

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 humidifiers 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		2003	
			Quantity	Value	Quantity	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
3334151105	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
3334151109	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)
3334151117	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:					
3334151141	Shell- and-tube, shell-and-coil, shell-and-u-tube, tube-in-tube.....	(X)	(X)	51,535	(X)	50,447
3334151143	Condensers.....	6	(X)	24,726	(X)	26,244
3334151145	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
3334151147	Central system finned coils (air-conditioning and refrigeration type).....	(X)	(X)	70,706	(X)	73,418
3334151149	Standard steam and steam distributing tube.....	11	(X)	19,217	(X)	a/ 22,052
3334151151	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
3334151153	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
3334151155	Copper and aluminum.....	15	(X)	325,406	(X)	r/ 254,771
3334151157	Aluminum (only).....	7	(X)	62,297	(X)	51,566
3334151159	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
3334151169	Self-contained ice-cube makers.....	(X)	179,779	205,219	204,940	246,215
3334151171	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
3334151173	Self-contained flake or chip machines.....	(X)	15,824	36,826	15,302	35,001
3334151175	300 lbs and under.....	5	a/ 3,153	a/ 4,951	a/ 2,761	a/ 4,188
3334151177	Over 300 lbs.....	13	b/ 12,671	c/ 31,875	c/ 12,541	c/ 30,813
3334151179	Not self-contained.....	8	116,473	208,502	72,335	144,257
3334151181	Combination ice makers and ice/drink dispensers.....	6	71,525	162,492	60,642	138,279
3334151183	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)
3334151185	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
3334151187	20 hp and under.....	22	8,106	a/ 37,789	a/ 8,455	35,308
3334151189	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			2003		
			Quantity	Value	Quantity	Value		
3334151191	Over 75 hp.....	15	7,041	287,875	8,443	304,117		
3334151193	Factory-fabricated water cooling towers.....	12 a/	9,016 a/	212,347 a/	8,594 a/	197,499		
3334153146	Commercial refrigeration equipment, mechanical drinking water coolers.....	5 c/	757,244 a/	188,824 r/	768,908	182,383		
3334155	Condensing units, refrigeration (complete).....	25 c/	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 c/	27,155 c/	7,549	201,699	33,055		
3334156142	8,000 to 8,999 Btuh.....	7 c/	645,035 c/	93,726	538,686	83,344		
3334156146	9,000 to 9,999 Btuh.....	6 c/	11,753 c/	3,724	19,674	6,061		
3334156152	10,000 to 10,999 Btuh.....	8 c/	412,421 c/	73,658	541,392	98,147		
3334156156	11,000 to 12,999 Btuh.....	10 c/	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 c/	196,321 c/	51,209	138,579	35,543		
3334156165	17,000 to 19,999 Btuh.....	8 c/	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 c/	213,872 c/	77,860	170,513	63,936		
3334156175	26,000 Btuh and over.....	9 c/	33,256 a/	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 c/	330,574 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 a/	1,822	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 a/	3,751	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 c/	330,711 c/	141,808 c/	287,266 c/	123,483		
333415C179	All other nonelectric warm air furnaces.....	5 a/	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		

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		2003	
			Quantity	Value	Quantity	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	c/	19,052	c/	14,466
333415E109	27,000 to 32,999 Btuh.....	13		27,065		25,206
333415E111	33,000 to 53,999 Btuh.....	14	a/	78,333	a/	73,386
333415E113	54,000 to 64,999 Btuh.....	14	a/	44,394	a/	58,111
333415E115	65,000 to 96,999 Btuh.....	11		20,043		38,125
333415E117	97,000 to 134,999 Btuh.....	11		14,586		42,667
333415E119	135,000 to 184,999 Btuh.....	11		11,291		47,262
333415E121	185,000 to 249,999 Btuh.....	12		6,060		42,667
333415E123	250,000 to 319,999 Btuh.....	10		4,703		33,011
333415E135	320,000 to 379,999 Btuh.....	11		1,518		25,537
333415E141	380,000 Btuh and over.....	10	a/	5,098	a/	184,577
	Other than horizontal.....	(X)	(D)	(D)	(D)	(D)
333415E143	Under 54,000 Btuh.....	5		(D)		16,074
333415E145	54,000 to 64,999 Btuh.....	4		4,451		8,856
333415E147	65,000 to 96,999 Btuh.....	4		411		1,421
333415E149	97,000 to 134,999 Btuh.....	4		(D)		(D)
333415E151	135,000 to 184,999 Btuh.....	3		217	r/	1,703
333415E153	185,000 Btuh and over.....	4		(D)		921
	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
333415E157	33,000 to 38,999 Btuh.....	15		108,791		121,045
333415E159	39,000 to 43,999 Btuh.....	12		31,515		33,597
333415E161	44,000 to 53,999 Btuh.....	13		75,812		104,195
333415E163	54,000 to 64,999 Btuh.....	18		101,966		211,152
333415E165	65,000 to 134,999 Btuh.....	11		99,212		317,900
333415E167	135,000 to 184,999 Btuh.....	11		32,798		188,560
333415E169	185,000 to 249,999 Btuh.....	13		15,495		136,870
333415E171	250,000 to 319,999 Btuh.....	10		6,717		67,052
333415E173	320,000 to 379,999 Btuh.....	10		1,949		31,009
333415E175	380,000 to 539,999 Btuh.....	8		1,919		36,555
333415E177	540,000 to 639,999 Btuh.....	8		960		24,586
333415E179	640,000 Btuh and over.....	8		1,533		88,382
333415E181	Water source heat pumps (except room air-conditioners).....	9	c/	132,206	a/	152,685
	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
333415E183	22,000 to 26,999 Btuh.....	14		962,682		346,250
333415E185	27,000 to 32,999 Btuh.....	15		879,268		368,403
333415E187	33,000 to 38,999 Btuh.....	14		1,121,045		528,418
333415E189	39,000 to 43,999 Btuh.....	13		505,932		277,250
333415E191	44,000 to 53,999 Btuh.....	14		640,914		399,274
333415E193	54,000 to 64,999 Btuh.....	12		515,403		366,687
333415E195	65,000 to 96,999 Btuh.....	7		24,204		30,804
333415E197	97,000 to 134,999 Btuh.....	7		13,868		24,348
333415E199	135,000 to 184,999 Btuh.....	7		9,210		26,870
333415E19A	185,000 to 249,999 Btuh.....	7		4,568		18,347
333415E19C	250,000 to 319,999 Btuh.....	4		1,835		9,663
333415E19E	320,000 to 379,999 Btuh.....	4		1,757		11,309
333415E19G	380,000 to 539,999 Btuh.....	4		1,354		11,720
333415E19J	540,000 to 639,999 Btuh.....	4		707		7,689
333415E19L	640,000 Btuh and over.....	3		1,164		17,424
	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
333415E19P	Without blower.....	13	a/	1,816,004	a/	230,232
333415F	Air source heat pumps (except room air-conditioners).....	21		1,848,530	a/	1,485,723
	Single package:					
333415F123	Under 27,000 Btuh.....	15	a/	33,468	a/	28,666
333415F134	27,000 to 41,999 Btuh.....	16	a/	88,173	a/	91,096
333415F145	42,000 to 64,999 Btuh.....	16	a/	78,466	a/	99,880
333415F156	65,000 Btuh and over.....	9		12,703		44,148
	Split system:					
333415F167	Under 27,000 Btuh.....	11	a/	520,123	a/	261,271
333415F178	27,000 to 41,999 Btuh.....	12		721,760		516,491
333415F189	42,000 to 64,999 Btuh.....	11		380,418		417,667
333415F195	65,000 Btuh and over.....	7		13,419	r/	26,504
					r/	15,295
					r/	31,836

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			Quantity	Value	Quantity	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 assembly 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-conditioners 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-conditioners 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 8415.82.0135 8415.83.0140 8418.61.0010 8418.61.0015 8418.61.0045 8418.61.0050 8418.61.0060 8418.69.0055	8415.82.0130 8415.82.0135 8415.83.0140 8418.61.0010 8418.61.0015 8418.61.0045 8418.61.0050 8418.61.0060 8418.69.0055
3334153146	Mechanical drinking water coolers.....	8418.61.0020	8418.61.0020
3334155	Refrigeration condensing units.....	8418.99.0005 8418.99.0010 8418.99.0015 8418.99.0020 8418.99.0025	8418.99.8005 8418.99.8010 8418.99.8015 8418.99.8020 8418.99.8025
3334156	Room air-conditioners and dehumidifiers.....	8415.10.3040 8415.10.3060 8415.10.3080 8415.82.0150	8415.10.3040 8415.10.3060 8415.10.3080 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 8414.30.8010 8414.30.8020 8414.30.8030 8414.30.8050 8414.30.8060 8414.30.8070 8414.30.8080 8414.30.8090	8414.30.4000 8414.30.8010 8414.30.8020 8414.30.8030 8414.30.8050 8414.30.8060 8414.30.8070 8414.30.8080 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 8415.81.0120 8415.81.0130 8415.82.0105 8415.82.0110 8415.82.0115 8415.82.0120 8415.83.0050 8415.83.0060	8415.81.0110 8415.81.0120 8415.81.0130 8415.82.0105 8415.82.0110 8415.82.0115 8415.82.0120 8415.83.0050 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.