 14.921 kW, greater than 5 through 20 hp.....	30	542,583	203,522	516,323	187,173
3353123049	14.921 to less than 37.301 kW, greater than 20 through 50 hp.....	27	214,573	168,474	174,532	166,458
3353123052	37.301 to less than 74.601 kW, greater than 50 through 100 hp .....	24	56,756	129,678	63,571	128,536
3353123055	74.601 to less than 149.201 kW, greater than 100 through 200 hp.....	23	35,891	154,828	35,561	159,043
3353123058	149.201 to less than 373.001 kW, greater than 200 through 500 hp.....	24	19,975	226,040 r/	21,911	236,694
3353123061	373.001 to less than 746.001 kW, greater than 500 through 1,000 hp.....	12	1,633	54,753	2,533	79,301
3353123064	746.001 to less than 1,865.001 kW, greater than 1,000 through 2500 hp.....	5	(D)	(D)	3,267	97,811
3353123067	1,865.001 kW and over, greater than 2,500 hp.....	5	(D)	(D)	265	35,650
	Energy efficient motors, included in product codes 3353123043 to 3353123055 .....	(NA)	445,974	339,926	323,284	265,197
33531230E1	0.746 to 3.371 kW, 1 through 5 hp.....	12	173,656	47,359	130,238	35,113
33531230E3	3.731 to less than 14.921 kW, greater than 5 through 20 hp.....	14	126,512	62,091	101,730	45,637
33531230E5	14.921 to less than 37.301 kW, greater than 20 through 50 hp.....	14	96,671	77,256	52,516	56,078
33531230E7	37.301 to less than 74.601 kW, greater than 50 through 100 hp.....	11	30,784	71,334	23,672	53,041
33531230E9	74.601 to less than 149.201 kW, greater than 100 through 200 hp.....	12	18,351	81,886	15,128	75,328
3353123085	Synchronous (servo and nonservo).....	6	4,455	28,646	6,078	31,649
	Ac generators (for internal combustion engines).....	(NA)	140,139	331,212 r/	114,793	315,562
3353123088	Less than 5 kVA 12/.....	3	(D)	(D)	(D)	(D)
3353123091	5 to less than 15 kVA 12/.....	14	105,662	95,861 r/	65,473	65,998
3353123094	15 to less than 75 kVA 13/.....	8	(D)	(D)	(D)	(D)
3353123097	75 to less than 375 kVA 13/.....	8	20,808	49,372	34,614	75,619
33531230A1	375 to less than 750 kVA.....	7	(D)	(D)	8,586	43,772

Continued

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Product code	Product description	No. of cos.	1998		1997	
			Quantity	Value	Quantity	Value
33531230A4	750kVA and over .....	4	(D)	(D)	6,120	130,173
	Dc motors and generators, excluding all arc welding and battery charging generators for internal combustion engines.....	(NA)	3,707,815	294,387	3,570,946	303,160
33531230A7	0.746 to less than 3.375 kW, 1 through 5 hp.....	15	3,552,415	144,069	3,367,942	131,613
33531230X6	746 watts and over, 1 hp and over (two-digit FS) 10/.....	(NA)	111,318	63,814	139,854	68,630
33531230B1	3.375 to less than 74.601 kW, 5 through 100 hp.....	7	40,923	36,169	59,835	53,058
33531230B4	74.601 kW and over, greater than 100 hp.....	6	3,159	50,335	3,315	49,859
3353125	Motors and generators for land transportation, including those used in associated control equipment 14/.....	9	(D)	(D)	(D)	(D)
3353127	Prime mover generator sets (except steam or hydraulic turbine and electric motor-driven generator sets).....	(NA)	657,946	2,047,190	555,331	1,734,768
	Gas/gasoline engine-driven generator sets, ac and dc output.....	(NA)	585,081	506,847 r/	493,527	458,383
3353127001	Under 1.5 kVA 15/.....	3	(D)	(D)	(D)	(D)
3353127004	1.5 to less than 5 kVA 15/.....	19	272,632	120,846	319,136	164,662
3353127007	5 to less than 15 kVA.....	19	298,364	210,871 r/	162,879 r/	163,592
3353127011	15 to less than 50 kVA.....	17	9,674	60,708	7,702	45,455
3353127013	50 to less than 100 kVA.....	14	3,058	39,411	2,789	30,249
3353127016	100 to less than 500 kVA 16/.....	12	(D)	(D)	(D)	(D)
3353127019	500 to less than 1,000 kVA 16/.....	4	(D)	(D)	(D)	(D)
3353127022	1,000 kVA and over 16/.....	2	1,353	75,011	1,021	54,425
	Diesel engine-driven generator sets, ac and dc output .....	(NA)	72,865	1,540,343	61,804	1,276,385
3353127025	Under 15 kVA.....	19	14,208	90,417	20,071	109,428
3353127028	15 to less than 50 kVA.....	28	14,129	123,218	9,961	92,181
3353127031	50 to less than 100 kVA.....	26	12,583	125,191	7,353	85,020
3353127034	100 to less than 200 kVA.....	21	6,697	126,953	5,660	111,878
3353127037	200 to less than 400 kVA.....	20	17,098	349,762	10,495	220,426
3353127041	400 to less than 600 kVA.....	15	4,135	216,109	4,194	196,490
3353127043	600 to less than 800 kVA.....	16	1,015	89,882	934	70,465
3353127046	800 to less than 1,000 kVA.....	13	689	69,760	702	63,295
3353127049	1,000 to less than 2,000 kVA 17/ .....	12	(D)	(D)	(D)	(D)
3353127052	2,000 to less than 3,000 kVA 17/.....	5	(D)	(D)	(D)	(D)
3353127055	3,000 kVA and over 17/.....	3	2,311	349,051	2,434	327,202
	Dual fuel (oil and gas) engine-driven generator sets, ac and dc output.....	(NA)	(S)	(S)	(S)	(S)
3353127058	Under 2,000 kVA.....	-	-	-	-	-
3353127061	2,000 kVA and over.....	-	-	-	-	-
3353127064	Other generator set units, excluding electric motor-driven generator sets.....	4	(S)	(S)	(S)	(S)
3353129, 312A	Electric motor-driven generator sets .....	(NA)	22,700,620	924,956	22,480,882	954,738
	Electric motor-driven generator sets, including dynamotors, converters, inverters, and frequency changers:					
335312A001	Synchro converters and double current generators, 746 watts or more 18/.....	2	(D)	(D)	(D)	(D)
	Other motor generator sets:					
3353129001	Ac and dc output rated at less than 746 watts 18/.....	6	10,552	7,977	9,659	6,446
	Ac and dc output rated at 746 watts or more:					
335312A004	Ac output, based on the rating of the largest ac generator 19/.....	8	(D)	(D)	(D)	(D)
335312A007	Dc output, based on the rating of the largest dc generator 19/.....	3	5,288	16,207	5,841	19,881
	Other rotating equipment:					
3353129004	Rate generators, resolvers, and combinations (less than 746 watts) 20/.....	10	(D)	(D)	(D)	(D)
3353129007	Synchro-type components, less than 746 watts 20/.....	6	658,310	152,955 r/	477,350	135,088
	All hermetic motors:					
3353129011	5.5-inch stator core diameters, and smaller.....	9	12,244,891	278,762	11,576,625	291,346
335312A011	Over 5.5-inch stator core diameters.....	13	9,719,496	399,148	10,339,724	446,505

Table 2. Quantity and Value of Shipments of Motors and Generators: 1998 and 1997  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1998		1997	
			Quantity	Value	Quantity	Value
	All other rotating equipment:					
3353129013	Rated at less than 746 watts.....	8	56,564	23,761	61,930	25,521
335312A013	Rated at 746 watts or more.....	10	5,519	46,146	9,753	29,951
335312C	Parts for motors and generators regardless of output rating 14/21/.....	(NA)	(X)	1,212,511	(X)	894,790
335312C001	Commutators 21/.....	12	(X)	(D)	(X)	(D)
335312C004	Land transportation 21/.....	4	(X)	(D)	(X)	(D)
335312C007	All other parts 21/.....	60	(X)	(D)	(X)	(D)

- Represents zero. D Withheld to avoid disclosing data for individual companies. FS Frame size. NA Not available.  
 r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

- 1/Data are included in product code 33531210X2, 0X3.
- 2/Product codes 3353121013 and 3353121016 are combined to avoid disclosing data for individual companies.
- 3/Product codes 3353121043 and 335312046 are combined to avoid disclosing data for individual companies.
- 4/Product codes 3353121053, 3353121055, and 3353121058 are combined to avoid disclosing data for individual companies.
- 5/Product codes 3353121061 and 3353121064 are combined to avoid disclosing data for individual companies.
- 6/Data are included in product code 33531230X4.
- 7/Product codes 3353121076 and 3353121079 are combined to avoid disclosing data for individual companies.
- 8/For 1997, product code 3353121076 is included with product code 33531210B7 to avoid disclosing data for individual companies.
- 9/Data are included in product code 33531230X5.
- 10/Data are included in product code 33531230X6.
- 11/Product codes 33531210F1 and 33531210F4 are combined to avoid disclosing data for individual companies.
- 12/For 1997, product code 3353123088 is included with product code 3353123091 to avoid disclosing data for individual companies.
- 13/For 1997, product code 3353123094 is included with product code 3353123097 to avoid disclosing data for individual companies.
- 14/Industries 3353125 and 335312C are combined to avoid disclosing data for individual companies.
- 15/Product codes 3353127001 and 3353127004 are combined to avoid disclosing data for individual companies.
- 16/Product codes 3353127016, 3353127019, and 3353127022 are combined to avoid disclosing data for individual companies.
- 17/Product codes 3353127052, 3353127049 and 3353127055 are combined to avoid disclosing data for individual companies.
- 18/Product codes 335312A001 and 3353129001 are combined to avoid disclosing data for individual companies.
- 19/Product codes 335312A004 and 335312A007 are combined to avoid disclosing data for individual companies.
- 20/Product codes 3353129004 and 3353129007 are combined to avoid disclosing data for individual companies.
- 21/Product codes 335312C001, 335312C004, and 335312C007 are combined with industry 335312C to avoid disclosing data for individual companies.

Table 3. Quantity and Value of Total Shipments and Interplant Transfers of Motors and Generators and Quantity of Motors and Generators Produced and Incorporated Into Other Products at the Same Establishment: 1998 and 1997  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Total shipments, including interplant transfers		Interplant transfers		Produced and incorporated (quantity)
		Quantity	Value	Quantity	Value	
1998						
335312	Motors and generators:					
3353121	Fractional horsepower motors, excluding hermetics.....	278,943,318	4,466,725	23,192,776	328,226	59,854,776
3353123	Integral horsepower motors and generators, excluding hermetics.....	9,014,495	2,233,824	3,168,920	82,366	2,781,807
	Alternating current:					
3353123000	Polyphase, induction greater than 1 hp.....	2,089,543	1,261,121	18,033	26,376	5,941
3353125	Motors and generators for land transportation equipment 1/.....	(D)	(D)	(S)	(D)	(S)
3353127	Prime mover generator sets (except steam and hydraulic turbine).....	657,946	2,047,190	(D)	(D)	(D)
3353129	Electric motor generator sets and other rotating equipment, including hermetics with power rating less than 746 watts 2/.....	(D)	(D)	(D)	(D)	(D)
335312A	Electric motor generator sets and other rotating equipment, including hermetics with a power rating of 746 watts or more 2/.....	22,700,620	924,956	9,780,546	116,855	(D)
335312C	Parts for motors and generators 1/.....	(X)	1,212,511	(X)	151,210	(X)
1997						
335312	Motors and generators:					
3353121	Fractional horsepower motors, excluding hermetics.....	r/ 329,801,231	r/ 4,715,550	r/ 23,405,070	r/ 308,192	r/ 62,612,835
3353123	Integral horsepower motors and generators, excluding hermetics.....	8,733,132	2,245,951	2,955,225	77,686	1,962,537
	Alternating current:					
3353123000	Polyphase, induction greater than 1 hp.....	2,051,774	1,288,763	16,712	22,607	5,819
3353125	Motors and generators for land transportation equipment 1/.....	(D)	(D)	(S)	(D)	(S)
3353127	Prime mover generator sets (except steam and hydraulic turbine).....	555,331	1,734,768	(D)	(D)	(D)
3353129	Electric motor generator sets and other rotating equipment, including hermetics with power rating less than 746 watts 2/.....	(D)	(D)	(D)	(D)	(D)
335312A	Electric motor generator sets and other rotating equipment, including hermetics with a power rating of 746 watts or more 2/.....	22,480,882	954,738	r/ 9,536,067	r/ 121,315	(D)
335312C	Parts for motors and generators 1/.....	(X)	894,790	(X)	r/ 141,999	(X)

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

1/Industries 3353125 and 335312C are combined to avoid disclosing data for individual companies.  
 2/Industries 3353129 and 335312A are combined to avoid disclosing data for individual companies.



Table 4. Shipments, Exports, Imports, and Apparent Consumption of Motors and Generators: 1998 and 1997  
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise 1/ (value at port)	Imports for consumption 2/ (value)
		Quantity	Value f.o.b. plant		
1998					
3353121	Fractional horsepower motors and generators (except hermetics).....	278,943,318	4,466,725	589,520	2,004,015
3353123	Integral horsepower motors and generators.....	9,014,495	2,233,824	700,954	1,108,140
3353125	Motors and generators for and transportation 3/.....	(D)	(D)	(D)	(D)
3353127	Prime mover generator sets, (except steam or hydraulic and electric motor driven):				
	Gas/gasoline driven:				
	Less than 5 kVA (3353127001, 004) 4/.....	272,632	120,846	(D)	(D)
	5 kVA and over (3353127007, 011, 013) 4/.....	311,096	310,990	128,609	90,734
	Diesel engine-driven:				
	Less than 400 kVA (3353127025 - 037) 5/.....	64,715	815,541	(D)	(D)
	400 kVA to less than 1,000 kVA (3353127041, 043, 046) 5/.....	5,839	375,751	(D)	(D)
	1,000 kVA and over (3353127049 - 055) 5/.....	2,311	349,051	410,129	121,933
	Other (3353127064).....	(S)	(S)	476,484	98,683
3353129, 12A	Electric motor-driven generator sets, hermetics, and other rotating equipment:				
	Synchronous converters, double current generators, and electric motor-driven generator sets (335312A001, 3353129001, 335312A004, 007) 6/.....	15,840	24,184	(D)	(D)
	Hermetic motors (3353129011, 335312A011) 6/.....	21,964,387	677,910	(D)	(D)
	Other rotating equipment (3353129007, 013, 335312A013) 6/.....	720,393	222,862	8,245	6,371
335312C	Parts for all electric motors and generators (335312C001, 004, 007) 3/.....	(X)	1,212,511	1,064,250	787,942
1997					
3353121	Fractional horsepower motors and generators (except hermetics).....	r/ 329,801,231	r/ 4,715,550	509,972	1,827,670
3353123	Integral horsepower motors and generators.....	8,733,132	2,245,951	869,256	951,185
3353125	Motors and generators for and transportation 3/.....	(D)	(D)	(D)	(D)
3353127	Prime mover generator sets, (except steam or hydraulic and electric motor driven):				
	Gas/gasoline driven:				
	Less than 5 kVA (3353127001, 004) 4/.....	319,136	164,662	(D)	(D)
	5 kVA and over (3353127007, 011, 013) 4/.....	r/ 173,370	r/ 239,296	74,717	78,878
	Diesel engine-driven:				
	Less than 400 kVA (3353127025 - 037) 5/.....	53,540	618,933	(D)	(D)
	400 kVA to less than 1,000 kVA (3353127041, 043, 046) 5/.....	5,830	330,250	(D)	(D)
	1,000 kVA and over (3353127049 - 055) 5/.....	2,434	327,202	518,377	51,788
	Other (3353127064).....	(S)	(S)	420,097	19,058
3353129, 12A	Electric motor-driven generator sets, hermetics, and other rotating equipment:				
	Synchronous converters, double current generators, and electric motor-driven generator sets (335312A001, 3353129001, 335312A004, 007) 6/.....	15,500	26,327	(D)	(D)
	Hermetic motors (3353129011, 335312A011) 6/.....	21,916,349	737,851	(D)	(D)
	Other rotating equipment (3353129007, 013, 335312A013) 6/.....	r/ 549,033	190,560	15,367	7,844
335312C	Parts for all electric motors and generators (335312C001, 004, 007) 3/.....	(X)	894,790	101,251	741,665

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

1/Source: Census Bureau report, EM 545, U.S. Exports.

2/Source: Census Bureau report, IM 145, U.S. Imports for Consumption.

3/"Motors and generators for land transportation" and "Parts for all electric motors and generators" are combined to avoid disclosing data for individual companies.

4/Exports and imports for "Gas/gasoline engine-driven, less than 5 kVA" and "Gas/gasoline engine-driven, 5 kVA and over" are combined to avoid disclosing data for individual companies.

5/Exports and imports for "Diesel engine-driven, less than 400 kVA," "Diesel engine-driven, 400 kVA to less than 1,000 kVA," and "1,000 kVA and over" are combined to avoid disclosing data for individual companies.

6/Exports and imports for "Synchronous converters, double current generators, and electric motor-driven generator sets," "Hermetic motors," and "Other rotating equipment" are combined to avoid disclosing data for individual companies.

Note: Beginning in 1989, data for exports and imports were classified under a new harmonized system for better comparability.

Table 5. Comparison of North American Industrial Classification System-Based Product Codes with Schedule B Export Numbers, and HTSUSA Import Numbers: 1998

Product code	Product description	Export number 1/			Import number 2/
3353121	Fractional horsepower motors and generators.....	8501.10.3000	8501.10.4040	8501.10.2000	8501.10.4020
		8501.10.4060	8501.10.4080	8501.10.4040	8501.10.4060
		8501.10.6020	8501.10.6040	8501.10.4080	8501.10.6020
		8501.10.6060	8501.10.6080	8501.10.6040	8501.10.6060
		8501.20.2000	8501.20.3000	8501.10.6080	8501.20.2000
		8501.31.2000	8501.31.3000	8501.20.4000	8501.20.5000
		8501.31.8000	8501.40.2020	8501.31.2000	8501.31.4000
		8501.40.2040	8501.40.3020	8501.31.5000	8501.31.8000
		8501.51.2040	8501.51.3020	8501.40.4020	8501.40.4040
		8501.51.3040		8501.40.5020	8501.40.5040
				8501.51.2020	8501.51.2040
				8501.51.4020	8501.51.4040
		3353123, 125	Integral horsepower motors and generators.....	8501.20.6000	8501.31.6000
8501.32.2000	8501.32.4000			8501.32.2000	8501.32.4040
8501.32.6000	8501.33.2000			8501.32.5520	8501.32.5540
8501.33.3000	8501.33.4040			8501.32.6000	8501.33.2040
8501.33.4060	8501.33.6000			8501.33.2080	8501.33.3000
8501.34.3000	8501.34.6000			8501.33.4040	8501.33.4060
8501.40.6020	8501.40.6040			8501.33.6000	8501.34.3000
8501.51.6020	8501.51.6040			8501.34.6000	8501.40.6020
8501.52.4000	8501.52.8000			8501.40.6040	8501.51.6020
8501.53.4000	8501.53.6000			8501.51.6040	8501.52.4000
8501.53.8040	8501.53.8060			8501.52.8020	8501.52.8040
8501.61.0000	8501.62.0000			8501.53.4040	8501.53.4080
8501.63.0000	8501.64.0020			8501.53.6000	8501.53.8040
8501.64.0030	8501.64.0050			8501.53.8060	8501.61.0000
				8501.62.0000	8501.63.0000
		8501.64.0020	8501.64.0030		
		8501.64.0050			
3353127001	Gas/gasoline engine-driven.....	8502.20.0040	8502.20.0080	8502.20.0030	8502.20.0060
3353127025, 028, 031, 034	Diesel engine-driven generator sets.....	8502.11.0000	8502.12.0000	8502.11.0000	8502.12.0000
		8502.13.0020	8502.13.0040	8502.13.0020	8502.13.0040
3353127064	Dual fuel engine-driven generator sets.....	8502.31.0000	8502.39.0000	8502.31.0000	8502.39.0000
3353129, 12A	Electric motor-driven generator sets and other rotating equipment.....	8502.40.0000		8502.40.0000	
335312C001	Parts for motors and generators, including commutators.....	8503.00.2000		8503.00.2000	
335312C004, 007	Parts for motors and generators, excluding commutators.....	8503.00.5000	8503.00.6040	8503.00.3500	8503.00.4500
		8503.00.6060		8503.00.6500	8503.00.7500
				8503.00.9000	8503.00.9520
				8503.00.9545	8503.00.9560

1/Source: 1998 edition, Harmonized System-Based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (1998).