Refrigeration, Air Conditioning, and Warm Air Heating Equipment: 2004

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SUMMARY OF FINDINGS

In 2004, the value of shipments of heat transfer equipment increased by 6 percent to $4,737 million, compared with the 2003 figure of $4,453 million. The value of shipments of condensing units, refrigeration (complete), increased by 11 percent to $335 million, from the 2003 level of $303 million. Room air-conditioners showed a decrease of 3 percent in 2004 with $732 million shipped, compared with the $757 million shipped in 2003. The value of shipments of motor vehicle mechanical air-conditioning systems decreased by 4 percent to $2,646 million, compared with the 2003 figure of $2,746. Compressors and compressor units increased by 7 percent to $2,341 million, compared with $2,189 million in 2003. Automotive air-conditioning compressors showed a decrease of 4 percent in 2004 with $1,531 million shipped, compared with the $1,583 million shipped in 2003. Nonelectric warm air furnaces and humidifers showed a 15-percent increase from $1,757 million in 2003 to a value of $2,013 million in 2004. Unitary air-conditioners increased by 9 percent to $5,861 million, from the 2003 level $5,359 million. The value of shipments of air source heat pumps increased by 19 percent to $1,486 million in 2004, compared to the 2003 figure of $1,241 million. The value of shipments of ground and ground water source heat pumps increased from $118 million for 2003 to $128 million in 2004, showing a 9-percent increase.

For general CIR information, explanation of general terms and historical note, see the appendix.

Address inquiries concerning these data to Investment Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call Blynda K. Metcalf, 301-763-4781.

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U S C E N S U S B U R E A U

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Table 1. Summary of Shipments of Refrigeration, Air-Conditioning, and Warm Air Heating Equipment: 2004 and 2003

[Value in thousands of dollars]

Product code	Product description	2004	2003
3334151	Heat transfer equipment	4,737,309	4,453,257
3334153 pt.	Commercial refrigeration equipment	188,824	182,383
3334155	Condensing units, refrigeration (complete)	335,361	303,252
3334156	Room air-conditioners and dehumidifiers	732,182	756,900
3363917	Motor vehicle mechanical air-conditioning systems	2,646,163	2,745,868
333415A	Compressors and compressor units	2,341,215	2,189,182
336391B	Automotive air-conditioning compressors	1,531,011	1,583,199
333415C	Nonelectric warm air furnaces and humidifiers	2,013,247	1,757,262
333415E	Unitary air conditioners	5,861,072	5,359,148
333415F	Air source heat pumps	1,485,723	1,241,342
333415G	Ground and ground water source heat pumps	128,498	117,790

pt. Part.

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2004 and 2003
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004 Quantity		2004 Value		2003 Quantity		2003 Value	
3334151	Heat transfer equipment (except room and unitary air-conditioners)	135	(X)		4,737,309		(X)		4,453,257	
3334151101	Packaged terminal air-conditioners 1/	7	a/	112,536	a/	74,140	108,199		69,911	
3334151103	Package terminal heat pumps	5	c/	75,041	c/	38,848	86,911		46,564	
	Evaporative condensers	(X)		2,120		58,735	r/	2,258		53,053
3334151105	100 tons and under	11		656		6,199	r/	658	r/	6,119
3334151107	Over 100 tons	12		1,464	a/	52,536	1,600		46,934	
	Room fan-coil air conditioning units:									
3334151109	Vertical stack	3	c/	8,772	c/	8,018	8,773		7,691	
3334151111	Vertical	8		97,232		84,799	100,906		82,195	
3334151113	Horizontal	8	a/	107,137		50,844	a/	102,387	46,010	
3334151115	Room air-induction units	2		(D)		(D)	(D)		(D)	
	Central station air-handling units (motor-driven fan-type)	(X)		391,139		747,416	373,588		716,302	
3334151117	Draw through	24	c/	374,226		607,930	c/	353,840	579,349	
3334151119	Blow through	10		5,415		101,446	6,927	r/	95,164	
3334151121	Heating and ventilating	10	c/	11,498		38,040	c/	12,821	r/	41,789
	Coolers (refrigeration):									
	Ceiling, wall-mounted, and floor-mounted unit coolers	(X)		215,128		146,382	218,708		139,129	
3334151123	4,000 Btuh and below	7		57,987		12,424	58,929		9,728	
3334151125	4,001 to 6,000 Btuh	7		12,680		3,991	11,287		3,133	
3334151127	6,001 to 8,000 Btuh	7		24,321		10,360	27,231		10,988	
3334151129	8,001 to 12,000 Btuh	7		48,606		21,437	47,058		19,619	
3334151131	12,001 to 18,000 Btuh	8		35,833		22,668	37,066		21,743	
3334151133	Over 18,000 Btuh	12		35,701		75,502	37,137		73,918	
	Air cooled refrigerant condensers remote type)	(X)		22,796		66,887	24,877		71,746	
3334151135	Under 30 tons	13		15,705		17,186	17,809	r/	18,951	
3334151137	30 to 50 tons	9		1,786		6,812	1,913		7,556	
3334151139	Over 50 tons	8		5,305		42,889	5,155		45,239	
	Miscellaneous heat transfer equipment:									
	Shell- and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube	(X)		(X)		51,535	(X)		50,447	
3334151141	Condensers	6		(X)		24,726	(X)		26,244	
3334151143	Liquid coolers	9		(X)		26,809	(X)		24,203	
3334151145	Liquid-suction heat exchangers and refrigerant liquid receivers	7		(X)		5,792	(X)	r/	3,145	
	Central system finned coils (air-conditioning and refrigeration type	(X)		(X)		70,706	(X)		73,418	
3334151147	Standard steam and steam distributing tube	11		(X)		19,217	(X)	a/	22,052	
3334151149	Standard water cooling and/or heating and cleanable tube water	12		(X)		45,757	(X)	a/r/	47,033	
3334151151	Volatile refrigerant cooling	9		(X)		5,732	(X)	r/	4,333	
	Coil sales by original equipment manufacturers intended for resale or assembly into equipment by other manufacturer (all types)	(X)		(X)		462,954	(X)	r/	367,450	
3334151153	Copper and aluminum	15		(X)		325,406	(X)	r/	254,771	
3334151155	Aluminum (only)	7		(X)		62,297	(X)		51,566	
3334151157	Other, including steel and copper	7		(X)		75,251	(X)		61,113	
3334151159	Factory-assembled, refrigeration type, finned gravity coils, including wetted-surface dehumidifiers	3		(X)		(D)	(X)		(D)	
	Centrifugal liquid chilling packages, hermetic and open types	(X)		6,241		564,066	6,451		563,146	
3334151161	200 hp and under	10	c/	1,260		30,960	c/	1,358	34,642	
3334151163	201 to 300 hp	7		814		49,522	1,076		61,081	
3334151165	301 to 400 hp	6		1,094		76,702	1,116		75,235	
3334151167	Over 400 hp	6		3,073		406,882	2,901		392,188	
	Ice-making machines	(X)		383,601		613,039	353,219		563,752	
	Self-contained ice-cube makers	(X)		179,779		205,219	204,940		246,215	
3334151169	Automatic, under 200 lbs	6		131,773		103,802	120,007		92,782	
3334151171	Automatic, 201 lbs and over	7		48,006	a/	101,417	84,933	a/	153,433	
	Self-contained flake or chip machines	(X)		15,824		36,826	15,302		35,001	
3334151173	300 lbs and under	5	a/	3,153	a/	4,951	a/	2,761	a/	4,188
3334151175	Over 300 lbs	13	b/	12,671	c/	31,875	c/	12,541	c/	30,813
3334151177	Not self-contained	8		116,473		208,502	72,335		144,257	
3334151179	Combination ice makers and ice/drink dispensers	6		71,525		162,492	60,642		138,279	
3334151181	Absorption refrigeration and dehydration systems	5		4,824		52,453	c/	3,975	a/	44,290
3334151183	Mechanical refrigeration systems used on all types of vehicles	4		(D)		(D)	(D)		(D)	
	Reciprocating air and reciprocating water cooled, air cooled screw, air cooled scroll, and water cooled scroll machines	(X)		30,746		447,357	30,213		453,938	
3334151185	20 hp and under	22		8,106	a/	37,789	a/	8,455	35,308	
3334151187	21 to 49 hp	19		9,784		45,937	6,718		39,486	
3334151189	50 to 75 hp	17		5,815		75,756	6,597		75,027	

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2004 and 2003
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004 Quantity		2004 Value		2003 Quantity		2003 Value	
3334151191	Over 75 hp	15	7,041		287,875		8,443		304,117	
3334151193	Factory-fabricated water cooling towers	12	9,016	a/	212,347	a/	8,594	a/	197,499	
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers	5	757,244	c/ a/	188,824	r/	768,908		182,383	
3334155	Condensing units, refrigeration (complete)	25	488,383	c/	335,361	c/	477,407	c/	303,252	
	Air-cooled hermetic-type	(X)	478,188		272,963		467,000		251,651	
3334155123	1 hp and under	11	380,946		140,988		375,699		132,682	
3334155125	1.5 hp	10	23,786		17,783		22,103		15,674	
3334155128	2 hp and 2.5 hp	11	25,210		23,485		23,394		20,956	
3334155130	3 hp	10	22,130		26,477		21,188		24,162	
3334155132	Over 3 hp but under 15 hp	13	26,116		64,230		24,616		58,177	
3334155144	Water-cooled hermetic-type, under 15 hp	2	(D)		(D)		(D)		(D)	
	Water- or air-cooled hermetic-type	(X)	6,223		56,544		6,068		46,516	
3334155161	15 hp	9	1,704		8,593		1,984		9,240	
3334155163	20 hp	11	1,239		7,986		955		5,964	
3334155165	25 hp	11	949		7,835		838		5,770	
3334155167	30 hp	9	851		9,275		924		8,951	
3334155170	40 hp	9	1,480		22,855		1,367		16,591	
3334155180	Water or air-cooled open-type.(all sizes)	4	(D)		(D)		(D)		(D)	
3334156	Room air-conditioners and dehumidifiers	17	(X)		732,182		(X)		756,900	
3334156111	Electrically operated dehumidifiers, mechanically refrigerated, self-contained	6	574,926		89,518		506,247	r/	74,310	
	Room air-conditioners	(X)	3,666,121		642,664		3,939,238		682,590	
3334156131	5,999 Btuh and under	6	(D)		(D)		(D)		(D)	
3334156134	6,000 to 6,999 Btuh	5	(D)		(D)		437,057		46,179	
3334156138	7,000 to 7,999 Btuh	6	27,155	c/	7,549		201,699		33,055	
3334156142	8,000 to 8,999 Btuh	7	645,035	c/	93,726		538,686		83,344	
3334156146	9,000 to 9,999 Btuh	6	11,753	c/	3,724		19,674		6,061	
3334156152	10,000 to 10,999 Btuh	8	412,421	c/	73,658		541,392		98,147	
3334156156	11,000 to 12,999 Btuh	10	546,628	c/	117,236		613,582		134,291	
3334156161	13,000 to 14,999 Btuh	9	(D)		(D)		(D)		(D)	
3334156163	15,000 to 16,999 Btuh	7	196,321	c/	51,209		138,579		35,543	
3334156165	17,000 to 19,999 Btuh	8	238,019	c/	66,043		207,673		59,858	
3334156167	20,000 to 22,999 Btuh	6	7,342		2,902		(D)		(D)	
3334156171	23,000 to 25,999 Btuh	10	213,872	c/	77,860		170,513		63,936	
3334156175	26,000 Btuh and over	9	33,256	c/	25,221		30,389		24,298	
3363917	Motor vehicle mechanical air-conditioning systems	(X)	(X)		2,646,163		(X)		2,745,868	
3363917110	Air-conditioning units and systems for passenger automobiles 2/	22	19,739,040		1,837,561	r/	20,847,127		1,958,543	
3363917120	Air-conditioning units and systems for buses	9	330,574	c/ a/	117,009	a/	300,741	c/r/	119,882	
3363917130	Other motor vehicle mechanical air-conditioning systems	15	3,707,778		691,593		3,582,929		667,443	
333415A	Compressors and compressor units 3/ 4/	25	(X)		2,341,215		(X)		2,189,182	
	All refrigerants (except ammonia)	(X)	11,218,332		2,262,757		11,379,562		2,117,532	
	Hermetic-type motor compressors	(X)	11,211,238		2,194,810		11,368,917		2,051,276	
333415A111	Under 3 hp	8	6,204,680		984,839		6,882,860	r/	924,201	
333415A123	3 to 10 hp	11	(D)		(D)		4,421,868		982,099	
333415A130	15 hp	10	15,135		14,589		18,052		19,736	
333415A132	20 hp	10	7,156		11,585		10,010		18,303	
333415A134	25 hp	10	6,371		10,741		8,629		16,146	
333415A136	30 hp	10	2,476		7,822		4,393		13,773	
333415A139	40 hp and 50 hp	10	5,141		35,009		15,975		42,738	
333415A142	60 hp	8	(D)		(D)		(D)		(D)	
333415A146	75 hp	5	(D)		(D)		(D)		(D)	
333415A149	100 hp and over	6	1,622		9,395		3,253		17,777	
333415A152	Open-type compressors (with or without motor, all sizes)	10	(D)		(D)		(D)		(D)	
333415A154	Screw type	4	(D)		(D)		(D)		(D)	
333415A158	Ammonia refrigerants (all types)	7	1,822	a/	78,458	a/	1,571		71,650	
336391B100	Automotive air-conditioning compressors (open-type, with or without motor)	9	13,953,372		1,531,011		14,292,443		1,583,199	
333415C pt.	Nonelectric warm air furnaces and humidifiers	(X)	(X)		2,013,247		(X)		1,757,262	
	Oil, forced air:									
333415C101	150,000 Btuh bonnet output and under	14	91,283		68,971		99,291		73,043	
333415C105	150,001 Btuh bonnet output and over	11	3,751	a/	5,868		5,129		6,337	
	Gas, forced air:									
333415C107	150,000 Btuh bonnet output and under	16	3,758,684		1,707,926		3,238,094		1,463,550	
333415C109	150,001 - 400,000 Btuh bonnet output	11	13,844		10,320		11,144		8,863	
333415C111	Over 400,000 Btuh bonnet output	8	330,711	c/	141,808	c/	287,266	c/	123,483	
333415C179	All other nonelectric warm air furnaces	5	1,640	a/	1,497		5,999		2,404	
333415C181	Humidifiers (attachments to warm air furnaces) all types, including central systems and self-contained (except portable humidifiers)	13	624,458	a/	76,857		647,483	a/	79,582	

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[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004 Quantity		2004 Value		2003 Quantity		2003 Value	
333415E	Unitary air conditioners	57	(X)		5,861,072		(X)		5,359,148	
333415E105	Recreational vehicle air-conditioners	5	(D)		(D)		(D)		(D)	
	Single package air-conditioners, with or without evaporator fans, including refrigeration chassis and remote-condenser type	(X)	(D)		(D)		(D)		(D)	
	Horizontal	(X)	232,143		585,015		214,935		549,465	
333415E107	Under 27,000 Btuh	13	19,052	c/	14,466	c/	18,709		15,682	
333415E109	27,000 to 32,999 Btuh	13	27,065		25,206		18,783		17,590	
333415E111	33,000 to 53,999 Btuh	14	78,333	a/	73,386	a/	67,723		67,295	
333415E113	54,000 to 64,999 Btuh	14	44,394	a/	58,111	a/	45,388		61,513	
333415E115	65,000 to 96,999 Btuh	11	20,043		38,125		20,767		45,468	
333415E117	97,000 to 134,999 Btuh	11	14,586		42,667		16,569		52,471	
333415E119	135,000 to 184,999 Btuh	11	11,291		47,262		10,420		47,056	
333415E121	185,000 to 249,999 Btuh	12	6,060		42,667		6,486		47,212	
333415E123	250,000 to 319,999 Btuh	10	4,703		33,011		5,093		42,768	
333415E135	320,000 to 379,999 Btuh	11	1,518		25,537		1,215		19,816	
333415E141	380,000 Btuh and over	10	5,098	a/	184,577		3,782	a/	132,594	
	Other than horizontal	(X)	(D)		(D)		(D)		(D)	
333415E143	Under 54,000 Btuh	5	(D)		(D)		16,074		18,998	
333415E145	54,000 to 64,999 Btuh	4	4,451		8,856		2,216		5,260	
333415E147	65,000 to 96,999 Btuh	4	411		1,421		331		1,212	
333415E149	97,000 to 134,999 Btuh	4	(D)		(D)		(D)		(D)	
333415E151	135,000 to 184,999 Btuh	3	217		1,703	r/	237		2,015	
333415E153	185,000 Btuh and over	4	(D)		(D)		921		19,149	
	Year-round air-conditioners, single package and remote-condenser type (except heat pumps)	(X)	603,638		1,468,805		606,983		1,405,275	
333415E155	Under 33,000 Btuh	15	124,971		107,902		134,552		114,474	
333415E157	33,000 to 38,999 Btuh	15	108,791		121,045		114,632		129,000	
333415E159	39,000 to 43,999 Btuh	12	31,515		33,597		28,928		30,241	
333415E161	44,000 to 53,999 Btuh	13	75,812		104,195		76,247		104,321	
333415E163	54,000 to 64,999 Btuh	18	101,966		211,152		97,320		188,964	
333415E165	65,000 to134,999 Btuh	11	99,212		317,900		98,684		306,300	
333415E167	135,000 to 184,999 Btuh	11	32,798		188,560		28,525		161,386	
333415E169	185,000 to 249,999 Btuh	13	15,495		136,870		14,883		127,880	
333415E171	250,000 to 319,999 Btuh	10	6,717		67,052		6,858		66,042	
333415E173	320,000 to 379,999 Btuh	10	1,949		31,009		2,041		30,480	
333415E175	380,000 to 539,999 Btuh	8	1,919		36,555		1,749		33,083	
333415E177	540,000 to 639,999 Btuh	8	960		24,586		999		29,569	
333415E179	640,000 Btuh and over	8	1,533		88,382		1,565		83,535	
333415E181	Water source heat pumps (except room air-conditioners)	9	132,206	c/	152,685	a/	123,974		142,834	
	Split system air-conditioning condensing units	(X)	4,992,634		2,548,907		4,455,382		2,285,111	
333415E182	Under 22,000 Btuh	13	308,723		104,451		295,657		99,009	
333415E183	22,000 to 26,999 Btuh	14	962,682		346,250		882,186	r/	314,336	
333415E185	27,000 to 32,999 Btuh	15	879,268		368,403		796,817		331,724	
333415E187	33,000 to 38,999 Btuh	14	1,121,045		528,418		983,715		461,989	
333415E189	39,000 to 43,999 Btuh	13	505,932		277,250		441,063		240,956	
333415E191	44,000 to 53,999 Btuh	14	640,914		399,274		559,765		345,845	
333415E193	54,000 to 64,999 Btuh	12	515,403		366,687		434,739		324,517	
333415E195	65,000 to 96,999 Btuh	7	24,204		30,804		24,160		31,404	
333415E197	97,000 to 134,999 Btuh	7	13,868		24,348		16,440		31,593	
333415E199	135,000 to 184,999 Btuh	7	9,210		26,870		9,584		28,532	
333415E19A	185,000 to 249,999 Btuh	7	4,568		18,347		5,009		20,719	
333415E19C	250,000 to 319,999 Btuh	4	1,835		9,663		1,565		8,707	
333415E19E	320,000 to 379,999 Btuh	4	1,757		11,309		1,527		9,841	
333415E19G	380,000 to 539,999 Btuh	4	1,354		11,720		1,314		11,213	
333415E19J	540,000 to 639,999 Btuh	4	707		7,689		705		7,638	
333415E19L	640,000 Btuh and over	3	1,164		17,424		1,136		17,088	
	Split system air-conditioning coils	(X)	3,891,209		862,768		3,424,956		763,346	
333415E19M	With blower	10	2,075,205		632,536		1,767,158		553,836	
333415E19P	Without blower	13	1,816,004	a/	230,232	a/	1,657,798		209,510	
333415F	Air source heat pumps (except room air-conditioners)	21	1,848,530		1,485,723	a/	1,581,446		1,241,342	
	Single package:									
333415F123	Under 27,000 Btuh	15	33,468	a/	28,666	a/	38,070		33,450	
333415F134	27,000 to 41,999 Btuh	16	88,173	a/	91,096	a/	89,716		99,485	
333415F145	42,000 to 64,999 Btuh	16	78,466	a/	99,880	a/	77,515		104,421	
333415F156	65,000 Btuh and over	9	12,703		44,148		15,179		51,508	
	Split system:									
333415F167	Under 27,000 Btuh	11	520,123	a/	261,271	a/	428,042		212,744	
333415F178	27,000 to 41,999 Btuh	12	721,760		516,491		608,124		418,449	
333415F189	42,000 to 64,999 Btuh	11	380,418		417,667		309,505		289,449	
333415F195	65,000 Btuh and over	7	13,419		26,504	r/	15,295	r/	31,836	

Table 2. Quantity and Value of Shipments of Refrigeration, Air-Conditioning and Warm Air Heating Equipment: 2004 and 2003
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004 Quantity		2004 Value	2003 Quantity	2003 Value
333415G	Ground and ground water source heat pumps	5	75,519	a/	128,498	61,807	117,790
	Single and split systems:						
333415G110	Under 27,000 Btuh	3	(D)		(D)	(D)	(D)
333415G120	27,000 to 41,999 Btuh	3	(D)		(D)	(D)	(D)
333415G130	42,000 to 64,999 Btuh	3	(D)		(D)	(D)	(D)
333415G140	65,000 Btuh and over	4	(D)		(D)	(D)	(D)

Btuh British thermal units per hour. D Withheld to avoid disclosing data for individual companies. pt. Part. r/Revised by 5 percent or more from previously published data. X Not applicable.

1/Defined as factory-selected combinations of heating and cooling components or assemblies intended to serve an individual room and comprising: (1) heating assembly available with element for use with hot water, steam, and electricity; means for forced heated air circulation and distribution; integral or remote temperature controls; (2) slide-in cooling section with complete refrigerant cycle; (3) room cabinet; (4) provision for outdoor air intake and discharge and accessories as required for mounting in a building wall; (5) provisions for air filtration and ventilation; (6) permanent individual branch circuit wiring with a suitable line cord or terminating at a junction box within the room cabinet; and (7) provision for free conditioned air distribution, or when forced circulation is employed for minimal duct work having a total external static resistance not exceeding 1/10 inch of water.

2/Data exclude systems assembled from purchased components and installed at passenger automobile assemby lines. The values are understated for some systems because of the exclusion of compressors.

3/Represents only those compressors and compressor units produced and shipped separately, including interplant transfers.

4/Includes units shipped for household refrigerators.

Note: Percent of estimation for each item is indicated as follows: a/15 to 25 percent of this item is estimated. b/26 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

Table 3. Quantity of Assembled Compressor Bodies: 2004 and 2003
[Quantity of number units]

Product description	No. of cos.	2004	2003
Compressor bodies 1/ 2/	(X)	15,865,020	15,474,236
All refrigerants (except ammonia)	(X)	12,947,148	12,250,010
1/4 hp and under	3	(D)	(D)
1/3 hp and 1/2 hp	4	(D)	(D)
3/4 hp and 1 hp	4	(D)	(D)
1 1/2 hp	4	(D)	(D)
2 hp	6	(D)	(D)
3 hp	10	(D)	4,509,915
4 hp	4	129,697	215,725
5 hp	8	1,083,356	1,049,985
7 1/2 hp	9	94,962	86,146
10 hp	13	(D)	(D)
15 hp	12	142,019	134,237
20 hp	10	11,744	15,481
25 hp	11	10,969	13,258
30 hp	12	(D)	23,803
40 hp	11	10,518	12,140
50 hp	9	(D)	(D)
60 hp	10	4,701	4,987
75 hp	10	3,744	4,007
100 hp and over	10	25,078	21,981
Automotive air-conditioning, including passenger automobiles, trucks, buses, agriculture, and construction equipment	3	2,825,647	3,182,270
Ammonia refrigerants	2	(D)	(D)

D Withheld to avoid disclosing data for individual companies. X Not applicable.

1/Includes units for household refrigerators.

2/Represents the total number of compressor bodies assembled, whether shipped separately or incorporated into a condensing package or unitary end-use product such as single package air-conditioners, freezers, and refrigerators (manufactured and remanufactured units).

Table 4. Shipments, Exports, Imports, and Apparent Consumption of Air-Conditioning and Refrigeration Equipment: 2004 and 2003
[Value in thousands of dollars]

Product code 1/	Product description	Manufactures' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) 1/2/	Imports for consumption 3/4/
	2004			
3334151	Heat transfer equipment, excluding room and unitary air-conditoners and dehumidifiers	4,737,309	312,977	139,780
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers	188,824	15,592	108,211
3334155	Condensing units, all refrigerants	335,361	37,479	36,454
3334156	Room air-conditioners and dehumidifiers	732,182	51,307	1,025,066
3363917	Motor vehicle mechanical air-conditioning systems	2,646,163	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants	2,341,215	1,079,623	1,343,961
336391B	Automotive air-conditioning compressors	1,531,011	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers	2,013,247	(NA)	(NA)
333415E	Unitary air-conditioners	5,861,072	259,614	314,530
333415F	Air source heat pumps	1,485,723	(NA)	(NA)
333415G	Ground and ground water source heat pumps	128,498	(NA)	(NA)
	2003			
3334151	Heat transfer equipment, excluding room and unitary air-conditoners and dehumidifiers	4,453,257	214,339	107,812
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers	182,383	13,312	91,555
3334155	Condensing units, all refrigerants	303,252	36,911	29,785
3334156	Room air-conditioners and dehumidifiers	756,900	67,986	1,030,481
3363917	Motor vehicle mechanical air-conditioning systems	2,745,868	(NA)	(NA)
333415A	Compressors and compressor units, all refrigerants	2,189,182	949,870	1,221,650
336391B	Automotive air-conditioning compressors	1,583,199	(NA)	(NA)
333415C pt.	Nonelectric warm air furnaces and humidifiers	1,757,262	(NA)	(NA)
333415E	Unitary air-conditioners	5,359,148	253,081	310,522
333415F	Air source heat pumps	1,241,342	(NA)	(NA)
333415G	Ground and ground water source heat pumps	117,790	(NA)	(NA)

NA Not available. pt. Part.

1/Source: Census Bureau report EM 545, U.S. Exports (see Table 5 for a comparison of North American Industry Classification System (NAICS)-based product codes with Schedule B export codes, and HTSUSA import codes.
2/Dollar value represents the c.i.f. (cost, insurance, and freight) value at the port of export.
3/Source: Census Bureau report IM 145, U.S. Imports for Consumption. Data include both import value and duty value.
4/Represents the c.i.f. (cost, insurance, and freight) value at the first port of entry in the United States plus U.S. import duties.

Table 5. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes and HTSUSA Import Codes: 2004

Product code	Product description	Export code 1/	Import code 2/
3334151	Heat transfer equipment	8415.82.0130	8415.82.0130
		8415.82.0135	8415.82.0135
		8415.83.0140	8415.83.0140
		8418.61.0010	8418.61.0010
		8418.61.0015	8418.61.0015
		8418.61.0045	8418.61.0045
		8418.61.0050	8418.61.0050
		8418.61.0060	8418.61.0060
		8418.69.0055	8418.69.0055
3334153146	Mechanical drinking water coolers	8418.61.0020	8418.61.0020
3334155	Refrigeration condensing units	8418.99.0005	8418.99.8005
		8418.99.0010	8418.99.8010
		8418.99.0015	8418.99.8015
		8418.99.0020	8418.99.8020
		8418.99.0025	8418.99.8025
3334156	Room air-conditioners and dehumidifiers	8415.10.3040	8415.10.3040
		8415.10.3060	8415.10.3060
		8415.10.3080	8415.10.3080
		8415.82.0150	8415.82.0155
			8415.82.0160
3363917	Motor vehicle mechanical air-conditioning systems 3/	(X)	(X)
333415A	Compressors and compressor units, all refrigerants	8414.30.4000	8414.30.4000
		8414.30.8010	8414.30.8010
		8414.30.8020	8414.30.8020
		8414.30.8030	8414.30.8030
		8414.30.8050	8414.30.8050
		8414.30.8060	8414.30.8060
		8414.30.8070	8414.30.8070
		8414.30.8080	8414.30.8080
		8414.30.8090	8414.30.8090
336391B	Automotive air-conditioning compressors 3/	(X)	(X)
333415C	Nonelectric warm air furnaces and humidifiers 3/	(X)	(X)
333415E	Unitary air-conditioners (except room)	8415.81.0110	8415.81.0110
		8415.81.0120	8415.81.0120
		8415.81.0130	8415.81.0130
		8415.82.0105	8415.82.0105
		8415.82.0110	8415.82.0110
		8415.82.0115	8415.82.0115
		8415.82.0120	8415.82.0120
		8415.83.0050	8415.83.0050
		8415.83.0060	8415.83.0060
333415F	Air source heat pumps 3/	(X)	(X)
333415G	Ground and ground water source heat pumps 3/	(X)	(X)

X Not applicable

1/Source: 2004 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 (2004).

3/Import-export classification not directly comparable.

Appendix.
General CIR Survey Information, Explanation of General Terms and Historical Note

GENERAL

The CIR program has been providing monthly, quarterly, and annual measures of industrial activity for many years. Since 1904, with its cotton and fats and oils surveys, the CIR program has formed an essential part of an integrated statistical system involving the quinquennial economic census, manufacturing sector, and the annual survey of manufactures. The CIR surveys, however, provide current statistics at a more detailed product level than either of the other two statistical programs.

The primary objective of the CIR program is to produce timely, accurate data on production and shipments of selected products. The data are used to satisfy economic policy needs and for market analysis, forecasting, and decision making in the private sector. The product-level data generated by these surveys are used extensively by individual firms, trade associations, and market analysts in planning or recommending marketing and legislative strategies, particularly if their industry is significantly affected by foreign trade. Although production and shipments information are the two most common data items collected, the CIR program collects other measures also such as inventories, orders, and consumption. These surveys measure manufacturing activity in important commodity areas such as textiles and apparel, chemicals, primary metals, computer and electronic components, industrial equipment, aerospace equipment, and consumer goods.

The CIR program uses a unified data collection, processing, and publication system. The U.S. Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic census, manufacturing sector. The manufacturing sector provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is too large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. The CIR program includes a group of mandatory and voluntary surveys. Typically the monthly and quarterly surveys are conducted on a voluntary basis. Those companies that choose not to respond to the voluntary surveys are required to submit a mandatory annual counterpart corresponding to the more frequent survey.

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS), 1997

The adoption of the North American Industry Classification System (NAICS) in the 1997 Economic Census has had a major impact on the comparability of current and historic data. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those that left manufacturing are logging and portions of publishing. Prominent among the industries that came into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. The net effect of the classification changes are such that if the 1997 value of shipments data for all manufacturers were tabulated on an SIC basis, it would be approximately 3 percent higher.

Listed below are the NAICS sectors:

21 Mining
22 Utilities
23 Construction
31-33 Manufacturing
42 Wholesale Trade
44-45 Retail Trade
48-49 Transportation and Warehousing
51 Information
52 Finance and Insurance
53 Real Estate and Rental and Leasing
54 Professional, Scientific, and Technical Services
55 Management of Companies and Enterprises
56 Administrative and Support and Waste Management and Remediation Services
61 Educational Services
62 Health Care and Social Assistance
71 Arts, Entertainment, and Recreation
72 Accommodation and Food Services
81 Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

FUNDING

The Census Bureau funds most of the surveys. However, a number of surveys are paid for either fully or partially by other Federal Government agencies or private trade associations. A few surveys are mandated, but all are authorized by Title 13 of the United States Code.

RELIABILITY OF DATA

Survey error may result from several sources including the inability to obtain information about all cases in the survey, response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding the reported data, and other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to these nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is the imputing of data for nonrespondents, for late reporters, and for data that fail logic edits. Missing figures are imputed based on period-to-period movements shown by reporting firms. A figure is considered to be an impute if the value was not directly reported on the questionnaire, directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are suppressed or footnoted. The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

DATA REVISIONS

Statistics for previous years may be revised as the result of corrected figures from respondents, late reports for which imputations were originally made, or other corrections. Data that have been revised by more than 5 percent from previously published data are indicated by footnotes.

DISCLOSURE

The Census Bureau collects the CIR data under the authority of Title 13, United States Code, which specifies that the information can only be used for statistical purposes and cannot be published or released in any manner that would identify a person, household, or establishment. "D" indicates that data in the cell have been suppressed to avoid disclosure of information pertaining to individual companies.

EXPLANATION OF GENERAL TERMS

Capacity. The maximum quantity of a product that can be produced in a plant in 1 day if operating for 24 hours. Includes the capacity of idle plants until the plant is reported to be destroyed, dismantled, or abandoned.

Consumption. Materials used in producing or processing a product or otherwise removing the product from the inventory.

Exports. Includes all types of products shipped to foreign countries, or to agents or exporters for reshipment to foreign countries.

Gross shipments. The quantity or value of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

Interplant transfers. Shipments to other domestic plants within a company for further assembly, fabrication, or manufacture.

Inventories. The quantity or value of finished goods, work in progress, and materials on hand.

Machinery in place. The number of machines of a particular type in place as of a particular date whether the machinery was used for production, prototype, or sampling, or was idle. Machinery in place includes all machinery set up in operating positions.

Net receipts. Derived by subtracting the materials held at the end of the previous month from the sum of materials used during the current month.

Production. The total volume of products produced, including: products sold; products transferred or added to inventory after adjustments for breakage, shrinkage, and obsolescence, plus any other inventory adjustment; and products that undergo further manufacture at the same establishment.

Quantities produced and consumed. Quantities of each type of product produced by a company for internal consumption within that same company.

Quantity and value of new orders. The sales value of orders received during the current reporting period for products and services to be delivered immediately or at some future date. Also represents the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those that are supported by binding legal documents such as signed contracts or letter contracts.

Quantity and value of shipments. The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Stocks. Total quantity of ending finished inventory.

Unfilled orders (backlog). Calculated by adding net new orders and subtracting net sales from the backlog at the end of the preceding year.

HISTORICAL NOTE

Data on air-conditioning and refrigeration have been collected by the Census Bureau since 1944. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.